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Vulcan internal hard drives are now shipping. Vulcan for the IIGS, IIe or II Plus, combines a heavy duty power supply, cooling fan and 20, 40 - up to 200 MEGs of hard drive memory. The 70 watt power supply has nearly twice the capacity of others and its components are heatsinked to the aluminum case. Vulcan's fan runs a cool 104°F compared to 140°F w/o fan and under a full load. Vulcan tests out significantly faster than the fastest drive tested in the last issue of A+. In every category: verifying disks, booting GS/OS, loading AWGS, disk timer, etc. The 20 MEG Vulcan with controller card and software retails for \$649.

Robert J. Carroll has joined AE as president and CEO. Carroll has extensive experience leading technology companies during periods of rapid growth. He has set his sights on taking AE to the next level by aggressively marketing existing products and introducing new products. Company founder Dan Pote continues as chairman and will head the growing research and development department.

Memory card prices have been reduced from \$10 to more than \$700, depending on the card's configuration. The more memory on the card, the greater the savings. For example, AE's best-selling GS-RAM Plus w/1 MEG has gone from \$599 to \$509.

EasyLink communications software is now shipping. EasyLink is a user-friendly telecommunications program for the IIGS, enhanced IIe, IIc and IIc Plus. It includes advanced features like multiple windows, a Mac-like interface, full mouse or keyboard support, VT-100 emulation for both text and graphics and powerful macro capabilities. EasyLink retails for \$99.

Soon to be released Audio Animator is taking full advantage of Apple's new System 5.0 and Apple's MIDI tools. Audio Animator will include MIDI sequencing software along with it's MIDI interface. Audio Animator is also a top-quality stereo digitizer and comes with sound editing software. AA's sound quality is unsurpassed, even for serious audiophiles.

A disk caching option will soon be available for AE's Vulcan hard disk. While Vulcan is already the fastest hard drive available for the Apple II series (and we've extensively tested with System 4.0, System 5.0, with and without RamKeeper, TransWarp GS, etc.), the new caching option will provide even greater speed for mega-performance types. The caching option is compatible with all existing Vulcans and can be purchased with Vulcan or separately.

A new native mode driver for RamKeeper boosts RamKeeper's speed by 25-50%. The driver is now available for RamKeeper owners on the AW2 Expander Disk and requires version 1.4 or later of the RamKeeper ROM. Upgrades are \$19.95.

DISK ACCELERATOR

THE MULTI-KACHE CARD

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You're running a lot of extremely expensive software programs on your Apple II computer. Spreadsheets, data base, graphics, page layout... And you love all this stuff. Except for one not-so-little problem.

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But you don't have to waste your time waiting on disk drives. Our Multi-Kache Card disk controller can make sure of that.

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What this process gives you is speed. **Serious speed.** You won't have to wait for your programs to load or run. In fact, you'd better get your coffee **before** you load your program.

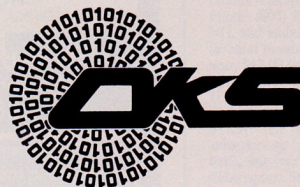
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But The Multi-Kache Card doesn't require a degree in Rocket Science to install or use. You simply plug it into one of the available slots in your Apple computer.

And The Multi-Kache Card is no stranger to your current hardware. In fact, it's compatible with most Apple 3.5 and 5.25 disk drives. And our newest option — the SCSI option — makes it compatible with any SCSI hard disk drive. And makes data transfers up to 10 times faster than any other SCSI board.

Of course, there's a lot more technical information we could tell you about The Multi-Kache Card. But first, try our 15-day trial — at absolutely no risk or obligation. And the time you save by using The Disk Accelerator will give you the leisure to browse through The Multi-Kache Card's impressive specs.

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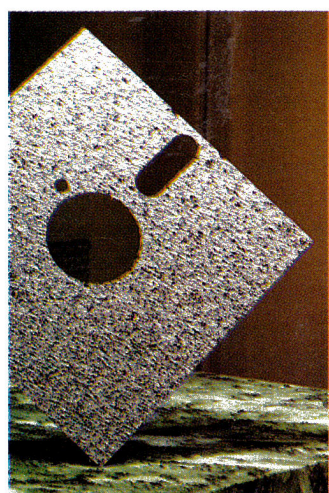


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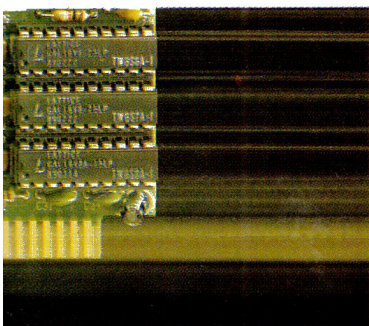
Exciting new features make this 8-bit integrated program even more versatile, efficient, and powerful than the original. Anything AppleWorks 2.1 can do, version 3.0 can do better—and just as easily.

50 **Breaking the Speed Limit**

Don't let the dog days of summer slow you—or your Apple—down. Rev up your II's operations with an accelerator chip or speedup board, and watch your long-distance runner become a champion sprinter.

60 **The Medium Is the Message**

Turn your lectures and speeches into dynamic presentations. Captivate your audience with Apple II graphics and videos that illustrate your point and create an immediate, lasting impression.



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INCIDER'S VIEW

C AUGHT LOOKING

By **DAN MUE** • EDITOR IN CHIEF

We were sitting on the fastball when AppleFest threw us a curve: Things are looking up in the Apple II world.

MY HIGH-SCHOOL BASEBALL COACH used to say, "When you think you have the fastball timed, look out for the curveball."

High school's a distant memory, but that advice holds true both in baseball and in general. I thought I had drawn a bead on the Apple II market: Apple cutting support for the II line, developers not developing, retail stores not stocking II software. . . . It wasn't pretty, but I knew what to expect. The curveball, however, caught me by surprise.

In this case, the curveball was AppleFest/Boston and a couple of product announcements made on its heels. Negative rumors of the fate of the Apple II abounded. We know because we circulated a lot of those rumors. To be honest, there weren't a lot of reasons to be excited about AppleFest. Claris, Electronic Arts, Epyx, Mediagenic, and other prominent software companies had announced they weren't attending. Advertisements and promotional material implied a heavy Macintosh influence.

In baseball talk, we were sitting on the fastball—waiting for AppleFest to bomb—so that we could jump on it. But the curveball of success caught us looking.

Twenty-two thousand Apple II enthusiasts attended AppleFest. And not many of those 22,000 were talking about the Macintosh. They were talking about the latest version of the GS operating system, and about Roger Wagner's HyperStudio; they would have been talking about AppleWorks 3.0 and Broderbund's New Print Shop, too, if they'd known about them.

The newest version of GS/OS, also called System Disk 5.0, adds life to the IIGS. It speeds up some operations so much you'd swear you were looking at a new computer. (See What's New, p. 18.) Software such as AppleWorks GS and Medley, when revised to run under 5.0 and maybe TransWarp GS, act like new programs. And if you've been trying to use the GS on the AppleTalk network, 5.0 is the best thing you could have hoped for.

HyperStudio is the kind of product that makes you realize how powerful the Apple IIGS is. (See Editors' Choice this month, p. 108.) We've been impressed by stunning graphics programs, pow-

erful sound products, dazzling digitizers, and video-overlay cards, but the last piece of the puzzle—the one that makes everything work together—has been missing until now.

If you use an Apple IIe and are beginning to feel neglected, don't worry. There's still plenty to get excited about. HyperCard-like products aren't restricted to the GS. In fact, Techware has been selling Tutor-Tech, the IIe equivalent of HyperCard, for a couple of years. The newest version takes advantage of the Apple II Video Overlay Card. The most exciting thing, however, is that Techware has announced that Tutor-Tech will feature the ability to import Mac HyperCard stacks.

What if you don't care about hyper this and interactive that? If you're content in the pragmatic world of AppleWorks, you'll benefit from the best news of all—AppleWorks 3.0.

The AppleWorks 3.0 curveball caught me off-guard. Claris set me up for it. The company decides not to show its face at the only Apple II show, and then a month later announces a significant upgrade to its 8-bit AppleWorks. What gives?

Whatever the reason for skipping the show, AppleWorks is impressive. It makes the best integrated computer program even better, adding features you've been asking for, but keeping that familiar, comforting AppleWorks look. The changes in 3.0 are subtle, but powerful. (See "AppleWorks 3.0: A New Classic," p. 44, for details.)

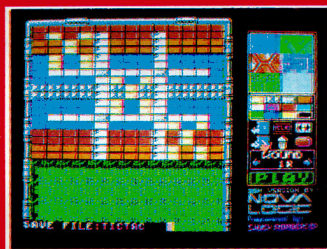
Not to be outdone, Broderbund has announced a revision to the second most popular Apple II program, The Print Shop. While The Print Shop is the standard by which low-cost, easy-to-use publishing programs are measured, it needed a facelift. (See What's New, p. 17.) A tip of the cap goes to Broderbund for not forgetting the product and the people who helped it get where it is today.

Things are looking up in the Apple II world. Of course, if you've read my columns in May and June you wouldn't think so. Maybe I've been getting a little too predictable, looking for bad news the way sluggers look for fastballs. Journalists are like power hitters. You have to throw a curveball at us once in a while to keep us honest. □

RAGE!

DOH RAGES ON IN ARKANOID II!

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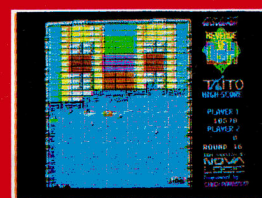
The new Arkanoid Construction Set™ gives you the tools to master the game. Build complex force barriers. Create exciting and original levels of play. Challenge the force of DOH! Arkanoid Construction Set available for Apple IIGS, IBM, and IBM compatible personal computers.



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II GOOD II FORGET

THE APPLE IIGS IS DEAD, LONG live the Macintosh," appears to be Apple's continuing philosophy. If Apple persists in its present course, the future II will be a Mac/Apple II hybrid capable of handling both systems. The company, apparently, is trying to convert all Apple II users to the Macintosh line. Now Apple's trying to force the Mac into the K-12 market with its support and pricing policies.

If Apple wants to continue propagating only the Macintosh line, why not sell the Apple II rights to a company that's interested in supporting the II? Or alternatively, how about creating a separate company, as it did with Claris? A competitively priced IIGS running at 7 megahertz or more, with a megabyte of memory on board, stereo-sound output jacks, built-in SCSI interface, and a math-coprocessor socket would scare the pants off most of Apple's competitors. The problem is it also scares the pants off Apple.

Mark S. Snyder, Engineer
Link Simulation Systems
11800 Tech Road, MS #208
Silver Spring, MD 20904

UP IN ARMS

I'M STILL SHOCKED AFTER READING John Sculley's quote in April's What's New (p. 15). If I need to own a Mac II to continue with Apple Computer in the future, I guess I'd better sell my IIGS today and buy an IBM, or at least consider the PC Transporter.

The Mac II is an amazing machine. The monitor's resolution, the microprocessor's powerful capabilities, and the machine's expandability should make even the boys at Big Blue a little concerned. But its amazing price

tag will make some buyers look to more affordable alternatives. Let's hope the GS and its cousins will be nearby.

Mr. Sculley's statement should have all II users up in arms. We've made a sizable investment in a company whose president is hinting that its future lies with another machine! Granted, even if Apple axed the II line today, there'd be a large enough user base to keep it alive for some time. But don't be naive enough to think that the II line would survive long if Apple nudged it politely out on the street.

David Hindman
8 Wheatland Drive
Hutchinson, KS 67502

STATUS REVIEW

OF ALL YOUR EDITORS, PAUL Statt seems to be most guilty of muddy thinking and faulty logic. His April Status Report ("Write It Yourself," p. 20) exemplifies this point. Mr. Statt described typical programmers accurately. They're mathematically inclined, obsessed with squeezing maximum performance from the hardware, and continue to burn the midnight oil while columnists are fast asleep. He then turns around and says he doesn't care for programs that typical programmers write.

If only programmers were more like him, he bemoans. Mr. Statt admits he's never written a program more complicated than an envelope addresser—hardly the peak of programming excellence. Yet he states that because there are six times as many writers as there are programmers, it's more likely that "some writer will tickle my fancy than some computer programmer will." All he'll end up with, then, is a lot of sluggish, buggy programs to address envelopes.

It's at least six times as hard to be a good

programmer as it is to be a good writer. I agree with Mr. Statt that more programmers would mean more diversity, but they have to be *programmers*, not *writers*. If you want good software, go to a programmer. If you want good literature, go to a writer. And if you want muddy thinking and cloudy logic, read Status Report.

Brent P. Glines
P.O. Box 6284
APO NY 09012

Paul Statt replies, "If there were more programmers like me, it's true there'd be more bad programmers. But there also would be more good programmers if only there were more programmers. A rising tide floats all boats. (That, by the way, is a metaphor, not muddy thinking or cloudy logic.)"

—eds.

WHERE WAS TAWUG?

WE ENJOYED READING "Templates from Heaven" (May 1989, p. 46), but there was one glaring error! You failed to mention The AppleWorks User Group. TAWUG has been in operation for more than four years, sending disks throughout the United States and overseas.

Joseph H. Madden, Jr.
President
Computer C.A.C.H.E.
The AppleWorks User Group
P.O. Box 37313
Denver, CO 80237-7313

Cynthia Field concedes that if the article had been meant as an exhaustive AppleWorks resource guide, she certainly would have included TAWUG. Faced with limited space, however, she selected disks she felt best exemplified the breadth of ready-made AppleWorks applications.

—eds. ►



Live Long and Prosper

Permit us a logical prediction. With Vulcan,[™] the Apple II series will continue to live long and prosper. Applied Engineering's latest triumph, Vulcan, lives!

Vulcan high-speed internal hard disks for the Apple IIGS, IIe and II+, combine high speed flexibility and ease-of-use with sheer, raw power. The result? A quantum leap forward into the Apple II future.

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Choose a Vulcan from 20, 40, 100—all the way to a staggering 200 MEGs. Your Vulcan can grow as your needs grow. Start with a Vulcan sized for your current needs and upgrade to a bigger size later. Use virtually any operating system: GS/OS, ProDOS 8, DOS 3.3, CPM or Pascal 1.3. Vulcan supports them all. Choose your own partitioning scheme. Sixteen partitions with

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Vulcan lives in the space the stock, Apple power supply formerly occupied under your Apple's hood. Just pop out the old one, slip Vulcan into its place, plug in the expansion card and connect one cable.

Your Apple II is finally ready to go up against the big boys.

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WHAT'S IN A NAME?

AS PRESIDENT OF A USER group, I've spent many hours educating our members about public-domain, shareware, copyrighted, and commercially sold software. Then you, a reputable publication, refer a shareware purchaser to the Shareware Connection (Letters, "Shareware Beware," March 1989, p. 12), implying that all the software advertised is shareware. We talked with Randy Brandt and Glen

Bredon; both stated their programs aren't shareware.

There are those of us who support copyrighted, commercially sold software and discourage piracy. Give us a break; don't make it even harder for us to clarify the differences.

Bettie Graves
2537 South Franklin Avenue
Springfield, MO 65807

We understand your concern over misusing the word shareware. We didn't intend to confuse or

trick people into buying "free" software. A lot of excellent Apple II programs exist, but because the developers can't afford to market their products aggressively, many people never discover them. inCider created the Shareware Connection with this premise in mind.

We tested dozens of shareware programs and included only the best in the Shareware Connection. We also discovered that many readers were unaware of high-quality programs such as MiniPaint and ProSel. By providing toll-free numbers and taking credit-card orders, we hoped to provide a service to both our readers and developers.

Shareware purists can lay their fears to rest, however. While we still believe in the concept, we've decided to eliminate the Shareware Connection. —eds.

TRIAL AND ERROR

A LOT OF PEOPLE ARE UPSET with Apple for suing Microsoft for Windows and Hewlett-Packard for its New Wave software interface in the PC world. I feel the idea of whether a company can copyright windows is the same as whether a manufacturer can copyright a car's brake and gas-pedal location. In other words, it's a good idea to standardize some things.

The courts are going to take years to settle this issue. However, we can have a say by writing Apple that we're opposed to the suit. To reinforce how we feel, we should tell the company that we won't buy any more Apple products, unless it drops the lawsuit against Microsoft and Hewlett-Packard. For every sale of 166 \$6000 computer systems, this'll cost Apple a million dollars.

It's better for a company to devote its resources to producing a better product, than to spend its resources trying to stifle free-market competition.

Larry Nestor
6250 Parima Street
Long Beach, CA 90803-2108

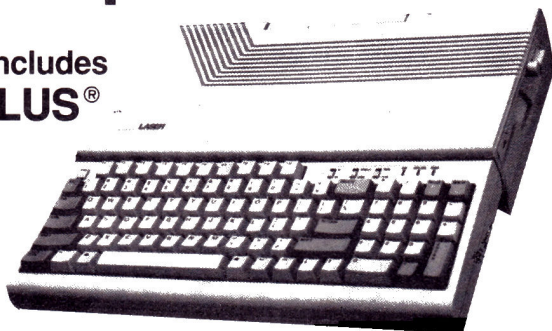
We agree that Apple should devote more of its resources to developing and improving Apple II products. —eds.

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

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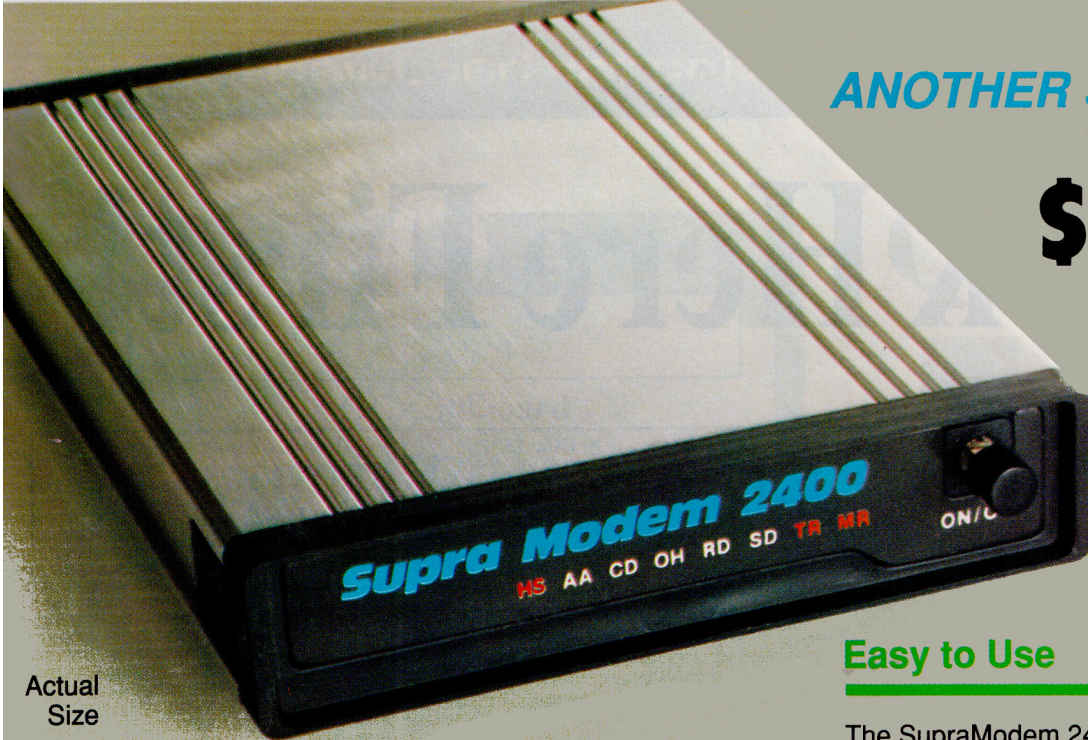
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YOUR HARD DISK SOURCE

HARD-DISKS

It's no secret. SCSI is the key. Apple's big plan for the Apple II is based on SCSI technology.

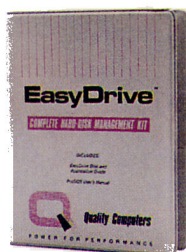
CHINOOK: Full SCSI compatibility, quiet operation, small in size, Apple SCSI interface card, 1

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CMS: Fully SCSI compatible, the CMS series comes with their own interface for the Apple II or you can use Apple's interface, a good bet! Mac compatible. With CMS you can have an Apple II and a Mac share the same unit, simultaneously! 1 year warranty available. Comes in a variety of sizes. EasyDrive recommended but not included. **20 meg. - \$629.00, 30 meg. - \$719.00, 40 meg. - \$769.00, 60 meg. - \$839.00, 80 meg. + - Call.**

SIDER: **D2 - \$499.00, D4 - \$645.00, D4T - \$855, D9 - \$1,465.00, C96 - \$2,155.00.**

EASYDRIVE: Designed to make hard-disks user-friendly for the beginner and professional. Set up custom menus, and launch programs at the touch of a key. Status graphs display disk space and optimization information. Includes a ProDOS beginners book that illustrates ProDOS and examples of hard-disk set-ups. **\$69.95.**



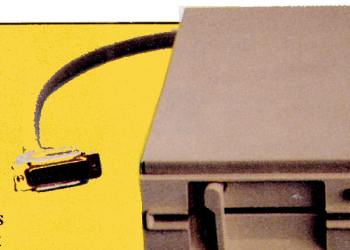
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EASYDRIVE: The complete hard-disk management system for the Apple II. ProDOS 8, 16, GS/OS compatible, and menu-driven. Features include: quick launch, backup/restore,

optimizer, and indexing. The treesurgeon utility puts you in control by displaying a map of the directories, the files, and the commands. You see your hard-disk in terms you can understand **\$69.95**.

RAMUP: Load AppleWorks, Timeout Series Dictionaries, Proterm and all of your favorites onto your ramcard at once.

RAMUP makes using a ramdisk a snap. Menu-driven RAMUP lets you reboot your system to work with unloadable applications like CPM, PASCAL, copy protected games, and then later return to the programs still intact on the ramcard. Features include: backup / restore, auto load, and more. Three years as the top-selling ram disk utility. **\$39.95**.



REPAIRWORKS: In a perfect world a program like RepairWorks wouldn't be necessary. Unfortunately the world isn't perfect and for those who have peered tearfully into a monitor filled with the dying gasps of our precious work, it can almost seem cruel. But, don't despair! RepairWorks can soften the blow of cruel fate when it involves your AppleWorks files. RepairWorks will examine your files and surgically remove the offending problems, reducing or eliminating the need to recreate your work. Available on 3.5 and 5 1/4 disks. **\$39.95**.

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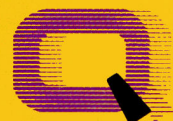
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WHAT'S NEW

By the *inCider* staff

II AT WORK

Barney Stone, creator of DB Master, the professional database manager for the Apple II, announced at AppleFest/Boston last May that he would begin publishing *II At Work: Apple II Productivity News*, a newspaper for people who use Apple IIs.

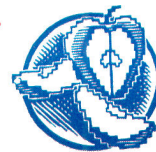
Stone will be the editor of the new publication, which will be mailed without charge to qualified subscribers. The publisher is James Pennypacker, a colleague of Stone's at Stone Edge Technologies (Maple Glen, PA).

In his first editorial, Stone promises that *II At Work* will "dig out the real news about the Apple II, and report it in a way that the magazines generally do not." The front page of the first

issue features an article on "AppleFest Dropouts," such as Claris, Electronic Arts, Mediagenic, and Berkeley Softworks—publishers and vendors that decided not to exhibit at AppleFest/Boston. A Claris spokeswoman is quoted as saying that the company is "moving the AppleWorks family to the K-12 education market."

II At Work also features "company newsletters" with tips and hints from Stone Edge Technologies, Ohio Kache Systems (Dayton, OH), Berkeley Softworks (Berkeley, CA), and Applied Ingenuity (Baldwin Park, CA), plus advertisements from those companies and others.

For information contact *II At Work*, P.O. Box 3200, Maple Glen, PA 19002, (215) 641-1825, or circle 352 on the Reader Service card. —P.S.



APPLE BITS

●The **Laser Computer** may be the only 8-bit Apple II sometime in the future. Laser (Lake Zurich, IL) showed a prototype of a portable Apple II clone at AppleFest/Boston, and rumors were flying that the company would license Mico! BASIC to replace the expensive Microsoft BASIC that Apples now use in ROM.

●**Beagle Bros** (San Diego, CA) had its usual strong presence at AppleFest/Boston, but we were concerned to hear rumors that Beagle was looking for a few good Macintosh programs. Does anybody remember Beagle Bros' MS-DOS product?

●**Steve Wozniak** says he wants the Apple II world to know that his "no show" at AppleFest/Boston was *not* a statement on the health of the market; he had just returned from a vacation and was worn out.

●**Applied Engineering** is doing very well with its Apple II products, thank you. We hear the Carrollton, TX, giant had its biggest sales day ever the day *before* AppleFest/Boston, and it sure didn't look as though people were leaving the Applied booth at the show with full wallets.

●Some gossip reports that the next Apple IIGS (fall 1989?) will include HyperCard and Macintosh disk drives that will let the GS run **Mac HyperCard** stacks. Slowly. No comment from either of the two hypertext companies in the Apple II world, Roger Wagner Publishing and Techware.

●*inCider's* pretty certain that the addition of "resources" to **GS/OS Version 5.0** is the first in a series of improvements in the Apple IIGS that will enhance the portability of Mac programs.

NEWS

Zip Technology (Los Angeles, CA) had plenty to sing about at AppleFest/Boston:

- Its vaporous past has been all but forgotten by the press and public.
- Its 4-MHz and 8-MHz chips are flying off the shelves.
- Its major competitor in the Wrestlemania atmosphere of the 8-bit Apple II chip-accelerator market was nowhere to be seen.
- Its 8-MHz GS accelerator will reportedly ship this fall.
- And its new executive vice president, Dick Stivers, seems to bring the marketing savvy the company needs.

So if you heard any singing at AppleFest, it was probably Zip Technology celebrating. Zip enlisted the help of the Harvard Krokodillos to add a touch of class and a bit of fun to AppleFest. The Harvard boys wooed the crowd in the Zip booth with a performance of *Zippity-Do-Dah*, featuring rewritten lyrics that would make Barry Manilow proud:



*Zip-pity-do-dah! Zip-pity-ay!
My oh my, what a Zip-pity-day!
Speed up your Apple with Zip Chip today,
And Zip-pity-do-dah! You're Zippin' away.*

You had to be there—but if you attend a computer conference in the near future, you may get the chance to hear a live performance. According to Zip's Viqui Denman, AppleFest was only the first event in the company's "Singing with ZIP!" campaign. The program encourages school glee clubs, choruses, and classrooms to earn Zip Chips by singing *Zippity-Do-Dah* at the company's booth at trade shows and conferences around the country.

At AppleFest/Boston in 1988, Zip Technology handed out chocolate-chip cookies to appease angry Zip Chip-less customers. A year passed, and Harvard students were singing for their chips. If you were Zip Technology, all you could say was "My, oh my, what a wonderful day."

—Dan Muse, Editor in Chief



THE NEWS EDITOR'S CHOICE

HARDWARE The Apple IIGs' Achilles' heel is its battery: It's not replaceable, so when the juice runs out, so does your GS. How can you tell the battery's dead? The Control Panel comes up in 40 columns, and the internal clock can't remember what year it is, to name only two symptoms. So what do you do?

You can curse Apple Computer for planning obsolescence, but if you want to get your GS running again, send \$9.95 to Nite Owl Productions, 5734 Lamar, Mission, KS 66202. Nite Owl, a widely known developer of utility software for programmers, will ship you a brand-new 3-volt lithium battery just like the one that came with your GS. You can install it yourself; wire cutters are preferred, but nail clippers or scissors will do.

Nite Owl's *Slide-On IIGs Replacement Battery* saved two GSes that *inCider* was about to dump onto a pile of Apple IIIs, Lisas, and a Timex Sinclair. It could do the same for yours. For more information, call (913) 362-9898, or circle number 351 on the Reader Service card.

—P.S.

GAMES R US

First among an array of up-and-coming games announced at AppleFest/Boston is **Gnarly Golf** from Britannica Software (San Francisco, CA). It's yet another GS miniature-golf game in the tradition of Zany Golf and Mini-Putt (from Electronic Arts and Accolade, respectively).

Britannica was putting the finishing touches on **Revolution '76**, a simulation of the struggle for American independence in the eighteenth century.

Imagine *Balance of Power: The 1776 Edition* and you'll have some idea of the complexity of *Revolution '76*. It should be ready for sale by late summer.



GAMES

Sword of Sodor from Discovery Software (Annapolis, MD) was demonstrated at the Future of IIGS Games panel. Its gruesome graphics and dazzling animation showed what Apple's 16-bit machine is capable of doing. Discovery is also releasing **ZOOM!**, a GS arcade game.

The Duel, the much-anticipated sequel to *Test Drive*, was speeding along over at Accolade (San Jose, CA). This one promises to be the ultimate driving simulation for the GS. It should be available by late summer. **California Challenge** and **Supercars**, two supplemental disks that will be released along with *The Duel*, let you fly down Pacific Coast Highway in the latest from Ferrari, Porsche, and Chevrolet.

—Lafe Low, Review Editor



SOFTWARE

THE BEST GETS BETTER

One and a half million copies of *The Print Shop* weren't enough: Broderbund Software (San Rafael, CA) has made **The New Print Shop** good enough to sell another million and a half.

The New Print Shop (\$49.95) sports a new interface and higher-resolution graphics—it will be easier to print even better greeting cards, banners, posters, calendars, invitations, sign letters, menus, letterheads, and all the other things you used *The Print Shop* to create.

The New Print Shop also offers an on-screen preview so that you can see what you get before you print it. If you don't like your first try, it's easy now to make changes in your work. You can use more than one picture or type of letter on each page, and you can place them anywhere on the page.

You can make daily, weekly, monthly, and yearly calendars with *The New Print Shop*, jobs you once needed *The Print Shop Companion* to print. But don't worry—there'll be a *New Print Shop Companion* (\$39.95), with border and font editors, an envelope maker, and some desktop-publishing templates for creating newsletters and flyers.

Broderbund has also released three disks of clip-art graphics, fonts, and borders—a sampler, a party disk, and one for schools and businesses (\$24.95 each).

Schools may also want *The New Print Shop Lab Pack* (\$119.95), including a new teacher's guide and a set of five backup disks. (The New Print Shop is copy-protected.) Developed in cooperation with educators, the teacher's guide takes advantage of the software's new features and includes lesson plans, suggested activities, and reproducible materials.

If you bought *The Print Shop* after May 25, 1989, you can upgrade to the new edition at no cost; other *Print Shop* owners can upgrade for \$20.

For more information call the New Print Shop Hotline at (800) 999-3256 (educators call 800-521-6263).

—P.S.



IT'S A WHOLE 'NOTHER COMPUTER

Every month software companies introduce new GS programs that are fun, educational, and productive, but GS/OS System Software Version 5.0, announced at AppleFest/Boston last May, will transform your Apple IIGS into a whole new computer. GS/OS 5.0 is so fast you won't believe your screen—when you first use it you'll swear somebody secretly installed an accelerated microprocessor in your IIGS.

Apple has added a roster of new features to this operating system, too. The Finder (desktop), for instance, *seems* almost identical to that found in previous versions. But look carefully: A new pull-down menu called "Disk" does all your disk work—formatting new floppies and renaming them, for instance. A really close scrutiny reveals that all text on the Finder screen now uses lowercase as well as uppercase in menus, disk names, and filenames.

