

THE APPLE II MAGAZINE



incider

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THE WIZARD OF *Woz*

Steve Wozniak Predicts the Future of the Apple II

THE DESIGNING APPLE:
CAD Products For Your II

REVIEWS:

- ▶ The Graphics Studio
- ▶ MultiScribe GS 3.0
- ▶ DeskWorks
- ▶ RamTalker Plus
- ▶ Gauntlet GS
- ▶ Paperboy



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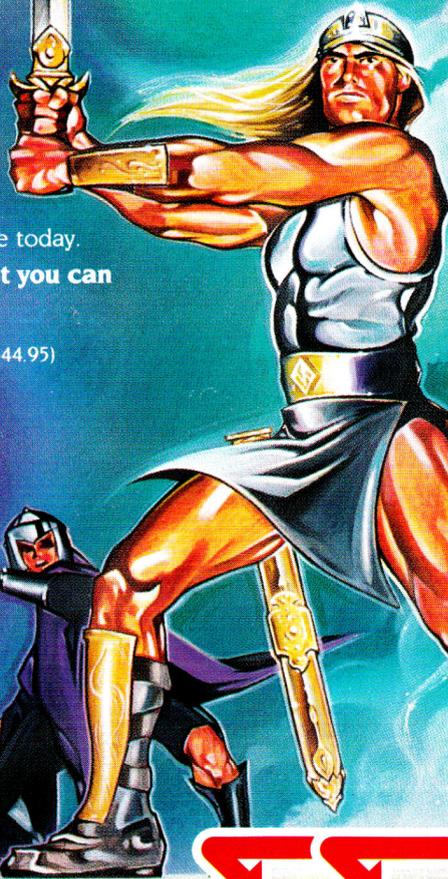
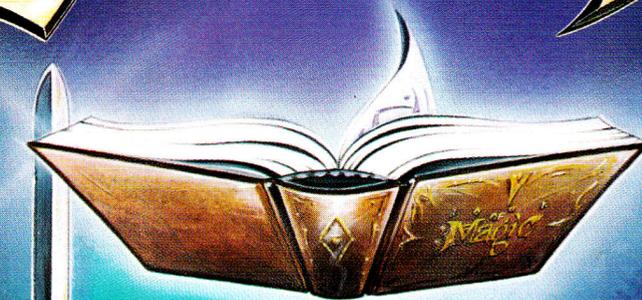
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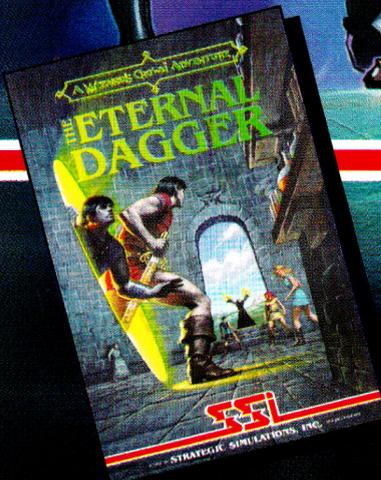
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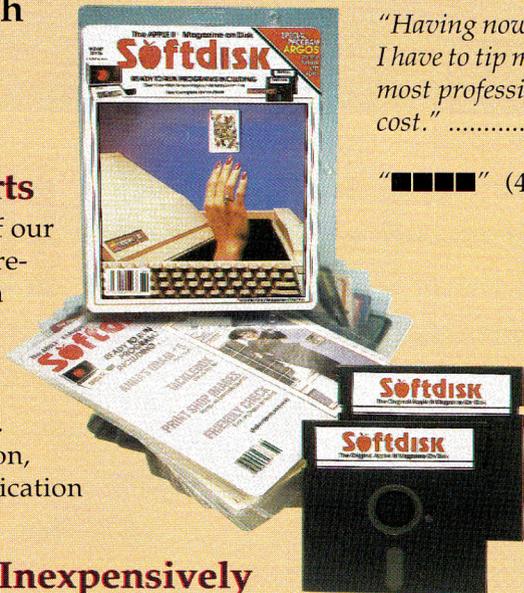
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Contents of Issue #79

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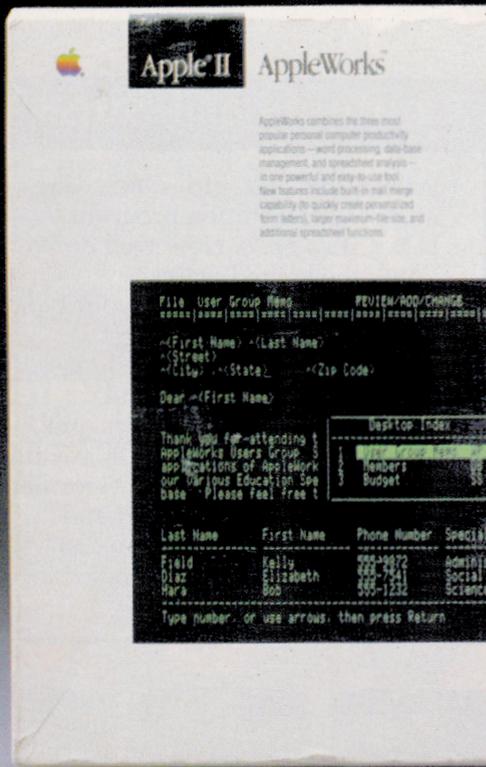
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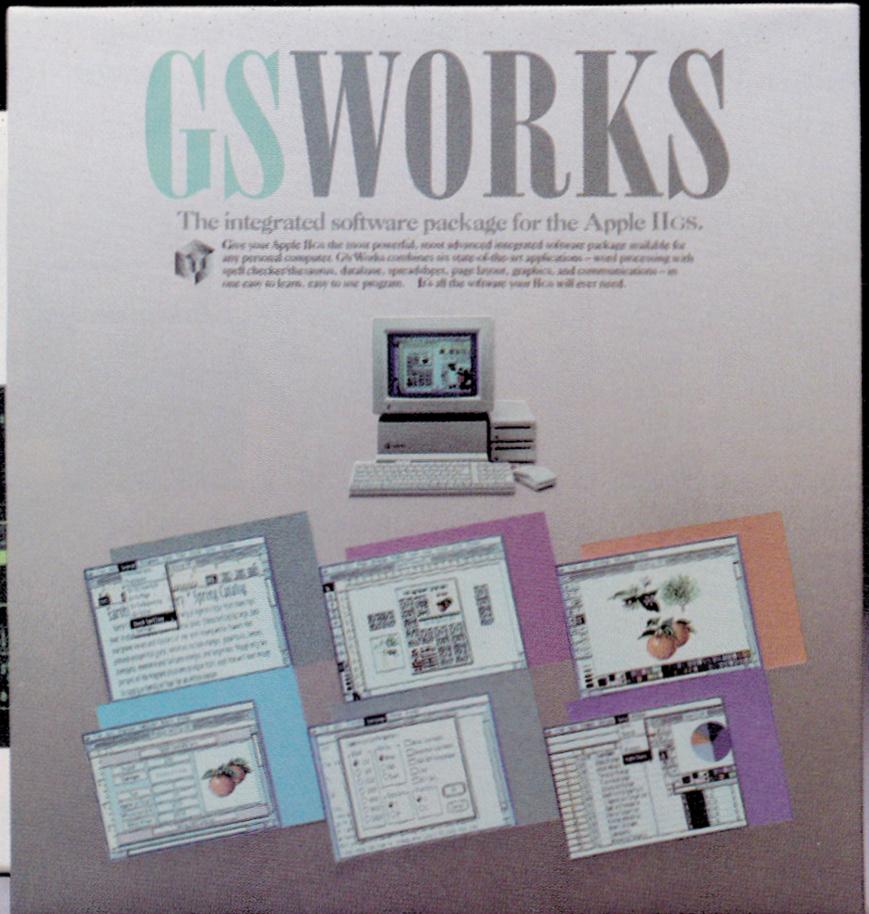
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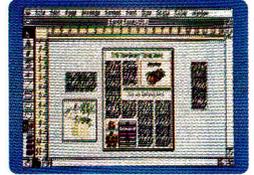
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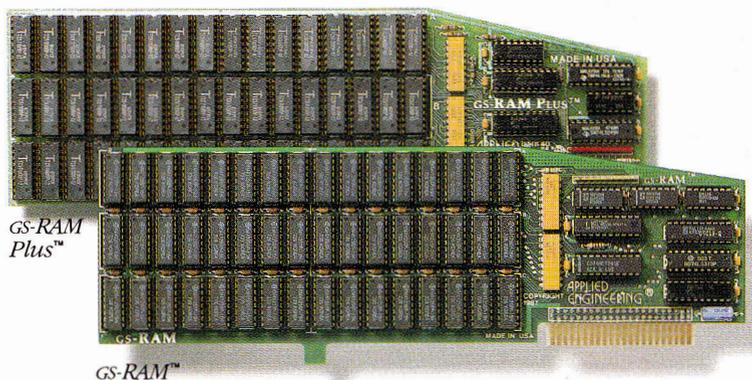
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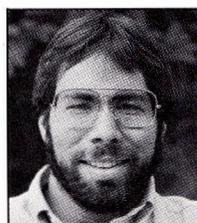
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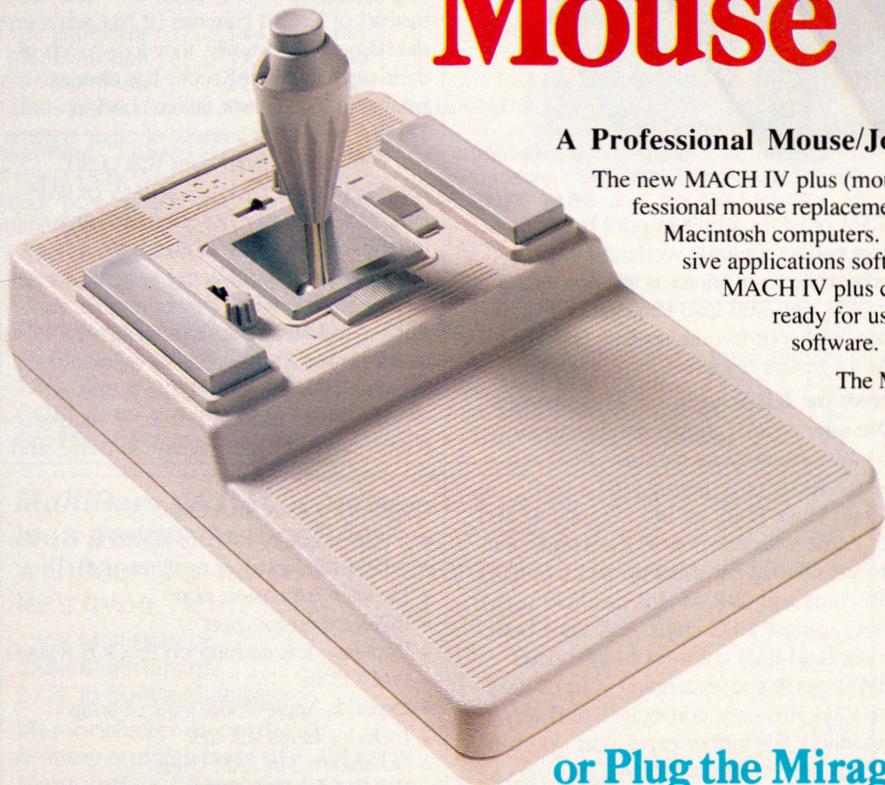
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ON THE COVER

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What does the future hold for the Apple II? How will emerging technologies and a changing marketplace affect its development? *inCider* interviews Steve Wozniak, designer of the original Apple and cofounder of Apple Computer.

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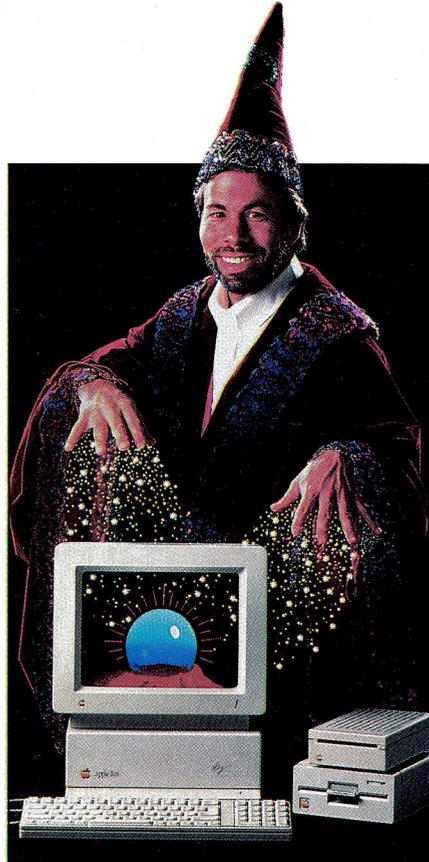
Whether you're dreaming up floor plans, schematics, patchwork quilts, or new molecules, there's at least one Apple II computer-aided-design program that will suit you to a T-square.

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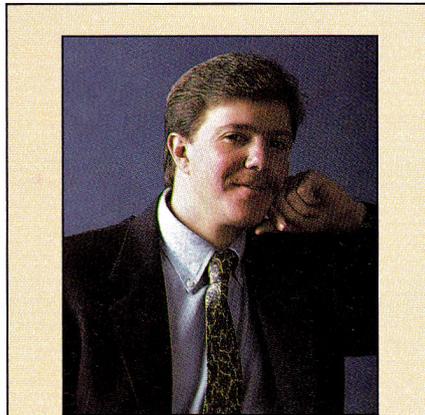
For the most part, fast things don't appeal to me. I live in Peterborough, New Hampshire—hardly the fast lane. I drive a four-cylinder automobile. I'd rather watch a Celtics game in a quiet bar than go to a nightclub.

I guess speed just isn't my style. Even after using an Apple IIGS for about a year, I didn't really think speed was that important. When Paul Statt and Eric Grevstad joked that GS stood for *go slow*, I shrugged and said, "It's fast enough for me." But then again, I was using it mostly for AppleWorks and games, and only occasionally for full-fledged GS software. I was too impressed by the machine's sound and graphics to check my watch.

But even I catch on after a while. That's right—I'm jumping on the speed bandwagon. After seeing Applied Engineering's Transwarp GS—which doubles the speed of the machine—at AppleFest in Boston (May 20–22), I'm convinced: When it comes to the Apple IIGS, faster is better. Sometimes you don't realize how slow your Chevette is until you drive a Corvette.

I don't want you to think the GS is useless without an accelerator board. If the majority of your work centers around AppleWorks or one of the new 8-bit desktop-publishing programs, the Apple IIGS is a veritable speed demon. Even if you use a GS word processor or database manager, the current speed will suffice, although it won't impress. But the reason speed is—or will be—so important is that IIGS programs in development are more ambitious and sophisticated than the current machine can accommodate.

What's going on? Maybe the companies working on these programs knew about Transwarp GS before it was announced.



"After seeing Transwarp I'm convinced: When it comes to the GS, faster is better."

Or maybe they know that Apple is up to something with the GS' operating system. They must know something you and I don't, because with some new GS software faster isn't better—faster is crucial.

It does seem fairly certain that a new ProDOS, which will speed the operation of the GS, is on the way from Apple. It may even be ROM (read-only memory) based rather than disk based, which will speed things up even more. There may be a faster IIGS in the works, too, but that could be a long way off; and it won't help you if you already own a GS.

If speed is a problem for you, other options can make GS software work faster. You can buy extra memory and use a *RAM disk*, a chunk of memory inside your computer that thinks it's a disk drive. Rather than going to the physical 3½- or 5¼-inch disk drive for information,

your program works much faster by accessing the RAM disk instead. The only problem with a RAM disk is that if you turn your computer off, experience a power outage, or unplug your computer accidentally, you lose everything.

A hard-disk drive is another option. Since most GS software isn't copy protected, you can load it onto a hard drive. Again, because the program doesn't have to access a floppy disk, the software works much faster. Unless you have an unusually large software library, you can put all your programs on the hard drive. You don't have to worry about inserting and ejecting disks—just turn on your computer, select your program, and go. A hard-disk drive, though, is no small investment; prices range from \$600 to several thousand dollars.

A third option is battery-backed RAM, which combines the speed and relatively low cost of a RAM disk with the reliability of a hard-disk drive. Products such as Checkmate Technology's MemorySaver and Applied Engineering's RamKeeper, for example, attach to your GS memory-expansion card and turn your volatile RAM disk into a nonvolatile *ROM disk*. The difference is that when you lose power, your ROM disk keeps everything intact until the lights come on.

Speed isn't an issue for every Apple IIGS owner, and it isn't a problem for every GS program. If you do find your GS sluggish, there are ways—not necessarily cheap ways—around it. Or you can wait for Apple to release its new GS operating system. But if you happen to run into anyone from Apple Computer, tell him to speed it up. ■

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IN08

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*To be very specific, you need an Apple IIc, Apple IIgs or Apple IIe enhanced with 128K of ROM, an 80 column card and a Super Serial card. **General Services is provided to you by Quantum Computer



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Disappointed with Dazzle Draw

Before purchasing an Apple IIGS, our friends recommended Broderbund as a reputable company. Based on this information, our first software purchase was Dazzle Draw. Although advertised as compatible with the IIGS, only the front side of the disk is functional. The slide show on the second side doesn't run.

When we called Broderbund, the company's support personnel told us the second side didn't work on a IIGS, but didn't inform us of a corrected version. The company didn't offer a partial rebate, credit toward a future purchase, or a solution, even though it acknowledged the problem. We're disappointed with Broderbund's lack of action.

Wayne and Dell LaRock
5013 West Sandburg Drive
McHenry, IL 60050

Broderbund Responds

Dazzle Draw 1.1, the current version, runs on the Apple IIGS, as well as the Apple IIe and IIc. In the earlier version, the slide show didn't work on the Apple IIGS, although all other functions performed as advertised.

In addition, a version of Dazzle Draw that printed smaller-than-standard pictures on the ImageWriter II was available for a short time. This problem has been corrected in version 1.1.

Users experiencing either of these problems can obtain an update from Broderbund by returning the original Dazzle Draw program disk with a brief note mentioning the need to update to version 1.1. Mail it to Broderbund Software/Direct, 17 Paul Drive, San Rafael, CA 94903-2102.

Ulla Thomsen
Public Relations
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101

Hype or Attitude?

As a longtime Apple II and Macintosh user, I'm distressed by Paul Statt's column "Hype and HyperCard" (Status Report, April 1988, p. 20). Your editors missed a major point.

HyperCard is probably the most revolutionary piece of software since the introduction of MacPaint, which is now the format for most GS paint programs. You can't compare its power with the limitations of AppleWorks. If you pass it off as a small contribution to the computer world, you're lying to your readers. I do agree, however, that HyperCard in its "true" form will never exist on an Apple II. If Apple really wanted HyperCard on the IIGS, Apple would write it.

Why did Apple give HyperCard away this Christmas? To promote sales. Why didn't Apple give away AppleWorks? Because that's its only major Apple II seller, and people would buy it anyway. Does Apple want mouse and menus in the GS' future? Of course—it's the future of all personal computers. Take a look at IBM's new OS/2.

You're overlooking HyperCard because you think AppleWorks is better. With this AppleWorks-is-all-I-need attitude, you're going to miss out on many other great ideas, and the Apple II is going to be stuck in AppleWorks limbo until its death.

Adam Gross
52 Old Quarry Road
Woodbridge, CT 06525

Are mouse and menus really the future of all personal computers? Mr. Gross thinks so, Apple thinks so, and now IBM thinks so. I think not—with its mouse-and-menus-are-all-we-need attitude Apple is ignoring many other great ideas, even today. I certainly don't believe that AppleWorks is all I need—look at my earlier columns. But the reality is that almost every Apple II owner uses AppleWorks.

HyperCard? Let's wait and see where it is in one year or five.
—Paul Statt

More on Printer Support

John Demarco's letter blasting Apple IIGS software developers for supporting only the Apple ImageWriter or LaserWriter ("Printing Options," March 1988, p. 14) proceeds from a mistaken assumption. The problem is not that the developers don't support other printers; it's that Apple Computer doesn't.

Apple IIGS developers are encouraged to use GS Toolsets in their programs on the grounds they provide a consistent user interface and save the programmer time and effort. Therefore, many (but not all) IIGS programs that produce printed output use a Toolset called the Print Manager, which lets you send graphics images (including text represented as graphics, as in Multi-Scribe GS and other graphics-oriented word processors) to your printer.

The boot disk must contain a driver for any printer the Print Manager supports. Currently the only drivers provided are for the ImageWriter and LaserWriter. If someone develops a driver for a third-party printer, though, that printer could produce output similar to that of the ImageWriter—though not necessarily with the same resolution or colors.

According to the Apple IIGS *Toolbox Reference: Volume One*, "Both the ImageWriter and LaserWriter printers are fully supported. Other printers should work as long as drivers are written for them; these drivers may be developed by Apple or third-party developers."

Not all IIGS programs use the Print Manager, and in these cases, the programs are responsible for print incompatibilities. But don't attack the majority of IIGS software developers for doing what they're told—following Apple's guidelines and using the Toolsets. Criticize Apple Computer for failing to sup-

port the hardware that made the Apple II look good on paper before the advent of the ImageWriter and LaserWriter.

So perhaps Mr. Demarco should conclude, "Someone could really make a killing writing printer drivers for non-Apple printers."

