Editors' Choice: Sonic Blaster, p. 108 • Calculate Loan Payments with AppleWorks, p. 68

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inCider

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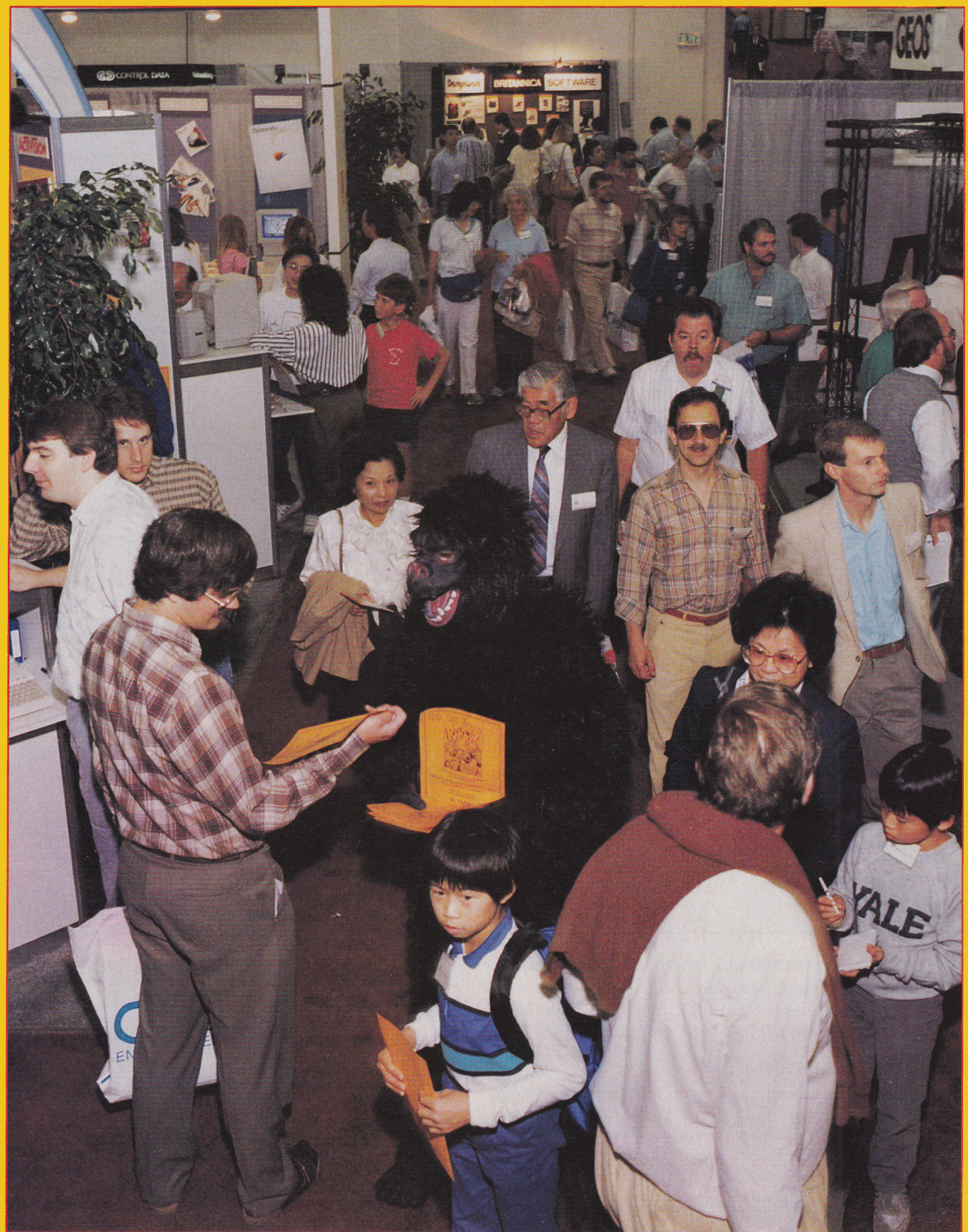

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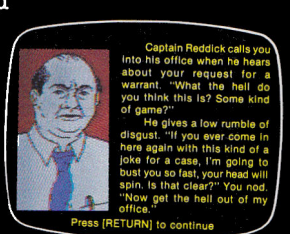

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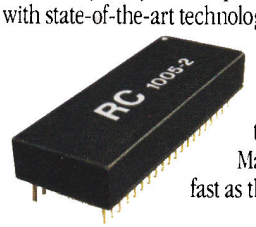

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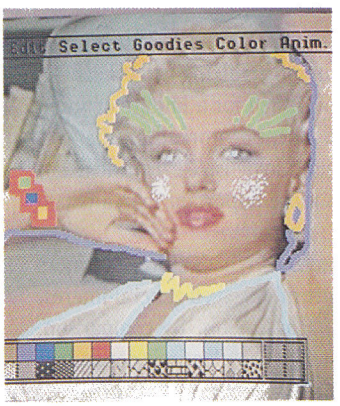
THE APPLE II MAGAZINE
inCider

MAY
Vol.7 No. 5



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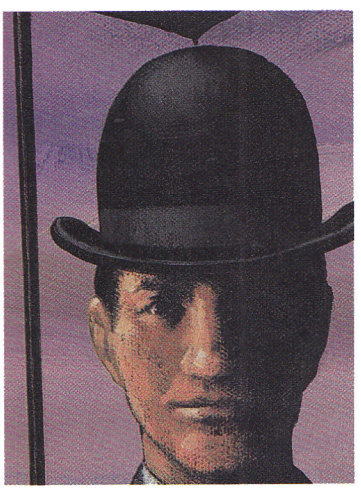

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Your II ought to be in pictures, thanks to Apple's new Video Overlay Card and genlock technology, which lets you combine video images with computer-generated text and pictures. Whether you want to prepare material for business meetings, produce classroom presentations, or cut a home movie, the Overlay Card will help you create professional-looking films that'll earn two thumbs up.

46 Templates from Heaven

From Mickey Mouse's Magic Kingdom to Mickey Mantle's stats, AppleWorks templates cover just about every topic. Whether you're planning a vacation or organizing a card collection, there's no easier or more efficient way to manage that deluge of data than with these ready-to-use files.

54 Do You Know Where Your Data Are? Hard Drives: Part 3

Now that you've settled on a hard-disk drive, you'll want to take full advantage of its abilities. That means setting up files and formats that'll keep you on top of all your information. In the final installment of our series, *inCider* shows you how a little maintenance can go a long way toward reaping the benefits of mass storage.

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Cover Photograph • Mark Johann

INCIDER'S VIEW

THE MAC MYSTIQUE

By DAN MUSE * EDITOR IN CHIEF

Apple is making some pretty big assumptions, and journalists who cover Apple are making some awfully ludicrous remarks.

"APPLE IS MAKING A COMMITMENT TO provide machines for a market that desperately needs high technology."

That quote comes from an article titled "Mac Graduates into Primary Education," in the February 21, 1989, edition of *MacWeek*, a Macintosh-industry newspaper. As we learn more about Apple's plans to introduce the Mac into education, we're puzzled: Why does Apple (and *MacWeek*) assume that as schools replace old equipment (that is, Apple IIs) they'll automatically replace them with Macintoshes, rather than new IIs or IBMs or Tandys?

When it comes to the Mac as a K–8 machine, we see the danger of high prices and a lack of software looming on the horizon. And while we don't want to bash the Mac, we're not ready to jump on the bandwagon, either. Apple is making some pretty big assumptions, and journalists who cover Apple are making some awfully ludicrous remarks. Many of these comments appear in *MacWeek*'s article.

MacWeek states that "in acknowledging K–12 as a viable Mac marketplace, Apple has given an aura of credibility to the primary and secondary education market." Educators, from what we can tell, aren't looking for credibility; they're looking for affordable new equipment that doesn't make old investments obsolete.

Further in that article, David Grady, editor of *The Grady Report: Personal Computers in Education*, is quoted as making a series of absurd comments: "The Mac is clearly a stronger and better computer than the Apple II. No one should be thinking about buying a IIGS today." We assume his comments were taken out of context. When it comes to certain applications in certain age groups, the Macintosh makes more sense, but "no one" should buy a IIGS? It's difficult to imagine how anyone with even a cursory knowledge of primary education could make that statement.

Recently, the young daughter of an *inCider* staff member was in the office. On one desk, we had a Macintosh SE running Mediagenic's exciting new game Manhole—a beautiful-looking, great-sounding exploration that incorporates the features of HyperCard and CD-ROM. On the desk next to the Mac, a IIGS was running Talking Stickybear Alphabet. The little girl lasted for a minute or so on the black-and-white Mac, but worked on the IIGS for about a half hour. Color isn't everything, but to a young child it's more important than a 68000 microprocessor.

MacWeek goes on to say, "What's more, educators are finding ways to use off-the-shelf general-interest [Mac] software as teaching tools. By comparison, said Grady, users of the IIGS are 'entirely dependent on the [educational] software specific to it.'" Ever hear of AppleWorks? The great thing about the IIGS is that there *is* quality educational software specific to it, but educators' expertise and investment in AppleWorks are protected.

And in addition to AppleWorks, programs such as The Print Shop (both 8-bit and 16-bit versions), Publish It!, PaintWorks Gold, and so on are used in classrooms every day. I wonder if you can say the same of PageMaker and Microsoft Works.

There's little doubt that Apple wants to move the Mac into education, especially into high schools and colleges. Apple isn't naive enough, however, to think it will happen overnight. Apple envisions the Mac sort of "trickling down" from high school to junior high to K–6.

The only problem with Apple's vision is that it's based on all those assumptions mentioned earlier. If Apple would stop trying to change the world, it would realize what made the Apple II so successful in education: not magic, just good business. Apple made it attractive for schools to get IIs. In fact, Apple literally gave away about 10,000 of them in California, and lobbied state and national legislators to enact tax provisions to encourage corporations to make similar donations in other states. It also offered grants to encourage II software development.

Apple changed the world once, but it wasn't trying to. It should realize that no one ever changed the world by setting out to do so. If Apple continues to view the Macintosh as a religion, and if journalists continue to pay homage to it, we may see Apple eventually washed away in a sea of MS-DOS. □

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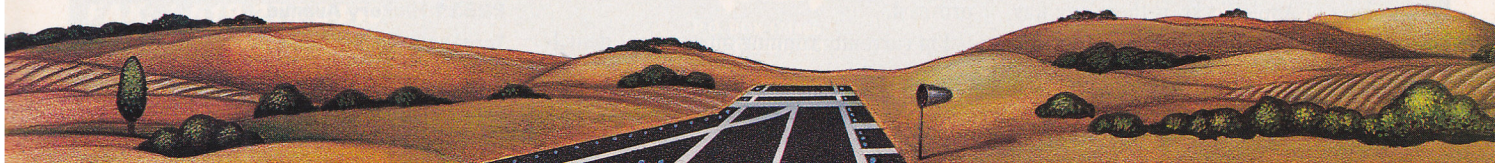


LETTERS TO THE EDITOR

Eager Beagle Cont.

EAGLE BROS IS NOW MAKING available through the Teachers' Idea and Information Exchange an updated student version of its popular QuickSpell spelling checker (Letters, January 1989, p. 12). This version is similar to the original spelling checker, except that it doesn't suggest the correct spellings of words or allow entry of words into the custom dictionary. Teachers can have their students use the spelling checker, but still make them rely on a dictionary for correct spellings.

The update replaces the original TO.QUICKSPELL file on the QuickSpell disk. If you want to keep all features, make a backup copy of the original disk before updating.

To obtain student-version updates, send your original QuickSpell disk (either 3½- or 5¼-inch) and a $3 check or money order for each disk you want updated to the Teachers' Idea & Information Exchange.

Also, the phone number published in the February Letters section (p. 14) is incorrect. Our number is (402) 483-6987.

Jim Carlisle, Coordinator
Teachers' Idea & Information Exchange
P.O. Box 6229
Lincoln, NE 68506

That's the Breaks

THREE YEARS AGO I PURCHASED my Apple IIe and the 1983 version of AppleWorks. Now I'm disappointed that all the additional tools for AppleWorks require version 2.0 or later. Like many home-computer users, I can't afford to spend $250 every couple of months to "update" my software.

Speaking of AppleWorks, is there any way to retain the OA-K command while editing within the program? After using OA-K to calculate the breaks on a multipage document, I often change the place where I'd like a new page to start. Unfortunately, after doing so, I need to repeat the OA-K command as I continue writing the document. This becomes a very tedious task after a few pages! Any help would be great.

Ann S. Epstein
2316 Walter Drive
Ann Arbor, MI 48103

We think Claris has a fair upgrade policy, especially since it acquired Styleware. You can now upgrade from MultiScribe to AppleWorks, for instance. For details, call Claris at (415) 960-2790.

Regarding page breaks, it shouldn't be too hard to retain the command—probably a simple POKE, but we don't know what it is. Does anyone out there have a solution? —*eds.*

Addressing the Issue

YOUR MENTION OF OUR COMpany in New Products (October 1988, p. 90) coincided with our move. Please note our new address.

Larry Morton
Intervision Software Company
13171 Monroe Street #17
Garden Grove, CA 92644-1154

Best in the Business

IT SEEMS THAT HARDWARE AND software salespeople who are set on IBM compatibility ignore the fact that many small businesses use the Apple II ("Business As Usual," January 1989, p. 40). My own experience in computerizing my dental office proves it.

I'm currently running an excellent dental-management package on my IIe. I've used the software for 15 months, I'm pleased with the results, and I'm very glad I didn't succumb to the pressure to switch to "Big Blue." I highly recommend that any small-business Apple II user not give up looking for the right package.

Robert E. Murphy, D.D.S.
8540 S. Sepulveda Blvd.
Los Angeles, CA 90045

Reader Warning

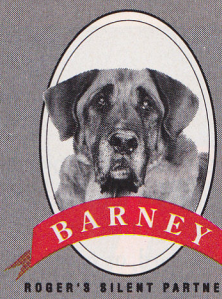
I'VE RECENTLY HAD AN UNpleasant experience with CSU/International, a company that advertises in your classified section. The company's ad claims it rents programs. After I sent in my $30 lifetime-membership fee, I tried to rent the newly released program Wordbench. The person I spoke with said he'd have to order it and charge me double rent. I agreed, but I've never received the program.

I called two months later to order another program and was told not only that CSU didn't have that one either, but that I could rent only one new program at a time. I agreed and asked to keep my order in for Wordbench.

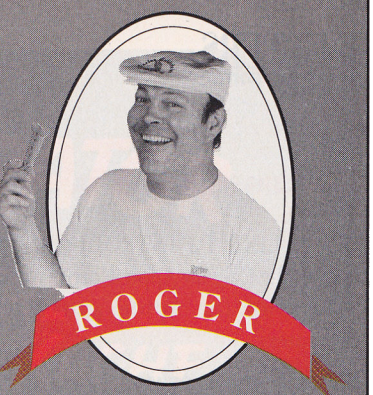
Today I tried renting another program. The person I dealt with began insulting me; he said I was trying to go around his system by asking for a program that isn't available. Wordbench is readily available here in California; software stores have it on their shelves. While I tried to reassure him that I had no intention of messing up his system, he began to swear and scream at me. He became extremely abusive and finally told me to never call again. (I thought I bought a lifetime membership.)

Obviously, this company doesn't offer what its ad promises.

Rev. Gwynn W. Lewis, Jr.
22631 Hickory Avenue
Torrance, CA 90505



Incider Readers Meet... THE TOP DOGS



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$61

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$104

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$144

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DataLink 2400 (Internal Modem)
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HARDWARE

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AMR 30 Meg w/SCSI (//e, GS)
$729

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APPLES IN ALBERTA

I'D LIKE TO INTRODUCE READERS to the Calgary Apple Corps. We're a user group for Apple and Macintosh computers.

Betty Quon, Treasurer
Calgary Apple Corps
P.O. Box 8, Station T
Calgary, Alberta, Canada T2K 5L2

GS, MATE

READERS MAY BE INTERESTED IN learning about a group I met in Australia. It's the GS Users Association, and it covers all Australian states. Its members are totally committed to the Apple IIGS—no IIes, IIcs, or Macs. They communicate among themselves with a monthly newsletter and put out a bimonthly 3½-inch, 800K disk full of short programs that the Association's members produce and send to its other members. Through these disks I've obtained some interesting software that GS owners back home would normally never see.

The Association is interested in communicating with groups, software writers, and individuals from anywhere in America. If you'd like to drop a line, write to the GS Users Association, PO Box 210, Wentworthville 2145, Australia.

Terry Cass
P.O. Box 23105
Eugene, OR 97402

EASY WORK

DR. FIELD'S CHART OF IIe/IIc word processors overlooked eight features of Easy Working Writer ("Polish Your Words," November 1988, p. 65). In conjunction with an ImageWriter II, Easy Writer will support nine, ten, 12, 13.4, 15, and 17 characters per inch, plus pica and elite proportionals. You can use any of the above with a double-letter-width setting. You can also print in draft, standard, or near-letter-quality mode, use the ImageWriter's six colors, and create footnotes.

If you're willing to pull out your printer manual and insert the proper control codes in the Printer Setup window, Easy Writer can support all the printer's features.

Martin H. Israel
2 Bella Road
Carmel, NY 10512

Cynthia Field acknowledged Easy Working Writer's additional features in the table under "Custom-Printer Commands." She notes that advanced users can probably find many capabilities other than those she specified. —*eds.*

SUCCESS WITH TAXES

THE IRS SONG IS OVER FOR NOW, but the memory lingers on. Several formulas in the income-tax templates on my *Success with AppleWorks III* disk don't address certain situations fully enough, particularly in the area of Social Security.

If you send me your *original* disk showing file dates earlier than Febuary 1, 1989, I'll have the revised TAXES and TAXES.EX templates written to it free of charge. Please enclose a stamped, self-addressed disk mailing wrapper.

Ruth K. Witkin
5 Patricia Street
Plainview, NY 11803

CORRECTIONS

We inadvertently omitted part of geoPublish's rating in our March 1989 At a Glance summary (p. 32D). The original review carried four stars (February 1989).

The price of Slide Shop quoted in March 1989 Reviews (p. 78) is incorrect. The home version of the program sells for $72.95.

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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OKS has come up with a solution. The Multi-Kache Card. An intelligent multi-disk controller so fast...so powerful...so efficient...it will unleash performance you didn't even know you owned.

Let the facts speak for themselves:

1. The Multi-Kache Card is the fastest disk controller available for Apple computers!
2. The Multi-Kache Card is twice as fast as a ramdisk—and safer!
3. The Multi-Kache Card is up to 40 times faster than other controller cards!
4. With our 30-day trial period you can experience the Multi-Kache Card for yourself with no risks!

The OKS Multi-Kache Card is a multi-disk controller with real hardware cache. With the combined features of a disk controller and real cache memory, the Multi-Kache Card boosts throughput of your data to and from your computer.

The Multi-Kache Card performs without taking up any system memory.

Applications which access your disk drives frequently, such as a large data base will demonstrate dramatic speed improvements. And the Multi-Kache Card's real cache memory can extend the life of your drives.

The Multi-Kache Card controls both 3.5 and 5.25 drives and runs at 8MHz.

Check these features:

- The Multi-Kache Card can read an entire 3.5 disk from cache in 3.5 seconds
- can run the ProDOS 16 Launcher from cache in under 15 seconds
- will control up to 8 assorted disk drives
- can daisy-chain disk drives
- can reduce or eliminate slot congestion
- is compatible with all accelerators currently on the market
- is a SMARTPORT device that is 100% compatible with ProDOS 8/16, and GS/OS
- is compatible with Apple *II*+, *IIe*, and *IIGS*

The OKS Multi-Kache Card comes standard with 256K of cache memory and can be upgraded to a full 1 meg.

The Multi-Kache Card can control any combination of the following types of disk drives:

- The Apple Unidisk 3.5 Disk Drive
- The Apple GS 3.5 Disk Drive
- The Apple 5.25 Duodisk
- The older 5.25 Disk II Disk Drive
- The Apple 20SC SCSI Hard Disk Drive
- The Apple 5.25 Drive

For more information call us toll free at

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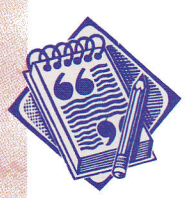
WHAT'S NEW

by *inCider* staff



QUOTES

"Apple owes its share of the educational market to the success of Applesoft in accessing the capabilities of the Apple II. Applesoft has allowed thousands of people to create tens of thousands of programs, commercial and noncommercial, that run on any Apple II computer. Many of these programs will not be upgraded to take advantage of the capabilities of the IIGS because upgrading would mean rewriting them in a new language."
—**David Miller, in *Mastering Applesoft Graphics* (Scott, Foresman, 1989, $18.95)**

"Apple's official position is that we will not support development of copy-protection schemes . . . . Simply put, copy protection is not a worthwhile endeavor. We can't help or support you in developing copy-protection mechanisms. Obviously there's no way to stop you from implementing copy protection, but we won't help with schemes, or problems that you get when things break."
—***APDAlog: Winter 1989*, an official publication of Apple Developer Channels**

CLARIS CLEARS THE AIR

The good news is that Claris Corporation (Mountain View, CA), publishers of AppleWorks Classic, AppleWorks GS, and some Mac software, has doubled the size of its technical telephone-support staff.

Claris has even added state-of-the-art phones to keep to under two minutes the average time you'll have to wait to talk to an expert.

More good news: Claris also now publishes the bimonthly *Apple II Technical Solutions* newsletter to keep you aware of new releases and upgrades, answer your questions, and pass along tips for getting the most from your Claris software.

So what's the bad news? You have to be a registered owner of a Claris product to get regular letters or even to call Claris for a chat. (We told you it pays to register.) If you haven't done so already, call (800) 544-8554 to register soon. Don't forget you can also upgrade to AppleWorks Classic or AppleWorks GS if you own StyleWare's MultiScribe or Apple's Apple Writer. —P.S.

READ ALL ABOUT IT

RESOURCES

Every Apple IIGS owner will be buying a book from Addison-Wesley this spring. Programmers will want Gary Little's latest, ***Exploring Apple GS/OS and ProDOS 8*** ($21.95); "users" will need Douglas Brown's ***Using AppleWorks GS*** ($19.95).

Little needs no introduction to the Apple II world. In addition to writing *Exploring the Apple IIGS* for Addison-Wesley and the standard Apple II telecommunications program Point-to-Point for Pinpoint, he was the editor of *A+* magazine for a short time.

Exploring Apple GS/OS and ProDOS 8 is written for experienced assembly-language programmers, but if you're just learning either the 65816 or 6502 microprocessor language, this might be a good place to start. At least you'll figure out how to work with files and manage peripherals.

Doug Brown is perhaps less widely known, but his credentials are impeccable: He's one of the primary authors of the documentation for AppleWorks GS.

Using AppleWorks GS includes step-by-step instructions for the beginner in each of the program's six modules, but Brown also includes something for the experienced user. His chapters called "Working with . . ." are filled with shortcuts, insider's tips, and time savers—and you don't have to use the program too long to learn how important they can be.

Look for *Using AppleWorks GS* and *Exploring Apple GS/OS and ProDOS 8* in bookstores, or circle number 352 on the Reader Service card for details. —P.S.

Illustration * Beth Krommes

APPLEFEST BOSTON

AppleFest will be bigger than ever in Boston this spring. Exhibitors will show Macintosh hardware and software in addition to traditional Apple II products.

Guests who wonder, "Which Apple's the right one for me?" will want to hear a special presentation by *inCider* that will consider just that question. Editor in Chief Dan Muse, Technical Editor Bill Kennedy, and West Coast Editor Jeff Cable will join spokespeople from Apple in making a difficult issue simple.

Other *inCider* editors and industry experts will lead discussions of subjects as diverse as AppleWorks, HyperCard, desktop presentation, the home-school connection, the future of computing, the future of games, the future of music, and more.

Advance ticket prices are $10 for exhibits of all the latest equipment, $60 for conference sessions and exhibits, and $99 for one half-day seminar with conferences and exhibits. For details call Cambridge Marketing at (800) 262-FEST. (In Massachusetts call 617-860-7100.) —P.S.

PROGRAMMER'S ♥ BEST FRIEND

SOFTWARE

The helpful thing about the Apple IIGS Toolbox, experienced programmers know, is that with a single, simple "call" you can harness all the power of the machine.

The bad thing, *really* experienced programmers know, is that you have to remember or look up more than 800 single, simple calls.

The Programmer's Online Companion is a single, simple program that *computerizes* the whole process of looking up **Toolbox** references. It's a database you can use with any development system, but it's designed for the Apple Programmer's Workshop. (You were using that anyway, right?)

In APW, you can copy Toolbox routines directly from the Programmer's Online Companion—it's a classic desk accessory—and paste them into your programs. No typos, and you never grab the wrong volume of your *Apple IIGS Toolbox Reference*.

But is it accurate? Addison-Wesley, publishers of the *Apple IIGS Toolbox Reference* and lots of other books, also publishes the Online Reference, so you know you can trust it. Call or write Addison-Wesley at Route 128, Reading, MA 01867, (617) 944-3700, or just circle number 354 on the Reader Service Card. **—P.S.**

Q: When is AppleWorks no longer AppleWorks?

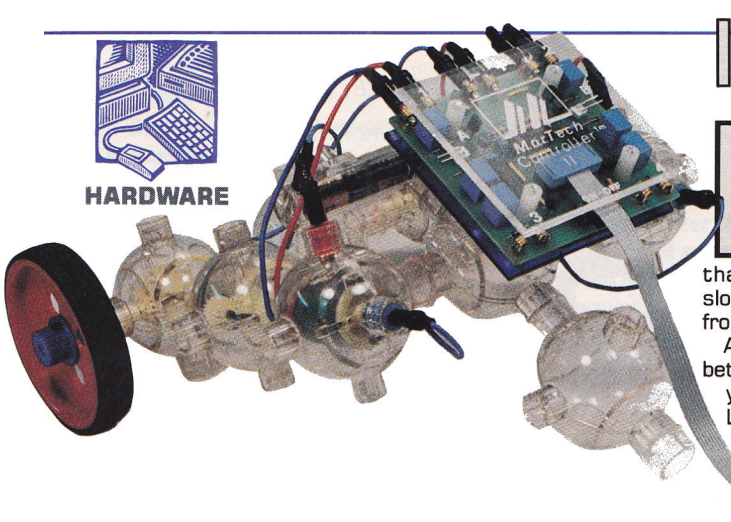
FOR PROFESSIONAL AMATEUR PROGRAMMERS

When you and Beagle Bros add so many skills, magic tricks, feats of prowess, and miraculous abilities to the old workhorse that it starts to run like a thoroughbred.

Either MacroTools or MacroTools II ($25 each, AppleWorks and UltraMacros required) alone can transform AppleWorks: MacroTools II, especially, with programs like Ultra Publisher and Advanced Mail Merge, can do that. But what really sets these two apart is their openness: You don't even need to be a good programmer to use these hundreds of **routines, tips, and macros.**

Serious macro programmers leave their credit-card numbers with Beagle Bros and trust the company to ship everything it publishes. But even amateurs should have these two. Call or write Beagle Bros at 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 452-5500, or write a macro that circles number 355 on the Reader Service Card. **—P.S.**

HARDWARE



I, Robot

Now you can control a thinking, moving machine with your Apple II—if you have the MorTech Controller II, a **robotic controller** that works with any Apple II with slots, and one of the popular robots from Capsela, Robotix, or Lego.

Attach the MorTech Controller between the Apple II game port and your robot, and use the BASIC or Logo programming language to control four different motors and respond to two different sensors on the robot. You can also use the software that's supplied with the controller.

The MorTech Controller II looks like fun, and it's educational, too. The recently improved software now lets your robot recall as many as 2000 "steps," and comes with a simplified 35-page manual.

Get your robot under control for only $199, from MorTech, P.O. Box 2287, Lake Oswego, OR 97034, or circle number 350 on the Reader Service card. **—P.S.**

GAMES

GET THE SCOOP

Geraldine Tracey is dead. The *Daily Courier* of London has assigned you the difficult and possibly dangerous task of finding the murderer—before Scotland Yard, if possible, but certainly before your rivals at the *Morning Star*.

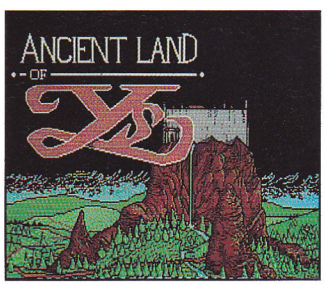
The Scoop is a **graphics adventure** starring more than 30 animated characters in 80 locations in and around London in the 1930s. The exciting plot is based on a novel by Agatha Christie, but The Scoop is a computer game in the best sense: The outcome is impossible to predict, because the characters' actions and alibis vary from one game to another, and even within a single game. It's interactive.

The Scoop runs on all Apple IIs with 128K, and sells for $39.95 from Spinnaker Software, One Kendall Square, Cambridge, MA 02139, (617) 494-1200, or discover number 356 on the Reader Service card. —P.S.

FANTASY ROLE PLAYING ROLLS ON

Just when you thought you'd seen every spell, every monster, every fantasy role-playing game there is, the dungeon doors have opened and let forth a whole new host of adventures—some traditional and some a bit off the beaten path, so to speak.

Ancient Land of Ys, one of the new Kyodai titles from Japan (distributed by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, 415-492-3500), combines adventure role-playing and arcade action. Your quest is to find the six lost *Books of Ys*. Along the way, you'll run into monsters, goddesses, and a strange metal with magical powers. Ancient Land of Ys will be available this summer for the Apple IIGS, and will sell for $44.95.



Origin Systems' (136 Harvey Road, Londonderry, NH 03053, 603-644-3360) latest also adds a different twist to fantasy games. **Tangled Tales** is a lighthearted adventure; you're cast as a wizard's apprentice faced with three increasingly difficult tasks you must complete. You can tailor the attributes of more than 50 unusual characters to help you in your quest. Tangled Tales will sell for $29.95 for the Apple II series.

DISK DRIVE SPECIAL

The best 5¼" drive ever available, and it's for the Apple II !

The MP6 from Micro-Peripherals Engineering

- **INCREDIBLE 320K CAPACITY** — The MP6 offers an amazing 230% more capacity, with no special interface cards or hardware add-ons. Uses both sides of a 5¼ at the same time — no flipping or swapping!
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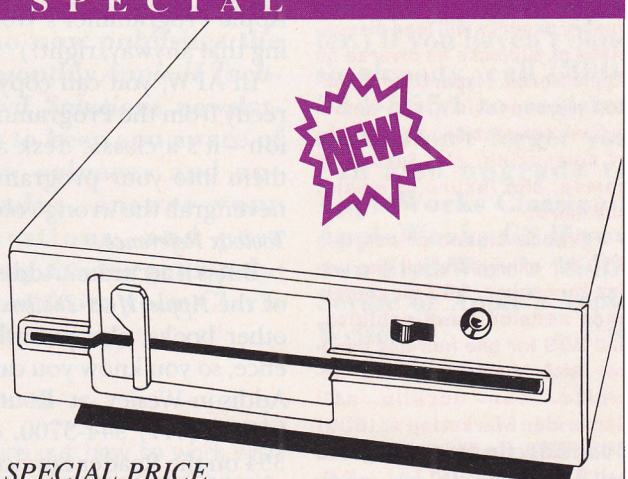
- **AFFORDABLE** — The MP6 gives you more capacity at the lowest cost per kilobyte.

DRIVE	NOISELESS OPERATION	AUTOMATIC DISK EJECT	CRYSTAL-CONTROLLED SPEED	RUNS ALL SOFTWARE	DAISY CHAIN PORT	DISK STORAGE CAPACITY	COST PER KILOBYTE	2 YEAR GUARANTEE
MEIJI				x	OPTIONAL	140K	.71	
MICRO SCI				x	OPTIONAL	140K	1.18	
APPLE		x		x	OPTIONAL	140K	2.35	
MP6	X	X	X	X	X	320K	.56	X



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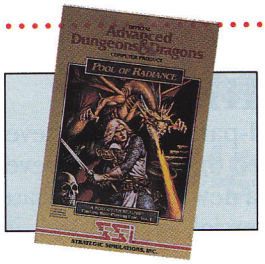

Pool of Radiance, from Strategic Simulations (1046 North Rengstorff Avenue, Mountain View, CA 94043, 415-964-1353), is the first in a series of fantasy adventures licensed from TSR Games, creators of the original Dungeons and Dragons role-playing games. Pool of Radiance combines animated graphics with a new type of combat display. You can control up to six characters throughout your travels. Pool of Radiance will sell for $44.95.

Wizardry V: Heart of the Maelstrom is the newest in the series from Sir-Tech (P.O. Box 245, Ogdensburg, NY 13669, 315-393-6633). This one uses a ►

APPLE BITS

■*We're* not betting it's the wave of the future, but the Software Publishers Association (Washington, DC) recently decided to include publishers of **Nintendo** entertainment software among its members.

■To keep overseas programmers working, *inCider* recently shipped *Begin Computing* to several **third-world nations** under a program sponsored by Apple Computer.

■"Humor" from Steve Wozniak's upcoming ***Official Computer Freak's Joke Book*** (Bantam): "How do you praise an accurate computer?" "Data boy." Groan.

■**Bachir Kassir** is a name to watch. He's the brain at Lynx Software (Baldwin Park, CA) who taught himself to program as a kid in Lebanon with an old copy of *inCider*. We're flattered, and recommend that you look for his GS programmer's helper soon.

■Claris has upgraded **AppleWorks GS** already—by unpopular demand—and is preparing a third version. The program may have started life slow and buggy, but we admire Claris' perseverance and faith in its problem child.

■With the demise of **Pinpoint Software** (Emeryville, CA; nobody was answering the phone in May) ProFiler, Command.Com, and Point-to-Point will be returned to their authors, so these popular products won't disappear.

■**Pages**, Pinpoint's desktop-publishing program for the Mac, IBM PC, and Apple II, was ready to fly when Pinpoint took a dive. The program was developed for the II, we hear, but in a potentially lucrative deal with Microsoft (Portland, OR) for the MS-DOS version, Pinpoint gambled on the PC. And lost.

GraphicWriter III

Superior Desktop Publishing for the Apple IIGS

Some Exciting Features:

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Included Free:

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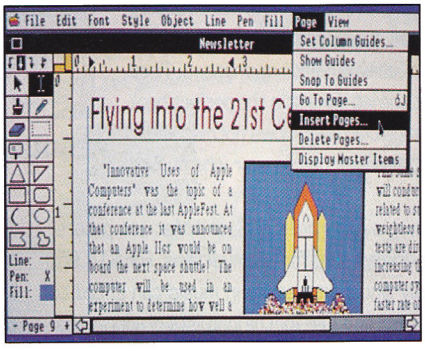
- **GS/OS**

GraphicWriter III will begin shipping in April. Call for details.



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► *The Apple IIGS Buyer's Guide* declares: "The serious desktop publisher will find GraphicWriter III a workhorse that can produce complex layouts of extremely high quality."

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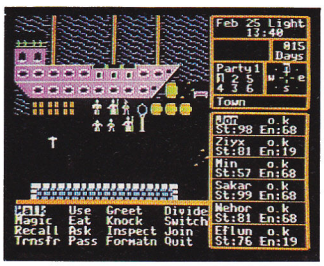

◄ stand-alone scenario; you don't need previous Wizardry modules to play, but you can transfer previously created Wizardry characters. Maelstrom features an updated combat system, different mazes, and new spells. It's priced at $44.95 for the Apple II series.

Your task is to save the realm of Deruvia in **The Magic Candle** from Mindcraft Software (2341 205th Street, Torrance, CA 90501, 213-320-5214). The Magic Candle features 54 dungeon levels, 26 types of monsters, and 24 magic spells. You can have as many as 25 adventurers in your party. The Magic Candle will be available for the Apple II this spring and will sell for $49.95.

Melbourne House (711 West 17th Street, Costa Mesa, CA 92627, 714-631-1001) has come out with **War in Middle Earth**, based on J.R.R. Tolkien's *Lord of the Rings* trilogy. You can assume the role of Frodo, Gandalf, King Aaragorn, General Theoden, Faramir, or any one of several others. All locations and encounters are true to Tolkien's stories. You control more than 80 characters on a 36-screen map in a confrontation of good and evil as your party makes its way to Mt. Doom in the heart of Mordor to destroy the one evil ring. War in Middle Earth for the Apple IIGS sells for $49.99.

Fantasy role players, take heart. If you thought you'd climbed the walls of every dungeon and come across every monster there is, you've got some more exploring to do.

—L.L.

APPLE'S NEW RELATIONSHIP

Apple announced a reorganization of its relationship with third-party software developers at MacWorld Expo in January. The company has replaced the Certified Developer program with a new Apple Partners program, and added a new Apple Associates program for "developers interested in developing noncommercial, customized, in-house solutions for the Macintosh and Apple II," according to a press release.

Apple hopes that its Partners, who will pay $750 for the privilege and $600 a year to keep it, will be traditional independent commercial developers, value-added resellers, and original-equipment manufacturers. Associates ($500, $300 per year) will be closer to the traditional user community—developers in science, education, business, and government who have written software primarily for their own use.

Both Partners and Associates receive a package of sample code, development guidelines, technical notes, interface guidelines, programming manuals, a subscription to AppleLink, membership in the Apple Programmers and Developers Association (APDA), and periodically updated system software and Apple publications.

Partners and Associates may choose to develop either Apple II or Macintosh software, not both, for a single fee. Apple Partners will be able to buy or lease Apple hardware at the same low prices certified developers could, and also benefit from Apple's traditional marketing support.

Apple claims to have more than 8000 Certified Developers, with 240 new developers signing on each month. It isn't clear whether the Associates and Partners programs are intended to increase or reduce those numbers. Some small developers will be unable to support the cost of Partnership with their profits and will stop creating Apple software.

—P.S.

MASTERING

MUSIC—Computer music rivals telecommunications as the most difficult, jargon-ridden thing you can do with a computer. *MIDI? Sequencing? Synthesizer?*

RESOURCES

A Guide to Computer Music: An Introductory Resource defines every word and tells you honestly what you need to buy and how much you need to spend to get the job done. It's the perfect book for the expert musician who knows nothing about computers, or the computer owner who flunked music.

The *Guide* covers Apple IIe/IIc, GS, and Mac computers, but seems especially useful for GS musicians. For $14.95, though, anybody who's interested in music can afford to take a look—it's worth it just for the long lists of addresses. For more information write or call Sound Management, P.O. Box 3053, Peabody, MA 10961, (508) 531-6192. Or circle number 353 on the Reader Service card. **—P.S.**

APPLESOFT GRAPHICS—What's one thing all Apple II computers have in common? It's Applesoft BASIC, the built-in language David Miller uses to teach you everything you need to know about Apple screen images in ***Mastering Applesoft Graphics*** (softcover, $18.95, Scott, Foresman, 1900 East Lake Avenue, Glenview, IL 60025).

If you're learning with an Apple IIGS, *Mastering Applesoft Graphics* is a great resource—it discusses everything your machine is capable of.

A good half of the book's 412 pages (excluding answers to problems, appendices, and index) is made up of program listings that will let you produce some fun, useful, and educational software. Programs are available on disk for an additional $25. Circle number 351 on the Reader Service Card if you'd like more information. **—P.S.**

DTP CONTEST

inCider's desktop-publishing contest returns. This year the contest will be better than ever, and we hope it will be bigger, too.

You can enter the contest in one of several categories this year:

■home publications: cards, newsletters ■school publications: newspapers, classroom materials ■nonprofit-organization publications: church bulletins, fund-raising letters, posters ■business publications: newsletters, menus, advertisements

All entries are due by August 1, 1989, and must be accompanied by an official entry form or facsimile. No entries can be returned, and all entries become the property of inCider magazine. We'll announce the names of the winners at AppleFest in San Francisco (September 22–24, 1989). Prizes will be awarded in January.

INTRODUCING

Once Upon a Time™...II

Design and publish your own illustrated books!