Pull down the Apple menu, and you'll find an additional new desk accessory (NDA), the Control Panel. This one uses graphics, while the old version (a classic desk accessory, or CDA, accessed by the awkward control-open apple-escape key sequence) used text. The functions of the NDA Control Panel are unchanged: Switch screen colors, adjust speaker volume, and set slot assignments, for example.

Menus that used to run off the bottom of the desktop in older versions of GS/OS now scroll—you can list more than 15 fonts in a single menu, for example.

GS/OS 5.0's Get Info command can calculate the true size of any disk file or volume, including that of a subdirectory. Previous versions of GS/OS calculated every subdirectory at 2K, ignoring its contents.

GS/OS 5.0 includes the Finder, System Tools, and File Translators, and is fully prepared for the AppleShare network right out of the box. Older versions of GS/OS required you to buy a bundle of software add-ons and a large jar of aspirin to get AppleShare running on a GS.

And while you're checking out GS/OS' new features, you'll notice something else that's changed, too: Everything's happening faster. Windows, for instance, open twice as quickly as they used to; Apple has rewritten the software tools controlling them. All graphics images are drawn faster, too, because Apple has also revamped QuickDraw, the GS graphics toolset, making pictures appear as much as ten times faster.

Many of GS/OS 5.0's other improvements are hidden from view, but you'll still notice the speed. Apple has drastically increased the rate of data transfer between the computer and its disk drives; 3½-inch drives and standard hard disks both work faster, and the new small-computer-systems interface software tools in GS/OS 5.0 can read and write to SCSI hard disks 400 percent faster than earlier versions. (Unfortunately Apple hasn't rewritten the GS/OS printer drivers yet. You'll still print slowly.)

A new feature of GS/OS called Express Load can boot programs at a rate that will astound experienced GS users. For instance, you won't have to wait so long for AppleWorks GS to load—it's now up and running in less than a minute.

The entire GS/OS 5.0 program now loads itself into RAM for instant access. When you quit AppleWorks, for instance, the Finder appears on screen almost instantly, not 15 seconds later after being loaded from disk.

To use GS/OS 5.0 you must have an Apple IIGS with at least 512K of RAM, ROM version 01, and at least one 3½-inch drive. You'll want to have at least 768K of RAM to use the new operating system on a network or to really see the increase in speed. With its low retail price of \$39, this is one piece of software you won't want to wait for.

—Jeff Cable, West Coast Editor

WIN VALUABLE PRIZES!
TML Software (Jacksonville, FL), Applied Engineering (Carrollton, TX), and *inCider* are teaming up to bring you the biggest TML programming contest ever. To demonstrate their support for the Apple IIGS market, TML and Applied will be giving away thousands of dollars' worth of hardware and software, and you may just see your smiling face and your TML program published in *inCider*. TML promises we'll be seeing some exciting new enhancements to TML Pascal this summer, and to TML BASIC soon. If you're a TML Pascal programmer, look for details about the contest in next month's *inCider*, or call TML at (904) 636-8592.
—P.S.

B EAGLE PUPPIES

Beagle Bros (San Diego, CA) showed five new products at AppleFest/Boston, three of which Apple users have seen before.

As previously announced, Beagle Bros now sells Gary Little's **Point-to-Point** (\$99.95). The software has been upgraded; apparently the new version's a better terminal-emulation program than the old one and supports expanded memory better.

Beagle Bros also announced that it will release **TimeOut TeleComm** (\$69.95), "The Communications Solution for AppleWorks Users." According to Randy Brandt at Beagle, the company "doesn't mind competing with itself, as long as we sell the product." Watch for a comparison of TimeOut TeleComm and Point-to-Point in *inCider*.

The programming utility **Program Writer** (\$49.95) was a success for The Software Touch before Mark Simonsen took his company and product back to Beagle Bros. Program Writer does for BASIC programming what a word processor does for writing a novel: It lets you concentrate on the creative parts, not the page numbers. Program Writer lets you insert, delete,

find, and replace lines; it numbers lines for you and even lets you create macros.

The neatest of the new is **TimeOut ReportWriter** (\$79.95), which replaces the report-formatting module of the AppleWorks database with a relational report generator. Now, you can work on more than one file at once—in fact, making changes on the ReportWriter screen can change more than one database, spreadsheet, or word-processor file.

When you compose text with ReportWriter, you can use information from as many as 11 different files. ReportWriter also adds spreadsheet functions such as math and lookup tables to reports.

GS Font Editor (\$49.95) has nothing to do with AppleWorks except that it runs on 8-bit Apples in addition to the Apple IIGS, but it's something GS users have been waiting for. It's designed to edit the standard GS system fonts used by all GS programs. You can create your own fonts for foreign languages, desktop publishing, or sign making (up to 127 points). It's fast, simple, and useful—you can tell it's from Beagle Bros.

—Paul Statt, Senior Editor

APPLEFEST TECHNO-NEWS

AppleFest/Boston (May 5-7) may have titillated more than satisfied Apple users' pent-up expectations for speed and performance.

First, the releases: Sales of Applied Engineering's (Carrollton, TX) **TransWarp GS** alone probably paid for the company's booth space. This auxiliary-slot expansion card accelerates the GS to about 2.7 times faster than its current (and lumbering) "fast" speed. Disappointment over Applied's earlier promise of a 7- to 8-MHz TransWarp GS were somewhat tempered by a rumored 10-MHz accelerator in the works. Applied also showed its new Vulcan internal hard-disk drive, which should be ready sometime this summer.

Zip Technology (Los Angeles, CA) fascinated the IIe/IIc crowd with an 8-MHz **Zip Chip** accelerator for the slow (1-MHz) and ancient 65C02. The new chip includes memory caching for even faster direct-memory-access (DMA) throughput. AppleWorks on a IIe equipped with the 8-MHz Zip Chip handily outperforms its sibling on a GS running a TransWarp GS.

First Class Peripherals (Carson City, NV) added 70- and 90-megabyte hard-disk drives (models D7 and D9) to its already impressive array of "turbo" mass-storage devices. And, in response to Apple II user inquiries, the company also introduced a "turbo" version of its popular operating-systems partition for the 40-megabyte D4T hard drive. (*Partitioning* software divides a hard drive into DOS 3.3, ProDOS, CP/M, and Pascal segments.)

First Class also introduced two new Apple-SCSI-compatible (small-computer-systems interface) subsystems, which, unlike their traditional drives, fit quite comfortably between an Apple II and a monitor.

On the software front, Roger Wagner Publishing's (El Cajon, CA) **HyperStudio**

was the talk of the show. Modeled on Apple's HyperCard for the Mac, HyperStudio embodies the next generation of software development for the GS—multimedia database management (graphics, video images, sound, and text). Roger Wagner's show special included two free updates, underscoring the product's infancy, not to mention its complexity. If show sales are any indication, however, HyperStudio should attain a ripe old age. (See this month's Editors' Choice.)

Micol Systems (Toronto, Ontario) introduced an improved **Advanced BASIC** package for 8-bit Apple II and Laser 128 computers. It includes an enhanced set of integral commands for ProDOS, sound, and double low- (80 by 47) and high-resolution (140/560 by 192) graphics. Rumor has it that Micol might become the on-board BASIC for the new Laser.

Lynx Computer Products (Baldwin Park, CA) demonstrated **SuperGraphix 256** (formerly SpectraGraphix 256), a toolset of 35 additional Applesoft BASIC commands (ampersand-activated) for access to super-hi-res graphics on the GS that include editing and implementing graphics shapes, palettes, fonts, and animation.

Now for the titillation: The latest and greatest Apple IIcs operating system, **GS/OS Version 5.0**, is near completion. (See the accompanying report, "It's a Whole 'Nother Computer.") ByteWorks (Albuquerque, NM) has announced that **ORCA/C** is also nearly ready. In addition, the company whetted developers' appetites with the promise of a summer release of a high-performance GS BASIC.

Finally, Simple Software Systems' (Marietta, GA) **GeneSys**, should it perform as promised when released in September, will eliminate most of the drudgery of GS desktop programming. It'll literally write code for you.

—William P. Kennedy, Technical Editor

3

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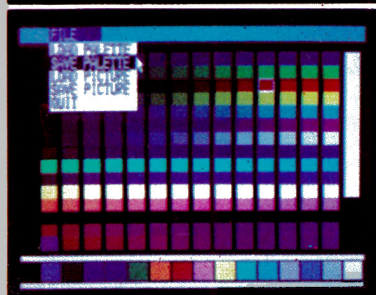
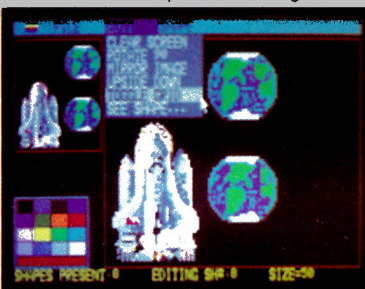
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STATUS REPORT

SOMETHING STRANGE

By PAUL STATT * SENIOR EDITOR

With an Apple II and *Chaos*, you may understand what the next winner of the Nobel Prize is talking about.

SOMETHING STRANGE IS HAPPENING inside your computer: You can create some outlandish pictures with a two-column AppleWorks spreadsheet or the simplest of BASIC programs.

Something strange is also happening in science and math. Look at James Gleick's *Chaos: Making a New Science* (Viking Penguin, New York, 1987). Note the bizarre color photographs of Mandelbrot plots, intricate as paisley neckties, and almost as commonplace.

But Gleick's *Chaos* is different from other books on the subject. Gleick answers the question my editor always asks me about chaos: "What good is it?"

Chaos is a new kind of science, one that finds order in disorder and disorder in order. One of its avatars was an ecologist named Robert May, who in the early 1970s noticed that an equation ecologists use to measure population growth had some unusual properties.

The equation is $P_{n+1} = r * P_n(1 - P_n)$. P_n is last year's population, P_{n+1} is this year's; r is a constant that expresses the "rate of growth" of a population. The gist of the equation is that this year's population depends on last year's.

If you own spreadsheet software, you don't have to write a program to see for yourself. Using AppleWorks, put a starting figure into cell A1, then this formula into A2: $+ C1*A1*(1-A1)$. Copy the formula into cells A3-A100, and you can simulate 100 years of population growth. (Copy C1 *absolutely*—it's a constant—and A1 *relatively*.)

By the way, you have to decide what constant goes into cell C1. Try some numbers between 2 and 4, but experiment with it first. As you try possible starting populations (A1) you'll discover that ecologists think of them as fractions between zero and 1. Try a starting population of 0.1 (A1) and a rate of growth of 2 (C1). You should find that after only seven years, the population levels out at 0.5: It converges. Nothing unusual about that; you expect populations to reach equilibrium.

But try changing the rate of growth to 4 (C1). The population doesn't keep rising from year to year, it doesn't keep falling, and it certainly (at least

for the first hundred years) doesn't level out.

What's happening? What you see as you iterate the formula $A(n+1) = +C*A(n)*(1-A(n))$ with C equal to 4—for example, $A2 = +C*A1*(1-A1)$ —is the onset of chaos. It turns out that chaos is what population fluctuations have in common with the weather, the stock market, and maybe even the creation of life itself.

One physicist credits his son's Apple II with convincing him that the new science has merit. Apple II owners can be proud when they read that. Your little computer, the computer Apple wants to see in every kindergarten in the world (and nowhere else), can do real math and persuade real physicists.

A brief program accompanies this column to persuade you. When it's running, you'll see what happens to a population over a period of 280 years for

Program listing. Chaos of population growth.

```
10  HGR : GOSUB 100: HOME : VTAB 21:
    ONERR GOTO 150
20  PRINT "For Y = C * Y * (1 - Y)
    where": VTAB 24: PRINT "(Press any key
    to pause)"
30  FOR C = 2.5 TO 3.9 STEP .01
40  VTAB 22: HTAB 10: PRINT "C = ";
    (INT ((C * 100) + .5)) / 100;" ";
50  Y = .1: FOR X = 0 TO 279: HPLOT X,
    INT (1000 * Y / 8)
60  Y = C * Y * (1 - Y): NEXT X
70  IF PEEK (49152) < 128 THEN 90
80  POKE 49168,0: GET A$: PRINT
90  GOSUB 100: NEXT C: GOTO 150
100 HCOLOR = 3: HPLOT 0,0: CALL -3082
110 HCOLOR = 0: RETURN
150 TEXT : HOME : END
```

various values of the "growth constant," C. Population growth becomes chaotic at $C = 3.7$, but for some reason becomes predictable at 3.74.

Nobody knows "why," and your Apple II isn't going to tell you. You're not likely to win the next Nobel Prize, but with an Apple II and *Chaos* you may understand what the person who does win is talking about. □

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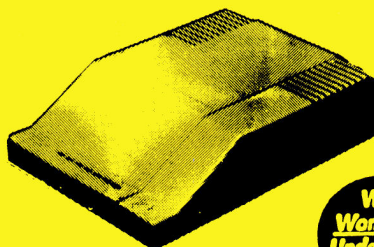


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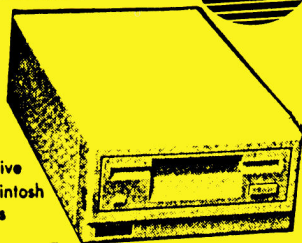


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PANEL OF EXPERTS

You don't need a special program to re-enable access to the control panel, because it's restored whenever you hard-boot the GS.

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

CONTROL-PANEL ACCESS

I'M A TEACHER WITH A ROOMFUL of Apple IIGS computers. They're great machines except for one thing: The students enjoy changing the control-panel settings so that their software won't work. Is there any way to disable access to the control panel?

James Vyvyan
Union Grove, WI

The BASIC code shown in the accompanying **Program listing** should stop those control-panel pests. Type in the program (*Disable.CP*) and SAVE it as *Startup* on a disk containing *ProDOS* (8-bit) and *BASIC.System*. Then boot that disk each time you have to "hard-boot" by turning on the power or pressing *Open apple-Control-Reset*.

When *RUN*, *Startup* *POKEs* into memory (line 40, using *DATA* from lines 100-120) and executes (line 50) a short machine-language routine that disables access to the control panel. It then asks you to specify a boot slot for your student's program disk (lines 60-80). Insert into the appropriate drive and select 5 to boot a 3½-inch disk or 6 for a 5¼-inch disk, for example. You don't need a special program to re-enable access to the control panel, because it's restored whenever you hard-boot.

For technologically curious readers, *Disable.CP* uses the *SetVector* tool in the *Miscellaneous* tool set

to point the interrupt generated by pressing *Open apple-Control-Escape* (*IRQ.DSKACC*) away from the GS' ROM-based control-panel program. Normally (at least in the current GS), the *IRQ.DSKACC* vector address, located in memory at *\$E1/0049-4B*, points to the control-panel routines. *Disable.CP* re-directs that vector address to *\$\$F/B49C*, which contains the codes *CLC*, *RTL*. The *IRQ.DSKACC* interrupt still occurs, but essentially does nothing.

JAMMIN'

WILL I DAMAGE MY GS IF I use a cassette deck to amplify its audio output? I've got "phono/line" input channels on my stereo cassette, which has an amplifier, graphic equal-

izer, and detachable speakers. The quality of the sound should be superior to the GS alone. But how do I make the connections?

R. Fernandez
Eielson AFB, AK

Connecting the audio output from your GS to a cassette deck is a great idea. Sound emerging from the GS audio-output (headphone) jack can handle a 600-ohm load, so you can connect it safely to the input of just about any audio amplifier. Indeed, your connection is a great arrangement should you want to record on audio tape the musical scores produced by the excellent GS sound system.

Most electronics-parts stores have the plugs and wires to make the connections: from the "miniature" stereo headphone jack on the GS to the auxiliary (aux), "line," or even microphone (mic) input jack(s) on your record player, stereo, or tape deck.

Anticipating the use of headphones, Apple uses a stereo connector for audio output on the GS even though the sound isn't stereo—it's monaural. You really need only one audio extension cable, not two (stereo) cables (at about twice the price), to connect your GS to a remote amplifier.

If you're handy with a soldering iron and are willing to make your own cable, here are the connections. Solder the center wire of a single-core coaxial cable (audio) to the tip and center segments, ►

Program listing. *Disable.CP*.

```
10 REM Disable access to the Control Panel [6982]
20 REM by William Kennedy [3553]
30 REM Copyright 1989, inCider [4733]
40 FOR I = 0 TO 23: READ N: POKE 8192 + I,N: NEXT I [3132]
50 CALL 8192: PRINT "The Control Panel is now NOT accessible..." [3900]
60 PRINT : PRINT "Boot the disk is which slot (1-7)?": [2464]
70 GET A$: PRINT A$: [1135]
80 IF VAL (A$) < 1 OR VAL (A$) > 7 THEN PRINT CHR$ (7); CHR$ (8);: GOTO 70 [4600]
90 PRINT CHR$ (4); "PR#"; VAL (A$) [1690]
100 DATA 24,251,194,48,169,18,0,72 [5897]
110 DATA 244,255,0,244,156,180 [5035]
120 DATA 162,3,16,34,0,0,225,56,251,96 [6870]
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Applesoft Proofer Program

Carefully type in the Applesoft BASIC program shown in *Listing 1* (ignore the bracketed numbers!) and SAVE it on disk as MAKE.PROOFER; it POKes the PROOFER program into memory (line 50).

If you're using DOS 3.3, type in lines 1000-1020 shown in *Listing 2* instead of those in *Listing 1*.

Now type RUN. If you entered the program correctly, you should see the message "Proofer installed!" and a flashing cursor adjacent to the BASIC prompt (|).

If not, press Control-Reset, LOAD MAKE.PROOFER, fix the problem, SAVE, and try RUNNING it again. Most often, you can find the error in one of the DATA statements.

If all's well, type LIST. An inverse number should appear following each program line.

Numbers should match those appearing in brackets in *Listing 1*. If not, make sure you typed the program correctly, then recheck DATA.

Use the Proofer to compare the numbers generated by your LISTed programs with those we publish. If they're the same, you typed the line(s) correctly and the program should work.

You can activate the Proofer each time you start up BASIC from ProDOS or DOS 3.3 by typing RUN MAKE .PROOFER.

Or, once you run MAKE.PROOFER, you can BSAVE the machine-language program it creates as PROOFER, A\$300,L\$C7 on your disk. You then can BLOAD PROOFER and CALL 768.

Also, if you reset your Apple or use the PR# command, you'll disconnect the Proofer. Type CALL 768 to restart it. For example, to get a listing of your program with the proofer numbers on your printer, use the following sequence of commands:

- 1) LOAD or type in your program.
- 2) PR#1 to activate the printer.
- 3) CALL 768 to restore the Proofer.
- 4) LIST should print your program.
- 5) PR#0 to restore printing on screen.
- 6) CALL 768 to activate the Proofer.

Proofer doesn't count spaces between REM and its message or DATA and the data values. So, there shouldn't be a difference in the proofer number between

10 REM Only one space after REM
and

10 REM Five spaces after REM

Trailing spaces after a REM message or DATA list *do* count. You might first try editing a DATA line with an incorrect proofer number; make sure to press Return at the end of the line to see whether the proofer number changes.

In addition, the proofer number includes the order in which you enter a line, particularly the order of values in a DATA statement. So, 10 DATA 1,2,3 will generate a different proofer number from 10 DATA 1,3,2.□

—W.K.

Listing 1. ProDOS version of MAKE.PROOFER.

```

10 REM MAKE.PROOFER -- NEW ProDOS version 2.1 [7738]
20 REM by Bill Kennedy [3084]
30 REM Copyright 1989, inCider [4733]
40 REM [194]
50 FOR I = 768 TO 966: READ N: POKE I,N: NEXT I [2872]
60 CALL 768 [685]
70 TEXT : HOME : PRINT : PRINT "Proofer installed!" [2530]
80 PRINT "BSAVE it as PROOFER,A$300,L$C7" [6170]
90 END [308]
1000 DATA 162,29,160,3,173,48,190,141,182,3 [3496]
1010 DATA 173,49,190,141,183,3,142,48,190,140 [3674]
1020 DATA 49,190,169,0,133,60,133,61,96,201 [3514]
1030 DATA 141,240,3,76,178,3,134,70,132,71 [5275]
1040 DATA 186,138,105,7,170,189,0,1,201,214 [5436]
1050 DATA 208,7,189,255,0,201,229,240,28,189 [5614]
1060 DATA 253,0,201,40,208,6,169,0,201,141 [5325]
1070 DATA 208,15,189,255,0,201,13,240,93,169 [5612]
1080 DATA 0,133,60,133,61,240,85,165,60,5 [5145]
1090 DATA 61,240,23,32,87,219,32,87,219,165 [7673]
1100 DATA 50,72,41,63,133,50,166,60,165,61 [7460]
1110 DATA 32,36,237,104,133,50,160,0,132,60 [7749]
1120 DATA 132,61,177,155,200,17,155,240,43,200 [8374]
1130 DATA 177,155,200,24,113,155,133,66,32,191 [8413]
1140 DATA 3,177,155,240,27,32,184,3,177,155 [7725]
1150 DATA 240,20,201,32,208,3,200,208,245,72 [1211]
1160 DATA 32,184,3,104,201,58,240,229,177,155 [1280]
1170 DATA 208,243,166,70,164,71,169,141,141,67 [1318]
1180 DATA 3,76,0,0,69,66,133,66,24,101 [1099]
1190 DATA 60,133,60,144,2,230,61,200,96 [1092]

```

Listing 2. Substitutions for DOS 3.3 version.