Bruce A. Mah
6294 North Tenth Street
Fresno, CA 93710

Source Revealed

After reading Cynthia Field's problem of obtaining envelopes to use with The Print Shop IIGS (Reviews, March 1988, p. 28), I'd like to share an answer with your readers.

Most stationery-supply stores or printing houses carry an envelope with the trade name No. 5½ Baronial envelope (4¼ by 5¼ inches) or No. 6 Baronial envelope (4¼ by 6½ inches). You commonly use this type of envelope with announcements or invitations; unfortunately, they usually come in a box of 500. I was lucky to find a stationery store that does its own printing; it had an open box and was willing to sell whatever quantity I wanted. I paid \$10 for 100 envelopes—ten cents each.

Jeffrey Strunk
31 Hickory Hills Drive
Bath, PA 18014

Thanks for the tip. Several readers offered the same information, as well as a number of local stationery stores, so check your area for a source. Our local printing house quoted a price of five and a half cents per envelope for No. 5½ in white.
—eds.

Absoft's Absence

I'm quite disappointed that you omitted Absoft's AC/BASIC compiler from your summary of third party BASICs for the GS ("BASIC Training", June 1988, p. 52).

Absoft is the developer of Microsoft's BASIC compiler for the Mac. We have extensive experience with BASIC compilers and were the first company to ship a BASIC compiler for the GS.

AC/BASIC is very easy to use. It's the only compiler (of any GS language) that provides direct support for high-level

graphics, letting novice programmers with no knowledge of the toolbox exploit the GS' graphics capabilities.

Furthermore, AC/BASIC is largely source compatible with Microsoft BASIC programs written for the Mac, Amiga, and IBM/PC. This gives AC/BASIC users the double benefit of creating portable code and learning to program in a BASIC dialect that, unlike Applesoft and GS BASIC, is applicable to a wide variety of computers.

Wood Lotz
President
Absoft Corporation
2781 Bond Street
Auburn Hills, MI 48057

What's Inside?

I purchased a IIGS recently because its "open architecture" promises never to be obsolete, unlike the design of my IIC. The down side is that many of the GS' peripherals—particularly disk drives—sit outside it and take up extra desk space. This takes away any extra space gained from the GS' small footprint, and adds to the jumble of cables at the back of the machine—RGB monitor, power, printer, and joystick.

I'm considering purchasing a hard disk for my IIGS, but am somewhat frustrated because all hard drives currently available for the GS are external only.

I've seen various IBM hard disks advertised that are mounted on cards and installed in a slot. The minimum configuration advertised is 20 megabytes and sells for \$319. This is much cheaper than any hard drive currently available for the Apple II line. I can't accept excuses that the IIGS' power supply isn't great enough, or the SCSI card takes up that slot. Just look at the variety of internally mounted hard drives available for the Macintosh. The Mac's power supply isn't any greater than the IIGS', and it also uses the SCSI interface. Moreover, the Macintosh has much less internal space than the IIGS.

Most IIGS users would probably welcome an internal hard drive instead of another external component. Are any manufacturers now working on an internal hard drive for the GS?

Christian Wassan
724 South St. Joseph Street
Alexandria, VA 22314

While there's no internal drive for the IIGS, you can still expand your Apple's memory. Try RamFactor (with battery backup) or GS-RAM (also with battery backup), two memory-expansion cards from Applied Engineering (P.O. Box 798, Carrollton, TX 75006, 214-241-6060). Also, Memory Saver (with battery backup) from Checkmate Technology, Inc. (509 South Rockford Drive, Tempe, AZ 85281, 800-325-7347), works with any memory-expansion card. All three products work like "electronic hard-disk drives"—but make sure to back them up! For more information on IIGS memory-expansion cards, see "More Memory, More Power," September 1987, p. 45.
—eds.

CORRECTIONS

In "Pascal Prowess" (Reviews, March 1988, p. 40) the reviewer is listed as Peter Zarte of Fort Collins, Colorado. He is actually Peter Zarti of Colorado Springs, Colorado.

Two program listings in the March 1988 Apple Clinic were switched inadvertently (p. 26). The top listing is the routine cited in "80-Column Screen POKES" (Listing 4), while the bottom listing displays the time (Listing 2 from "GS Clock Update").

In "Apple Portrait" (April 1988, p. 50) we reported erroneously that Video Title Shop, from Datasoft/Intellicreations, doesn't run on the Apple IIGS in IIE-emulation mode. According to John Butrovich, software development manager at Intellicreations, Video Title Shop does run on the GS, but you must set the display for 40-column mode.

inCider welcomes readers' comments regarding articles, letters, or other topics of interest. We reserve the right to edit letters for clarity, style, and space. Please address your correspondence to Letters, inCider, Elm Street, Peterborough, NH 03458.

IMPROVE YOUR WITH A BRAIN

NorCal Rally Club Reader
The monthly newsletter of the
NorCal Racing Club
Volume 1, Issue 7 Summer, 1988

Start Your Engine! Wine Country Rally Planned

By Billy Brakes

We're going for a rally tour of the California wine country on August 24th, and we encourage you to be there. We expect over 700 Club members to join this Annual Run To The Sun Wine Country Tour '88.

Plan to meet at club member Larry Lugnut's house on Silverado Trail in Napa at 7:00 A.M. He recently paved his lawn, so ample parking is available for the entire group.

The May **Bake-O-Rama** netted enough money to offer some terrific prizes for the rally:

- * First Place -- Porsche 959
- * Second Place -- Weekend at the Wynot Inn
- * Third Place -- Goodyear spare tire

Entry fee is \$50. See you there!!

Club Elections Near Start Rallying Support Now!!

Most of the club positions are re-election in September. As you all know, **Kevin Clutch** has been our fearless leader for years, and now his reign as President is at an end. Rumor has it that **Sally Shifter** is running for the office, as well as **Alex Axler**. Good luck to the both of you, and may the best man win!

The only office not available is newsletter editor. Due to my purchasing it, I'm too old to shift into fifth gear. I've never had as much fun as I'm having now, and I plan on doing this sort of stuff forever!



NorCal Rally Club Reader
The monthly newsletter of the NorCal
Racing Club

Volume 1, Issue 7 Summer, 1988

Start Your Engine! Wine Country Rally Planned

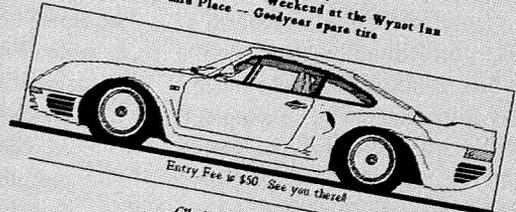
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AppleWorks

GEOS

If your documents aren't winning any beauty contests, maybe your Apple IIe or IIc's problem isn't just cosmetic. Maybe what it really needs is a new brain. Like GEOS.

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GEOS is a completely integrated environment that runs circles around every other

operating system, mostly because it starts out a lot smarter. For example, it comes with a desktop file manager, three utility programs, four applications, five desk accessories, eleven fonts and, well, you get the idea. All of which opens your Apple II to all kinds of graphically-oriented applications, like writing, painting, merging, desktop publishing, calculating and all that other fun stuff the more expensive Apples do.

There's even a set of pop-up

desk accessories, like an alarm clock, a notepad and a calculator.

Now, you'd think it would take a rocket scientist to operate a system this smart, but with GEOS, all it takes is a point and a click of your mouse. Or touch of a joystick. Or a tap of a keyboard.

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Of course, the real beauty of GEOS is how it turns any word processing document into a work of art—in seconds. And you can do it because GEOS comes with a TextGrabber™ that's ProDOS compatible. You just pour in your AppleWorks, WordPerfect or MultiScribe text, and in less time than it takes to say, "Yikes! What a great looking document!," your text is converted into geoWrite™ 2.1, the What-You-See-Is-What-You-Get word processor that lets you center, justify, search and replace text, move blocks of copy, cut, paste graphics and select fonts of different styles and sizes right on the screen.

You still with us? Okay. Now get ready to squeeze your Apple for all it's worth.

For those really plain Jane's, we recommended a beauty treatment with geoPaint™, which lets you draw, shade, fill, and pattern with incredible detail. There are all kinds of textures and brushes and graphic devices that ingeniously turn ordinary work into works of genius.

Manage this. Merge with that. Proof the spelling with geoSpell™ and pretty soon you're ready to print it all out with hi-res clarity on any dot matrix printer.

Or if you're really out to break some hearts, a

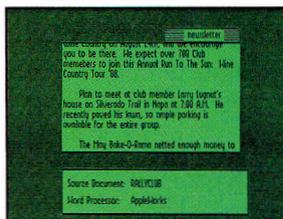
So if you think your document could do with a facelift, don't just do a little cosmetic surgery. Give your Apple II a brain transplant.

After all, what good are looks if you ain't got the brains to go with 'em?

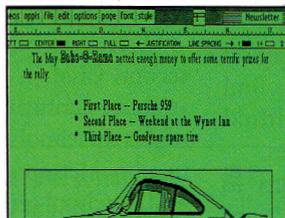
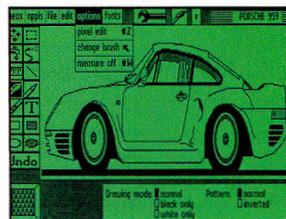
Take an ordinary AppleWorks file...



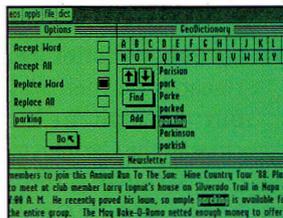
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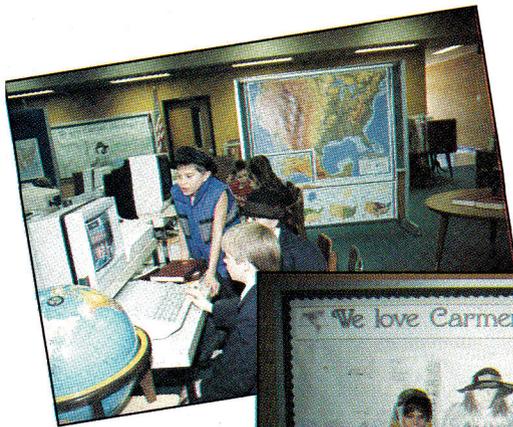
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GEOS

NEWS LINE

by inCider staff



THIEVES INVADE INDIANA



BLUFFTON, Ind., Aug. 1—*Local students recently sighted members of Carmen Sandiego's notorious gang of international thieves at the East Side Elementary School. Gypsy Rose Lasagna, Titus Canby, Mylar Naugahyde, and the elusive Carmen Sandiego herself have been positively identified.*

Don't worry—Indiana isn't becoming a refuge for globe-trotting gangsters: It's just Carmen Sandiego Day. Jon Bennett, fourth-grade teacher at the East Side school, organized the event around Broderbund Software's popular game. "At first we were just going to dress up," says Bennett. "Then the kids got more and more excited about it."

The students at East Side did more than play games on Carmen Sandiego Day. Besides dressing up like their favorite V.I.L.E. henchmen (Villians' International League of Evil, Carmen's gang), Bennett's fourth-graders sampled various types of foods mentioned in *Where in the USA Is Carmen Sandiego?* and heard about some of the hobbies used as clues in the Carmen programs, as parents prepared regional cuisine

and gave presentations on fortune telling, spelunking, and car repair.

"There's a lot of learning going on here," Bennett adds. "[Carmen Sandiego Day] generated a lot of excitement." Bennett's fourth graders ended up doing a lot of background research on their own to find out more about individual clues in the Carmen games.

Bennett says he plans to hold another Carmen Sandiego day next year. And the folks at Broderbund Software are as pleased with the outcome as he is. They're putting together a Carmen Sandiego Day kit with buttons, posters, and other fun stuff. (Contact Diane Rapley at Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, for details.)

The East Side kids even heard from Carmen herself on her day: The woman who served as the original model for Carmen Sandiego's package photo telephoned. "They got the biggest kick out of that," says Bennett. —L.L.

IT'S OFFICIAL

The first Computer Learning Month (CLM) was a success and plans are underway for the second. The U.S. Senate and several state legislatures have passed a commemorative bill designating October as Computer Learning Month, so now it's official.

CLM 1988 will focus on increasing the public's awareness of how computers are used as tools at home, at work, and in school. To date, several major educational associations have pledged their support for this public-education campaign. "For 1988," says Sally Bowman, the new CLM director, "our primary goal is to increase the number of people receiving the benefits of technology."

Activities planned for the second CLM in October 1988 include computer-learning nights at schools and universities, booklets, posters, contests, a CLM school-certification program designed to encourage educators to try new computer applications, and "Computer Fair Kits" to be distributed by local dealers and retailers. Stay tuned for more details as CLM 1988 approaches. —L.L.

TOO GOOD TO BE TRUE?

It's an old problem: The kids use Apple computers and Apple software in school and Mom and Dad use IBMs and IBM software at the office. So what do you buy for the home—an Apple II or one of the inex-

pensive MS-DOS clones? Do you really want to buy two complete computers? You might want to take a look at the WPC Bridge, a new microcomputer from Cordata (1055 West Victoria Street, Compton, CA 90220, 213-603-2901) that emulates a 128K Apple IIe and a 512K IBM PC-AT clone.

MS-DOS and Apple programs have run on the same machine before, but only at great expense and with great effort. In contrast, the WPC (for Wizard PC) should retail for about \$1695. To switch from Apple mode to MS-DOS mode and back again, just press the Alt and Esc keys.

In addition to the central processing unit, the WPC features a built-in 12-inch tilt-screen monitor, two built-in 5¼-inch disk drives, and a plug-in keyboard. Its all-in-one construction is similar to that of a Mac, says Annie Gladue, product manager for the WPC. The machine measures 13½ inches wide by 14½ inches deep by 16 inches high.

"There's a lot packed in there," Gladue adds. The MS-DOS microprocessor is a 16-bit 8088-2 chip running at 4.77 megahertz in standard PC mode and 8 megahertz in Turbo PC mode. The Apple microprocessor is a 1-megahertz 65CO2 chip. Ports for an IBM-type CGA color monitor, Apple 640-by-200 RGB, and color composite monitor provide video support. Three horizontal PC-style expansion slots, parallel and RS-232 serial ports, and an Apple 9-pin game port let you add peripherals.

In the process of testing the WPC, Gladue filled it with expansion boards to see whether it would overheat. "I've tried to cook it," she says, "but I haven't had any trouble." The WPC Bridge uses a 130-watt power supply.

Is it too good to be true, or is this the machine we've been waiting for? Look for a complete review in an upcoming issue. —L.L.

We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, Elm Street, Peterborough, NH 03458.

SPOTLIGHT ON

NEW GS IN THE WORKS?

inCider's own Babs Cringely, one of the most famous Apple II users in the world, reports occasionally from the field:

I hear that Apple's working on a new IIGS. Apple wants Western Design's 65832 microprocessor chip, a much faster version of the 65816; MS-DOS and Macintosh coprocessor cards are also possible.

The next video-graphics controller (VGC) chip will handle all improvements in GS graphics. Look for new super-high-resolution: The best graphics will be 640 by 400 pixels, just what you'd need to emulate the Macintosh. Sorry—only four colors at that high a resolution. But you'll get 256 colors per scan line at 320-by-200 resolution, the current GS standard.

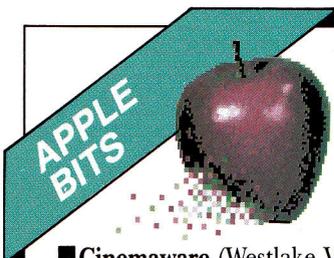
If Apple can beg, borrow, or steal the chips, the next GS will have a standard 768K of random-access memory (RAM) and 256K of read-only memory (ROM). GS software will keep lots of software tools in ROM, which will dramatically cut the time it takes to boot.

Apple will devote 128K of RAM strictly to the Ensoniq sound synthesizer built into the GS. I hear it will be easier for software developers to use and will eliminate some of the "buzzing" in the chip.

Apple knows you want to be able to change slot assignments in the GS without turning the machine off and on again, and I understand that the next GS will allow that. So many hard-disk drives—along with Apple's compact-disc read-only memory (CD-ROM) drive—use the Small-Computer-Systems Interface (SCSI) that a SCSI port should be standard equipment in the next Apple IIGS.

As always, we expect that Apple will offer an upgrade from existing machines.

—B.C.



■ **Cinemaware** (Westlake Village, CA) has hired some heavy-duty Apple IIGS programmers. Ed Magnin (MicroProse's Silent Service) and Ivan Manley (Activision's Shanghai) are working on what looks like a **GS remake of the Japanese film Ran**.

■ The Software Publishers Association is urging its members to use **Universal Product Codes** on all packages by the end of 1988.

■ **AppleLink Personal Edition** (see "A Quantum Leap," News Line, July 1988, p. 16) will cost \$35. That includes software, a user guide, a year's subscription, two hours of free connect time (nonprime), and a monthly magazine. The hourly fee is \$6 for nonprime time (6 p.m.-7 a.m. local time or weekends), \$15 an hour at other times. The rate's the same for 300, 1200, and 2400 baud; Apple says it currently plans no surcharges for any AppleLink services.

■ Look for **ROM upgrades** for the IIGS in September.

■ **Pinpoint Publishing** (Emeryville, CA) has "preannounced" Pages—**desktop publishing** for the IIGS, Mac, and PC clones. It sure would help if ProDOS could read Mac and MS-DOS files. Pinpoint's new **spreadsheet** will be called Digit. Will Point-to-Point be renamed Phone?

■ **JEM Software** (P.O. Box 20920, El Cajon, CA 92021) never ceases to amaze: "Late-Night Patches," Randy Brandt's latest disk (\$20), lets you **change AppleWorks** in ways in which you never dreamed it needed reforming. Our favorite is changing the default "Category 1" in

new database files to "Name," or whatever you like. Good software, unprotected and cheap.

■ Ken Williams contributed an insightful look at the **Japanese computer market** to the Spring 1988 issue of *Sierra Newsletter* (Sierra On-Line, Coarsegold, CA). "Education and home-productivity products are nonexistent," he notes. Sierra has brought the games Thexder and Silpheed home from Japan.

■ Scott-Foresman is about to publish the *Apple II BASIC Programmers' Bible: Featuring TML BASIC*.

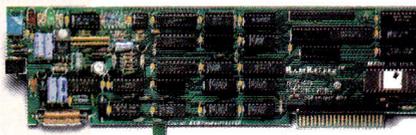
In about the time it takes to read this headline, you can have the Finder up and



Imagine. Turn on your IIGs and instantly the finder comes to life! All the speed and RAM power your IIGs was meant to have, packed into one, affordable "electronic hard disk."

Applied Engineering's RamKeeper.™ A system that works like a hard disk, only better. It retains stored programs *and* data while your computer is turned off (like a hard disk), but gets up and running five times faster. RamKeeper is solid state, has no moving parts and, unlike a hard disk, has no heads to crash and no parts to wear out. And RamKeeper saves wear and tear on your disk drive, because you don't need it nearly as often.

RamKeeper even powers up to two



RamKeeper lets you keep programs and data in permanent, "electronic hard disk" memory. Turn your Apple IIGs on and you're ready to work.

memory cards *simultaneously* while your computer is off. And the battery backup we include keeps power to the boards, even during power failures.

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Superior power backup.

RamKeeper comes complete with sealed Gel/Cell batteries for emergency backup in the event of a power outage. Gel/Cell's are by far the most reliable backup power source in this application. Unlike the Ni-Cads others use, Gel/Cell batteries don't lose capacity if not discharged periodically.

Our Gel/Cell pack gives you up to six hours of total power failure backup. And the sealed battery pack stays *outside* your computer case, where an unlikely leak won't ruin your computer circuitry.

RamKeeper uses a Switching Power Supply — the same technology used by Apple for the IIGs power supply. This design uses energy much more

efficiently to keep your Apple running cooler.

Powers two memory cards in the same slot.

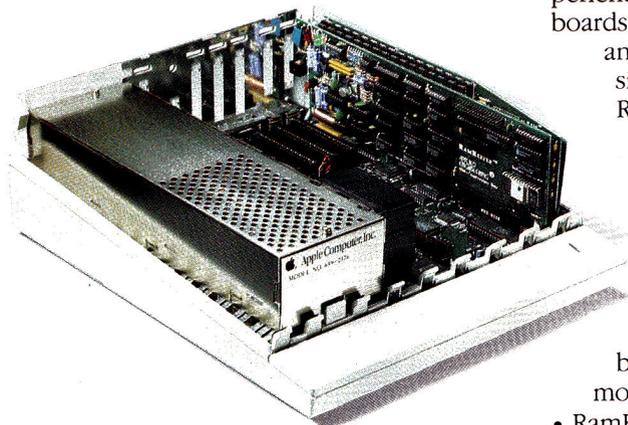
Have Apple's memory card, but now want the features of Applied's GS-RAM card? With RamKeeper, both cards act as one larger card. In one slot. Just attach one memory card to each side of RamKeeper and plug RamKeeper into the slot. And even with two cards, you can still keep slot 7 open with our optional Slot-Mover. All without changing the way either your memory card or your software now operate.

RamKeeper also works fine with only one memory card.