Dedicated to the thousands and thousands of children who had such a great time with the original Once Upon a Time™. . , the all-new Once Upon a Time™. . II features hundreds of graphic images associated with *UNDERWATER, DINOSAUR, and FOREST.*

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GOOD NEWS!
The Original Once Upon a Time™. . is Now Available in a "Talking Version" for Apple IIGS ($59.95), as well as Regular Version ($39.95).

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STATTUS REPORT

LIP SERVICE

By PAUL STATT * SENIOR EDITOR

You, our readers, pay the rent. Our readers' needs come first.

HERE'S SOME ADVICE FOR REVIEWERS: "Review only software products that you feel you can recommend for others to purchase."

That's not *my* advice; it's a hint from Clayton Walnum, executive editor of *ANALOG Computing* and *ST-Log*, published in an article in the March 1989 issue of *The Writer*. I don't know what dictionary Mr. Walnum reads, but my *Webster's New Collegiate* defines a review as a "critical evaluation," and doesn't cite "unqualified praise" as a synonym.

inCider publishes unfavorable reviews occasionally. I hope our readers have noticed, because our advertisers always do.

Rarely have I written that a product is worthless. The ATL EasyCard and Scruples: The Computer Edition come to mind. My opinions of them were similar: The EasyCard is an expensive hardware version of certain cheap software add-ons, such as calculators and disk utilities (TimeOut in a slot, if you will); Scruples is an expensive computer version of a (relatively) cheap board game that in no way requires a computer.

Why do we publish unfavorable reviews? To tell the guy who makes those products, and the guys who make other products like them, what's wrong, and to lend credibility to our favorable reviews.

Readers of *ANALOG Computing* and *ST-Log*, beware: A good review in those magazines is as sincere as a congressman's kiss—not even a baby is impressed. *inCider* readers, if you're looking over the latest arcade hit in the software store—one that also comes in an Atari version—and the blurb on the cover jumps up and screams, " 'Great game!!!!' says *ST-Log*," stop before you buy. Does Orel Hershiser fall in love with the girl in the bikini who jumps onto the field and kisses *every* pitcher in major-league baseball? I hope not.

On the other hand, you may read in *inCider* (March 1989, p. 43) that "you'll be hard-pressed to find any real weaknesses in DB Master Professional." More jive from a Jezebel? Stone Edge did buy a third of page 88 in the same issue.

Flip back a page or two. On page 38, Contributing Editor and upright citizen Eric Grevstad speaks of "the thousands of people happily using AppleWorks, some TimeOut add-ons, and Publish It!. They don't need AppleWorks GS." AppleWorks GS is published by Claris, a company that occasionally buys two full-color pages in *inCider*. Don't we know who's paying the bills?

Our readers are paying the bills. At *inCider*, advertising accounts for about half our revenue. You account for the other half. I like to think of your contribution as the *first* half: Advertisers pick up the tab for my compact discs, vacations, and shopping sprees at the bookstore, but you, our readers, pay the rent. Our readers' needs come first. Putting you first serves our advertisers, as well. (I know some of you sneaky advertisers pretend to be readers and steal a look at this column. This is for you.)

I criticized the TimeOut AppleWorks desk accessories not long ago in this space ("Mea Culpa," August 1988, p. 20). I said that installing TimeOut utilities was "a nightmare," even if the software's the best thing to happen to AppleWorks since Mrs. Lissner had a boy.

I got letters from Beagle Bros. I got phone calls from Beagle cousins, uncles, and friends of the family. "How can you do such a thing? Do you know what you're costing us in sales?" I felt bad. But I had to help four college-educated, computer-literate *inCider* editors install TimeOut. I was right.

But the story ends happily. Randy Brandt of Beagle Bros called recently to tell me that the Beagles had rewritten the instructions for installing TimeOut and simplified the process. The arrival of SpreadTools confirmed what he'd said; the manual includes a "big picture" explanation of how TimeOut works, and step-by-step instructions that would make Ruth Witkin blush.

Now I can say honestly that you'll be hard-pressed to find any weaknesses in TimeOut. That's the way reviews should work. Advertisers, don't panic if you're panned. Don't get mad; get even and *fix the problem*. We're not out to get anybody, just to get our readers the best possible products at the best possible prices. Our advice to reviewers is to be honest, even when it hurts. □

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FEEDBACK

File conversions among formats—Macintosh, ProDOS, and MS-DOS, for example—are becoming more and more prevalent these days.

By WILLIAM P. KENNEDY, Ph. D.

MAC-TO-GS UPDATE

IN YOUR NOVEMBER 1988 COLUMN, you discussed file translators for the Macintosh to the Apple II ("GS to Mac and Back," p. 22). For about a year now, I've been using the following procedure to convert MacPaint pictures for my GS.

First I save a MacPaint picture file to a 400K (single-sided) MFS Macintosh disk. Then, using the public-domain program MacTransGS, I copy the file into ProDOS. I then use SHR Convert to convert the file to either 320 or 640 graphics mode for the IIGS. (SHR Convert, a shareware product, is also available on GEnie.)

I'm not aware of any equivalent software for GS-to-Mac transfers. I know it's possible, theoretically, to use SHR Convert and change a GS picture into GIF, then convert that GIF file to MacPaint.

Jim November
Atlantic Beach, FL

File conversions among formats—Macintosh, ProDOS, and MS-DOS, for example—are becoming more and more prevalent these days. The typical "technofamily" has an Apple II at home and a Mac or MS-DOS clone at work. Generally, transporting text files or ASCII among the various machines (sharing text-processor documents, for example) is straightforward: Convert the file to ASCII text and transfer it via a modem or direct serial interface.

Graphics translations are a whole different story. Just about every computer uses a different means of rendering pictures on screen—pixel resolution, color, bit map, and so on. Consequently, the data that make up a computer graphic as it might be stored on disk are quite different for each system. So you need some very specialized translators to convert graphics data for transport between computers.

I investigated the products you mentioned in your letter, Jim. Among these, the Super HiRes (SHR) Convert program by Jason Harper is the most exciting. I downloaded version 2.1 from Applied Engineering's Proline system (214-370-7056, free service), although you can obtain a copy from just about any major bulletin-board system (BBS). It operates on the GS only and requires System 2.1 or later. SHR Convert translates pictures created on the following machines, each with several source-format options, to GS 320- or 640-mode graphics: Apple II, Atari ST, Commodore 64/128, and Macintosh, as well as the machine-"independent" Graphics Interchange Format (GIF, a trademark of CompuServe) and Run Length Encoded (RLE) graphics files. You can then save the converted picture in several data-file formats for use with various GS paint programs.

Using a mouse, you can select translation options and utilities easily from the now-standard GS desktop. More importantly, Harper has provided extensive on-line documentation (help) for all formats, complete with downloading and conversion tips.

SHR Convert 2.1 is a shareware product; if you like it, send $15 to Jason Harper, 1480 Michelle Court #A, Colorado Springs, CO 80916. You can obtain copies only by downloading from a BBS or receiving the program through a friend. Harper apparently hasn't the facilities to duplicate and distribute disks. If you have trouble finding a copy, drop me a line and I'll see if we can make special arrangements to get you one.

The only roadblock, though it's really not Harper's concern, is the technicality involved in transporting the original graphic into a ProDOS binary or text file that SHR Convert can use. That's not too bad if you're converting pictures downloaded from a BBS. But setting up a direct interface or finding, let alone using, file-translation utilities such as MacTransGS or the Macintosh File Exchange can get frustrating. Sounds like there's a "window of opportunity" here for some resourceful developer.

FAST RAM CHIPS

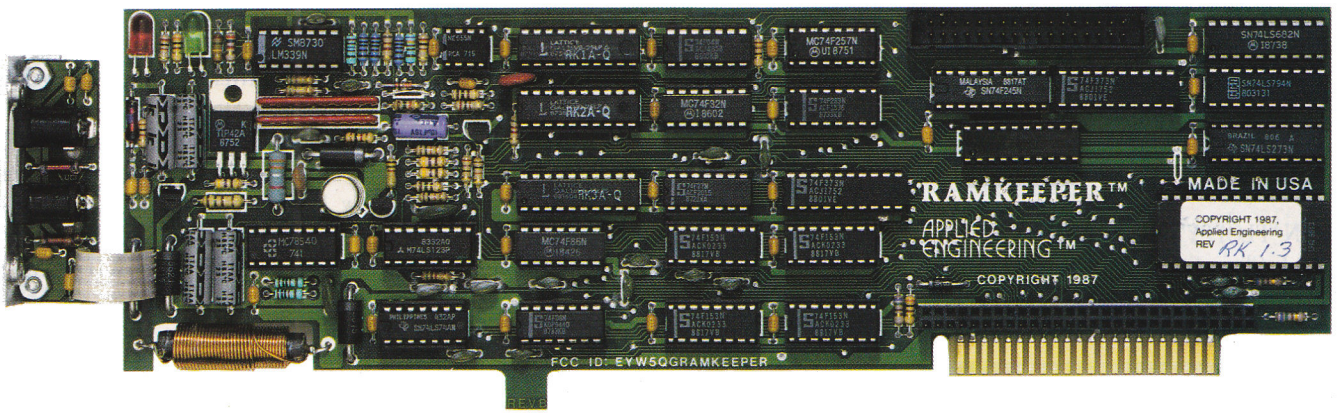
BACK IN MAY I WROTE ASKING whether Micron 100-nanosecond RAM chips #MT 1259-10 would work in my Apple IIGS memory-expansion card. You responded that you were "pretty sure" they'd work. Apple said they wouldn't. Well, I went ahead and ordered some; they work just fine. In fact, Micron informed me that even its -12s and -15s all have -10s in them anyway. It seems that as long as you buy the faster chip it doesn't make much difference. Thanks for saving me some money.

Timothy Hohs
Fruitvale, ID

Glad to be of help to you, Timothy. I hope your experience will save some money for other readers.

Another good source for RAM chips is Microprocessors Unlimited (24000 South Peoria Avenue, ►

RamKeeper.™ If not the first board you add to your IIGS



Certainly the second.

Chances are the first board you add to your computer will be for memory expansion. RamKeeper™ makes a smart second addition by performing *two important tasks:*

First, it gives you a sensible way to grow beyond the Apple memory expansion board that probably came with your IIGS. Apple's board has room for only 1 MEG of memory, and the new, integrated programs need a MEG just to boot.

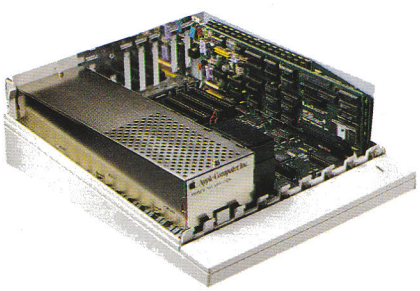
RamKeeper lets you add a second memory board to your memory expansion slot with a special "back pocket" connector. That way, you can use your 1 MEG Apple board and still expand beyond its 1 MEG limit. And RamKeeper "sees" the two boards as one, so all you'll notice is the increased memory.

Second, RamKeeper creates battery-backed Ram and ROM. Safely store your system software, often-used application programs and most-needed files on RamKeeper-enabled ROM. It's like an internal, electronic hard disk (up to 16 MEG!), but five times faster than an ordinary hard disk.

Turn your computer on and see the finder in 13 seconds, instead of several minutes.

Safe storage

RamKeeper powers up to two memory boards simultaneously, even when your computer is turned off. What's more, the stored programs are protected against power outages by the reliable Gel/Cell battery we include. Startup checksums are employed to verify that no data was lost



RamKeeper is easy to install and stores programs in an "instant on" electronic hard disk.

while the power was off. To protect the operating software against program crashes, we installed RamKeeper's controlling firmware in an EPROM.

You can even mix different brands of boards. For example, an Apple board with at least 512K of memory (based on 256K x 1 chips), and AE's (MEG-chip based) GS-RAM Plus™ or GS-RAM Ultra™ boards. And most all other brand and size combinations are also possible.

Advanced enough to be easy

We designed RamKeeper to be easy to use. Instructions are clear and most functions are automatic. For example, there's no need to manually configure if you add a second board, it's done automatically. The configuring is linear, so there's less chance of a program crash. And *you* decide how much memory to devote to ROM and to RAM—all without affecting your stored files.

Compare features:

RamKeeper includes a collection of important features like *disk caching* that tremendously accelerates access time to the 3.5 drive, running most applications up to *seven times faster.*

Our *diagnostic utlilty* feature graphically detects the presence of bad or improperly-installed chips and tests for CAS before RAS chips.

And RamKeeper features Applied Engineering's meticulous craftsmanship, 5-year warranty, 15-day money-back guarantee* and our American-made pride.

Use AppleWorks?

AppleWorks users will find another bonus. Our AppleWorks enhancement package dramatically increases AppleWorks word processor lines from 7,250 to 22,500. Database records are increased from 6,350 to 22,500 and clipboard capacity climbs from 255 lines to 2,042.

RamKeeper $189

Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering, MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add $10 outside U.S.A.

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The Apple enhancement experts.

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*When purchased from Applied Engineering or thru a participating dealer.

Beggs, OK 74421, 918-267-4961). Just be sure to purchase the "CAS-before-RAS" type (column-address strobe before row-address strobe).

INACTIVATING GS BOOT FILES

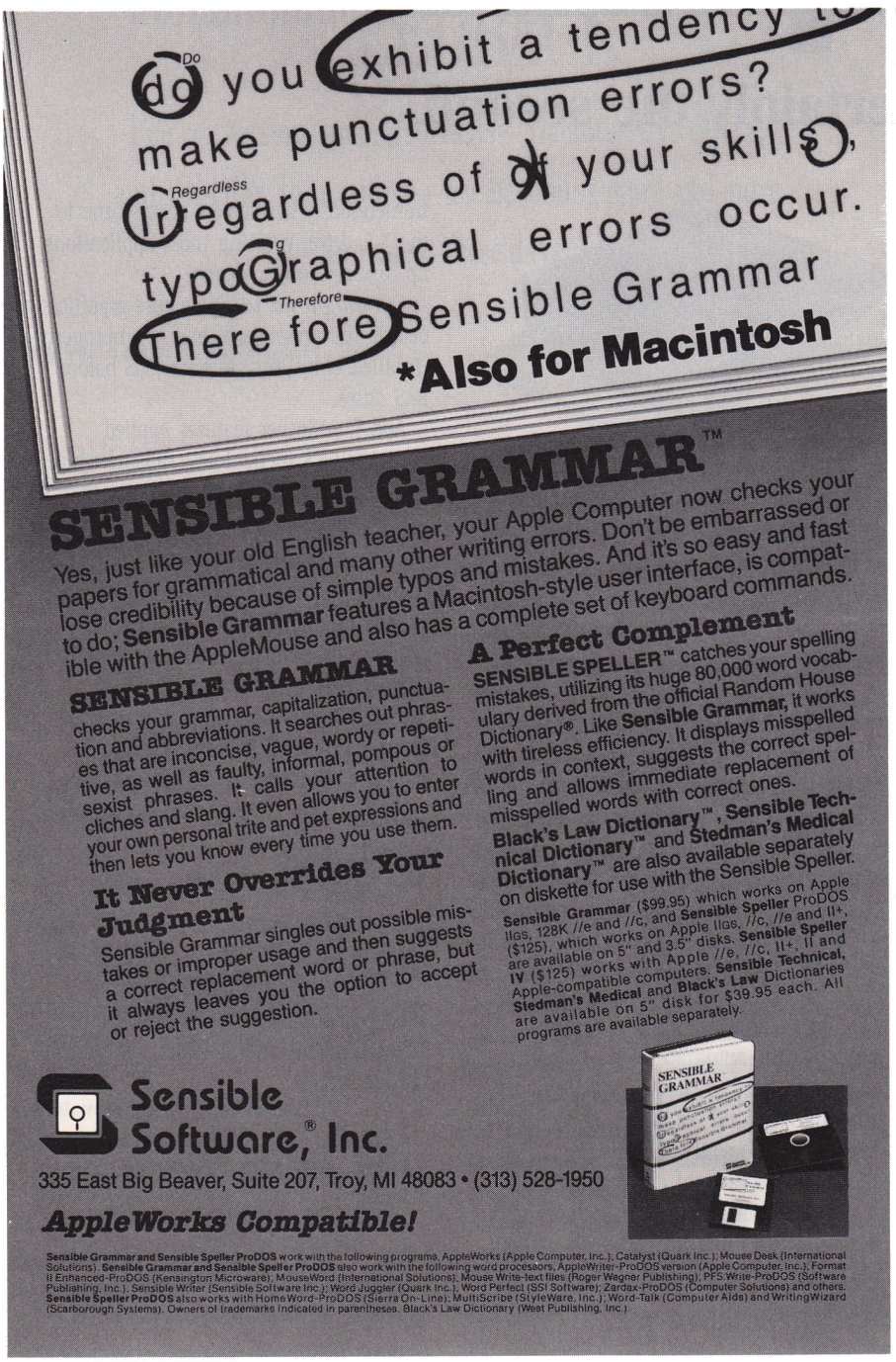
IN "FLOPPY DRIVES AND GS/OS," (Apple Clinic, February 1989, p. 24) you recommended "dragging" the APPLEDISK5.25 file out of the IIGS GS/OS System Disk's System/Drivers folder to "deactivate" that device driver. Actually, an obscure reference on page 87 in the *GS/OS User's Guide* describes an easier way to control whether or not GS/OS loads a device driver and other programs into the IIGS' memory during boot.

Using the Finder with a mouse, point to and click once on the APPLEDISK5.25 icon, then select Get Info from the File option on the menu bar. In the lower right-hand corner of the file's info window is a box labeled Inactive. Click to check that box so that the next time you boot GS/OS, it won't load or activate the 5¼-inch device driver and the drive shouldn't appear on the desktop.

Similarly, you can activate/deactivate the following file types: $B6 (Startup), $B7 (Temporary Initialization), $B8 (New Desk Accessories), $B9 (Classic Desk Accessories), $BB (Device Drivers), and $DB (File System Translator).

David Kemp
Los Gatos, CA

Obscure indeed. Many thanks for the tip, David. It's surely the more elegant means to control which device drivers, desk accessories, and so on GS/OS loads and activates when you boot up. But easier? Actually, I prefer to see whether a file's icon is in or out of its proper folder. Then again, that assumes one understands a file's function—that is, its proper place.



QUICKIES

Enable the ImageWriter II's mousetext character set from AppleWorks: Install a custom printer, and, for the boldface printer-code commands, type *Esc &* to enable mousetext and *Esc $* to disable it. Thereafter, press Control-B when typing a document to enable/disable mousetext. Your document will appear normal on screen, but will print mousetext characters.

—Brian Zimmerman
Columbia, SC

Can't seem to launch AppleWorks from your Laser 128EX/2's RAM disk (/RAM5)? Copy BASIC.SYSTEM into /RAM5 and launch it first. Then, at the BASIC prompt, type *RUN /RAM5/APLWORKS.SYSTEM* and you'll be on your way.

—Dan Lane
Kingsville, TX

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, *INCIDER*, 80 ELM STREET, PETERBOROUGH, NH 03458. BECAUSE OF THE VOLUME OF LETTERS, MOST WON'T APPEAR IN PRINT, BUT EXPECT A RESPONSE VIA POSTCARD.

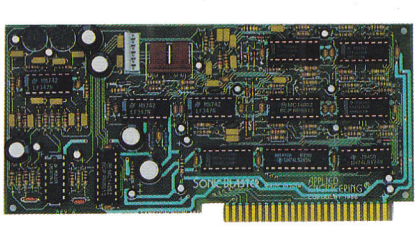
Circle 240 on Reader Service Card.

Sonic Blaster.™ It's why they put the "S" in IIGS.

Sonic Blaster™, the IIGS's first full-featured stereo digitizer, brings a new dimension to computing...the element of fun.

Record sounds, tailor them with extensive editing options and play your own amplified versions back through your home stereo speakers. Sonic Blaster automatically digitizes and play back GS games that use the computer's built-in Ensoniq sound chip (as almost all do), with thundering results.

Kick back with your favorite computer game and immerse yourself in a roomful of sound effects. Create strange answering machine messages. Drop an interesting background sound into your phone conversations (we provide 17 to get you started). Change screen colors with a virtually infinite pallette of color.



Sonic Blaster's ultra-low-noise digital design is certified by the FCC.

Use your own equipment.

Use the equipment you already have. You don't need special amplified speakers because Sonic Blaster's built-in amplifier works with standard 8 Ohm speakers, small or large, including those monsters next to your stereo. Take sounds from your favorite TV show, album, compact disk, VCR, even a microphone. Then amplify, play backward, create echoes and 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.

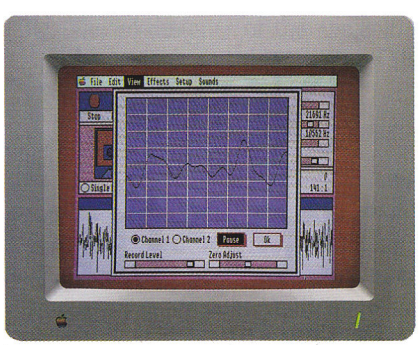
Seventeen sound effects to get you started. Add your own collection of sounds.

The Bars

The Volume bar controls amplitude of the playback. Playback and Record mode sample rates are adjusted with the next pair of bars and the Record Level bar adjusts the level from the source connected to the Sonic Blaster's input connector.

The Blocks

Three blocks give readouts of file length, available memory, bytes selected and resolution ratio.



"See" the sound on the oscilloscope.

The Oscilloscope

Sonic Blaster's built-in oscilloscope gives you a real-time display of input sounds. Use it to set your input levels before recording. Or use the Auto Gain feature to adjust the level automatically.

Sonic Blaster $129

Order Today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add $10 outside U.S.A.

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P.O. Box 5100, Carrollton, TX 75011

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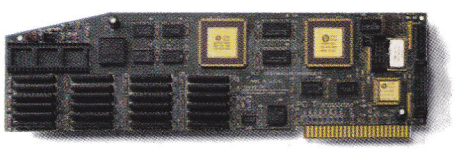
Now Apple speaks IBM. Three times faster than IBM.

PC Transporter,™ the Apple II expansion board that lets you run MS-DOS programs.

Now your Apple II can run over 10,000 programs you could never use before. Like Lotus 123, dBASE III PLUS, Symphony, Microsoft Works, even Flight Simulator.

With PC Transporter, MS-DOS programs run on your Apple II like they do on IBM PCs or compatibles. With one important difference. PC Transporter runs most of those programs *three times faster* than an IBM PC/XT.

Plus, to speed through number-crunching tasks, you can use our optional 8087-2 math co-processor chip. It plugs into a socket on the PC Transporter.



Less expensive than an IBM clone.

Sure, a stripped-down IBM clone costs about the same as the PC Transporter. But the peripherals it takes to get the clone up and running make the clone cost three to four times more than our American-made card.

You don't have to buy new hardware to use PC Transporter.

Works with the hardware you already own.

With PC Transporter, MS-DOS programs actually see your Apple hardware as IBM hardware, so you can use the same hardware and peripherals you have now.

With IBM software, your Apple hardware works just like IBM hardware. Disk drives, monitors, printers, printer cards, clock cards, serial cards and even hard disks look like IBM type hardware whenever the PC Transporter is activated.

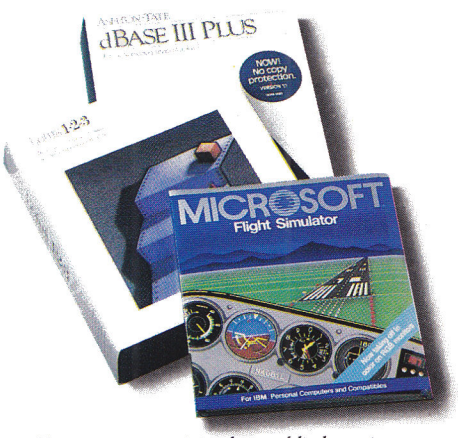
You can use your IIe or IIGS keyboard with IBM software. Or use our optional IBM-style keyboard (required for the II+).

You can use your Apple mouse. Or an IBM compatible serial mouse.

Plenty of power.

PC Transporter gives you 640K of user RAM and 128K of system RAM in the IBM mode.

PC Transporter works like an Apple expansion card, adding 752K of extra RAM in the Apple mode. The 752K is useable as a RAMdisk or as memory expansion to any program that follows the Apple Memory Expansion Card protocol (most do). The Apple memory expansion alone is a $500 value.



PC Transporter taps into the world's largest software library. Now your Apple can run most of the software you use at work. And it opens a new world of communications programs, games and bulletin boards.

Easy to install.

You can install PC Transporter in about 15 minutes, even if you've never added an expansion board. You don't need special tools. Simply plug it into an Apple expansion slot (1 through 7, except 3), connect a few cables, and go!

A universal disk drive controller.

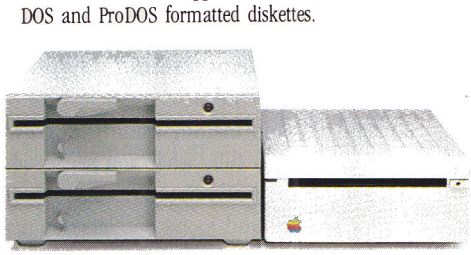
PC Transporter will run 3.5" IBM disks from your Apple (or compatible) 3.5" drive. And even if you want to run 5.25" IBM disks you can get our versatile 5.25" drive system and still run Apple 5.25" disks from an Apple 5.25" drive. In other words, when running 3.5" disks, your Apple 3.5" drive will run *both* Apple and IBM disks.

No matter what your drives, you can shift instantly between Apple ProDOS and IBM MS-DOS.

PC Transporter supports up to 5 drives in a number of combinations.

For example, you can connect a 5.25 Applied Engineering 360K dual drive system directly to the card. Then plug two daisy-chained Apple 3.5 Drives (not the old Apple UniDisk 3.5) to the dual-drive system. For a fifth drive, you can even use a ProDOS file on a hard disk as an IBM hard disk!

PC Transporter controls Apple and IBM compatible disk drives. It supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes.



Versatile data storage.

You can store IBM programs and data on any ProDOS storage device including the Apple 3.5 Drive, Apple UniDisk 3.5, Apple 5.25 drive, SCSI or ProDOS compatible hard drives.

You can even use our 360K PC compatible drive for ProDOS storage and a 143K Apple 5.25 drive for MS-DOS storage.

Make your Apple speak IBM.

PC Transporter w/768K	**$679**

Note: 768K RAM in Apple mode translates to 640K RAM in the IBM mode because PC Transporter uses 128K for system memory.

IIGS Installation Kit	**$49**
IIe/II+ Installation Kit	**$39**

Optional 5.25 IBM Format 360K Drive Systems

Single-Drive System	**$259**
Dual-Drive System	**$389**

What the experts say:

"Gives Apple II users the best of both worlds ...an impressive engineering feat." —A+

"It's ingenious...a remarkable success!" —InCider

"When you buy a PC Transporter, you're not just giving your Apple the ability to act as a PC clone, you're upgrading your computer in a big way for all your Apple II computing." —Nibble

"An excellent solution for at least half a million people who enjoy Apple II computing at home and endure MS-DOS at work." —MicroTimes

"Extremely versatile...one of the most ingenious and exciting products we've seen." —Classroom Computer Learning

"PC Transporter has created quite a stir. It's accuracy guarantees a whole host of uses...a masterpiece of engineering." —Apple Soft

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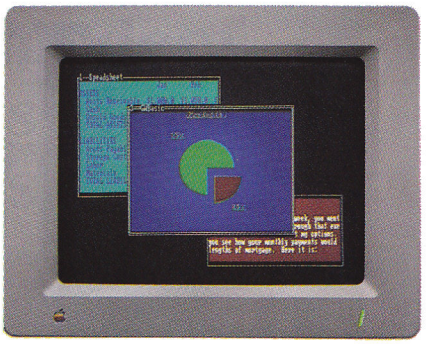
Apple II+ must be FCC certified.



PC Transporter produces better IBM graphics than IBM. Analog is sharper than digital. So with a IIGS analog RGB monitor, PC Transporter's CGA graphics and text are superior to IBM's digital display—even while running your IBM Software!

Created by Apple's original designers.

The brains behind PC Transporter were also behind your Apple II.

The PC Transporter design team includes the former project managers for the creation of the Apple IIe and IIc. The co-designer of the Apple II disk controller. And the author of the ProDOS operating system.

So you know the PC Transporter and your Apple were made for each other.

Support and service from the leader in Apple add-ons.

Applied Engineering sells more Apple peripheral boards than anyone else—including Apple Computer. So you know we'll be around after the sale.

PC Transporter comes with a 15-day money back guarantee.* If you're not fully satisfied after using it, return it for a full refund. PC Transporter also comes with a 1 year warranty.

Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add $10 outside U.S.A.

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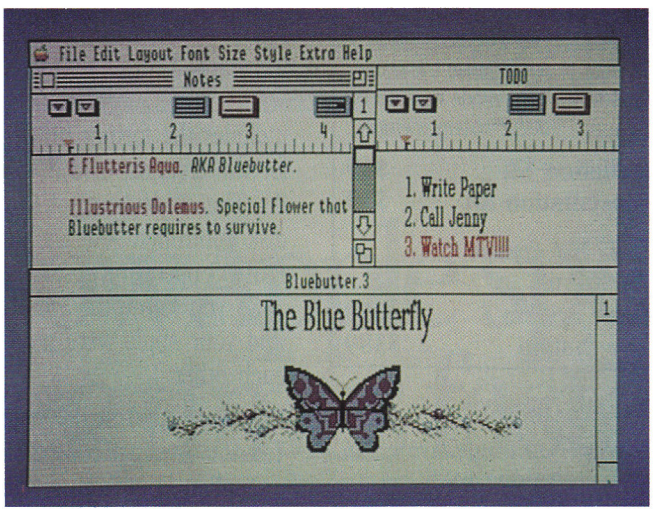
REVIEWS

INCIDER'S RATINGS

* * * * * *

Excellent—remarkable ◆ ◆ ◆ ◆ ◆ Very good—impressive ◆ ◆ ◆ ◆
Good—average◆ ◆ ◆ Fair—flawed ◆ ◆ Poor—unacceptable ◆

THE ART OF WRITING



DELUXEWRITE

* * * * * *

ELECTRONIC ARTS
1820 Gateway Drive, San Mateo, CA 94404
(415) 571-7171—Graphics word processor

768K Apple IIGS—1 megabyte and a second 3½-inch disk drive recommended—$79.95

Rating: ◆ ◆ ◆

Spicing up your documents—adding clip art or other illustrations, designing headings with different fonts and type sizes, and laying out attractive pages—is the major focus of the newest Apple IIGS programs, and who knows more about graphics than the makers of DeluxePaint?

Electronic Arts' new full-featured word processor, DeluxeWrite, sports all the standard word-processing functions, a selection of extras, a 90,000-word dictionary (which you can supplement), a spelling checker, and a clip-art folder with 29 illustrations. It uses an early edition of ProDOS 16 (version 1.6, not GS/OS), however, so it takes three minutes-plus to load. You can pass the time by reading through the well-written manual.

DELUXE OPTIONS

After loading the program, the first display you'll see on screen is the document window, or work area. There's the standard menu bar with pull-down options, plus full mouse control (with keyboard equivalents for several commands), scroll bars, and arrows. You'll also see a resize box in the lower-right corner, a zoom box in the upper-right corner, a close box, tab wells, and a ruler at the top of the screen with icons for margins, spacing, and text justification. You can have up to four windows open simultaneously, so cutting and pasting blocks of text from document to document is simple.

DeluxeWrite includes all the features you've come to appreciate in a sophisticated word processor: copy, cut, and paste; a clipboard to store graphics and text; and an Undo typing buffer that holds 256 characters. There's also a Select All feature for making global editing changes; Find and Replace; headers and footers; page numbering; on-screen help files; even a spelling checker. Work through the three on-disk tutorials for a closer look at the numerous options.

THERE'S MORE

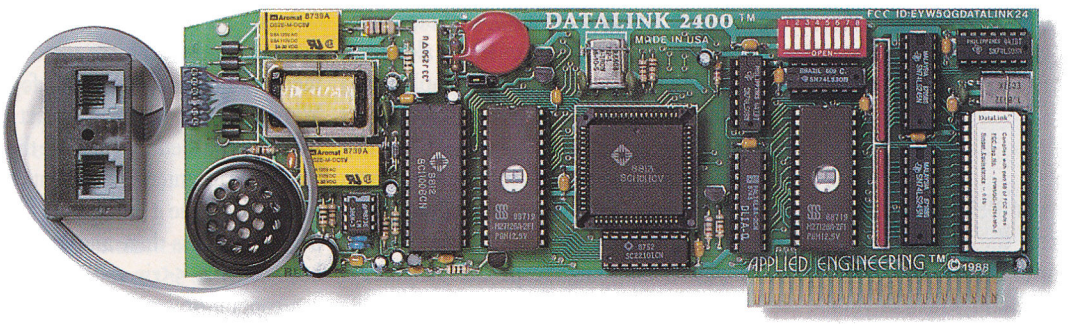
Besides the standard array of features, DeluxeWrite throws in a few extras. For example, you can number pages in three Arabic styles (1, 2, 3; (1), (2), (3); or −1−, −2−, −3−) or two Roman styles (I, II, III; or i, ii, iii). You must be consistent, though; the program doesn't let you mix page-numbering styles in a single document.

The Find and Replace menu lets you search for tabs, returns, and backslashes in addition to specified text. The Style menu gives you the option of typing text in red on screen and—if your printer has a color ribbon—on paper. Red type isn't available in superscript or subscript, though.

DeluxeWrite also incorporates format markers that are helpful as editing tools, indicating the position of tabs, returns, page breaks, word spaces, and the end of the file. Selecting show markers from the Extra menu makes them visible on screen.

What DeluxeWrite lacks is a delete-file option and a disk-formatting feature. Moreover, it doesn't offer a full "what you see is what you get" (WYSIWYG) screen display. It won't display headers and footers, unless you're in the page-preview mode, and then the text is barely readable. ►

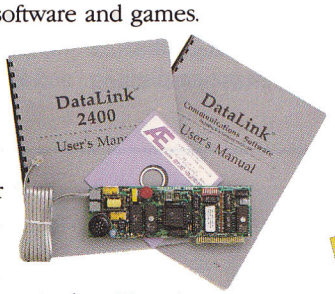
The new DataLink™ 2400 modem from Applied Engineering, it's a lot more than just twice as fast.



Applied Engineering's new DataLink™ 2400. Simply put, the finest modem on the market for your Apple IIgs, IIe or II+.

Bring home a world of information . . . from up to the minute flight information to whole libraries of resource materials. Even download free software and games.

Twice the speed.



At transmission speeds up to 2400 bps (bits-per-second), Applied Engineering's new DataLink 2400 is capable of putting text on the screen faster than the human eye can follow. That means you can capture a great deal more material in less time than with 1200 bps modems. And *unlike other modems*, the DataLink 2400 comes complete with powerful, easy-to-use communications software.

Complete communications software included.

Both our new DataLink 2400 and our DataLink 1200 modems feature AE's exclusive communications software —on disk and in ROM—everything needed to get you immediately up and running. Our powerful DataTerm software for the IIgs and IIe supports VT-52 screen emulation, macros, file transfers, on-line time display, recording buffer and more. It even stores hundreds of phone numbers for auto-dialing and log on. And for II+ and 64K IIe owners, our OnLine 64 software has many of the same powerful features.

Worldwide compatibility.

The DataLink 2400 is fully compatible with Bell 103 and 212 protocols, as well as European protocol CCITT V.22 BIS, V.22 and V.21. It operates at varying transmission speeds from 0-300, 1200 and 2400 bps.

The new 2400, like our best-selling DataLink™ 1200, carries a full five year warranty and comes complete with two modular phone jacks for data and voice calls, a thoughtful feature that means fewer wires to connect. We also include an extra long telephone cable, in case your computer is across the room from your telephone jack. You can track the progress of calls either electronically or via on-board speaker. And built-in diagnostics reliably check transmission accuracy.

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Packed with important features:

- Non-volatile memory for modem configuration
- Full Hayes AT compatibility
- Point-to-Point, ASCII Express, Access II compatibility, in addition to AE's included DataTerm and OnLine 64 software.
- Super Serial Card "Front End" for highest software compatibility (unlike others)
- Adaptive equalization and descrambling
- Hardware configuration for DSR and DCD
- PC Transporter (MS-DOS) compatibility
- FCC certified design

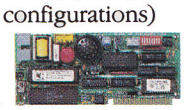
$204.90 in freebies.

We also throw in a nice collection of goodies—a free subscription to the GEnie network worth $29.95, $60 of free on-line time from NewsNet, a free $50 subscription to the Official Airline Guide and a fee-waived membership to The Source worth $49.95 plus $15 of free on-line time.

That's $204.90 worth of free memberships, discounts and on-line time when you purchase the powerful DataLink 2400 at **$239.**

DataLink 1200 reduced.

Loaded with all the features of the new 2400, (except CCITT, DSR/DCD and non-volatile ROM configurations) our 1200 bps DataLink modem, complete with software and freebies, is an affordable alternative at only **$179.**



DataLink 1200.....$179
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Those are minor inconveniences, though, so don't dismiss it. The program provides graphics capabilities, six fonts, eight type sizes (8–24 points), and seven type styles (plain, bold, underline, italic, outline, superscript, and subscript). Used together, these features furnish ample opportunity for impressive desktop publishing.

GRACEFUL GRAPHICS

You can enhance your DeluxeWrite creations with graphics from the program's own clip-art collection, or with DeluxePaint II pictures. Position illustrations anywhere in your document, then move, resize, and crop them to suit your needs. Inserting graphics is simple, as are repositioning and cropping.

DeluxeWrite can't use pictures created by PaintWorks Gold, PaintWorks Plus, or Graphics Studio, nor can it read Print Shop GS, Postcards, or Calendar Crafter clip art. And unlike MultiScribe GS, DeluxeWrite has no graphics toolbox for drawing simple shapes.

DeluxeWrite doesn't feature wraparound graphics. Pictures appear on their own lines; you can place text above and below, but not beside your illustrations.

After positioning a graphic, double-click anywhere on it to select it to move along a horizontal plane. To reposition the graphic up or down, you have to use the cut-and-paste option.

If you want to crop a picture, select it by double-clicking. Then click and drag the markers on all sides. Pressing the option key while you're cropping keeps the graphic's height and width proportional.

THE HARDCOPY

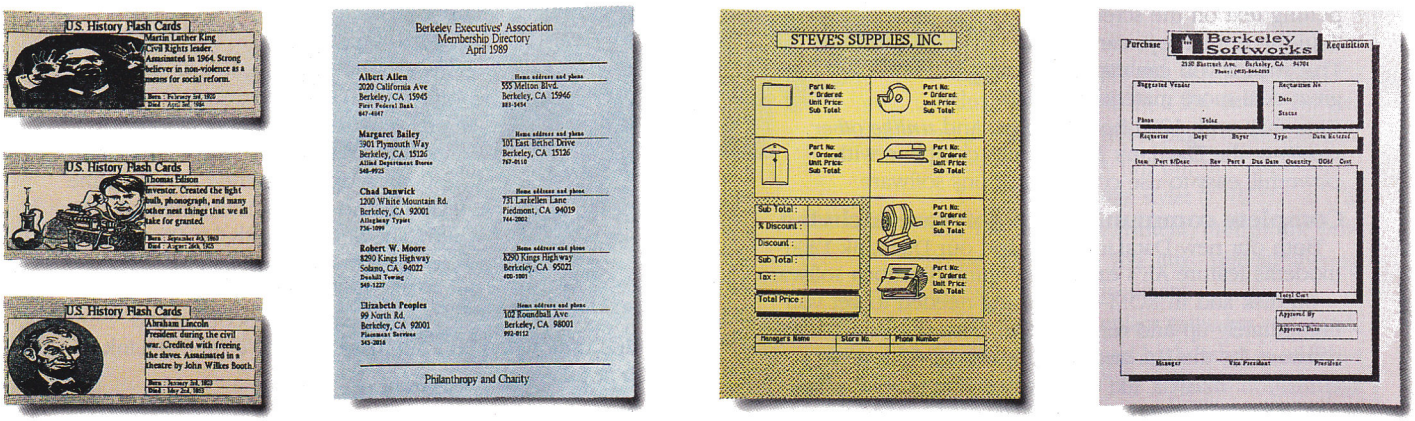
The program includes printer drivers for the ImageWriter II and LQ, but not for the LaserWriter. Even if you don't have a color ribbon, you should select Better Color from the print dialog box for enhanced resolution whenever your document contains graphics.