```

1000 DATA 162,29,160,3,173,83,170,141,182,3 [3481]
1010 DATA 173,84,170,141,183,3,142,83,170,140 [3669]
1020 DATA 84,170,169,0,133,60,133,61,96,201 [3502]

```


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and the coaxial cable's shield to the "ground" lug of a "miniature" stereo plug.

Now at the other end of the extension cable, solder on a plug that fits into your audio amplifier's input receptacle—it's most often an RCA-type connector.

When listening to the GS in stereo, set your amplifier to "mono" (monaural) mode so that the system will send sound to both speakers.

Alternatively, solder in or purchase a Y connector that'll jumper your audio-extension cable into both inputs on your stereo amplifier, so that the system will send Apple IIGS sound automatically to both stereo channels. Now crank up the volume and blast away.

COPY PROTECTION

RECENTLY TRIED BOOTING A Broderbund game that runs fine on a friend's IIe, but on my IIc the disk drive just whirls. I have another Broderbund game that also won't boot on my IIc. Is there something wrong with my computer, or am I just stuck with incompatible software?

Jay Moorman
Sunman, IN

A similar problem occurred on one of my older IIes when I tried to boot a copy of Broderbund's *Print Shop* the first time. I contacted the company's technical hot line and found out that the disk's copy-protection scheme requires that the host disk drive be in top condition.

I re-aligned the drive, adjusted its speed, and cleaned the heads, and the problem disappeared. I suggest you have your local dealer do the same for your IIc drive.

QUICKIES

Strong recommendation for Cameleon robotics-computer interface. Great with LCSI LogoWriter. (Cameleon, 492 Ste-Elizabeth, #3, Longueuil, Quebec, Canada J4H1K41.)

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MACROMATE



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Macro program; 768K Apple IIGS, one 3½-inch
drive, ProDOS 16 or GS/OS; \$49.95

Rating: ♦♦♦♦♦

Call me lazy if you will, although I prefer *efficient*. I've always liked using keyboard macros—programs that let you enter lines of keystrokes with an open-apple or option-key combination.

MACRO MAKING

Until recently, however, all the easy-to-use commercial macro programs were designed to work strictly with AppleWorks. But now that restriction's beginning to fade for IIGS

owners. Roger Wagner's MacroMate provides macro capabilities for many programs, including AppleWorks.

MacroMate installs itself as a classic desk accessory (CDA) when you place it in the Desk.Accs folder; you can use it with only ProDOS 16 and GS/OS programs. The MacroMate disk comes with four prepared macro files—two demonstration files to use with the tutorial and two files to use with AppleWorks and Applesoft BASIC.

Two relatively simple methods let you create new macros or change an existing one. You can either record a macro as you're using it, or change it with the MacroMate macro editor.

NOW RECORDING

Recording a macro within another program lets you see what the macro's doing as you write it. To begin recording, press Control-Option-Escape. Type the macro's name, then type its command lines *slowly*. While I was typing several lines into a macro, everything appeared on screen; when I played the macro back, though, some characters were missing. Many programs will react in a similar delayed manner, so you should be familiar with the procedure you're recording, and type the instructions carefully.

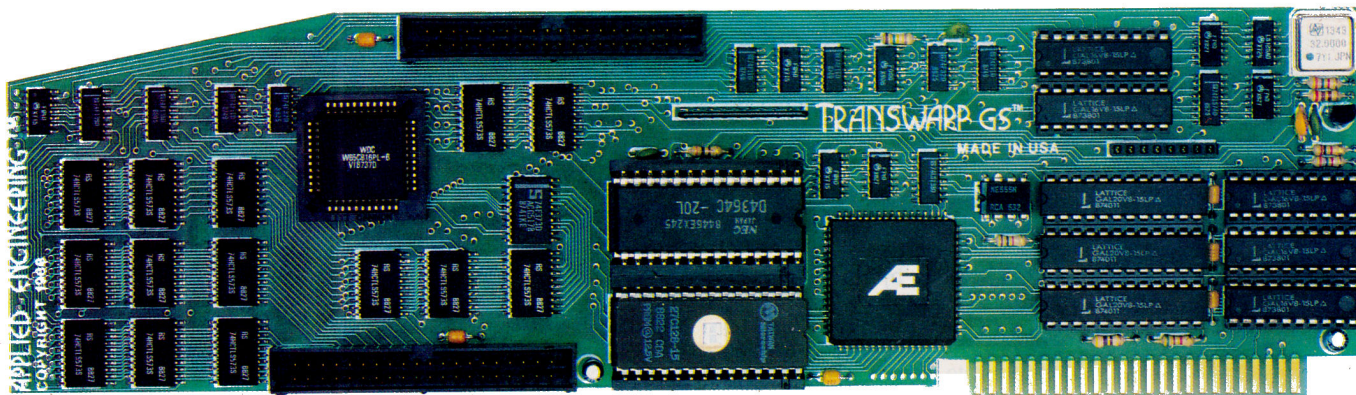
The recording process doesn't prompt or instruct you in any way, so at first you'll have to record macros with the manual open, following the instructions step by step. Fortunately, the manual is clearly written and well organized. When you've finished writing, press Shift-Escape to save your macro, which is now ready for use.

THE MACRO EDITOR

Your other option for writing or changing a macro is to use the macro editor. To get into the editor from any program, press Control-Open apple-Escape to bring up the Classic Desk Accessories menu, and select MacroMate.

The editor screen is divided into two parts. The top section lists all letters you can use as macro titles. MacroMate can define macros for almost all keyboard and keypad keys. Combinations with the control, open-apple, and option keys provide 384 possible macro titles. Select a macro title, then press Shift-Down Arrow to move to the lower part of the screen to write your instructions.

When writing your macro, simply type the keys you want executed in the proper ►



Fan mail GS

"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."

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"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."

— Joe Kohn, The Source

"Once I started using the original TransWarp in my old IIE, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."

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— George Dombrowski, Jr., Chicago, IL

"TransWarp GS will be the best \$400 you ever spent."

— Dan Muse, Editor in Chief, Incider

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— Dean Esmay, A2-Central

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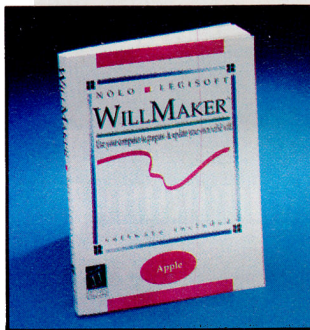
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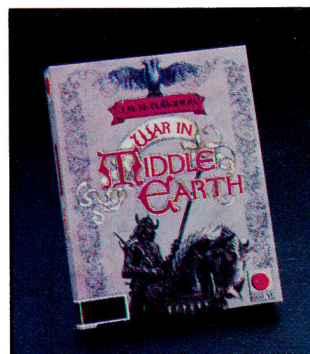


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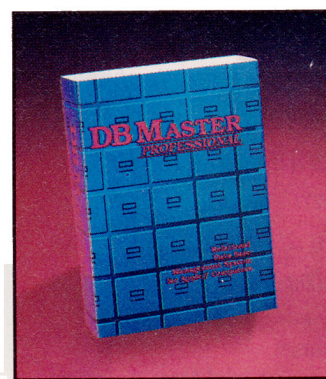
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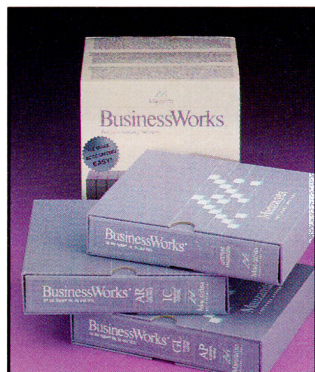
Abracadabra		Print Shop (IIgs) or Fantavision (IIgs)	39.
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Award Maker Plus (IIe & IIgs)	24.	Lynx Computer Supergraphix 256	69.
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Print Shop (AP or C+) or Fantavision	29.	Certificate Maker or Newsroom	26.
		Fonts For Springboard Publisher (IIgs)	19.
		Newsroom Clip Art Collection Vol. 1, 2 or 3	14.
		Thunderware ThunderScan Apple (IIgs, IIe, & IIc)	Special 159.



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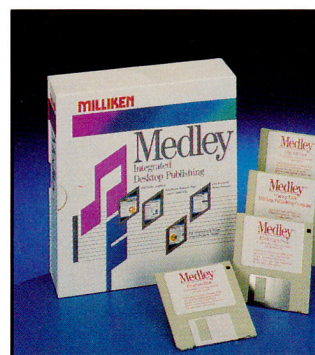


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Timeout UltraMacros or SpreadTools	37.	Mouse Write (Ile, IIc, IIgs)	84.
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Timeout Thesaurus, DeskTools II or PowerPack	32.	Sensible Grammar ProDos (3.5" & 5.25")	Special 59.
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Claris Apple Works (IIgs)	215.	All Programs for Ile with 128K or IIc	
Apple Works	185.	PFS: Workmates (File/Report/Plan/Write)	119.
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Dac Software Dac-Easy Accounting	65.	Form Set Business Forms (IIgs)	59.
Garde Footing To Finish	55.	Stone Edge	
Intuit Quicken	34.	DB Master v5	145.
Manzanita		DB Master Professional	Special 195.
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BusinessWorks Bundle Ile & IIgs (Sys. Manager, G/L, A/P, A/R, Inventory)	Special 269.	Art Portfolio 4 in 1	75.
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Managing Your Money 3.0 (Ile, IIc, IIgs)	95.	People, Places and Things (Ile & IIgs), Design Ideas (Ile & IIgs), Symbols and Slogans (Ile & IIgs), Education Graphics (Ile & IIgs), Font Pack 1 or 2 (Ile & IIgs)	27.
Mecc		Word Perfect Corporation	
Calendar Crafter School (IIgs)	59.	WordPerfect V1.1 w/Speller (Ile & IIc)	99.
Milliken Medley (IIgs)	Special 119.	WordPerfect (IIgs)	99.



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Laser 128 Computer	379.	w/Serial Interface	239.
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Laser 128EX Computer	449.	Laser Amber Monitor	99.
The Laser EX includes a Built-in RAM Expansion Board, Universal Disk Controller, Built-In Expansion Slot, and Ports for all Peripherals!		Laser 128 Disk Drive (IIgs)	105.
		Laser 128 2nd Disk Drive (5 1/4", 1/2" height)	95.
		Laser 128 800K 3.5" Drive w/Controller	219.
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		Laser 128 Mouse	45.

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Alpha Logic		Central Point Software	
Locksmith 6.0	36.	Copy II Plus	
Apple GS/OS (IIgs)	34.	(5.25" & 3.5" Bit Copy)	23.



Cutting Edge 105 Key ADB Keyboard

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Barron's Computer SAT Revised Version	34.	Learning Company Reader Rabbit (IIGs) or Writing and Publishing Center (AP or IIGs)	36.
Britannica Designasaurus (IIGs) or Designasaurus (IIGs) or Revolution '76 (IIGs)	24.	Writer Rabbit (IIGs), Think Quick (IIGs) or Rocky's Boots (IIGs)	30.
Broderbund Geometry (IIGs) Science Tool Kit Master Module Science Tool Kit Module I, II or III Type!	28. 55. 50. 26.	Magic Spells (IIGs) or Math Rabbit Gertrude's Secrets (IIGs) Think Quick, Writer Rabbit or Rocky's Boots	24. 24. 30.
Where in the World is Carmen Sandiego? Where in the USA is Carmen Sandiego? Where in Europe is Carmen Sandiego? (AP or C+) Where in the World is Carmen Sandiego? (IIGs)	19. 25. 29.	Reader Rabbit, Magic Spells or Math Rabbit (IIGs)	24.
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Compu-Teach Once Upon A Time II Stepping Stones Level I or II Joshua's Reading Machine (AP or IIGs & C+) See the U.S.A.	149. 25. 25. 25. 30.	Roger Wagner HyperStudio (IIGs) Sensible Software Report Card II (IIGs & IIGs)	85. 37.
Davidson & Associates Math Blaster Plus (IIGs) or Word Attack Plus (IIGs) Alge-Blaster or Math Blaster Plus Grammar Gremlins or Read 'N' Roll Spell-It or Math Blaster Mystery (AP or C+) Talking Math & Me (IIGs) or Talking Reading & Me (IIGs) Talking Math Blaster Plus (IIGs) Math & Me or Reading & Me	29. 29. 29. 29. 29. 29. 29. 29.	Simon & Schuster Speed Reading Tutor IV or Typing Tutor IV Typing Tutor IV (IIGs) Spinnaker Kidwriter Gold (IIGs) Facemaker: Golden Edition Kidwriter Springboard Atlas Explorer Terrapin Terrapin Logo Plus Tom Snyder Productions Reading Magic Library: Jack and the Beanstalk or Floppy, the Bad Guy	27. 27. 31. 27. 27. 32. 79. 25.
Electronic Arts Mavis Beacon Typing Mavis Beacon Typing (IIGs) First Byte/Electronic Arts The Rhyming NoteBook, The Dinosaur Discovery Kit (IIGs), The Puzzle StoryBook (IIGs)	30. 37. 29.	Weekly Reader Stickybear Series: Sticky Bear ABC (5/4), Basket Bounce (5/4 or 3/4), Bop (5/4), Math I (5/4 or 3/4), Math II (5/4 or 3/4), Numbers (5/4 or 3/4), Opposites (5/4 or 3/4), Reading (5/4 or 3/4), or Shapes (5/4 or 3/4)	24.
Grade Busters Corp. Grade Busters 1, 2, 3 Great Wave Kidtime II (IIGs) Harcourt, Brace, Jovanovich Computer SAT	64. 24. 29.	Basic (5/4), Car Builder (5/4 or 3/4), Drawing (5/4), Map Skills (5/4 or 3/4), Math Word Problems (5/4 or 3/4), Music (5/4), New Talking Alphabet (3/4), Parts of Speech (5/4 or 3/4), Printer (5/4), Punctuation Rules (5/4 or 3/4), Reading Comprehension (5/4 or 3/4), Spellgrabber (5/4 or 3/4), Townbuilder (5/4 or 3/4), Typing (5/4 or 3/4), or Vocabulary Development (5/4 or 3/4) (ea)	31.

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AT A GLANCE

Continued

This program lets a child select from three basic activities—Alphabet, Letter Hunt, and Fast Letters—all intended to aid him or her in learning the alphabet and recognizing simple words.

Talking Stickybear Alphabet is a superior program that deserves attention from GS owners. Young children (under the age of 7) will be enthralled not only by the animated graphics screens that have been a hallmark of the Stickybear programs since the very first one, but also by the near-perfect speech and sound effects that accompany the pictures.

Cross-Works 1.3 (July 1989, p. 36, by William Kennedy), SoftSpoken, P.O. Box 97623, Raleigh, NC 27624, (919) 878-7725, \$79.95

Rating: ♦ ♦ ♦ ♦

If you're looking for a way to share word-processor documents, spreadsheets, databases, and other files between your Apple II and IBM-PC or PC clone, look no further. SoftSpoken's Cross-Works carries the biggest stick in the file translation/transportation business.

Cross-Works is a comprehensive package—including communications hardware, cabling, and support software to link your Apple II directly or via modem to just about any MS-DOS-compatible microcomputer. It also provides the widest selection of translators available for no-fuss conversion of data files (AppleWorks to Lotus 1-2-3 and back again, for example).

Geometry (July 1989, p. 80, by Jeanne Dietsch), Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (800) 527-6263, (415) 492-3500, \$79.95

Rating: ♦ ♦ ♦ ♦

Just think where mathematics would be today if Euclid and Pythagoras had had a computer and a program like Geometry to play with. With Geometry, you can see the angles of a triangle

Continued

Baudville had to place a limit on the graphics detail in each series of panes. Mad Match could have become unplayable with an overemphasis on details. Trying to match a face with hundreds of freckles, for example, would be ludicrous and would defeat the purpose of the game. You still get the feeling, though, that Baudville could have worked in better graphics without losing too much playability.

Mad Match can be quite challenging when you select the proper options. Determining which options you should or shouldn't choose depends entirely on the age of the players. For example, older kids will want to choose the Eagle-Eye difficulty level, the most stringent time limit, penalties for incorrect pairs, and six new panes after a match.

Mad Match uses the IIGS user interface (the mouse, pull-down menus, windows, and so on), although you can use the keyboard in place of the mouse. In fact, you have to use the keyboard in conjunction with the mouse when running the two-player game.

Educationally, Mad Match does stress—and probably strengthens—some fundamental learning skills. Paying attention to detail and discriminating between similar but slightly different objects are basic skills used in many areas. Visual skills such as reading, writing, and drawing depend on the ability to distinguish subtle details.

Mad Match has no Save Game feature, but because of each game's relative brevity, you really don't need it. The Relax command lets you pause indefinitely if you need a break. Other options are equally basic—you can start a new game at any time, quit playing Mad Match, or examine the progress of the current game.

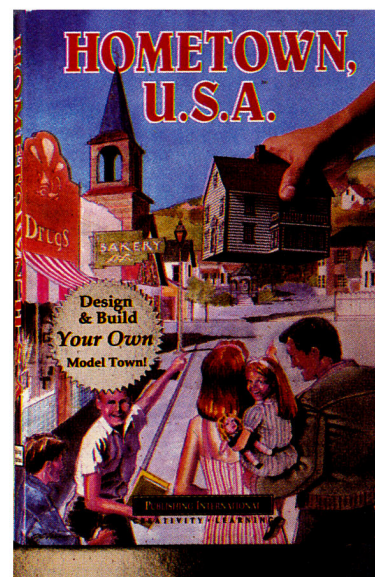
The latter feature presents you with a colored graph that indicates the time you spent on each level of play, the elapsed playing time, the number of points you scored, even the number of breaks you took during play. If you're using Mad Match in an educational setting, this type of monitoring can be helpful.

Mad Match comes on a single protected 3½-inch disk, and Baudville will provide a backup disk for \$10.

Mad Match provides an enjoyable way to work on perception skills. It won't replace crayons or building blocks, but for younger children (it's recommended for ages 4 and up), Mad Match can be an interesting diversion.

**James Trunzo
Leechburg, PA**

HOMETOWN, U.S.A.



**PUBLISHING INTERNATIONAL,
533 West El Camino Real, Suite 222,
unnyvale, CA 94087, (408) 738-4311**

Creativity/clip-art program;
Apple IIGS; any paint program compatible with
Apple Preferred files; memory requirement
depends on paint program; \$39.95

Rating: ♦ ♦ ♦ ♦

In the beginning the software publisher created the paint program, and saw that it was good. In fact, it was great—a wonderful tool for the artist or would-be artist. Enter the clip-art disk—instant art for the rest of us. Right there on disk was everything you'd ever need—illustrations for school, office, and home.

Then we entered the age of specialization—whole disks based on a single theme, such as sports figures, Art Deco borders, or digitized Edwardian silhouettes. Now comes Hometown, U.S.A.—a scale-model town you can design, print, and assemble.

YOUR HOMETOWN

You don't need this program. You're a grownup and you don't play with toys anymore, right? You've put away your train set and that collection of model airplanes and just don't have time for fun and games with your Apple.

If you're nodding your head, then you'd better stop reading this and go back to crunching numbers, because Hometown, U.S.A. is a lot of fun.

You can even share it with the kids—older kids, that is. Hometown, U.S.A. isn't a disk you'd turn over to your 6-year-old while you watch a ball game.

Remember, it's an art disk. Unless your 6-year-old is familiar with the inner workings of DeluxePaint or PaintWorks Gold, you'll want to be on hand to supervise, dispense kindly advice, and say, "Hey kid, why don't you move over and let me do just one little thing."

Just what is it about Hometown, U.S.A. that's so fascinating? After all, there's a lot of work involved here.

Publishing International provides only two sample buildings with the set, and you have to print and assemble those. The rest of the disk consists of blank building templates with a selection of black-and-white windows, doors, storefronts, columns, signs, and all kinds of other architectural accessories.

Unlike other clip-art programs in which what you see is what you get, the finished product is up to you—and therein lies its charm. With Hometown, U.S.A. you can create a modern city or a turn-of-the-century village. You could even build a replica of the Taj Mahal or a gas station with a soda-fountain sign on one side and your own Big Ben on the other.

Children love designing buildings with Hometown, U.S.A. Unfortunately though, the HO-scale structures are quite small, and your 6-year-old may not have the manual dexterity or the patience to assemble some of the structures without help.

Publishing International seems to be aware of this, however; the manual suggests you try using enlarged photocopies of your printouts.

If you're printing in color on an ImageWriter II, there's another solution. You can pick up smaller buildings as you would a paint program's brush and double their size.

Because your paint program probably won't allow brushes larger than the screen, you'll have to use a little judicious cutting and splicing to get the pieces back together.

Conversely, a teenager or adult may want to shrink the larger buildings down to N scale to dress up a tiny railroad layout.

BUILDING BLOCKS

The disk comes with plans for 16 basic structures and suggestions for combining them to create many more. Accessory screens contain doors of all types, windows (including several stained-glass versions), staircases, ticket booths, skylights, awnings, and chimneys. The

houses you build range from simple to complex structures with overhangs, porches, bay windows, and doors that open and shut.

You can construct your buildings of paper alone, but mounting the printouts on cardboard or thin balsa wood will make for a sturdier model. You can also cover your buildings with clear plastic laminate or spray them with varnish for greater durability.

The well-written manual includes step-by-step directions for assembling the buildings. It's chock full of ideas for additional activities, such as greeting cards, gift boxes, pop-ups, dollhouses, Christmas decorations, and so on.

Hometown, U.S.A. is compatible with any Apple IIGS paint program that uses Apple Preferred paint files, but if your only paint program is the graphics segment of AppleWorks GS, you're out of luck—at least for now. If you don't have a GS, there's also a IIe version of Hometown, U.S.A., which comes with its own graphics editor.

Hometown, U.S.A. is a unique addition to the world of art and printing programs. You'll do a lot of designing and building before getting tired of this one.

Sharon Webb
Blairsville, GA

SUPER SIGN MAKER



SUNBURST COMMUNICATIONS,
39 Washington Avenue, Pleasantville, NY
10570, (914) 769-5030

Sign- and banner-printing program; 128K Apple
IIe, IIc, IIc Plus, IIGS; printer
(color recommended); \$75

Rating: ♦ ♦ ♦ ♦

Graphics programs, like games and word-processing software, are all the rage on home computers. The ubiquitous Print Shop and its many imitators have set a high standard for the latest Apple II

AT A GLANCE

Continued

change as you move one of its vertices. You can compare the slope formulae for a line as you drag its points about the screen. With a tool like this, you can master trapezoids and rhombuses, even if you aren't a master mathematician.

Geometry spans the subject from points, lines, and planes through the formulae for areas of polygons and the areas and volumes of solids. It also introduces analytic, or coordinate, geometry from the Cartesian coordinate system through the slope-intercept formula for a line, plus the theorems relating slope to the concepts of parallelism and perpendicularity. If you aren't a math teacher, translated that means that Geometry covers the same topics as most high-school geometry courses.

You might describe the course format as a living textbook. It has ten chapters—five each on two disks—with a third disk containing startup and printer-driver files.

Map Skills (July 1989, p. 81, by Carol Holzberg), Optimum Resource, 10 Station Place, Norfolk, CT 06058, (800) 327-1473, (203) 542-5553, \$49.95
Rating: ♦ ♦ ♦

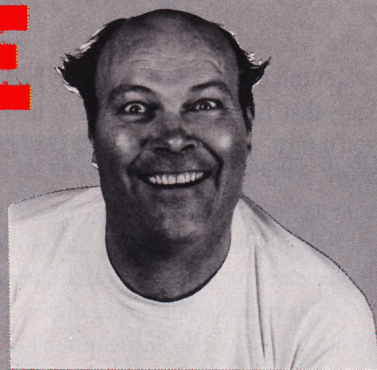
Map Skills invites children to sharpen their map-reading abilities by "driving" and finding their way through five different communities. With ten levels of difficulty, children can take as many as 100 trips. They must reach the assigned destination quickly, following travel directions as closely as possible to navigate the most direct route.

Map Skills includes two paper versions of the program's five travel maps. One is a colorful full-detail poster showing all five communities. The other consists of five smaller black-line master maps, suitable for copying.

Map Skills is an entertaining simulation. It teaches children how to navigate, gives them an understanding of the concept of relative position, and helps them learn to read maps with confidence.



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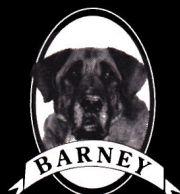
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REVIEWS

graphics programs. Those that succeed, such as Sunburst's Super Sign Maker, do so because they have something special to offer.

Sign-making programs aren't rare by any means. What sets Super Sign Maker apart is its flexibility.

Instead of being restricted to one print size, Super Sign Maker offers font sizes ranging from one-half to 8 inches high; you can change the print size to suit your needs.

You can print your sign's text in a variety of styles (plain, inverse, underline, and outline) and textures (filled in with hearts, bricks, or beads, thin lines, or wide lines).

For the ultimate in variety, you could even print each line with a different texture—one with stripes, another with beads, another with shading.

There's a foreign-symbols mode, too, which lets Super Sign Maker print banners and signs in a variety of European languages.

Super Sign Maker will print in any of four print qualities—light, normal, dark, and extra dark. Check your printer, though, because not all can execute these different print qualities. Also, depending on your printer, you may be able to produce your sign in color.

If you have problems with any portion of Super Sign Maker, try the troubleshooting list included. (If that doesn't work, Sunburst's excellent technical support offers a toll-free phone line.)

Want to surround your text with a border? Choose from a multitude of textures, patterns, and symbols contained right on the Super Sign Maker disk.

You can even repeat a picture around the entire sign. Be careful, though: Because the sign can be only 8 inches high, borders cut down on the size and number of lines of text.

If you want to use pictures, either as a border or as a graphic on the banner, Super Sign Maker includes a library disk with 33 graphics and two additional fonts—digital and stencil. While that may seem like a small number of graphics—only one-third of what you usually find in a Print Shop graphics library—Sunburst has already issued a second graphics disk.

Super Sign Maker can also import Print Shop graphics, but not Print Shop borders or fonts. That leaves you with about 500 graphics from which to choose. You can use two different graphics as often as you want on each sign.

Super Sign Maker is pretty easy to use. Commands are simple to remember (Control-

S adjusts size, for example), and there's a help screen and a small command card.

Sunburst includes a short tutorial in the documentation that should have anyone creating a sign in ten minutes. There's also an overview that provides a succinct summary of the program's parameters. (For example, you can print up to eight lines of text with a maximum of 80 characters per line.)

For the first-time user, two preliminary, easy tasks are in order. You must configure the program for your printer and format a data disk.

To make a sign, first enter a name for the file. Then select a font style; press Control-G to get into the graphics keyboard and choose a fill pattern for the font.

At this point, you'll have to do a little planning. Because Super Sign Maker won't print a sign taller than 8 inches, it's important that you think out what you want to say and how big you want to say it.

For signs with borders, allow 2 inches for a picture border and 1 inch (½ inch on the top and bottom) for a patterned border. Also, keep in mind that signs will be longer with a border.

When you've finished making your sign, press Escape or Control-E to return to the main menu. The printing menu shows several options for running out your super sign. To preview your creation, choose to print to the screen first. If you select standard format, the sign will print in standard quality.

You can customize your printer settings, though, to change shading, print lengthwise rather than sideways, and adjust centering from right, left, or center.

SLOWLY BUT SURELY

Printing may take some time, but the results are worth the wait. The complexity of the sign determines its printing time. For example, signs with pictures and borders will take longer to print than those with just text.

One particularly nice feature of Super Sign Maker is the editing screen; it lets you see the length and height of your sign and the arrangement of your borders, graphics, and text.

Super Sign Maker is a must if you use a graphics program on the Apple IIe. It's easy to operate, it's flexible, and it produces superior signs and banners. Teachers and parents will find Super Sign Maker especially useful, and students will have a ball with it.

Ken Carlson
Joliet, IL



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Continued on p. 88

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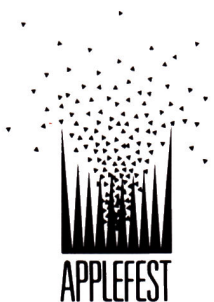
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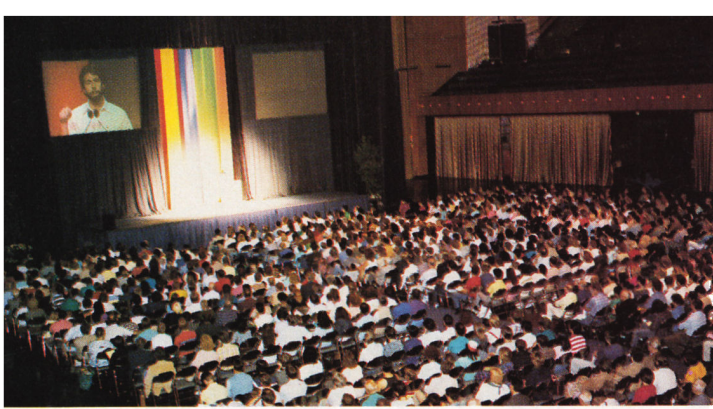
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Sound the trumpets! AppleWorks 3.0 has arrived, and the classic 8-bit program has gone from greatness to grandeur. New features in all three modules enhance its superior stature without altering its simplicity.



APPLEWORKS 3.0 IS TERRIFIC. THAT SOUNDS LIKE FAINT praise, because AppleWorks was already terrific—the best 8-bit computer program ever written, the unchallenged standard in Apple II productivity software. But Claris Corporation's new release is big news, much bigger than the advent of AppleWorks 2.0 in 1986. That upgrade brought merely mail merge, a couple of spreadsheet improvements, and expanded memory support. AppleWorks 3.0 has new features everywhere you look: a spelling checker, 26 more spreadsheet functions, formatting and file-handling enhancements galore, all-around better integration. It's well worth Claris' \$79 upgrade price.

The new edition lacks some extras, such as macros and graphics, that many AppleWorks 2.0 and 2.1 users already enjoy thanks to Beagle Bros' TimeOut add-ons. But several former options

and patches are now standard equipment, and Beagle is ready to supply the rest in a stack of upgraded, 3.0-compatible TimeOut products. (The first of these is AppleWorks 3.0 itself in a way: Beagle helped Claris develop the program. The names of Beagle boys Alan Bird, Randy Brandt, and Rob Renstrom have joined creator R.J. Lissner's and Claris' on the title screen.)

The most important news, however, is that the improved word processor, spreadsheet, database, and desktop don't change AppleWorks' personality. The program still runs on a 128K, one-drive Apple IIe or IIC. It's still fast and simple to use. It still says, "Carefully saving this file," and asks, "Do you really want to do this?" You'll really want to get AppleWorks 3.0. ►

PRODUCT INFORMATION

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By ERIC GREVSTAD
CONTRIBUTING EDITOR



APPLEWORKS 3.0



his article is a preview, not a review. Claris let *inCider* see a not-quite-crashproof test disk in late April, well before the program's scheduled June 20 debut. While

future issues will carry complete details, we couldn't wait to share some first impressions.

If you're using 5¼-inch drives, you'll notice immediately that AppleWorks 3.0 requires some disk swapping. Instead of one startup and one program disk, there's a startup disk, two program disks—one for the database and word processor, one for the spreadsheet—and a fourth disk for the spelling dictionary.

For IIc Plus or GS owners, an 800K 3½-inch disk holds everything with room to spare—that's maximum convenience.

There's also good news if you often use just one application such as the word processor: You can copy ProDOS, the startup and desktop files, and any one of the three programs to a personalized, single-sided 5¼-inch disk.

Having a 3½-inch drive is nice, but having expanded memory is better. On 128K machines, desktop workspace has shrunk from 56K to 40K, and AppleWorks' appetite for disk access has become insatiable.

Using a 128K Apple IIc Plus, I spent far less time enjoying the fast 4-megahertz processor than I did waiting for the disk. Switching from a word-processing document to a spreadsheet took eight seconds; simply switching between an application and the main menu with the escape key often ate up several seconds.

The good news about memory is that AppleWorks 3.0 uses all it can find. It now recognizes RamWorks/Checkmate-style memory cards (auxiliary-slot) as well as "Apple-standard" (peripheral-slot) cards and IIGS memory.

As with AppleWorks GS, you can configure 3.0 to preload one, two, or all three modules into RAM at startup, though the spelling dictionary stays on disk. The desktop still stops at 12 files, but the clipboard is limited only by available RAM—no more annoying messages about that old 250-line limit.

Review/Add/Change: A 3.0 Wrapup

MAJOR IMPROVEMENTS IN APPLEWORKS 3.0:

- | | |
|-------------------------------|--|
| • ENHANCED MEMORY USE: | RamWorks/Checkmate support, unlimited clipboard, mega-files on 256K or larger machines (9999 spreadsheet rows, 16,000+ database records or word-processor lines) |
| • FILE HANDLING: | subdirectory navigation, improved ASCII import/export |
| • CLIPBOARD: | automatic transfer between applications (no more "print to clipboard") |
| • WORD PROCESSOR: | spelling checker with "context" and "list" modes, spelling summary |
| • WORD PROCESSOR: | real tabs (left, right, center, decimal), formatting shortcut keys |
| • SPREADSHEET: | 26 new functions, from @PI to @PMT; formulas use both labels and values |
| • SPREADSHEET: | copy/move blocks as well as rows or columns |
| • DATABASE: | sort on multiple categories, find on just one |
| • DATABASE: | multirecord layout has horizontal scrolling; create record layouts based on report layouts and vice versa |

POSSIBLE DRAWBACKS:

- | | |
|---------------------------------|---|
| • DISK DISTRESS: | heavy disk swapping for 5¼-inch-disk users; more disk access and smaller desktop on 128K machines |
| • ONE-WAY COMPATIBILITY: | 3.0 reads earlier versions' data files, but older AppleWorks can't read files containing 3.0 features (word processor's tabs, new spreadsheet functions, and so on) |
| • CAUGHT IN THE MARKET: | bad luck for TimeOut QuickSpell owners; Beagle Bros promises low-cost upgrades for other TimeOut products |

E

ven before you enter an application, you'll notice AppleWorks 3.0's extra convenience. There are more standard printer choices, including Brother and Oki-data models. You can also customize your choice with six special codes to print italics, characters not found on the keyboard, or other favorite features.

Formerly an idiot, AppleWorks is now a genius when it comes to navigating among ProDOS directories. If you want to fetch files from a subdirectory, the program offers a list of directories on the current drive (the tab key changes to a different drive) instead of making you type pathnames and slashes. If you've loaded files from different directories onto the desktop, you can save each one to the current path with Open apple-S (OA-S) as usual, or to its original source with OA-Control-S.

A similar menu helps import text files into the word processor, letting you pick from a list of ASCII files on disk instead of remembering and typing filenames and pathnames. Moving in the other direction, you can export ASCII files with carriage returns after each paragraph instead of after every line.

Besides offering more directory listings, AppleWorks 3.0 scrolls through them faster. The OA-Up and -Down (page up and page down) commands work in directories as they do in applications. Equally neat details include a "forward delete" key (OA-Delete, the reverse of the delete key's backspace) and OA-< and -> (or comma and period), quick ways to move the cursor to the beginning and end of a line.

I

t doesn't have the fancy type styles of AppleWorks GS or TimeOut SuperFonts, but 3.0's word processor offers increased printing flexibility. New features include the ability to print a specified range of pages, OA-O (format option) codes to print the date or time as well as the page number, and support for multiline headers and footers.

Besides flush-left, justified, and centered text, you can now specify flush-right text (aligned at the right margin), and you don't need to press OA-O and type two letters to do it. Joining the shortcut keys Control-

B (boldface) and Control-U (underlining) are Control-N, -R, -F, and -C for normal, right, full, and center justification, and Control-P for page break.

AppleWorks 3.0 has "real tabs," in that the tab key actually types a tab character (a formatting code, shown on screen as a caret like other codes) instead of just adding spaces. There's still a tab ruler atop the screen, but it shows different markers for left, right, center, and decimal tabs. The OA-T command lets you place multiple rulers in a document, so tab settings—and the on-screen ruler—can change as you move the cursor from one paragraph to another.

These features give you much greater formatting power, without sacrificing ease of use or speed of execution. In a simple search-and-replace test, the new word processor was about 20 percent faster than the old. But the biggest bonus is the spelling checker, based on Beagle Bros' QuickSpell (the one TimeOut product AppleWorks 3.0 has rendered obsolete).

After scanning your document (in RAM) and its dictionaries (on disk), the speller offers the usual choices of skipping one or ignoring all occurrences of a word, adding it to a personal dictionary, typing a replacement, or seeing a list of possible spellings. Its suggestions are usually accurate, if you don't mind waiting a few seconds and pressing a few keys to end the disk search (which goes on for a while after the right word has appeared) and select a correction. The speller catches doubled words as well as typos.

I like its choice of spelling "in context," highlighting questionable words one at a time with the spelling menu at the bottom of the screen below your document, or "from a list." The latter option is an alphabetical display of all unknown words, from which you can easily jump to the context display to check individual items. To complete the spelling lesson, AppleWorks offers a summary of results, which you can move to a word-processing file via the clipboard. ▶



Top, old and new default options appear on 3.0's "Select standard settings" menu.

Middle, opening ASCII files or subdirectories is as easy as choosing regular data files.

Bottom, horizontal database: With first two categories as titles, we've scrolled past "Address" and "City" to review other fields.

APPLEWORKS 3.0

Now you can work with a list of unknown words and their corrections (or notes on whether they were skipped or added to the dictionary). AppleWorks 3.0 could make English teachers' jobs a lot easier.



While 3.0 has speeded up its search-and-replace feature, the pre-release spreadsheet was 0.2 of a second slower than AppleWorks 2.1 in a 1000-cell recalculation test. But you'd have to be crazy to complain about that when you have 9000 more rows to fill (on machines with expanded RAM) and more than two dozen new functions with which to fill them.

Does Claris hope to get AppleWorks into more math classrooms? Check out the new math and trigonometric keywords: @ACOS, @ASIN, @ATAN, @ATAN2, @COS, @SIN, @TAN, @EXP, @LN, @LOG, and @MOD, plus @DEG and @RAD to convert between degrees and radians and @PI.

Economics majors and small-business owners aren't left out. They can go to work with six new financial functions: @IRR (internal rate of return), @FV (future value), @PV (present value), @TERM, @PMT, and @RATE.

There are also six new logical functions: @FALSE, @TRUE, @NOT, @ISBLANK, @ISERROR, @ISNA. Each of these returns a word (TRUE or FALSE) instead of a number (1 or 0) as a value, illustrating a major spreadsheet improvement: Like AppleWorks GS, version 3.0 can handle labels as values. It'll return a text string instead of an error message if you write a formula such as @IF(G6<180,"Slim","Overweight"). Depending on the number in cell G6, AppleWorks will display either the word *Slim* or *Overweight*.

Even if you never use the new functions, you'll admire AppleWorks 3.0's adaptation of a swell trick from TimeOut SpreadTools: You can move or copy blocks of cells, as well as rigid rows or columns, within a worksheet or to the clipboard. Better yet, you can paste data on the clipboard into any application. Spreadsheet rows or database records reach the word processor with no "print to clipboard" or "print to

Something New for Young and Old

Normally, a software company plans a product upgrade with one eye on its competition. In Claris' case, says AppleWorks product manager Elisa Nakata, "We have no competition." Claris' Apple II product-line manager, Kevin Harvey, quips, "I'd like to see us gain some market share, but we mostly have it all." But though they didn't worry about rival programs, AppleWorks 3.0's designers had to worry about hitting two different targets: the program's legions of loyal, productivity-minded adult users, and an Apple sales trend that's made K-12 AppleWorks' top priority.

"Our Apple II strategy," says Harvey, "is to sell to whatever people are using Apple IIs for, and now we're seeing that makeup change—K-12 is a bigger piece of Apple II sales each year. I think AppleWorks is a personal-productivity tool second; I would have put personal productivity first last year, but this year with II CPUs selling less it's about a tie with education."

That's why, Nakata explains, the 3.0 spelling checker works as it does. "When we looked at

the educational market, we said, 'Oh, what about a spelling summary, something the teacher can return to the students so they can try to correct their own mistakes.' For math classes, we put the trig functions in the spreadsheet."

On the other hand, Harvey says, AppleWorks "has always been a home/education product with a lot of business users. And a lot of the enhancements we made, since we were looking at the installed base, benefit business users or power users, people who were running into limitations in 2.0."

It's those users who should be happy to recognize some Beagle Bros names on 3.0's title screen ("I had to fight for that," Nakata says proudly), a public declaration of Claris' alliance with the folks who know power users best.

The result, says Harvey, is a program potent enough to fit "side by side" with AppleWorks GS. While Nakata admits "there has been some confusion about the positioning of the two products," she says Claris plans to promote the pair based on whether you want to "get your work

disk" rigmarole. They arrive in good order, too, with returns between rows and tabs between columns, to take advantage of the word processor's precise formatting.

A

lthough less altered than its two partners, AppleWorks' database has moved forward by moving sideways. At last, multiple-record layout

offers horizontal scrolling of databases with too many columns or categories to fit on screen. The tab key moves to the next category to the right, instead of wrapping around to the first category in the next record. Left-side titles, as in the spreadsheet, let you freeze a field or two so horizontal scrolling affects only part of the screen.

As for single-record layout, you can make it a bit easier to read by displaying category names such as *Address*: in inverse video. When you're ready to print, you can now create two- or three-across mailing labels, instead of producing just one row at a time. You

can also create a report layout from the current record layout or vice versa, working with records on screen as they'll appear on paper. Version 3 gives you more versatile report formatting, although nothing like Beagle Bros' dazzling TimeOut ReportWriter.

The 3.0 database can save you time by sorting on one, two, or three categories with a single OA-A (Arrange) command. Now a three-level sort (sorting by customers' last name, then first name, then zip code, for example) doesn't require three separate sorts. A more efficient OA-F (Find) command searches for text in a specific category or, as before, in every category. Now you can find clients who live in Boston with or without finding James Bostonetti, who lives in Cleveland.

S

ince AppleWorks GS appeared, some people have started calling the 8-bit program "AppleWorks Classic"—a redundant phrase if ever there was one. Some Apple II grouches can't forgive Claris for also making Macintosh software, while others are bitterly disappointed by AppleWorks GS. But AppleWorks 3.0 shows Claris and Beagle at their best.

The new release may not have any single super-colossal feature, but it'll make users thankful for small favors—subdirectory menus, cursor-movement commands—as much as for its spelling checker or powerful spreadsheet. It improves on things AppleWorks users take for granted; it'll astonish outsiders who think 8-bit programs are ancient history.

Finally, AppleWorks 3.0 is a much-improved platform for future additions and enhancements. Maybe no one at Apple headquarters says "Apple II Forever" these days, but "AppleWorks Forever" is a slogan with staying power. □

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Top, multiple tab rulers and formatting options highlight AppleWorks 3.0 word processor.

Bottom, spelling checker lets you face mistakes all at once (shown here) or singly, from word-processor screen.

done quickly" or "take advantage of graphics." Says Harvey, "There are a lot of power users out there who think they need everything in AppleWorks GS, and a lot of power users who think they need the speed of 3.0."

Harvey points to steady improvements and "a very dedicated base of users" for AppleWorks GS. "While the initial reviews weren't that great, the sales were fantastic. New users faced with learning AppleWorks are learning AppleWorks GS." But those users can't match the devotion of 8-bit AppleWorks enthusiasts, the people who made Claris' goal, in Nakata's words, "basically to add to the functionality but not to change the look and feel of AppleWorks."

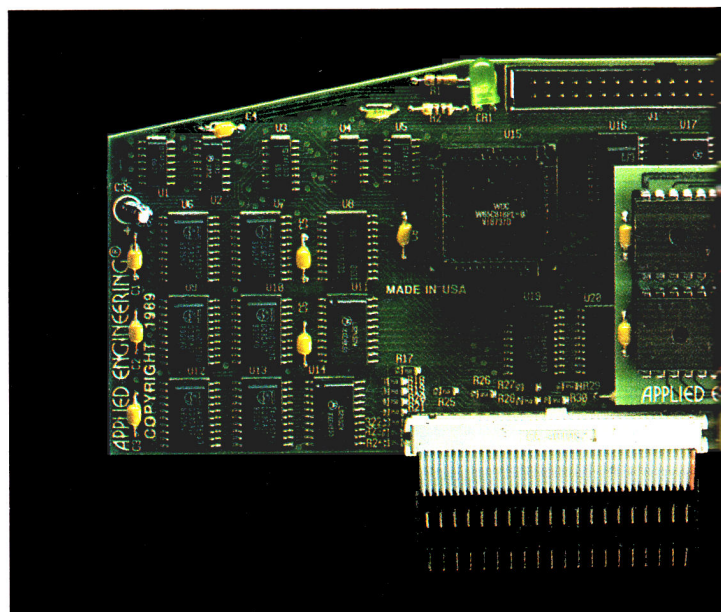
Beagle programmer Randy Brandt says, "You couldn't have imagined AppleWorks being used in the 1990s, but here we are only a few months away. I think five years from now there'll be a lot of AppleWorks users. In the 21st century, there are going to be people running small businesses with AppleWorks. They'll be pounding away on those keyboards." □

—E.G.

Speed Breaking the Limit

Here's one time when patience is no virtue.
Don't wait around for sorts and
calculations—get yourself an accelerator
chip or speedup board and give
your tired old (or new) II
a needed shot in the arm.

By JOE ABERNATHY * PAUL HUTMACHER



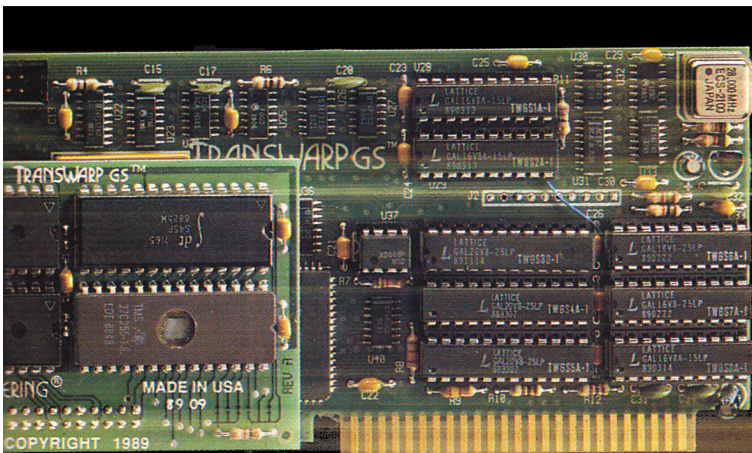
WHAT'S THE FASTEST-GROWING category of Apple II products? Accelerators, of course.

Accelerator boards and chips give your Apple II a shot of adrenalin, increasing the speed at which software or even external hardware operates. Whether you're a writer, designer, teacher, businessperson, or a combination of all four, you can benefit from an accelerator.

Accelerators aren't new to the Apple II. Applied Engineering's TransWarp has been speeding up Apple IIs for years, but you've never had the array of options available today. Applied Engineering, Bits & Pieces, and Zip Technology offer products that make your II run faster and jump higher. Or if you call on your Apple II for heavy mathematical calculations (huge spreadsheets and complex graphics), you may want to look at Innovative Systems' Floating Point Engine. If you want your disk drives to spin faster and work harder, check out the Multi-Kache Card from Ohio Kache Systems.

Before you decide to buy an accelerator, though, make sure it's a faster microprocessor you need. If you're frustrated by the amount of disk swapping you're doing, your first priority is probably a hard-disk drive. Or if your word-processor documents have grown so large you can't work with them on the desktop, you need a memory-expansion board. If you use AppleWorks, for instance, you know how important memory is. Using extra memory as a RAM disk eliminates the incessant disk access you encounter when you run AppleWorks on a 128K system. A RAM disk lets your program store and access data at lightning speed.

If your problem is sitting and waiting while your computer calculates a spreadsheet, sorts a database, or flows text into a template in a page-layout program, though, it's time for an accelerator. For writing and page design in programs such as Springboard Publisher and AppleWorks GS, for example, a faster microprocessor means



the difference between working and waiting. Most areas of standard AppleWorks are also good candidates for an accelerator. If you never stray beyond the AppleWorks word processor, however, you can probably live without an accelerator.

Now if you've sold yourself on an accelerator, don't rush out and buy the first one you hear about or see advertised. Make sure you decide on the one that's right for you. To help you get started with your research, here's a look at six speedy products.

TRANSWARP GS TO THE RESCUE

It's the toast of the town. Recently released by Applied Engineering, **TransWarp GS** addresses the biggest rap against the Apple IIGS—sluggish operation. With TransWarp GS, your computer will run nearly three times faster.

The standard GS is almost three times faster than the IIe, but you don't hear a lot of talk about those numbers. That's because comparing computers based purely on raw speed is deceiving. The IIGS is a perfect example: Because it does so much work maintaining the desktop environment when running 16-bit software, it seems slow. But if all you use on the GS is AppleWorks, Publish It!, and maybe a few other IIe/IIC programs, your GS runs like Bo Jackson. Load AppleWorks GS or Medley and it's William "The Refrigerator" Perry running uphill.

With TransWarp GS, the GS/OS Finder, or Desktop, becomes a tool instead of a colorful novelty; complex programs such as AppleWorks GS are more useful, because you don't waste time waiting when you should be working. Because nearly all GS software is graphics intensive, even casual users can justify TransWarp GS. For Apple IIC and IIe users, faster processing is a luxury; if you own a GS and want to run 16-bit software, it's a necessity.

TransWarp GS is an expansion card that fits into slot 3 or 4 inside the GS. Because of the short length of ribbon cable attaching the

replacement chip to the expansion board, slot 3 is the most practical home for TransWarp GS. To install it, use a screwdriver to remove the main logic chip (65C816) from the IIGS motherboard. Then plug in a TransWarp cable where the chip used to be. The process is easy, and generously illustrated in the user's manual. Applied Engineering's documentation is the best belonging to those six products tested here, although TransWarp GS doesn't need much documentation.

After you've plugged it in, TransWarp GS operates invisibly. There's no configuration or hassle; if you want to slow down for some reason, you can do so at any time by using the TransWarp GS classic desk accessory (CDA), which you access the same way you do the Control Panel. Probably the only reason to change speed would be for game playing or running some other time-dependent software. But unlike IIe games, most GS games are still playable—and even more enjoyable—at full TransWarp GS speed.

When talking about TransWarp GS and other accelerators, you're bound to hear the word *megahertz* (MHz), which refers to the speed at which your computer processes information. The IIe runs at 1 MHz; the IIGS operates in native mode at 2.6 MHz, but can also run in IIe emulation mode at 1 MHz. The current TransWarp GS speed is 7 MHz; as technology advances you'll be able to upgrade it to a predicted speed of 10 MHz.

If you want an even higher-performance IIGS, you can combine TransWarp GS with a math coprocessor, such as the Floating Point Engine, and a disk accelerator, such as the Multi-Cache Card. Adding these three products will drain your bank account by more than \$1000, but the results are dramatic.

When we tested the first production version of TransWarp GS on a fully expanded GS, the only compatibility problem involved the Floating Point Engine. Applied Engineering has corrected the difficulty, though; if you have one of the earlier versions of TransWarp ►

GS and want to use the Floating Point Engine, an update is available from Applied Engineering.

Zip Technology has announced a GS accelerator of its own, and others are rumored. As this issue of *inCider* goes to press, however, TransWarp GS is the only product of its kind. It's available; it works great; and it's the productivity boost IIGS owners have been waiting for.

ORIGINAL TRANSWARP: STILL SPEEDING ALONG

The original **TransWarp** increases the speed of the IIe or II Plus by more than three and a half times. Like its new GS cousin, it operates reliably and invisibly.

TransWarp wasn't the first Apple II accelerator, but it's the only remaining accelerator for the II Plus and IIe that operates as an expansion card rather than a replacement chip, like Zip Chip and Rocket Chip. Note that if you own a IIC, your options are limited to such chips.