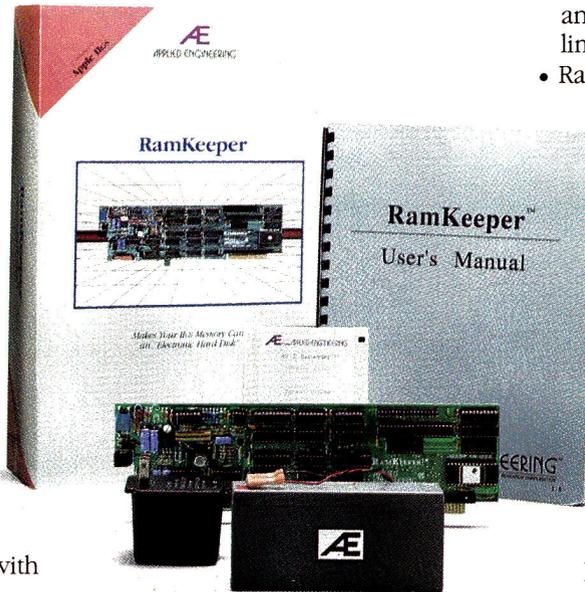
Makes all your memory usable memory.

RamKeeper powers up to 16 Meg. of memory. You can also mix and match different types of memory cards. For example, an Apple card that uses 256K RAM chips and an Applied Engineering card using 1 Meg. RAM chips. RamKeeper firmware automatically configures for two cards when the second card is installed. No need to manually move jumpers.

RamKeeper configures memory linearly to avoid memory gaps that can cause crashes. And *you* decide how much memory to devote to ROM and to RAM from the IIGS Desk Accessories menu. You can configure Kilo-bytes or Megabytes of instant ROM storage for your favorite programs. And you can change ROM and RAM sizes at any time without affecting your stored files.



RamKeeper is easy to install. Just plug it in. Even when you use two memory boards, you don't have jumpers. You can have two memory boards but use only one slot.



It all comes with RamKeeper ... board, Gel/Cell battery pack, easy-to-understand instructions, and Applied's powerful AppleWorks Expander software.

Protect from program crashes.

Reinstalling operating software is not fun. With RamKeeper you'll never have to. Since RamKeeper controlling firmware is in an EPROM, a program crash can't take out the operating software.

Verifies data security.

RamKeeper firmware uses optional startup checksums to verify that no data was lost while the power was off. The firmware also runs ROM and RAM memory tests without disturbing data on the card.

Significant differences.

Applied Engineering's longer experience with battery-backed memory boards shows in the way we designed and built RamKeeper. There are significant differences between RamKeeper and other systems:

- RamKeeper includes a Gel-/Cell battery for 6 hours of total power failure backup, others use the shorter-life Ni-Cads and charge extra for them
- RamKeeper has external battery storage, others have a more risky internal storage
- RamKeeper powers up to 16 Meg., others power only up to 8 Meg. maximum
- RamKeeper permits mixing and matching different memory cards

and chip sizes, others have more limited combinations

- RamKeeper automatically configures for two cards, others have manually-moved jumpers
- RamKeeper configures linearly to eliminate memory gaps, others don't
- RamKeeper includes EPROM-protected operating software, others use floppy installation
- RamKeeper's software expands AppleWorks internal limits, others don't
- RamKeeper includes disk-caching software, others don't

Free AppleWorks Enhancement software.

Applied Engineering's powerful AppleWorks Enhancement software comes free with RamKeeper. It's well worth the purchase price alone. Our software makes AppleWorks faster and far more powerful by eliminating internal memory limits. Word processor limits increase from 7,250 to 22,600 lines. Database limits increase from 6,350 to 22,600 records. Clipboard limits increase from 255 to 2,042 lines. Our software even automatically segments large files so you can save them on multiple floppies.

In addition, RamKeeper comes with the most powerful disk-caching program available anywhere. The cache tremendously accelerates access time to the Apple 3.5 Drive. Creating, in effect, a speed booster on top of a speed booster . . . a potent combination that runs most applications up to *seven times faster*.

RamKeeper is proudly made in the U.S.A. and is backed with a five year parts and labor warranty. And a 15-day money-back guarantee.

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Mea Culpa

by Paul Statt, Senior Editor

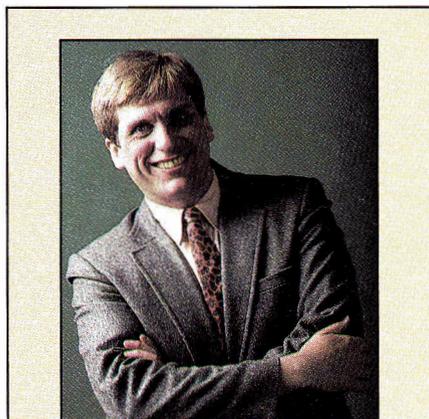
I make mistakes. The phone just rang again, as if to remind me, while I was contemplating Beagle Bros' TimeOut installation nightmare.

"I spent two hours putting TimeOut QuickSpell and Thesaurus on my 3½-inch AppleWorks!" confessed a tired voice. "It's indispensable stuff, as you said in your review, but a lot harder to get running than I thought it would be. I gave up and used the ProDOS Filer."

I'm sorry our review glossed over the problem. But if you know a little about programming, you can LIST the TimeOut installation programs and see what's wrong, as my caller did. I like the programmers at Beagle Bros (and at Applied Engineering, too) because they write unprotected, documented, BASIC installation programs I find simple.

But simple for one person may not be simple for someone else, and I apologize for overlooking you if you don't program. I'm also sorry I didn't say that TimeOut is very awkward—almost useless—if you don't have a hard-disk drive, an 800K 3½-inch floppy-disk drive, or a large battery-powered random-access-memory (RAM) disk.

Maybe it's my memory that's slipping. When we were putting our programming issue together, I also forgot all about Absoft's AC/BASIC compiler for the IIGS. (That was June, the "dog issue," by the way, and I'm *not* sorry *inCider* made Orvis the redbone hound "cover puppy.") A friend who, unlike me, writes BASIC programs longer than shopping lists tells me that AC/BASIC is faster, handles "garbage" better, and doesn't force him to master the IIGS ToolBox as TML BASIC does. TML's easy for *me* to play with, because its editor uses a standard Apple



"Apple piles the marketing manure so high it can't see that grownups use Apple IIs."

(that is, Macintosh-style) interface, but AC's easier for a BASIC programmer.

I'm sorry I've never complained that Apple makes IIGS software "easy to use" by asking developers to support only Apple printers: Apple's forcing you to buy an ImageWriter. IIGS software can't even take advantage of the ImageWriter LQ's letter-quality capabilities. For a GS owner, the LQ is really just an overweight, overpriced ImageWriter II.

I'm sorry that Barney Stone (Stone Edge Technologies, Maple Glen, PA) never got to put DB Master Version 5 Professional through its paces at the Great AppleFest Database Shootout in Boston last May. (It was neither great nor a shootout; if you came to see "Gunfight at the AppleFest Corral" and saw "The Gang That Couldn't Boot Straight" instead, I apologize.)

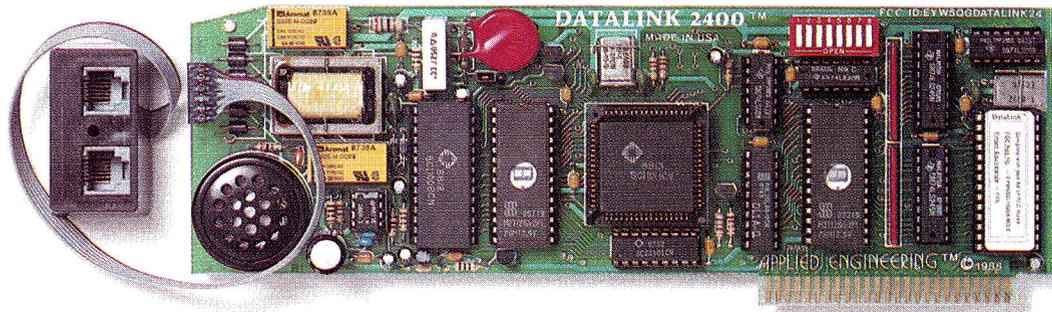
DB Master Version 5 Professional is incredible. I'm sorry *inCider* couldn't do it justice in July, when we compared it to five other Apple II database managers ("Tame Your Files," p. 57). No Apple II database manager is comparable; not many Macintosh or IBM PC DBMs stack up to it, either.

I'm sorry I missed the Apple breakfast Saturday at AppleFest, but I had nearly gagged watching an Apple "Knowledge Navigator" on videotape Friday and was still ailing. I hear Barney Stone stood up and told Del Yocam, Apple's chief operating officer, that Stone Edge has been making Apple II business software for ten years, and that he's sick of Apple's insistence that the II is a great computer for schoolchildren only.

I'm sorry Apple piles the marketing manure so high it can't see that grownups use Apple IIs. Apple TV commercials star smiling kids playing educational games on Apple IIs and solemn yuppies doing desktop publishing on Macs; Apple fixes educational discounts so that the IIGS is cheap if you're a teacher in Mister Rogers' Neighborhood, but expensive at MIT; and Apple's "Home Office" display at AppleFest was filled with Macs.

I make mistakes, and I'm sorry for them. Apple also makes mistakes—such as not encouraging Barney Stone to write DB Master Version 5 Professional for the IIGS (because it does everything nine out of ten businesspeople need), or Bill Basham to write Diversi-Tune (because professional musicians might use it), or Cinemaware to write anything (because it's fun). Great Apple II software gets written despite, not because of, Apple Computer. That's a big mistake, but that one's not my fault. ■

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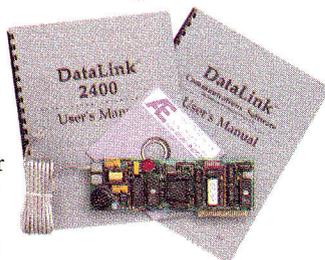


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Focus on Peripherals

by William P. Kennedy, Ph.D., Technical Editor

The Second Time Around

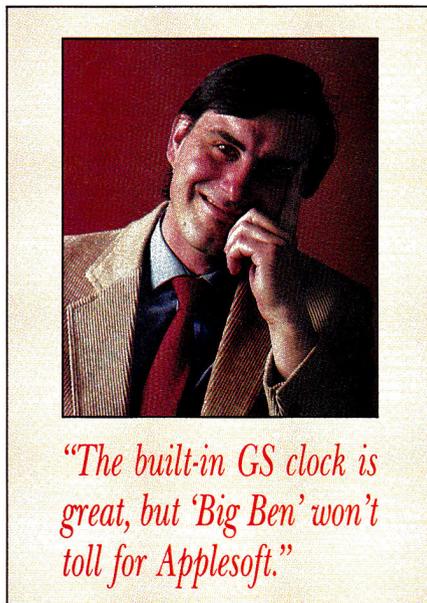
I'm trying to write an Applesoft BASIC subroutine for the GS that will time how long in seconds it takes to answer a question, up to a certain time limit. I've tried using the WAIT command, but to no avail. Any hints?

George Attwood
Fairfield, IA

It's great to have a built-in clock in the GS. Unfortunately, "Big Ben" won't toll for Applesoft; you need a special, not-so-simple machine-language routine to access the IIGS clock. In fact, the time "pieces" we've published in the past PEEK into ProDOS, which has to be nudged into keeping the correct time—but even then is accurate only to the minute, not seconds. That's not very helpful when the keypress response times you want to monitor are usually measured in seconds or less.

Many BASIC programmers use a collection of FOR/NEXT or other counting loops to time a keypress event. With that type of code you can measure events to the tens of milliseconds, but nested timing loops are cumbersome to program.

But just a second. If accuracy to the second is acceptable, the GS has a "one-second" timer incorporated into its Video Graphics Controller (VGC). Start that timer by "resetting" the VGC



"clear"-register memory-location 49202 (\$C032). One second later, bit 6 of the VGC-register memory-location 49187 (\$C023) turns on (becomes a 1). By WAITing for that change of state, you can count seconds. The BASIC subroutine at line 1020 in Listing 1 does that.

The remainder of the program simply sets a time limit (T in line 10), which counts down (C in lines 1010 and 1040) to zero seconds if the program doesn't detect a keypress (line 1030). Lines 20–30 report the outcome.

Listing 1. Program waits a specified number of seconds for a keypress.

```
10 T = 40: GOSUB 1000
20 IF C = 0 THEN PRINT "Out of time -- "; T;" seconds have
   elapsed!": END
30 GET K$: PRINT "The ";K$;" key was pressed in";T-C;"
   seconds.": END
1000 REM Wait for a key press C seconds
1010 C = T
1020 POKE 49202,0: WAIT 49187,64
1030 IF PEEK ( - 16384) > 127 THEN RETURN
1040 C = C - 1: IF C THEN 1020
1050 RETURN
```

The WAIT statement in line 1020 demonstrates a simple use of the command. The first parameter is the memory location; the second parameter is the decimal equivalent of the bit(s) you're interested in monitoring. In example-line 1020, we're monitoring bit 6 (binary 01000000 = 64 decimal). The program pauses at the WAIT statement until that bit 6 comes on (becomes a binary 1). You can WAIT for a bit to turn off (binary 0) by adding the decimal equivalent of that bit as the third parameter to the WAIT command: hence, in our example, WAIT 49187,64,64.

Switching Printers

My Apple II Plus equipped with a Grappler Plus interface in slot 1 is connected to a Brother HR-25 daisywheel printer, a Micromodem II in slot 2, and a disk-controller card in slot 6. I'd also like to have a dot-matrix printer for my children. How can I add another printer (cheaply)? Would a simple Y-connector work?

Arlen J. Rollins
Cleveland, OH

You have several options, Arlen. The biggest expense will be for the printer. A dot-matrix model is a good selection because of price as well as speed and graphics capabilities. Expect to pay at least \$200 for a decent dot-matrix printer. With few exceptions technical support and printer quality seem to be directly related to price and brand name. Color printers (over \$600 to start) are particularly fun for children.

To connect that printer to your Apple you might purchase another interface. Don't be too concerned about the communication protocol, serial or parallel. Most printers have both options available. Parallel interfaces are faster, but you probably won't notice a difference between that and a 9600-baud serial interface:

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An interface will cost between \$50 and \$100; you can plug it into any expansion slot except slot zero. I'd purchase an inexpensive interface for the daisywheel printer and connect the Grappler to the dot-matrix model. This takes advantage of the Grappler's graphics capabilities and saves money.

Or you might consider an interface switch box. Computer Friends (14250 N.W. Science Park Drive, Portland, OR 97229, 503-626-2291) sells a two-port Data Switch for \$46. A switch box connects two or more printers to the same interface. You then select either printer manually. That way you may not have to re-configure your software to match different interfaces and printers.

Ejected from the Game

I have an Apple IIGS with a 3½-inch disk drive. Is there a way to eject a disk from BASIC?

**Stan Prow
Merlin, OR**

The BASIC program shown in Listing 2 will do the trick for you. It POKES the machine-language code in Listing 3 into memory from DATA lines 70-80 and CALLS it in line 60. (Special thanks to Randy Brandt at Beagle Bros for providing the code in Listing 2.)

The ejector works with any Apple 3.5 drive assigned by the SmartPort as slot 5, drive 1. You also can change the program's vectors and pa-

Listing 2. BASIC program POKeing 3½-inch disk-ejector routine into memory.

```

10 REM 3.5-Inch Disk Ejector
20 REM Slot 5, Drive 1 only
30 RESTORE
40 FOR I = 0 TO 17: READ N
50 POKE 768 + I, N: NEXT I
60 CALL 768: END
70 DATA 32,13,197,4,11,3,141,10
80 DATA 3,96,0,3,1,16,3,4,0,0
    
```

Listing 3. Machine-language program to eject a 3½-inch disk from slot 5, drive 1.

```

300: 20 00 C5 JSR C50D ;Call device driver
301: 04      DFB 04 ;Command
304: 0E 03 DW 30B ;Parameter table address
306: 80 0A 03 STA 30A ;Error return code
309: 60 RTS
30A: 00 DFB 0 ;0 = no errors
30B: 03 DFB 3 ;Start of Parm tbl
30C: 01 DFB 1 ;Target drive #
30D: 10 03 DW 310
30E: 04 00 00 DFB 4,0,0 ;End of Parm tbl
    
```

rameters to eject disks assigned to other slots and drive numbers. (See the comments in Listing 3.) For example, to eject a 3½-inch disk from slot 5, drive 2, change the 1 in the DATA statement in line 80 to a 2 (also in location \$30C).

Be careful, though. The program accesses the disk device driver directly; device commands

differ. For example, this program will reformat a hard drive connected via a SCSI card in slot 5. Ouch! ■

Address your correspondence to Apple Clinic, inCider, 80 Elm Street, Peterborough, NH 03458.

Applesoft Program Typing Proofer

Tired of the frustrating hours you spend trying to find those typos you made when entering inCider freeware? Well, no more! Type in and SAVE to disk the ASOFT PROGRAM CODER shown in the accompanying Program listing. DO NOT type the bracketed numbers that appear at the end of each line; they're the proof values you'll use later.

Go ahead and RUN, then LIST the CODER program. The highlighted numbers at the end of each LISTed line should match the bracketed numbers in the listing. If so, BSAVE ASOFT.PROOFER,A\$300,L\$CF and, for later programming sessions, simply BRUN ASOFT.PROOFER. It'll operate under both DOS 3.3 and ProDOS. The proofer disconnects,

however, whenever you change the output vectors—with the PR#0 command, for example. To re-install the proofer, just CALL 768.

The proofer isn't perfect. It also counts spaces, so if your proof number is off by a multiple of 32, your program line has some extra spaces. That's not usually a problem, though.

You already know how to use the proofer. If the highlighted number you see at the end of a LISTed line matches the published one, you can be fairly well assured you typed it correctly. Otherwise, edit or retype the line until the numbers match.

The proofer won't kill all your Applesoft bugs, but it will take a lot of sweat out of typing inCider freeware. Guaranteed. □ —W.K.

Program listing. Applesoft Program Proofer.

```

10 REM ASOFT PROOFER CODER [1571]
20 FOR I = 0 TO 207: READ N [1095]
30 POKE 768 + I,N: REM PROGRAM [1579]
40 NEXT I: REM HEX $300-$3CF [1224]
50 CALL 768: END: REM PROOFER INSTALLED! [2087]
100 DATA 162,60,160,3,173,0,191,201,76,208 [1916]
110 DATA 20,173,48,190,141,206,3,173,49,190 [1987]
120 DATA 141,207,3,142,48,190,140,49,190,208 [2076]
130 DATA 18,173,83,170,141,206,3,173,84,170 [1976]
140 DATA 141,207,3,142,83,170,140,84,170,169 [2096]
150 DATA 0,141,58,3,141,59,3,96,0,0 [1617]
160 DATA 201,141,240,3,76,202,3,134,70,132 [1994]
170 DATA 71,186,138,105,7,170,189,0,1,201 [1911]
180 DATA 214,208,7,189,255,0,201,229,240,30 [2114]
190 DATA 189,253,0,201,40,208,6,169,152,201 [2059]
200 DATA 141,208,17,189,255,0,201,13,240,86 [2072]
210 DATA 169,0,141,58,3,141,59,3,240,76 [1889]
220 DATA 173,58,3,13,59,3,240,25,32,87 [1916]
230 DATA 219,32,87,219,165,50,72,41,63,133 [2064]
240 DATA 50,174,58,3,173,59,3,32,36,237 [1990]
250 DATA 104,133,50,160,0,140,58,3,140,59 [2041]
260 DATA 3,177,155,200,17,155,240,28,200,177 [1959]
270 DATA 155,200,24,113,155,208,9,200,177,155 [1984]
280 DATA 240,14,24,109,58,3,141,58,3,144 [1778]
290 DATA 242,238,59,3,176,237,166,70,164,71 [1961]
300 DATA 169,141,141,98,3,76,240,253 [1617]
    
```

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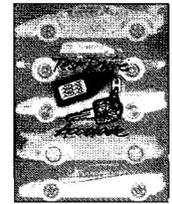
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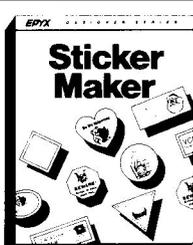
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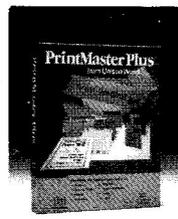
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Programs, Peripherals,

Apple Compatible Computers

Central Point Software Laser 128 Computer	379.	Laser 128 2nd Disk Drive (5 $\frac{1}{4}$ " / 1/2 height)	89.
<i>The Laser 128 includes an Expansion Slot, RGB Video Output, Parallel Printer Port, and a 10 Key Numeric Keypad!</i>		Laser 128 800K 3.5" Drive w/Controller	259.
Laser 128EX Computer	479.	Laser 128 Cables	16.
<i>The Laser EX includes a Built-in RAM Expansion Board, Universal Disk Controller, Built-In Expansion Slot, and Ports for all Peripherals!</i>		(Parallel, Serial, RGB or Modem)	49.
		Taxan	110.
		118 Green	110.
		119 Amber	115.

Backup Utilities & Boards

Alpha Logic Locksmith 6.0	36.	FWB Software	
Central Point Software		Disk Util II (IIgs)	52.
Copy II Plus (5.25" & 3.5" Bit Copy)	23.		