The program's print-merge option distinguishes DeluxeWrite further from other word processors. Despite the absence of a database function, you can create a form letter and print customized copies for individual recipients.

To do so, you must prepare two files—a main document with the standard text and a merge list with specific data for each letter. When both are complete, select Print Merge from the File menu to combine the documents. DeluxeWrite enters specific data into the form letter every time it encounters a field enclosed by pairs of less-than and greater-than symbols—such as <<zip code>>. Each merge list can contain up to 15 data fields.

WORKING WITH APPLEWORKS

DeluxeWrite can read and import AppleWorks word-processor files directly, so you don't have to translate them into ASCII text files before transferring. An imported AppleWorks file will retain its original control characters and formatting, but not headers and footers.



FINALLY, A DATABASE THAT

No matter how good you think they are, most databases—including yours—do little more than drone out drab drifts of data. Which is why you should know about geoFile, the only database that stores and manages your data—*including graphics*—exactly the way you use it.

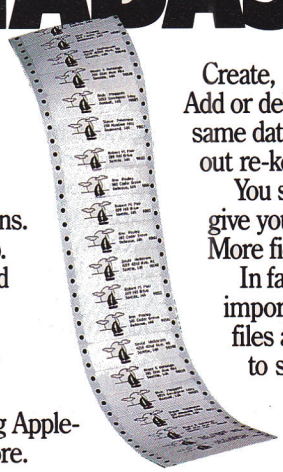
You see, geoFile™ is as much a desktop publisher as it is a powerful database. So you can store, display and print any or all of your data—even graphics—any way you like. Which means instead of simply stamping out facts and figures, you can design your own forms and layouts, using imported clip art or built-in fonts, styles and fill patterns.

The only WYSIWYG database for Apple II's.

Even entering your data is a snap. Just click your mouse or joystick and "fill in your form." That's it.

MAKING APPLEWORKS WORK HARDER.

With geoFile, you can do everything AppleWorks can do, and much, much more.



Create, change and store layouts. Add or delete fields. Even drop the same data into different layouts without re-keying.

You still want more? Okay, we'll give you more. More characters. More fields. More records.

In fact, you could automatically import your largest AppleWorks files and still have plenty of room to spare.

Best of all, geoFile integrates completely with the entire GEOS system,

Once you've imported an AppleWorks file into DeluxeWrite, you can add graphics, spruce it up with multiple fonts and font sizes, and readjust margins.

Remember to select portions of the document for revision with the mouse. Simply altering the paragraph margins, line spacing, or text-formatting options on the ruler won't achieve the desired effect.

SPELL IT RIGHT

The spelling checker is efficient but slow. It begins searching for words at the cursor, so if you want to check the entire document, be sure to position the cursor at the beginning of the file.

A dialog box highlights each questionable word in context, and gives you the option to ignore or replace the selected word. You can replace all instances of that word, get suggestions from the dictionary, or add the highlighted word to the dictionary. One particularly nice feature is that the spelling checker counts words in the portion of the document it's reading.

DELUXE DELIVERS WITH DELIBERATION

DeluxeWrite is built for comfort, but as the old blues melody laments, it "ain't built for speed." *Deliberate* is the catch word here, for DeluxeWrite is sluggish compared to an all-text word processor such as AppleWorks. It offers slow graphics processing, slow cut and paste, and slow scrolling from page to page. Every time you make an editing change, it rewrites the text to screen in an obvious, intrusive manner.

AppleWorks, with its myriad of TimeOut applications, remains my absolute favorite Apple II word processor. But if you don't mind waiting, DeluxeWrite is still a good value for the price, with word processing and graphics in one package. The program is versatile, powerful, and well worth the investment.

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

AT A GLANCE

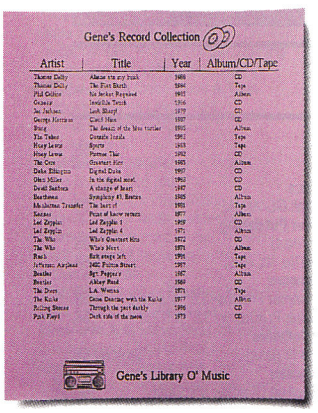
FutureSound (March 1989, p. 32D, by Jim Trunzo), Applied Visions, Inc., One Kendall Square, Suite 2200, Cambridge, MA 02139, (617) 494-5417, $279

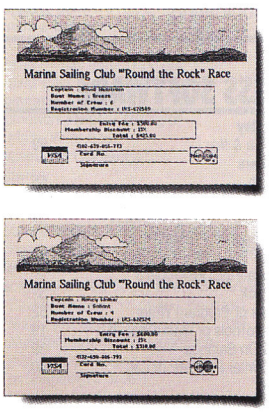
Rating: ◆ ◆ ◆ ◆

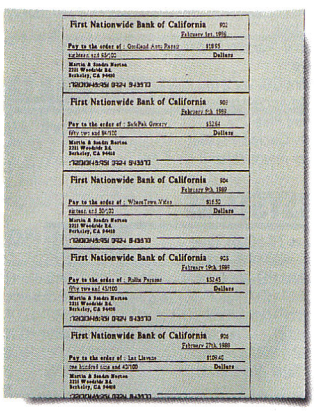
FutureSound's formidable recording and playing abilities push the capacity of the GS' multichannel digital recording synthesizer to the limit. This system can record sounds from virtually any source in true stereo; it produces stereo through right- and left-output jacks or a headphone jack.

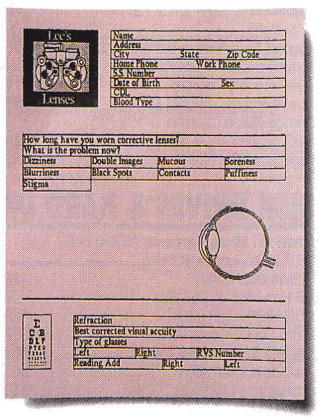
Installing FutureSound in your GS isn't difficult, but it does take some time and care. The software is sophisticated.

Continued ►









IT'S NOT JUST DATA BASED.

FEATURE	GEO-FILE	APPLE-WORKS	BANK ST. FILER
Fields per record	115	30	50
Chars per field	250	80	80
Records per file	35,000	Limited by memory	
Maximum file size	700K	Limited by memory	
Include graphics	YES	NO	NO
Fonts & Styles	YES	NO	NO
Computed fields	YES	NO	YES
Display formats:			
Dates & Times	YES	YES	YES
Numbers	YES	NO	NO
Calculations	YES	NO	NO
Auto Import of AppleWorks files	YES	N/A	NO

which lets you trade data back and forth with all GEOS applications: spreadsheets, charts, mail merges, word processors, desktop publishers—you name it.

All of which not only makes geoFile more fun to use, but a heck of a lot more practical, too.

So if you're looking for a database that's more than just a base for your data, consider geoFile.

Once you review the facts and figures, you won't want to choose anything else.

SYSTEM REQUIREMENTS: Apple IIc, IIc Plus, IIe (or compatibles; IIe need not be enhanced), IIGS, with 128K memory, double hi-res graphics capability, joystick or mouse, 5-1/4" or 3-1/2" disk drive.

geoFile is not copy protected and includes easy to use manual, sample clip art, 5-1/4" disks (3-1/2" disks available).

geoFile $69.95 To order call 1-800-443-0100 ext. 432 (California residents add 7% sales tax.) $4.50 US/$7.50 Foreign for shipping and handling. Allow four to six weeks for delivery. GEOS, geoFile, and Berkeley Softworks are trademarks of Berkeley Softworks. Apple IIe, IIc, IIc Plus, IIGS, AppleWorks and Bank St. Filer are trademarks of companies other than Berkeley Softworks.

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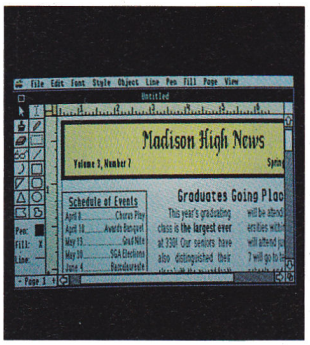

Graphic Writer III by Seven Hills Software

Graphic Writer III is a feature packed desktop publishing package for the Apple IIgs. User friendly *Graphic Writer III* offers word processing, graphics and page layout. It's Mac-like interface allows you to start publishing in less than one hour. You can import images and text from other graphics and word processing programs. GS/OS, sample style sheets, clip art and spelling checker are included. ..... **$85.**

COMMUNICATION SOFTWARE

Activision Teleworks Plus *(IIGS)*	66.	**Pinpoint** Point-To-Point	74.
Checkmate Technology		**United Software Industries**	
ProTERM *(IIGS, IIe, IIc)*	***Special*** 95.	ASCII: Express Pro: Prodos	72.
Compuserve Compuserve Starter Kit	24.	ASCII: Express Mousetalk 1.5	69.

BACKUP UTILITIES & BOARDS

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Locksmith 6.0	36.	Copy II Plus	
Apple		*(5.25" & 3.5" Bit Copy)*	***Special*** 23.
GS/OS *(IIGS)*	34.	**FWB Software** Disk Util II *(IIGS)*	52.

PRINTER INTERFACE CARDS

Apple Apple Super Serial Card	119.	**SMT**	
SCSI Card	109.	No Slot Clock	42.
Applied Engineering Buffer Pro 32K	95.	Print Tech II *(Parallel Interface)*	37.
BufferPro 128K or 256K	Call	**Thirdware**	
Serial Pro *(II+, IIe, IIGS)*	119.	Finger Print GSi Ver 2 *(Includes*	
Parallel Pro *(II+, IIe, IIGS)*	85.	*Desktop Accessories-IIGS)*	79.
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ProGrappler *(Apple IIe or IIGS)*	84.	*(Specify Cables: Parallel,*	
Serial Grappler Plus	62.	*Serial or ImageWriter II-II+ & IIe)*	89.

DISK DRIVES & HARD DISK SUBSYSTEMS

American Micro Research *(Micro Sci)*		**First Class** T6 60MB Tape	709.
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(IIGS Daisychain)	155.	D4/A 40MB HD *(IIe & IIGS)*	645.
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A.5C Half Height *(IIc)*	129.	D9 90MB HD/High Perf.	
Micro Sci C2 Controller	52.	*(IIe & IIGS)*	***Special*** 1465.
Applied Engineering Transdrive 360K	209.	D96 Combo 90MB HD &	
Transdrive Dual 360K	305.	60MB Tape *(IIe & IIGS)*	2155.
Transdrive Half Height 360K	119.	**Rodime**	
Chinook CT-20 Hard Drive *(AP & IIGS)*	529.	Rodime 20 Plus Ext HD *(IIe, IIGS)*	615.
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CT-30 Hard Drive *(AP & IIGS)*	605.	Rodime 60 Plus Ext HD *(IIe, IIGS)*	915.
CT-40 Hard Drive *(AP & IIGS)*	715.	Rodime 100 Plus Ext HD *(IIe, IIGS)*	1079.
CMS *"SD Series - Stack" Platinum IIe, IIGS*		Rodime 140 Plus Ext HD *(IIe, IIGS)*	1325.
20 MB w/SCSI II card	645.	**Video Technology**	
43 MB w/SCSI II card	845.	Universal Disk Controller	45.
60 MB w/SCSI II card	950.	Laser DiskDrive *(IIGS)*	105.
Cutting Edge		Laser 800KB Drive	185.
XL 30 + SCSI HD *(IIe & IIGS)*	539.	Universal Disk Controller/800KB	
XL 45 + SCSI HD *(IIe & IIGS)*	669.	Drive Bundle	219.

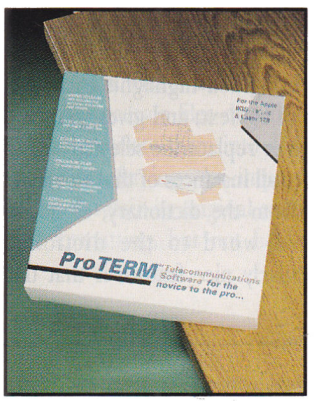
ThunderScan by Thunderware

ThunderScan brings high-resolution scanning technology to the Apple II. Just insert the *ThunderScan* cartridge into your ImageWriter printer and your ready to scan. The *ThunderScan* system provides 16 shades of grey, contrast and brightness control. Fully ProDOS compatible, you can export scans to all paint programs for custom editing. ..... **$159.**

MODEMS

Anchor Automation		**Practical Peripherals**	
1200E	119.	Practical Modem 1200 SA Mini	79.
2400E	159.	Practical Modem 2400 SA	181.
Applied Engineering		**Prometheus**	
DataLink Modem 1200B		Pro Modem 2400 *(External)*	255.
(Int II+, IIe or IIGS)	139.	Pro Modem 2400G *(Non Expandable)*	179.
DataLink Modem 2400B		Pro Modem 2400A *(Single Card)*	139.
(Int II+, IIe or IIGS)	185.	Pro Modem 1200A *(Single Card)*	119.
EPIC		**Supra Corporation**	
Epic 2400 Classic II Internal w/Proterm	189.	Supra Modem 2400 *(Hayes Compatible)*	149.
Epic 2400 Mini Modem Ext.	189.	**U.S. Robotics**	
Hayes		U.S. Robotics Courier 1200	199.
Hayes 1200 Baud Smartmodem	299.	U.S. Robotics Courier 2400	335.
Hayes 2400 Baud Smartmodem	449.	U.S. Robotics Courier 2400E	379.
MDIdeas Commlink 2400	189.	U.S. Robotics Courier HST 9600	689.

ProTERM 2.1 by Checkmate Technology



ProTERM 2.1 is the only telecommunications software for everyone who owns the Apple IIgs, IIe, IIc and Laser 128 computers with 128K of RAM. Logon to services like GEnie™ and Compuserve™ with as little as one keystroke. Comprehensive manual, Hayes™ compatibility and easy access menus make it versatile and easy to use. Simple installation, password security and VT100 emulation make it the only choice for telecommunicating. ..... **$95.**

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Wordbench *(IIe & IIGS)*	99.	DoReMe	55.
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Timeout SuperFonts or QuickSpell	45.	Professional: *GL/AR/AP*	129.
Timeout UltraMacros or SpreadTools	37.	**Roger Wagner Publishing**	
Timeout SideSpread, FileMaster, or		Macro Mate *(IIGS)*	35.
DeskTools	32.	Mouse Write *(IIe, IIc, IIGS)*	84.
Timeout Thesaurus, DeskTools II		**Sensible Software**	
or PowerPack	32.	Sensible Grammar ProDos *(3.5" & 5.25")*	59.
GS Font Editor or Program Writer	32.	Sensible Speller ProDos w/3.5" & 5.25"	69.
Timeout MacroTools or MacroTools II	19.	**Seven Hills Software**	
Broderbund On Balance	39.	Graphicwriter III *(IIGS)*	***Special*** 85.
Bank Street Writer *Plus (AP or C+)*	50.	**Simon & Schuster**	
Brown Wagn		Webster's Spelling Checker *(ProDos)*	41.
Desk Pak *(IIGS)*	55.	**Software Publishing**	
GS File	61.	*All Programs for IIe with 128K or IIc*	
Claris Apple Works *(IIGS)*	215.	PFS: Workmates *(File/Report/Plan/Write)*	119.
Apple Works	185.	**Softsync**	
Multiscribe 3.0 w/Speller *(128K IIe or IIc)*	65.	Personal Newsletter with Clip Art	39.
Multiscribe IIGS 3.0	75.	**Softview**	
Dac Software		Form Set Business Forms *(IIGS)*	59.
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Garde Footing To Finish	55.	DB Master v5.	145.
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(Sys. Manager, G/L, A/P,		**Timeworks**	
A/R, Inventory)	***Special*** 299.	Art Portfolio 4 in 1	75.
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Managing Your Money 3.0 *(IIe, IIc, IIGS)*	95.	People, Places and Things *(IIe & IIGS)*, Design	
Mecc		Ideas *(IIe & IIGS)*, Symbols and Slogans	
Calendar Crafter School *(IIGS)*	59.	*(IIe & IIGS)*, Education Graphics *(IIe &*	
Milliken		*IIGS)*, Font Pack 1 or 2 *(IIe & IIGS)*	27.
Medley *(IIGS)*	119.	**Word Perfect Corporation**	
Monogram		WordPerfect V1.1 w/Speller *(IIe & IIc)*	99.
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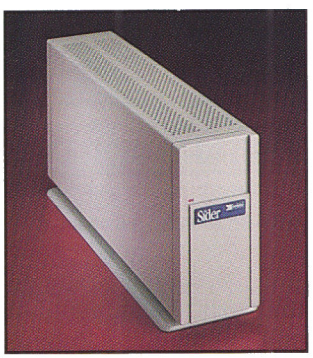

Sider D9 Turbo Hard Drive by First Class Peripherals

The ***Sider D9 Turbo*** is a top of the line, high performance 90MB hard disk for Applle II computers. The *Sider D9 Turbo* offers fast access time (18 milliseconds, 30% faster than the Sider D4 Turbo) and head auto parking on power down. The *SIder D9 Turbo* can be daisy chained with the Sider T6 tape backup. SiderFile™ and ProSel disk utilities are included with the drive. ..... **$1465.**

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PC Transporter Installation Kit *(IIe or IIGS)* Call
RamFactor *(256K to 1MB)* Call
Z-RAM Ultra 1 *(256K or 512K)* Call
Z-RAM Ultra 2 or 3 *(256K to 1MB)* Call
GS-RAM *(256K to 1.5Meg)* Call
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GS-Ram Ultra *(256K to 4MB)* Call
RamWorks Basic *(256K or 512K)* Call
Phasor *(II+, IIe, or IIGS)* 139.
TransWarp Accelerator *(AP or IIGS)* Call
ViewMaster 80 *(II+)* 129.
Z-80 Plus *(II+, IIe, IIGS)* 129.

Checkmate Technology
MemorySaver *(IIGS)* 119.

Orange Micro
RamPak 4GS *(512k Exp. to 4MB w/Utilities)* 139.

Zip Technology
Zip Chip 165.

UTILITIES & LANGUAGES

Absoft AC/BASIC *(16-bit BASIC Compiler for IIGS)* 84.

Big Red Computer
PS Lovers' Utility Set *(AP or IIGS)* 29.

Micol Systems
Micol Advanced Basic *(IIGS)* 99.

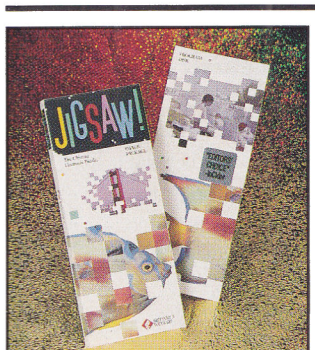
Roger Wagner
SoftSwitch *(IIGS)* 39.
Merlin 8/16 *(IIe, IIc, IIGS)* 79.

So What Software
Disc Commander *(IIGS)* 29.
Hyper Launch *(IIGS)* 35.

The Byte Works
ORCA/M Assembler *(IIGS)* 39.
ORCA/Pascal Desktop Debugger *(IIGS)* 80.
ORCA/Pascal *(IIGS)* 69.
ORCA DeskTop *(IIGS)* 34.

TML Systems
TML Basic *(IIGS)* 84.
TML Pascal *(IIGS)* 84.
TML Source Code Library *(IIGS)* 35.
TML Speech Toolkit *(IIGS)* 49.

Zedcor
ZBASIC 4.0 Interactive Compiler 39.



JIGSAW! by Britannica Software

JIGSAW! is the ultimate electronic puzzle for the Apple IIgs. With *JIGSAW!* you'll transform the screen into a dazzling display of fantastic graphics. *JIGSAW!* includes the JIGSAW! program and an Image Library with over 20 unique, dazzling images. Create puzzles of 8, 15, 40 or 60 pieces. Images can be exported to Paintworks Gold and DeluxePaint II and other popular paint programs. ..... **$25.**

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Access Software
World Class Leader Board Golf 27.
Famous Courses of the World vol. 1 or 2 14.

Accolade
Jack Nicklaus Golf *(IIGS)* 34.
Mean 18 *(IIGS)*, Hardball *(IIGS)* or Serve & Volley *(IIGS)* 27.
Mini-Putt *(IIGS)* or 4th & Inches *(IIGS)* 27.
Famous Course Disk Vol. 2 12.
Famous Course Disk Vol. 3 & 4 21.
Test Drive or Bubble Ghost *(IIGS)* 21.

Action Software Thunder Chopper 19.

Activision Firepower 19.
Star Glider, GBA Championship Basketball *(IIGS)*, or Shanghai *(IIGS)* 14.
The Last Ninja or Rampage 24.
Blackjack Academy *(IIGS)*, CrossBow or Corruption 27.
The Last Ninja *(IIGS)* or Neuromancer *(IIGS)* 29.
Might & Magic or Sky Travel *(IIe or IIGS)* 32.
Might & Magic II 34.
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California Dreams Vegas Gambler *(IIGS)*, Vegas Craps *(IIGS)* or Triango *(IIGS)* 25.
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Kid Niki, Ikari Warrior or Platoon 23.

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Tomahawk *(IIGS)* or Hunt for Red October 30.
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Bards Tale *(IIGS)*, Bards Tale II *(IIGS)*, Instant Music *(IIGS)*, Music Construction Set *(IIGS)*, Bards Tale II, Madden Football, Bards Tale III, Wasteland, or Chessmaster 2100 *(IIGS)* 33.
Aaargh *(IIGS)*, Chessmaster 2100, or Risk 29.
Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf *(IIGS)*, Halls of Montezuma, World Tour Golf *(IIGS)* or Skate or Die *(IIGS)* 26.
Strike Fleet or Marble Madness *(IIGS)* 23.

EPYX
Sub Battle Simulator *(IIGS)*, L.A. Crackdown, The Games: Winter Edition or The Games: Summer Edition 32.
California Games *(IIGS)* 29.
Destroyer *(IIGS)*, Final Assault *(IIGS)*, or Impossible Mission II *(IIGS)* 29.
California Games *(AP or C+)*, Dive Bomber, Technocop, Tower Toppler, Sporting News Baseball or Sticker Maker 26.
Street Sports: Basketball or Street Sports Football 14.
Winter Games *(IIe or IIGS)* or World Games *(IIe or IIGS)* 14.
Street Sports Soccer *(IIe or IIGS)*, or Street Sports: Baseball 14.
Summer Games II or Sub Battle Simulator 14.

Estes Flight 32.
Physics or In Search of Space 18.

FTL Dungeon Master *(IIGS)* ***Special*** 29.

Garde
Blue Powder Grey Smoke or High Seas 29.

Hayden Software Sargon III 14.

Infocom Sherlock 24.
Hitchhiker's Guide to The Galaxy or Leather Goddesses of Phobos 15.
Beyond Zork *(IIe or IIGS)* or The Zork Trilogy 34.
Zork Zero, Journey *(IIe or IIGS)* or ShoGun 34.
Zork Zero *(IIGS)* or ShoGun *(IIGS)* 41.

MasterPlay
Star Saga: One! *(AP or IIGS)* 55.

Melbourne House Quarterback 19.
Quarterback *(IIGS)*, or Barbarian *(IIGS)* 25.
War in the Middle Earth *(IIGS)* 30.

Micro League Sports
Micro League Baseball 24.
General Manager/Owner Disk 21.
Team Disk 14.

Microprose
F-15 Strike Eagle or Silent Service 22.
Silent Service *(IIGS)* or Pirates *(IIe or IIGS)* 26.

Miles Computing Magic Candle 36.

Mindscape Indoor Sports 19.
Shadow Gate *(IIGS)*, Uninvited *(IIGS)*, Balance of Power 1990 *(IIGS)* or Deja Vu *(IIGS)* 32.
Balance of Power *(IIe & IIGS)*, Gauntlet *(IIGS)* or Super Star Ice Hockey *(IIGS)* 29.
Super Star Ice Hockey or Joker Poker 27.
Gauntlet or Paperboy *(IIe or IIGS)* 25.

Orgin Systems Times of Lore *(IIGS)* 27.

PBI Software
Strategic Conquest *(IIGS)* or Cavern Cobra *(IIGS)* 31.
The Tower Of Myraglen *(IIGS)* or Alien Mind *(IIGS)* 32.
Sea Strike *(IIGS)* or Monte Carlo *(IIGS)* 25.

Share Data
Concentration, Card Sharks, Jeopardy, Family Feud or Wheel of Fortune 10.
Jeopardy II or Wheel of Fortune II 11.

Sierra On-Line
Space Quest *(IIe or IIGS)*, or Space Quest II *(IIe or IIGS)* 32.
Kings Quest I, II, or III *(IIe or IIGS)* 32.
Kings Quest IV *(IIGS)* 34.
Leisure Suit Larry *(IIe or IIGS)* 26.
Thexder *(IIGS)* 24.
ManHunter *(IIGS)* or Police Quest *(IIe or IIGS)* 32.
Mother Goose *(IIe or IIGS)* 19.

Simon & Schuster
Star Trek 4 First Contact 27.

Sir-Tech
Wizardry or Legacy of Llylgamyn 32.
Heart of the Maelstrom or Return of Werdna 34.

So What Software Sonix *(IIGS)* 39.

Sphere, Inc. Gato 12.
Soko-Ban *(IIe or IIGS)* 23.
Tetris *(IIe or IIGS)* or Dondra 25.

Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 26.
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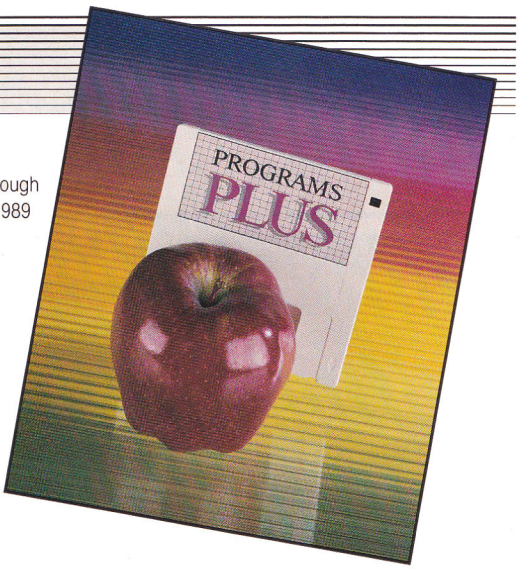

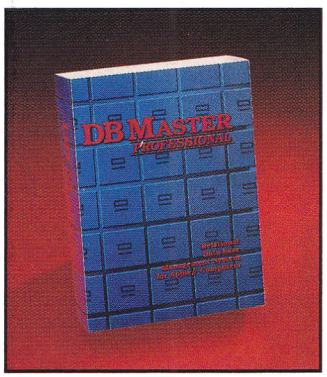

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Designasaurus *(IIGS)* ***Special*** 28.
Revolution *(IIGS)* 28.
Millionaire II 34.
Broderbund Geometry *(IIGS)* 68.
Science Tool Kit Master Module 50.
Science Tool Kit Module I, II or III 26.
Type! 19.
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Where in the USA is Carmen Sandiego? 29.
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Grammar Gremlins or Read 'N' Roll 29.
Spell-It, Word AttackPlus! or Math Blaster Mystery 29.
Math & Me *(IIGS)* or Reading & Me *(IIGS)* 29.
Math & Me or Reading & Me 25.
Electronic Arts Mavis Beacon Typing 30.
Mavis Beacon Typing *(IIGS)* 37.
First Byte/Electronic Arts The Rhyming NoteBook, The Dinosaur Discovery Kit *(IIGS)*, The Puzzle StoryBook *(IIGS)* 29.
Grade Busters Corp. Grade Busters 1, 2, 3 64.
Great Wave Kidstime II *(IIGS)* 24.
SpaceLace 20.
Harcourt, Brace, Jovanovich Computer SAT 29.
ImagiMedia FactWorks 1, 2, 3 or 4 24.
Learning Company
Reader Rabbit *(IIGS)* or Writing and Publishing Center *(AP or IIGS)* 36.
Writer Rabbit *(IIGS)*, Think Quick *(IIGS)* or Rockys Boots *(IIGS)* 30.
Magic Spells *(IIGS)* or Math Rabbit 24.
Gertrude's Secrets *(IIGS)* 24.
Think Quick, Writer Rabbit or Math Rabbit *(IIGS)* 30.
Reader Rabbit, Magic Spells or Rocky's Boots 24.
MindPlay Easy Street or Cotton Tales 35.
Mindscape Crossword Magic 34.
Perfect Score SAT 48.
Pinpoint Micro Cookbook *(IIe or IIc)* 31.
Bon Appetit 37.
Roger Wagner HyperStudio *(IIGS)* 85.
Sensible Software Report Card II *(IIe & IIGS)* 37.
Simon & Schuster Speed Reading Tutor IV or Typing Tutor IV 27.
Speed Reader Tutor IV *(IIGS)* 34.
Typing Tutor IV *(IIGS)* 34.
Spinnaker Kidwriter Gold *(IIGS)* 31.
Homework Helpers Writing or Math *(IIe or IIGS)* 34.
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Terrapin Terrapin Logo Plus 79.
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Stickybear Series: Sticky Bear ABC (5¼), Basket Bounce (5¼ or 3½), Bop (5¼), Math I (5¼ or 3½), Math II (5¼ or 3½), Numbers (5¼ or 3½), Opposites (5¼ or 3½), Reading (5¼ or 3½), or Shapes (5¼ or 3½) 24.
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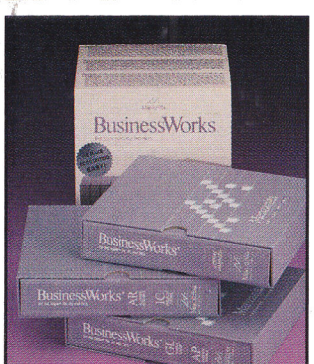

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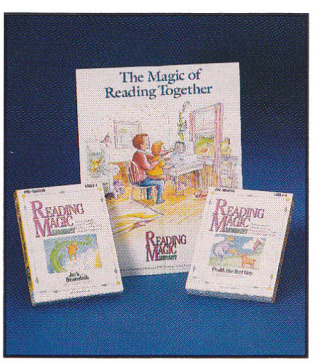

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Reading Magic Library gives you the first animated interactive storybooks that let your child choose what happens next. Books include ***Jack and the Beanstalk***, a whimsical retelling of the fairytale classic, and ***Flodd, the Bad Guy***, a delightful fable about an ill-tempered chap who's making life tough for our hero. *Reading Magic* is the perfect way for your child to learn reading skills. ..... **$25 ea.**

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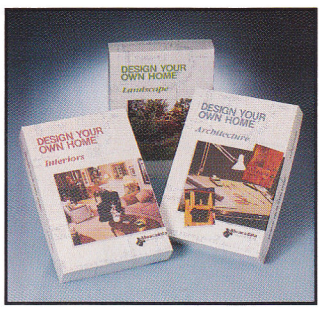

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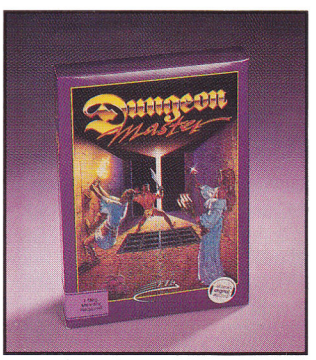

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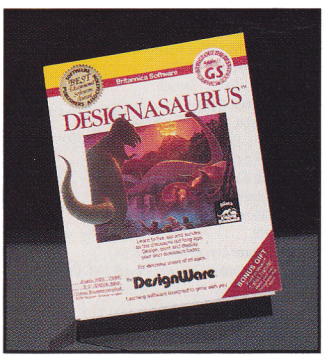

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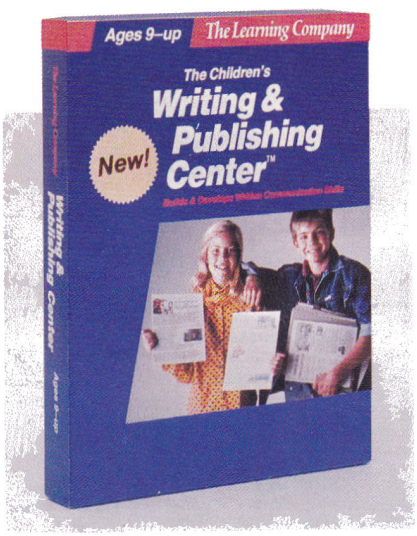
KID STUFF



THE CHILDREN'S WRITING & PUBLISHING CENTER

* * * * * *

THE LEARNING COMPANY, 6493 Kaiser Drive, Fremont, CA 94555, (415) 792-2101

Desktop publishing for young people; 128K Apple IIGS, IIe, IIc, IIc Plus, 3½-inch disk drive; $59.95

Rating: ❖ ❖ ❖ ❖

Although children gravitate toward software that fosters creative self-expression—and these days, that means *desktop publishing*—few young people can cope with the intricacies of Medley, GraphicWriter, or Springboard Publisher. These sophisticated programs have left a gap when it comes to kids.

Not to worry—the Children's Writing & Publishing Center (CWPC) fills the void with admirable grace and ease of use. It combines versatility, speed, and power with an interface so friendly and intuitive you won't even need the manual. Any child capable of using graphics and pull-down menus and reading words on screen can produce attractive documents.

CWPC lets you create and print two basic styles of documents—a report and a newsletter. While the original templates allow for reports of no more than four pages and only single-page newsletters, you can create longer pieces by simply stringing documents together.

Each template divides the page into two work areas—heading and body. You may omit the heading on any page, if you like. Slightly different rules govern these two areas. For example, unlike the body, headings let you type text over graphics. Conversely, words won't automatically wrap around graphics in the heading as they do in the body.

The body of a report consists of the entire page (minus the heading), and what you see is what you get. You can place graphics anywhere along the extreme right or left side of the page. Whether you place graphics before or after typing in text, words wrap around pictures smoothly and quickly.

ALL THE NEWS THAT FITS

CWPC employs a different technique when working in newsletter format. Each page defaults to a two-column layout when you print; the program equates one full-screen page with one column, then reduces the print size accordingly to ensure a proper fit.

The software includes numerous formatting features. You can center lines of text, cut and paste, and use eight different fonts. You can also use any of 22 predesigned headings (stored on the program disk), select from the 159 graphics that come with the package (CWPC accepts Print Shop graphics as well), and enter commands with a mouse or the keyboard. While all these features make CWPC a capable product, its documentation and execution speed make it outstanding.

Once you've examined the manual and begun working on a report or newsletter, CWPC continues to shine. It won't challenge your child's attention span; whether it's accepting type, reformatting a layout, or printing a completed document, this desktop publisher speeds along nicely. Type appears as you key it in, and text wrap begins as soon as you place a graphic within the body of the page.

The Children's Writing and Publishing Center doesn't support a laser printer; it doesn't allow for headers and footers; and it doesn't contain a paint program. But it does, unquestionably, achieve its intended purpose—enabling youngsters to create a wide variety of documents. And if you're especially nice to your kids, maybe they'll let you use it the next time you need to punch out a simple newsletter.

James V. Trunzo
Leechburg, PA

AT A GLANCE

Continued

You determine the recording level, then set and monitor the length and quality of your sound. To run FutureSound, you must understand the multitude of software controls, which range from buttons indicating track selection to a visual sound graph used as a barometer to determine if other values are set correctly.

FutureSound offers numerous options and excellent performance when it comes to recording instrumental or vocal sounds, and it would be worth the price if it did nothing else. However, FutureSound's ability to play in true stereo is just as impressive as its other features.

Slide Shop (March 1989, p. 80, by Ken Carlson), Scholastic, Inc., 730 Broadway, New York, NY 10003, (212) 505-3000, $29.95
Rating: ❖ ❖ ❖ ❖

Slide Shop's easy to learn—the commands (in pull-down menus) are logical and the directions are easy to understand. The 128-page manual will go largely unused; the program includes a tutorial that lasts about half an hour and gives you all the intellectual ammunition you need to begin working on your own slide shows. There's also an on-screen help feature.

Start by deciding whether your slide will be graphics or text. Graphics slides are more impressive, but you can store more text slides on a show disk (15–17 graphics slides or nearly 100 text slides).

Slide Shop lets you string frames together in any combination you like—just create a script to decide the order. You can also use 40 different special effects to add pizzazz as you clear the screen and go on to the next slide. Slides can be shown automatically in any order; the interval between slides can be anywhere from one to 29 seconds. You can also present slides manually, one at a time.

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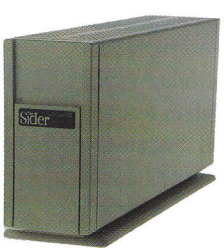

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Rating: ❖ ❖ ❖ ❖

People have toyed with the environment quite a bit in the last 200 years. One victim of this conflict is the magnificent grizzly bear, which is threatened with the loss of its wilderness habitat and the freedom to roam out of man's way. Can a new kind of education wake us to the problems we've created and teach us to respect the natural world around us?

With the publication of Grizzly Bears, the first program in its Wildlife Adventures series, the Audubon Society steps into the realm of computerized conservation instruction. This is solid, factual software that successfully teaches many principles of wildlife management. The program comes on three double-sided 5¼-inch disks.

The grizzly bear isn't an animal to be taken lightly, either in the wild or in a computer simulation. This program presents an honest picture of the grizzly's world. I was impressed immediately with the quality of the contents when I found reference on the second page of the guidebook to studies conducted by John J. Craighead and Frank C. Craighead, Jr., widely known experts on the grizzly bear and its niche.

Grizzlies, like other animals, share their habitat with other valuable resources, including commodities such as oil, gold, timber, and water. A conflict develops when people enter the grizzly's territory to tap these resources. The Wildlife Adventures program shows you the trade-offs you confront when you're working in grizzly country, and how every action affects the bear population.

The program is arranged in four parts. The first, On the Spot with Dr. Potts, introduces the grizzly bear and its characteristics. Bear Encounters discusses the conflicts between people and grizzlies. The third part, Grizzly Bear Mystery, examines the conflict between people and bears through a simulated investigation of the killing of a grizzly. Each of these parts is interactive; you assume the role of an employee in a large national park who manages the the grizzlies' habitat.

Part 4—Oil Explorer—is the most interactive section of the program; you design a road location and plan other construction activities with minimal disruption of the grizzly-bear habitat. The writers are here introducing you to the leading edge of conservation technology—Geographic Information Systems, a computer system that keeps track of data such as vegetation, water, roads, and mountains in certain land areas. The program displays these details on a map, so that a wildlife manager can test the impact of a road location, for instance, before construction begins.

As you select alternative actions in the Oil Explorer simulation, the computer calculates the loss of grizzly habitat that would result if you carried out those plans. You can change proposed road locations, move campsites, shift drilling sites, and relocate timber-harvest areas. It's a good demonstration of how wildlife biologists are currently managing habitats. Oil Explorer is one of the program's highlights.

OUTSIDE STUDIES

The 55-page *Grizzly Guidebook* included with the program contains many fine photographs of bears in their natural surroundings. Because it's impossible for most of us to study an actual grizzly bear—and just as unlikely to capture the grizzly's complex world completely on a small home computer—use this guidebook to continue the outdoor study of wildlife as a followup to the program.