While Zip Chip and Rocket Chip don't take up an expansion slot and are faster in most operations, TransWarp still offers many benefits. For starters, it's been in production long enough to ensure against compatibility problems. Accelerator technology is so sophisticated that difficulties can arise unexpectedly as you add new software and hardware to your system. Buying a TransWarp is no guarantee against that, but it's at least a strong hedge.

To achieve its speed, TransWarp employs both a faster main logic chip (also known as the *central processing unit*, CPU, or *microprocessor*)



and 256K of *fast RAM* (random-access memory), memory designed to operate at accelerated speed. (In contrast, *slow RAM* is memory that operates with 1-MHz microprocessors.) TransWarp uses this fast memory as temporary internal storage for information the computer would otherwise have to read from a (slow) disk. In the Apple II Plus, TransWarp doubles as a 16K "language card" to bring system memory up to 64K without requiring a separate board.

For overall usability, reliability, and sturdiness, the TransWarp card may still be the best bet. Sturdiness is a concern that comes up in any discussion of accelerator chips: Whether it's a replacement microprocessor or the original 65C02, every time you pull a chip you risk weakening its legs, and replacement chips are bulkier and have flimsier legs than the original part. If you have to swap them in and out several times as you try to isolate a system problem, for example, they may not hold up to the strain. In addition, Applied



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Engineering recently cut TransWarp's price to \$169, making it even more competitive with the faster chip products.

ZIP CHIP: FAST AND GETTING FASTER

The 4-MHz **Zip Chip** was the first chip-based accelerator available for the Apple II, and at \$149 it still offers the best price. But there's also a new 8-MHz Zip Chip available for \$199—only \$20 more than the price of the original Zip Chip.

Zip Chips compete with the 5-MHz Rocket Chip (\$159) and the new 10-MHz Rocket Chip (\$219). Zip has also announced that in the fall it will ship a IIGS accelerator to compete with TransWarp GS.

Zip directly replaces the II Plus' 6502 or the IIe/IIc's 65C02 main logic chip. Remove the original chip with a small screwdriver or pulling tool (which Zip Technology provides). Both the Zip and Rocket manuals include illustrations to clarify the process.

Plug in Zip Chip, then run a program that records your configuration preferences. A replacement for the ProDOS file STARTUP reads the parameters each time you turn on your computer. If you choose to not configure Zip Chip, it will default to the following settings:

system speed: 4.0 MHz

slots fast: 1, 3, 4

paddles: normal

sound: fast

If you have a disk drive in slot 1, 3, or 4, you'll probably want to change the settings back to standard 1-MHz speed.

To boot at normal speed (1 MHz), press the escape key while turning on the power. You can configure Zip Chip to run at 20 different speeds, from about half the standard 1 MHz to 4 MHz. Most people will probably leave it at full speed unless running an arcade game or other program requiring the slower speed.

The configuration program lets you set the speed for each slot. The Zip utility disk, provided with the chip, also contains a diagnostic program and a memory-testing program, plus ZIP.HELLO and ZIP.STARTUP to boot DOS 3.3 and ProDOS disks, respectively, in any configuration you want. Run STARTUP or HELLO every time you use Zip Chip, unless you're happy with the default settings. If you own a II Plus, early versions of the diagnostic program may fail, even though everything's working properly. Contact Zip Technology for an upgrade.

Your Zip Chip can accelerate up to 30 64K banks of auxiliary-slot▶



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memory (RamWorks, for example), and it can take advantage of *caching*, a memory-management technique that further enhances the speed of your Apple. (See the accompanying sidebar, "Cache as Cache Can.") Because of this sophisticated RAM management, Zip Chip has hidden speed advantages over TransWarp, most noticeable in the acceleration of an auxiliary-slot RAM card. Zip's memory-management system, however, doesn't work with peripheral-slot RAM boards, such as the Apple Extended Memory Card.

Zip Chip's memory-management scheme won't work in conjunction with a DMA (direct memory access) card such as the Multi-Kache disk accelerator or CP/M coprocessors, either. To get around this conflict, you can configure slots containing these cards to work at normal speed. (In the case of Multi-Kache, you can remove a jumper cable to disable the DMA mechanism. Multi-Kache won't work as fast, but it still offers a performance increase.) Zip Technology has corrected a previous Zip Chip compatibility problem; you can

now use it with Corvus-brand hard-disk drives.

Note that the Zip Chip instruction manual provides detailed information for programmers; this lets you create "Zip Chip aware" software to manipulate system-speed options individually.

ROCKET CHIP: THE FASTEST YET

The new 10 MHz **Rocket Chip** is the fastest Apple II accelerator. Even the original 5-MHz Rocket Chip performs at a level close to that of the 8-MHz Zip Chip in some areas. Its speed advantage stems from its acceleration *and caching* of devices in slots 1-7.

Rocket Chip accelerates all slots at full speed, except for 5 and 6, which are reserved for disk drives. If your drives are in slots other than 5 or 6, use the configuration program to set the appropriate slots to 1 MHz. Remember, even though your computer is now running at fast speed, your disk drives are still operating at 1 MHz.

As Zip does, Rocket Chip uses a 16K memory cache to speed up



Better then.

History repeats itself. Beagle Bros unleashes the power of AppleWorks. Again.

Two years ago, Beagle Bros introduced the TimeOut series—easy

to use productivity programs that run right inside AppleWorks.

And now we've added even more. A new number. 3.0. You see, Beagle Bros programmers wrote the new

operations, including up to 30 64K banks of auxiliary-slot memory. It allows caching for any device that isn't dependent on speed. Modems, printers, and most hard drives, for instance, aren't compatible.

Rocket Chip configuration options include eight speeds from 0.050 MHz (much slower than the normal 1 MHz speed of the Apple II) to 5 MHz; five sound options; Applied Engineering TransWarp protocol (for compatibility with smart software); speed for slots 1-7; caching for slots 1-7; and expansion-RAM caching. As with Zip Chip, pressing the escape key while turning on your computer slows the entire system down to 1 MHz. Like Zip, Rocket Chip can't accelerate DMA devices. It's also incompatible with the SMT no-slot clock. Both Bits & Pieces and SMT offer patches to correct the problem, however.

Rocket Chip lets you individually select which operations to accelerate, but it assumes you have a standard computer setup; you don't have to configure your system if you want to match the

defaults. If you have, say, a modem card in slot 2, though, you'll run a program every time you start your computer to slow down this slot. And if you want to cache a hard disk in slot 7, you'll run a separate program to configure it.

Note that hard-drive caching isn't possible with many drives, including Apple SCSIs. The SCSI card from CMS Enhancements allows caching, but don't attempt it unless you're expert enough to know the risks involved, particularly in network situations.

Unlike Zip Chip, Rocket doesn't provide a BASIC program for easy custom configuration. You must configure the chip every time you turn on your computer, unless you choose to stay with the default settings.

If you have experience with Applesoft BASIC, writing a HELLO (DOS 3.3) or STARTUP (ProDOS) program that configures Rocket Chip's speed is simple.

Rocket Chip and Zip Chip offer similar features. Zip is less ►



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call 800-992-4022).



expensive; however, Bits & Pieces offers a faster chip. In deciding between the two, consider price and features, but support as well. Ask around to see whether people have had problems with either company.

FLOATING-POINT WHAT?

If a marketing professional had named this floating-point math coprocessor, we'd be calling it Business Partner or Graphics Manager. As it is, this unique and useful accelerator has the intimidating tag of **Floating Point Engine (FPE)**.

Innovative Systems' FPE intercepts internal math calls that require extended-precision results and routes them through its faster math circuitry. (See the accompanying **Tables** for benchmarks.) In fact, FPE is the most efficient accelerator for computer-aided-design graphics, AppleWorks spreadsheets, and scientific models.

Teachers or students exploring the relationships between math and computer science (fractal geometry, for example) will enjoy using FPE. Math and graphics-intensive programs are most likely to benefit, but you'll find acceleration hidden in many other applications written in languages whose internal structure requires extended-precision mathematics. On the GS, any program that issues calls through the Standard Apple Numerics Environment (SANE) toolset will benefit from FPE. These typically include drawing, scientific, and other math-oriented programs.

A program patch included with FPE lets you enhance the speed of standard AppleWorks spreadsheets. Otherwise, Apple IIe pro-

grams must be specifically written to take advantage of a math coprocessor. Few are, but software tools included with the card will help you develop your own software if you have the interest and the programming experience. Also, many of the new compilers, such as ByteWorks' ORCA/Pascal and ORCA/C, marketed to professional software designers include support for FPE.

FPE works in the background, in conjunction with a traditional accelerator. If you're sketching a complex graphic—in TopDraw, for example, or some fractal-imaging program—you could have a TransWarp GS speeding up the screen drawing while your FPE boosts the internal math of the graphics calculations.

While FPE isn't for everyone, it's fascinating to look at the people who own it. The list includes Glen Bredon, author of ProSel; Scott Gentry, graphics-forum leader on AppleLink Personal Edition; the people at Western Design Center, creators of the IIGS' 65C816 main

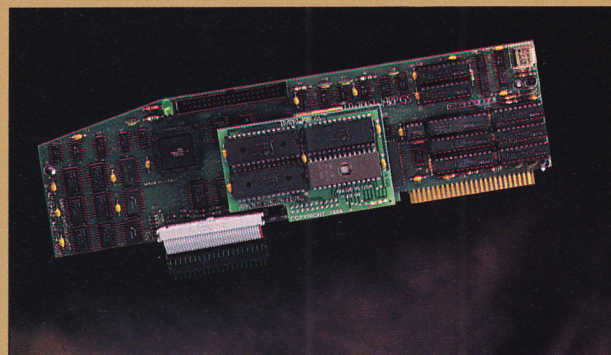


Table 1. GS speed benchmarks.

	GS	GS with FPE	GS with TWGS
Draw fractal-graphics image	870	407	
Boot GS Finder	110	110	103
Calculate capital gains with AW spreadsheet	19	10	7
Launch AW from GS/OS	26	25	20
Import 60K of AW text into Springboard Publisher layout	117	117	72
Import 32K AW database into AWGS	169	N/A	84
Calculate sales tax with AWGS spreadsheet	85	N/A	35

all times in seconds **N/A** = not applicable

AWGS = AppleWorks GS

TW = TransWarp

AW = AppleWorks

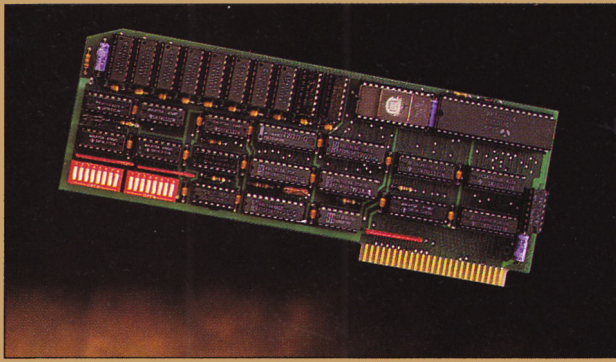
FPE = Floating Point Engine

TWGS = TransWarp GS

Table 2. IIe/IIc speed benchmarks.

	IIe/IIc	Rocket 5MHz	Rocket 10MHz	Zip 4MHz	Zip 8MHz	TW
Sales tax	36	10	6.7	11.8	7.3	12.3
Capital gains	46	13.1	7.3	15.3	9.7	16.1
Find & replace "the" with "my" in 60K AW file	5	1.7	1	2.1	1.3	2.2
Springboard	165	77.3	37.7	128.9	111.8	139

Note: Fractal images are created using Mandelbrot math; because of the number of calculations involved, one image may take 20 hours to draw on the GS. Although this test is designed to reveal a floating-point math coprocessor, it sheds a positive light on TransWarp as well. The various AppleWorks and AppleWorks GS timings were chosen to show the performance of typical home and business undertakings. Other pursuits in which speed is of special benefit include drawing, painting, programming, running a bulletin-board host system, database sorting, list handling, and various science and engineering applications. For many games acceleration isn't desirable because it destroys the balance of play, but if you're a big fan of simulations, you might enjoy faster processing.



logic chip; and technologists at Applied Engineering, Apple Computer, and several major software houses. Many astronomers, mathematicians, and physicists also use FPE.

If the Floating Point Engine is such a great idea, why doesn't anyone else sell a math coprocessor for the Apple II? The idea is catching on: Applied Engineering has already announced Fast Math, which it plans to ship this summer.

MULTI-KACHE CARD: STASHING YOUR DATA

Disk drives for the Apple II are designed to operate at a particular speed. Regardless of how fast your current microprocessor hums, your drives churn at a rate designed for the original microprocessor in your Apple—and that seems pretty slow to most II users. There's a way to boost your disk drive's performance, though: The Multi-Kache Card from Ohio Kache Systems (OKS) accelerates the speed

at which you can access information from external drives.

We evaluated a Multi-Kache Card that worked with 5¼-inch and 3½-inch drives, but OKS also offers one for SCSI hard-disk drives. Tests on the prerelease SCSI version running in conjunction with TransWarp GS show up to a 40-fold speed increase in some typical operations in comparison to the stock IIGS. (Note that currently some copy-protected 3½-inch disks—primarily game software—fail when you run them with Multi-Kache installed.)

The Multi-Kache Card attacks from two directions: It reads and writes to your disks at 8 MHz, eight times faster than any other Apple II disk drive; and it stores disk-based information in hidden memory so that disk access takes place at RAM-disk speed. When you insert a new disk, your computer reads it into this background RAM—and your keyboard operations aren't slowed by waiting for even fast disk access. When you save a file, writing to disk occurs in the background, too, freeing your computer immediately for further operations. When your disk drive's red light goes on, you don't have to wait before getting back to work.

Multi-Kache is as impressive in its own way as TransWarp GS or the 10-MHz Rocket Chip. If you want to solve the Apple II speed problem completely, the Multi-Kache Card is the other half of the acceleration equation.

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Cache As Cache Can

A hunter's *cache* is a place where he or she hides ammunition or food along the way. Your Apple II uses *cache memory* to hide programs or data it will need along its way to finishing a task. Getting a program or piece of data from a cache is quicker than

going all the way back to the source, usually a disk.

In contrast, the slowest way to get information into your computer's central processing unit (CPU), or microprocessor (6502, 65C02, or 65816), is to load it from a floppy disk. (The *very* slowest way is from a cassette player—but nobody uses that anymore, although IIs still can.) Newer 3½-inch disks are faster than their bulky cousins, the 5¼-inch floppies; hard disks are the fastest of all.

But the quickest way of all to get information to the CPU is from the computer's random-access memory (RAM). The 6502 or 65C02 in an Apple IIe or IIc gets all the data and programs it needs from 64,896 bytes, or units of memory, abbreviated as 64K of RAM.

Some programs require more than 64K. To feed these memory hogs, the microprocessor gets information from a second block of 64K of RAM, called the *auxiliary bank*. Many popular programs, such as AppleWorks and Publish It!, require 128K. All Apple IIs and IIcs sold today come with those two banks of 64K, for a total of 128K.

You can add more than one bank of memory—memory-expansion cards such as Applied Engineering's RamWorks fit into an auxiliary slot on the IIe and can add megabytes of memory. AppleWorks needs only two banks (128K), but AppleWorks with TimeOut applications or

AppleWorks 3.0 can fill much more. Remember, the quickest way to run a program is to run it from RAM. That's why AppleWorks loads as much of itself as it can into your computer's available memory.

That's the speed limit for the 6502 or 65C02 microprocessor. The only way to work faster than running every program from RAM is to install a faster microprocessor. The GS has a 65816, which is 2.6 times faster; TransWarp (3.6 times), Zip Chip (4–8 times), and Rocket Chip (5–10 times) use still faster microprocessors.

The trouble with installing a speedier microprocessor is that your RAM is probably too slow to keep up with it. TransWarp gets around this with an extra 256K (four banks of 64K) of "fast RAM" that its faster microprocessor can use.

TransWarp duplicates all the built-in software of your IIe—called *ROM*, for *read-only memory*—in two banks, and uses the other two to duplicate main and auxiliary memory. Because the Apple ROM is accelerated, TransWarp can speed up things like disk access, telecommunications, and printing, if the hardware involved uses *direct memory access* (DMA). That means that control of the machine is turned over to the device connected to the slot and that TransWarp won't accelerate the peripheral by much.

Zip Chip and Rocket Chip, on the other hand, don't add any RAM. Instead, each includes on the card itself a small "cache" of 16K of fast RAM that holds the most commonly used parts of programs for quick access. Caching lets Zip and Rocket accelerate more than two banks of extra RAM. They won't speed up DMA devices, though. That's probably not something to worry about, because the gains would be small anyway.

Caching isn't limited to Zip Chip and Rocket Chip. The GS operating-system software, GS/OS, includes a built-in caching program. It's a new desk accessory (NDA) that lets you designate as much as 32K of RAM as a cache to hold the most frequently used GS/OS commands. After you use a pull-down menu, for example, that portion of GS/OS is "cached" and the menu draws much faster the next time you open it.

Another option: Bill Basham's GS program *Diversi-Cache* (Diversified Software Research, 34880 Bunker Hill, Farmington, MI 48331, 313-553-9460, \$35), a classic desk accessory (CDA), creates a cache as big as you need, and can stash as much material as you like from any program you choose, and from any disk except a hard drive. Whatever method you prefer, if you're on a productivity mission, caching some data is a good way to get it done faster. □

—Paul Statt

a machine that's grown tired or—in the case of the GS—tiring. The emergence of these products means more than running existing software faster, however. When a software developer is confident that you want and can afford an accelerator, you'll see more powerful software for your Apple II.

Which one should you buy? Among the IIe-style accelerators, Zip Chip has the price advantage, Rocket Chip the performance, and TransWarp the greatest reliability. (And at \$169 it's now competitive with lower-priced chips.) TransWarp GS, the Multi-Kache Card, and the Floating Point Engine stand alone in their categories.

It's a great time for you to build a faster Apple. Acceleration is shaping up as the best thing for the II since the disk drive. Why let your machine walk when you can make it run? □

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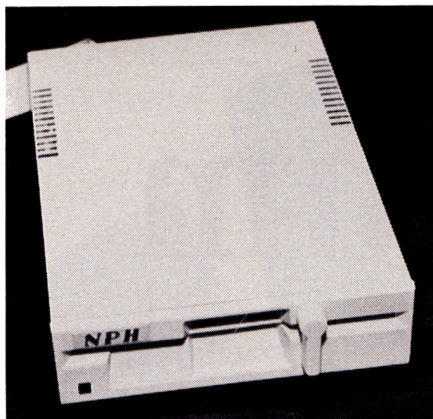
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The Medium Is the Message

By ROBERTA SCHWARTZ * MICHAEL CALLERY

Did you notice a few yawns the last time you reported the results of the rummage sale to your organization? Were your salespeople moaning with boredom when you lectured them about your company's new products? Have you been putting your students to sleep with long strings of facts and figures? If you're losing your audience, it's time you considered a more dynamic way of presenting your information.

GET GRAPHIC!

When you think of presentation graphics, you probably conjure up an image of pie or bar charts. While these are useful ingredients in many presentations, they're only a part of the picture. Presentation graphics includes any type of illustration that conveys information to an audience. It may be as simple as the time and location of a garage sale or as complicated as an interactive point-of-sale advertising piece, such as those some cosmetic companies are installing in department stores.

For years, Apple II users have relied on **The Print Shop** and other elementary desktop-publishing programs to create simple information sheets; now video technology and the recent introduction of the **Apple II Video Overlay Card** are paving the way for more sophisticated types of presentations.

Most presentations are projected, whether it's a 35mm slide show, a computer-generated slide show, or a videotape; printed materials are often included as supplements, however. Presentations are normally accompanied by a speaker, but many consist of self-

running displays. No matter what the medium or the format, an effective presentation is the sum of several parts; the projected material, the printed material, and the spoken material must relate to one another and shouldn't be redundant. Much of the preparation takes place before the actual creation of the graphics.

Before we look at the tools that are available to help you create presentation graphics on your Apple II, let's look at what you should do before you even turn on your computer.

ORGANIZE, ORGANIZE

The key to successful presentations is organization. Consider not only what you want to say, but why you want to say it. Presentations are intended to convince. Whether you want to persuade the officers of a club that a new membership drive is necessary, the administra-

tion that new computers are needed, or management that sales are exceptionally good in a certain region, know why you want to make the presentation, or you'll have a difficult time making it.

As you define the purpose of your presentation, define your audience. Are members young or old? Enthusiastic or disinterested? If they're already familiar with your subject, you'll present the information differently from the way you would if you had to introduce them to the subject in addition to making your points.

Decide on your delivery format. Is your presentation going to be live with overhead transparencies or ►

Wake up your audience!
A wide array of Apple II graphics, video,
and desktop-presentation programs give you
the tools you need to grab people's attention
and deliver a dynamic message.



35mm slides, or is it going to be taped or filmed?

WRITE IT DOWN

After defining the purpose of your presentation, list the specific items of information you need to reach your goal. If you're working in a group, brainstorm. Don't get lost in a sea of small details; just gather as many ideas as you can.

After you've listed all the things you'd like to include in your presentation, evaluate and edit them. If you have an outliner, such as the one included in Addison-Wesley's **WordBench**, use it to organize your thoughts and put them in sequence. If you don't have an outliner, use a word processor's cut-and-paste command to rearrange your ideas.

Ask yourself the following questions about the items you'll present: Which should come first? Do I need transitional material? Should I split this point into several?

VISUALIZE

After you edit your notes, put them in sequence so that you can visualize how to present them best. Sometimes just a few words are enough to make a point; at other times a graph, a drawing, or even a snippet of animation is more effective. Presentations should have rhythm. A series of ten pie charts might bore your audience, while a combination of word, pie, and bar charts might hold its interest.

Also consider that projected material shouldn't contain the detail that printed materials can. If you need to present a lot of numbers, put them in handouts and use summary figures for your visuals. A general rule of thumb is that a visual should be on screen no more than a minute. If your material demands more time, break it into a *build*—a sequence of visuals, each of which highlights another part of the information you're presenting.

SCRIPT TO STORYBOARD

Develop a script for the audio portion of your presentation. If you've done advance planning, the script will flow naturally from the points you've identified as essential. The components of the script should mold the visuals and vice versa. Make rough sketches of your visuals.

The script combined with these sketches is called a *storyboard*. Don't be overly concerned about details at this point. One of the great things about using computers to develop presentations is that you can

experiment. Pie charts not working? Try it as a bar graph. With storyboard in hand, you're ready to begin production.

PRESENTATION

Although it's easier to create and organize your visuals with a specialized presentation program, you can use any good paint program, such as **Blazing Paddles** (hi-res), **Dazzle Draw** (double hi-res), **PaintWorks Plus**, **PaintWorks Gold** (super hi-res), or **Deluxe-Paint II** (super hi-res).

Charts and graphs convey information effectively. You can draw them freehand in any paint program, but you'll find it's simpler and more accurate to use a business graphing program, such as that found in **AppleWorks GS**, **TimeOut Graph**, or **Graph It!**. (ShowOff, a presentation program that we'll be discussing later, also offers a graph module.)

Volumes have been written on how to make your charts and graphs readable and accurate. (For instance, it's easy to distort the data by improper scaling of axes.) The key point to remember is that your audience will have only a brief time to absorb the graphs; keep them simple.

Free-form graphics and diagrams add pizzazz. You can create them in any paint program. If you have a laser printer, use a drawing program such as **TopDraw** or **Draw Plus** for the most professional output. If you have a digitizer, such as **ThunderScan** or

ComputerEyes, you can easily bring illustrations from other media into your presentations. And if you don't have the skill or time to draw your own, clip art can save the day.

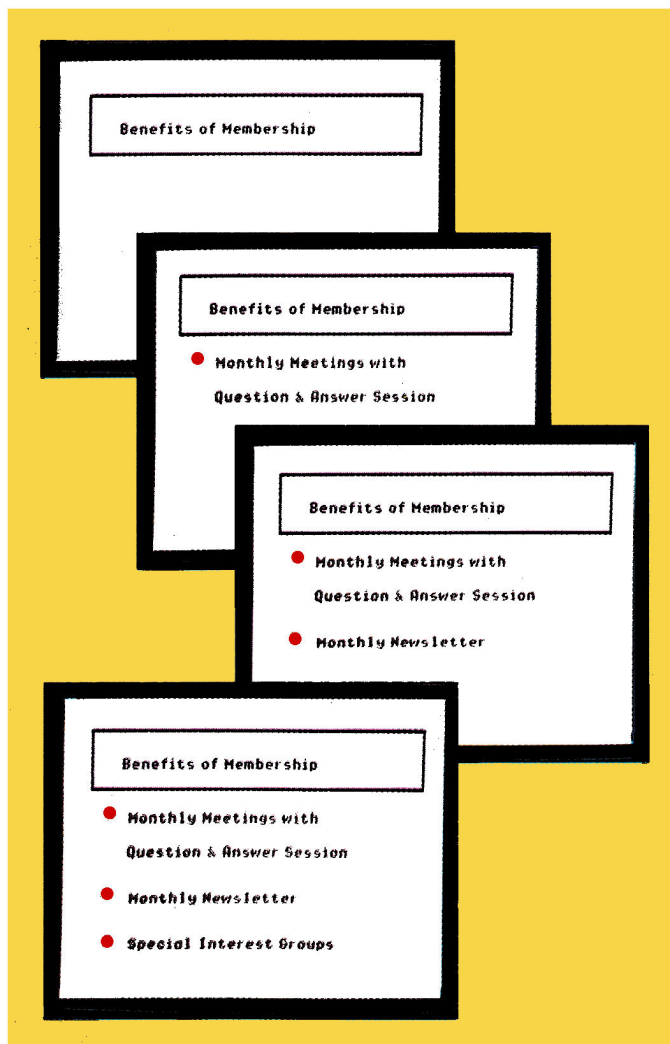
WHEN IN DOUBT, SPECIALIZE

We've been stressing that you don't have to use a specialized program to create presentations on your Apple II. Read on, however—you might find that such products produce more professional results while easing your chore considerably.

SLIDE SHOP: STANDARD HI-RES

Slide Shop, from Scholastic Software, works in standard-hi-res mode and runs on any 128K Apple IIe, IIc, or IIGS. Because Slide Shop employs the Apple desktop interface, a mouse is recommended.

A Slide Shop presentation is a sequence of text or



ShowOff from Broderbund: When you're presenting a set of related points, use a "build" in which each slide adds information. Individual slides should be on screen no longer than a minute apiece. If your material requires more time and a more complex explanation, break it down, as shown here. This lets you make your points in sequence without overwhelming your audience.

graphics frames that replay automatically from a self-booting slide-show data disk. Your screens can have borders, a variety of typefaces, and sound effects. Graphics frames, of course, require more disk space than text frames. A 5¼-inch disk can hold 14–18 graphics slides or more than 100 text slides.

To create a text frame, choose New Frame from the File Menu; then click on Text Frame in the dialog box. Next, select a border, background color, text color, sound, and typeface for the slide. A simple text editor lets you type your text. You can change any of your choices anytime.

To create a graphics frame, choose that option from the New Frame dialog box and you'll find yourself in a paint program with geometric objects (ovals, rectangles, and so on), brushes, lines, and more.

You can also load a background—Scholastic provides both templates (graphics that have large blank areas for your message) and full-screen graphics. The program will import any standard, non-packed (8K) hi-res graphic as background. If you'd like to modify the graphic in your favorite standard-hi-res paint program, you can export Slide Shop backgrounds.

Slide Shop also supports clip art in its own format or Print Shop format. It lets you flip and colorize your clip art as well; you can even make your own by selecting any area of a graphic with the copy tool and using the Save Clip Art command.

Once you've created your screens, use the script editor to put them in sequence. Just fill in a form with the proper filenames in the order of the presentation screens. You can select from a wide range of transitions between frames (transitions affect the way one graphics element blends into another) and designate whether the presentation should progress automatically or manually (with a mouse click or keypress).

You can save the script along with your slides on a slide-show disk, which boots itself and runs the presentation. Slide Shop works well, and the documentation is clear and filled with tips on using the program. It's a potent tool for almost any type of presentation.

SHOWOFF: SUPER HI-RES

ShowOff works on the Apple IIGs. At first glance, the screen resembles a paint or drawing program.

Because ShowOff operates in super-hi-res mode, your screens can be much more colorful than those created with Slide Shop.

Instead of clip art, ShowOff features beautifully executed "stickers," small graphics blocks you can "stamp" onto your slides, and "icons" (small pictures of objects) you can stamp onto your graphic.

ShowOff's graphics tools are limited to lines and geometric shapes the program handles as a drawing package does objects. That is, you can resize, reposition, and recolor objects, among other things; just click on an object to select it and alter it as you like. For more detailed "painted" graphics, you can import a standard super-hi-res image from a paint program such as Deluxe-Paint II, 816/Paint, PaintWorks Plus, or PaintWorks Gold.

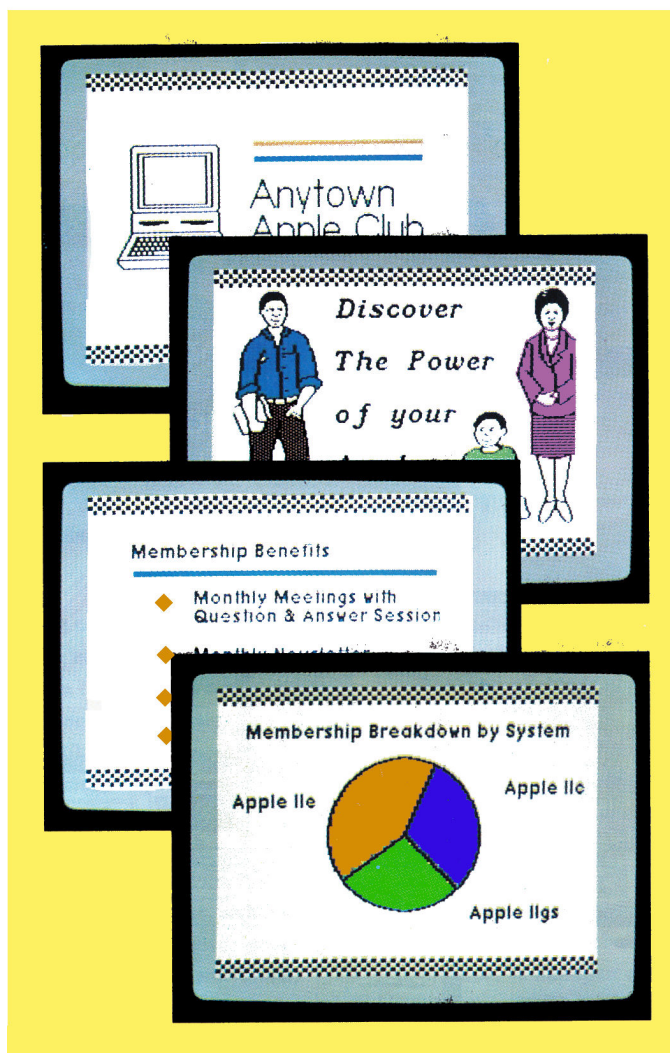
A great plus is that ShowOff provides a simple graphing module, offering pie, bar, or line graphs with a maximum of 12 pieces of data per graph. It may not handle all your graphing needs, but it's nice to have that function integrated into a presentation program.

Once you've created your frames, save them along with your script or put them in sequence on a disk that will boot and run your presentation. The program's Sequence editor lets you branch to a specific frame at a specific keypress, letting you create interactive presentations in which the user determines the flow of the screens. ShowOff can also control an external device, such as a slide projector, connected via a standard RS-232 serial interface to the Apple IIGs.

Both Slide Shop and ShowOff provide you with just about all you need to create a presentation. Read on to learn more about some specialized programs that are also good choices for this task, especially if you're working with video.

VIDEO MEETS GRAPHICS

inCider has already covered working with video from your Apple IIe or IIGs. (See "Roll Video," May 1989, p. 42, and "Reel-World Images," July 1989, p. 40, for more information.) If you have the Apple II Video Overlay Card, your options increase: You can overlay your computer graphics onto live or prerecorded video. (This is also called *genlock* technology.) You'll need a second videocassette recorder (VCR) if you want to record your merged images for later playback.



Repeated elements such as borders, rules, or icons give your presentations consistency. Visuals shown here were created with Scholastic's Slide Shop. Slide Shop provides a full-featured painting environment in standard hi-res, plus graphics templates with blank message areas, full-screen graphics, clip-art import, text editor, and typeface options.

Remember, if you don't have a genlock such as the Apple II Video Overlay Card, you can't merge video with computer graphics; your computer graphics will be separate from the video. Be aware, too, that unless your VCR has a good pause function, you may produce glitches when you switch between the computer graphics and the video. These factors aside, all you need is your Apple II computer, a VCR, and one of the programs described below to create effective video presentations easily.

VCR COMPANION

VCR Companion, from Broderbund, works in double-hi-res mode on any 128K Apple IIe, IIc, or IIcs. While the program was designed to let you customize home videotapes by adding titles, credits, and intermissions, you can also use it to create a presentation from scratch.

Once you've chosen the option **Make a Video**, go to the **Edit Script** Screen. Here you can add, edit, insert, delete, clone, and preview all the elements of your video script. For each frame, select a background from the VCR Companion disk—a solid color, pattern, full-screen picture, or an icon (such as a picture of a director's chair) for any of nine positions on screen. Add your text by typing into a mini-text editor; you have a choice of fonts, colors, and sizes as well as the ability to make your text static or make it scroll. Build up one frame after another. That's it—your script is complete. Well, sort of.

As your script progresses, you can add pauses, transitions, and special effects. For example, if you want a line of text to remain on screen a few seconds before the icon of the director's chair appears, you'd add a short, medium, or long pause. Using transitions, you can have that chair fade in, fizzle in, spiral on, or just pop on and off the screen. VCR Companion offers a wide selection of transitions, and, as in **Slide Shop**, you can control their speed to get a fast fizzle, a slow spiral, and so on. You can add special effects to background or individual graphics elements, too, including flash, meltdown, rain, and other items.

The package includes ready-made animations, such as a flying plane, you can insert anywhere. You can set them to remain stationary on screen or to move across it in either direction at slow,

medium, or fast speed. VCR Companion also lets you include movies created with Broderbund's popular animation program, **Fantavision**.

All these features, the comfortable interface, and the ease of use would be enough to make VCR Companion worth having, but Broderbund didn't stop there. The package also includes some helpful

bonus utilities. A special editor lets you design your own transitions; a graphics converter imports any full-screen, double-hi-res picture for use as a background. Or you can design your own icons or animations with any character created with **Animate**.

With all this power you should be able to create a dynamic script. With a VCR hooked up to your computer, play it back. Audio or visual indicators inform you when to turn on or pause the VCR. These clues—and the program's ability to incorporate animation—make VCR Companion superior to either **Slide Shop** or **ShowOff** if you're making a videotaped presentation.

Even if you don't have a videocassette recorder, consider VCR Companion anyway. The program lets you produce "film disks" on standard floppies. Film disks are self-booting, and each disk contains one video script.

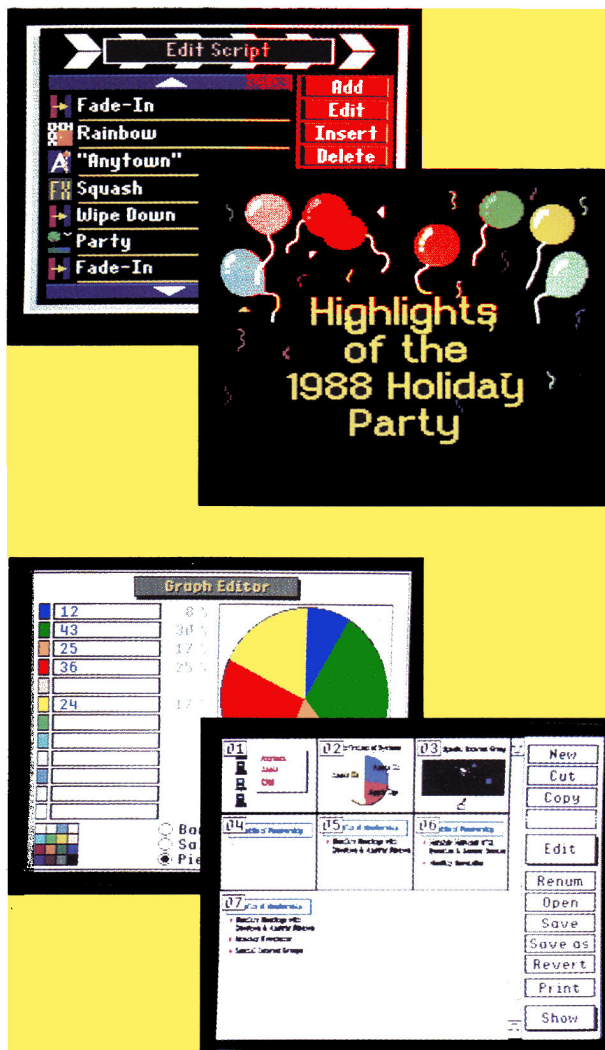
MORE FOR VIDEO

Video Title Shop from Datasoft (distributed by Electronic Arts) and Epyx's **Home Video Producer** offer many of the same features found in VCR Companion. These programs, however, lack VCR Companion's elegant interface.

Home Video Producer is a double-hi-res program with an icon-based interface. It works with film strips; each strip holds up to 16 frames, and you can link two or more strips to create a movie. Each frame can include a block of text, a graphic, and a background consisting of a border or a solid color. For each element in your frame, you can select one of four effects (transitions), along with a speed and a delay for each effect.

The program includes templates for producing standard video sequences. Select a template, such as **Birthday**, **Vacation**, or **Credits**, and fill in its blanks to create an instant personalized greeting or video title. The program's documentation, while not as attractive as VCR Companion's, is excellent.

Video Title Shop, the weakest of the three, ►



Top left: Broderbund's **VCR Companion** provides an easy way to sequence graphics and text slides, transitions, and effects. **Right:** VCR Companion screen created from graphics background (balloons) overlaid with text slide. Text comes on screen with "fade-in" transition. **Bottom left:** ShowOff's integrated graphing module lets you create simple pie, bar, and line charts. **Right:** ShowOff's sequence editor displays miniatures of your slides and lets you rearrange the order of your presentation visually.

Overhead Projection

The world of desktop presentations doesn't end with the computer and some software. Unless your audience sees your graphics images, none of the other hardware matters.

Fortunately, unlike computers such as the Mac Plus, Apple IIs have external RCA-type video connectors that let you connect large screen displays to your computer. Until a few years ago, the most common form of presentation graphics was to place several monitors throughout the meeting room and connect them so that everyone could see the images. This approach, still appropriate in some settings, has drawbacks when you use it with a large audience. First, the audience's attention is directed to the sides of the room where the monitors are located rather than to the speaker. Second, many people have a hard time reading the content of a screen when it's more than a few feet away.

One of the best solutions for audiences of almost any size is to use a three-beam video projector. These monsters (some of which are designed for home use) contain three powerful color tubes (red, green, and blue) whose beams combine on screen to generate a full-color image that can be viewed by more than 2000 people. Some of the more widely known manufacturers of these systems include *Sony*, *ElectroHome*, and *InFlight*. These are the types of projectors used when you watch movies on airplanes.

While it's hard to beat the high-quality image of such projection systems, they have several drawbacks. First, some of the better ones are expensive. Second, unless you never move them, you have to adjust them before you use them. Third, they're heavy and bulky. If you're giving a presentation and someone else is providing the projection system, this is the type of equipment you want. But when you're spending your own money, some other choices may make more sense.

About three years ago several companies announced liquid-crystal display (LCD) plates—flat-panel transparent displays you set on top of a standard overhead projector and connect to your computer. The display acts like a standard transparency whose image is the same as that of the computer display. Several versions of these displays are on the market today. *Kodak* and *Telex* catalogues list some good offerings, as do those of some other manufacturers. Your local audio/visual supply house probably has a whole section devoted to this category.

Basically these products come in two configurations (for Apple II users). One includes a card you plug into a spare slot in your IIe or GS. This allows the display to provide a little better quality than you'd get if you connected the display to the video-out port. For example, the Telex display maps hi-res colors into gray scales. The second configuration is designed for people who, like me, do their presentations with an Apple

IIc. These display plates connect to the video jack just like a monitor. They're fairly inexpensive (in the \$600 range) and are portable. I put mine in the outside pocket of my IIc carrying case when I'm on the road.

Keep the following points in mind as you explore this technology. First, display plates work only with overheads whose light source is in the base of the projector. That's how most overheads work, but some reflect light from above. This second kind of projector won't work at all with plates.

While we're on the topic, make sure your overhead projector doesn't overheat. If it does, you'll see "hot spots" forming on the display plate. They disappear when the display cools down, but they can ruin an otherwise perfect presentation.

Although you can adjust contrast on these displays, the light/dark ratio is still pretty bad. White areas tend to appear as light green and black as dark blue-green. As long as no room light is directed at the projection screen and the

group is small enough (50–100 people), these displays work pretty well.

Another problem is sluggishness. You can't use such displays with programs like *Fantavision*, for example; the response time isn't fast enough. You can turn that to your advantage, though: My "slide shows" have nice "dissolves" that come free because of sluggish response time. As the technology improves, response time will quicken.

Our last category of projectors gives you a glimpse into the wonderful developments that lie ahead of us. The *Kodak LC500* video projector is about the size of a traditional 35mm slide projector. It accepts composite video as well as both digital and analog RGB inputs and has a built-in amplifier and speaker for audio. The projector itself uses a full-color liquid-crystal display that sits where a slide would otherwise be.

This display has excellent contrast and a fast enough response time that you can use it for showing videotapes. While the image on the LC500 is sharp and fairly bright, it works best in a somewhat darkened room. Also, the color bleeding found in Apple II hi-res mode is fairly pronounced in this projector, but you can minimize it by reducing color saturation.

The compact size of this Kodak projector makes it transportable. It's also fairly rugged; I've taken it across the country several times (as carry-on baggage) and it has held up well. The only part you can replace is the projector bulb, the same kind you'd find in a slide projector. If you're interested, shop around a bit. The price is in the \$3000 range, but, with history as our guide, that cost will drop soon.

If you're in the business of designing and showing presentation graphics, stay tuned—with the variety of display options available, the traditional overhead transparency may soon go the way of the floor-model black-and-white TV. □

—David D. Thornburg

With the variety of display options available, the traditional overhead transparency may soon go the way of the floor-model black-and-white TV.

PRODUCT INFORMATION

Animate, \$69.95
Fantavision, \$49.95
Dazzle Draw, \$59.95
The Print Shop, \$49.95
ShowOff, \$59.95
VCR Companion, \$54.95
 Broderbund Software
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 San Rafael, CA 94903-2101
 (415) 492-3500

Apple II Video Overlay Card
 Apple Computer
 20525 Mariani Ave.
 Cupertino, CA 95014
 (408) 996-1010
 \$549

AppleWorks GS
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 Santa Clara, CA 95052-8168

(408) 987-7000
 \$299
Blazing Paddles, \$34.95
816/Paint, \$75
 Baudville
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 Grand Rapids, MI 49512
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ComputerEyes, \$129.95
Color ComputerEyes, \$249.95
 Digital Vision
 66 Eastern Avenue
 Dedham, MA 02026
 (617) 329-5400

DeluxePaint II, \$99.95
Video Title Shop (Datasoft),
 \$39.95
 Electronic Arts
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 (415) 366-0606
 \$49.95

Slide Shop
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New York, NY 10003
 (212) 505-3000
 \$69.95

ThunderScan
 Thunderware
 21 Orinda Way
 Orinda, CA 94563
 (415) 254-6581
 \$219

TimeOut Graph, \$89.95
TopDraw, price undetermined
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 San Diego, CA 92121
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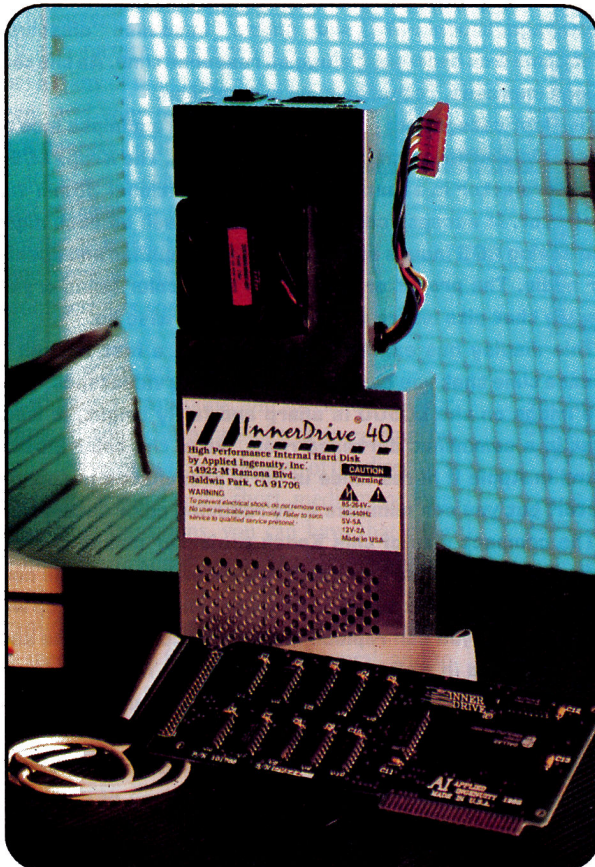
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might be for you if you want a standard-hi-res presentation. Along with many of the features listed above, it includes a paint program so that you can create your graphics slides within the program.

All three video products come with an assortment of typefaces and clip art specific to each program—you can't use them with other software. Neither Video Title Shop nor Home Video Producer lets you incorporate animations from other software.

Don't settle for dry lecture style. With any of the programs described here, you can spice up your talks, lessons, and sales pitches. It's time to turn those yawns and moans into "oohs" and "ahs!" □

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DATABASE DOINGS 2

There's more to AppleWorks' database than meets the eye.
A few special tips let you produce clearly labeled headings for
professional-looking reports and documents.

By **RUTH K. WITKIN**

LIKE THE RUBIK'S CUBE CHALLENGE, this one's a dilly. August's endeavor puts you through your database paces, stretching mental muscles, strengthening your skills, and helping you learn more about your own abilities.

By the end of last session ("Database Doings," July 1989, p. 62) you had created a database for the Long Island Bowling Association, set a standard value in the COUNT category, filled six records, and copied records to create two more.

You also designed a tables format and printed a tables report with category names—but no AppleWorks header—at the top of columns. This last step is significant because when you turn off the AppleWorks header, the category names disappear!

Now let's begin anew. Recall that "TA-DAs" herald those special tricks and techniques that make AppleWorks really work for you. **Figure 1** shows one of them.

Let's look at this tables report, whose heading consists of category names, underscores, and a blank line before the first data record. And again, there's no AppleWorks header. You'll find more TA-DA treasures as you go along.

Now load the AppleWorks program and bring DBDOINGS to the Desktop. You should see eight records in the multiple-

record layout of the Review/Add/Change screen. Press Open apple-E (OA-E) to switch to the overtyping cursor.

TA-DA 4: CATEGORY NAMES PLUS

You can use two different methods to print category names across a tables report. The first method involves typing category names in the blank line above the names in the Report Format screen, using spaces to separate one from another. (You can get to the blank line by pressing OA-N, then Return.) The disadvantage is that you're limited to 78 characters' worth of category names, including spaces. The advantage is that these headings print on each page of a report.

The second method lets you print every category name (no matter how many), underscore category names, and leave a blank line between the underscores and first data record, all of which give the report a more professional look. The disadvantage here is that headings appear only on the report's first page.

Figure 2 shows the first step—creating a record containing the category name in each category. With the cursor on the Baldwin Bowl-O-Rama entry, press OA-I to insert a new record. Type **ALLEY NAME** and hit Return. Type **TOWN** and hit Return again. Continue this way, typing the category name (overtyping the standard 1 in the COUNT category) and hitting Return after each one.

After the SPARE category, AppleWorks brings up another new record.

Figure 3 shows the next step—creating a record that contains a string of equal signs in each category. With the cursor in the ALLEY NAME category, hold down the equal-sign key until the beep, then release the key and hit Return. A long line of equal signs ensures that the underscore will be long enough if you increase column widths in your report. Now, with the cursor in the TOWN category, hold down the equal sign until the beep, release, and hit Return. Continue entering equal signs in other categories.

After the SPARE category, AppleWorks brings up yet another new record. The last step is to create a record that produces a blank line below the underscores. Move the cursor to the COUNT category, press OA-Y to erase the standard entry, and hit Return. The record is now devoid of all entries. That should do it, right? Wrong.

AppleWorks is stingy. It doesn't like wasting paper on empty records. AppleWorks won't let this record produce a blank line (it simply ignores the record when you print) unless you can prove the record is active. And how do you do that? By entering something into a category. Because the spare category doesn't appear on screen, it's the ideal candidate.

With the cursor in the SPARE category, type 1 and hit Return. Press Escape to return to the multiple-record screen. The three records that will produce the heading now sit neatly at the head of the data records. The dashes in the "empty" record are screen characters only. Unless you specify otherwise by toggling PD (Print a Dash) in the Printer Option screen, they won't print.

Now, it's always a good idea to arrange (sort) records before printing a report. Arrange these records by alley name: With the cursor in the ALLEY NAME category, press OA-A and hit Return. Hmmn, those three header

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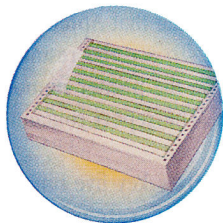
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records are now in topsy-turvy order, with the "empty" one at the top of the list, followed by underscores, then category names.

Here's why: AppleWorks follows certain rules when arranging, giving top priority to records with no entry in the sort category. A group of symbols including the equal sign holds the next highest priority, followed by numbers and other symbols, then letters and more symbols. (You can find the complete sort order in the AppleWorks manual.)

So, each time you arrange records, be prepared to rearrange the header records so that they're in proper order. Here's how to do it: Place the cursor on ALLEY NAME and press OA-M to start the Move command; type T to confirm *To clipboard* and hit Return again; move the cursor up to the "empty" record and press OA-M again; this time, type F (for *From Clipboard*). Instantly, AppleWorks plunks the category-name record into first place. Repeat these steps to move the underscore record to second place, leaving the "empty" record in third place.

Figure 1. Tables report with no AppleWorks header.

ALLEY NAME	TOWN	LEAGUE NAME	START DATE	SECRETARY	COU
Baldwin Bowl-O-Rama	Baldwin	Thursday Night Men	Sep 7 89	Corey Thompson	1
Hav-A-Ball	Wantagh	Women's Wednesday Matinee	Sep 6 89	Joan Corallo	1
Plainview Bowl	Plainview	Tuesday Night Mixed	Sep 5 89	Karen Spolberg	1
Plainview Bowl	Plainview	Friday Night Men	Sep 8 89	Mike Sheridan	1
Plainview Bowl	Plainview	Monday Afternoon Juniors	Sep 11 89	Harriet Chong	1
Sayville 300 Bowl	Sayville	Sunday Morning Mixed	Sep 10 89	Larry Merow	1
Stewart Bowling Center	Garden City	Tuesday Night Women	Sep 5 89	Champie LeCatt	1
Village Bowling	Huntington	Friday Night Mixed	Sep 8 89	Burtie Byrd	1

Figure 2. Record produces category names.