Business Software

Activision		PinPoint Toolkit or Command Com.	43.
Writer's Choice Elite (Not Protected IIgs)	62.	Key Player	30.
List Plus (Merges w/Writer's Choice IIgs)	68.	Graphics Edge	55.
Addison-Wesley Wordbench (IIe & IIgs)	99.	Pinpoint IIe Upgrade Kit or	
Beagle Brothers Timeout Graph	55.	Ram Enhancement	19.
Timeout SuperFonts or QuickSpell	45.	PROFLER 3.0	54.
Timeout UltraMacros	37.	Redmond House II Write (IIe, IIc, IIgs)	55.
Timeout SideSpread, FileMaster, or		II File (IIe, IIc, IIgs)	55.
DeskTools	32.	Roger Wagner Publishing	
Timeout Thesaurus, Desk Tools II		Mouse Write (IIe, IIc, IIgs)	95.
or PowerPack	32.	Sensible Software	
Timeout MacroTools	19.	Sensible Grammar ProDos (3.5" & 5.25")	61.
BPI Systems		Sensible Speller-Dos or ProDos	71.
(Accounting Systems for the IIe, IIc & IIgs)		w/3.5 & 5.25"	55.
BPI General Accounting ProDos	139.	Sierra On-Line Smart Money	
BPI AR/AP or Inventory ProDos (ea.)	139.	Simon & Schuster	
BPI Payroll ProDos	139.	Webster's Spelling Checker (ProDos)	41.
Broderbund On Balance	41.	Software Publishing	
Bank Street Writer Plus	55.	All Programs for IIe with 128K or IIc	
Claris Apple Works (IIe, IIc, IIgs)	215.	PFS: Workmates (File/Report/Plan/Write)	119.
Dac Software Dac-Easy Accounting	68.	PFS: Write w/Speller	69.
Datapak Graphicwriter 2.0 (IIgs)	85.	Softsync Personal Newsletter with Clip Art	39.
Notes 'N Files (IIgs)	74.	Softword GS File	61.
Electronic Arts DeluxeWrite	69.	StyleWare, Inc. GSWorks	139.
Intuit Quicken	34.	Multiscribe 3.0 w/Speller (128K IIe or IIc)	52.
Manzanita BusinessWorks		Multiscribe GS 3.0	65.
System Manager (Required)	69.	DeskWorks (IIgs) or FontSmith (IIgs)	39.
GL/AR/AP or Inventory Control	139.	Picture Manager, Desk Accessories or	
Payroll Module	139.	Font Library (IIgs)	26.
BusinessWorks Bundle (Sys. Manager,		Multiscribe Fontpaks 1-8 (each)	15.
GL/AR/AP, Inventory)	299.	Timeworks Publish-It	69.
MECA		People, Places and Things (IIe & IIgs),	
Managing Your Money 3.0 (IIe, IIc, IIgs)	96.	Design Ideas (IIe & IIgs), Symbols	
Monogram		and Slogans (IIe & IIgs), Education	
Dollars and Sense (II+, IIe or IIc)	75.	Graphics (IIe & IIgs), Font Pack 1	
Nolo Press Will Maker (Version 2.0)	36.	or 2 (IIe & IIgs)	27.
Peachtree Back To Basics		VIP Software	
Accounting System: GL/AR/AP	135.	VIP Professional	
Pinpoint Publishing Pinpoint	50.	(Apple IIe or Enhanced IIe)	152.
Pinpoint IIgs Starter Kit	92.	VIP Professional (IIgs)	179.
Pinpoint Spelling Checker or		Word Perfect Corporation	
Document Checker	43.	WordPerfect V1.1 w/Speller (IIe & IIc)	89.
Pinpoint Speller/Document Checker Combo	61.	WordPerfect (Apple IIgs)	89.

Entertainment Software

Access Software Famous Courses of the World	14.	Winter Games, Summer Games II,	
World Class Leader Board Golf	27.	or Death Sword	15.
Accolade Mean 18 (IIgs) or Hardball (IIgs)	27.	Firebird Elite	17.
Famous Course Disk Vol. 2	12.	Guild of Thieves	27.
Famous Course Disk Vol. 3 & 4	21.	Garde Blue Powder Grey Smoke or High Seas	35.
Hard Ball, Test Drive or Bubble Ghost (IIgs)	31.	Footing To Finish	65.
Echelon	21.	Hayden Software Sargon III	15.
Action Software Thunder Chopper or Periscope	21.	Infocom Hollywood Hyjinx, Leather	
Activision Aliens or The Last Ninja	24.	Goddesses Of Phobos, Moon Mist, Nord	
Blackjack Academy (IIgs) or		& Bert, Plundered Hearts, Stationfall,	
Star Rank Boxing II	27.	The Lurking Horror or Zork I	25.
Firepower	18.	Hitchhiker's Guide to The Galaxy	15.
GBA Championship Basketball (IIgs)	31.	Sherlock	27.
GFL Championship Football or Baseball	27.	Beyond Zork (IIe or IIgs) or The Zork Trilogy	34.
The Last Ninja (IIgs) or Hacker II (IIgs)	27.	Intracorp Murder on the Atlantic (IIe & IIgs)	24.
Might & Magic or Faery Tale Adventure (IIgs)	34.	Micro League Sports Micro League Baseball	27.
Sky Travel	34.	General Manager/Owner Disk	21.
Music Studio 2.0 (IIgs)	68.	Team Disk	14.
Portal, Star Glider or Shanghai (IIgs)	31.	Microprose F-15 Strike Eagle or Silent Service	24.
Tass Times In Tonetown or Maniac Mansion	24.	Silent Service (IIgs) or Pirates	27.
Jinxer or Rampage	21.	Mindscape Defender of the Crown (IIgs),	
Adventure Bridge 3.0	21.	Rocket Ranger or The Three Stooges (IIgs)	34.
Baudville Dream Zone (IIgs)	18.	Infiltrator II or Into the Eagles Nest	24.
Ski Crazy	19.	Deja Vu (IIe or IIgs)	34.
BlueLine Ticket to London, Paris, or Spain	27.	Balance of Power or Super Star Hockey (IIgs)	31.
Ticket to Washington D.C.	30.	Bad Street Brawler (IIe or IIgs)	24.
Broderbund 2400 A.D.	37.	Super Star Ice Hockey	27.
Wings of Fury (IIe, IIc, IIgs)	24.	Gauntlet (IIe or IIgs) or Paperboy (IIe or IIgs)	27.
Championship Lode Runner or Karateka	24.	Sinbad (IIgs), S.D.I. (IIgs) or	
Ultima IV or Ultima V	41.	King of Chicago (IIgs)	34.
Autoduel	34.	Indoor Sports, Uridium, or Xevious	21.
Data East Karate Champ or Kung Fu Master	15.	PBI Software The Tower Of Myrarglen (IIgs)	34.
Ki Niki or Commando	15.	Strategic Conquest II (IIgs) or	
Datsafot Goonies	23.	Cavern Cobra (IIgs)	31.
Tomahawk	30.	Sea Strike (IIgs) or Monte Carlo (IIgs)	25.
Electronic Arts		Sierra On-Line Space Quest,	
Bards Tale (IIgs), Instant Music (IIgs), Music		Space Quest II or Space Quest (IIgs)	34.
Construction Set (IIgs), Bards Tale II,		Kings Quest I, II, or III (IIe or IIgs)	34.
Bards Tale III, Twist & Shout or Wasteland	37.	Leisure Suit Larry (IIe or IIgs)	27.
It's Only Rock & Roll or Hot & Cool Jazz	23.	Thexder (IIgs)	
ChessMaster 2000, Legacy of the Ancients,		The Black Cauldron	34.
Deathlord, Chuck Yeager Flight Sim.,		3-D Helicopter Simulation (IIgs) or	
Seraphic, PHM Pegasus, Halls of		Police Quest (IIe or IIgs)	34.
Montezuma (IIe or IIgs), World Tour		Mother Goose	21.
Golf (IIgs) or Earl Weaver Baseball	30.	Simon & Schuster	
Strike Fleet or Marble Madness (IIe or IIgs)	26.	Star Trek (Kobayashi Alternative)	21.
Dark Lord or Force 7	16.	Star Trek (The Promethean Prophecy)	27.
EPYX California Games (IIe or IIgs), Dive		Sir-Tech Wizardry or Legacy of Lyllygarn	34.
Bomber, Destroyer (IIe or IIgs), Omnicon		Return of Werdna	41.
Conspiracy, Sub Battle Simulator (IIe or		Spectrum Holobyte Gato	12.
IIgs), Street Sports: Baseball, L.A.,		Gato (IIgs)	25.
Crackdown, Street Sports: Basketball,		Orbiter (IIgs), Wilderness or Dondra	31.
Winter Games (IIgs), Home Video		Strategic Simulations Chickamunga	33.
Producer, Sporting News Baseball, Sticker		Colonial Conquest, Eternal Dagger,	
Maker, Street Sport Soccer, The Games:		Sons of Liberty or Questron II	27.
Winter Edition, Impossible Mission II or		Carriers At War	37.
World Games (IIe or IIgs)	27.	War in the South Pacific	41.
Rad Warrior		Sublogic Flight Simulator II	39.
Movie Monster Game or	18.	Jet	31.
Championship Wrestling	15.	Scenery Disks 1, 2, 3, 4, 5 or 6	16.
World's Greatest Baseball or Football Game	15.	Scenery Disks 7 or II	20.

Utilities & Languages

Absoft		The Byte Works ORCA/Pascal (IIgs)	72.
AC/Basic (16-bit BASIC Compiler for IIgs)	84.	ORCA/Pascal Desktop Debugger	80.
Beagle Brothers Beagle Compiler	46.	ORCA/M GS	39.
MacroWorks or Pro-Byter	21.	ORCA DeskTop	34.
Beagle G.P.L.E. or Super MacroWorks	84.	TML Systems TML Basic (IIgs)	84.
D-Code, Extra K, Power Print or Triple Dump	25.	TML Pascal (IIgs)	84.
Borland Turbo Pascal 3.0 (Reg. C/P/M)	48.	TML Source Code Library (IIgs)	35.
Funk Software Sideways ProDOS & Dos 3.3	41.	TML Speech Toolkit (IIgs)	49.
Roger Wagner SoftSwitch (IIgs)	48.	TML Pascal APW (IIgs)	84.
Merlin 8/16 (IIe, IIc, IIgs)	79.	Zedcor ZBasic 4.0	39.

Accessories

Abaton Propoint ADB Turbo Mouse (IIgs)	119.	System Saver (IIgs)	79.
Apple Computer Apple Mouse IIe	125.	Turbo Mouse (Reg. or ADB)	82.
Apple Mouse IIc	89.	Kraft Universal 3 Button Joystick (II+ IIe, IIc)	34.
Applied Engineering TimeMaster H.O.	85.	Koala Technologies	
IBM Style Keyboard or Sonic Blaster	119.	Koala Pad Plus w/Graphics Exhibitor	84.
Audio Animator (IIgs)	185.	Kurta IS ADB Tablet w/stylus (IIgs)	339.
Applied Visions Future Sound Digitizer (IIgs)	179.	MidiDeas Conservor	
Asher Engineering Turbo Trackball (IIe, IIgs)	69.	(IIgs Switched Surge Suppressor w/Fan)	119.
CH Products Hayes Flight Stick	52.	Digitizer Professional (IIgs)	139.
Hayes Mach II Joystick (Beige or Platinum)	29.	SuperSonic (Stereo Card for IIgs)	52.
Hayes Mach III Joystick (Beige or Platinum)	38.	SuperSonic Digitizer (IIgs)	52.
Chris Curtis Emerald	36.	Mouse Systems A+ Mouse (IIc)	67.
Curtis Ruby	55.	A+ ADB Mouse (IIgs)	87.
Curtis Ruby Plus	60.	MousTrak MousePad 7"x9"	8.
Curtis Diamond Plus	40.	MousePad 9"x11" Size	9.
Cutting Edge EADB-105 Extended		MousePad L/F (Low Friction)	9.
Keyboard (IIgs)	139.	Orange Micro Juice Box	
DataDesk DataDesk ADB-101		(IIgs Switched Surge Suppressor w/Fan)	69.
Enhanced Keyboard (IIgs)	149.	SMT No Slot Clock (II+ & IIe)	42.
Kalmor		Street Electronics Cricket IIc	125.
Teakwood Rolltop Disk Case (Holds 50)	8.	Echo IIb Speech Synthesizer (II+, IIe, IIgs)	109.
Kenington Mouse Pocket (Reg. or ADB)	18.	Summagraphics Bit Pad Plus (IIgs)	335.
Mouseway (Mousepad)	8.	Ribbons	
Apple IIgs Dust Cover or		Available colors: black, blue, brown, green,	
Imagewriter I or II Cover	9.	orange, purple, red, yellow, silver or gold	
Mouse Cleaning Kit w/Pocket	17.	ImageWriter Ribbon-Color	4.
Disk Drive Cleaning Kit (3.5" Drives Only)	20.	ImageWriter Ribbon-Black six pack	20.
Apple Security System	34.	ImageWriter II - 4 Color Ribbon	9.
Printer Muffler 80	37.	ImageWriter Rainbow Pk. (6 Colors)	20.
Printer Muffler 132	51.	ImageWriter LQ Black	17.
Printer Muffler Stand 80 or 132	21.	ImageWriter LQ 4 Color Ribbon	22.
A/B Box (IIgs)	63.	Thunderware	
System Saver (Platinum or Beige)	69.	Thunderware Apple (IIgs, IIe, and IIc)	179.

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Educational Software

Activision Term Paper Writer	34.	Great Wave Kidstime II (IIgs)	24.
Barroon's Computer SAT Revised Version	34.	SpaceLace	20.
Baudville Guitar Wizard	19.	Harcourt, Brace, Jovanovich	
Ted Bear Discovers... Rainy Day Games	19.	Computer SAT or Computer ACT	29.
Britannica Algebra I, 2, 3, or 4	25.	Learning Company	
Algebra 5 & 6	31.	Reader Rabbit (IIgs) or Writing and Publishing Center (IIe & IIgs)	41.
Designasaurus (IIe or IIgs)	24.	Writer Rabbit (IIgs), Think Quick (IIgs) or Rockys Boots (IIgs)	34.
Body Transparent or States & Traits	55.	Magic Spells (IIgs) or Math Rabbit	27.
Broderbund Geometry (IIgs)	68.	Gertrude's Secrets (IIgs)	31.
Science Tool Kit Master Module	27.	Think Quick or Writer Rabbit	34.
Science Tool Kit Module 1, II or III Type!	31.	Reader Rabbit or Magic Spells	27.
Variable Feasts	34.	Gertrude's Puzzles or Secrets	31.
Where in the World is Carmen Sandiego?	27.	Robot Odyssey I or Rocky's Boots	34.
Where in the USA is Carmen Sandiego?	31.	Mindscape Crossword Magic	34.
Where in Europe is Carmen Sandiego?	31.	Perfect Score SAT	48.
Compu-Teach		PinPoint Micro Cookbook (IIe or IIe)	31.
Once Upon A Time	25.	Non Appetit	37.
Stepping Stones Level I	25.	Simon & Schuster Speed Reading Tutor IV	27.
Stepping Stones Level II	25.	Speed Reader Tutor IV (IIgs)	34.
See the U.S.A.	37.	Typing Tutor IV (IIe, IIc, or IIgs)	34.
Davidson & Associates		Spinmaker Kindercomp Gold	26.
Apple II and IIgs Versions Available:		Homework Helpers Writing or Math (IIe or IIgs Ver.)	34.
Alge-Blaster or Math Blaster Plus	31.	Typing Made Easy	34.
Grammar Gremlins or Read 'N' Roll Homeworker	55.	Facemaker: Golden Edition	27.
Speed Reader II	43.	Kidwriter	27.
Spell-It or Word Attack Plus!	31.	Terrapin Enhanced Terrapin Logo V3.0	69.
Math & Me or Reading & Me	25.	Weekly Reader	
Electronic Arts		<i>Stickybear Series:</i> Sticky Bear ABC, Car Builder, Basic, Drawing, Math I, Math II, Math Word Problems, Numbers, Opposites, Parts of Speech, Vocabulary Development	
Mavis Beacon Typing	30.	Printer, Reading, Reading Comprehension, Shapes, Spellgrabber, Typing or Townbuilder (each)	25.
Mavis Beacon Typing (IIgs)	32.		
First Byte/Electronic Arts			
MathTalk, KidTalk, First Shapes, Speller			
Bee, or Smoothtalker (All IIgs, each)	37.		
MathTalk Fractions or First Letters & Words (All IIgs, each)	37.		

Modems

Anchor Automation		Prometheus	
Signalman Lightning 2400	299.	Pro Modem 1200 (External)	239.
1200E	119.	Pro Modem 1200G (Non Expandable)	139.
2400E	159.	Pro Modem 2400 (External)	309.
Applied Engineering		Pro Modem 2400G (Non Expandable)	179.
Datalink Modem 1200B (Int II+, IIe or IIgs)	175.	Pro Modem 2400A (Single Card)	199.
Datalink Modem 2400B (Int II+, IIe or IIgs)	185.	Pro Modem 1200A (Single Card)	169.
EPIC Epic 2400 Classic Internal	155.	Pro Modem 300c	89.
Hayes Hayes Micromodem IIe (Internal)	165.	Communications Buffer (2K Exp. to 512K)	105.
Hayes Smartmodem 1200A (Internal)	265.	Supra Corporation	
Hayes 300 Baud Smartmodem		Supra Modem 2400 (Hayes Compatible)	149.
Ilc w/Smartcom I	187.	U.S. Robotics	
Hayes 1200 Baud Smartmodem	299.	U.S. Robotics Sportster 1200	119.
Hayes 2400 Baud Smartmodem	449.	U.S. Robotics Courier 1200	199.
Practical Peripherals		U.S. Robotics Courier 2400	319.
Practical Modem 1200 SA	129.	U.S. Robotics Courier 2400E	379.
Practical Modem 2400 SA	199.	U.S. Robotics Courier HST 9600	689.

Blank Media

5 1/4" Blank Diskettes		Bulk (Sony) 3 1/2" DS/DD (box of 10)	17.
BASF 5.25" SS/DD (box of 10)	8.	Centech 3 1/2" DS/DD Color Disks (box of 10)	19.
Verbatim 5.25" SS/DD (box of 10)	10.	Sony 3.5" DS/DD (box of 10)	18.
Sony 5.25" SS/DD (box of 10)	9.	Fuji 3.5" DS/DD (box of 10)	19.
Maxell 5.25" SS/DD (box of 10)	10.	Maxell 3.5" DS/DD (box of 10)	20.
3M 5.25" SS/DD (box of 10)	11.	Verbatim DS/DD (box of 10)	19.
3 1/2" Blank Diskettes		3M 3.5" DS/DD (box of 10)	20.
BASF 3.5" DS/DD (box of 5)	9.	C. Itoh 3.5" DS/DD Color Disks (box of 10)	25.

Printers

Brother		Microline 192 Plus (200cps Dot Matrix 10")	349.
M-1109AP ImageWriter Comp.	249.	Microline 193 Plus (200cps Dot Matrix 15")	489.
Epson LX-800	219.	Panasonic	
FX-86c	369.	KXP-1080 1/M2 (144 cps) NLQ Mode	199.
FX-286c	449.	KXP-1091 1/M2 (192 cps) NLQ Mode	229.
EX-1000	499.	KXP-1092 1 (240 cps) NLQ Mode	329.
LQ-1000	629.	Seikosha	
Okidata		Seikosha SP 1000 (ImageWriter Compatible)	219.
Microline 182P (120cps Dot Matrix 10")	275.		

Disk Drives & Hard Disk SubSystems

American Micro Research (Micro Sci)		Cutting Edge	
A5 D Half Height 5 1/4" Drive (IIgs Daisychain)	165.	XL 30 Plus SCSI Hard Drive (IIe & IIgs)	629.
A.5 Half Height (II+ & IIe)	139.	XL 45 Plus SCSI Hard Drive (IIe & IIgs)	829.
A.5C Half Height (IIc)	139.	First Class Peripherals	
Micro Sci C2 Controller	52.	Blank Tape 5 Pack	65.
Applied Engineering		Sider 20MB or 40MB Hard Drive	Call
Transdrive 360K	209.	B-Sider 60MB Tape Backup	Call
Transdrive Dual 360K	289.	Revision D (Chip/Software for CP/M)	52.
Transdrive Half Height 360K	119.	Hi-Tech Peripherals	
Central Point Software		Full Height 5 1/4" Drive for Apple IIe (Beige)	139.
Universal Disk Controller	79.	Half Height 5 1/4" Drive for Apple IIe or IIc (Beige)	139.
Central Point 800KB Drive	185.	Half Height 5 1/4" Drive for Apple IIe or IIc (Platinum)	149.
Universal Disk Controller/800KB Drive Bundle	259.	Half Height 5 1/4" Drive Platinum for IIgs	169.
CMS		Apple IIc Drive Adaptor	15.
"Compact Series" Beige IIe, IIgs		Mitac AD-3C Slimline IIc	129.
20 MB w/SCSI II card	765.	Rodime	
40 MB w/SCSI II card	1075.	Rodime 20Plus Ext HD (IIe, IIgs)	629.
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20 MB w/SCSI II card	675.	Rodime 60Plus Ext HD (IIe, IIgs)	1039.
43 MB w/SCSI II card	895.	Rodime 100 Plus Ext HD (IIe, IIgs)	1169.
60 MB w/SCSI II card	955.	Rodime 140 Plus Ext HD (IIe, IIgs)	1319.