The manual presents certain field-study methods for observing animal behavior. For instance, the guidebook directs you to observe

AT A GLANCE

Continued

Video Title Shop (January 1989, p. 28, by Jim Trunzo), Datasoft, 19808 Nordhoff Place, Chatsworth, CA 91311, (800) 245-4525, $29.95
Rating: ❖ ❖ ❖

Video Title Shop (VTS) is an excellent product for the money. It does little in the way of built-in special effects or graphics, but it provides a large number of full-screen backgrounds. VTS also includes a built-in, full-featured paint program. You can create your own fonts.

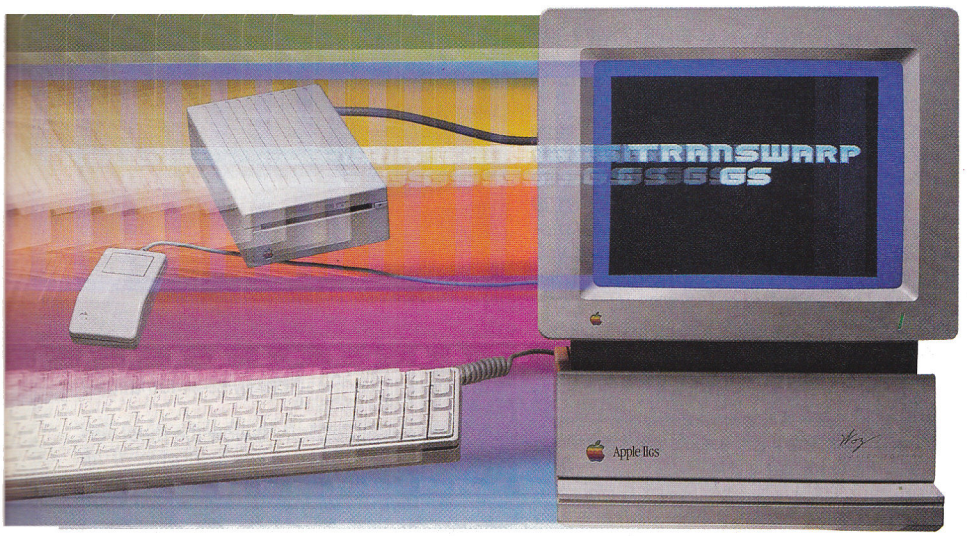
VTS has an awkward user interface, eschewing pull-down menus in exchange for keyboard commands. The program uses the control key in conjunction with other mnemonic keys to activate program features. Despite this arrangement, VTS isn't that difficult to operate. Because of its lack of intuitiveness, it requires more extensive use of the documentation and its Quick Reference Lists; you'll need the instructions less and less as you get used to it, though.

Springboard Publisher 2.0 (February 1989, p. 28, by Joe Abernathy), Springboard Software, 7808 Creekridge Circle, Minneapolis, MN 55435, (800) 445-4780, $139.95
Rating: ❖ ❖ ❖ ❖

Springboard Publisher (version 2.0) goes beyond the usual collection of tools for layout and design. With Springboard Publisher and its associated style sheets, you can ignore the mechanics of design and concentrate on your message. The user interface is intuitive, with pull-down menus and three integrated working modes to handle page design, word processing, and graphics creation. They work well individually, but together they create a whole that's greater than the sum of its parts.

The program's biggest drawback is its slow word processor. It's acceptable for tasks such as writing headlines, cut lines, and other blurbs, but you'll want to write and edit your body copy in another word processor.

Continued on p. 62



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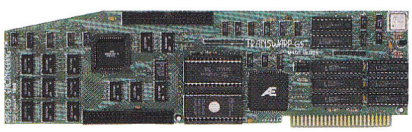

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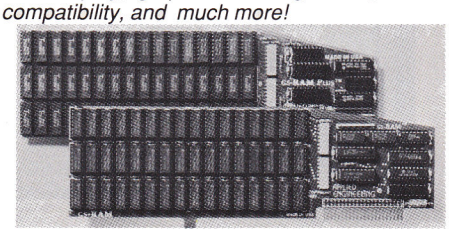

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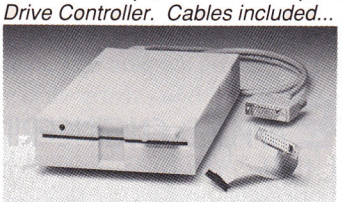

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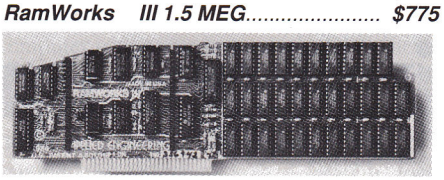

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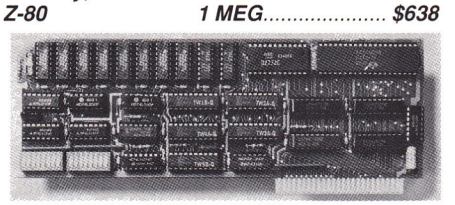

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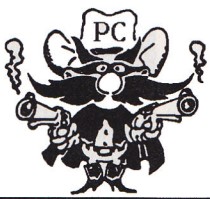

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By PAUL STATT * SENIOR EDITOR

ROLL VIDEO

Sneak preview!
It's a breakthrough in Apple II graphics:
Apple's new Video Overlay Card uses
genlock technology to combine video
images with computer-generated text
and pictures for true special effects.
Take 1 . . . cut . . . and print!

DEMILLE MEETS DISNEY IN APPLE'S film sensation of 1989—and now's your chance to get in on the act. If you've ever wished you could combine your most artistic computer graphics with your favorite video tapes, Apple's latest product lets you merge the two media the way the professionals do. The Apple II Video Overlay Card lets you display computer-generated graphics with video images—not just add text frames between video frames, but actually superimpose computer graphics over your video.

The Overlay Card connects your computer and graphics to your VCR, video camera, laser-disc player, or cable, broadcast, or satellite TV signal. The Apple card uses a technique called *genlock* to synchronize the two video sources. Genlock lets you display computer graphics—pictures as well as text—over the video screen; that is, you can overlay annotations and illustrations on the video. You can even combine computer animation with video, *à la* the movie *Who Framed Roger Rabbit?*

WHAT DOES IT LOOK LIKE?

If you've ever watched a televised football game with an "electronic chalkboard," a weather report with animated maps showing the movement of storm patterns, or any other show with neat special graphics, you know what genlock-created effects look like. You probably didn't know you could create similar special effects with your Apple II.

In theory, you can do it all with your Apple IIe or GS and the Video Overlay Card. Apple stresses the educational and home uses of its new product, but admits that some small businesses might also find it useful for creating commercials and promotional videos. Media professionals, take note: The quality of video output from the Apple II Video Overlay Card is limited only by the quality of the input used. If you use broadcast-quality video as input, your output will be broadcast-quality video. The Apple II Video Overlay Card can produce National Television Standards Committee (NTSC) legal video; that's the color-television

Photography * Mark Johann

format used in North America and Japan. (A PAL version for the European format is possible.)

While an Apple II Video Overlay Card may find a home in some television studios or production companies, schools should be a prime market. Schools have Apple IIs and VCRs, and are the largest market for laser-disc players. (Because of the high quality of the video produced by laser discs, they're well-suited for use as a video source.) The Overlay Card works with any Apple II program—painting and animation programs are particularly appropriate—so the only investment a school has to make is the $500–$800 for the Apple II Video Overlay Card. (The exact price was undetermined at press time.)

Teachers can use the card and a painting or drawing program to annotate and highlight prerecorded instructional videos. To annotate or edit a video, however, requires a second VCR. You can create an overlay with one video source, but you'll need a VCR to record the events. (See the accompanying **Figures** and discussion of the technology below.)

Imaginative kids and teachers will design new kinds of lessons by combining videos and ►

computer graphics. At the Apple II Video Overlay Card press briefing in February, Apple showed a time-motion study created by a group of students at the Talcott Mountain Science Center in Avon, Connecticut. These young scientists overlaid graphics on a video tape of a classmate running. They added points to represent the boy's major joints and bones, then connected those points with lines. The result, which was achieved using an animation program, was a stumbling stick figure that showed how a person's various joints work when he or she runs.

At home, you can add graphics to your family videos. Remember, Apple II VCR software (such as Video Title Shop, Home Video Producer, and VCR Companion, reviewed in January 1989, p. 28) can't overlay text and pictures. You have to make do with a laborious series: text screen, video screen, text screen, video screen, and so on. The Apple II Video Overlay Card changes all that; it opens up a new world of possibilities.

For example, if you're inspired by the CBS sports commentator John Madden, you could add chalkboard diagrams to videos of your son's football games. If you've just bought an acre of land and want to see whether a contemporary house looks better than a Cape on that property, you could sketch out both styles of homes with a drawing program such as Draw Plus or Top Draw, then lay the graphics image over a video image of the land you own.

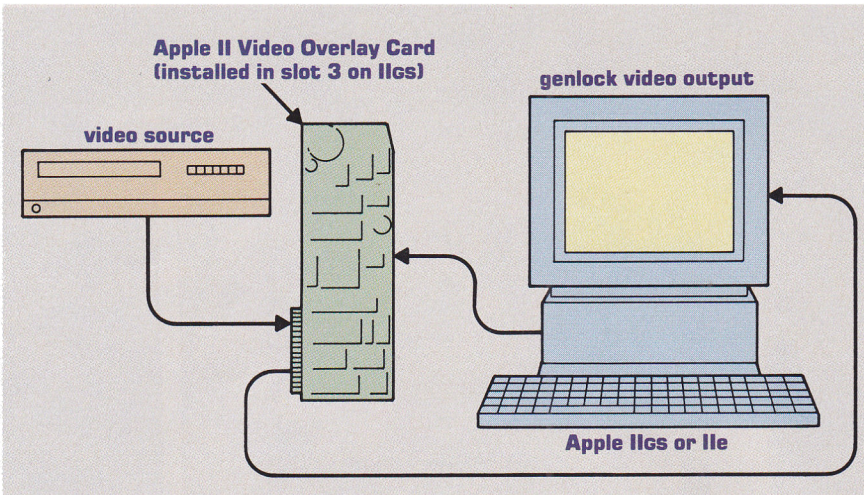


Figure 1. Basic connections: Apple II with Video Overlay Card, interfaced to video source. VCR here cannot record special effects produced with this configuration.

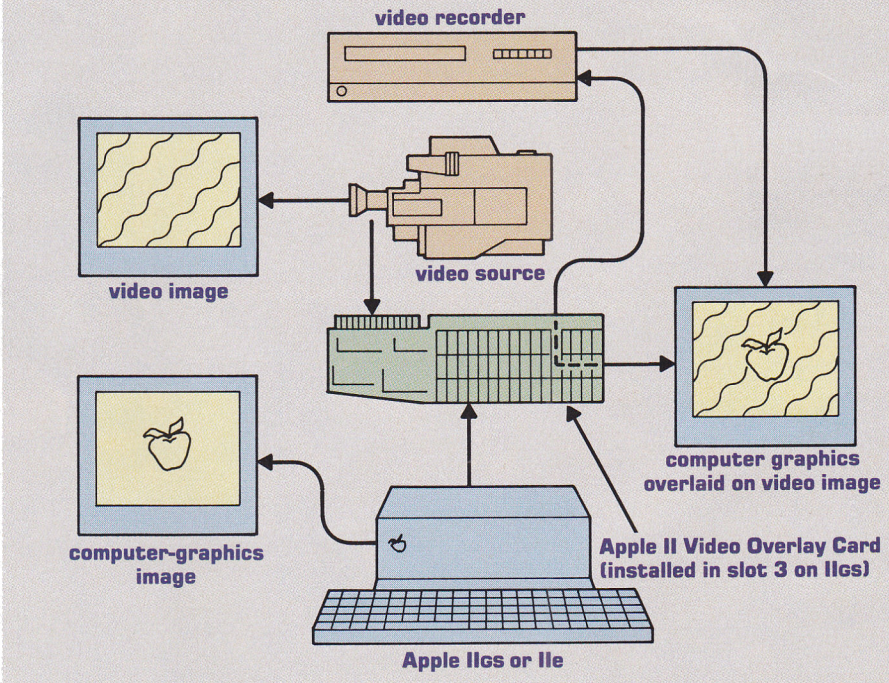


Figure 2. Permanent capture and editing system requires video-cassette recorder not used as video source. The video source in this configuration is a video camera; however, a second VCR, a laser-disc player, or a cable, broadcast, or satellite TV signal can also be used.

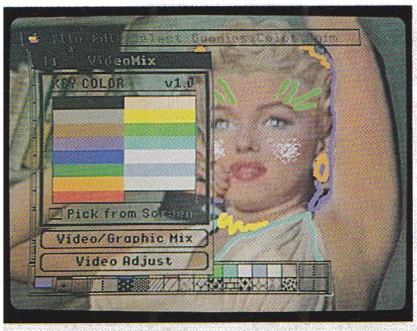
TIMING IS EVERYTHING

Why does it cost $500–$800 to connect two machines when every Apple has an RCA-type "video out" port and every VCR an analogous "video in" jack? *Timing* is what makes a simple cable incapable of doing the job. Try recording something from your Apple on your VCR and you'll see: You can do it, but you can't do it well. The colors look off, because the color information from the computer isn't synchronized with the VCR. For the same reason, it's not a good idea to use your monitor as a TV.

All video signals, whether from a computer, a VCR, a videodisc player, a video camera, or the TV, create an image the same way: An electron gun "paints" the scene on a picture tube, like a kid painting a wall with water pistols full of paint, but precisely and rapidly.

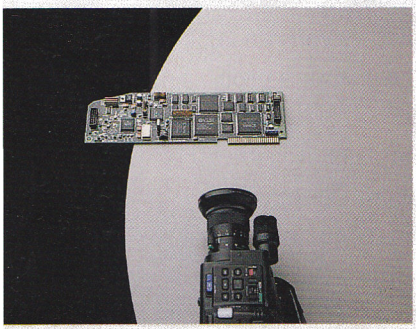
Combining speed and accuracy, then, is the problem. If you try to paint a picture with a video signal from two different sources, you have to make sure the signals are *synchronized*—that they arrive carrying the same types of color information at the same time. That's where genlock hardware comes in; it makes sure the timing's in sync. It's sophisticated technology; Doug Camplejohn, an Apple multimedia-product specialist, calls the board "the most complex piece of hardware Apple ever produced." (Genlock hardware is also available for Commodore Amigas and other personal computers, but most television stations and video producers still use expensive computers that are dedicated strictly to overlaying titles and graphics.)

Note that although you'll see sharp computer graphics recorded on video tape and truer video images on your monitor, genlock



The VideoMix program, which accompanies the Apple genlock card, lets you produce a variety of effects by choosing key colors and nonkey colors.

Maybe Marilyn doesn't look thrilled, but Apple II users will find entertaining uses for the Overlay Card. In this photo, characters from Electronics Arts' Cartooners invade *The Seven-Year Itch*.



The Apple II Video Overlay Card is chock full of chips. In fact, Apple calls it "the most complex piece of hardware (we've) ever produced."

technology doesn't *digitize* video input; that is, it doesn't translate the image into the discrete on-and-off signals (bits) your computer can use, only into a form it can display. For instance, you can't save a video image to disk or print it on an ImageWriter. To do that you'll need a video digitizer—ComputerEyes from Digital Visions or ImageWorks from Redshift, for example. Apple may add an extension to the card so that digitizers will be able to work with it directly.

If the difference between a video digitizer and a video overlay card is unclear, remember that even though the Apple II Video Overlay Card goes inside your computer, the genlock's video processing is done outside your Apple "on the fly." It can't change the video images it processes. Synchronization is a way of placing computer-generated text, graphics, and animation over some "real" image—something like drawing a mustache on the glass covering a portrait of your cantankerous old uncle. Outside the genlock card, your Apple II is aware of only the mustache, not your uncle. The digitizer is what translates your uncle into a format your Apple understands.

APPLE GOES TO THE MOVIES

To use the Apple II Video Overlay Card all you'll need is an Apple IIe (128K, enhanced main-logic-board revision B or higher) or GS (512K, ROM version 01 or higher) plus a video source, such as a VCR. The card works in any slot in the IIe, but in the GS you'll have to use slot 3.

Operating the Overlay Card is as simple as choosing a "key color" from Apple's VideoMix software. The key color would normally be the "background color" in your computer graphic, and you would normally make it "transparent," meaning that the image from the video source would show through the background. But it's also possible, for special effects, to make any other color in your palette the key color, and to make it opaque or translucent, rather than transparent.

Apple supplies the VideoMix program with the card. On the GS, the program is a new desk accessory (NDA), so you can access it from any GS program. On the Apple IIe, however, it's a stand-alone application; you must run the VideoMix software before starting your production. At press time, no software written especially for the Video Overlay Card was available, but the good news is that you really don't need any new software to take advantage of the card. By the time you read this, some specialized programs should be on the market, but with the high quality of the painting/drawing and animation packages available, you may not want special software.

You'll probably want a color monitor; the Video Overlay Card uses either composite or RGB (red-green-blue) monitors. (For IIe owners, it doubles as an RGB card.) If you want to record your masterpiece, you'll need a VCR in addition to the video camera, television, other VCR, or laser-disc player you use as the video source.

The Overlay Card can't handle audio at all, so you'll want to make sure your video machine can. Don't worry—you won't erase the sound track on your videos when you overlay graphics. If your VCR includes a television tuner, you'll be able to use your Apple II's color monitor to watch TV. We had only a brief glimpse of the system at a press briefing, but the RGB quality was excellent.

Figure 1 shows the simplest connection made among your Apple II, the Overlay Card, and video source (in this case a VCR). Note that in this example there is no video-recording device; recording and editing your video in this example wouldn't be possible. To record, you'd need a VCR in addition to your video source, which could be another VCR, a videodisc player, a video camera, cable television, and so on. The video output from the Apple (the connection is made automatically when you install the Apple II Video Overlay Card) and the second video source are each plugged into the genlock, not into a monitor or TV as you might normally connect them.

Figure 2 shows a fully configured genlock video-editing system for producing and recording your "computer-enhanced" productions. The video outputs from the Apple and another source—a video camera in the diagram—are connected to the Apple II Video Overlay Card as in **Figure 1**. Additional, optional monitors are added to both the Apple and the source video so that you can keep track of their individual contributions to the genlock image. The card's genlock video output is viewed and recorded via connection to a VCR. A third monitor is connected to the VCR so that you can view the final image.

IT'S A WRAP

Look for a full review of the Apple II Video Overlay Card in an upcoming issue of *inCider*. Based on first impressions, the card seems a little expensive, but a board that combines two videos signals is probably worth the price. If you already own a VCR or video camera, you won't need anything else to use Apple's card. Even combined with a low-end dual-deck VCR and editing system (which range in price from $500 to $2500), the Overlay Card makes your Apple II an inexpensive "video shop." And that may be reason enough for some VCR buyers—and aspiring directors—to invest in an Apple II.□

TEMPLATES FROM HEAVEN

By CYNTHIA E. FIELD, Ph.D.

Smart Apple II users boot up AppleWorks and let a template do the work. Make it easy on yourself—for just about every subject, there's a customized file that can help you write, calculate, or organize your information.

This *is* the computer age, after all—so instead of working harder, why not work smarter? Ready-to-run AppleWorks templates—"instant" word-processing documents, databases, and spreadsheets—can make you more productive from the moment you select "Add files to the Desktop."

Thanks to AppleWorks' versatility, nearly any application is grist for the template developer's mill. Whether you run an insurance agency, teach chemistry, or roam the lecture circuit, someone's probably already taken most of the work out of AppleWorks for you.

So where can you find templates? Simply put, AppleWorks templates are either marketed commercially or distributed freely in the public domain. Commercial templates tend to be more carefully polished and are usually accompanied by printed documentation. Not surprisingly, they usually also garner a somewhat higher price.

Public-domain templates, on the other hand, range in quality from so-so to exceptional. Disks full of "copy and share" AppleWorks files nearly always cost less than $10 and often as little as $4. Manuals are by-and-large electronic; instructions for using the templates take the form of AppleWorks word-processing files named "a.Read.Me.First" (the *a* puts this file at the top of the AppleWorks Desktop Index), "Instructions," "Filename.Doc.," or something similar. While printing your own copy of a software manual may seem bothersome, storing instructions on disk provides two advantages: lower production costs and easier documentation updates.

Public-domain AppleWorks files are available from a variety of sources, including the AppleWorks Library Users Group (ALUG), the National AppleWorks Users Group (NAUG), Resources for AppleWorks, and the Teachers' Idea and ►

Illustration • Isadore Seltzer

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Information Exchange (TI&IE). Why not call or write to these groups and request copies of their catalogues? Refer to the accompanying Product Information box for organization addresses.

QUANTITY AND QUALITY

Choosing between commercial and public-domain AppleWorks files depends on the kind of application you need. Teachers will find a wealth of educational templates—parent letters, social-studies databases, and gradebooks, to name a few—in the public domain. Avid baseball-card collectors can adapt generic databases from the public domain as well, but it's much more efficient to track these investments with the ready-made commercial database **Topps** (or **Donruss**) **Baseball Cards: '80–'89 Collectors Guide** from Pop-Fly Software. And some packages, such as ActaSoft's **Alpha Check**, are so unique they probably have no equivalent in the public domain.

Where do you begin? Let's look at a dozen of the best commercial and public-domain offerings. This is admittedly a capsulized collection and includes only files compatible with AppleWorks Classic (8-bit), not AppleWorks GS. Nevertheless, it should give you an idea of the incredible variety of AppleWorks files available to help you work smarter—and have some fun while you're at it!

ALPHA CHECK

While there are countless checkbook-balancing programs in the world of AppleWorks templates, no others I know of can do everything **Alpha Check** can do—or with such style! Add this file to your desktop, request a predated, prenumbered (and realistic-looking) check facsimile, and fill in the payee's name, the amount, and the memo. Alpha Check fills in the written amount automatically. Use Solid apple-P (or Option-P) to print on continuous-form checks. Add the payee's address to the screen facsimile (the program prints the name automatically), and use window envelopes. The program marks tax-deductible expenses if you like and is preconfigured to produce reports, including Check Printing (batches), Checkbook Balance, Tax Organizer, Mailing Labels, and General Ledger.

If Alpha Check seems to resemble the popular program Quicken, it's no coincidence. According to ACTAsoft's Don Aquilino, some 60 percent of Alpha Check's users are converts from Quicken who wanted a program that works "inside AppleWorks." No longer do you have to transfer financial data *to* AppleWorks from another program. Best of all, because Alpha Check is an AppleWorks database, Aquilino boasts, "You can do anything with Alpha Check that you can do with AppleWorks." Some businesses are proving just that by using Alpha Check to track payables and receivables.

The program incorporates Beagle Bros' **UltraMacros** programming language, but you don't need to own that program to use Alpha Check efficiently.

BIBLEWORKS

BibleWorks is a collection of all 1189 chapters of the King James edition; each chapter is a separate word-processing file. The template uses standard notation and brackets inferential terms.

Use the AppleWorks Find command (Open apple-F) to locate key words or verses. Copy passages to the clipboard and incorporate them into your lectures, research reports, or homilies.

This complete, hi-tech Bible takes up 24 disks (47 sides). You can purchase selected books if you prefer. Genesis, for example, takes up two disks at $2.50 apiece. The New Testament, a six-disk collec-

PRODUCT INFORMATION

Agent Organizer Program
Info-Med
P.O. Box 24412
Jacksonville, FL 32241-4412
(904) 723-2771
$69.95
specify 5¼-inch or 3½-inch disk
Reader Service No. 370

Alpha Check, $39.95 plus $3.50 shipping
preprinted continuous-form computer checks, $44.15/500 plus $4 shipping; $63.65/1000 plus $7 shipping; $100.50/2000 plus $15 shipping; $136.20/3000 plus $15 shipping
ACTAsoft
19700 Wells Dr.
Woodland Hills, CA 91364
(818) 996-6731
(818) 786-9760
Reader Service No. 371

ALUG: The Apple Library Users Group
Monica Ertel
Apple Computer
Library & Information Services 8C
10381 Bandley Drive
Cupertino, CA 95014
(408) 974-2552
free membership
Reader Service No. 372

The AppleWorks Forum
(12 issues), membership and subscription $27/year
AppleWorks Public Domain Template Library, $4 per disk plus $2 shipping
For Sale by Owner
The Irish Immigrant
$4 each plus $2 shipping
Public Domain Catalog, $5 ($2 rebate on first order)
The Electronic Forum Bulletin Board
(313) 482-8090
(24-hour BBS)
300/1200 baud
NAUG: National AppleWorks Users Group
Box 87453
Canton, MI 48187
(313) 454-1155
Reader Service No. 373

AppleWorks Journal, $39.95/year
Personal Financial Wisdom, $24.95
Speaker's Comedy & Quote Library, $24.95
Sage Productions
5677 Oberlin Drive #102
San Diego, CA 92121
(619) 455-7513
Reader Service No. 374

AMUG: AppleWorks Macro Users Group
AutoWorks macros, $22.95
Chem.Macros and/or **Exam Master**, $11.50
723 Fairways Circle
St. Louis, MO 63141
(314) 567-0307
Reader Service No. 375

The AppleWorks Resource Guide for Teachers and Parents
Scholastic Inc.
2931 East McCarty St.
Jefferson City, MO 65102-9968
(800) 631-1586
(800) 325-6149
$12.95
Reader Service No. 376

AutoWorks, $49.95
Super MacroWorks, $49.95
UltraMacros, $59.95
Beagle Bros Software
6215 Ferris Square
San Diego, CA 92121
(619) 452-5500
Reader Service No. 377

tion, costs $15. These unearthly prices make BibleWorks the least-expensive commercial file set I've found.

Fax Plus Computing's Ernest Stefanik (BibleWorks' developer) has also compiled **Bible Lists**, floppy disks ($2.50 each) with miscellaneous materials for Bible students. Disk 51/52, for instance, contains Study Notes on Pauline Letters, Glossary for Numbers, and Various Sermons and Outlines. Your contribution of files is welcomed.

PERSONAL FINANCIAL WISDOM

Personal Financial Wisdom, a series of templates by Peter Petit and available through Sage Productions, is an excellent introduction to the art of creating high-quality spreadsheet templates. Each spreadsheet begins with a "road map" that looks like a floor plan. The program provides instructions right on the spreadsheet and includes built-in "Warning Lamps" to help you trap errors.

Not only exemplary in design, these templates are practical, too. Among the 11 spreadsheet files, College Fund helps you determine how much you should be saving now for your child's education. Loan Expert calculates the full cost of borrowing. It's the first template I've seen that takes into account the money you'd forfeit by paying cash *instead* of borrowing! How Much House provides a detailed analysis of your financial situation. After calculating your net worth and recommending the extent of the emergency reserves you need, it tells you what price range you should be looking at when you shop for a home.

SPEAKER'S COMEDY & QUOTE LIBRARY

Also available from Sage Productions, **Speaker's Comedy and Quote Library** includes two database files. The first, Comedy, offers 82 stories, riddles, and one-liners. Fields include information about the joke's source, its theme, and its audience-reception rating.

The second database, Quotes and Proverbs, contains nearly 300 records. Fields include information about the saying's author, type, rating, and theme. Like the Comedy database, a special "Checklist" field lets you mark jokes or quotes for later reference. As you discover them, you can add more jokes and sayings to these databases.

AGENT ORGANIZER PROGRAM

The **Agent Organizer Program**, a series of 19 reference checklists, 18 client-proposal forms, and 25 utility worksheets, is designed specifically for all-lines property and casualty-insurance agents.

Info-Med's templates automate innumerable agency functions. Use the Client Database to maintain your customer list, print mailing labels, and track expirations. One file compares multicompany policies for boats, yachts, and pleasure craft. Other templates include Health Insurance Comparison, Renewal Checklist, Things 2 Do, and preformatted setups to print continuous-form ACORD certificates.

Note that you're better off printing some Agent Organizer Program files—such as the detailed, seven-page Group/Individual/Health Checklist—and filling them in by hand. Others, like the Homeowner's Coverage Proposal, have the AppleWorks' Enter Keyboard (Open apple-O, EK) command strategically placed within the document. Type information directly into the computer, and print the completed form simultaneously.

As if these five dozen files weren't enough, upon registration you also receive a **Bonus Templates** disk with even more files to help automate your insurance business. The supplementary disk includes Acceptance Agreement, Facsimile Letter (for sending fax messages), ►

BibleWorks, $2.50 per disk (plus 15¢ per disk shipping)
Complete Set, $54.95 plus $5 shipping (Disks 1-47)
Bible Lists Study Files, $2.50 per disk (plus 15¢ per disk shipping)
Fax Plus Computing
P.O. Box 206
373 Wilson Street
Derry, PA 15627
(412) 694-8602
Reader Service No. 378

Donruss Baseball Cards: '80–'89 Collectors Guide
Topps Baseball Cards: '80–'89 Collectors Guide
$24.95 each plus $2.50 shipping
$45 both plus $2.50 shipping
Updates, $6
Vacation Orlando, $19.95 plus $2.50 shipping
specify 5¼-inch or 3½-inch disks
Pop-Fly Software
Division Product Control
345-B N. McLean Blvd.
So. Elgin, IL 60177
(312) 741-5915
Reader Service No. 379

EuroWorks: $20 each
French
German
Italian
Spanish
all four languages, $30
site license (5 computers), $150
district license, 25% discount (# of sites x $150 x .75)
S.A. AuTeur Co.
P.O. Box 7459
Beaverton, OR 97007
(503) 645-2306
Reader Service No. 380

Nonnie's File Box
Plume Software, Inc.
P.O. Box 2209
Altoona, PA 16603
(814) 942-7058
$24.95 plus $3 shipping
Reader Service No. 381

PCPC: Paradise Custom Programs for Computer Custom Programming Services: AppleWorks and SuperBase
Bill Robinson
14133 Racine Circle
Magalia, CA 95954
(916) 873-3677
Reader Service No. 382

Resources for AppleWorks
P.O. Box 24146
Denver, CO 80224
(303) 753-0158
(after 4 p.m.)
AppleLink: Lee Hayward
members pay $4 for disks
Reader Sevice No. 383

TI&IE: Teachers' Idea & Information Exchange
yearly subscription includes 6 disks of AppleWorks templates and quarterly newsletter, ***TI&IE News***, $39.95

back-disk issues:
Disk 19/20
Disk 43/44
$7.50 each (subscribers)
$8 each (nonsubscribers)
TI&IE
P.O. Box 6229
Lincoln, NE 68506
(402) 483-6987
AppleLink:AFAJimC
Reader Service No. 384

The Works
David Chesebrough, Editor
P.O. Box 72, Dept. IN
Leetsdale, PA 15056
(412) 741-5129
$19.95/year through June 30
$37.95/2 years through June 30
$24.95/year as of 7/1/89
$47.95/2 years as of 7/1/89
subscriptions to Canada and Mexico add $5/year
Reader Service No. 385

Condominium Items, and Future Value and Day Calculator (for determining earned and return premiums).

AMUG MACROS

You could reasonably argue that macros (shorthand commands) aren't real templates, but they *are* "stored" in AppleWorks word-processing files. And at least one national organization is devoted to disseminating them—AMUG, the AppleWorks Macro Users Group, headed by Marvin Yavitz.

This user group's favorite macro program is Beagle Bros' **AutoWorks**. When you join AMUG the 69 word-processing macros, 61 database macros, and 53 spreadsheet macros you receive are written in that format.

For an additional $10, you can receive **Chem.Macros**, by Richard Maciel, a collection of AutoWorks macros (the original macros were written in **Super MacroWorks** and translated by Yavitz) that automate the typing and printing of chemical formulas. Maciel has defined macros for common inorganic compounds, ions, subscripts, and valences, plus selected organic groups. An equation that would ordinarily require 133 keystrokes is said to require only 35 with Chem.Macros.

A second macro file on the Chem.Macros disk, Exam.Master, automates test writing. Lorena Jimenez and Quince Duncan at St. Clare High School in Moravia, Costa Rica, are the file's creators.

FOR SALE BY OWNER

Among public domain's best offerings is Louis Vincenti's **For Sale by Owner**, a top-notch accessory for selling your home. Three word-processing files include documentation, an AutoWorks macro file (for quick printing), and a Purchase Agreement form.

Vincenti's spreadsheets truly shine. At the top of each one he's drawn an AppleWorks file card with a road-map menu. The Loan Menu, for instance, lists "Compute a Monthly Payment," "Compute a Balloon Payment," and "Amortization Schedule." It also tells you that they're located at spreadsheet screens A-19, A-37, and A-73.

For Sale by Owner is a complete resource with checklists for preparing your house for sale (Fix It), for determining its value vis-à-vis comparables (Appraisal), for advertising it (Prop. Profile), and for planning (and surviving!) an Open House. For Sale by Owner is available from the National AppleWorks Users Group (NAUG) for a measly $4.

THE IRISH IMMIGRANT

Another NAUG public-domain disk, **The Irish Immigrant**, is a series of AppleWorks social-studies database files developed by the Harvard University College of Education.

Students participate in this simulation by "adopting" one of the immigrants who came to America in the 1840s on either the Alexina or the Oregon. (Ships' passenger lists are included.) Use the database information to perform the following tasks: Finding a Place to Live and Work, Figuring Your Family's Budget, Assessing your Life in 1850, and Printing Your Diary for Posterity.

NONNIE'S FILE BOX

Dubbed a "kitchen desk organizer," **Nonnie's File Box** from Plume Software comes on two floppy disks: a Recipe Disk with 75 appetizer, main-dish, and dessert recipes, and a Kitchen database disk. Because each recipe is a separate spreadsheet file, you can easily change serving size to adjust ingredient quantities and volumes automatically. Remember, you're in AppleWorks, so add as many of your own favorite recipes as you like.

The second disk includes two databases—a Food Store and a Nonfood Store—with more than 700 grocery items. Use the database as a shopping list for items you need (check them off), for staples (use the AppleWorks Find command, Open apple-F), or for required items in the recipes you've selected from Nonnie's File Box. You can choose recipes by key qualities, including ingredient, cooking method, or serving time.

EUROWORKS

Technically you might consider **EuroWorks**, "The Ultra European Language Macro for AppleWorks," a utility. Installing EuroWorks, from the S.A. AuTeur Company, on your AppleWorks startup disk lets you type foreign-language characters on screen without cryptic commands. With the French macro set activated (just select *F* from the on-screen prompt line), entering a lowercase *e* followed by an apostrophe, for example, results in a printout of an *e* with an acute accent. ►

Continuing Education for AppleWorks Users

If you think *templates* are plentiful, imagine the number of printed resources available to help nourish your insatiable appetite for AppleWorks information. Here's just a sampling.

FOR YOUR BOOKSHELF

AppleWorks-using educators will appreciate *The AppleWorks Resource Guide for Teachers and Parents*, an inexpensive ($12.95) spiral-bound reference that shows you how—among other things—to judge a template's merits.

Ten ready-made lesson plans demonstrate how you can integrate AppleWorks into science and social-studies classes. The guide provides lists of AppleWorks resources and their publishers or suppliers. More than 125 templates are listed; Jim Carlisle of the Teachers' Idea & Information Exchange was a major contributor.

HINT-OF-THE-MONTH CLUB

There's only one thing better than curling up with a good AppleWorks book, and that's curling up with a good, timely AppleWorks newsletter.

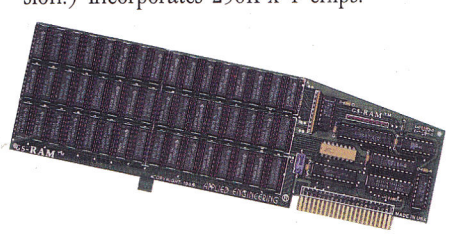
AppleWorks users have at least four such publications to choose from: NAUG's *AppleWorks Forum* (monthly, $27 per year), Sage Productions' *AppleWorks Journal* (monthly, $39.95 per year), David Chesebrough's *The Works* (September–May, $19.95 per year), and the Teachers' Idea and Information Exchange's *TI&IE News*

continued

Three good reasons to buy a memory card from Applied Engineering.

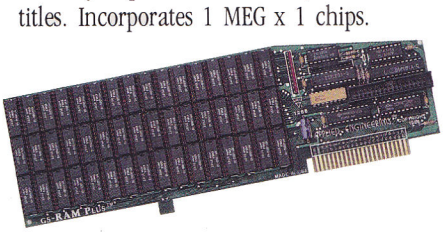
Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

1. **GS-RAM.™** Start with as little as 256K of memory and grow in affordable 256K increments to 1.5 MEG (an amount that once sounded large, but is now considered a moderate amount of memory expansion.) Incorporates 256K x 1 chips.



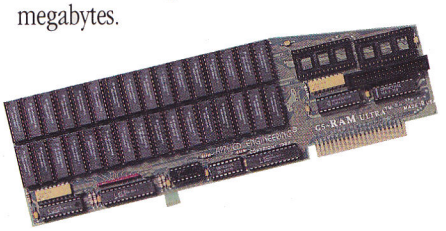
GS-RAM w/256K	**$219**
1 MEG	**$639**
1.5 MEG	**$919**

2. **GS-RAM Plus.™** Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, this card has recently found favor with many moderate users. MEG-sized jumps in memory have now become practical for many users because of the enormous memory requirements of today's software titles. Incorporates 1 MEG x 1 chips.



GS-RAM Plus w/1 MEG	**$599**
2 MEG	**$1049**
3-6 MEG	**CALL**

3. **GS-RAM Ultra.™** AE's newest memory card incorporates a new chip - the 256K x 4, which has four times the density of 256K x 1 chips. GS-RAM Ultra offers incremental expansion like the GS-RAM and ultimate size like the GS-RAM Plus. It's expandable from 256K to 4 MEG in 256K increments, so you can start small and still grow to a massive 4 megabytes.



GS-RAM Ultra 256K	**$239**
512K	**$399**
768K-4 MEG	**CALL**

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hardware-based applications to be loaded permanently into EPROMs...an increasingly important feature when application become available from Applied Engineering and others.

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All three of our GS memory cards are fully DMA compatible (and they're the ONLY large-format cards that are), so they not only run all GS software, they also support *current and future* DMA peripherals.

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Still more:

Each of our GS memory cards comes with many other exclusive features, *disk caching* that tremendously speeds up many programs, including AppleWorks, by virtually eliminating disk access. Our *diagnostic utility* feature graphically detects the presence of bad or improperly installed chips and tests for CAS before RAS chips. And our *AppleWorks enhancement* package dramatically increases AppleWorks' word processor lines (from 7,250 to 22,500), database records (from 6,350 to 22,500), clipboard capacity (from 255 lines to 2,042) and more.

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*When purchased from Applied Engineering or thru a participating dealer.

EuroWorks macros for French, German, Italian, and Spanish are available. English macros let you print eight special symbols, including the British pound, the degree symbol, the cent sign, and the "less than or equal to" and other mathematical symbols.

These automated AppleWorks-enhancement files support the Apple ImageWriter I and II and the Scribe, as well as the Seikosha SP-1000AP and the Mannesmann Tally MT 85/86 printers.

TI&IE DISKS

The "group award" for AppleWorks files goes to the **Teachers' Idea and Information Exchange (TI&IE).** Joining TI&IE ($39.95 yearly) brings you a bimonthly floppy disk chock full of templates, lesson ideas, and AppleWorks tips and techniques.

Disk 19/20, for instance, includes Mark Fegan's unique word-processing template for printing Print Shop card-size envelopes with your return address. Fegan uses the Enter Keyboard command, so you can type the recipient's name and address, too. Besides this handy template, Disk 19/20 includes a United States database and quiz, attendance-tracking and quiz-making databases, and a time-conversion spreadsheet.

A more recent TI&IE disk (43/44) includes a Space Shuttle database, time-line and school-year calendar spreadsheets, a macro file, a Spreadsheet Challenge, and commentary by Jim Carlisle, TI&IE's driving force. If you're an AppleWorks-using educator, you'd be doing yourself a great disservice by *not* hooking up with TI&IE.