```
File: DBD0INGS          INSERT NEW RECORDS          Escape: Erase entry
Record 1 of 9
=====
ALLEY NAME: ALLEY NAME
TOWN: TOWN
LEAGUE NAME: LEAGUE NAME
START DATE: START DATE
SECRETARY: SECRETARY
COUNT: COUNT
SPARE: SPARE
=====
Type entry or use @ commands                                1030K Avail.
```

Now print this report, which should match the one in **Figure 1**: Press OA-P; hit Return twice to confirm *Get a Report format* and **TABLES**; press OA-P again, select the printer, and hit Return to confirm one copy. When the printer stops, press OA-S to store the database on disk.

TA-DA 5: KEEPING COUNT

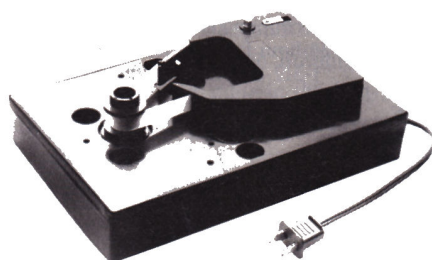
The next TA-DA involves counting records—all of them first, then in groups by bowling alley. Return to the Report Format: Hit OA-P, then press Return twice. Now press Right Arrow five times to move the cursor to the COUNT category (shown as **COU**). Tell AppleWorks to produce category totals by pressing OA-T, hitting Return to confirm zero decimal places, then typing 1 to specify one blank space.

Nines and a double line appear in the COUNT category, meaning that AppleWorks will add these entries. To see the result on paper, press OA-P, type the printer number, and hit Return twice. The report contains a total of eight records.

Now press the left-arrow key five times to reach the ALLEY NAME category. Tell AppleWorks to produce group totals by pressing OA-G, then typing N twice. In the left corner of the screen, above the double line, AppleWorks shows *Group totals on: ALLEY NAME*.

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Figure 3. Record underscores category names.