Graphics Packages

Activision Draw Plus (Not Protected IIgs)	62.	Electronic Arts DeluxePaint II (IIgs)	69.
Paint/Write/Draw (Not Protected IIgs)	115.	DeluxePrint II (IIgs)	37.
Clip Art Gallery or Postcards (IIgs)	21.	Video Title Shop Companion Vol. I	30.
GameMaker Bundle	34.	Video Title Shop Companion Vol. 2	15.
Postcards (IIe & IIc)	68.	Art Parts I (IIgs), Art Parts II (IIgs), or Seasons & Holidays (IIgs)	23.
Bantam Software	18.	EPYX Printmagic	41.
Walt Disney Card & Party Shop	27.	Graphics Scrapbook Chapter #1, #2, or #3	17.
Walt Disney Comic Strip Maker	27.	Create-A-Calendar	21.
Baudville		Intracorp Bumper Sticker Maker	34.
816/Paint (Works On All Apples)	46.	Business Card Maker	37.
Award Maker Plus	34.	PBI Software Visualizer (IIgs)	56.
Take 1 Deluxe	37.	Visualizer IIe	52.
Animation Library or Zany Characters	19.	Scholastic SuperPrint (IIgs)	31.
Beagle Brothers Beagle Graphics	36.	Spinnaker T-Shirt Shop	34.
Minipix Disk #1, #2 or #3	19.	T-Shirt Shop Graphics	15.
Berkeley Softworks GEOS	80.	Springboard Newsroom	39.
Broderbund Toy Shop	34.	Springboard Publisher (IIe or IIgs)	84.
Dazzle Draw or Show Off (IIgs)	41.	Certificate Maker	26.
Drawing Table (IIgs)	62.	Certificate Maker Library #1	20.
Print Shop Enhanced or Fantavision	34.	Fonts For Springboard Publisher (IIe or IIgs)	26.
Print Shop (IIgs) or Fantavision (IIgs)	41.	Newsroom Clip Art Collection Vol. 1 or 3	20.
Print Shop School Edition	41.	Newsroom Clip Art Collection Vol. 2	26.
Dazzle Draw School Edition	48.	Laser Drivers	26.
Print Shop Companion	27.	Style Sheets/Newletters (IIe or IIgs)	20.
Print Shop Graphics Library I, II, III or Holiday Ed.	17.	Works of Art Education, Holidays or Assortment (IIe or IIgs)	26.
Print Shop Graphics Library Sampler Edition	24.	StyleWare, Inc. TopDraw (IIgs)	58.
Print Shop Graphics Library Party Edition	24.	Union World Printmaster Plus	31.
Data Transforms Printrix I.1	46.	Art Gallery I or Art Gallery II	19.
Monster Font Pack	21.	Art Gallery Fantasy	19.

Communication Software

Activision Teleworks Plus (IIgs)	68.	Pinpoint	
Checkmate Technology		Point-To-Point	74.
ProTERM (IIgs, IIe, IIc)	95.	United Software Industries	
Compuserve Compuserve Starter Kit	24.	ASCII: Express Pro: Prodos or Dos 3.3	74.
Grolier On Line Encyclopedia	32.	ASCII: Express Mousetalk	74.

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REVIEWS

The Graphics Studio; MultiScribe GS 3.0, DeskWorks; RamTalker Plus; Albert J. Lowry's Real Estate Investment and Management; At a Glance; Games Editors Play: Paperboy; Street Sports Basketball; Gauntlet GS; Short Takes

Artistic License

THE GRAPHICS STUDIO

Accolade, 550 South Winchester Boulevard, San Jose, CA 95128, (408) 296-8400
Painting program; 768K Apple IIGs
\$59.95
Rating: ■■■■

The Graphics Studio marches to the beat of its own drummer, a tack that in some respects could make this super-hires painting program for the 768K GS easier to learn and use. Unfortunately, the program's odd interface strays a bit too far from the "true" GS software standard and in doing so, diminishes the desirability of some of its numerous praiseworthy features.

THE ROAD LESS TRAVELED

Like other GS paint programs before it, The Graphics Studio sports a modified Macintosh-style interface with icons, pull-down menus, and mouse control. It's at this point, however, that any similarity to the interface found in programs such as Paintworks Plus, Paintworks Gold, and DeluxePaint II ends.

While other paint programs for the GS subscribe more or less to the Apple standard interface, The Graphics Studio doesn't. Accolade's program looks more like some of the hybrid mouse-based programs IIe and IIc owners have enjoyed in the past.

Surely, the black-and-white Apple icon in the menu of the same name and the lack of a third period in ellipses trailing the names of features such as "Save as" are trite complaints. Maybe asking for some keyboard equivalents or the ability to sojourn back to the GS Control Panel is also too much. But diehard GS advocates—and their numbers are steadily growing—might not consider these and



other "variations" in screen appearance and program function trivial.

There are other program peculiarities, as well. The vertical scroll bar and box are reduced to small icons in the lower left-hand corner of the screen. Pull-down menus are hidden until you belly the mouse pointer up to the menu bar or turn off the status-line display. One nice feature is that clicking on a menu keeps it pulled down, so you can select or deselect a number of options without having to pull down the same menu time and time again.

In addition to pull-down menus, The Graphics Studio has "pop-out" menus. To me they seem like so many more pull-down menus, though—they don't pop out at all. Some pull down, like the Drawing Tools menus at the top of the screen; others push up, like the Brush Tools menu at the bottom. If you've seen The Music Studio from Activision (a program, like The Graphics Studio, that was created by Audio-Light), you're already familiar with this unique interface.

TOOLS APLENTY

Whether they pull down, push up, or pop out, these menus contain virtually

all Graphics Studio features—and there are enough features to satisfy all but the most demanding artists. Take a gander at some of the sample artwork included on the program disk to see what The Graphics Studio can do. (Clip art isn't included with the program.) I drool with envy whenever I look at the painting of the America's Cup yachting challenge.

For accomplished and amateur artists alike, The Graphics Studio offers a variety of shape tools (box, round rectangle, circle, and oval) in various modes (hollow, filled, and concentric). Drawing tools include straight, connected, radiating, and constrained lines, plus connected and unconnected pixels. Four varieties of color fill are available—flood, vertical line, horizontal line, and polygon.

inCider's Ratings

Excellent—remarkable, a must buy	■■■■■
Very good—impressive and recommended	■■■■
Good—average, solid performance	■■■
Fair—flawed but adequate	■■
Poor—unacceptable or unusable	■

Æ Update . . .

Transwarp GS, a new accelerator card for the IIGS was demonstrated by Applied Engineering at the Boston Applefest. The prototype worked flawlessly, speeding up the IIGS to 6 megahertz or about 2.2 times the computer's normal speed. The large prototype card is currently undergoing a redesign by AE engineers to utilize a smaller number of advanced, semi-custom integrated circuits. One tantalizing feature will be an ability to reach even higher performance levels in the future. Currently, 6 megahertz 65C816 microprocessors are the fastest available, but the chip's designers, working closely with engineers at Applied Engineering, promise even faster units in the future. Transwarp GS could be upgraded by simply changing to a faster microprocessor and a faster crystal oscillator as they become available in the future. In fact, Transwarp GS was designed to run at 10 megahertz by changing only these two plug-in components. The current Transwarp Accelerator speeds up the IIe and II+ 3.5 times and is available now for \$219.

DataLink 2400, a new 2400 baud internal modem for the IIGS, IIe and II+ is now available from AE. The new modem, priced at \$239, features AE's exclusive communications software, worldwide compatibility and more than \$200 in free memberships and on-line services. AE's DataLink 1200 baud modem has been reduced to only \$179. An upgrade from the 1200 to the 2400 is now available. Call for details.

AE demonstrated two new GS sound products at the Boston Applefest indicating a stronger commitment to Apple-based music, speech and sound effects. In addition, Applied Engineering lowered the price of their Phasor sound and speech synthesizer from \$179 to \$169 in May. The Phasor is compatible with the IIGS, IIe and II+ and enhances the sound of many commercially available games. Apple owners with only an elementary knowledge of BASIC can write and modify programs to have both speech and sound effects.

RAM chip prices continue to rise. While memory card sales are strong, customers are buying boards populated with less memory than last year. Industry experts disagree on when and if lower prices will return. Applied Engineering suggests buying RAM chips from only those companies that offer a money-back guarantee (as AE does). While the short term price increases seem dramatic, AE's founder vividly recalls paying \$600 for a 16K RAM card. So, in perspective, memory is still less than 1/10th the price of several years ago.

Brush tools come in five thicknesses, eight shapes (including the capability of using text as a brush—a feature I couldn't get to work properly), and five densities. Four of these brush densities let you create air-brush or spray-paint patterns.

Like GS paint programs before it, The Graphics Studio can generate 4096 separate colors in 16-color palettes. If you want to change a palette, pull down the Edit menu and select Edit Colors/Cycling.

Instead of RGB (red/green/blue) sliders, The Graphics Studio uses RGB-value and color-editing boxes. Just type in the numeric RGB variables for the color you want or—even easier—use the mouse to alter the color displayed in the editing box. As you use the mouse to drag the marker within the box, the program holds one variable constant (*B*, for instance) automatically, while it alters the other two (*G* and *R*) relative to the mouse's position on the *x* and *y* axes.

Guide the mouse within the editing box and watch the box flood, color after color.

The Graphics Studio's lower menu displays not only the color palette, but a pattern palette that includes six multi-colored patterns such as herringbone, houndstooth, and checked, too. A Patterns file on the program disk stores another 77 patterns you can modify easily. You can substitute any of these patterns—or your own custom patterns—within the Pattern Palette.

You can even make patterns from images by guiding the on-screen pattern-selection box to any area you want to turn into a pattern. I imported a digitized image of my cat and created black, white, and gray patterns from Purky's ticked fur and tiger stripes.

GRAPHICS EXTRAS

The Graphics Studio accommodates changes of mind in three different ways.

At a Glance

Calendar Crafter (June 1988, p. 36), MECC, 3490 Lexington Avenue North, St. Paul, MN 55126. (612) 481-3500, (800) 228-3504, \$59
Rating: ■■■■

Engagements, deadlines, appointments, and special occasions are all "events" to Calendar Crafter. This program can track an event or print any calendar from the year 1 to the year 9999. Events are organized into categories—such as holidays, golf dates, and birthdays—for efficient management.

You can choose one of Calendar Crafter's 125 colorful pictures to add to your calendars. Graphics include a report card, a birthday party, a wreath, and so on. If you don't find what you want, you can make one from scratch with the program's simple but effective 16-color palette and drawing grid, or import artwork from 816/Paint, Paintworks Plus, or DeluxePaint II. Calendar Crafter offers six basic printing styles: one day, two days, one week, one month, two months, and one year per page.

The program runs on a GS with 512K, but you'll need 768K to be able to print calendars. Unless your interest in calendars is purely academic, you'll need 768K for the software to be of much practical use.

Interviews with History (June 1988, p. 46), Educational Publishing Concepts, P.O. Box 715, St. Charles, IL 60174, \$99.95
Rating: ■■■■

Interviews with History brings historical figures to life. Designed for students in 4th–8th grades, it features animated graphics representations of famous people responding to the student's questions. The student plays a reporter doing interviews, then answers questions based on his or her findings. History makers featured in Interviews include Columbus, George Washington, Thomas Edison, Abraham Lincoln, and Dr. Martin Luther King.

Interviews with History takes a unique approach to teaching the subject. The program requires only 64K and one disk drive; you'll have to do a bit of disk swapping between "interviews," but overall Interviews with History goes a long way toward making the subject exciting for kids.

TimeOut SideSpread (May 1988, p. 29), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, \$49.95
Rating: ■■■■

As with the other TimeOut applications, SideSpread works within AppleWorks. Press Open apple-Escape and the TimeOut menu appears on screen; SideSpread then prints your AppleWorks spreadsheets sideways. It's as simple as that.

Continued

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Continued

The package includes page-setup and print-quality options, such as tall adjusted, 50 percent reduction, and high, standard, and draft modes. Working with TimeOut fonts, you can also print in a combination of 16 typefaces and point sizes: Monaco in 6, 9, 10, 12, 14, 18, 20, or 24 point, or Courier in 9, 10, 12, 14, 18, 20, 24, or 28 point. If you use the AppleWorks spreadsheet to any extent, TimeOut SideSpread is a must.

TimeOut DeskTools (May 1988, p. 24), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, \$49.95
Rating: ■■■■

TimeOut DeskTools provides a calculator, calendar, case converter, data converter, clock, dialer, envelope addresser, file encrypter, notepad, page previewer, puzzle, and word counter. The usefulness of these accessories ranges from essential to dubious.

The calculator includes memory and a square-root function. The calendar extends to December 31, 1999. The case converter capitalizes an entire word, puts it in lowercase, capitalizes just the first letter, or just the first letter if the word begins a sentence—not a very useful application for AppleWorks users.

The clock is basic. The phone dialer may crash your system occasionally, but will redial the last number called or dial a number from a “quick” list of previously recorded numbers. The data converter is a terrific utility for splicing database or spreadsheet information into a word-processor document.

DeskTools' file encrypter locks documents with a “key” code of one to ten characters. The envelope addresser prints forwarding and return information. The page previewer lets you see how your printed page is going to look. The notepad, puzzle, and word-count tools offer basic functions. All in all, the TimeOut DeskTools package is an inexpensive and indispensable enhancement for AppleWorks.

TimeOut Graph (May 1988, p. 29), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, \$89.95
Rating: ■■■■

TimeOut Graph lets you turn your AppleWorks spreadsheet data into various styles of charts and graphs—bar, line, pie, XY (scatter), stacked bar, area, hi-lo, exploded pie, and point. The pie chart offers an especially nice feature: It calculates automatically the percentage of each section. You can also shade in pieces of the pie.

TimeOut Graph has a couple of drawbacks. First, it doesn't print in color. Also, when you produce a graph with several small segments, the labels overlap, making the words indecipherable. This problem is particularly noticeable with pie charts.

Continued

The program, like others, has an Undo option—but in The Graphics Studio the undo acts like a toggle. You can undo what you've undone—or undelete a deletion.

The Graphics Studio doesn't list New in its File menu the way other GS programs do. If you want to start your painting from scratch, just click on the Eraser tool and pull down the Trash Can icon to clear the whole screen.

One Graphics Studio feature I'd like to see incorporated into all other GS painting programs is its resizable-eraser tool. Just click on the eraser icon and a small rectangle (the eraser) appears on screen. Drag the mouse and make the eraser as large or small as you like.

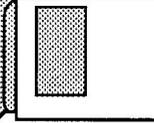
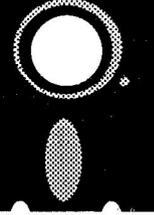
The program's Unanchored Text feature is another option other paint programs should include. Type in your text (in any of six familiar fonts and a half-dozen styles and sizes) and as long as you haven't pressed the Return key, you can

use the mouse to move the text anywhere on screen—for fine-tuning or gross adjustments.

The Graphics Studio makes editing images as easy as can be. You have three magnification levels—2X, 4X, and 8X—from which to choose. Pull down the Freehand Draw menu and select Zoom; position the rectangle over the area you want to enlarge; the screen splits, displaying the original image on top and the magnified image on the bottom. Two “pop-out” menus let you change magnification or use the pencil and fill tools for touchups.

Manipulating images is a snap, too. Cut, Copy, and Paste functions aren't found in the Edit menu as they usually are in GS software, however. Instead there's a Copy menu to activate the functions that let you mark graphics or text for deletion, moving, scaling, rotation, re-orientation, or transport to a second

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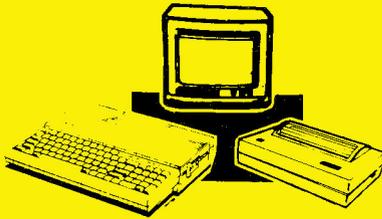
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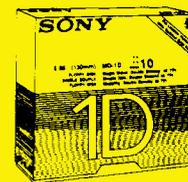
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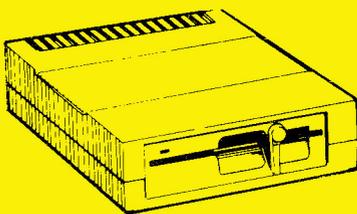


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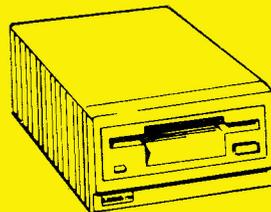
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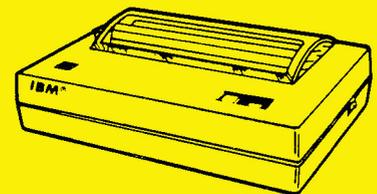
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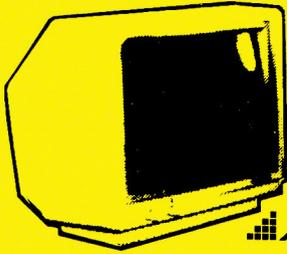
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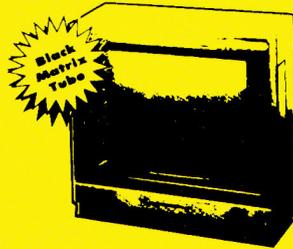
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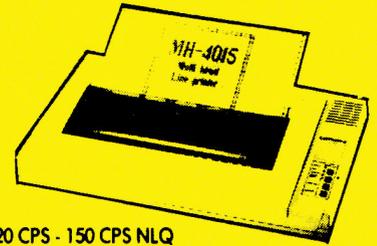
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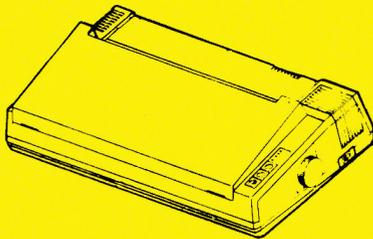
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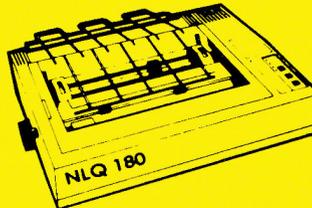
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"canvas," The Graphic Studio's Clip Screen.

T-shirt makers can take full advantage of The Graphics Studio's flip-horizontal feature for making iron-on transfers. You can also flip images vertically—or both ways simultaneously.

The Graphics Studio supports only the ImageWriter printer. The program's printing features, like the other features mentioned above, differ in their presen-

tion. Choose Print Setup from the File menu to open the printer-setup sub-menu. This window contains selections for print attributes (Better Text, Better Color, Draft, Page Range, Number of Copies, Paper Feed, and Color), page style (Page Size, Vertical Size, Orientation, 50-Percent Reduction, No Gaps Between Pages), Choose Printer, and Start Printing. This last choice reveals a sub-sub-menu with selections for printing the

Continued

A future version of TimeOut Graph should solve the problem by assigning a pattern to each piece of the pie, then providing a key in one corner of the screen to show which pattern represents which label. TimeOut Graph is definitely worth having despite those drawbacks. Because it's so easy to operate, you'll find yourself using it often, even when you're the only one who'll be looking at the graphs.

Publish It! (April 1988, p. 26), Timeworks, 444 Lake Cook Road, Deerfield, IL 60015, (312) 948-9200, \$99.95

Rating: ■■■■■■

The Publish It! manual is as sturdy and good-looking as it is complete and well written, but you may not even need it. The program's intuitive nature stems largely from its Mac-style interface. Publish It! offers nine clearly named pull-down menus, including a help menu for those rare nonintuitive moments.

Publish It! comes with more than 200 graphics you can position anywhere in a document. Select the one you want, size it with the cropping box, and press the return key. Picking and placing a graphic are as easy as taking a snapshot.

Publish It! delivers on its promise of a WYSIWYG environment. Every design feature you select is reflected on screen in half-size, full-size, double-size, or size-to-fit (showing the full page on screen) viewing modes. Perhaps even more important are the WYGFIEF (what you get is easily fixed) features. Publish It! offers separate editors for text and graphics modes.

Typing and editing are slow in the graphics-mode word processor, but you can import text files from AppleWorks or another word processor easily. That's probably your best bet.

Type! (April 1988, p. 38), Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 479-1170, \$44.95

Rating: ■■■■

The activities featured in Type! include individual tutorials and drills, an arcade-style game called Type-Athlon, and tests to monitor your progress. Introducing the Keyboard, as the name implies, is a beginner's tutorial with information on correct fingering, body posture, the home-row keys, and using the spacebar and return key.

Keyboard Basics presents word exercises to teach the locations of keys. Select a letter for special focus, and the program will respond with words that incorporate the target letter.

Type-Athlon represents you and your words-per-minute goal. Set your typing speed and select word exercises for the race; the faster and more accurately you type, the better your runner does.

Type! assumes a bit too much knowledge on the part of the beginner. The program doesn't review finger positioning as it introduces new

Continued

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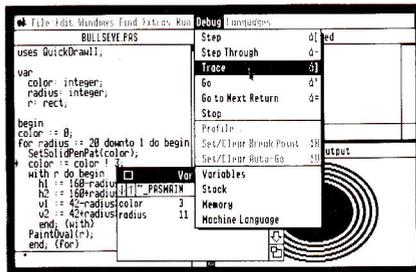
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Continued

Print Magic (April 1988, p. 33), Epyx, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606, \$59.95

Rating: ■■■■■

Print Magic frees you from many of the design restraints imposed by other printing programs. It offers a Macintosh-style interface and almost limitless design possibilities. The Print Magic package comes complete with 138 images, with additional graphics disks available from Epyx.