VACATION ORLANDO

When the work is over and you're ready to play, wouldn't it be nice to avoid the financial and scheduling hassles that often mar the perfect getaway? Pop-Fly's **Vacation Orlando**, an AppleWorks disk containing 14 files, is loaded with up-to-date information about one of America's favorite vacationlands—DisneyWorld and the surrounding Orlando, Florida, area.

The Accommodations file alone with its 60 hotel/motel listings can save you time and probably money. The file details each lodging place, noting proximity to the Magic Kingdom, special features including restaurants and "Fun for Kids" activities, date completed, number of rooms, room rates, and telephone number (often toll-free). If you're willing to forego a swimming pool and drive a short distance to DisneyWorld, you can probably save at least one-half the nightly room rate, often enough to feed your family for the whole day.

Tom Turner and *his* family, developers of Vacation Orlando, have obviously done their homework. Other databases on disk offer suggestions for Adventures (local attractions and things to do), hints for maximizing enjoyment of (and avoiding long lines at) Epcot Center and the Magic Kingdom, a guide to restaurants, and information about shops and factory outlets.

COMING UP SHORT?

Remember, these products represent but a few of the many fine AppleWorks enhancements available. If your needs are highly specialized, searching among all these commercial and public-domain templates could still prove fruitless. Don't despair. AppleWorks "experts" in your school system or local user group may be able to help you design suitable templates. (For information about user groups in your area, call Apple Computer at 800-538-9696, extension 500.)

The accompanying sidebar, "Continuing Education for AppleWorks Users," provides a quick look at printed resources that can help you maximize your AppleWorks know-how.

Another option is to contact programmers such as Bill Robinson at **Paradise Custom Programs for Computer (PCPC)** who can turn your ideas into working files. Within the past year Robinson has custom designed a reservation/registration/billing system for a Santa Barbara motel, a vendor-rating system for a New Orleans aircraft-parts company, and a kindergarten-skills tracking system.

At home, in the office, and at school, AppleWorks is a program for all reasons. Like a sculptor with the proper tools, you can "shape" AppleWorks with different templates to take full advantage of its versatility. And once you're aware of the abundance of available resources to guide you, you'll appreciate its power even more. □

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

(quarterly, free with membership, $39.95 per year).

AppleWorks Forum **typically includes letters from readers, reviews of commercial products, and descriptions of AppleWorks templates in NAUG's public-domain library. In a given issue, "Novice Notes" may explain ways to save keystrokes, while a feature article may teach advanced users about macro task files.**

If you have a modem, you might want to check out NAUG's *Electronic Forum* bulletin-board system for 24-hour AppleWorks information.

AppleWorks Journal**, likewise, is replete with information. A recent issue included "12 Tips for Mailing Lists and Printing Labels," reviews of Beagle Bros' latest products, an article on macros, letters from readers, and a listing of AppleWorks books compiled in part by the Apple Library Users Group (ALUG).**

The Works **publishes not only letters from subscribers and reviews of important AppleWorks-related products, but also tips and techniques for using AppleWorks in the classroom. A recent issue, for example, provided John Klus' "Using a Database to Teach Geography," an article in which the author describes how his high-school sophomores use world-studies AppleWorks databases.**

TI&IE News**, a new (at press time) quarterly publication from Jim Carlisle, offers a little bit of everything: tips, reviews of donated templates, member profiles, common-sense classroom ideas. Like other TI&IE products and publications, this one exudes professionalism.** □ **—C.F.**

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Do You Know Where Your Data Are ?

By WILLIAM P. KENNEDY, Ph.D.

Organize! *inCider*'s technical editor shows you how formats and folders will keep your hard disk humming.

IMAGINE YOU NEED TO FIND A PARTICular room in a building. It won't be difficult if the building is small—you might even poke your head into each room until you find the right one.

Now imagine that the room you're searching for is in Chicago's John Hancock building. Still not too hard if you have a floor and a room number. But what if you don't, or what if the floors and rooms aren't arranged logically or marked at all?

Most Apple II owners treat their floppy disks like a small building. Can't remember a filename? Just take a look at the disk catalog, or load each file and examine its contents until you find the right one. And, when the disk is full, just format another one.

That casual approach may be adequate for storing data on 140K $5\frac{1}{4}$-inch floppies, or even 800K $3\frac{1}{2}$-inch disks—although you've probably heard some horror stories about data getting lost amid shoeboxes full of unlabeled floppies. But now you've gone and purchased the John Hancock of disks—the hard drive, with 20, 40, 60, or even 90 megabytes of storage space. Repent! Mend your ways now, or someday surely you shall seek but shall not find.

Before you take that new drive out of its box, sit down and think about the way you use your Apple II. Make a list of the programs you need most often. How many are there? Do they run only on your GS or on any Apple II? Do you have numerous data files (letters, spreadsheets, reports, and so on) or just a few large ones? The answers to these questions will help you decide how to format and partition your hard disk and how to arrange and maintain your programs and files.

First consider the hard facts. All "devices" (drives, keyboard, mouse, and so on) require special interface and support software known as *operating systems* and associated *device drivers* so that they can work with your Apple II. And, similar to floppies, your hard-disk drive must be *initialized* or *formatted* for (or "under") that disk-operating system (DOS). For most owners of the II Plus, IIe, IIc, and IIc Plus, Apple's Professional Disk Operating System (ProDOS) is the format of choice. For GS owners, GS/OS (IIGS System Version 4.0)►

Illustration • Mike McLaughlin

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Waiting three months to go faster is like taking two steps back and one forward. Applied Engineering's TransWarp™ Accelerator for the Apple IIe or II+ is shipping right now. Period.

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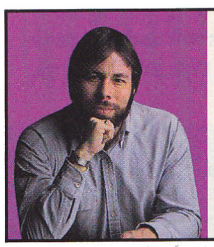
It's an experience you shouldn't miss. And with TransWarp, you won't have to. Because TransWarp will run your IIe or II+ software *3.6 times faster*—that's 40% faster than Apple's IIGS!

No more yawning while your Apple slowly rearranges text or calculates spreadsheets. With 256K of ultra-fast RAM on board, TransWarp speeds up *all* Apple software — including AppleWorks, and all educational software, graphics and games. And it's compatible with all standard peripheral cards (such as RamWorks III and Apple memory cards), hard disks, 3½" UniDisks, 80-column cards, modems, clock cards, mouses and more! You name it, TransWarp accelerates it.



"TransWarp is great! I have replaced all my other accelerators with it!"

Steve Wozniak, the creator of Apple Computer

An important difference.

With TransWarp, software runs up to three times faster than with other cards, since the others can't accelerate programs in auxiliary memory. That's why TransWarp is so much faster than the rest. Nearly all of today's more powerful programs run partially or completely in auxiliary memory: programs like AppleWorks, MultiScribe and Managing Your Money, to name a few. Why settle for a card that accelerates only part of the memory?

There's one more important difference. Since TransWarp doesn't use memory caching, you get consistent high speed performance.

A cinch to use.

Simply plug TransWarp into any slot in your Apple II, II+ or IIe — including slot 3 in the IIe. Instantly you'll be computing at speeds you only dreamed about before. And should you ever wish to run at normal speed, simply press the ESC key while turning your Apple on.

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Imagine the productivity gains you'll achieve when your programs are running over three times faster. TransWarp is so powerful, your Apple will make IBM PCs and even ATs look like slowpokes.

- 3.6 MHz 65C02
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TransWarp Accelerator $199

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is the predominant operating system.

Let's clear up a bit of confusion over terminology. The original release of the GS included a 16-bit version of ProDOS, ProDOS-16. That's why you may have seen the term *ProDOS-8* or *P8* used to differentiate the two versions. ProDOS-16 differed little from its 8-bit predecessor other than in its ability to execute GS-specific, 16-bit applications. If you have a GS and intend to use GS-specific applications—AppleWorks GS—for example, use GS/OS for its superior speed and efficiency. (See "GS/OS," November 1988, p. 56, for more information.) It's free from any authorized Apple dealer, or just $39.95 including documentation. (Throughout this article, the term *ProDOS* refers to the 8-bit version of the operating system.)

"HUNTING DOWN THE DATA YOU NEED SHOULDN'T BE AN ADVENTURE IN THE WILDERNESS."

You can use any one of a variety of operating systems and formats with your hard-disk drive besides ProDOS and GS/OS, including Apple's original DOS 3.3—but not with the same drive. (One manufacturer, First Class Peripherals, produces a drive that handles multiple formats—ProDOS, DOS 3.3, Pascal, and CP/M. See Part 2, April 1989, p. 47.) If your list of programs includes some based on an operating system other than ProDOS or GS/OS, you'll need a hard-disk drive and software that will accommodate it. Although we're focusing here on ProDOS, GS/OS, and related products, stay tuned even if you use some other operating system.

DIVIDING THE SPACE

Second on our list of hard facts is the issue of *partitioning*. The maximum size of an individual disk, or *volume*, that ProDOS or GS/OS can access is 32 megabytes. Hard-disk drives with larger capacities must be "partitioned" into two or more volumes.

ProDOS can access only two partitions on your hard disk, up to 32 megabytes each for a total of 64 megabytes. If you purchased a hard-disk drive for your GS that uses Apple's version of the small-computer-systems interface (SCSI), the System.Tools disk that accompanies GS/OS includes an advanced disk utility that lets you create up to seven partitions of 500K to 32 megabytes each in size. Careful, though: ProDOS applications—AppleWorks, for example—can access only the first two partitions, regardless of their size.

Some SCSI hard drives that don't adhere to the Apple standard come with fixed partitions, usually set by the interface hardware. Others let you select your own partition sizes by configuring that manufacturer's proprietary interface with hardware jumpers. Whether and how you partition your hard disk depends mostly on the software you'll be using—more on that later.

LOOK IT UP

One of the most attractive features of ProDOS and GS/OS is their hierarchical filing mechanism—an essential feature for users of hard-disk drives. First, your operating system establishes a volume's name and directory automatically when you format the volume (a floppy disk or a hard-disk partition). Then, rather than simply appending a filename to some long catalog list (DOS 3.3 users know all about that), ProDOS and GS/OS let you create *subdirectories* or *folders* in which you store additional subdirectories and, finally, your data files and programs. (How you create a subdirectory or folder varies with each application—check your program's documentation or on-screen help files.)

The volume directory can store a maximum of 51 files and subdirectory names. (Aha, so that's why I could store only 45K of AppleWorks files on my 800K disk!) You name your subdirectories when you create them; they can store as many other subdirectories and files as the disk's capacity permits. Volume and subdirectory names should be as descriptive as possible. Names such as "AppleWorks" or "Ltr.to.mom" are self-evident; "File.1" isn't.

Pathname is the term we use to describe the route leading through the volume and all subdirectories to your file. For example, you may have stored a word-processor file named "Ltr.to.mom" in the "Letters" subdirectory of the "AW.data" subdirectory on your "AppleWorks" volume. The pathname for that letter is /AppleWorks/AW.data/Letters/Ltr.to.mom. (Notice the slashes separating the directory names.)

This example is known as a "full" pathname—tedious to type, let alone remember. You can tell ProDOS and GS/OS to remember a common directory path, however, by using the *prefix* option. (The way you set a prefix also differs for each application; again, check your documentation.) A prefix is affixed to the beginning of a "partial" pathname. Hence, if you make the prefix /AppleWorks/AW.data, you can use the partial pathname Letters/Ltr.to.Mom (no initial slash) to access the same file specified by the full pathname in the example above.

Directories, prefixes, and pathnames are important concepts; make an effort to understand their use in each of your applications even if they're presented differently. The GS Finder, for example, uses graphics icons inside "windows" to symbolize folders and files. Other applications—AppleWorks, for example—present you with lists and text menus and sometimes force you to type in pathnames.

PRODUCT INFORMATION

Finder
Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
included on GS System Disk
(free from authorized Apple dealers)
$39.95
with documentation
Reader Service No. 312

Bird's Better Bye
Alan Bird
freeware available from
BBSes and user groups

MouseFiler
Harbor Software
403 Great Road
Suite 8
Acton, MA 01720
(508) 263-1870
$69.95
Reader Service No. 313

Whatever the individual interface, all ProDOS-and GS/OS-based applications and utilities let you create your own filing system so that you can arrange your programs or data logically and find them easily. You don't have to set up subdirectories, of course—but remember the numberless rooms in the John Hancock building?

BACK IT UP

Another fact of hard-disk life is the phenomenon of *fragmentation*. Over a period of time, after you've stored, erased, and re-stored data many times, you'll notice a significant increase in the time it takes to read from your disk or write to it. That's an effect of fragmentation—your data spread all over the disk (literally).

The cure is to regroup your data into a contiguous thread or stream via a special defragmentation (*optimizing*) utility, or by simply copying a backup of each file to a freshly formatted or erased hard-disk partition (file by file; don't "restore" the volume). Optimize whenever you begin to notice your hard drive's speed degrading. Or if you use your hard disk heavily, optimize it regularly—maybe as often as weekly—and back up your files at the same time.

Speaking of backups—if you seldom make duplicate copies of your floppy-disk files, shame on you. Worse yet, if you don't make a habit of backing up your hard-disk files, you're a disaster just waiting to happen. Almost all hard-disk owners also own a $5\frac{1}{4}$- or $3\frac{1}{2}$-inch drive. Why not simply save your data file to either drive after you're finished working with it?

In addition, a number of hard-disk-drive backup utility programs are also available, as well as hardware units such as cassette tapes. Some even come with the drive. Many users prefer to create a personalized system for backups—one or more 800K floppies per major application, for example. However you manage to back up your hard-disk files, just do it often.

READY TO SPIN

Ready to set up your drive? Follow the manufacturer's guidelines as you install the interface and connect the cables. IIc hard drives connect to the disk expansion port; in the II Plus, IIe, and IIGS slot 7 is the preferred interface location, particularly if you want your hard disk to be the "boot" (startup) drive. Other slot locations may interfere with your other devices, too. GS owners should update the control-panel slot assignment if necessary; and if you're using the Apple SCSI card (must be Revision C or later), run the Installer ►

JumpStart
Mainframe Software
255 Mitchell Road
Cape Elizabeth, ME 04107
$25
shareware

ProSel
Glen Bredon
521 State Street
Princeton, NJ 08540
$40

EasyDrive
Quality Computers
15102 Charlevoix Ave.
Grosse Pointe, MI 48230
(313) 885-4270
$69.95
Reader Service No. 311

Squirt, $8.50
Squirt-16, $20
Synesis Systems
P.O. Box 1308
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shareware

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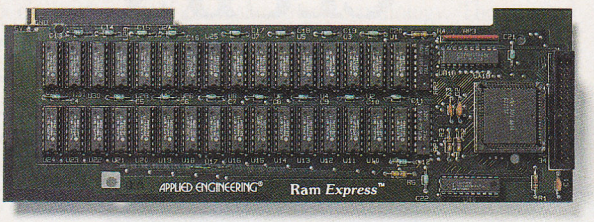

More than a memory card.

The IIc is a fine computer and Apple is rightfully proud of their new IIc Plus. With two operating speeds, a 65C02 processor and an internal 3.5 drive, the 128K computer has almost everything going for it. Almost.

We say 'almost' because for many software titles, 128K just won't cut it. That's why AE makes Ram Express™, the fully compatible memory card for the IIc Plus and original IIc's with memory expansion connectors. Available in user-upgradeable 256K, 512K and 1 MEG sizes, Ram Express adds the memory you need, and a whole lot more.

AppleWorks Enhancement

With Ram Express, AppleWorks word processor lines rocket from 7,250 to more than 22,500 and the maximum number of records zooms from 6,350 to more than 22,500! Ram Express even expands the clipboard and automatically segments large files so they can be saved on two or more disks. And with Ram Express you'll run AppleWorks 10 times faster with one disk drive than an ordinary IIc could with two disk drives.

Ram Express is also a high speed, solid-state disk drive, loading and saving your programs more than 20 times faster. Copy a disk in one pass by simply inserting and removing the original, and inserting a blank disk.

And installation in the IIc Plus is easier than ever. Remove six screws from the cover, lift the keyboard, plug Ram Express into the connector and start enjoying a world of software titles you couldn't touch with 128K.

Optional Clock

Ram Express's optional clock displays the time and date on screens and automatically time and date stamps AppleWorks files. The clock option is even compatible with Apple's memory card for the IIc.

Ram Express w/256K	**$249**
Ram Express w/512K	**$399**
Ram Express w/1 MEG	**$699**
Clock Option	**$59**

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program on the GS/OS System.Tools disk to add its driver to the operating system.

Many hard-disk drives for the Apple II come preformatted for ProDOS or GS/OS and may include special hard-disk utilities. Such drives are often referred to as "plug and go." The convenience a system like that offers, however, is fleeting. You'll probably want to alter its configuration to suit your individual needs, particularly if you're using an Apple IIGS.

You can use any of several utilities to format each hard-drive partition. GS owners should use the advanced disk utility found on the System.Tools disk to format a hard drive under GS/OS. If your system is also Apple-SCSI-based, you need to decide the number and sizes of your partitions while formatting. Reformatting one partition later shouldn't affect the programs and data on another, but changing the partitioning will.

For your II Plus, IIe, IIc, or IIc Plus, use the Filer program found on the ProDOS User's Disk, or some other similar utility, to erase or format a hard-disk drive.

Most users will want to boot their Apple II from the hard drive; the speed and ease with which you can do that justifies almost by itself the expense of the hard drive.

Configuring your hard disk as the boot device requires copying certain system files to the *first* partition. The particular files and programs you need vary with the model you own and the way you use it, however.

If you own an 8-bit Apple and use only one or two applications, configuration's pretty simple: Just copy ProDOS and your applications' .System and support files to the hard-disk partition you designate as drive 1. The first .System file in the volume's directory is the one the machine will load and execute on bootup.

If you own a GS and intend to dedicate your hard drive to just one application—AppleWorks GS, for example—the procedure's simple: Just copy the application's disk to the hard drive.

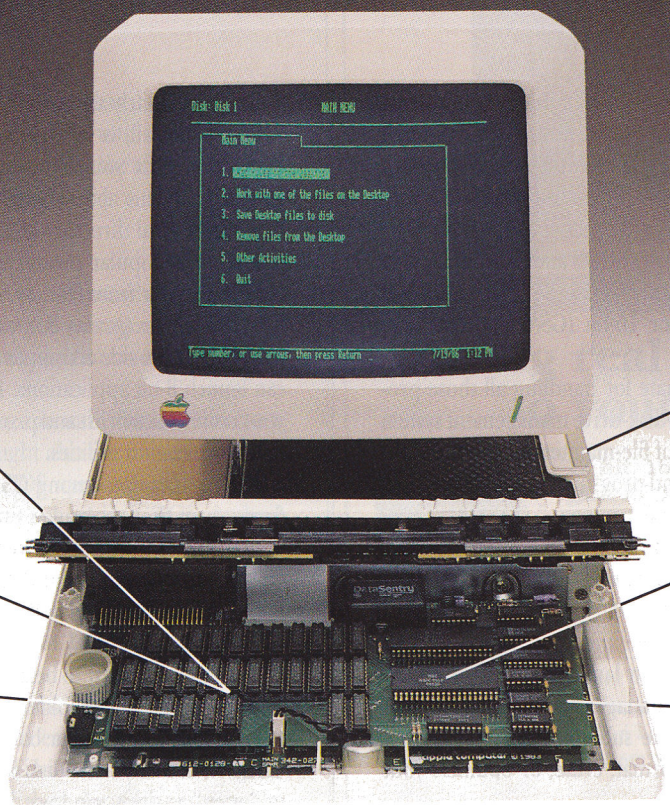
For more than one application, you need to do a little work to create a boot volume. First, copy ProDOS and the System folder from your GS System Disk (GS/OS). Rename or delete the file named Start in the System folder (that's the Finder program, which we'll discuss in a moment), then copy your applications and their support files to the volume directory of that same partition. The application you copy first will be the one the machine loads and executes immediately on bootup.

LAUNCHERS AND MANAGERS

Few Apple II owners have purchased their hard-disk drives to store just one or two applications and supporting data. Switching among several programs stored on a hard-disk drive, however, can be a nightmare unless you use a *program launcher* or, better yet, a full-blown *program manager*.

ProDOS and GS/OS contain what's known as *quit protocol*. When an application finishes, it lets Quit take control; it either loads and executes ("launches") another application automatically as specified by the last program, or it asks you to select the next application to launch. For the latter operation, Apple's own quit code is quite inadequate: You're expected to remember the full pathname of your next application and type it in perfectly.

A number of programmers, however, have improved Apple's quit ►



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routines. The most popular products are **Bird's Better Bye** by Alan Bird and **Squirt** and **Squirt-16** by Stephen Stevenson. By supplanting Apple's quit code, these program launchers automatically produce catalog listings of the current path and let you find and select with a single keystroke the next application to execute or launch.

Bird's Better Bye and Squirt modify ProDOS and can launch only 8-bit (ProDOS) applications or programs. Use Squirt-16 to select and launch either 8-bit (ProDOS) or 16-bit (GS/OS, GS-specific) programs.

Quit launchers aren't really adequate for handling all those programs, though. Invest in a good hard-disk-drive management system instead. Managers provide a variety of file-maintenance utilities and even some hard-drive-specific tools and program launchers, all packaged into a user-friendly, efficient "environment." (See the accompanying **Table** for more information.)

Management systems are most efficient when installed as the boot application. Accordingly, the manager will be the first program launched when you turn on your Apple and boot from the hard-disk drive. When an application originally launched from a manager finishes, the system will return to the manager for the next selection. And you can use a manager to create subdirectories; to rename, delete, and copy your files; and to format, erase, or optimize your hard disk.

One particularly attractive feature of several management systems, although not all, is the *launch list*, composed of the pathnames of the applications you use most often. You select the program for launch from this abbreviated list of files rather than search for its name in several directory catalogs.

The most popular products for ProDOS-based hard-disk drives are **MouseFiler** from Harbor Software, **ProSel** by Glen Bredon, and **EasyDrive** from Quality Software. (EasyDrive is also compatible with GS/OS.) All provide a complete set of file-maintenance utilities and can launch 8-bit applications. In addition, ProSel and EasyDrive let you create a launch list and provide hard-disk backup and restoration and optimization utilities.

The competition among GS (GS/OS) file-management systems is fierce, even though Apple's own **Finder** (named Start in the GS/OS System Disk's System subdirectory) comes with new GSes and can be obtained free from any Apple dealer. All of these contenders launch ProDOS and GS/OS applications and include sophisticated file-maintenance tools.

The Finder is hard to beat with its "human engineered" graphics renditions of file and folder (subdirectory) icons, sizable windows, alert buttons, and menu bars, all selected and manipulated via a mouse. But many hard-disk owners are annoyed by the time it takes to "open" various windows, then locate and finally launch an ap-

	Machine	Minimum RAM	Interface	Launcher	File Maintenance	Hard-Disk Maintenance	Addn'l Features
Bird's Better Bye	II	64K	T	8	—	—	—
Squirt	II	64K	T	8	—	—	—
MouseFiler	II	128K	M	8,ML,B	Y	—	—
ProSel	II	128K	T	L,8	Y	BU,O,R	S
EasyDrive	II, GS	128K	M	L,8,16,B	Y	BU,O,R	PO
Squirt-16	GS	256K	T	L,8,16,ML,B,E	—	—	H
JumpStart	GS	256K	M	L,8,16,ML,B,E	Y	—	BS,TF,PO
Finder	GS	512K	G,M	8,16,B	Y	BU,P*	PO

KEY

8 = 8-bit (ProDOS-8) system applications
16 = 16-bit (ProDOS-16) system applications
B = Applesoft BASIC programs
BS = user-selected boot slot
BU = volume backup
E = EXECutable text files
G = graphics display of directory and file icons
GS = Apple IIGS GS/OS, System Version 4.0; all Apple II products run on GS in emulation (8-bit) mode
H = help screens
II = any 8-bit ProDOS-compatible Apple II (II Plus, IIe, IIc, II Plus)
K = kilobytes
L = user-edited list of programs
M = text or graphics display, mouse-activated pull-down menus
ML = ProDOS-8 machine-language programs
O = optimizer (defragmentizer)
P = partitioning
P* = partitioning utilities for Apple SCSI, found only on GS/OS System Tools disk
PO = individualized preferences for program operation
R = restore volume
S = file-directory sorter
T = text display, single-keystroke options
TF = text-file reader
Y = supports common set of volume and file-maintenance operations, including format, erase, catalog, copy, delete, rename, create directory, and so on

Table. Comparing popular ProDOS and GS/OS program launchers and file-management systems.

plication with the Finder. EasyDrive (Quality Software) and **JumpStart** from Mainframe Software dispense with icons and windows and use fast, efficient text menus, including the aforementioned launch list not available with the Finder.

ORGANIZING YOUR FILES

Now that you've formatted and partitioned your hard-disk drive and installed the disk-operating system and manager, you're ready to copy your applications. And now is a good time to organize those files in some rational manner.

The most common method is to create an individual subdirectory or folder for each application. You might also use individual partitions for just one or two major ProDOS applications, or if your Apple-SCSI drive allows multiple partitions under GS/OS. And, to save some additional storage space, you needn't copy all files from an application's original disk to your hard disk. Except as needed for the boot application, ProDOS and BASIC.System in ProDOS-based products, as well as the System and Icon folders in GS/OS products, can be discarded.

Within each application folder or partition, then, you should create data-specific subdirectories, as discussed earlier in this article. For example, you might create Letters and Finances folders to hold your AppleWorks word-processor and spreadsheet data files, respectively.

Note that fragmentation occurs only within each partition on your hard-disk drive. Accordingly, if you have more than one partition, it's most convenient to reserve the boot volume for your applications' folders, which are seldom modified, and the other partitions for similarly named data files and subdirectories, which you edit often. You'll need to back up and optimize only the data partition then.

Beyond backing up and optimizing your hard-disk files, you should also take inventory regularly. Create new subdirectory categories for your files when they become cluttered with diverse titles. Archive (store on floppies) the files you don't expect to use again in the near future and remove them from the hard disk. Reorganize your filing structure periodically to suit your current needs.

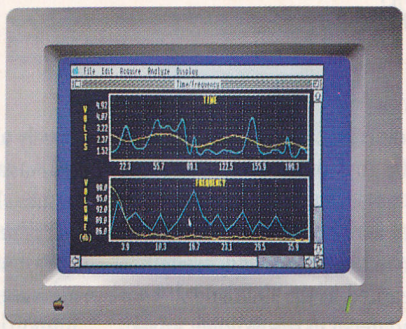
A badly maintained hard disk, much like unattended filing cabinets in an active business, can fill quickly with useless, jumbled files. Hunting down the data you need shouldn't be an adventure in the wilderness. Organization is the key to a hard drive's unique benefits: If you know where you're headed, you'll be able to take full advantage of the speed, space, and convenience no other storage device can match.

BYE

Wipe your brow—all that hard driving can be exhausting. But before you retire for the night, be sure to "park" your hard disk. Parking puts the hard-disk drive's read/write heads to rest in a protective place on the disk, often track zero. (See the figure in Part 1, March 1989, p. 48.) You're assured, then, that when the heads "bounce" as the power is turned off and back on again, they won't "crash" into the disk and damage the media.

Various drives offer the park function as either a special application, built in when you power down your system, or as a "shut down" option on the GS Finder's Special submenu; check your hard-disk documentation for details.

Drive heads resting? Now you can, too.□



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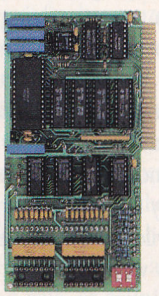

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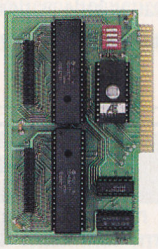

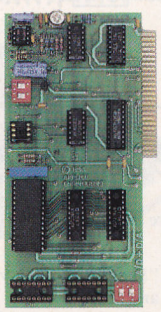

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Continued from p. 38

an anthill and describes the right way to track and monitor the ants' movements. You'd use many of those same techniques in monitoring the movements and behavior of the grizzly bear. The exercises reinforce and strengthen the concepts learned in the simulation.

The color and detail in this Wildlife Adventures program are excellent. While the somewhat-animated graphics of people talking left me a little cool, they didn't bother my 7- and 9-year-old helpers. The program worked smoothly in all areas, with one exception: It didn't recognize my pressing the mouse button as a carriage return when I entered a numerical response. It did, however, recognize the mouse button as a return when going from one screen to the next.

I also take issue with the stereotypical oil-company president presented here who speaks of the way "we kept the government and the public happy by disrupting grizzly habitat as little as possible." Let's credit those executives who view the well-being of the grizzly as their primary concern instead.

I was also annoyed by the misuse of scientific names. Bacon grease, for example, is called "Trashus fattus"; garbage is referred to as "Trashus vulgaris"; and piles of deer entrails are called "Trashus foulis." This attempt at humor is out of place.

Don't look to this program for flashy animated graphics of grizzlies in action. It's not there. What Grizzly Bears does offer is a credible program that presents factual information in an entertaining way. It's an excellent tool for teaching conservation.

Without a doubt, the Audubon Wildlife Adventures series will help both children and adults learn more about the world we share, and grow more aware of the problems faced by the grizzly bear and many other species of wildlife. The more we know, the less likely it is we'll be caught sleeping while the grizzly disappears.

Jerry D. Greer
Park City, UT

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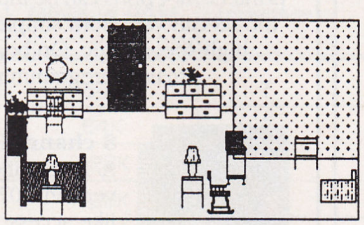

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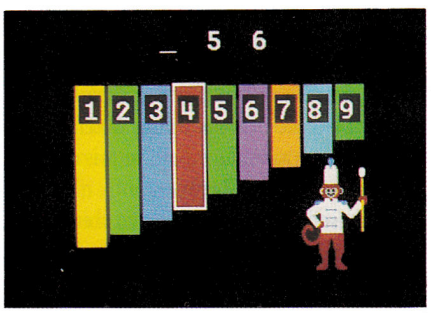

TALKING MATH AND ME

* * * * * *

DAVIDSON AND ASSOCIATES,
3135 Kashiwa St., Torrance, CA 90505,
(800) 556-6141, (213) 534-2250

Talking math program for children;
512K Apple IIGS; ROM version 01,
3½-inch drive; printer optional; $49.95

Rating: ❖ ❖ ❖ ❖

Talking Math and Me makes learning fun—and that's the best way to grab a child's attention. Davidson's new edition of Math and Me uses digitized speech and the powerful sound qualities of the GS' Ensoniq chip to teach math-readiness skills; graphics are sharper and more colorful, too. Style of presentation, activities, and the programs' *User's Guides* are virtually identical, though. The manual for the GS version contains an addendum specifying system requirements and instructions for printer configuration; the package also includes a 12-page coloring book summarizing program contents.

Using playful circus monkeys to convey math basics in an entertaining way, Talking Math teaches such concepts as shape recognition, more and less, number sequence, and addition. Colorful graphics, animation, and sound motivate kids to learn the facts; Talking Math will make a young child's early math experience as pleasurable as it is challenging.

HEARING IS BELIEVING

How can speech synthesis improve an already-successful product? The program's human-like voice involves yet another of the child's senses in the learning process; children learn faster when they can associate the spoken word with numbers on screen. Positive verbal reinforcement personalizes the computer ex-

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perience, too, and makes kids eager to try new activities.

Aside from the advantages of speech, Talking Math also gives youngsters control over their environment. Kids get to choose whether the voice will be that of a woman or a girl; they also choose program activities and whether they want to use the keyboard or a mouse. Davidson's "early-learner interface" simplifies program operation. Big, colorful icons promote independence; even the youngest preschoolers will have no trouble moving among subject areas, making activity selections, and solving problems on their own. If they opt for a mouse, all they have to do is point and click on an icon or a number to select it. If they use the keyboard, the arrow keys move the cursor, while the spacebar or return key makes selections. Often kids can press the actual number on the keyboard to register the answer.

Students who complete at least one activity can print a personalized "certificate of excellence." Giving young children this much influence over the computer fosters a sense of mastery, while making them more receptive to learning basic math skills.

PICK A SUBJECT

Talking Math focuses on four subject areas—Shapes, Numbers, Patterns, and Addition. Each offers three game activities.

Subjects and games are sequential—each builds on math facts learned in previous activities. Children don't have to do them in sequence, but they should probably begin with the easiest tasks the first time they experiment with the program.

SHAPES AND NUMBERS

In Shapes, the child learns about circles, triangles, squares, and rectangles. The first activity draws a shape on screen, shows the written word beside the graphic, and pronounces the shape's name. Then three familiar objects that incorporate that shape appear on screen; the child must determine which of four shapes is shown.

If the child answers correctly, he or she receives positive audiovisual reinforcement and the computer repeats the name of the object. An incorrect answer yields a "try again" message (both verbal and written). The computer gives the answer if the child responds incorrectly on a second attempt.

The second Shapes activity presents a single shape at the top of the screen and four hot-air balloons with differently colored monkeys as pilots. Each balloon contains a picture of a different shape. The child must match the shape at the top of the screen with its mate in one of the balloons. When an answer is correct, the balloon rises to the top of the screen, the monkey waves as the balloon rises, and the computer repeats the shape's name.

The third Shapes game is also a matching activity. This time players match shape size rather than shape type. The computer offers no verbal reinforcement in this activity.

To play the first Numbers game, the child must match an object or set of objects with the correct number. This gives them practice counting from 1 to 9. The child hears the number of the object spoken and sees the number briefly on screen. He or she looks at the number's word form as a clue, or counts the number of objects on screen to figure out the answer.

The second Numbers game asks the child to count the objects at the top of the screen, then click on the hot-air balloon showing that number. If the child answers correctly, he or she receives audiovisual reinforcement and hears the number spoken.

In the third Numbers game, the child tries to determine the number of balloons in a mystery box; he or she may guess any number from one to nine. After the first guess, the program gives a verbal "more than" or "less than" clue. Then the child guesses again with the clue in mind. After every guess the child receives another clue.

When he or she gets the correct answer, a monkey turns the crank on the organ box to play *Pop Goes the Weasel*. At the end of the music, the specified number of colorful balloons pop out.

FILL IN THE BLANK

The first game in the Patterns sequence requires completion of a sequence of alternating►

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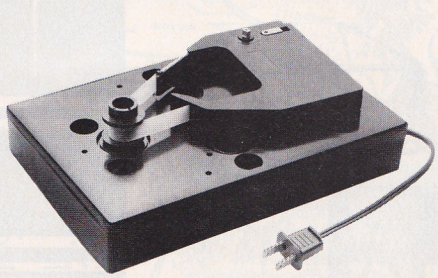

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objects. The sequence is missing one item, and four possible choices are presented at the bottom of the screen. Correct answers receive audiovisual reinforcement but no verbal support.

In the second Patterns activity, the child must enter the missing number to complete a three-number sequence. Visual clues provide assistance.

If correct, the computer offers verbal reinforcement by repeating the number sequence, in addition to music and colorful animation.

The last Patterns game is quite similar to the second, but this time there's no visual clue and the child must complete a sequence consisting of four numbers instead of three.

As an extra challenge, the numbers may be arranged in increasing or decreasing order, with the missing item at either the beginning or the end.

Four balloons, each containing a possible solution, rest at the bottom of the screen. If the child picks the right balloon, it rises to the top of the screen with musical accompaniment and verbal reinforcement.

ADD IT UP

The final subject area gives kids practice in addition. Game 1 presents two sets of objects. The child determines the correct sum (never more than nine) by counting the objects, then selecting the answer from four choices at the bottom of the screen. If the answer's correct, a cute monkey pops up, accompanied by music; the objects become numerals, and the computer repeats the equation verbally.

In the second Addition game, the child must solve a numerical equation without counting. If he or she determines the correct answer on the first try, the monkey lifts a barbell, a tune plays, and the computer repeats the equation verbally. Nothing will happen, however, until children select the correct answer.

Timing makes the third Addition game by far the most difficult. It challenges the child to solve an equation before four hot-air balloons rise to the top of the screen.

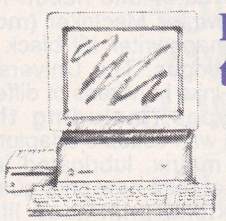
If he or she chooses the correct answer on the first try, the balloons stop rising and the computer recites the equation. Then the balloon containing the correct answer sails to the top of the screen amidst a musical flourish, while the monkey riding in the balloon waves. If students answer incorrectly on the second try, the computer gives them the answer.

Talking Math is a terrific program for the development of basic math skills. Kids practice recognizing shapes while learning values from one to nine. The program encourages math competence in a friendly environment.

The software could use some sort of recordkeeping system that would let teachers and parents monitor performance. It would also be nice to see a sequel emphasizing subtraction. In the meantime, Talking Math and Me is one of those programs no early-education software library should be without.□

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

New! EasyDrive 1.5 ™



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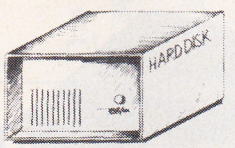

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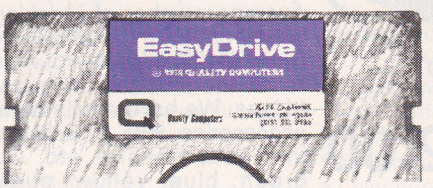

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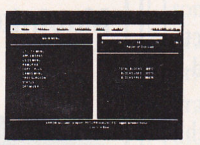

The Menu System will help you quickly launch and organize your most frequently used programs.

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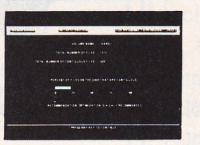

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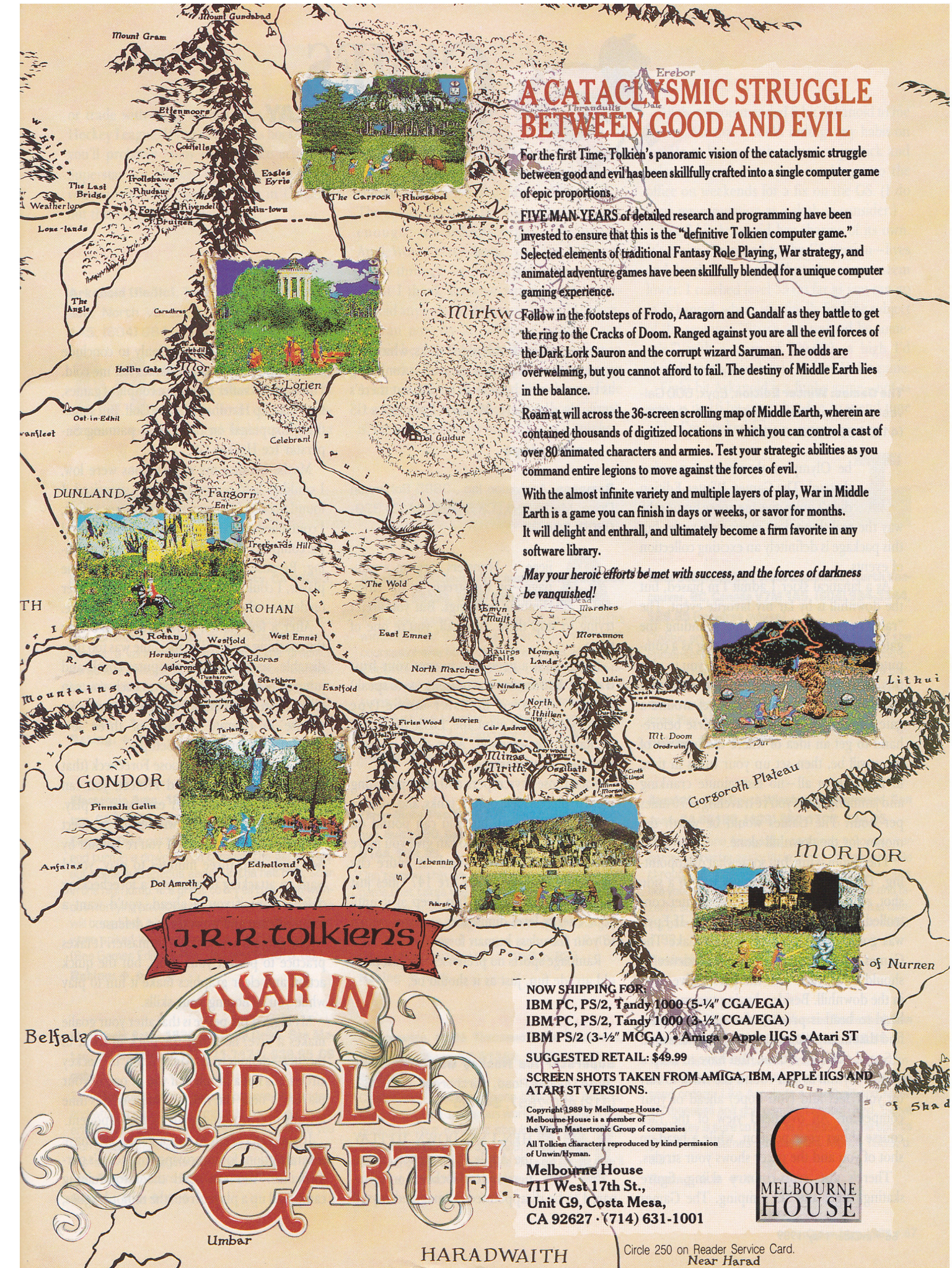

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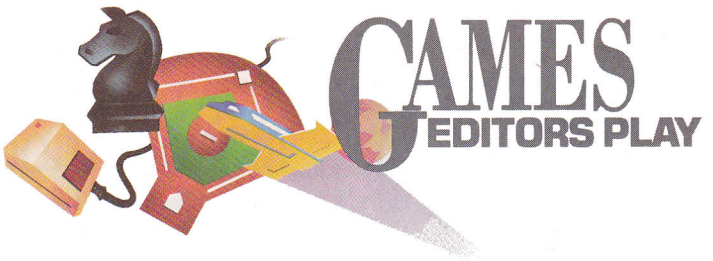

LAFE LOW PLAYS . . .