```
File: DBDOINGS          INSERT NEW RECORDS          Escape: Erase entry
Record 2 of 10
=====
ALLEY NAME: =====
TOWN: =====
LEAGUE NAME: =====
START DATE: =====
SECRETARY: =====
COUNT: =====
SPARE: =====
-----
Type entry or use 2 commands                               1030K Avail.
```

Figure 4. Labels report.

```
File: DBDOINGS
Report: LABELS
Selection: COUNT equals 1

ALLEY NAME: Baldwin Bowl-O-Rama
TOWN: Baldwin
LEAGUE NAME: Thursday Night Men
START DATE: Sep 7 89
SECRETARY: Corey Thompson
COUNT: 1
SPARE:

ALLEY NAME: Hav-A-Ball
TOWN: Wantagh
LEAGUE NAME: Women's Wednesday Matinee
START DATE: Sep 8 89
SECRETARY: Joan Corallo
COUNT: 1
SPARE:

ALLEY NAME: Plainview Bowl
TOWN: Plainview
LEAGUE NAME: Tuesday Night Mixed
START DATE: Sep 5 89
SECRETARY: Karen Spolberg
COUNT: 1
SPARE:

ALLEY NAME: Plainview Bowl
TOWN: Plainview
LEAGUE NAME: Friday Night Men
START DATE: Sep 8 89
SECRETARY: Mike Sheridan
COUNT: 1
SPARE:

ALLEY NAME: Plainview Bowl
TOWN: Plainview
LEAGUE NAME: Monday Afternoon Juniors
START DATE: Sep 11 89
SECRETARY: Harriet Chong
COUNT: 1
SPARE:

ALLEY NAME: Sayville 300 Bowl
TOWN: Sayville
LEAGUE NAME: Sunday Morning Mixed
START DATE: Sep 10 89
SECRETARY: Larry Merow
COUNT: 1
SPARE:

ALLEY NAME: Stewart Bowling Center
TOWN: Garden City
LEAGUE NAME: Tuesday Night Women
START DATE: Sep 5 89
SECRETARY: Champie LeCatt
COUNT: 1
SPARE:
```

To see these totals on paper, press OA-P and hit Return twice. Notice that AppleWorks grouped the records (including headers), separating groups by a blank line, then added *1s* in COUNT. Plainview Bowl shows a total of three records; all others show one. Press OA-G to remove group totals.

SELECTING RECORDS

AppleWorks can't distinguish between header records and legitimate data records.

So, when you print in a labels format (that is, one record after another instead of across the page), AppleWorks will print the header records, too.

To see what happens, first create a labels format: Press Escape, type 3, and hit Return; type LABELS and hit Return again. The Report Format screen for labels shows category names in a vertical arrangement.

Instead of printing on paper, view the records on screen: Press OA-P, type the number corresponding to the screen, and hit Return twice.

And here's the category and underscore records—definitely not what you want to see in a labels printout. Press the spacebar six times to cycle through the other records and return to the Report Format screen.

To prevent the header records from printing, you can delete them temporarily from the database, but you run the risk of forgetting you've deleted them and saving the database without them. Instead, simply select all other records: Press OA-R to bring up the Select ►



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APPLEWORKS IN ACTION

Figure 5. Category names, labels format.

```
File: DBDOINGS          REPORT FORMAT          Escape: Report Menu
Report: LABELS
Selection: COUNT equals 1

=====
ALLEY NAME: Baldwin Bowl-O-Rama
TOWN: Baldwin
LEAGUE NAME: Thursday Night Men
START DATE: Sep  7 89
SECRETARY: Corey Thompson
COUNT: 1
SPARE:

-----Each record will print  8 lines-----

-----
Use options shown on Help Screen          2-? for Help
```

Records screen and a list of categories. The only item all records but the header records have in common is the number 1 in the COUNT category. This, therefore, is the place to start. Type 6 and press Return.

The screen shows 12 selection criteria, with the highlight on *equals*. This is what you want, so hit Return. AppleWorks asks for comparison information. Type 1 and hit Return again. The top left of the screen now displays *Selection: COUNT equals 1*. AppleWorks offers connectors *and*, *or*, and *through* so that you can narrow or expand this selection. You have no more comparison information, so press Escape to return to the Report Format screen.

AppleWorks selects the records, and you can view them on screen: Press OA-P and hit Return twice. The Baldwin and Wantagh records have replaced the header records. Press the spacebar four times to view the other records and return to the Report Format screen. Leave record selection activated.

TA-DA 6: CATEGORY NAMES

Figure 4 shows a labels report with category names. Printing these names can be useful. For instance, you can distinguish between similar entries such as home and business phone numbers, or identify ambiguous entries. Anticipating that you'll use the labels format to print mailing labels, AppleWorks doesn't provide category names even when the standard header is active. In a database such as this one, with its diverse entries, category names are vital.

Figure 5 shows the report format that produces the category names. You're still in the Report Format screen. With the cursor on ALLEY NAME, press OA-V. Instantly,

AppleWorks plunks the alley-name entry in the first record—Baldwin Bowl-O-Rama—into the ALLEY NAME category.

Press the down-arrow key to reach the TOWN category and hit OA-V again. This time, the entry is *Baldwin*. Continue this way until the screen shows an entry next to each category name except SPARE, which is empty. After the SPARE category, press the down-arrow key once more to insert a blank line. The screen should now display *Each record will print 8 lines*.

Print the labels report: Press OA-P, select the printer and hit Return, type today's date, and hit Return twice. Now return the selection to all records: Press OA-R and type Y. That's all there is to it. Now press OA-S to store the database on disk.

Here's another tip: To center this type of labels listing, you can simply increase the left margin to the Printer Options field; 2-2½ inches should do it.

I hope you've learned from—and enjoyed—Database Doings. Next month you'll find a spreadsheet to help you check out the productivity of your sales force. Keep an eye out for more tips in Spreadsheet Shenanigans and Word-Processor Wonders as well, coming to your small screen in the near future. □

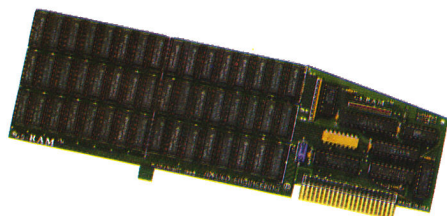
RUTH K. WITKIN IS THE AUTHOR OF THE POPULAR TEMPLATE/HANDBOOK SERIES *SUCCESS WITH APPLEWORKS I-IV* (INCIDER, IDG COMMUNICATIONS/PETERBOROUGH), *MANAGING WITH APPLEWORKS* (HOWARD W. SAMS & CO.), AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS* (JOHN WILEY & SONS). WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A REPLY.

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Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

1.

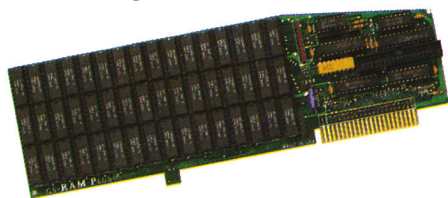
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1 MEG	\$509
1.5 MEG	\$709

2.

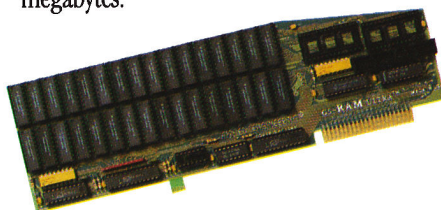
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LIVING COLOR

Join the likes of Ted Turner and colorize your black-and-white pictures! Take advantage of a variety of color ribbons to give your Publish It! documents maximum visual impact.

By CYNTHIA E. FIELD, Ph.D.

NOTHING'S EVER JUST BLACK AND white. Ask desktop publishers to name one drawback of **Publish It!**, and they're bound to mention the program's apparent inability to support multicolor printing. Even if you use a so-called color printer such as the ImageWriter II, churning out Publish It! documents in black ink is the best it gets. Or so it would seem.

But thanks to its click-and-cut flexibility, Publish It! is *ideally* suited to helping you create multicolor documents. You can achieve this effect even with non-color-capable printers such as those made by Epson.

To demonstrate the program's unheralded strength, let's create a multicolor sign for a hypothetical "Summer Paint Sale." Post it near the cash register to foster repeat business or on a display window to capture the attention of passers-by.

For this promotional piece, I used **Publish It! 2** on an Apple IIGS with 1.25 megabytes of memory. Many aspects of this project, including multicolor printing features, are compatible with the program's original version running on an Apple IIc or enhanced IIe.

LOOK BEFORE YOU LEAP

Starting up Publish It!, begin a New file (File menu or Open apple-Z). Call the new file Paint.Sale. Press Open apple-4 (or pull down

the Special menu) to activate Size to Fit page-layout mode.

Park the mouse, open your Publish It! manual, and glance through the Art Library (pp. 11-14). If you use Timeworks' **Art Portfolios—Education Graphics, People, Places & Things**, or **Symbols & Slogans**—peruse their respective printed guides to window-shop for potential illustrations. Be sure to consider DOS 3.3 **Print Shop** graphics for possible inclusion in your publication, if you're using Publish It! 2.

For my sign, I opted for three illustrations from the People, Places & Things disk: a calendar, a paintbrush, and a paint bucket. You'll find all three pieces of clip art in the "Home.Cooking" file, oddly enough.

Customers often don't have time to study signs in great detail, so keep your layout simple. Feature the main idea ("Summer Paint Sale"), vital information about the sale (the dates and items offered), and any "hooks" you can use to entice folks into your store ("Buy 2, Get 1 Free" and "Free Custom Mixing").

A PICTURE'S WORTH A THOUSAND WORDS

Select the graphics tool from the palette, and "rubber-band" (press and drag) a graphics area approximately in the center of the page. For the moment, the size of the graphics area is unimportant. Use Import Picture from the File menu and select the clip-art file you

want to view. Crop the calendar graphic and press Return to transfer this illustration to your page.

If you're using Publish It! 2, magnify the calendar graphic until it's about 5 inches wide and 7 inches high, as shown in **Figure 1**. Refer to the **Table** for the precise dimensions of this and all other objects in the sign. With the pointer, click on any object to select it and use Open apple-M (or the Objects menu) to view its specifications.

If you're using the original version of Publish It!, you won't be able to enlarge the calendar illustration and may have to forego using it.

With the graphics tool, rubber-band two more areas: one near the top right-hand corner of the page and one on top of—and in—the lower left-hand corner of the calendar graphic. Select the uppermost graphics area and import the paint-bucket illustration. Select the one remaining graphics area and import the paintbrush picture. Save this file as Paint.Sale.1.

COME ONE, COME ALL

Use the text tool to rubber-band three text areas near the paint-bucket illustration: one to the left, one above, and one to the right. Refer to the accompanying **Table** for placement and size details. The first text area will later accommodate the word *Summer*; the second, the word *Paint*; and the third, the word *Sale*.

Rubber-band a text area on top of the enlarged calendar graphic. Be careful not to interfere with the calendar or the paintbrush illustration.

You want your sign to be easy to read, so choose a thick, bold font such as Westwood. Place the I-beam in the leftmost of the three upper text areas. Pull down the Font menu and click on Select Font. Scroll through the directory and choose 36-point Westwood by ►

highlighting the name and double-clicking on it or by clicking on the OK button. Type the word *Summer*. Place the I-beam in the next text area and type *Paint*. In the third area, type *Sale*.

ADVERTISING PAYS

Place the I-beam in the text area atop the calendar graphic. Select 18-point Westwood. Type the dates of the sale (*August 11-21*), the featured products (*Our best, Interior Satin Latex, Exterior Semi-gloss Enamel*), the special deal (*Buy 2, Get 1 Free!*), the information about paint accessories (*Specials on brushes, rollers, and covers*), and the final lure (*Free Custom Mixing*).

Beginning at the top left-hand corner of the text area, drag the I-beam down and across the text to select it for formatting. Pull down the Format menu, click on Justify, and Center everything ("de-select" Use Page Standard).

Drag the I-beam across the words *Our best*, and press Open apple-U (or use the Font menu) to underline the phrase. Similarly, select and underline *Free* in *Free Custom Mixing*. Finally, select the line *Buy 2, Get 1 Free!*, and press Open apple-B (or pull down the Font menu) to make this sentence boldface. Save this file as Paint.Sale.2.

FINISHING TOUCHES

With a black ribbon in your printer, print a draft of the sign. Check carefully for the orientation of text areas and the placement of graphics.

Shift any object's position by first selecting and then dragging it. With the I-beam, enter text areas and fix any typos. Save the file (its screen appearance should look like **Figure 2**) as Paint.Sale.3. Print the completed sign (**Figure 3**).

RAINBOWS

Now for the fun! Printing any Publish It! document in full color requires an assortment of single-color ribbons. I purchased a **Rainbow Pack** (one each in blue, brown, green, red, purple, and yellow) from Programs Plus for \$20. Other colors, even silver and gold, are available from this company as well as from other suppliers including **Computer Friends** and **Ribbonland**. (See the accompanying Product Information box for company addresses.)

Because multicolor printing is a somewhat fastidious process, plan the colors that will look best in your publication. I decided to print

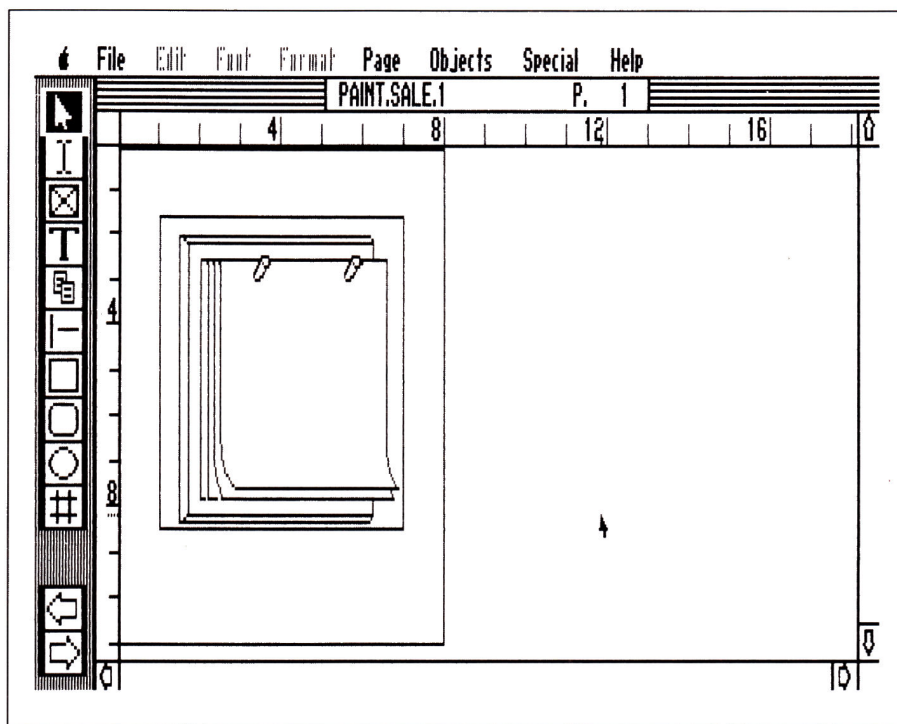


Figure 1. Enlarged calendar graphics area.

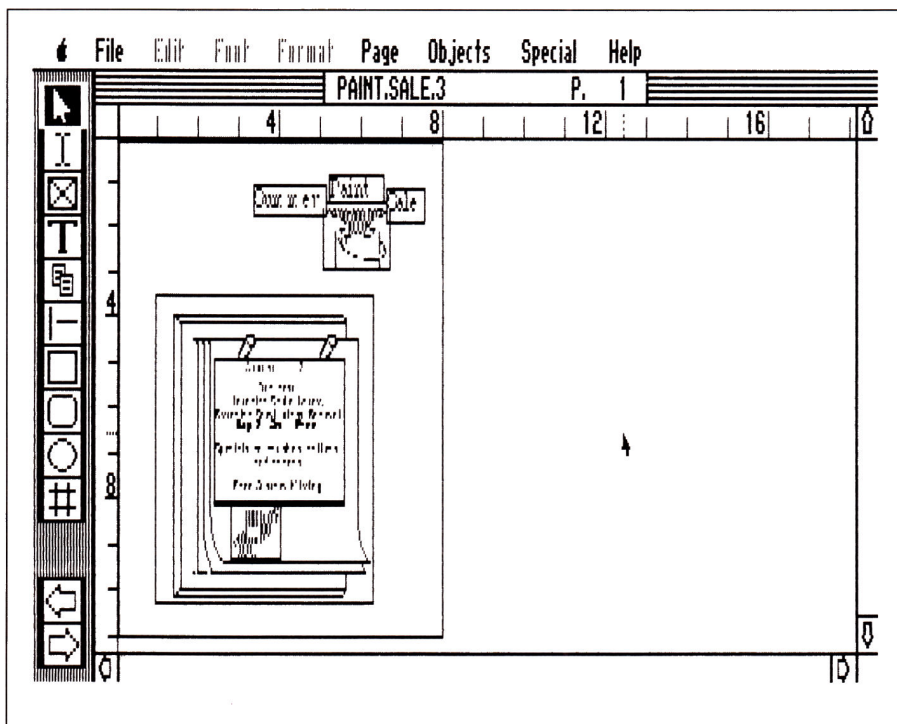


Figure 2. Seven objects on screen.

Summer in blue, *Paint* (and the paintbrush) in orange, *Sale* in green, the calendar in brown, and the information in black. Because I used six colors in all, I had to create six color-separated pages.

This process sounds difficult, but it's a snap. In my multicolored sign, for example, I printed in blue only the text area with the word *Summer*. I needed to create a page with just that object on it and then print that page

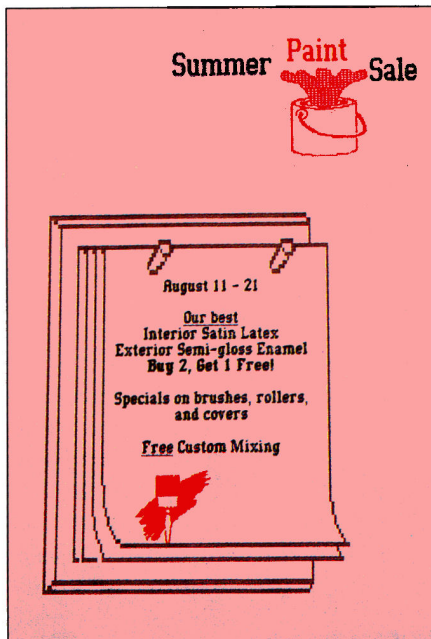


Figure 3. Completed sign.

with a blue ribbon. Let's get started.

To begin, click on the word "Paint" and Apple-click (hold down the open-apple key while clicking with the mouse) on the word *Sale*. Apple-click on the remaining objects, leaving only the *Summer* text area unselected. As you select each object, corner handles appear.

COLOR ME BLUE

Press the delete key and erase the unwanted objects in one fell swoop. Respond "OK" to each dialog that warns *This Cut/Delete will permanently delete an article's text*. Remember, the text is still safe and secure in the Paint.Sale.3 file on your data disk.

Save this file as Paint.Sale.3Blu. Place a blue ribbon in your printer. Line up your paper carefully that so you can start at the same precise place each time you run the page through the printer—six times in all for this project. For convenience and a crisp appearance, use single sheets of good-quality paper (25 percent cotton content white bond).

Carefully line up the paper's left edge with the "single-sheet guide" on the ImageWriter's back cover; line up the top edge with the red line on the "paper guide" near the printhead. Use equivalent guides on other types of print-

PRODUCT INFORMATION

Art Portfolios Design Ideas Education Graphics People, Places & Things Symbols & Slogans \$39.95 each 4-pack, \$120 Publish It! 2, \$129.95 Timeworks 444 Lake Cook Road Deerfield, IL 60015 (312) 948-9200	Computer Friends 14250 N.W. Science Park Dr. Portland, OR 97229 (800) 547-3303 (503) 626-2291 The Print Shop Broderbund Software 17 Paul Drive San Rafael, CA 94903-2101 (800) 521-6263 (415) 492-3200 \$44.95	Rainbow Pack Programs Plus 75 Research Drive Stratford, CT 06497 (800) 832-3201 \$20 6 single-color ribbons for ImageWriter II Ribbonland P.O. Box 506 Exton, PA 19341 (215) 524-9760
--	---	--

	LEFT START	TOP START	WIDTH	HEIGHT
"Summer" Text Area	3.334	1.108	1.740	0.593
"Paint" Text Area	5.219	0.869	1.287	0.537
"Sale" Text Area	6.580	1.243	0.890	0.665
Sale Info. Text Area	2.406	4.961	3.148	3.037
Calendar Graphic	0.925	3.423	5.370	6.870
Paint Bucket Graphic	5.018	1.333	1.650	1.629
Paintbrush Graphic	2.759	8.034	1.241	1.225

Table. Object specifications for "Paint Sale" sign (all dimensions in inches).

ers. If such guides don't exist, create your own by fastening strips of masking or electrical tape to the *outside* of the printer. But don't do anything to the printer's internal workings!

Print the page in double-strike mode. Remove the blue ribbon and insert a red one. Open (File menu or Open apple-O) the file Paint.Sale.3, which you saved earlier. Delete all objects *except* the word "Paint," the paint bucket, and the paintbrush. Save this file as Paint.Sale.Red. Carefully reinsert the page you already printed with the word *Summer* on it, and print the three red objects. Remove the red ribbon and replace it with a green one.

Reopen the Paint.Sale.3 file and delete everything but the text area with the word *Sale*. Save this file as Paint.Sale.3Grn. Reinsert the partially printed page and print the green object. Replace the green ribbon with a brown one.

Open the file Paint.Sale.3, delete everything except the calendar graphic. Save this file as Paint.Sale.3Brn. Print the brown calendar illustration.

Finally, insert a black ribbon in your printer. Reopen the Paint.Sale.3 file, delete everything except the informational text. Save this file as Paint.Sale.3Blk and print it by reinserting the original page for the fifth time.

This method even lets you do color mixing.

Open the Paint.Sale.3 file. Delete everything *except* the word *Paint* and the paintbrush graphic. Save this file as Paint.Sale.3Yel, and place a yellow ribbon into your printer. Reinsert the paper carefully and print over these two areas (originally red) to create two orange-colored objects.

DISCRETION ADVISED

Though you might consider color-highlighting one or two objects in a newsletter's masthead, you'll probably agree that multicolor printing is best suited to documents that are *not* mass-produced. After all, you want to be creative, not enslaved by your printer.

But for small press runs of eye-catching documents, multicolor printing is well worth the effort. And, once again, hardware-unintensive, unassuming Publish It! proves it can compete with the best of desktop publishing's big guns. □

CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. SHE IS A CONTRIBUTING EDITOR AND THE AUTHOR OF FIELD TRIP, *INCIDER'S* COLUMN ON EDUCATIONAL SOFTWARE. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



TOOLS TO DRAW ON

Take control of the powerful drawing tools built into your GS.
Several techniques and shortcuts help you design advanced
graphics and build animation into your programs.

By **JOE ABERNATHY**

LEARNING TO USE THE GS' BUILT-IN PROGRAMMER'S toolbox is much like learning to use the computer itself. You should begin exploring it region by region. As a BASIC programmer, you also have access to some of the finest tools available in any language.

The Toolbox is a set of some 900 procedures that let you implement such features as pull-down menus, sound, graphics, dialog boxes, and so on. These various tools are organized into topical kits such as Menu Manager, Sound Manager, QuickDraw II, and Dialog Manager.

START SMALL

Learning how to program all 900 tool calls would seem to be a career in itself. This indeed can be the case with languages that take a traditional approach to implementing the Toolbox (following the sophisticated syntax of Apple's Toolbox documentation faithfully). Within the various dialects of BASIC, however, are numerous techniques and shortcuts that can bring tool programming more within reach.

One good starting point is graphics. It's much of what makes the IIgs special. A subset of the Toolbox entitled QuickDraw II lets you display pictures, build in animation, and design sophisticated dialogs.

Most QuickDraw commands create primitive graphics such as points, lines, rectangles, circles, and polygons. So animation using QuickDraw might follow this simple recipe: Draw an object, erase it, then redraw it at a new location.

ANIMATION BASICS

Working in structured, modular BASIC, the most elegant approach is to design a set of tools to handle each phase of this simple animation. And they'll give you full access to QuickDraw graphics via easy one-line calls in the programs you write.

The first step in using QuickDraw or any toolset is to turn it on. Traditionally, this involves making sure other toolsets that QuickDraw

uses internally are active, allocating memory for QuickDraw's functions, and finally issuing a call to activate the toolset. Fortunately, our IIgs BASICS simplify that process. In Micol Advanced BASIC, for example, single commands enable the various graphics modes:

GR	{ 40x40 low-res graphics mode }
HGR	{ super-high-res 320x200 mode }
HGR2	{ super-high-res 640x200 mode }
TEXT	{ turn off any graphics mode }

Here we must diverge from a general discussion of the various dialects, since there are significant differences among their QuickDraw commands. Although you might not own and use a particular language, you should read each section.

MICOL ADVANCED BASIC

Micol offers a gentle introduction to graphics, much of it being familiar if you've done Applesoft programming with Micol. There are a number of built-in shortcuts, and you can easily build tools based on the Toolbox. By combining the two, you can create uniquely powerful tools for advanced graphics and fast animation.

A number of built-in commands afford drawing capabilities that otherwise are more difficult to program. For example:

PROGRAM SHRDemo:

ROUTINE Main

```
HGR                { start up QuickDraw, 320 mode }
BKCOLOR = 14 { light gray background }
HCOLOR = 4 { blue drawing pen }
HPLOT 4, 4 { locate pen at position 4, 4 }
DRAWSTR ("Hit any key to continue...")
HPLOT 4, 5 { horizontal = 4, vertical = 5 }
HPLOT TO 314, 186 { draw a line }
GET a$ { await keypress }
TEXT { shutdown QDII, restore text screen }
```

END

The graphics shortcuts demonstrated above can provide a lot of flexibility, but you need to call QuickDraw directly to achieve more sophisticated IIgs graphics. The following sample shows two ways to accomplish animation using a combination of simple commands and direct QuickDraw calls:

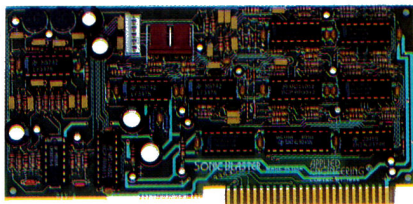


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fades, cut, copy and paste with the Super Hi-Res software we include.

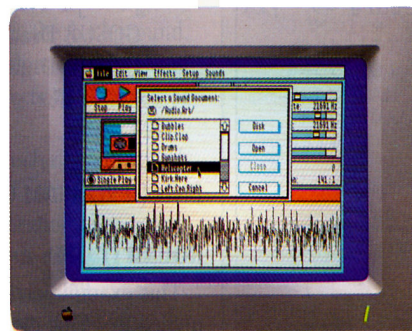
We designed Sonic Blaster to be complete. Here's a quick tour of part of the software screen:

The Buttons

Stop, Play, Pause and Record buttons, perform the same functions they do on a tape recorder. Also included are Single and Continuous Play buttons and a VU Meter to visually represent input levels.

The Sound Graph

The Sound Graph is the waveform at the bottom of the screen. Portions of the Sound Graph are selected with the mouse and then edited using the cut, copy and paste options within the Edit menu.



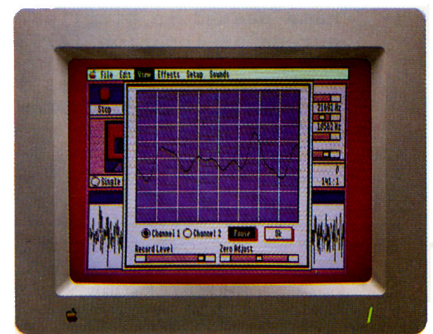
Seventeen sound effects to get you started. Add your own collection of sounds.

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Listing 1. Program ShowAPic.