You can use as many different graphics as you like on each poster, card, or whatever you design, and you can arrange them in any pattern you choose. You can even place borders anywhere on a page—not just along the edges. Twenty-four different “paintbrushes” are available, as well as pens, patterns, and figures (circle, oval, box rectangle, and line).

The program does have a few disadvantages. It runs only on the GS in IIe-emulation mode, and it's not available on 3½-inch disks. The company is considering a microfloppy version, though, as well as color printing. All in all, if you want a program that can grow with you as your artistic talents emerge, you'll want Print Magic.

Postcards (64K version) (January 1988, p. 29), Activision, Inc., P.O. Box 7286, Mountain View, CA 94039, (415) 960-0410, \$24.95; blank Postcards \$4.50 (50), \$7 (100), \$9 (150)

Rating: ■■

The version of Postcards Activision designed for the 64K Apple II family is a disappointment compared with the GS version. The major reason is lack of color. Although the Postcards box features brightly colored cards, there's nary a pixel of color to be found in the program. It offers five patterns in place of the customary paint palette, and you can color in the postcards with pencils or fiber-point pens after you print them.

The fundamental steps for creating a postcard are similar to the sequence you follow in the GS version, except that you keep the background scene in screen-display 1, load the clip-art file in screen-display 2, then toggle back and forth. The program doesn't support the mouse, but you can use either a joystick or keyboard commands.

This standalone program doesn't work as an adjunct to a bona-fide paint program (as the GS version does), so the price of \$24.95 is a bargain if you don't mind coloring. To its credit, the 64K

version of Postcards supports many popular printers, including color-capable printers such as the ImageWriter II and the Okimate 20, but it still prints in only black-and-white.

Printrix (November 1987, p. 28), Data Transforms, 616 Washington Street, Denver, CO 80203, (303) 832-1501, \$65

Rating: ■■■

Printrix is a page-layout utility—better known as a desktop-publishing program. It lets you lay out a text file with multiple fonts and graphics—while you're editing with your favorite Apple word processor. Printrix works with AppleWorks, WordPerfect, and any other ProDOS-based word processor that can save files in hard or soft ASCII format.

The program disk contains 25 graphics files you can use to enhance your pages. You can also use Fontrix “graffiles,” Print Shop graphics, or single-hi-res screens—just use the Printrix utility to convert them to ProDOS. You can wrap text around your images and insert graphics into text, among many other options. The only real problem with Printrix is that you have to print your text to see it—there's no way to see it on screen. □

End

PART 3



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GLARING MEDIOCRITIES

The user's guide is disappointing. Its tutorial and reference sections are loosely organized and superficially written. A paucity of diagrams, an inadequate index, and some editorial errors detract from it, also. The curiously colorless cover reinforces the feeling that this was a rushed or low-budget job.

Support is also less than it should be. At a time when more and more companies are removing copy protection, Accolade uses the key-disk system, which, as some of you already know, can be a pain in the neck. A backup of the program disk costs \$15. After the 90-day warranty period, replacing defective or damaged program disks costs \$10. Telephone technical support is free, but not toll-free.

The program version I reviewed had other quirks. On one occasion, when attempting to rotate a simple image, the program froze temporarily. When I

pressed keys in an attempt to jump-start the program back into action, the painting reappeared on a clean screen—with no menus of any kind.

During another work session, when I chose boldface type for a text font, all screen text (including menu titles and choices) was also displayed in bold, making the names of some features in the pull-down menus interfere with the menus' right-hand borders. Finally, during printing there seemed to be no way (short of turning the printer off) to stop the process—until I instinctively used the open apple-period combination commonly displayed by other GS programs, but not alluded to in The Graphics Studio.

Overall, The Graphics Studio packs some popular GS painting features with an inherently easy-to-learn interface that eliminates the necessity (but does away with the advantage) of using equivalent keyboard commands. Some of the pro-

gram's features are enviable—the adjustable eraser, split-screen zoom mode, unanchored text, flexible graphics manipulation and scaling, multipalette color cycling, and slide-show capability.

At the risk of being accused of stifling innovation, I'd say The Graphics Studio strays too far from the "true" GS software standard in an attempt, it seems, to set its own. On top of a mediocre user's guide, a déjà-vu support policy, and some oversights in program design, its odd interface prevents me from rating an otherwise fine program any higher than three stars.

The same compendium of features together with a true GS interface, improved documentation, better support, and error-free operation would certainly warrant a rating upgrade for this budget-priced program. ■

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Ratings: ■■■■ (MultiScribe GS 3.0)

■■■■ (DeskWorks)

StyleWare's highly praised graphics word processor keeps getting better—without compromising its simplicity or its striking WYSIWYG (“what you see is what you get”) screen appearance. This latest version for the IIGs offers additional graphics capabilities, enhanced printing, and sophisticated word-processing features, including the Merriam-Webster/Proximity spelling checker and thesaurus.

To a new user, MultiScribe's most striking feature is the appearance of its graphics-based screen. Designed around the Apple “human interface,” MultiScribe GS offers ten aptly named pull-down menus: Apple, File, Edit, Search, Format, Font, Size, Style, Color, and Options. Out of the box, nothing in these pull-down menus would merit any accolades. But blend in DeskWorks, and MultiScribe GS begins to look like serious small-business software.

Together with DeskWorks, a package of 12 desk accessories that pop up within MultiScribe GS or any other true GS program, MultiScribe GS is about two-fifths of the way toward bumping 8-bit Apple-

Works from its standing as king of the Apple II mountain.

THE BASICS

Remember when your GS pulled its first “fast one” on you—when you learned it wouldn't run most GS programs on its “meager” 256K or 512K? MultiScribe GS runs adequately on 512K, but 768K or more is recommended, especially if you want to create long documents or integrate graphics easily.

Not surprisingly, the 12 DeskWorks accessories—Calendar/Appointment Book, Scrapbook, KeyMac, Phone Filer, Calculator, Screen Saver, NotePad, Menu Clock, System Clock, Alarm Clock, Mr. Apple, and Enigma—take up more storage memory than many GS program disks have available. You can install selected DeskWorks accessories on any authentic GS program disk, but you probably won't be able to fit them all.

If you use a hard disk, you're in much better shape. You should be able to install all DeskWorks accessories and MultiScribe GS, as well as other programs. If you don't yet own a hard drive and you want to use all StyleWare accessories, you can boot DeskWorks independently from a second 3½-inch drive. My system with two 3½-inch drives (DeskWorks in one and MultiScribe GS in the other) and one 5¼-inch drive (for a data disk) functions effectively. These days, it seems that if you want to use the newest GS goodies, a hard drive is a timely investment.

GREAT GRAPHICS

MultiScribe GS' much-improved graphics capabilities let you move, resize, and reshape pictures within a document. You can also fine-tune the relative placement of graphics and text within your documents with the Send Back/Bring Forward features under the Options menu. You can further dress up your publications with lines, filled or hollow rectangles, round rectangles, and circles—all of which are contained in MultiScribe GS' built-in drawing toolkit.

Choose a color from the 16 available at any given time in MultiScribe GS' pull-

down paint palette, select one of six line thicknesses, click on the round rectangle, and place it in your document. You can move it later (like other graphics objects) by clicking on its “handles.” Next, enter text or place a graphic into (actually over) the color-bordered round rectangle.

You can type text in color, too, and you're never limited to the 16 default colors in MultiScribe GS' pull-down palette. Click on Edit Colors and use the program's RGB (red/green/blue) and HIS (hue/intensity/saturation) “sliders” to choose from the 4096 colors the GS can generate. While all 4096 colors look great on screen, pure colors—not dithered—print best.

FONSTASTIC

The colors are great, but it's the fonts that made a name for MultiScribe. The program still offers a good selection: Shaston, Courier, Geneva, Helvetica, Times, Venice, New York, Cairo, Symbol, London, and Monaco. (Extra fonts are available in Font Library Volume 1, priced at \$39.95. You can also customize and create your own fonts with Font-Smith, which costs \$59.95.) Some, like Times and Helvetica, work best with the LaserWriter, while others, like New York and Geneva, were designed for the ImageWriter II. Currently, these are the only printers MultiScribe GS supports.

MultiScribe GS 3.0 offers a variety of font styles (plain, boldface, italic, underlining, outlining, shadow, supercripts, subscripts, uppercase, and lowercase) and sizes (6- to 48-point). You can edit the size of any font with the program's “Larger” and “Smaller” features to increase or decrease font size point by point.

PRINT POWER

One of the few drawbacks I experienced when using MultiScribe GS with DeskWorks occurred in font printing. While the Font menu listed all 11 fonts when I booted MultiScribe GS alone, only six were listed when I booted DeskWorks, and two of those appeared to be defective. All lowercase letters were missing on screen from Shaston text, and Venice text made the screen look like a punch card.

With DeskWorks loaded, MultiScribe GS' new Imagewr.BW driver (for dense black printing on the ImageWriter II that looks better than that generated by most typewriters) was no longer available as it was when I used MultiScribe GS independently. Since I'm familiar with StyleWare's excellent reputation for customer support (free but not toll-free), I'm confident the company's programmers can find a fix for these bugs, perhaps by the time you read this review.

MultiScribe GS 3.0 is still slow when it comes to printing. Don't get me wrong—the results are well worth it, but if you're in a hurry and aren't concerned with making any aesthetic impressions, stick with AppleWorks. If MultiScribe GS could somehow speed up the printing process—or, better yet, let you work on another document, use accessories such as the Calendar and Phone Filer, or play the game Enigma while you print—I'd give the program a five-star rating.

LETTER PERFECT

You can insert page breaks wherever you want from MultiScribe's Format menu. Add a header or footer to alter top and bottom margins, place page numbers, or date and/or time-stamp your documents. The new Title Page feature lets

you eliminate the header or footer or both on the first page of a manuscript. The Set Page # feature lets you print subsequent phases of long, daisy-chained documents—chapters in a book or sections of a report, for example.

MultiScribe GS is still ruler-based. Switching from single to one-and-one-half or even double spacing is as easy as clicking on the associated icon. The program handles justification (left, center, or right) the same way. Set margins and tabs by dragging out the margin settings with the mouse.

MultiScribe GS can now import AppleWorks files directly. You may want to create and print your drafts with the AppleWorks word processor, then import the text for final editing, graphics enhancement, and formatting with MultiScribe GS.

THE MESSAGE COUNTS, TOO

MultiScribe GS helps you ensure that the substance of your correspondence, reports, and publications is spelled correctly and expressed precisely. MultiScribe GS doesn't have a grammar or style checker (both of which are of dubious value anyway), but it does offer a spelling checker based on an 80,000-word dictionary and a thesaurus that uses 40,000 entry points capable of generating more than 470,000 synonyms.

Accessing either utility is easy. Pull down the Edit menu and click on Check Spelling or Synonyms. You can also create your own user dictionary to hold proper nouns and jargon left out of the Merriam-Webster/Proximity database.

When I used DeskWorks and MultiScribe GS concurrently, my 1.25-mega-byte GS didn't have enough memory left over to use the thesaurus, according to a dialog box that popped up on screen. I closed a couple of files on the Desktop and still didn't have enough memory to check my eight-page document. To test the thesaurus, I had to reboot MultiScribe GS without DeskWorks (a process that took nearly three minutes), then load my word-processing file.

DESKWORKS EXTRAS

Though not required by MultiScribe GS, DeskWorks brings this graphics word processor closer to being taken seriously by professional and small-business users. While you can access these accessories from other GS programs (such as paint programs), the best use for a phone dialer and an appointment calendar would be within a fundamental application program such as a word processor or database manager. Besides, DeskWorks and MultiScribe GS make a nice fit.

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The DeskWorks Calendar/Appointment Book, like the other accessories, is naturally more graphics-oriented than Pinpoint's AppleWorks accessories. Click on a date to activate it. Each day sports its own window, like a page from a printed appointment book. Enter appointments or reminders for each hour of the business day and for evening engagements.

Like other DeskWorks accessories, you can tuck the Calendar/Appointment Book away by clicking on the Close box. If you anticipate needing the accessory later on during a work session, you can shrink it to icon size. You can drag accessory icons (the turquoise-colored calendar or the bright blue telephone, for example) around the desktop. Clicking on one of these icons opens up the designated accessory more quickly than pulling down the Apple menu, selecting the accessory from that list, and waiting for your disk drive's red light to go out.

SCRAPS

The Scrapbook is another significant DeskWorks accessory. This utility lets you easily extract clip art, digitized images, or original artwork from popular GS paint programs and store them. If you want to add your company's logo or club emblem to a letter, business form, or newsletter, select it from the Scrapbook and insert it wherever you like in a MultiScribe GS document. You can add graphics to your MultiScribe GS documents without the Scrapbook accessory—just use the Load Picture option in the File menu.

KEYPAD MACROS

Power users or efficient businesspeople should like DeskWorks' KeyMac accessory. Macro definition has never been this easy. When I begin a personal or business letter now, I don't have to type my address—I just press the number "1" key on the GS' numeric keypad. You can define more complicated macros up to 512 characters long and those involving MultiScribe GS program commands just as easily. Save macros on disk in their own directories for easy access.

REACH OUT AND DIAL

The Phone Filer is unique. This mini-database is like an on-screen Rolodex (TM) file. You type the usual information in predefined fields—name, address, and phone number. There's also room for two lines of miscellaneous information. Phone Filer can perform simple database searches, so you shouldn't misplace a client for long.

What makes the Phone Filer special is its ability to generate touch-tone signals through the GS' speaker. You'll need a special adapter called the HyperDialer (\$14.95) to connect your GS to your phone and use the computer as an autodialing device, however. For salespersons or others who constantly "reach out and touch someone," HyperDialer and Phone Filer make a good team. HyperDialer isn't a modem, however, and Phone Filer isn't communications software. This setup is for voice communications—to help you allocate your time more productively.

CALCULATOR

DeskWorks' Calculator is no four-function wimp. It can handle advanced calculations such as those invoking powers, roots, scientific notation, logarithms, and trigonometric functions. Ten memory registers store intermediate values temporarily. Instead of pressing buttons with your fingers, you use the mouse to "click" the buttons. This bright-blue calculator also looks great.

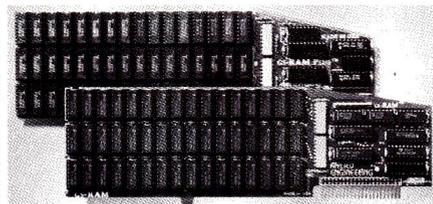
SCREEN SAVER

This unusual accessory blanks and darkens the GS' RGB monitor screen after a designated period of nonuse—from 30 seconds to one hour. If you're away from your desk often, but don't want to reboot programs constantly (MultiScribe GS and DeskWorks together take more than four minutes to load), Screen Saver is a handy utility.

If you don't use the keyboard or the mouse for ten minutes, for example, the screen undergoes a blackout. The program is still there, but you won't cause premature burnout of your monitor

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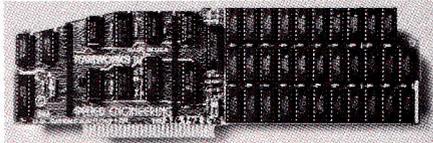
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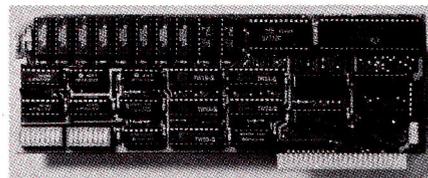
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screen. Click the mouse and the application reappears right where you left off.

NOTES AND CLOCKS GALORE

DeskWorks includes a notepad accessory that looks like the real thing. Click on the dog-eared page and tear off a new sheet. NotePad supports the MultiScribe GS Clipboard commands Cut, Copy, and Paste.

DeskWorks includes three different clocks. The Menu Clock displays the current time right inside the MultiScribe GS Menu Bar. Checking out this clock is even more convenient than glancing at your wristwatch. The second timekeeper is the System Clock. This one gives you the date and time in hour:minute:second a.m./p.m. format.

The third timepiece is the Alarm Clock. You can set it to alert you today, every day, or on some future day. The Alarm Clock is reliable and includes a

Snooze feature. (You determine how long the "snooze" will be.)

FUN AND GAMES

Two DeskWorks accessories are trite, but I like them anyway. The first, Mr. Apple, animates the Apple logo atop its pull-down menu by cycling colors. The second, Enigma, is one of those addicting logic games. You get 12 chances to work out the correct color sequence of five dots. There are eight possible colors, and colors can appear more than once. I figure there are something like 33,000 possible sequences—enough to cure writer's block for years to come.

THE ICON SAYS IT ALL

When you boot your GS, Apple's Finder opens the MultiScribe disk window and displays the program's new icon. Striking in its color and resolution, this new icon includes not only the original

StyleWare quill pen, but a Bic (TM) look-alike, a fountain pen, and a pencil.

That icon probably says it all—here's a program that exploits the GS' processing speed and color-graphics capabilities in ways that can enhance most writing tasks. Add DeskWorks, and MultiScribe GS offers almost all the features the average home-business user needs. ■

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

Editor's note: According to Lou Forlini, president of System Support Products Inc., the name DeskWorks is a trademark that has belonged to his company since 1985. The name is currently under registration proceedings with the U.S. Patent and Trademark Office. Kevin Harvey, president of StyleWare, indicates that his company may have to change the name of the product, but things at this point are uncertain. inCider will keep you posted.

Apples Work

Open-Apple is Tom Weishaar's monthly newsletter for knowledgeable Apple II users. It's thin but packed tight with Apple II lore, humor, letters, tips, advice, and solutions to your problems. Compared to other Apple II publications, **Open-Apple** has the highest new-idea-per-issue ratio, the clearest writing, the funniest cartoons, the longest index, the best warranty (all your money back if you're not satisfied), and it takes up the least shelf space.

Il cue #59

If you own a IIc or IIc, now is *not* the time to invest in an RGB monitor. The IIgs has made IIc/IIc RGB obsolete. If you want both color and an 80-column display, take a look at Apple's *composite* color monitor. You'll save lots of money, you'll have color, and you'll have readable 80-column displays only a smidge less sharp than what RGB could give you. For more information, see 'IIc and RGB' in the May 1988 **Open-Apple**, page 4.31.



From our fan mail:

In at least a dozen key situations, the ability to go to my **Open-Apple** back issues has saved me hours of frustration.
Paul MacRae
Toronto, Ont.

I am amazed at how much of each issue is interesting and relevant. As so often happens, those items that don't interest me at the moment do eventually have interest or application to my needs.

Ed Parker
Walla Walla, Wash.

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Speak Up

RAMTALKER PLUS

Electronic Learning Systems Inc., 2630 N.W. 39th Avenue, Gainesville, FL 32605, (904) 375-0558

Multifunction speech-synthesis board; Apple II Plus, IIe, IIGS
\$295

Rating: ■■■■

If adding speech to your Apple IIe or GS sounds great, and a battery-backed RAM disk in the package makes the whole thing seem like heaven, stay tuned. RAM-Talker Plus may be just the card for you and your Apple II.

RAMTalker Plus is a multifunction card combining an unlimited-vocabulary text-to-speech synthesis unit based on First Byte's SmoothTalker program, a 256K battery-backed RAM disk, and a ProDOS clock. It can also make AppleWorks talk.

RAMTalker Plus isn't a true speech synthesizer in the conventional sense, but a software-driven digital-to-analog converter. In many ways, RAMTalker's text-to-speech unit is similar to the Macintosh system. The ProDOS clock has a patch program to make it compatible with your Startup programs, and the AppleWorks patch can work with versions 1.3 and 2.0.

WHAT'S IN THE BOX?

RAMTalker Plus comes bundled with a simple owner's manual and a ProDOS disk of software utilities. The manual is sparse in terms of technical details and doesn't fully describe how to use the card with AppleWorks. It's fast and easy, however, and it does help you set up the system in a hurry.

RAMTalker's utilities let you format the RAM disk in either ProDOS or DOS 3.3, initialize the card with or without speech, set the ProDOS clock, and back up the RAM disk on a floppy disk.

You'll need an external speaker or Walkman-style headphones to hear RAM-

Talker's speech, but Electronic Learning Systems doesn't provide either in the package. The company should bundle RAMTalker Plus with headphones or a small speaker, because the end user can't get the system up and running without one or the other.

TALK TO ME

In my opinion, RAMTalker's most interesting feature is its speech-output system. The heart of this electronic mouthpiece is an 8-bit digital-to-analog converter (DAC) controlled by First Byte's SmoothTalker program. With this combination of hardware and software, the Apple II can talk just like a Macintosh.

The quality of SmoothTalker's speech is impressive. It has a human ring to it, while offering a crisp robotic tone. SmoothTalker can speak letter by letter, word by word, or line by line. You can turn punctuation marks on and off and alter the pitch or frequency of the voice.

Using RAMTalker's voice editor, you can create custom speech files for applications in which you need perfect speech, either in Applesoft floating-point BASIC or assembly language. The speech editor offers a much higher degree of control over SmoothTalker's voice than its direct text-to-speech mode does, because you can use individual phonemes instead of whole words in your text.

You can also use RAMTalker as a speech printer with almost any software package. If your word processor, database, spreadsheet, or other application can send text to a slot, it can send it to RAMTalker's voice. You can define RAMTalker as a speech printer within AppleWorks, then use voice to "proofread" your files. You can even change voice parameters while "printing" to RAMTalker by simply embedding control commands within the file, letting you speak files written with almost any word processor.