The Games: Winter Edition, Epyx, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606, $49.95

The Olympian theme song running through The Games: Winter Edition didn't quite give me goose bumps the way the real thing does every four years, but this package is definitely an exciting collection of events.

As a fanatical skier I admit I'm biased, but the downhill is by far my favorite event. The "racer's-eye view" of ski tips rounding the gates comes as close to actual racing as a computer game possibly could. (I defy you to play this game without leaning in your chair in a futile attempt to help your skis get around a gate.) You've got to study the course beforehand to get an idea of where the next set of gates will be, then set up your turns in time to make them all—no last-minute cranking and jamming when you're traveling at 70 miles per hour. The Games would be worth the money for the downhill alone.

The slalom is fun, but somewhat disappointing. The racer's-eye view gives way to a side shot, as you compete against a computer-controlled pacer on an adjacent course. If Epyx was going to so much trouble to make The Games an accurate Olympian experience, it should have stuck with the perspective used in the downhill. Besides, having two racers go head to head is pro-race format—you won't find that in any World Cup or Olympics event.

Speed skating's a blast. You have to keep a steady rhythm as you round the track to stay on your feet and (you hope) ahead of your competitor. An overhead view of the race course shows your position, while a head-on shot of you and the pacer shows your strides.

There's also cross-country skiing, figure skating, luge, and ski jumping. The Games comes on three double-sided disks, which can sometimes make playing them all as confusing as trying to watch them all on TV, but there's certainly a lot there. Maybe if Epyx did a GS version. . . .

. . . and plays . . .

Rampage, Activision Inc., 3885 Bohannon Drive, Menlo Park, CA 94025, (415) 329-0800, $34.95

Aiieee. . . . Monsters are on a rampage—on the streets, in the cities, climbing buildings. But you aren't trying to stop them. After all, you're one of them.

Rampage is a good way to vent your frustrations. You assume the persona (so to speak) of one of three monster-movie-type stars—George the giant ape, Lizzie the lizard, or Ralph the werewolf. After that, it's simple—just start smashing.

Scale those skyscrapers and start punching them to pieces. Helicopters, tanks, and soldiers will try to stop you, but you can pound on them, too. In fact, doing so can give you more energy. When you've leveled an entire city block, don't worry—there are 147 cities just waiting to be trampled. Just keep at it until your energy level diminishes and you return to your harmless human form.

Rampage sports no pretenses. It's just plain old arcade fun, just as it should be.

DAN MUSE PLAYS . . .

Superstar Ice Hockey GS, Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, $44.95

WHEN I SAT DOWN TO PLAY the Apple IIGS version of Superstar Ice Hockey, I was prepared to be disappointed. I imagined myself going through the motions only to conclude that computer ice-hockey games left me cold. I thought I'd suffer through a couple of games, then boot up Hardball or Zany Golf. But something happened on the way to panning Superstar Ice Hockey GS.

Maybe because my expectations were low, I couldn't help but be pleasantly surprised. I found myself playing game after game. At first, I controlled only one player—the center—and the computer handled goal-tending and coaching. Because I was accountable for only one player, I could rely on my teammates to cover on defense when I was caught too far up the ice.

After a few games, I decided to take over the coaching duties. The machine was too predictable, so I fired the computer-coach and jumped behind the bench. As coach you can select from three lines; you can also set your offense to operate on any of three levels—Attack, Normal, and Setup.

On defense, you can choose Forecheck (that is, pressure), Normal, and Protect; you can change your strategy after each stop in play. Your status in the game will obviously affect your coaching decisions. If you're behind by two goals with three minutes to play, you'd want an attacking offense and a forechecking defense. But if you're ahead, you'd want a setup offense and a protecting defense.

The game is a little tricky to master. It takes practice to perfect your shots, but the quick action and clear graphics make it fun to play while you're honing your skills.

My biggest pet peeve is that after your goalie makes a save, he drops the puck in front of the net—definitely frowned upon in hockey circles. It's not a problem if you or one of your players is near the net, but most of the time it leads to frustrating goals by the opponent.

If you can't seem to win a game, you have several options for improving your team's performance. You can send them to training camp, call up a player from the minor leagues,

or trade with other teams in the SuperTime Hockey League. If you're a serious hockey fan, you'll probably enjoy these off-ice activities. Superstar Ice Hockey probably won't make you want to miss Hockey Night in Canada, but this GS game is fast and fun.

Paul Statt Plays . . .

Arkanoid (IIe/IIc), Taito, 267 West Esplanade, North Vancouver, BC, Canada V7M 1A5, (604) 984-3344, $29.95

My life was empty and meaningless until I found Arkanoid. It has given form to my existence—to my dreams and nightmares. It's a good thing, too, because it has all but cost me my job.

The 8-bit version of Arkanoid doesn't resemble the arcade game as much as the 16-bit edition does (reviewed in March 1989, p. 82). The colors are dull; the lasers don't fire fast enough; the sounds remind me of the AppleWorks error beep; and the balls roll slowly through "space warped by someone."

But I thank Taito for writing an 8-bit Arkanoid anyway—first because IIe and IIc owners can now try an addictive pastime, and second because I could tell *inCider*'s editor in chief why I spent a second month playing Arkanoid instead of writing: "I'm doing a little research for Games Editors Play, boss." Truth is, there's a mouse on my back, not a monkey.

All that recommended 8-bit Arkanoid to me at first was that I could indulge my habit on my IIe at home (with mouse or joystick and color monitor) instead of sneaking into the office on weekends for a fix on the GS. (I do have my reputation as a sloth to consider.)

But 8-bit Arkanoid has charms of its own. It's easier compared to the GS version—lives and levels are cheap—but the scores seem lower. I reached level 33 (as far as you can go in Arkanoid, where you finally find the subject of the sentence "Space was warped by someone.") with a score of 600,000—a high I'd already reached on level 11 of the 16-bit game.

Eight-bit Arkanoid is a funky game—not as sexy as its 16-bit sister, but fun to spend time with. I'm hooked. □

Short Takes

Sub Battle Simulator

Epyx, P.O. Box 8020, Redwood City, CA 94063, (415) 366-0606, $49.95

Sub Battle Simulator is historically accurate—you can command a German or American submarine against a variety of enemies—and the graphics screens are fantastic. It won't sink Silent Service, but it's sure to attract a whole new fleet of recruits. (See Games Editors Play, December 1988, p. 116.)

Rating: ❖ ❖ ❖

Skate or Die

Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, $39.95

Skate or Die's got all the "rad" happenings—twist and turn in a downhill run through the park, crank out some outrageous aerials in the half pipe, soar in the high jump. It's great to try all this stuff without worrying about losing your knees. Skate or Die will bring back a lot of memories—even if you never wore spiked leather gloves or a fuchsia mohawk. (See Games Editors Play, January 1989, p. 88.)

Rating: ❖ ❖ ❖ ❖

Zany Golf

Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, $39.95 GS only

Zany Golf adds garish colors, bizarre challenges, and whacky music to a game that requires considerable skill. The mouse interface is so simple you won't need instructions; the action's fast, too. It's silly, fun, imaginative, and accessible to all. (See Games Editors Play, January 1989, p. 89.)

Rating: ❖ ❖ ❖ ❖ ❖

Mini-Putt

Accolade, 550 South Winchester Boulevard, San Jose, CA 95128, (408) 985-1700, $39.95

To the best putter go the spoils, not to mention the windmills and elephants, over four minimalist courses of nine holes each. It's not as whacky as Electronic Arts' Zany Golf; it's played on a two-dimensional map without the labyrinthine twists and turns. Music and animation are also missing, but Mini-Putt's a tougher athletic challenge. (See Games Editors Play, February 1989, p. 90.)

Rating: ❖ ❖ ❖

Warlock GS

Three-Sixty Pacific, 2105 South Bascom Avenue, Suite 290, Campbell, CA 95008, (408) 879-9144, $39.95

Don't worry, this isn't another fantasy role-playing game that takes the better part of a year to complete. This is fast-moving arcade-type action, with a bit of mystical magic mixed in—all-around good fun. Let us know if you get past level 12. (See Games Editors Play, March 1989, p. 82.)

Rating: ❖ ❖ ❖

King of Chicago

Cinemaware, 4165 Thousand Oaks Boulevard, Westlake Village, CA 91362, (805) 495-6515, $49.95

Cinemaware's latest release brings you back to the exciting and dangerous world of gangsters and gunfights—but maybe it should have been called King of Wall Street circa 1929, because all the review copy we received could do was crash. We'll keep you posted as it develops.

Arkanoid GS

Taito Software, 267 West Esplanade, North Vancouver, BC, Canada V7M 1A5, (604) 984-3344, $29.95 (requires mouse)

Classic arcade action—this GS conversion of the immensely popular arcade game looks as good or better than the games you've played in pizza parlors and video arcades. You better buy this one—you'll save a lot in quarters. (See Games Editors Play, March 1989, p. 83.)

Rating: ❖ ❖ ❖ ❖ ❖

Bubble Ghost GS

Accolade, 550 South Winchester Boulevard, San Jose, CA 95128, (408) 985-1700, $34.95

Casper's gone from kids' cartoons to computer games. Direct a pesky little ghost to blow a bubble throughout a series of maze-like rooms that look like your worst nightmare. Terrific graphics and bizarre sound effects add to this unique, entertaining game. (See Games Editors Play, March 1989, p. 82.)

Rating: ❖ ❖ ❖

Serve and Volley GS

Accolade, 550 South Winchester Boulevard, San Jose, CA 95128, (408) 985-1700, $39.95

This is the stuff real tennis is made of—precise timing, absolute concentration, even line judges and seed orders. Like Accolade's Hardball! and Mean 18 (baseball and golf games, respectively), Serve and Volley is sure to become a classic in the sports genre. (See Games Editors Play, March 1989, p. 83.)

Rating: ❖ ❖ ❖ ❖

BORROWED TIME

Can you afford that long-awaited purchase? An AppleWorks spreadsheet calculates your monthly loan payments, so you'll know how much money to set aside.

By RUTH K. WITKIN

LAST MONTH YOU CREATED A spreadsheet ("Cashing In," April 1989, p. 68) that shows you how invested money can grow over time. In this session, you get to see the other side of the coin—how much borrowed money can cost you.

People borrow money for all kinds of reasons, among them to start or expand a business, embark on a vacation, buy big-ticket items such as a house or a car, maintain or enhance what they already own, or make an intelligent investment.

Suppose you're shopping for a loan to buy the home of your dreams. Most loans of this kind are amortized over 20 or 30 years. Amortization calls for periodic payments of principal and interest in equal installments sufficient to retire the debt at maturity. This lets you repay the loan gradually over its life instead of having it fall due all at once.

The spreadsheet in **Figure 1** lets you explore a multitude of loan options. You need to make only four entries—purchase price, down-payment percentage, fixed interest rate, and term. The formulas produce the monthly loan payment; total loan payment; month numbers; interest paid, principal paid, and principal remaining each month for the first three years of the loan; and payment to date in any of those months.

Because many readers have AppleWorks-desktop constraints (a function of computer memory), this spreadsheet handles terms of up to 36 months. Next month, you'll learn how to expand it to calculate terms of up to 30 years, no matter how small your desktop.

A SPREADSHEET FROM SCRATCH

Load the AppleWorks program, and make a new file for the spreadsheet. Name the file **LOAN**. You should now see the spreadsheet Review/Add/Change screen with the cursor on A1. Use the following summary to get the spreadsheet started:

Long lines. Enter a double line across row 2 in columns A through E. Place the cursor on A2 and type quotation marks. Hold down the equal-sign key until the sign reaches the right edge of E2, and hit Return.

Leave the cursor on A2 and copy the row to the clipboard. Press OA-C to start the Copy command. Type **T** to select *To clipboard*, and press Return.

Now copy the row containing the line into row 12. Place the cursor on A12. Press OA-C and type **F** to select *From clipboard*.

Next, enter a single line across row 15 in columns A through E. Place the cursor on A15 and type quotation marks. Hold down the minus-sign key until the sign reaches the right edge of E15, and hit Return.

Column width. Each column is now nine characters wide. Use the Layout command (OA-L), *Columns*, and *Column width* to increase the width of columns B and C to 15 characters each and columns D and E to 17 characters each.

Labels and numbers. Enter all labels and numbers shown in **Figure 2**. In A14 (Number), B14 (Portion), and C14 (Portion), press the spacebar once *after* typing the label. When you right-justify these labels, this neat little technique positions them nicely relative to the labels in row 13.

After you type an entry, don't bother to press Return. Instead, move the cursor to the next cell that will contain an entry, and, after you type the last entry, hit Return. This saves you keystrokes.

Formats. Use the Value command (OA-V) to set a standard *Value format* of *Commas* with two decimal places. Use the Layout command (OA-L) to reformat the following cells for commas with zero decimal places: C3 (purchase price), C5 (down-payment dollars), C6 (amount of loan), C8 (terms in years), and A16 and A17 (month numbers). The formula you'll soon enter in A17 and duplicate down column A will copy the commas format to the other month numbers.

Use OA-L and *Rows* to right-justify all headings in rows 13 and 14. Now press OA-S to store all your work on disk.

ENTERING FORMULAS

Next, enter the formulas that perform your calculations. First read how the formula works. Then place the cursor on the cell receiving the formula. Move the cursor to the cell locations shown in the formula and type everything else.

When the formula is complete, compare each character on your screen with the way it appears here. If everything agrees, press Return. If something's amiss, press Escape and start again.

After you enter a formula, compare your result with the one in **Figure 1**. ►

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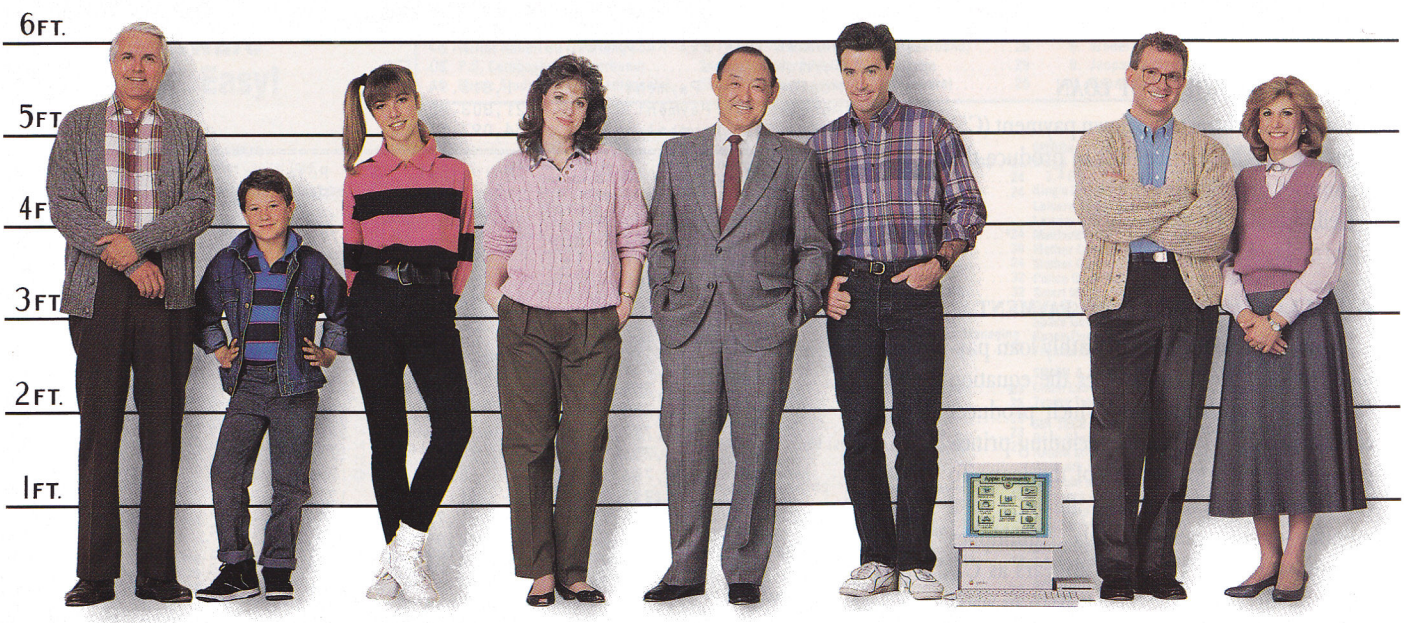

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FORMULA 1: DOWN-PAYMENT DOLLARS

Formula 1 multiplies the purchase price (C3) by the down-payment percentage (C4) to produce the amount of the down payment in C5.

Cell location: C5

Formula: +C3*C4/100

FORMULA 2: AMOUNT OF LOAN

Formula 2 subtracts the down payment (C5) from the purchase price (C3) to produce the amount of the loan in C6.

Cell location: C6

Formula: +C3−C5

FORMULA 3: MONTHLY LOAN PAYMENT

Formula 3 calculates the monthly loan payment in C9. The formula uses the equation *Payment = Loan*Rate^Term*, which produces equal monthly installments, including principal and interest, for the life of the loan. To convert the annual interest rate (C7) to a monthly interest rate, Formula 3 multiplies the annual rate by 12, which appears as C7/(100*12). To convert the term (C8) from years to months, it multiplies the term by 12, which appears as C8*12.

Cell location: C9

Formula: +C6*C7/(100*12)/(1−(1+(C7/(100*12))^(−C8*12)))

FORMULA 4: ANNUAL LOAN PAYMENT

Formula 4 multiplies the monthly loan payment (C9) by 12 to produce the annual loan payment in C10.

Cell location: C10

Formula: +C9*12

FORMULA 5: TOTAL LOAN PAYMENT

Formula 5 multiplies the annual loan payment (C10) by the term in years (C8) to produce the total loan payment in C11.

Cell location: C11

Formula: +C10*C8

FORMULA 6: MONTH NUMBERS

Formula 6 adds 1 to the number in the cell above it (A16) to produce the sequence of month numbers in column A.

Cell location: A17

Formula: 1+A16

FORMULA 7: INTEREST IN MONTH 1

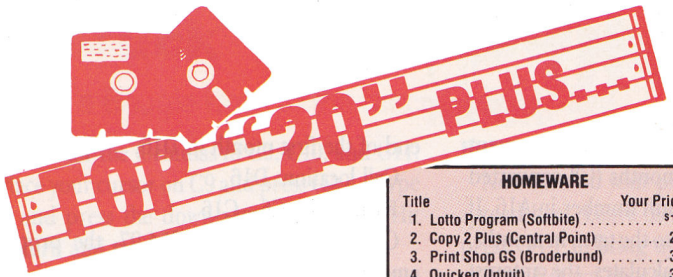
Formula 7 multiplies the amount of the loan (C6) by the monthly interest rate (annual in- ►

Figure 1. Spreadsheet calculating cost of a loan.

	A	B	C	D	E
1			LOAN AMORTIZATION SCHEDULE		
2					
3		Purchase Price	225,000		
4		Down Payment (%)	20.00		
5		Down Payment ($)	45,000	[1]	
6		Amount of Loan	180,000	[2]	
7		Annual Interest Rate (%)	11.75		
8		Term in Years	30	[3]	
9		Monthly Loan Payment	1,816.94	[4]	
10		Annual Loan Payment	21,803.25	[4]	
11		Total Loan Payment	654,097.51	[5]	
12					
13	Payment	Interest	Principal	Principal	Payment
14	Number	Portion	Portion	Remaining	To Date
15					
16	1	1,762.50 [7]	54.44 [9]	179,945.56 [10]	1,816.94 [12]
17	2 [6]	1,761.97 [8]	54.97	179,890.59 [11]	3,633.88
18	3	1,761.43	55.51	179,835.08	5,450.81
19	4	1,760.89	56.05	179,779.03	7,267.75
20	5	1,760.34	56.60	179,722.43	9,084.69
21	6	1,759.78	57.16	179,665.27	10,901.63
22	7	1,759.22	57.72	179,607.56	12,718.56
23	8	1,758.66	58.28	179,549.28	14,535.50
24	9	1,758.09	58.85	179,490.43	16,352.44
25	10	1,757.51	59.43	179,431.00	18,169.38
26	11	1,756.93	60.01	179,370.99	19,986.31
27	12	1,756.34	60.60	179,310.40	21,803.25
28	13	1,755.75	61.19	179,249.21	23,620.19
29	14	1,755.15	61.79	179,187.42	25,437.13
30	15	1,754.54	62.39	179,125.02	27,254.06
31	16	1,753.93	63.01	179,062.02	29,071.00
32	17	1,753.32	63.62	178,998.40	30,887.94
33	18	1,752.69	64.24	178,934.15	32,704.88
34	19	1,752.06	64.87	178,869.28	34,521.81
35	20	1,751.43	65.51	178,803.77	36,338.75
36	21	1,750.79	66.15	178,737.62	38,155.69
37	22	1,750.14	66.80	178,670.82	39,972.63
38	23	1,749.49	67.45	178,603.37	41,789.56
39	24	1,748.82	68.11	178,535.25	43,606.50
40	25	1,748.16	68.78	178,466.47	45,423.44
41	26	1,747.48	69.45	178,397.02	47,240.38
42	27	1,746.80	70.13	178,326.89	49,057.31
43	28	1,746.12	70.82	178,256.07	50,874.25
44	29	1,745.42	71.51	178,184.55	52,691.19
45	30	1,744.72	72.21	178,112.34	54,508.13
46	31	1,744.02	72.92	178,039.42	56,325.06
47	32	1,743.30	73.63	177,965.78	58,142.00
48	33	1,742.58	74.36	177,891.43	59,958.94
49	34	1,741.85	75.08	177,816.34	61,775.88
50	35	1,741.12	75.82	177,740.52	63,592.81
51	36	1,740.38	76.56	177,663.96	65,409.75
52					
53					

Figure 2. Labels, lines, and practice entries.

	A	B	C	D	E
1			LOAN AMORTIZATION SCHEDULE		
2					
3		Purchase Price	225000		
4		Down Payment (%)	20		
5		Down Payment ($)			
6		Amount of Loan			
7		Annual Interest Rate (%)	11.75		
8		Term in Years	30		
9		Monthly Loan Payment			
10		Annual Loan Payment			
11		Total Loan Payment			
12					
13	Payment	Interest	Principal	Principal	Payment
14	Number	Portion	Portion	Remaining	To Date
15					



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terest rate in C7 divided by 12) to produce the interest paid in the first month in B16.

Cell location: B16

Formula: +C6*C7/100/12

FORMULA 8: INTEREST IN MONTH 2

Formula 8 multiplies the principal remaining at the end of the first month (D16) by the monthly interest rate to produce the interest paid in the second month in B17.

Cell location: B17

Formula: +D16*C7/100/12

There's no prinicpal remaining yet, so Formula 8 displays zeros.

FORMULA 9: PRINCIPAL PAID

Formula 9 subtracts interest paid in the first month (B16) from the monthly loan payment (C9) to produce the principal paid at the end of the first month in C16. The IF function prevents a series of negative numbers from appearing down the column after the month the loan is liquidated.

Here's how it works. The Test statement compares the term in months (C8 converted to months) with the month number in A16. If A16 is less than or equal to the term in months, the Then statement calculates the interest paid. If A16 is greater than the term in months, the Else statement enters a zero.

Cell location: C16

Formula: @IF(A16<=(C8*12),C9−B16,0)

Copy Formula 9 down one cell. Leave the cursor on C16. Press OA-C and press Return. Hit Return again to confirm C16 as the source. Move the cursor to C17 and hit Return again.

Now tell AppleWorks which cells are *No change* or *Relative* references. Type **R** once, press Return twice, and type **R** again. Cell 16 now displays *1,816.94*.

FORMULA 10: PRINCIPAL REMAINING IN MONTH 1

Formula 10 subtracts principal paid in the first month (C16) from the amount of the loan (C6) to produce the principal remaining at the end of the first month in D16.

Cell location: D16

Formula: +C6−C16

Cell 17 now displays $54.97, the proper amount.

FORMULA 11: PRINCIPAL REMAINING IN MONTH 2

Formula 11 subtracts principal paid in the second month (C17) from the principal remaining at the end of the first month (D16) to produce the principal remaining at the end of the second month in D17. The IF function is used here for the same reason as in Formula 9—to prevent negative numbers from appearing down the column after the month the loan is liquidated.

Cell location: D17

Formula: @(A17<=(C8*12),D16−C17,0)

FORMULA 12: PAYMENT TO DATE

Formula 12 multiplies the monthly loan payment (C9) by the payment number (C16) to produce the total payments to date in E16. Again, the IF function prevents numbers from appearing down the column after the month the loan is liquidated.

Cell location: E16

Formula: @IF(A16<=(C8*12),C9*A16,0)

Copy Formula 12 down one cell. With the cursor on E16, press OA-C and hit Return twice. Move the cursor to E17 and hit Return again. Now press **R**, hit Return twice, then type **R** once more.

This completes formula entry, so press OA-S to store your spreadsheet on disk.

ORDER OF CALCULATION

AppleWorks routinely calculates formulas down each column. Because the formulas in this spreadsheet need to calculate across rows, change the order of calculation. Leave the cursor on E16 and press OA-V to bring up the Standard Values screen. Type **ROR** (for *Recalculate Order Rows*).

PROTECTING THE FORMULAS

It's a good idea to protect formulas from inadvertent changes. The best time to do this is *before* you copy them, because AppleWorks copies the protection, too.

Start with the formulas in C5 and C6. Place the cursor on C5 and press OA-L. Type **B** (for *block*), press the down-arrow key, and hit Return. Type **PN** (for *Protection Nothing*).

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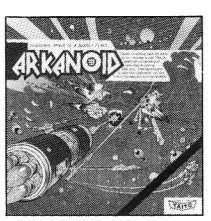

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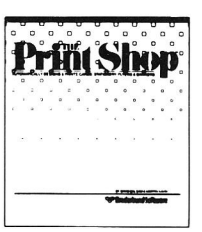

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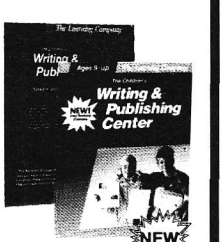

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Now for the formulas in C9, C10, and C11. Place your cursor on C9 and press OA-L. Type **B** and press the down-arrow key twice. Hit Return and type **PN**.

And, finally, protect the formulas in rows 16 and 17. Place the cursor on A16. (The number 1 in this cell clearly isn't a formula; it's included in the group to reduce the number of steps.)

Press OA-L and type **R** (for *Rows*). Press the down-arrow key to highlight row 17 also, and press Return. Type **PN**.

COPYING THE FORMULAS: RELATIVE CHANGE

Now copy all formulas in row 17, in one group, into the other cells in their respective columns. Place the cursor on A17 and press OA-C. Press Return, then OA-Right Arrow to move the cursor to E17, and hit Return again. Press the down-arrow key, type a period, press OA-Down Arrow twice, then Up Arrow three times to move the highlight to row 51, and hit Return.

AppleWorks will highlight each cell reference in the formulas and ask which is *No change* and which is *Relative*. As this happens, make these responses: Type **R** twice, press Return once, type **R** once, press Return twice, type **R** twice, press Return once, type **R** three times, press Return twice, and type **R** once.

Recalculation ripples down the screen. When it stops, your spreadsheet should look like the one in **Figure 1**. Now, after all your work, press OA-S to store the spreadsheet safely on disk.

SETTING PRINT OPTIONS

This spreadsheet is 73 characters wide and prints at 12 characters per inch. To center it nicely on the page, change the margins. Leave the cursor where it is and press OA-O to bring up the Printer Options screen. Type **LM** (for *Left Margin*) and press Return. Type **.9** and hit Return again.

Now type **RM** (for *Right Margin*) and press Return. Type **1** and hit Return again. And, finally, type **TM** (for *Top Margin*) and press Return. Type **.8** and hit Return again.

Now change the characer size. Type **CI** and press Return. Type **12** and hit Return again. All the other print settings remain at AppleWorks standards.

Press OA-S to save the print settings and bring back the spreadsheet.

PRINTING THE SPREADSHEET

Now turn on your printer and run off your spreadsheet. Leave the cursor where it is and press OA-P to bring up the Print screen.

Press Return once to confirm *All*, then press Return again to confirm the printer (or type a printer number, then Return). Type today's date and hit Return twice, the second time to confirm one copy. The printer whirs and here's your spreadsheet.

A BIT OF A BLIP: VALUES VS. NUMBERS

When you enter a term of less than three years, you'll sometimes see *(.00)* in the last principal-remaining cell in column D, meaning the remainder at the end of the term is less than a penny.

This occurs because AppleWorks works with the precise values *stored* in a cell, not necessarily with the rounded-off number *displayed* in the cell. Don't be concerned. The calculations are correct.

A FEW FINAL WORDS

All mortgage loans aren't created equal, and it's in your best interest to shop around for the most favorable deal. Be sure you understand what the lender is offering you and what it expects from you. In the words of one sage, "Education is what you get from reading the small print. Experience is what you get from not reading it."

Next month, you'll learn how to expand this spreadsheet to calculate each month of a 30-year mortgage loan. You'll also get another sampling of letters from readers, courtesy of "From My Mailbag."□

RUTH K. WITKIN IS THE AUTHOR OF THE TEMPLATE/HANDBOOK PACKAGES *SUCCESS WITH APPLEWORKS I, II,* AND *III* (*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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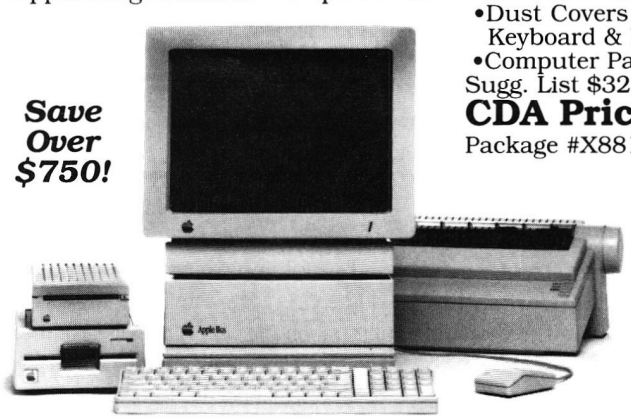

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THE GOLD CARD

Birthdays, barbecues, or bon voyage—capture the festivity and warmth of special occasions with your own personal greeting cards and invitations.

By CYNTHIA E. FIELD, Ph.D.

TIME MARCHES ON. **THE PRINT SHOP** may have been the first all-purpose desktop-publishing program for casual business or personal projects, and the most recent version for the Apple IIGS is even more appealing than the original. But let's face it: The Print Shop still has its limitations, including too few tools for creating artwork and too few options for page layout.

So this month let's play one-upmanship and create a greeting card *and* matching envelope with a *paint* program.

A PAINT PROGRAM FOR PAGE LAYOUT?

For this project, I used **PaintWorks Gold**, arguably the best super-hi-res painting program for the GS. With some procedural modifications, you should be able to make similar cards and envelopes with any other GS paint program, including **PaintWorks Plus**, **DeluxePaint II**, **816/Paint**, or **The Graphics Studio**. If you're using an 8-bit Apple II, a paint program such as **Dazzle Draw** may do the trick as well.

GET ORIENTED

Don't touch that computer yet! First take a plain piece of $8\frac{1}{2}$-by-11-inch paper. Fold it in half horizontally. Now fold it in half again vertically. Behold the naked greeting card. Unfold it and lay the page flat on your desk.

Now start up PaintWorks Gold. Use the Hand tool to scroll down, then up again to see the available drawing area. Mentally divide this Easel "page" into four quadrants.

These screen areas correspond to the four quadrants on the piece of paper lying on your desk. The upper left-hand quadrant represents the front of your card. The upper right-hand quadrant is the back—the panel where commercial publishers print copyright and pricing information. The lower left-hand quadrant is the card's inside left panel. The lower right-hand quadrant represents the inside right panel where you usually sign your name.

DESIGN DOODLES

Be sure to do some planning on paper before designing on screen. Fold the sheet of paper like a card again. Sketch the graphics and pencil in the messages you'd like to include. The card's front might display a theme illustration and a short message. For the inside right panel, you might want a longer message or an original poem.

The inside left panel and the rear panel are optional, though you might want to include a graphic on the former. If you like, you can print your name or your studio's name on the rear panel.

If you're an artist, use original artwork—full panels or clip-art illustrations—that you've created with PaintWorks Gold. If you have a scanner, use images or photographs you've digitized.

If you like "painless" art, scan through the Clip Art Gallery that comes with PaintWorks Gold. Open each clip-art file one by one, view it on screen (you'll have to use the Hand tool to scroll to see all artwork), and print it. Keep these printouts with your PaintWorks Gold user's guide; they let you see at a glance what's available for your desktop-publishing projects.

READY...

Operating under the theory that it's never too early to start thinking about the holidays, let's design a personalized card and matching envelope for all the people on your Christmas list. If Christmas-in-May seems uncouth, select different graphics, and type different messages to create birthday cards, pool-party invitations, or note cards for personal use or for gift giving. The guidelines remain the same whether you're designing a Christmas card (see **Figure 1**), a birth announcement, or a surprise-party invitation.

First unfold the rough-draft card you created from blank paper. Notice that on the page everything in the upper left-hand quadrant is upside down, and words appear in mirror image. We need to accomplish the same effects on screen.

Open the clip-art file that contains the illustration you want. For my Christmas card and envelope I used the holly-branch, the poinsettia, and the holly-sprig illustrations included with **Paper Models: The Christmas Kit** (now discontinued).

Use the Lasso tool to "shrink-wrap" the graphic you've chosen. Pull down the Edit menu and click on Copy (or use the keyboard equivalent, the Open apple-C command). This action takes a "snapshot" of the graphic and keeps it in memory.

Now begin a New file. Respond *No* to the dialog "Save Current Document?" because ►

Stuck with Pinpoint? Trade up to TimeOut

It's Beagle Bros to the rescue as Pinpoint quits the Apple II market

Back in the old days, PINPOINT was the undisputed leader in AppleWorks add-ons and desktop accessories. In fact, way back then, Pinpoint was the whole show.

Today, Beagle Bros' TIMEOUT series simply blows Pinpoint away in terms of speed and features. Meanwhile, Pinpoint has become somewhat of a dinosaur.

And where is Pinpoint now? Gone. With the dinosaurs. They don't do Apple II anymore.

Trade up now and save a bundle

Beagle Bros wants to spread the word about TimeOut, and here's an offer that Pinpoint owners just shouldn't refuse. Mail in any original Pinpoint disk and Beagle Bros will send you the corresponding TimeOut software at 50% off.*

If you already bought TimeOut, send in your original Pinpoint disk and we'll mail you a 2-for-1 software coupon good on your next mail order purchase from Beagle Bros.

AppleWorks+TimeOut=More features and speed

SPELLING	Pinpoint Spelling Checker	TimeOut QuickSpell
Check 1.5 pages from 5.25 disk	8 min 56 sec	23 sec
Check 1.5 pages from 3.5 disk	7 min 22 sec	19 sec
Check 1.5 pages from RAM disk	5 min 42 sec	6 sec
Built-in dictionary size	60,000 words	80,000 words
Word count feature	No	Yes

MACROS	Pinpoint KeyPlayer	TimeOut UltraMacros
New AppleWorks commands	0	21
Mouse control	No	Yes
Fully integrated	No	Yes
Powerful programming language	No	Yes

GRAPHS	Pinpoint Graphic Edge	TimeOut Graph
Speed in creating a graph	slow	fast
Number of graph styles	8	9
Smart Automatic Scaling	No	Yes
Axes formatting	No	Yes

Note: Graphic Edge does not work inside AppleWorks.

The Dynamic Duo: AppleWorks and TimeOut

The nice thing about AppleWorks is that it is fast, especially compared to GS integrated software. With AppleWorks, it's *Zip*–you're at the top of a document, *Zip*–you're at the end. Searches are fast, printing is fast, and screens are refreshed in an instant. Some GS specific software does work in color (slow color) and AppleWorks doesn't. But then, you can't have everything.

The nice thing about TimeOut is that it lets you use AppleWorks' word processor, data base and spreadsheet like you always do. Nothing seems different until you press ♂-escape to access a TimeOut application. When you're done, it's back to AppleWorks without missing a beat. With TimeOut, you never leave AppleWorks.

To add TimeOut's features, you update your AppleWorks Startup disk one time only. It's fast and it's easy.

TimeOut does not require a fancy system; it works with any Apple IIGS, IIc, IIc+ or IIe, 128K min. In general, the more memory your Apple has, the faster TimeOut can do its thing. (TimeOut works with AppleWorks v2.0 and v2.1.)

Four trade-up deals are available:

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you haven't really changed anything.

Pull down the Edit menu and click on Paste (or use the Open apple-V command). A movable version of the graphic you selected appears on screen. Using your rough-draft sample card as a guide, drag the graphic on screen to its approximate desired location. You may find it handy to use the mouse to drag the Tool Palette and the Paint Palette out of the way as you work in one quadrant, then another.

Don't aim for design perfection at this stage; we'll do fine-tuning later on. Those artists seeking precision can use PaintWorks Gold's Show Coordinates feature listed in the Goodies menu to keep close track of object placement and size.

Want another copy of the graphic you've selected? I used two holly branches, for instance, on the front of my Christmas card. Just use Paste again.

Depending on the nature of a graphic, you may have to move it slightly, flip it, or rotate it so that it looks good when you fold the card. To edit a graphic, select it with the Marker Box tool. If you want the graphic to "point" the other way, pull down the Select menu and click on Flip Horiz. You may even need to turn the graphic upside down so that it looks right when you fold your card. Use the Flip Vert. option from the Select menu.

Maybe you'd like to change the "tilt" of your graphic. Pull down the Select menu and click on Rotate. Drag one of the four handles that appear around the graphic until you accomplish the desired effect.

Before you continue, save your file. As time goes on, you'll create many kinds of greeting and note cards. Use names such as CARD.XMAS or CARD.BDAY. It's like having your own stationery store on disk!