```
{ ----- }
{ ShowAPic (C)1989, inCider }
{ By Joe Abernathy. All Rights Reserved }
{ Compiler: Micol Advanced BASIC (GS) }
{ ----- }
{ Requires an uncompressed SHR picture. }

{ ----- }
{ PROC DoShowPic -- display SHR picture }

PROC DoShowPic[picfile$]

{ DoShowPic is based on an example
  written by Ron Lewin of Micol
  Systems Canada. Our thanks. }

IF FILE(picfile$) THEN BEGIN
  HGR { start QuickDraw II }
  BLOAD picfile$,14753792,32766

  { the BLOAD command copies 32766
    bytes -- 65 disk blocks, the
    length of an uncompressed pic
    file -- from the picture file
    name passed in picfile$, to the
    screen at location 14753792 }

  GET a$ { await key press }
  TEXT { Shut down QuickDraw II }
  ENDIF
ENDPROC { DoShowPic }

{ ----- }
{ ShowPic -- DoShowPic control routine }
{ for use with inCider prog }
{ SHOWFILE.CDA (June 1989). }

PROC ShowPic
  HOME
  HTAB (1)
  VTAB (6)
  PRINT "  Display Picture  "
  VTAB (8)
  INPUT "Enter full pathname of picture -> ";x$
  IF x$ = "" THEN Terror! = TRUE
  IF FILE (x$) THEN BEGIN
    GOSUB DoShowPic[x$]
  ENDIF
  InputErr! = FALSE
ENDPROC { ShowPic }

{ ----- }

{ Main loop -- DoShowPic demo }

ROUTINE Main
  Terror! = FALSE
  REPEAT
    GOSUB ShowPic
  UNTIL Terror!
  Terror! = FALSE
END { ShowPic }

{ ----- }
```

PROGRAM Graphics

INT (A-Z)

DIM Buffer (10)

PROC Draw_Rect [Func_Num, Min_X, Min_Y, Max_X, Max_Y]

{ Draw_Rect by Ron Lewin of Micol Systems }

LSB = ADDR (Buffer) { address of buffer; syntax cq }

MSB = PEEK (202) { bank num of buffer }

TOOLBOX (4, 74: MSB, LSB, Min_X, Min_Y, Max_X, Max_Y)

TOOLBOX (4, Func_Num: MSB, LSB)

ENDPROC { Draw_Rect }

ROUTINE Main

HGR { Start QuickDraw in 320 mode }

HCOLOR = 4 { drawing color blue }

BKCOLOR = 0 { black background, used also to erase }

{ draw a line of circles .. }

j% = 5

FOR i% = 100 TO 320 STEP 5

j% = j% + 5

GOSUB Draw_Rect [89, j%, 5, i%, 70]

NEXT i%

{ erase sequentially ... }

j% = 5

FOR i% = 100 TO 320 STEP 5

j% = j% + 5

GOSUB Draw_Rect [90, j%, 5, i%, 70]

NEXT i%

{ by changing the draw/erase order, }

{ you get another kind of animation .. }

j% = 5

FOR i% = 100 TO 320 STEP 5

j% = j% + 5

GOSUB Draw_Rect [89, j%, 5, i%, 70]

GOSUB Draw_Rect [90, j%, 5, i%, 70]

NEXT i%

GET a\$

TEXT

END { PROGRAM Graphics }

ROUND IT OFF

This example achieves its effects by calling the flexible Draw_Rect procedure. This tool can draw rectangles or ovals in any size, and in one of three capacities: framed, color-fill, or background color-fill, which will erase a previously drawn color-fill object.

A similar procedure, Draw_Arc, provides the same capabilities for round-cornered rectangles and arcs:

PROC Draw_Arc [Func_Num, Min_X, Min_Y, Max_X, Max_Y,
Start_Angle, Angle_Length]

{ Draw_Arc by Ron Lewin of Micol Systems }

```
LSB = ADDR (Buffer())      {Syntax is correct}
MSB = PEEK (202)
TOOL BOX (4, 74: MSB, LSB, Min_X, Min_Y, Max_X,
           Max_Y)
TOOLBOX (4, Func_Num: MSB, LSB)
```

ENDPROC

Together, Draw_Rect and Draw_Arc generate a complete set of QuickDraw graphics primitives, and you should enter them into your permanent programmer's library. The Func_Num values that determine what you draw are listed in the Micol manual and in volume 2 of the *Toolbox Reference Manual*.

Listing 1 is another example of super-high-resolution (SHR) graphics in Micol Advanced BASIC. It illustrates how to load a "full-sized" (32K) SHR picture from disk and display it on screen. This procedure is designed so that you can add it to the *inCider* Show File utility presented in June's GS BASICs ("Think It Through," p. 86) or add it as a procedure to your permanent programmer's library.

AC/BASIC

AC/BASIC is also designed to give you the power of the Toolbox without the trouble of tool calls. Hence, you can draw most graphics primitives with a one-word command. AC's slick mouse-interface calls also offer convenient on-screen graphics control of objects.

Different AC graphics commands affect different objects, which you can combine to create sophisticated images. You can add graphics and disk-based pictures to your programs, enhance on-screen text, and even record to disk the composite picture your program's commands create.

AC/BASIC graphics objects include lines, boxes, arcs, ovals, polygons, rectangles, and round-cornered rectangles. You can choose to paint, invert, frame, fill, or erase the last five of those objects. To get a feel for this, type in **Listing 2**, and compile it with the default menus and window selections on.

This AC/BASIC example shows how to accomplish animation similar to that of the Micol program above, but apparently without making any tool calls. The compiler is making them for you in the background. **Listing 2** also shows how to manipulate fonts and colors quickly. Using polygon commands, you can create figures or objects as complex as your imagination.

And as you can see by comparing source code, much of your knowledge will be portable if you later add another BASIC compiler, or even another language, to your repertoire. One consideration that counts against AC/BASIC is its lack of speed, which manifests itself as "flashy" animation. So try to keep the size of animated figures small.

Another technique to use is pseudo animation—manipulating the color palette as demonstrated in the DoMenu routine in **Listing 3**. **Listing 3** also shows how to load a picture from disk and display it in either 320 or 640 mode. (**Listing 3** requires the original *inCider.Shell* for AC/BASIC. See "Studio BASIC," April 1989, p. 86.)

TML BASIC

TML BASIC is unique in letting you write unfettered desktop-style programs. AC/BASIC limits you to those desktop capabilities built into the language (unless you know machine language), and Micol Advanced

Listing 2. Graphics plotting example.

```
-----
' Graphics plotting example
' By Joe Abernathy. (C)1989, inCider
' All Rights Reserved.
' Compiler: AC/BASIC for Apple IIGS
'-----

DIM rect%(3) ' for QDII plotting
DIM pat%(3) ' QDII pen pattern
SCREEN 1 ' 320x200 screen
TEXTBCOLOR 14 ' light gray background
TEXTCOLOR 0 ' black
TEXTFONT 5 ' Venice
TEXTSIZE 14 ' 14-pt.
PRINT
PRINT "This is Venice 14, black on gray."
PRINT
PRINT "Click mouse to continue."
WHILE MOUSE (0) <> 0
    WEND ' Clear mouse buffer
WHILE MOUSE (0) = 0
    WEND ' Await real mouse click
BACKCOLOR 2 ' brown background
CLS ' clear screen to brown
FORECOLOR 6 ' orange graphics pen color
rect%(0) = 5 ' upper left y
rect%(1) = 5 ' upper left x
rect%(2) = 70 ' lower right y
rect%(3) = 150 ' lower right x
FRAMERECT VARPTR(rect%(0))
MOVETO 10, 100 ' x, y
PRINT "Click mouse to continue."
WHILE MOUSE (0) <> 0
    WEND ' Clear mouse buffer
WHILE MOUSE (0) <> 1
    WEND ' Await real mouse click
ERASERECT VARPTR(rect%(0))
CLS ' clear to brown

' animate with a line of circles ..
j = 5
rect%(0) = 5 ' upper left y
rect%(2) = 70 ' lower right y
FOR i = 100 TO 300 STEP 5
    j = j + 5
    rect%(1) = j ' upper left x
    rect%(3) = i ' lower right x
    FILLOVAL VARPTR(rect%(0)), VARPTR(pat%(0))
    ERASEOVAL VARPTR(rect%(0))
NEXT i

MOVETO 10, 100 ' x, y
PRINT "Click mouse to continue."

WHILE MOUSE (0) <> 0
    WEND ' Clear mouse buffer
WHILE MOUSE (0) <> 1
    WEND ' Await real mouse click
FOR i = 1 TO 1000
    NEXT i
END
```


Listing 3. File: inCider.Shell, v1.1 revisions.

```

-----
File: inCider.Shell, v1.1 revisions
By Joe Abernathy
(C)1989, Joe Abernathy. All Rights Reserved.
Compiler: AC/BASIC for the Apple IIGS.
-----
Portions of this program include material copyrighted (C) by
Absoft Corp. 1988. Used with permission. All other copyrights
acknowledged.
-----
Make these changes to the shell to implement picture-handling.

Add this at beginning of program:

DIM Pict%(16384+4)           ' Picture array
-----
Replace previous "menuproc" with this:

menuproc:                   ' Interpret menu events
  menunum = MENU(0)         ' Read which menu
  itemnum = MENU(1)         ' Read which item
  IF menunum = 1 THEN       ' .. FILE menu
    IF itemnum = 1 THEN     ' New
      GOSUB 10
    ELSEIF itemnum = 2 THEN ' Edit
      GOSUB 20
    ELSEIF itemnum = 3 THEN ' Delete
      GOSUB 30
    ELSEIF itemnum = 4 THEN ' Print
      GOSUB 40
    ELSEIF itemnum = 5 THEN ' Type File
      GOSUB 50
    ELSEIF itemnum = 6 THEN ' Quit
      GOSUB 60
    END IF
  ELSEIF menunum = 2 THEN   ' GOODIES menu
    IF itemnum = 1 THEN    ' Show picture
      GOSUB 70
    END IF
  END IF
RETURN

-----
Add capability to view SHR picture:

70:                          ' Show SHR picture
  f$ = "null"
  WHILE f$ <> ""
    f$ = FILES$(1)
    IF f$ <> "" THEN
      WINDOW 2
      OPEN f$ AS #1
      BLOAD #1,Pict%(4),32768
      CLOSE #1
      Pict%(0) = 640
      Pict%(1) = 200
      Pict%(2) = 128
      Pict%(3) = 160
      PUT (0,0),Pict%
      WHILE MOUSE(0) <> 0
        WEND
      WHILE MOUSE(0) = 0
        WEND
      WINDOW CLOSE 2
      END IF
    WEND
  MENU
RETURN

-----
Replace old DoMenu with this:

SUB DoMenu
  FOR p = 1 TO 6
    FOR e = 0 TO 12 STEP 4
      PALETTE p,e+0,1,1,1
    NEXT
  NEXT
  MENU 1,0,1,"File"
  MENU 1,1,1,"New"
  MENU 1,2,1,"Edit"
  MENU 1,3,1,"Delete"
  MENU 1,4,1,"Print"
  MENU 1,5,1,"Type"
  MENU 1,6,1,"Quit"
  MENU 2,0,1,"Goodies"
  MENU 2,1,1,"View Picture"
  FOR p = 1 TO 6
    FOR e = 0 TO 12 STEP 4
      PALETTE p,e+0,0,0,0
    NEXT
  NEXT
END SUB

-----
End of inCider.Shell v1.1.

```

Listing 4. TML BASIC animation demo.

```

-----
TML BASIC Animation Demo
By Joe Abernathy. (C)1989, inCider
All Rights Reserved.
Compiler: TML BASIC v1.10 for Apple IIGS
-----
LIBRARY "QuickDraw"         ' Load QDII toolset

DIM arect%(3)               ' rectangle
DIM colors%(15)             ' color palette

GRAF INIT 320               ' 320x200 graphics screen
GRAF ON                     ' Turn it on
  ClearScreen(-1)           ' Clear screen to white
PROC Ovals                  ' Draw line of ovals
PROC EraseOvals             ' and sequentially erase
PROC AnimOvals              ' Animated ovals
PROC Finis                  ' Press a key
GET$ Key$
END                          ' Animation example

DEF PROC Ovals
  ' Based on example written by TML Systems
  LOCAL j%
  j% = 20
  SetSolidPenPat(13) ' Light blue
  FOR i% = 100 TO 300 STEP 5
    j% = j% + 5
    SetRect(VarPtr(aRect%(0)),j%,20,i%,100)
    PaintOval(VarPtr(aRect%(0)))
  NEXT i%
END PROC

DEF PROC EraseOvals
  LOCAL j%
  j% = 20
  FOR i% = 100 TO 300 STEP 5
    j% = j% + 5
    SetRect(VarPtr(aRect%(0)),j%,20,i%,100)
    EraseOval(VarPtr(aRect%(0)))
  NEXT i%
END PROC

DEF PROC AnimOvals
  LOCAL j%
  j% = 20
  SetSolidPenPat(13) ' Light blue
  FOR i% = 100 TO 300 STEP 5
    j% = j% + 5
    SetRect(VarPtr(aRect%(0)),j%,20,i%,100)
    PaintOval(VarPtr(aRect%(0)))
    EraseOval(VarPtr(aRect%(0)))
  NEXT i%
END PROC

DEF PROC Finis
  MoveTo(10,150)
  DrawString("Press any key to continue.")
END PROC

```

PRODUCT INFORMATION

AC/BASIC

Absoft Corporation
2781 Bond Street
Rochester Hills, MI 48307
(313) 853-0050
\$125

Micol Advanced BASIC

Micol Systems
9 Lynch Road
Willowdale, Ontario M2J 2V6
Canada
(416) 495-6864
\$145

TML BASIC

TML Systems
8837-B Goodbys
Executive Drive
Jacksonville, FL 32217
(904) 636-8592
\$125

BASIC lacks the intent and documentation to do desktop applications, even though the ability ostensibly is there.

However, TML offers only one high-level shortcut to QuickDraw graphics, the GRAF INIT command, which starts up QuickDraw and its interdependent toolsets. But sophistication in data handling takes a lot of the sting out of TML's tool interface.

Listing 4 shows how to implement our simple animation techniques using TML BASIC. It also shows readily portable examples of other tool calls that may be useful to Micol programmers. TML has no ready-made shortcuts for displaying an SHR picture, as do the other BASICs. If you need this capability, you must program it in traditional Toolbox fashion as prescribed in the *Toolbox References* and in the TML manual.

In addition to strong support for desktop programming, TML includes a broad-ranging discussion of QuickDraw graphics in its manual—the best of any of the BASICs. On-disk source-code examples show how to implement every QuickDraw graphics primitive and a number of useful screen-display techniques.

PROJECTS

There are many programs you might write to further explore QuickDraw graphics, while creating something worthy in the process. For instance, using AC/BASIC, you have access to powerful mouse-tracking commands that will let you program an art-capture function easily.

In conjunction with automated scaling demonstrated in **Listing 3**, this can become the basis for applications such as an SHR label-making program or a database that mixes text and graphics. Refer to chapter 16, "Advanced Memory," in the AC/BASIC manual.

TRICKS OF THE TRADE

Micol Advanced BASIC has the speed, tools, and Applesoft compatibility to bring a lot of good but outdated software back to life. You can add backgrounds to Applesoft adventure games, or use object-oriented graphics to make a simulation or educational program more exciting. I like these kinds of projects because you can do them in a weekend and get a good upload to the networks with your name on it.

In addition, Micol promises to release an upgrade for the GS Advanced BASIC (version 3.0) by early this fall that should make graphics a snap, especially IIGS desktop windows, dialogs, menus, and mouse control.

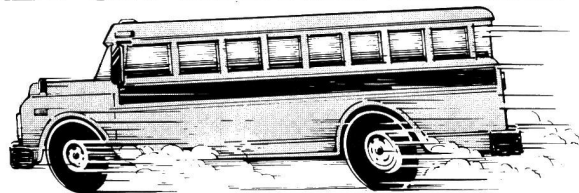
With TML BASIC, the disk examples and manual treatment of QuickDraw enhance TML's status as the best compiler for desktop programming. You may even prefer it for game design, because of the wide availability of examples (in TML Pascal as well as BASIC). The only feature missing in TML is a GS/OS-compatible compiler update.

MOVING ON

You don't need advanced knowledge to do significant graphics programming. After a couple of hours of experimentation, you'll have a great deal of confidence. And after a couple of projects, you'll no doubt feel—and program—like a graphics pro. □

CONTRIBUTING EDITOR JOE ABERNATHY IS A JOURNALIST WITH *THE HOUSTON CHRONICLE*. HE'S A CERTIFIED APPLE DEVELOPER AND THE AUTHOR OR COAUTHOR OF EIGHT APPLE II PROGRAMS. WRITE TO HIM AT P.O. BOX 66046, HOUSTON, TX 77266-6046. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

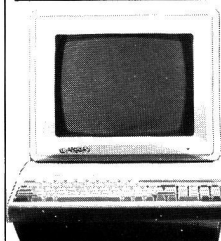
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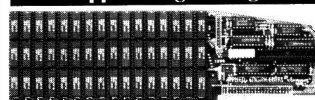
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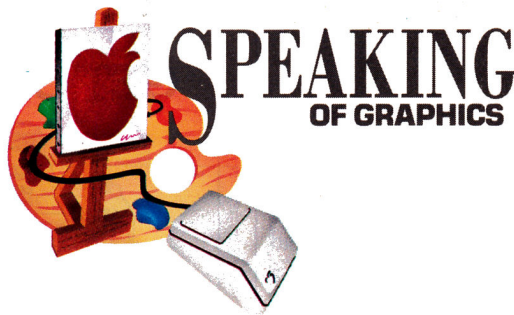
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Mousing Around

Don't let a mouse curtail your creativity. Look into some options that'll make drawing on screen as easy as sketching with traditional pencil and paper.

By **ROBERTA SCHWARTZ**
and **MICHAEL CALLERY**

"IT'S UNNATURAL. IT'S UNCOMFORTABLE. It's impossible!" If that's how you feel when you draw with a mouse, you're not alone.

Most people find it takes practice to get used to drawing with an object that feels like a bar of soap. Aside from its shape, another problem is that the mouse works in *relative* mode, meaning that actions occur relative to the device's original position. To move the cursor and draw lines, you have to first drag the mouse and then hold down its button. If you're used to sketching with short, quick strokes rather than smooth contour lines, the adjustment is even harder and the frustration is greater.

Don't give up. With time, you'll see that it's possible, even easy, to draw this way. The following suggestions should help you overcome the ICDWTM (I-can't-draw-with-the-mouse) syndrome.

If the mouse is your only problem, the best solution, though it's also the most expensive, is to replace it with a graphics tablet. This large, flat surface (8½ by 11 inches or larger) is sensitive to the movements of an electronic stylus that looks and feels like a pen. As you move the stylus across the tablet, your marks appear on the computer screen.

Unlike mice, tablets are usually *absolute* devices that let you map the pad's surface directly to the screen. Point the stylus at the lower left-

hand corner of the tablet, and your cursor will appear in the screen's lower left-hand corner. Lift the stylus from the pad, move it to the upper right-hand corner, and the cursor will reappear in the screen's corresponding location. Pick up your mouse, on the other hand,

move it six inches, and the cursor remains stationary. Drawing with a tablet, then, is very similar to drawing with traditional tools.

Apple used to manufacture a graphics tablet, and if you poke around you may be able to find a used—or even new—device. Check out computer flea markets, as well as ads placed by local user-group members. Roberta got hers by placing a classified ad in a computer newspaper.

The Apple tablet will work on any Apple II with slots. Only older hi-res and double-hi-res software support the tablet directly. However, thanks to a classic desk accessory (CDA) distributed as part of Clyde Godfrey's shareware program, Paint.256, you can use the tablet with super-hi-res software as well.

If you own an Apple IIGS look at the **IS/GS** from Kurta Corporation. This graphics tablet connects to the GS through the ADB (Apple desktop bus) port, just as the mouse and keyboard do. With the Kurta software you should be able to switch the tablet between absolute and relative mode, but there's a glitch in the current system software. Once you invoke the desk accessory, the tablet locks into absolute mode and you can't switch back. Though annoying, it's only a minor inconvenience; because the mouse remains connected and active, you can use it whenever needed. According to Kurta, the newest software version, expected in June, will have fixed this bug.

If your problem isn't just using the mouse, but learning to draw with your Apple, try tracing your art onto the computer. Many artists find they have better control, and thus greater accuracy, drawing on paper first, then transferring their illustration to the computer.

You have several tracing techniques to choose from, but digitizing is the easiest. Both hardcopy-based digitizers such as **Thunder-Scan** and video digitizers such as **Color ComputerEyes** transform existing artwork from paper to digital computer images. (See ►

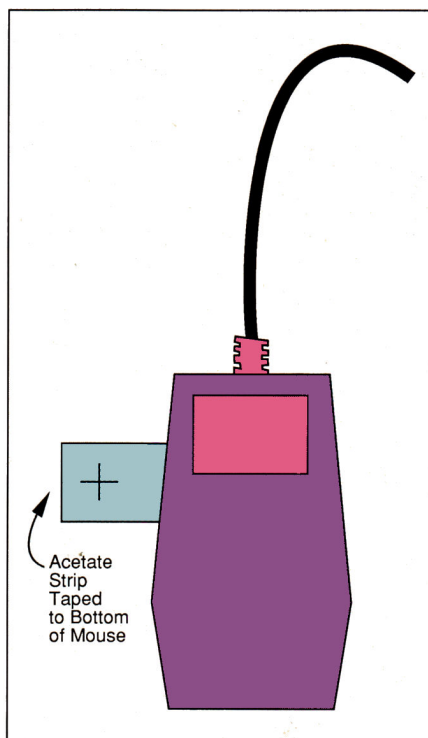


Figure 1. Creating tracing tool.

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"Reel-World Images," July 1989, p. 40.)

The second easiest solution is using a graphics tablet. Just put the art on the tablet and trace over the lines with the stylus. Because of the screen's aspect ratio, circles may look like ovals, but once you have the basic image in the computer, you can correct this.

Both digitizers and graphics tablets, however, are expensive. A less costly approach is to transform your mouse into a tracing tool by performing some minor surgery. Carefully draw cross hairs on a small piece of stiff acetate (you might want to scratch them out with a

sharp knife or razor blade) and tape it to the bottom of your mouse. If you're right-handed, the acetate should stick out from the left side of the mouse; if you're left-handed, the right side. (See **Figure 1.**) Place the artwork you're tracing under the mouse, and move the device so the crosshairs follow the lines.

This method's a bit tricky, because the acetate will slip as you move the mouse. Previously, you could purchase lucite blocks with cross-hairs that snapped onto the bottom of the mouse. These were intended to transform the device specifically into a tracing tool. As

far as we know, they're no longer available, but you can keep your eyes open for one. Just be sure it will fit your particular mouse.

Acetate transparencies are also handy for tracing artwork. First, reduce or enlarge your drawing to fit the transparency. Then, if you have your own copier, use 3M transparency film made especially for copy machines to reproduce your illustration. (Don't use ordinary transparency film, as the copier's heat can melt it; bye-bye copier!) Otherwise, most copy shops can reproduce images onto overhead-transparency acetate for you. Tape the transparency to your monitor and, moving the mouse gingerly, follow the lines on the acetate.



**Sorry, Not enough memory to
complete this operation.**

800-346-0811

If you're like most IIGS users, you've probably realized that a one megabyte memory card just isn't enough anymore. Not only are applications getting larger, it seems every new release of GS/OS takes a bit more memory. Now add a few desk accessories that are really useful, and you're asking for "Out of Memory" errors (or worse, unexplained system crashes).

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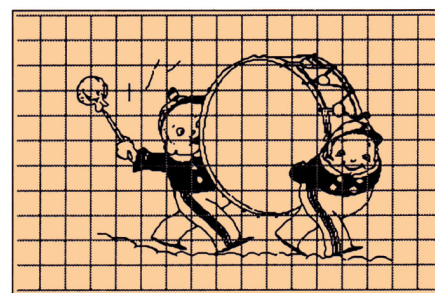


Figure 2. Using grid to copy artwork.

Creating a grid is a tried-and-true traditional technique that works splendidly on computers. Draw a grid of lines one-half to one inch apart either on the artwork you're copying or on a piece of tracing paper laid over the artwork. The grid divides your artwork into tiny pieces. Use your drawing program's line tool to divide the screen into the same grid. If you're working in standard-hires, draw your grid using white on black or black on white. If you're using super-hi-res, select a palette color you'll use for the grid only, and choose other colors for drawing. Now copy your artwork, box by box, onto the screen. (See **Figure 2.**)

Be sure to erase the grid lines if you're working in hi-res or double-hi-res. In super-hi-res, simply change the grid color to the same hue as your background when you've completed the drawing. Like magic, the grid disappears.

This technique also lets you scale drawings easily to fit the computer screen. If you divide the original artwork into one-inch areas on the grid, for example, and divide the screen grid into half-inch areas, your Apple will scale your artwork by half automatically.

After a while, you'll probably want to have model grids available whenever you start a

new illustration. One option is to create a series of grid templates you can load into the computer. A better solution, though, is to use the copier method described above to create grids on sheets of transparent acetate. This procedure eliminates having to remove grid lines when your drawing's finished. Tape one acetate grid to your artwork, tape another to the monitor screen, and you're ready to go.

Don't stop with boxed grids. Having trouble with three-dimensional techniques and perspective? Commercial perspective grids sold in most art stores can help fix the problem. Copy these sheets onto acetate, tape it to the screen, and—well, you've got the idea by now.

PRODUCT INFORMATION

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ComputerEyes/2. \$129.95
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 Dedham, MA 02026
 (617) 329-5400

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That solves the ICDWTM syndrome. Some of you, though, may be suffering more from ICDA (I can't draw at all). It's not too late to discover and refine your talents. Read on!

You've no formal art training—perhaps you even used to color outside the lines—yet your Apple has inspired you to create. Follow the urge. Your local library as well as most art-supply stores have many "how-to-draw" books. Follow some of the lessons with pencil and paper, and practice others with your computer. Your II is a natural for many of these exercises. One instruction that crops up early, for example, is breaking a scene, such as a still life, into geometrics: circles, squares, and so on. Because the programs' drawing tools sketch circles more precisely than you could by hand, you can concentrate solely on finding the circles in the scene. "I can't draw a straight line" is no longer an excuse.

None of these tools or techniques will turn

you into a Rembrandt, but they'll enable you to transfer images from paper into the computer easily. For practice, it's fine to work from others' art; many art students copy the works of the Old Masters repeatedly to best learn about composition, balance, rhythm, and so on. But remember, if you're copying another's artwork, it's for learning only—not for reproduction, publication, or commercial use. Most artwork is copyrighted and you may be liable for damages if you publish or distribute it without the copyright holder's permission.

With that word of caution, start following

the prescribed steps mentioned above to beat those I-can't-draw-with-the-mouse blues. Whether you're using hi-res, double-hi-res, or super-hi-res, you'll enjoy creating something that's worthy of any serious artist. □

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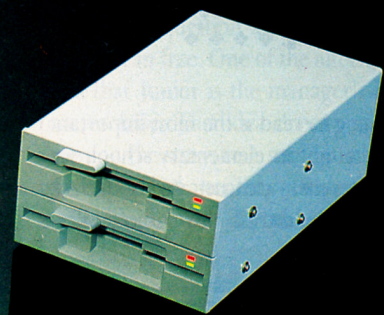
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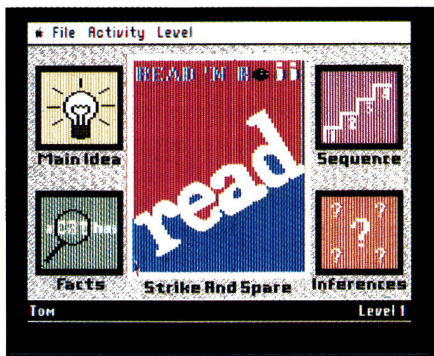
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Rating: ♦ ♦ ♦ ♦

Learning to read is the most important skill taught in elementary school, yet most teachers are frustrated by the lack of materials that address this subject effectively.

Read 'N Roll is one program that'll help fill the void.

Davidson has collected 320 short passages from widely used reading textbooks illustrating the four main areas of comprehension—understanding the main idea, recalling facts, recalling sequence, and making inferences. Students select one of these areas from the main menu, pick the difficulty level, and begin reading a set number of paragraphs.

The questions following the stories test a student's command of the chosen skill. Regular report cards and recordkeeping capabilities help student and teacher chart progress and plan for future study. Healthy doses of animation, color, and fun ensure that kids will be reading and rolling for a long time.

GET ROLLING

Read 'N Roll comes in Davidson's familiar hard-cover binder with documentation and two double-sided disks. The program and Read 'N Roll game are on one disk; all reading selections are on the other. (You can trade in your 5¼-inch disks for 3½-inch ones for \$7.50.

You can also purchase backup disks for the same price.)

After logging on, students can select either a skill activity or Read 'N Roll, a bowling game that helps develop vocabulary awareness. Additional pull-down menus—File, Activity, and Level—are located at the top of the screen. File holds student records, printer setup, and an editor function for writing your own questions and problems. The Activity menu lets the student decide if he or she wants to see a timer in the top right corner of the screen. Other options include sound and a review function, which returns you to a story for a second look after seeing the questions.

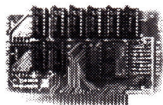
The Level menu lets the student plug into stories written at his or her grade level. Using the Fry Readability Scale, the program's authors have designed the level 1 stories to correspond to grade 3 material; level 2 to grade 4; level 3 to grade 5; and level 4 to grade 6.

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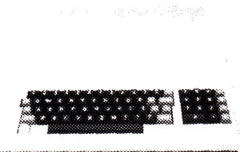
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when they're ready, they can answer a question. In all cases, the correct answer will be among four possibilities. Multiple choice can be a useful evaluation method in reading comprehension, but the questions must be carefully designed, or the required thinking will be superficial.

Most of the time, Read 'N Roll offers carefully constructed questions. Occasionally, though, some of the questions seem a bit off the mark. For instance, a paragraph from Main Idea—defined in the documentation as “what the passage is all about”—reads as follows:

“If you tried to ride a bicycle in deep snow, the wheels would sink. It is not easy to walk in deep snow either. So some special ways of moving across the snow have been invented. Sleds and snowmobiles have long runners which slide on top of the snow. Skis or snowshoes can be worn on the feet.

“The story is mainly about. . .

A) skis

B) snowmobiles

C) deep snow

D) ways of moving across the snow.”

This paragraph's central theme would be apparent to most third-graders. They could easily distinguish the details in A through C from the generalization in D. Also, the program has already formulated the answer and offered it as one of the choices, so a student wouldn't have to construct a main idea on his or her own.

These problems would be offset somewhat if the multiple choices were closer in concept—for example, if C said “methods of transportation.” Subtle differences among choices would demand greater evaluation by the student. Granted, the example I used is from a level 1 reading question, but I still think it could evoke deeper thinking.

IN THE RIGHT ORDER

On the positive side, the Sequence questions are well constructed. The usual method is to ask what happened first or what happened

after an event, and to offer closely related, feasible alternatives as choices. As a result, readers are forced to review the whole story mentally and to analyze it in temporal order. Thus, the Sequence questions put excellent demands on upper-level thinking skills.

Questions evaluating fact recollection achieve their purpose fairly well, but my criticism mentioned above applies here, too. In some fact questions, the answer choices have no connection to the paragraph's content. For example, in Facts, level 1 story 1, an entry tells us about a boy named Junior who returns to a movie theater 77 times to see *Rocky*. After 50 times, the manager lets him in free. The story tells us that the manager doesn't lose any money, because Junior gobbles up a lot of popcorn and soda.

The Facts question asks why the manager let Junior in free. One of the alternatives suggests that Junior is the manager's nephew—true or false. This idea doesn't appear anywhere in the story, so a student who's paying only superficial attention can eliminate this as a possible answer. To make the task more

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REVIEWS

challenging, why not suggest alternatives that relate to the content and, therefore, require critical evaluation? Instead of the nephew alternative, the program could suggest that the manager let Junior in free because he bought a lot of food at the snack bar.

A similar weakness appears occasionally in Inference questions. Here Read 'N Roll presents one logical conclusion and three other choices that are details or statements unconnected to any information in the paragraph. A better test of deduction would involve choosing among four closely related logical conclusions. On the whole, though, I feel that the Inference questions make good demands on elementary students' thinking skills, and all four activities do a great deal to increase reading for meaning.

READ 'N ROLL

The Read 'N Roll game is a realistic bowling simulation that lures kids into vocabulary practice. Before being allowed to shoot, the student must correctly answer one multiple-choice question about a word taken from the skill area he or she has selected (main ideas, facts, sequence, or inference). At the bottom of the screen, a ten-frame score card keeps track of the pins knocked down. After playing all ten frames, the program informs the player of his or her final bowling and vocabulary score.

By reinforcing the program's content, the bowling game demonstrates good instructional design. It could easily become the student's favorite program activity. I enjoyed it immensely.

As a teacher, however, my appreciation for the game is enhanced by the activity-composition function it shares with the other modules. Teachers will find several uses for it, such as entering vocabulary from any reading activity or loading spelling lists into the game.

Read 'N Roll is a lively, colorful program that will effectively improve the reading skills of children in grades 3-9. The wide range of readability, interesting selections, and the activity-composition function make it a useful tool for elementary teachers and junior-high special-education teachers. Kids will enjoy the graphics and game elements of Read 'N Roll, as they improve their reading comprehension and vocabulary skills. □

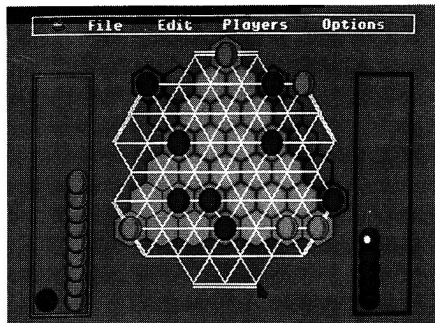
Jack Emberly
Maple Ridge, BC
Canada



LAFE LOW PLAYS...

TrianGO GS, California Dreams, 780 Montague Expressway #403, San Jose, CA 95131, (408) 435-1445, \$39.95

THUS FAR, GAMES FROM CALIFORNIA Dreams have shown an interesting slant. The company has taken what are basically board games—some traditional and some unusual or new—and transformed them into graphically superb computer games. We've seen Club Backgam-



mon, Vegas Gambler, Mancala (an ancient African game of cups and stones), and now TrianGO.

TrianGO is like Chinese checkers in the 23rd century—with a "galactic" background and excellent graphics for the game board and

playing pieces. You move your pieces to the board, trying to capture your opponent's within a triangle. You can play against the computer (at the novice, intermediate, expert, master, or grandmaster level) or as many as three other players. While you're still learning TrianGO, you can play against the computer at the novice level and choose to see hints, which show you your best next move.

TrianGO is fun against the computer, at whatever level you dare to play at, but it's even better if you can find a friend to play with. The unpredictable human element always makes games like this more fun.

...and plays...

Space Quest II GS, Sierra On-Line, Coarsegold, CA 93614, (209) 683-6858, \$49.95

ARGH, INSURANCE SALESMEN from outer space! That's what the intergalactic slimeball Sludge Vohaul has planned for you in Space Quest II (to avenge your ruination of his plans for destruction in Space Quest I). He's going to launch a massive invasion of genetically mutated insurance men who won't take no for an answer if you, Roger Wilco—janitor of the universe and all-around hero—don't stop him again.

Early on in Space Quest II, however, you're

lured into an interplanetary shuttle and overpowered. You awake at the feet of the vile villain Vohaul, who fiendishly outlines his plans, then has you whisked away to labor in his mines on the planet Labion (which resembles the forest moon Endor in the movie *Return of the Jedi*).

Assuming you don't get chowed down by giant purple mushrooms or snagged by a huge, glowing-blue, octopus-like creature right away, you've got your work cut out for you if you're going to save the world from obnoxious salesmen.



Exploring the weird and wild world of Space Quest II is, well, weird and wild. It's also a lot of fun to play. I can't think of any greater motivation for saving the world than to thwart an invasion of insurance men who refuse to take no for an answer.

SHORT TAKES

UNINVITED GS

Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, \$49.95

An eerie exploration of an "uninviting" Victorian mansion. Be careful as you wander the hallways, or you won't get any further than we did before meeting an untimely demise. (See Games Editors Play, July 1989, p. 84.)

Rating: ♦ ♦ ♦

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Rating: ♦ ♦ ♦

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Rating: ♦ ♦ ♦



LEARNING CURVE

If drill-and-practice software is the only kind of computing environment students encounter, their creativity will atrophy and we will have produced a nation of automatons.

TAKING CHANCES

By DAVID THORNBURG

DR. KATHLEEN FORSYTHE, A COLLEAGUE of mine from British Columbia, defines *learning* as the *perception of newness*. The idea is that whenever we learn something new we perceive it as a discovery.

As with discoveries in other domains—such as artistic creativity—learning is risky. We're exposed to new paradigms—to new ways of thinking, which may conflict with our habitual view of the subject at hand and thereby cause anxiety. This anxiety may in turn make further learning difficult as we feel our pulses quicken and our hands perspire.

As we explore ways that computer technology can enhance education, it's clear that some "educational" software supports the student's perception of newness and some doesn't.

Over the years I've devoted my energies to open-ended software that lets students explore a subject freely—and that stand has put me at loggerheads with those who say computers should be used for drill-and-practice. Is there common ground?

HOW DO WE LEARN?

According to Chuck House, an educational philosopher who's also a vice president of Hewlett-Packard, learning takes place in four stages:

- 1) We don't know that we don't know.
- 2) We know that we don't know.
- 3) We know that we know.
- 4) We don't know that we know.

To illustrate this model, most 5-year-old children don't know (aren't aware) that they don't know integral calculus. By the time they get to high school, some of them may move to the second stage—they'll know that they don't know calculus.

A few of these students will then progress to the third stage—typically by taking a course in the subject—and they'll then know that they know calculus.

Finally, after working with this branch of mathematics a long time, some will become so proficient at it, it will be so much a part of the way they think,

that their knowledge will be automatic—they won't "know" that they know the subject.

TOOLS FOR LEARNING

Much of the conflict between those who endorse computers as drill tools and those who prefer more open-ended applications is just a difference of opinion: Should we use computers to move students from stage 3 to stage 4 (the domain of practice), or from stage 2 to stage 3?

All learning takes place as we move between stages, and there's no question that computers can be effective tools in the two learning stages described above.

Still, if we look at the ways computers are used in many classrooms, much time is being devoted to drill at the expense of discovery learning.

THE TIMES THEY ARE A'CHANGIN'

It's easy to speculate why that's the case. First, in contrast to open-ended applications such as LCSi's **LogoWriter** (1000 Roche Blvd., Vaudreuil, Quebec, Canada J7V 6B3, 800-321-LOGO, \$99), drill activities require very little teacher support. You place the child in front of the computer with a program, then leave him or her alone to complete the practice in isolation from the rest of the class.

Some computer labs I've seen look like a page from Orwell's *Nineteen Eighty-Four*, as 30 or more students sit silently in front of machines that move them step by step through activities in which the computer programs the learner. The faces of these students are generally devoid of expression—much like the zombie stare they acquire in front of a television set.

QUESTIONABLE BENEFITS

The result is a student who knows that Springfield is the capital of Illinois, for example, but who has no idea why the capital is located there or, worse yet, has no inclination to even ask the question.

To the creators of such programs, the student's mind is a vessel to be filled. Still, because many standardized tests look for exactly the kind of informa- ►

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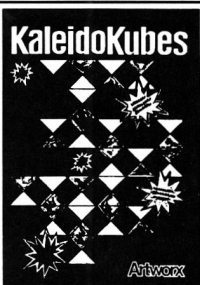
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LEARNING CURVE

tion these programs help students learn, software manufacturers point proudly to the "benefits" of their packages in terms of higher test scores.

If that's the only kind of computing environment students encounter, their creativity and natural curiosity about the world will atrophy, and we will have produced a nation of automatons.

JUST THE FACTS?

Our national obsession with fact acquisition has generated some problems. In the area of language arts, for example, I've seen students who know the difference between adverbs and adjectives, but who are incapable of writing a coherent sentence.

Other students may know *how* to write, but have a horrible time creating a story—they seem bereft of ideas.

Although it's wrong to blame technology, there's little question that increased use of computers as drill machines can easily lead us even further down this path. Ideas, ideas everywhere, but nary a thought to think!

Fortunately, some states have seen the pendulum swing too far and are working to find a healthy equilibrium point.

California, for example, has revamped its math and English courses and is working on its other curricula as well. In language arts, for instance, students are moving from worksheets to literature, from multiple-choice questions to essays. They're learning that to write you must first have an idea to express.

How we ever lost sight of these fundamental concepts is beyond me, but I'm happy to see the direction in which the pendulum is now moving.

ACCEPTING THE CHALLENGE

If we're in fact changing our educational system in some basic ways, we need to explore how we

can use technology best to help students become active, self-directed learners.

Much of the current multimedia hoopla suggests that anyone with less than a Mac II at his or her fingertips belongs to the technological backwater. That's simply not true. The challenges facing educational computing have never been technological. They're challenges of the mind.

A NEW LEVER

Archimedes is reputed to have said, "Give me a lever and a place to put the fulcrum and I can move the world." Computers and their assorted attachments are phenomenal educational levers.

The insight and love of learning the teacher provides are the fulcrum. If the teacher has sufficient vision, any computer can support true educational discovery.

If vision is lacking, on the other hand, the computer is likely to become nothing more than a desk ornament.

TEACHER'S ROLE

The funny thing is that the hardest step in educational reform seems to be finding the part that costs nothing—vision.

You could place an Apple IIGS with Video Overlay Card, CD-ROM player, and laser discs on the desk of each child in the classroom, but without the vision of an inspired teacher, nothing of value would happen.

Plutarch said, "The mind is a fire to be kindled, not a vessel to be filled." Fires are kindled with ideas, not computers. Have you kindled any lately? □

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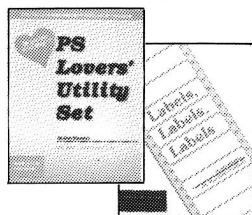
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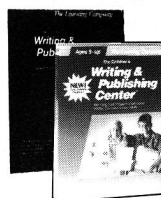


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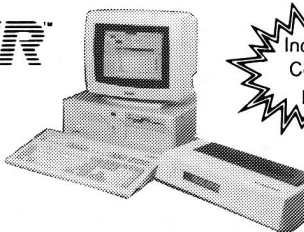
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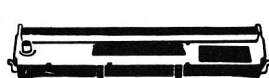
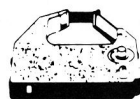


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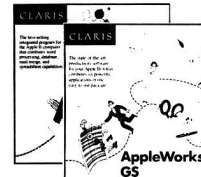
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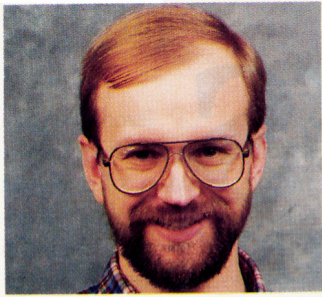
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**MACE ON
GAMES**

NEW ADVENTURES

By **SCOTT MACE**

Just when you think you've fought every army, *The Magic Candle* offers several firsts that make it a fresh challenge.

EVER SINCE ULTIMA SPAWNED AN ARMY OF imitators, game designers have striven to create just the right mix of action and strategy. Not all have succeeded, and most Apple II gamers know by now that endless clashes can lead to endless boredom. Besides, even adventurers have to rest and recuperate sometime.

LIKE MAGIC

Game designers at Mindcraft (2341 205th Street, Suite 102, Torrance, CA 90501, 213-320-5214) apparently agree. Just when you think you've fought every army, *The Magic Candle* (\$49.95) offers several firsts that make this one a fresh challenge.

tinuous income to other members of your party to supplement their adventures.

Electronic Arts' *Wasteland* introduced the concept of separating your group into two parties; *The Magic Candle* takes that one step further and lets you create as many subgroups as you like. You can send a member off to either fighter's school or to work, for instance; switching among groups is easy, but you can reunite two groups only if they're in close proximity.

The Magic Candle breaks new ground in other ways. Instead of having to type in all your requests, the game lets you choose actions from a menu. You can also save up to four games, as opposed to only one in other adventures such as the *Ultima* series.

THE WANDERER

As in most games, you'll find and purchase better weapons, as you search for ways to keep the evil Dreax from escaping from his imprisonment inside a huge candle. But now you must deal with the "wear and tear" factor—your weapons gradually becoming old and rusty and losing their effectiveness. You'll have to spend time refurbishing them, or they'll break down. Also, *The Magic Candle* doesn't feature as many varieties of weapons as other games do—another refreshing change.

As you wander from town to town in the land of Deruvia, keep track of the clock. Towns tend to be closed at night, and each character you encounter will have his or her



Magic Candle offers a number of innovative developments, including action menus that save typing time.

In most adventure games, you accumulate wealth by plundering your slain enemies' corpses (seems a little ghoulish). This is the first game in which members of your party make money the old-fashioned way. They earn it by holding "civilian" jobs such as metalsmithing. You can transfer this con-

own schedule, which may include sleeping during the day. You'll also travel in ships from time to time, but unlike those in *Ultima*, these boats don't belong to you. Instead, you have to hire a captain and ask him to take you places. There are also lots of hidden treasures, so don't forget your equipment—it's wise ►

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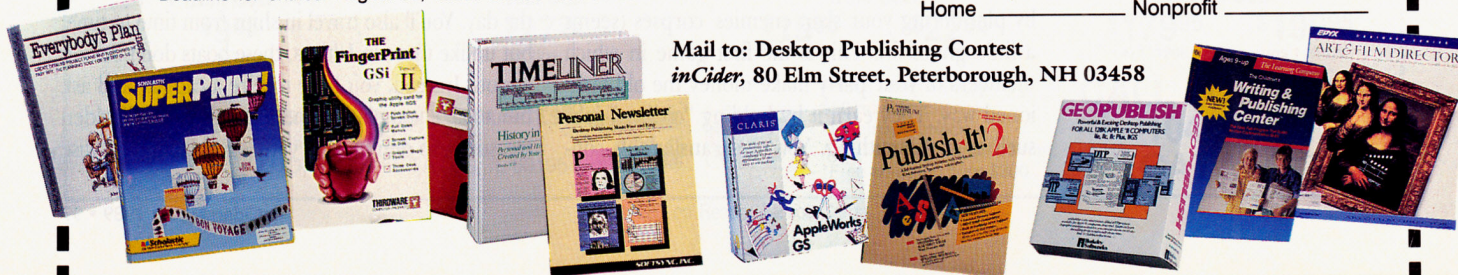
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to carry a shovel.

Many games let you accumulate numerous hit points at the start, making your characters virtually invulnerable. In *Magic Candle*, however, the maximum equivalent of stamina is only 99 points, which makes for greater challenge.

The game replenishes monsters and guards, whom you encounter in the wilderness every three months.

Once you clear a dungeon, though, it stays that way. This seems logical and strikes a balance between a game that's too easy and one that's too hard.

TIME TUNNEL

The *Magic Candle* has its share of magic potions, too, some of which you can take before battles to reduce your injuries. This is a less innovative feature, but it helps to even the odds in your favor.

There are no hidden doors, but every once in a while you'll find a teleporter along with fiendish time traps that rob you of ten hours.

Efficient use of time is critically important; you'll miss these hours later, as you try to finish the quest within the allotted time. Just getting fitted for a suit of armor takes five "game" days.

THE POWER OF WORDS

Ready for more challenges? Thanks to Sir-Tech's **The Usurper: The Mines of Qyntarr** (P.O. Box 245, Ogdensburg, NY 13669, 315-393-6633, \$29.95), the all-text adventure lives on.

Qyntarr establishes a simple, two-window, text-game system (the top window is like a permanent "look" command; the bottom window is where you type dialogue), and gives us a dose of much-needed humor in the Infocom tradition.

In this bizarre underground realm, you'll meet the dread "blooble," who eats anything. You'll also find a dragon with hay fever and a subway that leads to a

hilarious town with its strange real-estate office and country club. From looking at the box, you may not realize this game is full of laughs, but trust me—it is.

There's no obvious logic to Qyntarr's puzzles, so try everything, and save your moves often; you can also keep up to ten games. As usual, you'll have to make maps as you go along. So far only a few Apple II adventure games include built-in mapmaking, and none can display multiple levels. For now, a thick pad of graph paper's your best friend.

FAREWELL FOR NOW

This month marks the last Mace on Games column, but look for my reviews in the new, expanded game section in future issues of *inCider*.

Games have come a long way since this column began more than three years ago, growing from infancy to maturity—at least on the Apple II. We've seen both innovation and imitation, and the promise of multimedia entertainment beginning with the Apple IIGS.

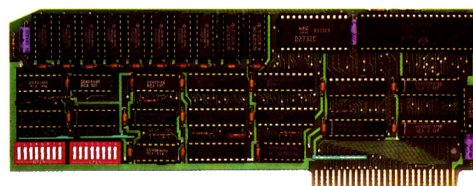
I believe the Apple II family will continue to be a platform for today's most innovative games, and I'll continue to champion the best of the best.

There's no reason why GS owners should have to consider other hardware. Keep the heat on game-software developers. Let them know how important original game designs are by purchasing the best and avoiding the rest.

Games exist to entertain and stimulate you, so long may the world of Apple II games continue to flourish. □

SCOTT MACE IS EDITOR AND PUBLISHER OF *MICROCOSM*, A MONTHLY NEWSLETTER ON COMPUTER GAMES. WRITE TO HIM AT 9350F SNOWDON RIVER PARKWAY, SUITE 277, COLUMBIA, MD 21045-5260. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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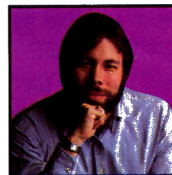
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BEST BYE

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It's an information swap for readers who want to share their programming pointers, hardware secrets, AppleWorks applications, and all kinds of other insights.

ProDOS BETTER BYE

by Gordon Macfarlane

HERE'S A PATCH THAT'LL MAKE Bird's Better Bye (BBB) even better. Alan Bird's version improves Apple's ProDOS "quit" routine by cataloging each disk in your Apple drives. It then lets you select, with a single keypress, the next system application to launch.

In the unmodified version of ProDOS-BBB, pressing the escape key enables and catalogs the next available drive.

But what happens if you forget to insert the

right disk into the drive? You curse once or twice, install the desired disk, then press Escape repeatedly to get back to that drive.

The BASIC program in **Listing 1** should help. When RUN, it modifies the BBB portion of ProDOS, so that you can press the spacebar to recatalog the current drive.

If you've inserted the wrong disk, just remove it, insert the correct one, and press the spacebar to catalog and select the program you want.

Run the BBB modification program just once for each ProDOS-BBB system disk. After typing in the program listing and SAVEing it

as BBB.MOD on disk, LOAD it, insert the system disk you want to modify into the drive, and RUN.

ProDOS installs the spacebar-modified version of ProDOS-BBB automatically and SAVes it back to that system disk. Just reboot using the newly modified disk and stop cursing.

I've used this BBB modification program successfully with ProDOS versions 1.0.2, 1.1.1, 1.2, 1.3, 1.4, and 1.7.

Be sure to have a backup copy of your original ProDOS-BBB. Then, should the modification not work because of typos or an incompatible version of ProDOS, you can restore ProDOS to the disk.

Write to Gordon Macfarlane at 16 Namao Drive, Trenton, Ontario, Canada K8V-1C2.

TIME COMMANDS

by Kan Chi Keung

THE MACHINE-LANGUAGE PROGRAM whose source code appears in **Listing 2** lets you access the normally inaccessible IIGS clock.

The program enables three ampersand (&) commands you can use in Applesoft BASIC programs to display the current time, date, or both.

Type in the listing and compile it using any IIGS-compatible (65816) editor/assembler, such as the Apple IIGS Programmer's Workshop, available from the Apple Programmers and Developers Association (Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014, 408-996-1010). Name the resulting ProDOS-8 binary program TIME.COMMANDS.

When you BRUN TIME.COMMANDS directly or within your Applesoft program [PRINT CHR\$(4);"BRUN TIME.COMMANDS"], it enables the &TIME, &DAY, and ▶

Listing 1. Modified Bird's Better Bye.