Although the quality of RAMTalker's speech is potentially high, it isn't a "transparent" speech device: You have to rewrite a program's source code to make it talk. RAMTalker can't verbalize any program you cold-boot, because such

programs send text to the screen, not a slot.

To make your off-the-shelf application talk, you have to patch it—reprogram the software to redirect its standard screen output to RAMTalker. If you're going to be writing your own programs, however, it's easy to include voice compatibility.

You can control RAMTalker's voice parameters easily with simple control-command sequences. All RAMTalker's voice commands are Control-I-based, much like the standard Apple Super Serial Card settings.

One of RAMTalker's most powerful aspects is its ability to make AppleWorks 1.3 or 2.0 talk, via the speech package's disk of system utilities. You simply insert a copy of the AppleWorks disk into your Apple's disk drive and the patch is automatically installed.

Once you've patched your copy of AppleWorks, it won't function unless the RAMTalker board is installed in your computer. If you want to use AppleWorks without speech again, you have to use an unpatched version.

THE RAM DISK

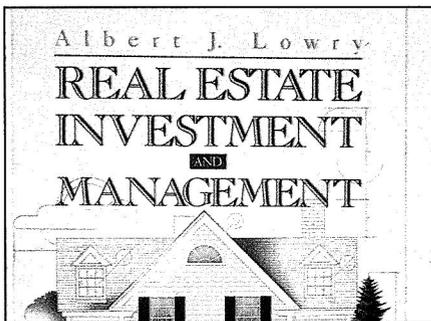
In addition to its impressive speech functions, RAMTalker features a 256-kilo-byte battery-backed RAM disk. This feature uses static-RAM chips, and doesn't require bulky power supplies to keep the card active. It lets you operate your Apple IIe without disk drives, and lets you cold-boot or warm-boot your computer from the RAM disk.

RAMTalker's RAM disk is larger than a standard Apple 5¼-inch floppy. That means you can't use a program such as the Apple Filer utility to back up your RAM disk to a single floppy. The RAM-Talker utility disk provides a convenient back-up program for this purpose, however. All in all, writing simple BASIC programs that work with SmoothTalker is no problem, and RAMTalker's digital-to-analog speech converter functions smoothly. Compared with, say, the Echo or Votrax synthesizer, RAMTalker is

roughly in the same ballpark. It's a well-designed speech and RAM-disk board for the Apple II family. ■

Joseph J. Lazzaro
Watertown, MA

Editors' note: According to Mitchell Martin, president of Electronic Learning Systems, version 1.2 of RAMTalker Plus adds features to version 1.0. All blocks on the RAM disk can now be allocated for DOS 3.3, ProDOS, speech, and a dictionary of speech exceptions, mispronunciations, and abbreviations that can be as large or small as the number of blocks available on your RAM disk allows. You can boot RAM-Talker plus directly from ProDOS or DOS 3.3, and control the speed and pitch of speech output through new BASIC options. The speech editor now runs on 64K as well as 128K.



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ALBERT J. LOWRY'S

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Simon & Schuster Inc., Gulf & Western Building, One Gulf & Western Plaza, New York, NY 10023, (800) 624-0023
Real-estate investment software; any 64K Apple II, DOS 3.3, 80-column card, 80-column printer
\$99.95
Rating: ■■■■

If you're interested in buying real estate, you've got a lot of details to consider. Albert Lowry's Real Estate Investment and Management program is a help to potential investors because it forces you

to quantify all those details for the property you want to buy.

If you've purchased real estate before, you know that too often the buyer gets a rushed tour that offers only a quick glimpse of the property, with the agent arguing constantly what a good buy it is. That's no way to make a long-term investment decision. Lowry's program will not only shed light on what might make a good investment, but will tell you down to the dollar what your cash position will be if you do purchase it.

DR. LOWRY, I PRESUME

Nineteen pages of the 123-page manual are devoted to a real-estate investment guide, offering advice from the successful methods of Dr. Albert J. Lowry. He suggests you purchase income-producing real estate (in contrast to just buying land, for example, which doesn't bring in any rental income), to use as much leverage as possible, to make sure the property brings in more dollars than it costs you each month, and so on. Lowry also covers different types of financing, including some creative techniques whereby the investor puts up little or no cash.

All this is often easier said than done of course, but at least Lowry gets you off on the right foot. The package includes a series of worksheets you'll fill in as you look at each potential purchase. It means some work, but the results will repay your effort many times over.

BUYER BEWARE

Lowry doesn't miss much. He suggests that in addition to the usual factors you examine, you also consider other circumstances, too: How are the nearby schools? Is the neighborhood improving, decaying, or stable? How far is it from where you live? (That determines how difficult it is for you to show the property.) In what condition are the appliances, plumbing, and electrical systems? Will you have to replace anything soon? Are there things such as nearby trees that might cause damage? Could you finish the basement as an extra room or apartment? Is there an attic

you could use for storage or furnish as another room or apartment?

Lowry also suggests you examine the current owner's rental information, so that you can see for yourself what the expenses have been over the past year, what the vacancy factor is, and so on. You're advised to talk to each tenant, to find out whether the previous owner made promises or concessions of which you're not aware.

MAKING A LIST AND CHECKING IT TWICE

With Lowry's thorough checklists, you don't miss a thing as you inspect each potential purchase. You're also grading all properties on the same basis, which means the program can make accurate and useful comparisons for you.

You group each type of property (duplex, triplex, multi-unit apartment, and so on) together, as the main part of the program compares one type of building with others in the same class. You're asked to grade each room of every property, on a scale of zero to 5 (zero being nonexistent; 1 being in poor condition or unimportant to your search; 5 being very important to your search or in very good condition). The program produces a printout that rates up to five pieces of property at a time and gives you a numerical score for comparison. It also displays and prints three simple graphs to help you see how the numbers stack up.

The program asks you to enter anticipated "fix-up" costs for every room of each potential property, something few investors do. The software can then calculate your exact out-of-pocket costs and your net return on the investment. You can play "what-if" with different financing options so that you can decide instantly on the best approach, and the methods of financing that might make you go into the red each month.

If you prefer, you can enter an "ideal" investment—one that provides the cash flow and tax benefits you'd like—and then compare that to each possible pur-

chase. The program will let you know how close to your "ideal" each available property is. As an added bonus, much of this information is useful if you're buying something for your own family's use. It forces you to examine and quantify a large number of details for each house you look at, which in the end will give you a valid basis of comparison.

The "management" section of the program is actually more a collection of 20 form letters on disk to use once you own investment property. You can also use the package's simple word processor to create your own form letters.

DEPRECIATIONS

Albert Lowry's Real Estate Investment and Management program isn't perfect. Because you can't depreciate land, you have to break out the value of a building; then the program will depreciate it over whatever expected lifespan you request.

There's no check, though, to make sure the building value is less than the total purchase price. I accidentally entered \$750,000 for the building value on a \$100,000 purchase (instead of \$75,000), and the program accepted it. Also, you can't enter a negative appreciation rate. While that's something no investor would want to see happen, real estate does sometimes decrease in value. This program doesn't even consider the possibility.

The word-processing module is slow, halting briefly every 40 characters or so. If you continue to type when the program decides to pause, you have to re-enter the lost text. It's even worse when you're in insert mode (when you're entering something within some existing text)—then it pauses every 15 characters or so. This section of the system is fine for filling in the 20 on-disk forms, but that's about all.

I'd like to see more emphasis on cash flow. It's shown in your calculations and discussed briefly in the manual, but it needs more detailed consideration. If you at least break even with a piece of rental property, you'll most likely be able to hang onto it. But if you start going in the hole every month, if the rent you collect won't

take care of expenses and pay the mortgage, then you'll either have to sell the property (perhaps at a loss) or lose it. All the best advice and purchasing techniques in the world aren't worth a thing if you can't make those mortgage payments.

Some of the advice on disk contradicts what's in the manual. For example, Lowry is right on target when the manual warns you to "beware of loans with small interest payments and a large amount due at the end of the repayment period. Such so-called balloon payments have a way of blowing up on you." Yet in the section on disk where you can "ask" Dr. Lowry questions, he recommends in one answer that you finance a property with a 30-year amortization and a ten-year balloon payment.

Finally, the worksheets will calculate data for only two mortgages. If you have more than that, or if you're trying to finance something with several mortgages, you'll have to figure the details manually and enter them on the worksheet.

IS IT WORTH THE MONEY?

These few imperfections, however, detract little from the real value of Lowry's package. Will this program let you compare one potential investment property with other similar properties? Yes. Will it quantify any number of details and provide a numerical score for each property? Of course. Can you customize the property checklists so that they focus on what's important to you? You bet. Will it calculate your bottom line for any number of financing options so that you can see what's best? Absolutely.

This program gets you started and lets your Apple do all the detail work. It puts all the information you collect into a logical, helpful form. In any real-estate transaction, follow Dr. Lowry's advice and talk to both your attorney and your accountant. This program is only a starting point, but it makes the whole process easier and your chances of success much brighter. ■

*Gregory R. Glau
Prescott, AZ*

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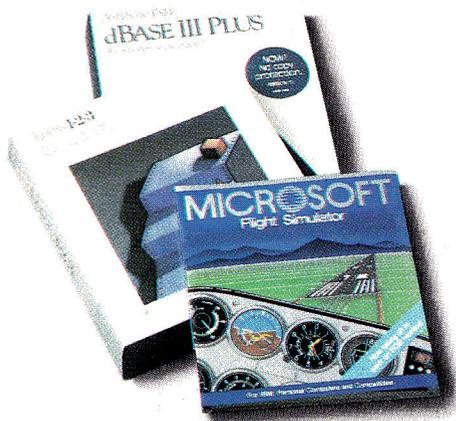
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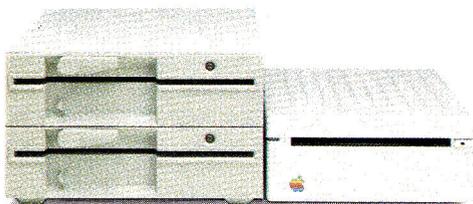
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PC Transporter controls Apple and IBM compatible disk drives. It supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes.



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PC Transporter reads MS-DOS and translates it into Apple native ProDOS. 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 use the Apple UniDisk 3.5 with its own controller card for storing programs and data, but not for directly booting an IBM formatted disk.)

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PC Transporter per set

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

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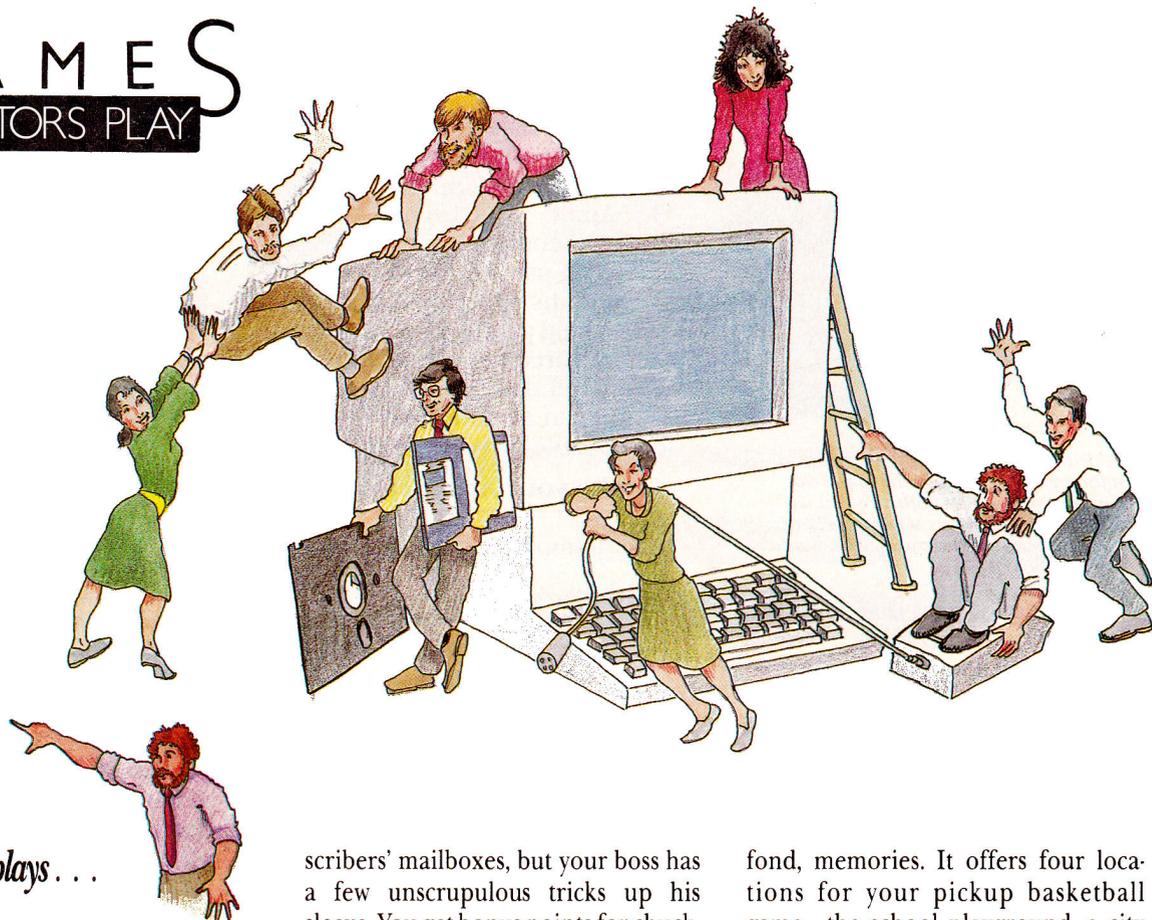
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GAMES

EDITORS PLAY



Lafe Low plays . . .

Paperboy, Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, (800) 221-9884. \$39.95, \$44.95 GS version. Joystick recommended.

No news is good news. I hope the people in suburbia think that way—or at least the part of suburbia where I was charged with delivering newspapers. A few lucky people got *The Sun* right in their mailboxes, but for the most part, I was spreading the headlines all over people's front lawns.

The object of *Paperboy* is simple enough—ride your bike up the street and deliver papers to the yellow houses with mailboxes out front. Sofa spuds like me, though, who contentedly stroll out to the front porch every day to pick up the paper can forget that it's dangerous out there. Overweight and unruly pedestrians, skateboarders, remote-control cars, tires, sewer gratings, dogs, automobiles, curbs, motorcycles—this is the suburban jungle of the modern-day newspaper-delivery boy.

Obviously, you get more points for heaving the daily news right into sub-

scribers' mailboxes, but your boss has a few unscrupulous tricks up his sleeve. You get bonus points for chucking papers through the windows of noncustomers, knocking the lids off their garbage cans, or breaking their birdbaths. Come to think of it, that's even more fun than actually delivering the papers.

Paperboy is a nice change. None of the heat-seeking missiles, mach-speed jet fighters, or irradiated rug rats first found in most games today—just good, clean fun.

Dan Muse plays . . .

Street Sports Basketball, Epyx, P.O. Box 8020, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606. \$39.95.

When most of us think of basketball, we don't recall high-school glory days à la the movie *Hoosiers*. We remember playing in rundown playgrounds, a friend's driveway—any flat ground with a place to put a backboard and hoop was easily transformed into Boston Garden.

Epyx's *Street Sports Basketball* captures those far-from-glorious, but

fond, memories. It offers four locations for your pickup basketball game—the school playground, a city parking lot, a back alley, or a suburban street. You choose from a group of male and female street jocks, each with varying skill levels and specialties.

Unfortunately, the concept of *Street Sports Basketball* is better than the game itself. The play seems a little slow on all three levels—easy, intermediate, and so-called tough. I was competitive on the tough level after only two games in intermediate mode. There should be a steeper learning curve.

As with Epyx's *Street Sports Baseball*, on a scale of 1 to 5 *Street Sports Basketball* gets a 3 for quality, but a 4 for the all-important fun factor.

Pat O'Dell plays . . .

Gauntlet (GS version), Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, (800) 221-9884. \$44.95, \$39.95 *Apple II* version. Joystick recommended.

Gauntlet's fun. There's nothing new or dramatically different, but it's fun.

It's a formula shoot-'em-up arcade game that Mindscape has tried to dress up and call a GS-specific game. The only problem is that the sheep inside wolf's clothing keeps peeking out.

The concept is simple. You start with a "health score" that decreases as you play the game. You accumulate points by shooting the monsters in your path and by taking time to pick up food and treasure. It's also important to stop to pick up keys—without them you can't get through the doors.

You try to amass as many points as possible before your health score runs out (that is, you die).

Your strategy will depend on which character you chose at the game's beginning—each has his or her own set of strengths and weaknesses. One character's magic spells may be weak but his armor strong, for example, making collecting potions a low priority as you move through the game. There are four heroes from which to choose.

I like the strategy involved in Gauntlet—choosing your path through the dungeons according to your hero's attributes. Unfortunately, I had a hard time figuring out which object was which, since the graphics representations of objects such as food and amulets were indecipherable. Gauntlet's graphics screens are nothing spectacular—certainly nothing worthy of the GS—and that's a real disappointment, considering how much fun this game is. ■

Short Takes . . .

Wings of Fury, Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 492-3200, (800) 527-6263. \$34.95.



In this World War II flight simulation, you choose your rank, then fly the corresponding island bombing raid. Your final targets are enemy ships. But meantime, watch out for enemy planes looking for a fight! Joystick required. (See Games Editors Play, April 1988, p. 43.)

Border Zone, Infocom Inc., 125 CambridgePark Drive, Cambridge, MA 02140, (617) 492-6000, (800) 262-6868. \$39.95.



Three short interactive stories about a spy trying to escape from behind the Iron Curtain. You can ask for hints if you get stuck, which is a big help for beginners. (See Games Editors Play, April 1988, p. 42.)

Indoor Sports, Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, (800) 221-9884. \$29.95.



Indoor Sports—bowling, darts, table tennis, and air hockey—is a good idea. But while it offers some fun moments, it could be a lot smoother in places. (For instance, you can't move from sport to sport without rebooting.)

RSVP, Blue Lion Software, 90 Sherman Street, Cambridge, MA 02140, (617) 876-2500, (800) 333-0199 (orders only). \$39.95.



Choose your career, then find out whether your social skills are good enough to earn you promotions. You'll learn about foreign as well as domestic etiquette over the course of your career. (See Games Editors Play, February 1988, p. 37.)

Sherlock: The Riddle of the Crown Jewels, Infocom, Inc., 125 CambridgePark Drive, Cambridge, MA 02140, (617) 492-6000, (800) 262-6868. \$39.95.



As Dr. Watson, you're responsible for tracking down the stolen crown jewels. On-line hints are particularly helpful, because some of the clues are so nit-picking. (See Games Editors Play, June 1988, p. 48.)

Strike Fleet, Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, (800) 245-4525. \$34.95.



High-tech naval warfare on the high seas—mastering Strike Fleet takes a combination of strategy and quick reflexes. Nice realistic simulation with scenarios that sound as though they came from the six o'clock news. (See Games Editors Play, June 1988, p. 48.)

Destroyer (GS version), Epyx, P.O. Box 8020, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606. \$39.95.



The GS version of this already super game has much crisper graphics and incredible sound. Look out when your ship is dive-bombed by Zeroes—the ensuing explosions are deafening. (See Games Editors Play, July 1988, p. 38.)

Ikari Warriors, Data East, 470 Needles Drive, San Jose, CA 95112, (408) 286-7074. \$34.95.



This home-computer version of the arcade game (a genre for which Data East is widely known) doesn't quite match the game you'll find in video outlets and pizza parlors. It's entertaining, but the graphics could be improved.

Pharaoh's Revenge, Publishing International, 333 West El Camino Real, Suite 222, Sunnyvale, CA 94087, (408) 738-4311. \$29.95 5¼-inch disk, \$32.95 3½-inch disk.



Arcade action: Build ladders and climb out of the pyramid before the mummy catches you. Looks easy, but gets impossible fast. A good head for strategy or a good hand on the joystick can master this one. (See Games Editors Play, July 1988, p. 39.) □

The Wizard of



What's in store for the Apple II? How will emerging technologies and a changing marketplace affect its future development? Jeff Cable interviews Steve Wozniak, designer of the original Apple and cofounder of Apple Computer.

Q What was the single most important factor in the initial success of the Apple II?

A The success of the Apple II stemmed from the organization of Apple as a company—marketing people who knew how to set up a new business and production people who knew how to manufacture the product. We had high-quality engineering to design and support the product and to continue developing new products, especially during the first couple of years—that was critical.