If you're using a second, different graphic, open the appropriate clip-art file. Lasso the graphic, Copy it, and then Open your card file again. With the mouse and the Paste command, position one or more copies of the graphic on your card. Adjust each graphic's orientation with the Marker Box, the mouse, and options contained in the Select menu.

You usually don't need to flip graphics placed in the lower left-hand and lower right-hand quadrants of the screen because these panels are WYSIWYG (what you see is what you get) when you fold the card. You may want to rotate them for a special effect, though.

Remember that with PaintWorks Gold (and many other paint programs) you can delete with the Eraser tool, as well as with the Lasso or Marker Box together with the Cut option contained in the Edit pull-down menu.

SET...

Adding text to your card is a snap. For the Christmas card, I wanted to center the greeting "Merry Christmas, Danny & Jenny" on the front panel.

Scroll to the upper left-hand quadrant. Select Choose Font from the Edit menu. I used 12-point Times in a bold, shadow style. Click on the Align Middle option in the Edit menu. Now activate the Text tool, and place the I-beam in the approximate location where you want text to appear. Type the greeting line by line.

To make text read correctly on your card,

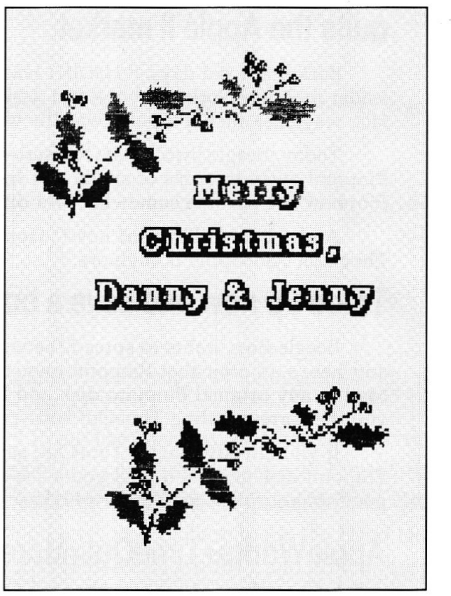

Figure 1. Completed Christmas card.

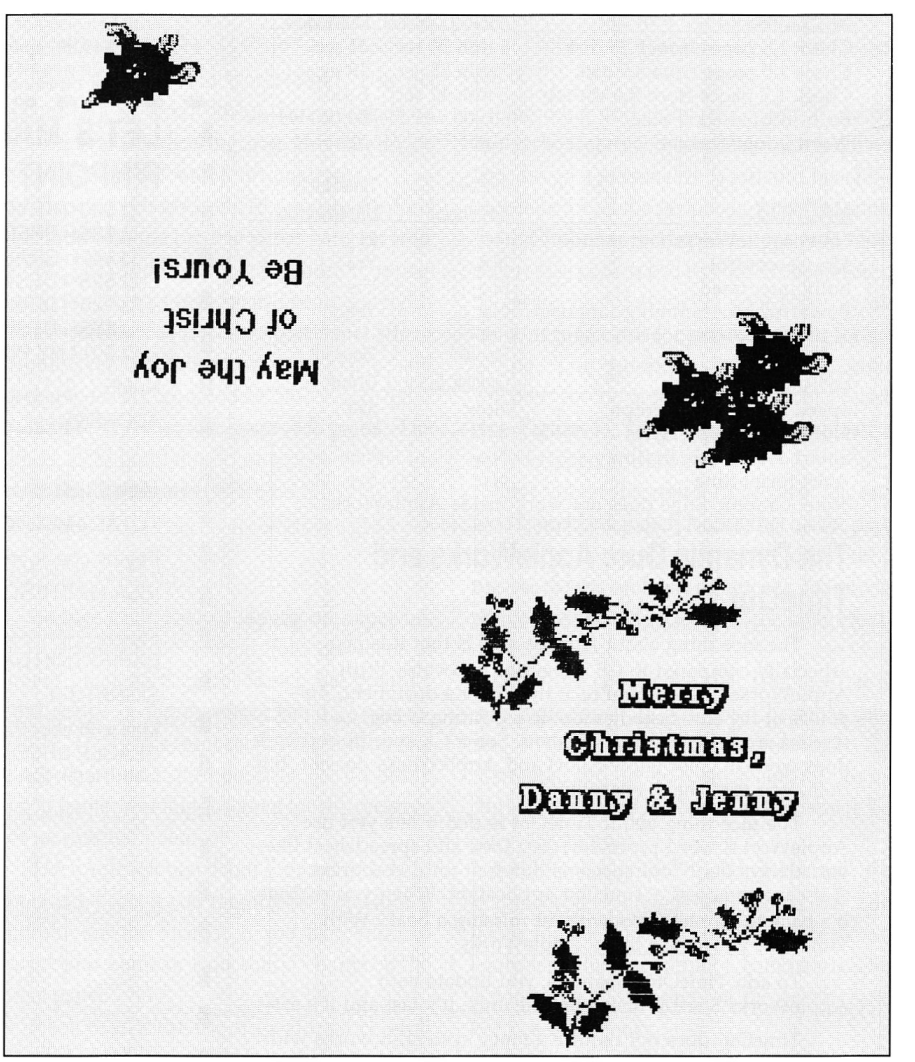

Figure 2. Completed, unfolded Christmas card.

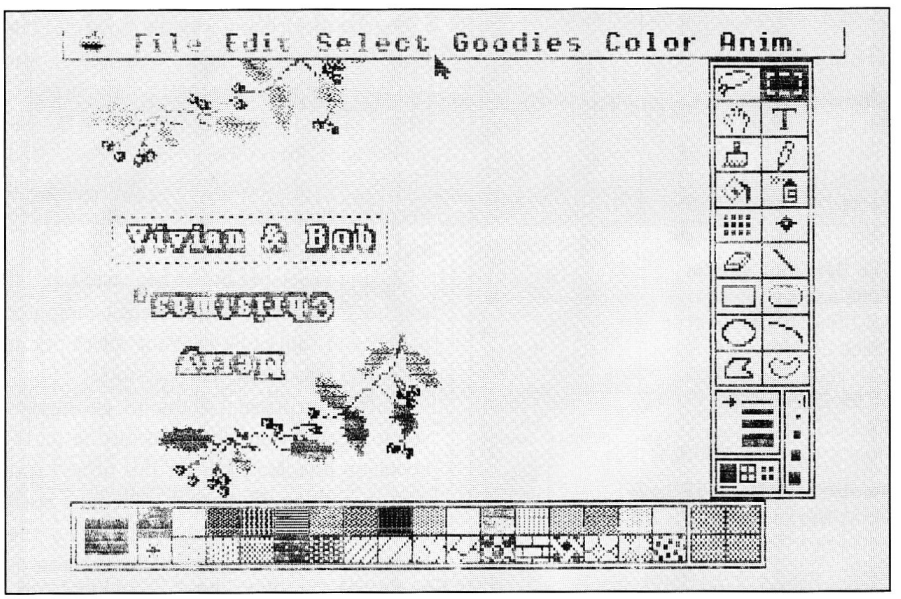

Figure 3. Screen dump showing Marker Box selection of names prior to "flipping."

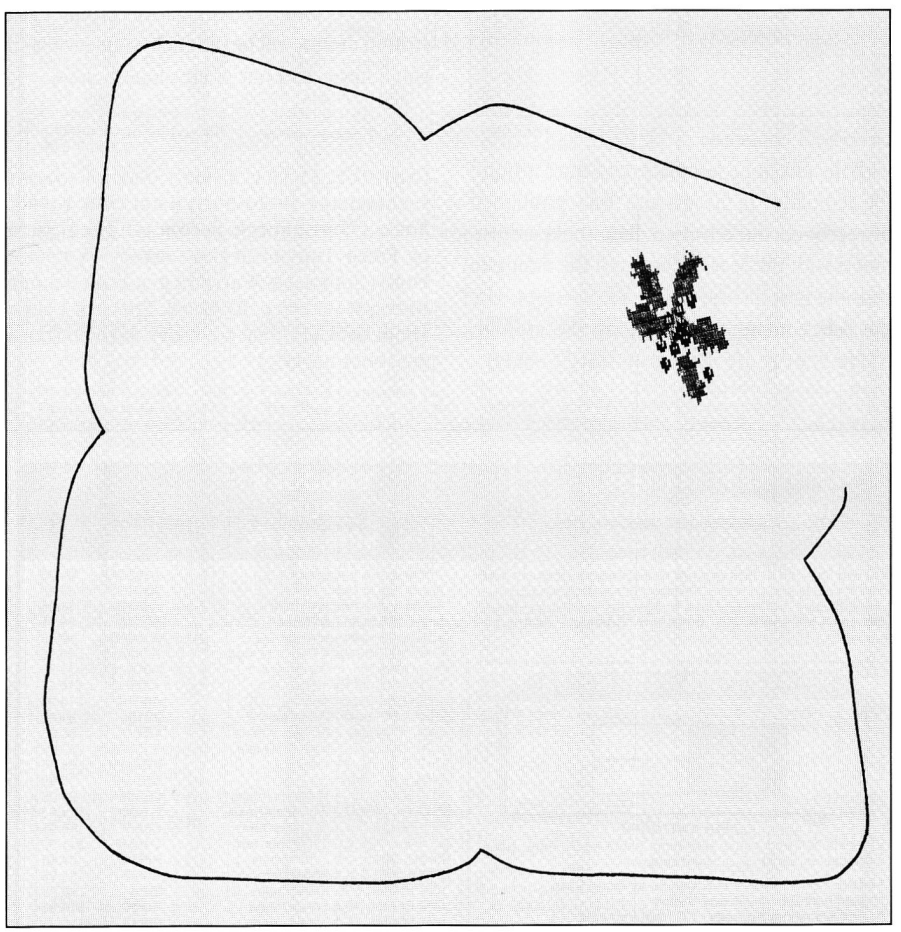

Figure 4. Printed envelope traced with template.

flip it both vertically *and* horizontally. Isolate the text with the Marker Box. Pull down the Select menu and choose Flip Vert. Pull down the menu again and select Flip Horiz. If you decide to include text on the rear panel of your card, you'll have to flip this text, too, both horizontally and vertically.

To add a message to the inside right panel of your card, scroll down to the lower right-hand quadrant. Select the font (I used 12-point Helvetica in a plain type style) and alignment mode (Align Middle). Choose the Text tool, position the I-beam, and type the message "May the Joy of Christ Be with You!"

Fine-tune the message's orientation by corralling the whole message—or one line at a time—inside the Marker Box and dragging it into position.

All this selecting, positioning, and flipping can be tedious. Don't undermine your progress by neglecting to save frequently.

GO!

Print a copy of the card and fold it to see whether graphics and text are positioned properly. They probably won't be the first time. Don't worry; make adjustments with the Marker Box and the mouse. Now reprint the card.

When your prototype printed card looks good, save the file on disk. This file will be your "final" card and should look similar to the one shown in **Figure 2**.

Why stop impressing people now? Send personalized cards to everybody on your list! Erase the names "Danny & Jenny" with the Eraser tool or the Marker Box and the Cut command. Select the Text tool, place the I-beam, and type the names of the next recipients, "Vivian & Bob." As shown in **Figure 3**, select the phrase "Vivian & Bob" (Marker Box), flip it horizontally and vertically (Select menu), and center it precisely (mouse). Print Vivian and Bob's card and proceed with the next person, couple, or family on your Christmas list.

ENVELOPES TO MATCH

To create matching envelopes, first get a second blank $8\frac{1}{2}$-by-11-inch sheet of paper. If you have a so-called "Print Shop-size" envelope, carefully "unglue" it, lay it flat, and orient it to fit on the blank piece of paper. If you don't have a proper-size envelope, use a piece of graph paper and the pattern shown in **Figure 4** to make a template. For permanency, make this template out of heavy cardboard.

Open a clip-art file and select one of the graphics you used for the card. Copy the graphic and begin a New file. Activate Show Coordinates in the Goodies menu. Paste and ►

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position the center of the "flap" graphic approximately at coordinates 115 and 145 (the number of pixels down and across, respectively, from the top left-hand corner of the screen). Before printing, select horizontal Orientation in the Page Setup dialog (File menu).

Print the page. Overlay the printed page with the envelope template, and trace around the template. If the graphic isn't positioned properly on the envelope flap, make adjustments with the Marker Box and the mouse to shift the graphic up, down, left, or right. Use the Select menu options to flip the graphic, rotate it, or resize it. Reprint the envelope.

Overlay the printout with the envelope template. Trace around the template, and cut out the envelope with scissors. Using a straightedge as a guide, make creases where the envelope folds. Press these creases by hand, and glue the two "side" flaps into place. Don't seal the printed flap yet—you'll do so after signing and inserting the card!

Making envelopes in batches saves time. If you use ordinary 20-pound-weight computer paper, you can easily cut four envelopes at once with reasonably sharp scissors.

Don't be surprised if all this fun encourages you to expand your Christmas-card or party-invitation lists. Materials for this project cost next to nothing. (Postage is something else!) One freshly re-inked ImageWriter color ribbon can print more than 75 Christmas cards and envelopes, and still have some life in it!

Save yourself a trip to the card store. Whatever the occasion, two things are certain: Each custom design will be uniquely your own, and you'll never run out of envelopes!□

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 02869. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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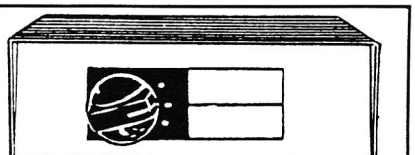

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DOING WINDOWS

Haste doesn't always make waste. A machine-language subroutine can speed up windowing for fast, easy-to-use menus and messages.

By DAN BISHOP

SPEED! IF YOU'RE STRICTLY A BASIC programmer, that's the big difference between the windowing process you may be using now in "desktop"-style software (described in "Opening Pop-Up Windows," January 1988, p. 81) and the same technique you see in commercial packages. Using BASIC to save displayed text to memory and restore it to the screen takes several seconds, while the pull-down menus in commercial programs appear and disappear almost instantly.

January's listing last year used BASIC's PEEK and POKE instructions to move text one character at a time between screen and memory. Therein lies the problem: This process works, but it illustrates the frustrations you may encounter when restricting your programs to 100 percent BASIC. This month we'll explore how to get around this limitation by incorporating a short machine-code subroutine into your BASIC program.

OPEN IT UP

Applesoft uses a single-word command, CALL, to run a machine-code subroutine already stored in random-access memory (RAM). Following the command is the memory address of the first instruction that program will execute. For example, CALL 31242 tells your Apple to halt execution of the BASIC program temporarily and to run a machine program beginning at RAM location 31242. The computer then executes those instructions until it runs into a machine code for Return (decimal 96). At that time, the BASIC program resumes execution where it left off.

This process works only if you have a machine-code program stored in RAM at a known starting address. You can put machine code into RAM in any number of ways. For example, if the program is fairly long, store it on disk as a binary program file. Use the BLOAD command to copy the file's contents from disk to RAM, making it available for calling from your BASIC program.

With a short machine-code subroutine, follow the method described below and illustrated in the accompanying **Program listing**. Include the instructions as DATA statements in your BASIC program, then simply READ the codes and POKE them into an appropriate RAM location. This program is the same as the January 1988 listing (a demonstration showing how to implement windows and interactive menu displays), except that it uses a very short machine-language subroutine to save and restore screen contents. If you compare the efficiency of the two programs, the new listing's speed will astound you—so much so that you may be motivated to advance beyond BASIC to assembly-language programming!

A WORD OF CAUTION

Always be careful when adding machine-code routines to your BASIC programs. Applesoft uses all available memory in RAM between the last instruction of your BASIC program and the end of memory to store your program variables and strings. Running your BASIC program can destroy any machine code stuffed into this area of RAM.

Applesoft's HIMEM: command prevents this from happening by letting you protect a block of high memory for such uses as graphics, screen, machine-code programs, and so on. For example, if you have 32K of usable RAM in your system (32,768 bytes total), place the following command at the beginning of your program (note the unusual use of the colon with HIMEM):

```
HIMEM:31000
```

This tells your Apple to reserve 1768 bytes of memory. The computer complies by pretending that 31000 is the end of memory for your BASIC program.

STREAMLINING

The **Program listing**'s machine-code subroutine uses 53 bytes, represented by the 53 data elements between lines 7000 and 7054. The program reads these codes and POKEs them into high memory starting at 31242 (lines 125–140). In fact, you can use any value larger than 31000 here (the value HIMEM: assigns in line 10), but we'll use part of this reserved memory block to save the screen text. Because this requires 1024 bytes, you must be sure your program doesn't interfere with the 31488–32512 RAM area where the program will save screen data.

The machine-code subroutine has two entry points. If the BASIC program starts it with a call to address 31242, your Apple saves the entire screen contents to RAM. If the BASIC program starts it with a call to address 31281, your Apple reads the RAM contents back into ►

Continued on p. 84

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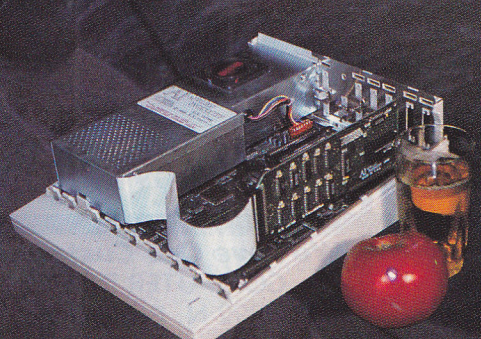

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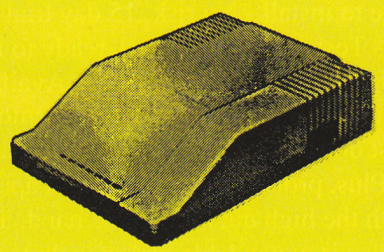

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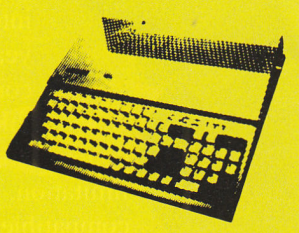

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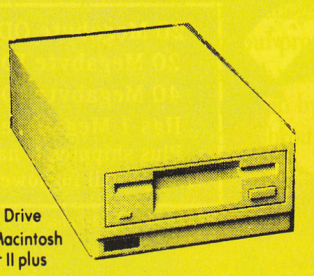

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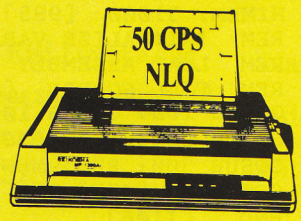

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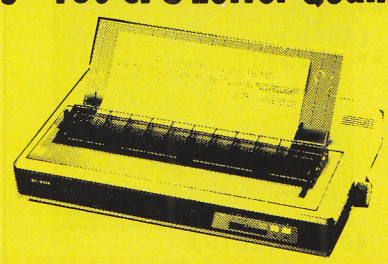

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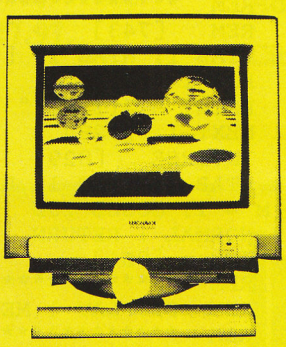

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Continued from p. 80

screen-display memory and returns them to view. So lines 1100–1105, CALL 31242 and Return, replace the two double-loop subroutines in January's listing.

In addition, the **Program listing** no longer uses the two-dimensional array RS for storing individual screen characters' codes until the screen returns to its original condition. Because the machine-code program accesses memory addresses directly, you don't need any variables or arrays to hold the screen data.

GET INTO THE MACHINE

Although Applesoft Adviser deals with BASIC, I think it's important to outline the way I arrived at the machine code incorporated into the DATA statements in the accompanying **Program listing**. At the same time, I hope to dispel the myth that machine code and assembly language are difficult to understand. I won't get bogged down with too much detail on individual commands—just enough to whet your appetite.

The subroutine you'll need for this program is called a *block-move* subroutine, because it copies all codes from one block of memory (the *source*) to another (the *destination*). The flowchart in the accompanying **Figure 1** describes this process, while the **Table** lists assembly-language mnemonics and corresponding machine code (in both hexadecimal and decimal).

Unlike BASIC, which uses whole words, assembly language is essentially a set of abbreviations (usually three letters) describing the action a particular machine-code instruction performs. For example, Return in BASIC corresponds to RTS in 6502 assembly language. While Return may require a sequence of six or eight machine codes, though, RTS corresponds to just one: 96 (decimal). The main purpose of assembly language, then, is to facilitate program writing at the machine-code level. It's much easier to remember that RTS, as opposed to 96, stands for Return.

BEAN COUNTERS

When writing programs in assembly language, you make extensive use of *registers*—memory elements built into the microprocessor chip. Because they belong to the chip, your Apple can access their data much faster than data stored in RAM. Furthermore, any data transfer between RAM locations must pass through the CPU (central►

Program listing. Window Opener.

```
 1  REM  WINDOWS WITH ASSEMBLY  [4422]
 2  REM  ROUTINE FOR SCREEN SAVES  [4828]
 3  REM  AND RESTORES  [2466]
 4  REM     DAN BISHOP  [2132]
 5  REM     APPLESOFT ADVISOR  [3490]
10  HIMEM: 31000  [985]
12  REM  INITIALIZE VARIABLES  [4025]
13  REM  LOAD ASSEMBLY PROGRAM  [4339]
14  REM  FILL SCREEN  [2260]
15  GOSUB 100: GOSUB 1000  [980]
20  GOSUB 200: REM  DISPLAY MENU  [1632]
30  GOSUB 300: REM  MENU ROUTINE  [1762]
40  GOTO 20  [477]
90  END  [1106]
95  REM  [827]
96  REM  **********************  [5592]
97  REM  INITIALIZE MENU ARRAY  [4202]
98  REM  **********************  [5594]
99  REM  [718]
100  HOME  [1221]
105  READ M1: DIM M1$(M1,2): READ M1$(0,0)  [3412]
110  FOR I = 1 TO M1  [1291]
115  READ M1$(I,0),M1$(I,1),M1$(I,2)  [5356]
120  NEXT I  [549]
122  REM  **********************  [5234]
123  REM  LOAD ASSEMBLY PROGRAM  [4277]
124  REM  **********************  [5332]
125  FOR I = 0 TO 53  [1199]
130  READ X  [228]
135  POKE 31242 + I,X  [1097]
140  NEXT I  [225]
145  DEF  FN PK(X) = 1024 + (X - 1) * 128 - ( INT ((X
     - 1) / 8 + 0.005) * 984)  [6403]
150  RETURN  [691]
195  REM  [796]
196  REM  ************************  [2834]
197  REM  DISPLAY COMPLETE MENU  [1569]
198  REM  ************************  [2834]
199  REM  [743]
200  VTAB 1: HTAB 1  [939]
205  FOR I = 0 TO M1  [957]
210  PRINT M1$(I,0);" ";  [1334]
215  NEXT I  [328]
220  INVERSE  [829]
225  VTAB 2: HTAB 1: PRINT  SPC( 40);  [2075]
230 M = 1: GOSUB 250  [1590]
235  NORMAL : RETURN  [1256]
245  REM  [801]
246  REM  **********************  [2204]
247  REM  DISPLAY 1 MENU ITEM  [1214]
248  REM  **********************  [2118]
249  REM  [759]
250  VTAB 1: HTAB  LEN (M1$(0,0)) + 2 * M  [2098]
255  INVERSE : PRINT M1$(M,0);  [2422]
260  HTAB 33: PRINT M1$(M,1);  [1184]
265  NORMAL : RETURN  [943]
266  REM  [3626]
267  REM  **********************  [3730]
268  REM  UN-HILITE ITEM  [2769]
269  REM  **********************  [3732]
270  VTAB 1: HTAB  LEN (M1$(0,0)) + 2 * M  [3026]
275  NORMAL : PRINT M1$(M,0);  [907]
280  HTAB 33: PRINT  SPC( 7);  [1593]
285  RETURN  [923]
```

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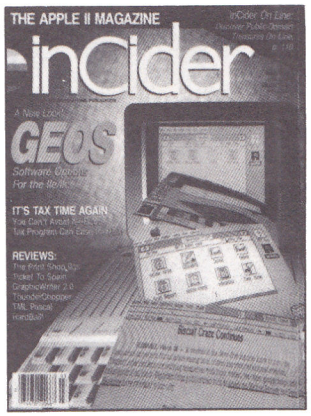

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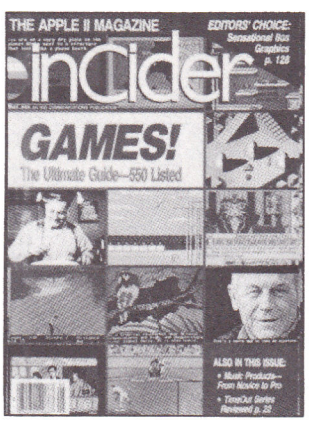

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processing unit) and its A register (the *accumulator*). The **Program listing** here uses two other registers, X and Y, as index counters that track the progress of the block move.

Index registers can hold only 1 byte, so the largest value they can contain is 255. Because the block you're moving contains 1024 bytes, you must build the subroutine as a loop within a loop. The inner loop transfers 256 bytes at a time; the outer loop forces this process through four successive cycles, thus transferring the entire block, 1024 bytes. The X register serves as the outer-loop counter, while the Y register tracks the inner loop.

VALUABLE ADDRESSES

The first instuction, LDX 0 ("load X with zero"), initializes the outer-loop counter (X register) to zero. Any reference dealing with the 6502 computer-chip instruction set lists the machine code for LDX as A2 (hexadecimal system, or base 16), or 162 in decimal. So the first two codes the program reads in for the

Continued

```
 293  REM   [1518]
 294  REM   ********************  [3779]
 295  REM  KEYBOARD ENTRY OF  [3377]
 296  REM  MENU SELECTION AND  [3650]
 297  REM  CHOICE VALIDATION  [3503]
 298  REM  ********************  [3695]
 299  REM   [2040]
 300  GET Z$:MF = 0  [1291]
 305  IF M > 1 AND  ASC (Z$) = 13 THEN  GOSUB 400: RETURN
       [5601]
 310 Z = 0: FOR I = 2 TO M1  [1331]
 315  IF Z$ = M1$(I,0) THEN Z = 1:M = I  [2393]
 320  NEXT I  [398]
 325  IF Z = 1 THEN Z = 0: GOSUB 400: RETURN  [5256]
 330  IF  ASC (Z$) <  > 21 THEN  GOTO 350  [1435]
 335  GOSUB 270:M = M + 1  [1979]
 340  IF M > M1 THEN M = 1  [1239]
 345  GOSUB 250: GOTO 300  [1638]
 350  IF  ASC (Z$) <  > 8 THEN  GOTO 370  [1320]
 355  GOSUB 270:M = M - 1  [1863]
 360  IF M < 1 THEN M = M1  [1277]
 365  GOSUB 250: GOTO 300  [1622]
 370  IF Z$ <  > "?" AND  NOT ( ASC (Z$) = 13 AND M =
    1) THEN  GOTO 300  [4390]
 375 RB = 7:CB = 6:RE = 16:CE = 34: GOSUB 1200  [4153]
```


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```
380  GOTO 300  [1010]
395  REM   [6145]
396  REM   **********************  [1128]
397  REM   MESSAGE VERIFYING THAT  [1624]
398  REM   SELECTION WAS OK.  [1399]
399  REM   **********************  [640]
400  CALL 31242: HOME   [1660]
405  HTAB 1: VTAB 12  [701]
410  PRINT "YOU HAVE MADE A VALID SELECTION"  [2292]
415  PRINT "FROM THE MAIN MENU."  [1702]
420  PRINT   [7230]
425  PRINT "   PRESS ANY KEY TO CONTINUE...";  [2253]
430  GET ZZ$  [337]
435  IF M < > M1 THEN  CALL 31281: RETURN   [6993]
440  PRINT : PRINT   [4868]
445  PRINT "YOUR CHOICE WAS TO END.  GOOD-BYE!": END
      [4343]
450  VTAB 22: HTAB 1  [1020]
455  PRINT  SPC( 119);  [1247]
460 MF = 0: RETURN   [1752]
991  REM   [1367]
992  REM   ********************  [2348]
993  REM   ROUTINE TO FILL  [1040]
994  REM   SCREEN WITH TEXT.  [1406]
995  REM   ********************  [2414]
```

Continued

subroutine are 162 and zero (line 7000).

As I mentioned above, your Apple can't actually assign values directly to RAM locations. It must first assign a value to accumulator register A, then copy it from A to a memory location. The subroutine's next 16 machine codes (lines 7002–7016) transfer four values to memory locations 249, 250, 251, and 252. Locations 249 and 250 contain the address of the source of the data the routine is transferring, while locations 251 and 252 contain the address of the data's destination.

BYTE TRANSFER

Don't worry about how these addresses are represented in machine language. Suffice it to say that video-screen memory starts at page 4, byte zero, and we're beginning RAM storage at address 31488, which is page 123, byte zero. Your Apple reads *LDA 0* and *STA 249* as *load A with zero and store the value in A at location 249*. The four corresponding codes are A9, 0, 85, and F9 in hexadecimal, or 169, 0, 133,►

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Continued

```
 996  REM   [1426]
 1000  VTAB 3: HTAB 1  [939]
 1005  FOR J = 33 TO 53  [1215]
 1010  FOR I = J TO J + 39  [1653]
 1015  PRINT  CHR$ (I);  [1273]
 1020  NEXT I,J  [538]
 1025  VTAB 1: HTAB 40  [628]
 1030  RETURN   [873]
 1091  REM   [5669]
 1092  REM  ******************  [4652]
 1093  REM  STORE TEXT CURRENTLY  [4252]
 1094  REM  DISPLAYED ON SCREEN  [3993]
 1095  REM  ******************  [4675]
 1096  REM   [1940]
 1100  CALL 31242  [1447]
 1105  RETURN   [1405]
 1141  REM   [3149]
 1142  REM  ******************  [4382]
 1143  REM   RE-DISPLAY TEXT THAT  [4237]
 1144  REM   WAS STORED.  [2411]
 1145  REM  ******************  [4485]
 1146  REM   [2093]
 1150  CALL 31281  [340]
 1155  RETURN   [1103]
 1191  REM   [5459]
 1192  REM  ******************  [992]
 1193  REM  CREATE MESSAGE WINDOW  [1506]
 1194  REM  AND DISPLAY MESSAGE  [1383]
 1195  REM  ******************  [1015]
 1196  REM   [1254]
 1200  GOSUB 1100  [297]
 1205  INVERSE   [1880]
 1210  FOR I = RB TO RE  [1215]
 1215  VTAB I: HTAB CB: PRINT  SPC( CE - CB + 1);  [2500]
 1220  NEXT I: NORMAL   [1753]
 1225  POKE 32,CB  [712]
 1230  POKE 33,CE - CB - 1  [1305]
 1235  POKE 34,RB  [700]
 1240  POKE 35,RE - 1  [1007]
 1245  CALL  - 936  [981]
 1250  PRINT M1$(M,2)  [806]
 1255 MF = 1  [674]
 1260  PRINT "*** PRESS <RETURN>. ***";  [1845]
 1265  INPUT "";ZZ$  [828]
 1270  POKE 32,0: POKE 34,0  [1920]
 1275  POKE 33,40: POKE 35,24  [2237]
 1280  GOSUB 1150  [803]
 1285  VTAB 1: HTAB 40  [597]
 1290  RETURN   [1305]
 4995  REM   [3294]
 4996  REM  **********************  [760]
 4997  REM  DATA FOR MAIN MENU  [1374]
 4998  REM  **********************  [680]
 4999  REM   [22029]
 5000  DATA  7, "MAIN MENU:"  [6840]
 5001  DATA  "?","HELP","PRESS <?> WHEN ANY OPTION  IS
     HIGHLIGHTED TO RECEIVE  HELP MESSAGE FOR THAT IT
    EM."  [5621]
 5002  DATA  "A","ADD","USE THIS OPTION TO ADD A  NEW
     NAME TO YOUR MAIL-LIST."  [4421]
 5003  DATA  "E","EDIT","USE THIS OPTION TO CHANGE  IN
    FORMATION ON ANYONE      ALREADY IN YOUR MAIL-LIS
    T."  [6685]
 5004  DATA  "D","DELETE","USE THIS OPTION TO PERMA-
    NENTLY REMOVE A RECORD FROM YOUR MAIL-LIST."  [5832]
```

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and 249 in decimal (lines 7002–7004).

As these two instructions and the following six reveal, the source address is stored in locations 249–250, and the destination in locations 251–252. With the reference addresses loaded into memory, a LDY 0 command (line 7018) initializes the inner-loop counter, register Y, to zero. Then a different "load A and store A" pair of commands (lines 7020–7022) read a byte from the source block and copy its value to the destination block.

After the routine transfers the byte, it increments the index Y (INY, line 97024). If Y has cycled from 255, its new value will wrap around to zero when the routine increments from 255. So the next instruction, BNE (line 7028), is a *branch if not zero*, forcing a branch backward seven code values to load and store the next byte of data. This takes care of the subroutine's inner loop.

THE WRAPUP

When the Y index wraps back around to zero, your Apple has transferred 256 bytes (one full "page") of data. At this time, it increments the outer-loop index X (INX, line 7030) and the page numbers in the reference locations for source and destination (locations 250 and 252, lines 7032–7034).

It compares the outer-loop-index X to the value 4 (CPX 4, line 7036), and, if the two values aren't equal, the program branches backward 18 machine-code units (BNE, line 7038)—to the beginning of the previous paragraph—to transfer the next 256 bytes of data. On the other hand, if index X equals four, the job's finished; your Apple executes an RTS (line 7040) to return control to the BASIC program.

REVERSALS

"But wait," you say, "there's still some code left!" The interesting thing about this program's block move is that saving and restoring a block of text follow the same process, except that the source and destination address values are reversed. So at address locations 31281, where the "restore data to screen" subroutine begins (line 7042), the routine initializes the outer-loop index and loads 123 into the source-address page location (250). Meanwhile, the starting video-page address, 4, is loaded into the destination-page location (252).

With these changes, the rest of the subrou-

Continued

```
5005  DATA  "L","LIST","USE THIS OPTION TO DISPLAY YO
    UR ENTIRE  MAIL-LIST ON  THE SCREEN."  [5229]
5006  DATA  "P","PRINT","USE THIS OPTION TO PRINT   M
    AIL-LABELS."  [3275]
5007  DATA  "Q", "QUIT","SELECT THIS OPTION TO END  T
    HE PROGRAM."  [3809]
6995  REM  ********************  [5456]
6996  REM  ASSEMBLY PROGRAM CODE  [4332]
6997  REM  ********************  [4992]
7000  DATA  162,0: REM  LDX 0  [1919]
7002  DATA  169,0: REM  LDA 0  [1952]
7004  DATA  133,249: REM  STA 0:249  [2543]
7006  DATA  169,4: REM  LDA 4  [2004]
7008  DATA  133,250: REM  STA 0:250  [2535]
7010  DATA  169,0: REM  LDA 0  [2016]
7012  DATA  133,251: REM  STA 0:251  [2556]
7014  DATA  169,123: REM  LDA 123  [2022]
7016  DATA  133,252: REM  STA 0:252  [2545]
7018  DATA  160,0: REM  LDY 0  [1596]
7020  DATA  177,249: REM  LDA (0:249)+Y  [3347]
7022  DATA  145,251: REM  STA(0:251)+Y  [3219]
7024  DATA  200: REM  INY  [1119]
7028  DATA  208,249: REM  BNE -7  [1899]
7030  DATA  232: REM  INX  [1087]
7032  DATA  230,250: REM  INC (0:250)  [3035]
7034  DATA  230,252: REM  INC (0:252)  [3047]
7036  DATA  224,4: REM  CPX 4  [1622]
7038  DATA  208,238: REM  BNE -18  [2196]
7040  DATA  96,0,0 : REM  RST  [1287]
7042  DATA  162,0 : REM  LDX 0  [1622]
7044  DATA  169,4 : REM  LDA 4  [1622]
7046  DATA  133, 252: REM  STA 0:252  [2632]
7048  DATA  169,123: REM  LDA 123  [1974]
7050  DATA  133,250: REM  STA 0:250  [2499]
7052  DATA  76,28,122: REM  JMP 31260  [2542]
7054  DATA  0, 0   [357]
```

Assembly Listing	Machine Code (hex)	(decimal)	Comment
(address 31242)			
LDX 0	A2, 0	162, 0	Initialize X to zero.
LDA 0	A9, 0	169, 0	Initialize source ref.
STA F9	85, F9	133, 249	location (249-250)
LDA 4	A9, 4	169, 4	to page 4, byte 0.
STA FA	85, FA	133, 250	
LDA 0	A9, 0	169, 0	Initialize dest'n.ref.
STA FB	85, FB	133, 251	location (251-252)
LDA 7B	A9, 7B	169, 123	to page 123, byte 0.
STA FC	85, FC	133, 252	
(address 31260)			
LDY 0	A0, 0	160, 0	Initialize Y to zero.
LDA (0:F9)+Y	B1, F9	177, 249	Copy byte from source
STA (0:FB)+Y	91, FB	145, 251	to destination.
INY	C8	200	Increment Y.
BNE F9	D0, F9	208, 249	Branch back 7 if Y<>0.
INX	E8	232	Increment X.
INC (0:FA)	E6, FA	230, 250	Increment source page.
INC (0:FC)	E6, FC	230, 252	Increment dest'n page.
CPX 4	E0, 4	224, 4	Compare X with 4.
BNE EE	D0, EE	208, 238	Branch back 18 if X<>4
RTS	60	96	Return.
00 00	00, 00	00, 00	
(address 31281)			
LDX 0	A2, 0	162, 0	Initialize X to zero.
LDA 4	A9, 4	169, 4	Initialize dest'n page
STA FC	85, FC	133, 252	to 4.
LDA 7B	A9, 7B	169, 123	Initialize source page
STA FA	85, FA	133, 250	to 123.
JMP 1C 7A	4C,1C,7A	76,28,122	Jump to 31260.
00 00	00, 00	00, 00	

Table. List of assembly-language commands and corresponding machine codes (in hexadecimal and decimal) used for block-move subroutine.

Figure 1. Flowchart for machine-code subroutine.

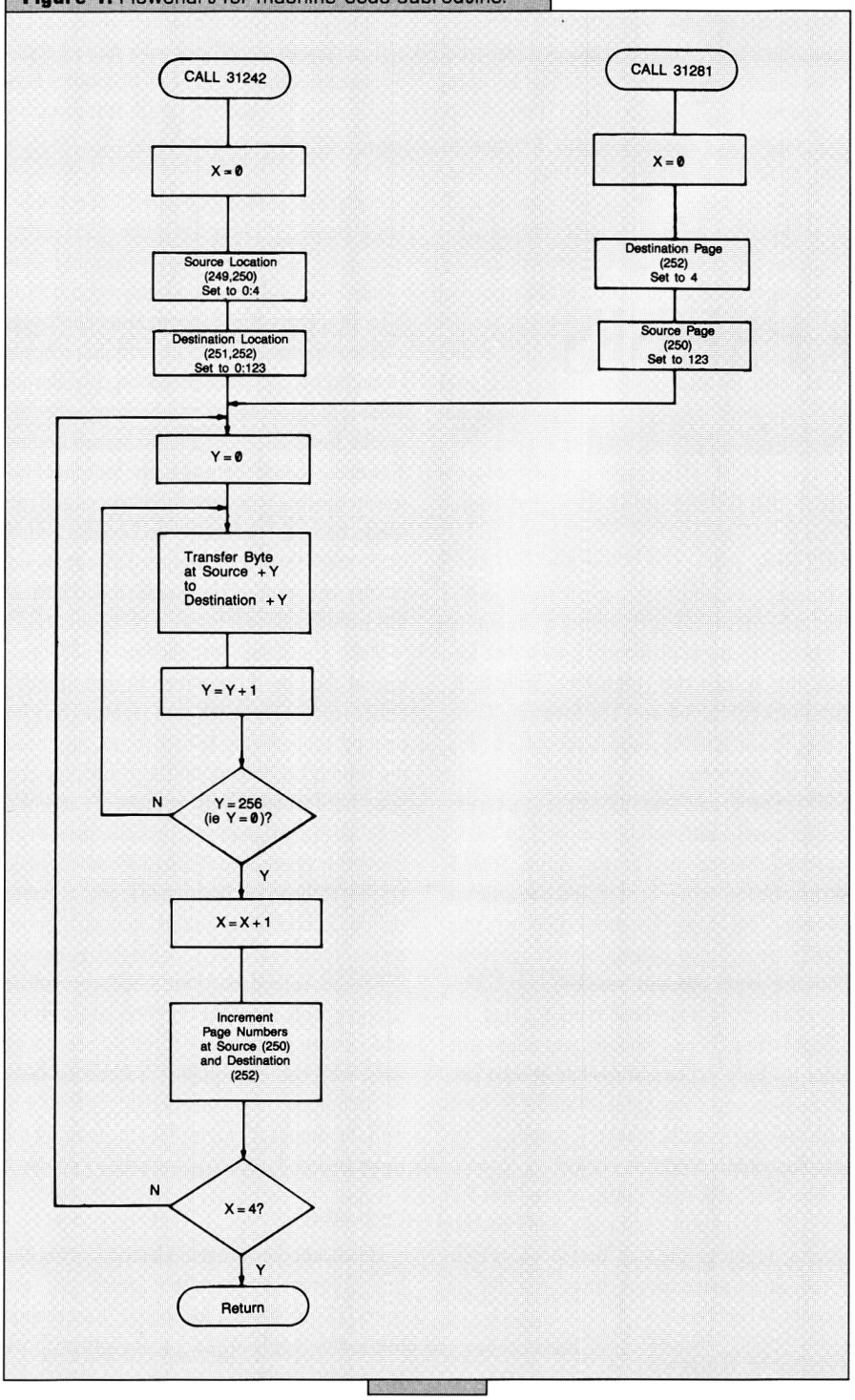

Figure 2. Sample assembly listing.