```
10 REM BBB Enhancement [3217]
20 REM by Gordon Macfarlane [3930]
30 REM Copyright 1989, inCider [4733]
100 PRINT CHR$(4)"BLOAD PRODOS,A$2000,TSYS" [1951]
120 IF PEEK(23481) < > 193 AND PEEK(23484) < >
20 THEN A = 512: IF PEEK(22969) AND PEEK(2297
2) < > 20 THEN PRINT "ProDOS doesn't contain an
unmodified BBB.": END [7047]
130 FOR Z = 23124 - A TO 23126 - A: READ ZZ: POKE Z,
ZZ: NEXT [4260]
140 POKE 23208 - A,160: POKE 23210 - A,201 [2743]
150 FOR Z = 23463 - A TO 23489 - A: READ ZZ: POKE Z,
ZZ: NEXT [4256]
160 PRINT CHR$(4)"UNLOCKPRODOS" [4077]
170 PRINT CHR$(4)"BSAVE PRODOS,A$2000,TSYS": END [6648]
180 DATA 234,234,234,194,217,160,193,204,193,206 [1447]
190 DATA 160,194,201,210,196,160,160,168,205,207 [1475]
200 DATA 196,160,194,217,160,199,207,210,196,169 [4027]
```


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- New Apple II spelling and math programs represent the latest developments in skills research. *inCider* goes back to school to examine what's new in everything from drill and practice to whole-language learning.
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Listing 2. Enabling BASIC GS-clock commands.

```

; Time.Commands
; by Kan, Chi Keung
; Copyright 1989, inCider

        65816    on
        org      $8500

TIMEDAY start

COUT    equ      $FDED
PC       equ      $B8

        lda      #$4C      ;set jump
        sta      $3F5      ;for & command
        lda      #<START
        sta      $3F6      ;the address of
        lda      #>START
        sta      $3F7      ;program entry point
        rts

CODE     dc       h'444159AE5449D45AE' ;the "DAY & TIME"
        dc       h'424F5448AE00' ;"BOTH"
LENGTH  dc       h'091414'
LENGTH1 dc       h'000900'
STORE   ds       21        ;for date & time's data
TEMP    ds       1
LENG     ds       1
LENG1    ds       1

START    ldx      #0
        stx      TEMP      ;clear flag
READ     ldy      #0
        lda      CODE,x
        beq      ERROR
        cmp      (PC),y      ;cmp with instr
        bne      NEXT
        jnx      ;use for count
        lda      CODE,x
        cmp      #$AE
        beq      GETCLK
        bne      CAMP
NEXT1    jnx      ;get next instr.
NEXT     lda      code,x
        cmp      #$AE      ;is dot
        bne      NEXT1
        inc      TEMP      ;use point to instr
        bne      READ
ERROR    rts
GETCLK   tya      ;add y to pc
        clc
        adc      PC
        sta      PC
        bcc      GOTOOL
        inc      PC+1
GOTOOL   clc
        xce
        rep      #$30      ;full 16 bits mode
        pea      $0000      ;bank 0
        pea      STORE
        ldx      #$F03      ;tool Number
        jsr      $E10000     ;call GS toolbox
        sec
        xce      ;reset to emulation
        ldy      TEMP
        lda      LENGTH,y   ;Restore parameters
        sta      LENG
        lda      LENGTH1,y
        sta      LENG1
        ldx      LENG1
PRINT    lda      STORE,x    ;Print Time/Day
        jsr      COUT
        inx
        cpx      LENG
        bne      PRINT
        lda      #$8D
        jsr      COUT
        rts

end      ;of TIMEDAY

```

&BOTH command handlers, which display the current IIGS time, date, and time/date combination, respectively, starting at the current text-cursor position. Use the HTAB

and VTAB BASIC commands to control the cursor's position. □

Write to Kan Chi Keung at 3149 Alemany Boulevard, San Francisco, CA 94112.



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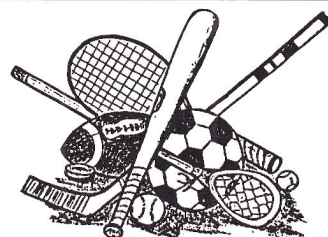
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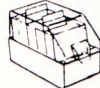


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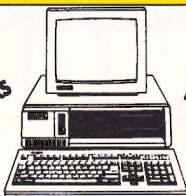
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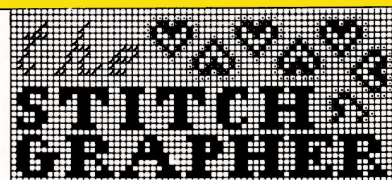
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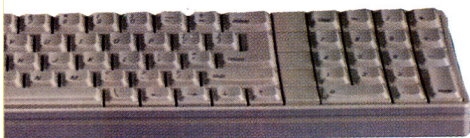
HYPER STUDIO: HYPERTEXT FOR YOUR GS

DON'T EVEN THINK of the word *hypertext* for the next five minutes.

Have you ever wondered, though, why your Apple IIGS painting or drawing programs can't work with your music or sound programs? Why you can't combine your digitized and retouched paintings of the family with your digitized recordings of everybody's voices?

You can. Roger Wagner's HyperStudio—reason enough to buy a GS in the first place—finally combines the graphics and sound that the name GS promised. HyperStudio is a simple, easy-to-understand package of hardware and software that lets you combine video images from a laser-disc player with computer text and graphics, plus sounds from any source, in a single GS. But don't let "that word" enter your mind.

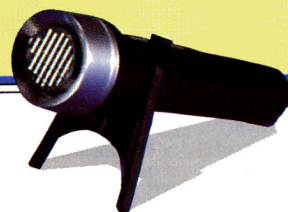
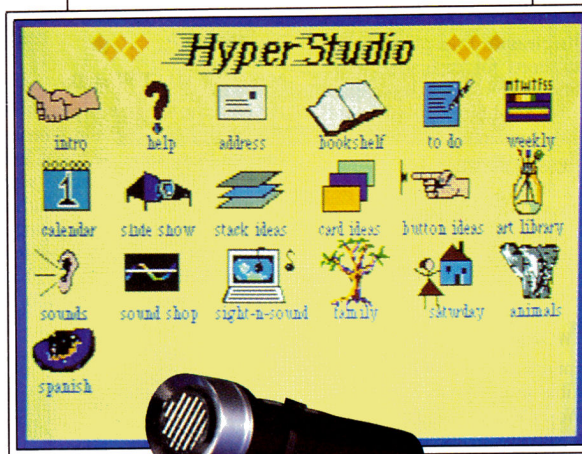
With HyperStudio you can create something that looks remarkably like a computer program without ever writing a line of code. You can create works to be seen, listened to, or read—or all three at once—on your Apple IIGS even if you've never programmed anything more complicated than your wristwatch.



Teachers can create their own lessons—combining human voices, computer graphics, even video images—without learning how to program. Schools have the technology; the trouble has always been putting it all together. That's what HyperStudio does. (But stop right now if "that word" is creeping into your consciousness.)

HyperStudio also helps jaded families still wondering, "What can we do with this com-

puter?" Here's an idea from the demo disk. Imagine a computer screen that displays your mom's digitized portrait. Above her, you see the names of her mom and dad, and below her your name and those of your siblings. Next to mom's smiling face is dad's name. On the



other side of mom's portrait are pictures of a record player and a globe.

Click on the globe and the screen suddenly shows a map of County Kerry, Ireland, where she was born. Click on the record player and you hear *When Irish Eyes Are Smiling*, her favorite song. Click on one of the names and the screen shows a picture with names of another generation of parents and children along with birthplaces and favorite songs.

This sci-fi family history isn't something you have to wait to see. It's not something you'll have to buy thousands of dollars' worth of equipment to do. HyperStudio includes a sound digitizer, microphone, and speaker, and can import files from your current Apple IIGS paint program. Best of all, you don't have to graduate from Cal Tech or MIT to create...

There's that word again. We might as well ad-

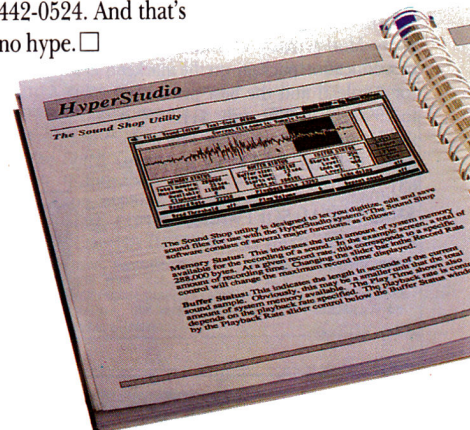
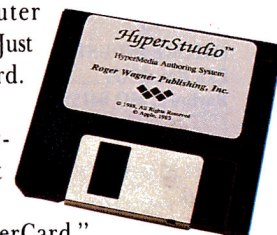
mit it—you *can* create "hypertext" for your GS. But don't let that scare you. HyperStudio isn't really a new idea—it's what everybody always expected a computer should be able to do. Just don't use the H-word.

Stress studio.

"I like HyperStudio a lot more than Apple's HyperCard," says Senior Editor Paul Statt. "For one thing, you get the tools with the package that make it immediately useful. You can also use images created with other paint programs. And schools, the biggest potential market for hypertext, have GSeS, not Macs." As Editor in Chief Dan Muse quips, "HyperStudio's one more reason *not* to buy a Macintosh."

"It's hard to give you anything on this page but a cursory glance at what HyperStudio is all about, simply because there's so much to it," adds Review Editor Lafe Low.

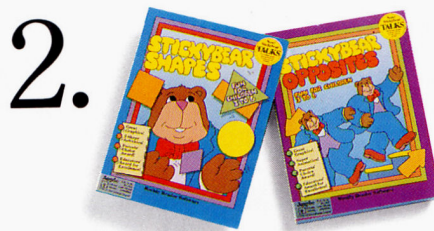
Keep your eye on *inCider's* feature section for a full-length description and evaluation of HyperStudio in September. HyperStudio requires an Apple IIGS with 768K of RAM. It comes with all the necessary hardware—amplified speaker, microphone, even batteries for the speaker—and will be available at an introductory price of \$129.95 from Roger Wagner Publishing, Inc., 1050 PioneerWay, Suite P, El Cajon, CA 92020, (619) 442-0524. And that's no hype. □



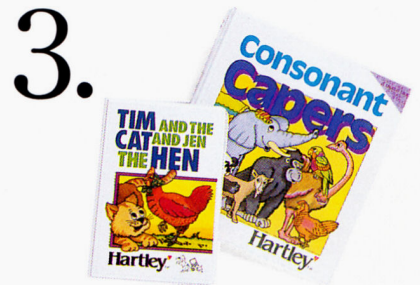
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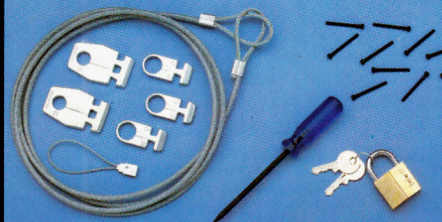
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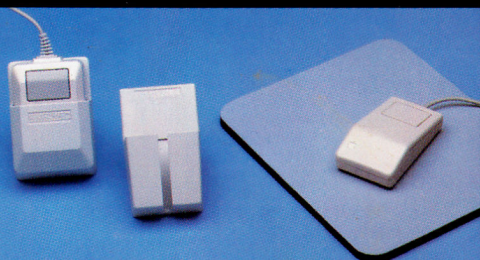
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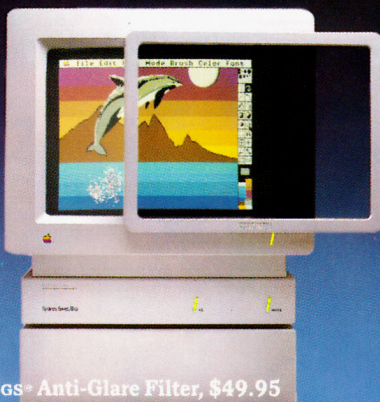
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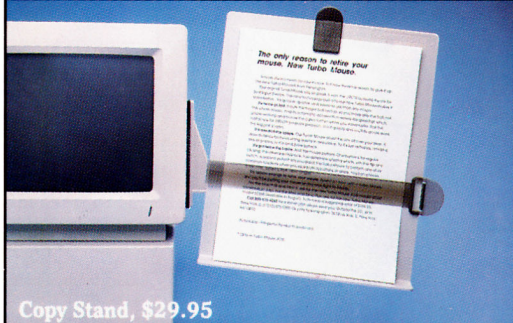
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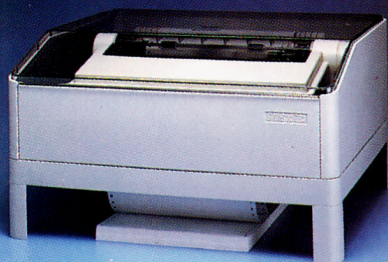
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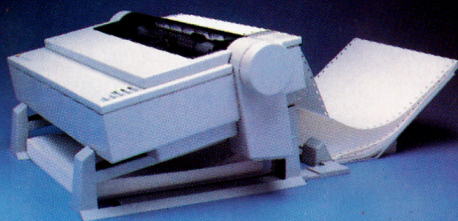
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