```
0400:  A2  00  12  START  LDX  $00
0402:  A9  00  13        LDA  $00
0404:  85  FA  14        STA  $FA
```

tine works perfectly to transfer data back into video-screen memory. The program's last instruction is a jump to memory-location 31260, right in the middle of the subroutine, where it initializes the inner loop to zero and begins data transfer.

NOTES

Generally, you can incorporate any short assembly-language subroutine into your BASIC program; simply use HI-MEM: at the beginning of your program to reserve a section of memory for the machine code.

Next, include the sequence of machine code in DATA statements in your program, and use a simple loop to READ each code and POKE it into your reserved memory. Be sure you know the subroutine's starting address to use with your CALL command, and make the subroutine's last instruction an RTS command (machine-code 96), returning control to your BASIC program.

RIGHT OF ASSEMBLY

You don't need to understand assembly language fully to copy listings into DATA statements. Most assembly listings will look something like the code in **Figure 2**. The machine code you need is in the second and third columns. (Some instructions have a third code in column 4.)

These numbers are in hexadecimal, with digits running from 0–15 instead of 0–9, using the symbols A=10, B=11, C=12, D=13, E=14, and F=15. To convert them to decimal values, multiply the first digit by 16; add to that the value of the second digit. For example, A2=10*16+2, or 162; FF=15*16 +5=255; 85=8*16+5=133.

DON'T HANG UP

Here's one important final note. Even minor errors in a machine-code subroutine may make your Apple "hang," requiring you to reset it and lose whatever you have in RAM. Before each test run of your program, be sure to save it—otherwise, you may lose hours of input and have to start over from scratch. □

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ROLL THE PRESSES

Newsletters, posters, banners, books—page-layout programs for young authors and journalists make all kinds of writing fun.

By CYNTHIA E. FIELD, Ph.D.

JOHNNY AND JANIE HAVE LEARNED to read and write; now let's encourage their creativity. Adults are discovering that desktop-publishing programs often make writing projects more pleasurable. Why not share our little secret with the kids? After all, what could be better than *enjoying* homework assignments or *volunteering* to write reports and stories for family members, classmates, and friends?

DTP VARIETY

Desktop-publishing programs for kids run the gamut from greeting-card-design products such as **The Print Shop** to newer offerings like **SuperPrint**, which creates giant-sized posters. I've reviewed these and many other children's desktop-publishing programs—including **Cotton Tales** and **Muppet Slate**, two excellent creative-writing products for four- to eight-year-olds—in previous issues. (See "Software for Young Storytellers," June 1988, p. 86, and "Word Processors Make the Grade," November 1988, p. 78, respectively.)

This month let's focus on colorful *new* programs that pack a healthy dose of traditional educational value into your child's desktop-publishing sessions.

HARDWARE BASICS

The programs reviewed this month require 128K and run on the Apple IIe, IIc, and GS. All products are available in 5¼-inch disk format, but at least two companies, William K. Bradford Publishing and The Learning Company, also offer some of their products in 3½-inch disk versions.

These programs generally support a variety of black-and-white printers as well as color-capable printers such as the Apple ImageWriter II, the Apple Scribe, and the Okidata Okimate 20. Keep in mind that whether they're the nylon or thermal variety, color ribbons are expensive and wear out fast. Unless you have a do-it-yourself reinking unit for ImageWriter II color ribbons, you might consider printing in black-and-white at least part of the time and coloring illustrations by hand with crayons, pencils, markers, pastels, or watercolor paint.

The kids' desktop-publishing products I've selected this month technically don't require a color monitor—the way Mother's Day technically doesn't require greeting cards, gifts, or flowers.

COLORING BOOKS

The **Electric Crayon Deluxe** series from Polarware ranks among the most colorful desktop-publishing products for preschoolers and early elementary-school-aged children. The first two programs in the series, **Dinosaurs Are Forever** and **Holidays & Seasons**, are electronic coloring books—but educational ones!

In Dinosaurs Are Forever, your child uses a mouse, joystick, KoalaPad, or regular Apple keyboard to color scenes depicting 26 different dinosaurs. In Holidays and Seasons—the title speaks for itself—your child chooses among 30 scenes. In both products, the bottom of the screen sports a paintbox of 16 colors. (You can create more by mixing.) Select a color, move the crayon-shaped cursor to the part of the picture you want to paint, and click: The area fills with the chosen hue.

Make a mistake? Just click on the "Oops!" icon at the top of the screen to undo the fill. Other icons include left and right arrows for turning the coloring book's pages, an eraser for wiping the screen, and a printer for creating hardcopies of your youngster's artwork.

Don't just print the picture, though. Print a monthly calendar, and use the colorful stickers that come in the box to mark special events such as holiday celebrations, dentist appointments, report-card days, or birthday parties.

Besides calendars, your child can create banners with dinosaur (or holiday) pictures and custom messages in three different type sizes. Kids can even publish a dinosaur book by combining the pictures he or she's colored with the dinosaur biographies included in the program.

INFO SWAP

Here's another project. Electric Crayon Deluxe programs let youngsters create their own short (1K, or about a half page) "information files" with AppleWorks, or any other word-processing program that can save text in ASCII format. Some programs call this process "printing to disk." Mom and Dad may have to help preschoolers using a word processor to type and save this ASCII file.

Next, have your child boot up the Electric Crayon Deluxe program, color in the desired scene, and print it with his or her personal information: a favorite poem about spring,

Irish song lyrics for St. Patrick's Day, or an Easter reading selection. Kids can write and publish capsule research reports on subjects ranging from why they think dinosaurs became extinct to how their family celebrated Martin Luther King, Jr., Day.

INTERACTIVE STORYTELLING

William K. Bradford Publishing has recently introduced home versions of D.C. Heath's animated-literature/creative-writing programs for elementary- and middle-school-aged desktop publishers. Among the company's current offerings are three series: **Explore-a-Story**, **Explore-a-Science**, and **Read, Write, & Publish**.

Each program within these series is geared to a particular reading level. **A Great Leap**, like other Explore-a-Story programs and like the Explore-a-Science series packages, includes a colorful, printed storybook featuring the program's computer-generated graphics. *A Great Leap*, the book, recounts the plight of Robert, a tadpole frustrated and saddened by his inability to jump like the big frogs in the pond.

The software accompanying each book contains the same colorful scenes, characters, and props, as well as vocabulary-word labels such as "lily pad," "flower," or "frog." Electronic versions of the storybook's characters are animated—tadpoles wiggle, bugs buzz, and cows graze.

In **Animal Watch: Wolves**, an Explore-a-Science program, the storybook and software let your children observe and manipulate the habitat and lifestyle of Alaskan timber wolves. Other "expeditions" involve whales, prehistoric life, desert ecology, and weather. Like the Explore-a-Story products, Explore-a-Science programs have animated characters, movable objects, vocabulary labels, and a script-typing feature.

MAXIMUM CREATIVITY

With either series, your youngster can modify any story any way he or she pleases. (A Student Disk includes story ideas and other activities.) Move characters, objects, or labels around; delete some; incorporate others. (Choices are "stored" in pull-down menus.)

Type in your own story line—place the cursor anywhere on screen, then type away, line by line. You can move lines of type as well as characters and objects with a mouse, joystick, KoalaPad, keyboard, TouchWindow, or other adaptive input device.

Save the creation on disk to enjoy it now, or revise it later on. Publish the story in black-and-white or in two different sizes in color. Go ahead, brag a little.

FOR BUDDING AUTHORS

Read, Write, & Publish goes beyond the Explore-a-Story or Explore-a-Science series' focus on a single topic (frogs or wolves, for instance). Instead, Read, Write, & Publish programs come with scenes and graphics suitable for developing different topics and virtually infinite numbers of stories. ►

PRODUCT INFORMATION

The Children's Writing & Publishing Center
The Learning Company
6493 Kaiser Drive
Fremont, CA 94555
(800) 852-2255
(415) 792-2101
$59.95 (home version)
ages 9 and up
Reader Service No. 305

Cotton Tales
MindPlay
Methods & Solutions, Inc.
3130 North Dodge Blvd.
Tucson, AZ 85702
(800) 221-7911
(602) 322-6365 (AZ)
$49.99
ages 4–8
Reader Service No. 306

Electric Crayon Deluxe:
Dinosaurs Are Forever
Holidays & Seasons
Polarware
1055 Paramount Parkway
Suite A
Batavia, IL 60510
(800) 323-0884
(312) 232-1984
$29.95 each
ages 3 and up
Reader Service No. 307

Explore-a-Science Series:
Animal Watch: Whales
Animal Watch: Wolves
ages 6–9
Earth Watch: Tracks
Dinosaur Construction Kit:
Tyrannosaurus Rex
A Closer Look: The Desert
ages 9–12
Earth Watch:
Weather Forecasting
ages 10–14
Explore-a-Story Series:
Rosie the Counting Rabbit
Just Around the Block
The Bald-Headed Chicken
ages 5–7
A Brand New View
The Sleepy Brown Cow
What Makes
a Dinosaur Sore?
Where Did
My Toothbrush Go?
ages 7–8

The Lima Bean Dream
The Quasar Kids
The Best Bubble Blower
A Great Leap
Not Too Messy,
Not Too Neat
ages 8–11
$39.95 each (home version)
$75 each (school version)
Read, Write,
& Publish Series
ages 5–14
Turtles Like to Sleep In
(grade 4)
$99 per grade level
(school version)
home-version price
undetermined at press time
William K. Bradford
Publishing Co.
594 Marrett Road
Lexington, MA 02173
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(617) 862-2570
Reader Service No. 308

Muppet Slate
Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570
(800) 431-1934
(800) 221-5912 (NY)
(914) 769-5030
$75
ages 5–7
Reader Service No. 309

The Print Shop, $49.95
The Print Shop IIgs,
$59.95
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(800) 527-6263
(415) 492-3500

SuperPrint
Scholastic Software
730 Broadway
New York, NY 10003
(212) 505-3000
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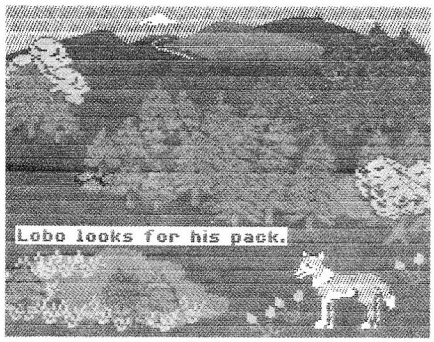

Animal Watch: Wolves, from Bradford's Explore-a-Science series.

Once Upon a Time: A New Prince Charming

Remember what happens in fairy tales when someone kisses a frog? A no-less-dramatic metamorphosis in kids' desktop-publishing software occurred recently with Compu-Teach's release of the GS version of *Once Upon a Time* (78 Olive Street, New Haven, CT 06511, 203-777-7738, $39.95; IIe/IIc version reviewed in December 1988, p. 110). This children's storybook-creation program is one handsome software prince!

Once Upon a Time for the IIGS offers a couldn't-be-easier, mouse-based interface. Preschoolers may need parental assistance, but with a little experimentation children aged 6–12, for whom the program is recommended, will quickly comprehend the nature of pull-down menus (File, Pages, Background, Color) and on-screen creativity options (Draw Object, Erase Object, Shrink, Enlarge, Flip, Write/Edit, Next Page, Previous Page, View Book, Quit).

If you need inspiration—or just some practice using the program—load "Jungle Friends," a seven-page sample story stored on the Once Upon a Time disk.

The program comes with databases of vocabulary words/graphics pairs for three popular themes—the Farm, Main Street, and Safari. Clicking on the corresponding radio button opens a window containing a word list of some three dozen more-or-less theme-specific characters and props. Type in the

The school version of the grade 4 package, dubbed **Turtles Like to Sleep In**, for example, offers the following topics: Stronger than Life (circus), Fabulous Feet (features), To the Rescue (people and animals), Sound Familiar? (fairy tales), Raining Cats and Dogs (dogs, cats, and people), Of Wings and Wonder (birds), Daring to Fly (people and flying things), and

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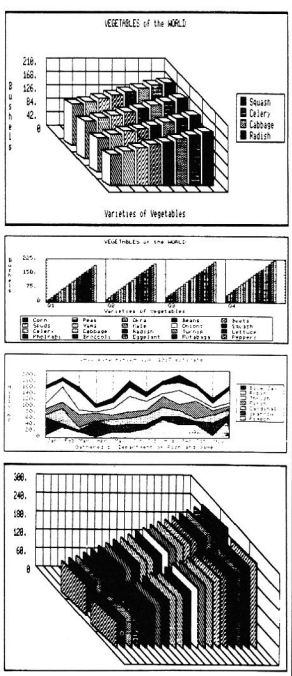

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word *giraffe* and an extraordinarily well-drawn likeness appears on screen. Use the 15-color palette in the Color pull-down menu to paint your giraffe grey—or peach! Shrink the giraffe and move it closer to the horizon for artistic perspective.

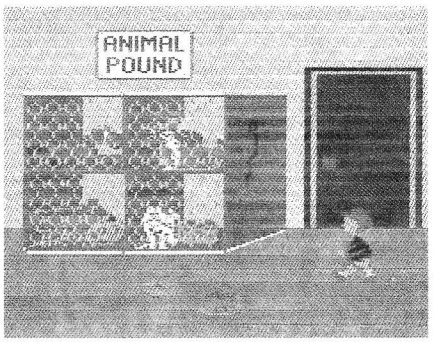
Choose any of the program's four Day or Night backgrounds. You can even switch backgrounds after graphics are in place should you decide your story needs mountains or stars.

Click on the Write/Edit button and begin developing your story line and dialogue. Each illustrated page can hold about 50 words on four lines. Older children can include text-only pages in their stories.

Besides writing and illustrating stories, a child can mix-and-match graphics from the three databases. What's wrong with a story about an anteater and a pig who obey traffic lights?

When it's time to publish your book, you can print it in color on an ImageWriter II. Or use a black ribbon and publish coloring books you or your friends can fill in by hand with pencils like the ones supplied in the package.

With its modern interface, exceptional graphics, and color-printing capability, Once Upon a Time for the Apple IIgs ranks among today's best educational creativity programs—the kind with which parents and children alike can live happily ever after.□



Bradford's Read, Write, & Publish series includes a variety of topics on each disk.

A Spider's Web (insects and animals). The home version, which the company hadn't yet released at press time, is expected to include three or four such topics per disk.

Take any topic and develop its scenes by moving, deleting, or adding characters and objects on screen. Open a Word Folder to find words in categories you might use in the story►

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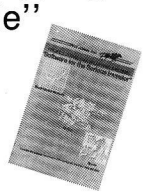

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(animal noise words, for instance). Take notes as you design the story and store them in the program's Notebook. Use the Writer, the program's built-in word processor, as well as the program's black-and-white or color printing capability to create the publication and show it off.

YOUNG PUBLISHERS

If your children are "too old" for electronic coloring books or don't like being restricted to somewhat predetermined story topics, take a look at **The Children's Writing & Publishing Center** from The Learning Company (see Reviews, p. 36; Editors' Choice, February 1989, p. 112). This flexible, open-ended program should prove to be a real up-and-comer on the kids' desktop-publishing scene.

CWPC offers two basic document designs: a Report/Story/Letter setup and a two-column Newsletter arrangement. You can include a heading with either.

The program supports keyboard input, but, like today's better software, it sports a mouse-driven WYSIWYG (what you see is what you get) visual interface with program options accessed via easy icons and pop-up menus. You can produce publications up to four pages long.

Need more room? Create your document in four-page "chunks" and save each one as you progress. Like "adult" desktop-publishing programs, this kids' program flows text around graphics automatically.

The Learning Company's latest achievement comes with more than 150 ready-made illustrations. The program claims to be compatible with Print Shop-type graphics from Broderbund Software, Beagle Bros, Epyx, The Big Red Computer Club, and Unison World, too. Theoretically, any child who wanted to do so could create his or her own graphics with The Print Shop and use those designs in documents published with The Children's Writing & Publishing Center.

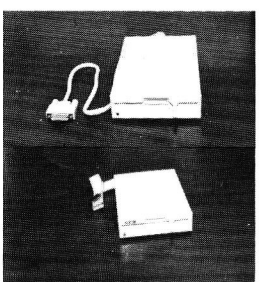
The Children's Writing & Publishing Center offers a "view" mode to let you preview your publication's layout. You can invoke "bold" mode for crisper, more intense printouts with or without borders.

HOLISTIC HOMEWORK

Some modern educators favor holistic learning—kids exercising their reading and writing skills in realistic situations. This philosophy emphasizes writing books or keeping journals, as opposed to older methods, which tended to emphasize discrete language skills mastered in seeming isolation.

Programs like Electric Crayon Deluxe; Explore-a-Story; Explore-a-Science; Read, Write, & Publish; and The Children's Writing & Publishing Center differ in many ways, but they share at least one significant trait: They each underscore this "whole language" approach to skill building. Maybe that's why desktop publishing is proving to be as much fun for kids as it is for adults. □

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



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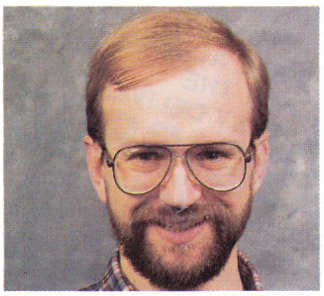


MACE ON GAMES

ODDS-ON FAVORITES

By SCOTT MACE

Digitized sounds make you believe you're at a real table; the on-line help is like having a blackjack expert whispering in your ear.

I HAVE AN ODD CONFESSION TO MAKE. I've never wrestled with a one-armed bandit or managed to break the bank. Perhaps it's just as well, because gambling can be addicting as well as entertaining. With the growing number of computer gambling games, however, you can be a high roller and still feel secure knowing you'll walk away with your money still in your pocket.

SAFE BET

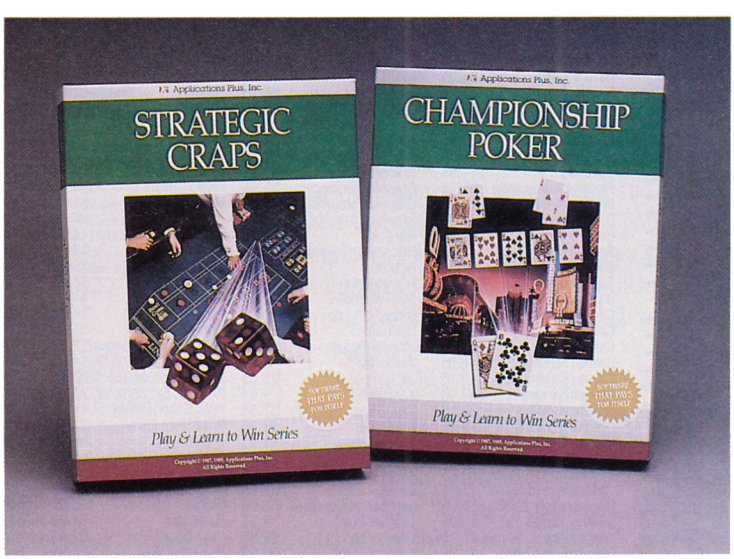
A good place to start is **Aussie Joker Poker** from Joker Software (distributed in the U.S. by Mindscape, 3444 Dundee Road, Northbrook, IL 60062, 312-480-7667, 800-221-9884, for $39.95), created by Derek Giles and sold originally in Australia. Aussie Joker Poker is simple and easy to learn. The computer acts as both dealer and croupier. Up to 90 players, each with a log-on name and password, can compete. Password protection ensures that other players can't gamble with your money.

The game scores your hands automatically according to Hoyle's poker rules. You can hold cards (by pressing keys 1–5), then ask your Apple to deal new ones. Press the spacebar and the computer scores your final hand. For a new challenge, refer to the options menu; using either the keyboard or mouse commands, vary the size of the deck, the number of hands dealt per game, and the size of each player's bet.

Aussie Joker Poker lets you add new players or remove a player from the current game. You can save or restore a game—even if it was interrupted by a power failure—because the computer saves all data to disk as you play. At the end of the game, Joker Poker credits the winner with his or her earnings.

TRUMP CARD

If you missed your connection on the Trump Shuttle and lost your keys to the Tower, don't despair. At least you can roll a few dice at Trump's casino, thanks to Intracorp's **Trump Castle: The Ultimate Casino Gambling Simulation** (14160 S.W. 139th Court, Miami, FL 33186, 305-252-9040, distributed under its Capstone entertainment label for $34.95). To use one of Donald Trump's favorite words, this game is *quality*.



With games like Strategic Craps and Championship Poker, you can try your luck at high-stakes gambling without losing a dime.

Trump Castle includes blackjack, roulette, craps, keno, video poker, and nine slot machines. You can use either the keyboard or a mouse, but I recommend the latter. The main menu shows six icons representing each part of the simulated casino—just pick one to play a game. Each game begins when you move chips into the betting area or coin slot.

Blackjack follows standard New Jersey rules. You can double-down (place a bet equal to your current bet), place an insurance bet (if you think the dealer's hand is a winner), or split a pair.

Craps is one of the more colorful games of chance. It also takes the most time to learn. Fortunately there's a reprint of an abridged version of *Trump Castle's Guide to Gambling* in the back of the manual. This section covers craps, roulette, and blackjack.

Trump Castle assumes you're familiar with the mechanics of video poker and the payoffs of standard and progressive slot machines. You may want to consult a guide to gaming if the play still confuses you.

FULL HOUSE

Even if you need to hear the shuffle of cards or the clink of chips, you still don't have to venture into a real casino. **Blackjack Academy** for the Apple IIGS (MicroIllusions, 17408 Chatsworth Street, Granada Hills, CA 91344, 818-360-3715, 800-522-2041, $39.95) uses the full power of the Apple IIGS, including its advanced user interface.

It's not just these digitized sounds that make you believe you're at a real table. There's also on-line help, which is like having a blackjack expert whispering in your ear. With every hand you're dealt, you can get an analysis of what to do next. In one example, the "optimal play" pull-down-menu option summarized what the dealer was showing and what I was holding (a "hard 13"—no aces), and advised me that my chances of busting were quite high.

SCHOOL'S OUT

Options for varying play are equally impressive. You can use rules representing typical Las Vegas, Reno, or Atlantic City casinos. Rules govern such topics as the number of decks the dealer uses and minimum and maximum bets. You can also customize your own rules and essentially create your own casino.

Up to four players can be at the table at once. Rather than using differently colored chips for different values, Blackjack Academy lets you pick your exact betting amount with menu buttons. You also decide whether to Hit, Stand, Double-Down, or Split Part by clicking on a button.

JACKPOT

These aren't the only casino games in town by any means, but they're a good start. You can also try your luck at **Vegas Video Poker** ($29.95), **Strategic Craps** ($39.95), **Beating the House at Blackjack** ($34.95), and **Championship Poker** ($35.95) from Applications Plus, Inc. (15270 Harmony Way, Apple Valley, MN 55124, 612-432-5560), as well as **Vegas Gambler** from Calfornia Dreams (780 Montague Expressway #403, San Jose, CA 95131, 408-435-1445, $39.95).

Soon you'll be able to phone in your wagers with a new multiplayer on-line gambling game on AppleLink Personal Edition. For its II subscribers, Apple is developing a casino game that will include five-card stud poker, blackjack, slot machines, and bingo. The game will post high scores for all to see, and message boards will let you arrange a multiplayer game at any time.

When the stakes are high in Apple II gambling, the deck is stacked in your favor. Games that entertain for hours and teach you a few winning tips at the same time are a sure ace in the hole. □

SCOTT MACE IS EDITOR AND PUBLISHER OF *MICROCOSM*, A MONTHLY NEWSLETTER ON COMPUTER GAMES. WRITE TO HIM AT 6510 COPPER RIDGE DRIVE #T-1, BALTIMORE, MD 21209. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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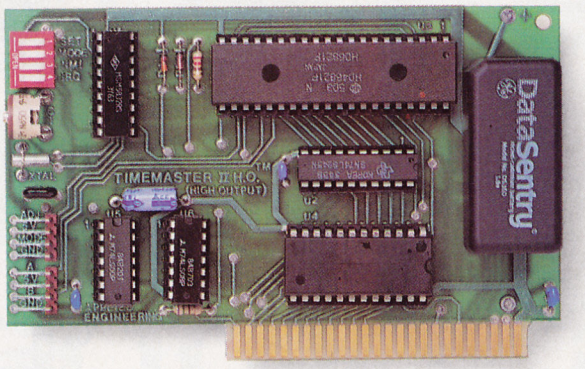

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Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what Hints & Techniques is all about. It's an information swap for readers who want to share their programming pointers, hardware secrets, AppleWorks applications, and all kinds of other insights.

PFS TRANSFER

by Merle C. Harton, Jr., Ph.D.

ALTHOUGH IT'S EASY TO CONvert PFS:File data forms to AppleWorks templates, any mistake you make is difficult to erase. The manual accompanying the ProDOS version of PFS:File describes how to copy files from AppleWorks to PFS:File, but it stops short of explaining the error trapping that's necessary when you move data files in the opposite direction. Here's a more detailed account that'll help you avoid the worst pitfalls.

First, count the fields in each of your PFS:File forms. You'll need this number when you create your AppleWorks database.

Next, be sure the last field in each PFS form contains information: Using PFS:File's find-forms function, search for forms that match the criterion /.. in the final field. If you've never filled in any of those last fields, search the next previous field and decrease the total number of your recorded fields by one. If any forms emerge from the search, fill them in with some character—an asterisk, for instance.

From PFS:File's main menu, select the copy-forms function, then choose to copy selected forms to an ASCII file and rename it. On the ASCII options screen, specify the value 13 (the ASCII equivalent of the carriage return) for both "end of item code(s)" and "end of form code(s)." Leaving them blank will crash AppleWorks when you load forms into the database.

Once in AppleWorks, add files for the database, and select to load a text (ASCII) file with the appropriate pathname (volume and filename) for your file. Also, specify your categories as the total number of fields you recorded for your PFS forms.

Rename the new database categories, then press Open apple-L to reorganize your reports. That's it—you're done.

Now to transfer your files from AppleWorks to PFS:File, just select the copy function from the PFS menu and choose to copy from an AppleWorks database. Because the AppleWorks categories now match each PFS field, loading your new forms is easy.

Write to Merle C. Harton, Jr., Ph.D., at 1525 St. Ann Place, Slidell, LA 70460.

SPREADSHEET SPEEDUP

by Wilton R. Abbott

WORKING WITH A LARGE AppleWorks spreadsheet can involve several problems: Copying columns is often difficult, and you must wait endlessly for recomputation and printing. One solution is to delete the columns, then replace every cell containing @ERROR in its formula with the cell's value. My spreadsheet's ledger requires 11 columns per month, though, and replacing more than 300 entries is both tedious and subject to error. The following procedure illustrates a more straightforward approach.

Starting with cell E11, I typed in +E11 instead of the cell's value, then continued doing the same in E12 and all other cells. Although adapting this technique to your own spreadsheets will improve your situation, installing a macro saves even more time as you define the operation the first time you execute it. AutoWorks, for example, lets you record a macro permanently. After you make the first change, just sit back and watch the remaining corrections unfold.

Write to Wilton R. Abbott at 27899 Via Ventana, Los Altos Hills, CA 94022.

FORMATTER UPDATE

by Shari Kimmel

IF YOU'RE USING FORMATTER (Hints/Techniques, February 1989, p. 101) with DOS 3.3, you need to make three adjustments to the program. First, remove lines 26 and 27 and add the following line:

115 PRINT

Also, alter line 33 to read F2$ = "C" + F1$. Now the program will add carriage returns after every 65 characters, as it does in ProDOS.

Write to Shari Kimmel at 16 Buck Road, East Brunswick, NJ 08816.

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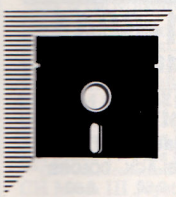

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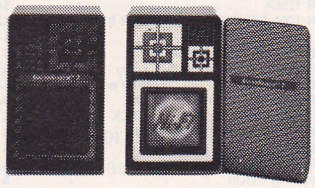

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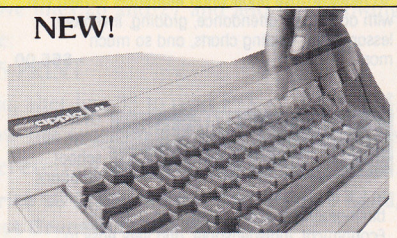

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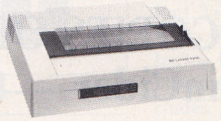

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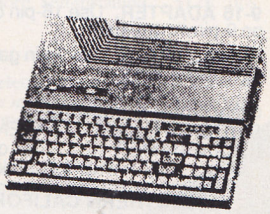

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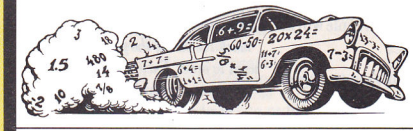

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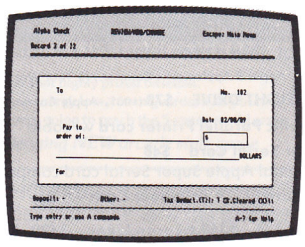

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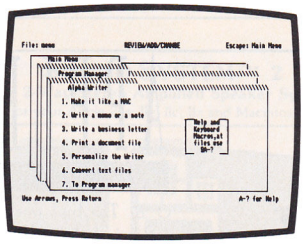

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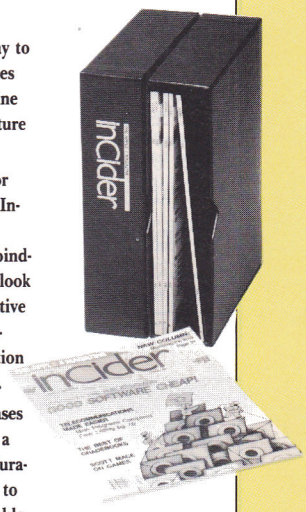

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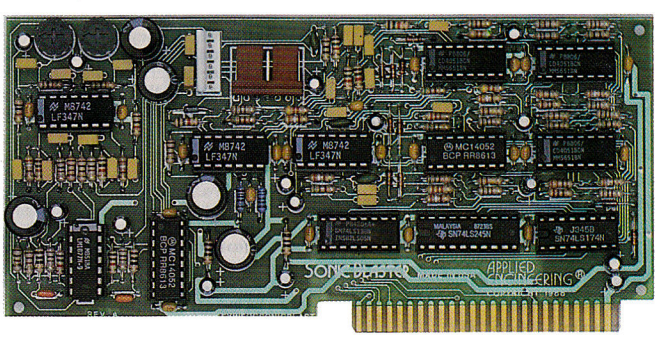
EDITORS' CHOICE

SOUND OFF WITH SONIC BLASTER

Just when you're convinced Apple has turned a deaf ear to its customers, along comes Applied Engineering. The company that's enhanced the memory and speed of the IIe and IIGS has now done the same for 16-bit sound. Applied's **Sonic Blaster** board serves equally well as a powerful stereo amplifier and as a flexible sound digitizer. Listen to sound effects pushed through Sonic Blaster and a pair of external speakers, and you'll be spoiled for good.



If you're not into recording and editing digitized sounds, that's fine. Install Sonic Blaster, and boot up your favorite IIGS entertainment or music program. Listen to the outrageous sound effects in games such as Silent Service, Tomahawk, or Zany Golf, and you won't believe your ears. The diving klaxon in Silent Service is so loud and clear you'll swear you're actually hearing it from within a submarine. The pseudo-psychedelic music score of Zany Golf will have you tapping your feet and dreaming of bouncing hamburgers, creepy castles, and whimsical walls.

"The sound coming from the Ensoniq chip in the IIGS is good," says Review Editor Lafe Low. "Sonic Blaster makes it great. It adds a whole new dimension to the music scores and funky sound effects that are standard fare with today's fleet of IIGS games."

"Is this what Fred Davis calls 'interactive multimedia'?" wonders Senior Editor Paul Statt. "Not quite—but the Sonic Blaster brings us a moment closer to that marvelous future when our home stereos, TVs, VCRs, radios, and computer games all blend into a seamless interactive assault on our eyes and ears. It's a start."

We tested the Sonic Blaster on an Apple IIGS system equipped with a pair of Bose Roommate speakers. Because the Roommates are already amplified, we needed to turn the volume on the Sonic Blaster board only to low. If you're using an ordinary pair of home speakers, you can turn the volume to medium, or adjust the sound setting through the GS control panel. Fair warning, though: If you turn the sound up all the way on the Sonic Blaster and the control panel, we can't be held responsible for damage to your eardrums—or to any glass fixtures in your house.

For maximum clarity, disconnect your GS' built-in speaker to prevent interference with the sound quality of your external speakers.

The stereo-amplification value alone makes Sonic Blaster worth the $129 Applied Engineering (P.O. Box 5100, Carrollton, TX 75011, 214-241-6060) will be asking for it. But the fun doesn't stop there. With the accompanying Sonic Blaster software you become master of your own recording studio. You can use virtually any audio source—a microphone, VCR, or stereo system—to record into Sonic Blaster. Then splice, copy, edit, add special effects (such as echo, stutter, fade up, and fade down). Sonic Blaster is literally a stereo sound processor.

Thanks to its intuitive screen display, jammin' with the GS couldn't be easier. If you've used a cassette tape player, you can use Sonic Blaster. Click on the appropriate button to play, rewind, and record sounds. When a sound is playing, the "tape" rolls forward.

The Sonic Blaster has an on-screen VU (volume units) meter, so you can monitor the output of both channels. Volume controls, playback-speed controls, a selection for single play or continuous play, and, of course, room for the sound-wave display are also shown. Want to check out the form? Bring up an on-screen oscilloscope to monitor the sound coming through either channel in real time. You can even pause the oscilloscope display for careful analysis of the sound wave.

Whether you're using it purely for stereo amplification or for its recording and editing facilities, Sonic Blaster is a powerful ally. Listen to one and we think you'll agree. That's sound advice. □

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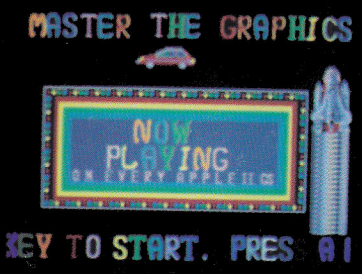

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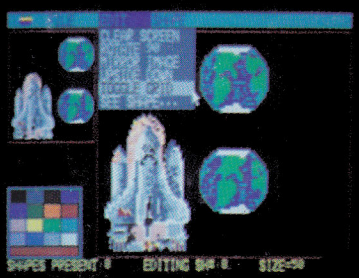

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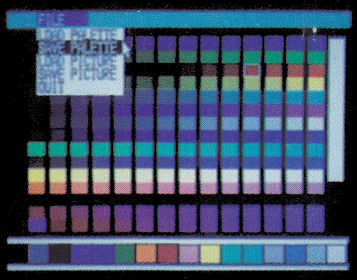

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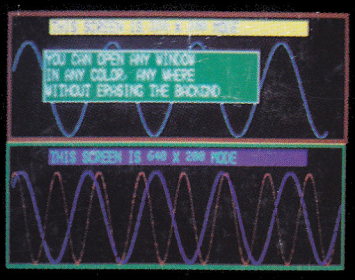

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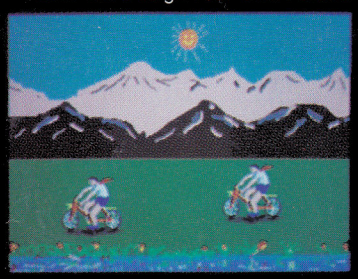

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The Apple IIGS is a great graphics machine with its superb super hi-res graphics and a range of 4096 colors! But until now these colors and graphics were reserved for assembly- and C-language experts.

Spectragraphix 256™ adds **35 new BASIC commands** to Applesoft and lets you manipulate graphics in a way you never dreamed possible! Unlike other paint programs, you can easily use any graphics you create with your BASIC programs. It's so simple that even children and beginners can start exploring the wonderful world of color graphics and animation from Applesoft. Yet it's powerful enough so that advanced programmers and software developers can use it to create professional quality software for use in education, science, games, simulations, and animation using pull down menus and a mouse.

Features & Benefits
- Draw shapes and fonts using seven different modes (BLOCK Mode, DRAW Mode, XDRAW Mode, DRAW with one color, DRAW without erasing background, CLOSE a shape, OPEN a shape) and design up to 255 different shapes or fonts per shape table and load them in any memory bank. Supports both 320 and 640 modes.
- Line and point routines for 320 and 640 modes
- Use PRINT, HTAB, VTAB commands to print text anywhere on the super hi-res screen in any color or font
- Create very fast animation using simple commands
- Change any color in any palette to any of 4096 colors
- Clear any area of screen to any color
- Color cycling function
- Time and date function
- Mouse functions
- MOVE command lets you move data anywhere in memory
- LONG BSAVE and BLOAD function: use it to save data or picture anywhere in memory . . . allows you to create slide shows using simple BASIC commands
- Assign any of the 16 palettes to any of the 200 horizontal lines so you can display up to 256 colors at one time and mix 320 & 640 modes as well
- Powerful 16-bit PEEK/POKE function lets you access anywhere in the memory
- Get screen color and palette number for any pixel
- Change easily your favorite Magazine and Hi-Res programs for Super Hi-Res
- Easy-to-understand manual helps you get started in 30 minutes
- And much, much more

After all, why should you have to buy a new, less powerful, more expensive BASIC compiler and spend time learning it when you are already familiar with Applesoft. Easy-to-use Spectragraphics 256 expands your Applesoft's capability, giving you complete control of super hi-res color graphics and animation at a low, low price.

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Order now and get a FREE Shape Editor Program, a FREE Palette Editor Program, and many demo programs that let you get started right away! The entire Spectragraphix 256 package plus bonus programs is offered at only $69. Call today. . . .