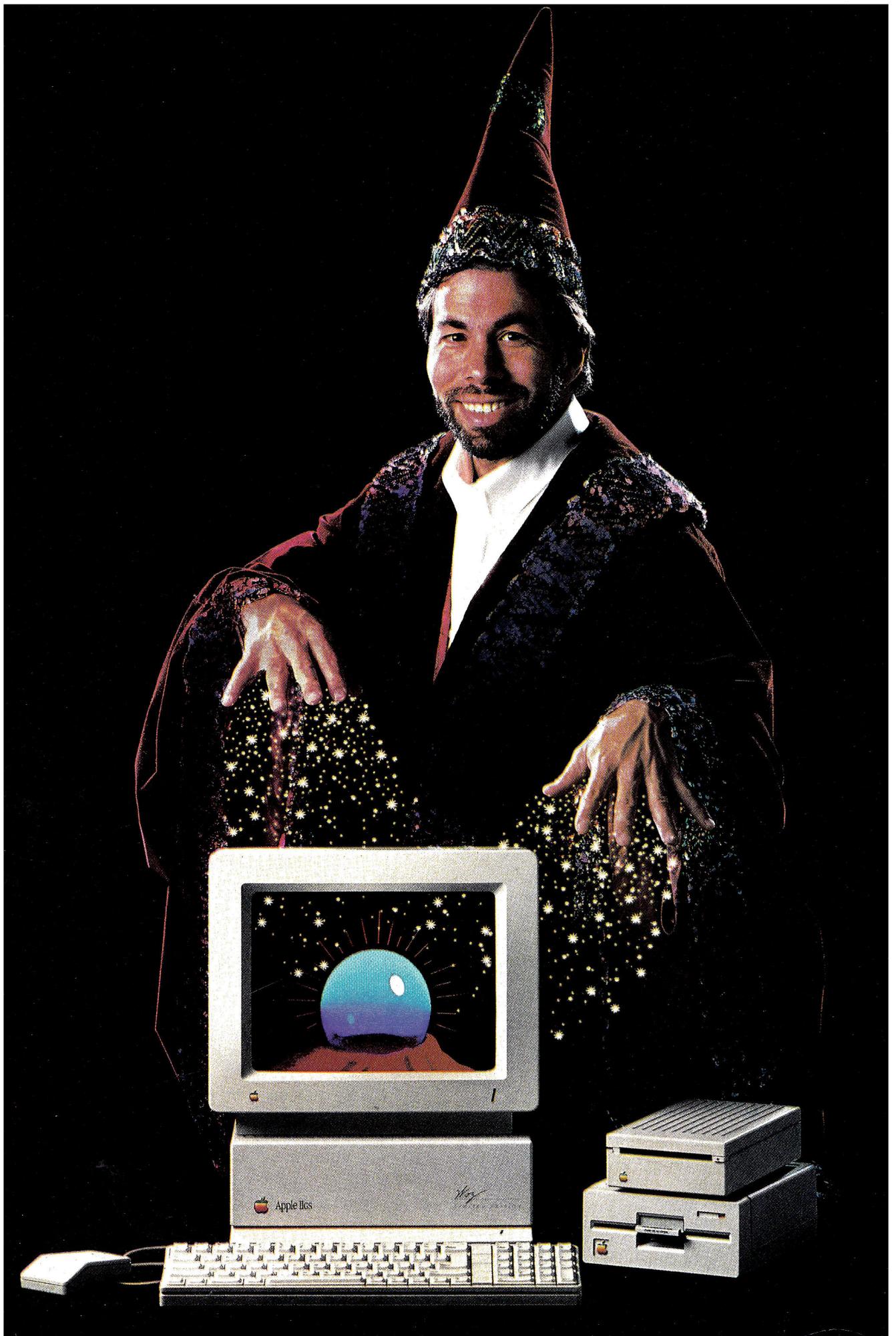
Probably the single most important technical factor was that the Apple was designed with the right RAM [random-access memory] chips. In the early days, hobbyists would use any cheap chips they could get their hands on. They were all using static RAM. I used 4K dynamic RAM [DRAM] chips for the Apple I and II, even though they were harder to design for. The one we picked was the Intel 4K RAM, which became standard. Today's DRAM wound up being very compatible with that Intel chip.

That was the key to Apple's success, because two years later we had two competitors, Radio Shack and Commodore, whose computers weren't designed to be expandable and were limited to 4K or 8K forever. That wasn't even enough to support an operating system. So they had to go back to the drawing board and redesign a new, larger-RAM computer. They lost a lot of time and that's where we won out, because our original Apple II had 48K bytes. That secured first place for Apple.

Q What factor could have the same effect on the Apple II of the future? How much longer do you think the Apple II will be around?

A The most important thing will be Apple's perseverance—maintaining strong support, seeking better enhancements, better software, better system software, and better peripherals.

We said for a long time in the company, "One Apple." The Macintosh wasn't fighting against the Apple II so much. They need to complement each other. The Apple IIGS



keyboard has the same connector as the Macintosh's. The SCSI hard-disk drives and floppies work across both product lines. That shows really strong support for the Apple II.

Apple needs to stay motivated. The II will last if the company gives it the proper support—adding new features and enhancements and keeping it up to date. Apple right now is in a very positive mode. I hope that will continue. But even if the Apple II died off today, it would last another ten years. People would keep it alive through their interest in the machine.

Q How do you feel about the evolution of your original machine?

A It was a little rocky and slow. It should have proceeded much faster. People who used earlier Apple IIs every day could see the next step the machine needed, the larger enhancements. Getting to the 16-bit operating system was very visible about five years ago. Internal problems held it up during the Apple III era, when people at Apple were reluctant to work on the II.

Q Are there any hard feelings between yourself and the original people at Apple for putting all the emphasis on the Macintosh and trying to end the Apple II line?

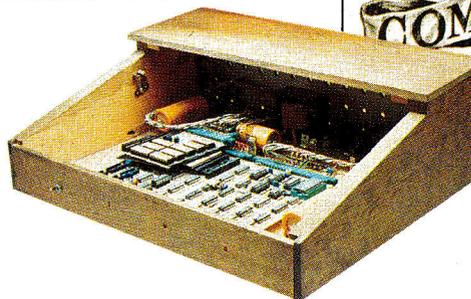
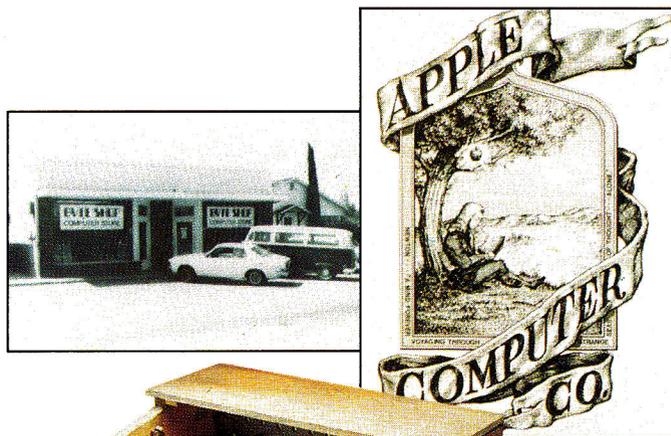
A There were no *hard* feelings. I just sat there, silently, never arguing, never really speaking out, but it was a shame that both the Apple III and the Mac used up a lot of the resources at Apple. There was a complete lack of attention to a product that still had life and deserved a lot; instead the Apple II was forgotten. It's just wrong to forget it when there are people who are using the computer and love it.

Apple is very monopolistic and protective of its right to build Apple IIs and to stop clones. Apple is saying, "We're the only company that can build these machines." It would be very wrong for Apple to stop supporting the II when third-party companies might not.

Q Do you feel Apple is spending enough research time and money now on the Apple II line?

A Yes, the company has increased its commitment in dollars, square feet, and number of employees. The people who are working on the Apple II line are real Apple II fans and they're very motivated.

Q Do you think Apple IIs will ever compete with the Macintosh in business?



Back in 1976, when Apple Computer was just getting off the ground, Wozniak's partner, Steve Jobs, used the Byte Shop computer store's (above) order of 50 Apple I boards (at bottom) to obtain credit to build more machines.

A It's not up to Apple, it's up to the people. Apple can set the initial push for each machine toward business or home, but ultimately it's up to the consumer.

Q In your opinion, for what applications is the Apple II best suited?

A Animation, education, and games with sophisticated sound and graphics. AppleWorks is also great. It's perfect for someone who says, "All I need is a word processor," or "All I need are a couple of small databases." AppleWorks is for the average person who wants to work easily and not be overpowered by complexity. It set such a standard for how much you can do and how easily you can do it that I'm not sure to this day that it has been equaled on any computer. I love it.

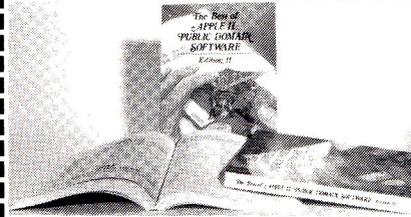
Q What do you think of Claris Corporation [producer of AppleWorks, a software company spun off from Apple Computer]?

A I judge a product not by who's running the company, what their background is, how the business is structured, or who owns it; I judge a company by how good its product is.

Q Where do you think the future of the Apple II lies?

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A The future of the Apple II is in school and related home markets. There are so many Apple IIs in schools, that's a real motivation factor for parents to buy IIs for their children at home. It's my favorite computer at home for the kids. Colorful programs like The Print Shop are still a step ahead of what you can get for the Macintosh. Taking the business computer home is right for some people, but for someone who thinks in terms of family, it will be an awfully long time before anything can supplant the Apple II as the favorite in education.

Q What advances in technology today do you think will have the greatest effect on the hardware and software of tomorrow?

A Microelectronics—being able to put more and more on a chip. That affects everything from CPU [central processing unit] chips to ROMs [read-only memory] to RAM chips.

Q What improvements would you like to see in the Apple II?

A Today's Apple II needs a faster operating system with a faster Desktop. Apple needs to make speed, efficiency, and smoothness of operation its first priority. If the company had people like Andy Herzfeld [a key Mac developer at Apple] in the right positions, the II could be equal to the Macintosh.

Q Was the 16-bit Apple IIGs purposely slowed down so that it wouldn't compete with Apple's other machines?

A No, not at all. In the early days, we were working on the Apple Iix, which was to be a faster machine with more memory, 16-bit architecture, and the Macintosh interface. The IIGs really was a departure in that it came out with a better graphics mode and great sound. The custom chips worked out really well.

Q How can Apple improve ProDOS? What would you do?

A Most importantly, Apple developers need to speed up the new ProDOS. Secondly, they should build a lot of system utilities and file utilities into ProDOS, more like MS-DOS or CP/M. Built-in utilities make operating systems much more efficient.

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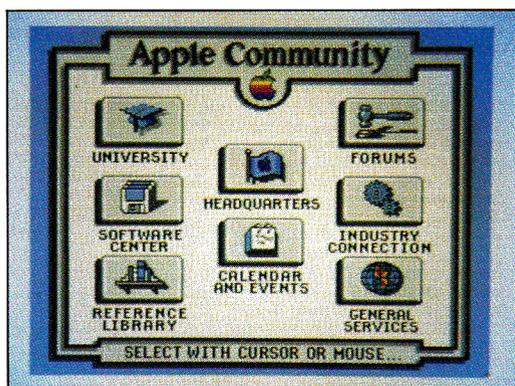
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Q How do you think CD-ROM [compact-disc read-only memory, a large-capacity storage medium on laser disc] will affect the future of the Apple II, or do you think the 3½-inch disk is the size of the future?

A I think that for the next five years the 3½-inch drive will dominate. CD-ROM is a big question mark to me. It's not a matter of the technology or the applications; I think it's a matter of whether the human mind is ready for such large amounts of data. What is the human mind going to do when we have this large a database available this conveniently? Are we going to want this much data or will it overwhelm us?

Q How will networking affect the future of the Apple II?

A It's hard to say. There have been a lot of networks, such as Corvus', that let students and teachers share a hard disk in the classroom environment. I saw a demo once of some IBM network equipment; the teacher could monitor all the students' work from one station, but I'm not sure if that's really practical. It would be nice to share the hard disk, used as a file server, to have some sort of uniformity in the classroom.



AppleLink Personal Edition offers a variety of on-line services as well as Apple-specific news and information.

Q What do you think of AppleLink Personal Edition [a recently announced on-line information service that involves a joint venture between Apple and Quantum Computer Services]?

A I think it's superb for the manufacturer to provide a service that's basically beyond CompuServe in its capabilities and functionality. Before, when you needed information, you'd join a club, but clubs meet at specific times. Now you can get the information you need when you need it. AppleLink will be a great problem solver. You can basically be on line to Apple assistance. Even at 3 in the morning I may want an answer, and I can log on anytime. I love it.

Q Do you see a day when everybody will own a computer, as they do telephones today?

A No, not if we're talking about *everyone*. Maybe if we look at the one-third who are college-educated, upper-middle class, and upper class. I see that day—we're just about there. But I see a whole class of society who are poor and have no need for a computer—what they need is food. These people would never buy a computer—they've never even bought a typewriter.

Q What are you doing now?

A Trying to keep up with a huge community life, because I'm very accessible as a widely known person. I'm very busy, doing interviews like this, being a housefather half the time, supervising the work being done on my new house, and of course working here at CL9. [In 1986 Wozniak founded a new company, CL9, developer of a universal remote controller called C.O.R.E.—Control of Remote Equipment—and is currently working on a C.O.R.E. interface for the Apple II.]

Q Would you ever consider building another computer?

A Actually yes. The right concept would have to hit me, and I'd have to go through a relearning cycle, as I did with the first Apple IIs. I wouldn't do it unless I thought I had a completely unique approach, something totally different. The idea would make sense to me, and probably, just as they did with the original Apple, everyone would tell me, "That's not what you should be doing." But people would admire it at the same time. It would be something useful for the home, a product that would have color graphics and different input devices, and it would be truly simple.

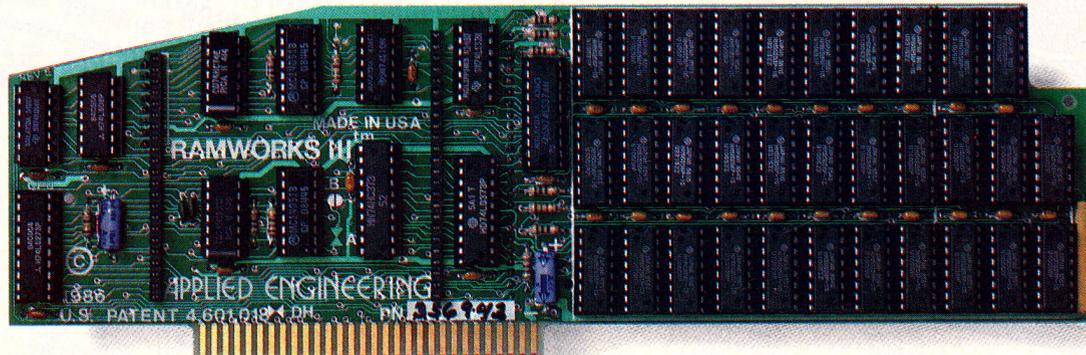
Q Do you feel people still see you as the father of the Apple II?

A I'm just glad that wherever I go, people show a lot of respect for me. I always felt that I was a champion of the Apple II line, largely because I was an Apple II user when everybody at Apple had passed it by. I hope they'll always feel that way toward me and toward the Apple II. ■

Jeff Cable is an application specialist and free-lance computer consultant. Write to him at Wolf Computer, 105 North Santa Cruz Avenue, Los Gatos, CA 95030. Enclose a stamped, self-addressed envelope if you'd like a personal reply.

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While RamWorks III is recognized by all memory intensive programs, NO other expansion card comes close to offering the multitude of enhancements to AppleWorks that RamWorks III does. Naturally, you'd expect RamWorks III to expand the available desktop, after all Applied Engineering was a year ahead of everyone else *including Apple* in offering more than 55K and we still provide the largest AppleWorks desktops available. But a larger desktop is just part of the story. Look at all the AppleWorks enhancements that even Apple's own card does not provide and *only* RamWorks III does. With a 265K or larger RamWorks III, *all* of AppleWorks (including printer routines) will automatically load itself into RAM dramatically increasing speed by eliminating the time required to access the program disk drive. Switch from word processing to spreadsheet to database at the speed of light with no wear on disk drives.

RamWorks eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 22,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 22,000. *Only* RamWorks expands the maximum clipboard limit from 250 to 2,042 lines. And *only* RamWorks offers a built-in printer buffer, so you won't have to wait for your

printer to stop before returning to AppleWorks. And auto segments large files so they can be saved on two or more disks. You can even have Pinpoint or MacroWorks and your favorite spelling checker in RAM for instant response.

RamWorks, nothing comes close to enhancing AppleWorks so much.

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Using RamWorks III couldn't be easier because it's compatible with more off-the-shelf software than any other RAM card. Popular programs like AppleWorks, Pinpoint, TimeOut series, HowardSoft, FlashCalc, PROFILER, Managing Your Money, SuperCalc 3a and VIP Professional to name a few (and most hardware add on's like ProFile and Sider hard disks). RamWorks is even compatible with software written for Apple cards. But unlike other cards, RamWorks plugs into the IIe auxiliary slot providing our super sharp 80 column text (U.S. Patent #4601018) in a completely integrated system while leaving expansion-slots 1 through 7 available for other peripheral cards.

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Applied Engineering has always offered the largest memory for the IIe and

RamWorks III continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 MEG is about 500 pages of text)...but if you do ever need more than 1 MEG, RamWorks III has the widest selection of expander cards available. Additional 512K, 1 MEG, or 2 MEG cards just snap directly onto RamWorks III by plugging into the industry's only low profile (no slot 1 interference) fully decoded memory expansion connector.

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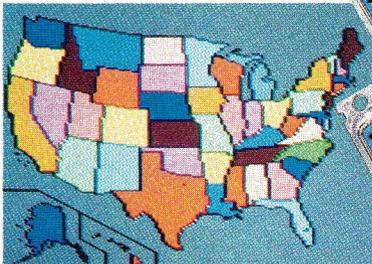
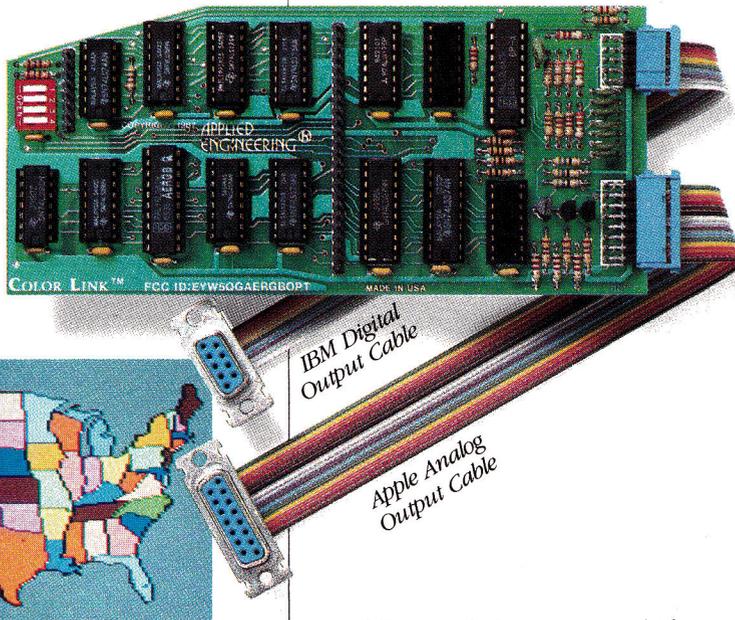
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

The Ultimate in RGB Color.

RGB color is an option on RamWorks and with good reason. Some others combine RGB color output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks RGB option offers better color graphics plus a more readable 80 column text (that blows away any

composite color monitor). For only \$129 it can be added to RamWorks giving you a razor sharp, vivid brilliance that most claim is the best they have ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks RGB option is more than just the ultimate in color output because unlike others, it's fully compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the new RamWorks RGB option provides both the new Apple standard analog and the IBM standard digital RGB outputs (cables included). The RGB option plugs into the back of RamWorks with no slot 1 interference and remember you can order the RGB option with your RamWorks or add it on at a later date.

*ColorLink™
RGB Option*



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RamWorks III has a built-in 65C816 CPU port for direct connection to our optional 65C816 card. The only one capable of linearly addressing more than 1 MEG of memory for power applications like running the Lotus 1-2-3™ compatible program, VIP Professional. Our 65C816 card does not use another slot but replaces the 65C02 while maintaining full 8 bit compatibility.

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A+ magazine said "Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks...I like the product so much that I am buying one for my own system." inCider

magazine said "RamWorks is the most powerful auxiliary slot memory card available for your Iie, and I rate it four stars...For my money, Applied Engineering's RamWorks is king of the hill"



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Steve Wozniak, the creator of Apple Computer

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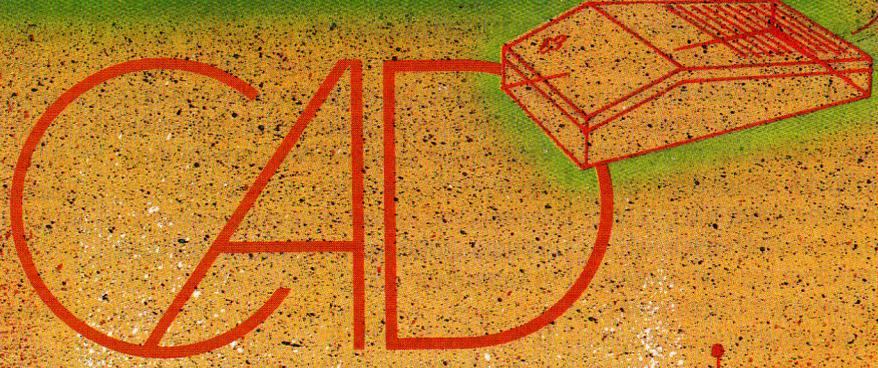
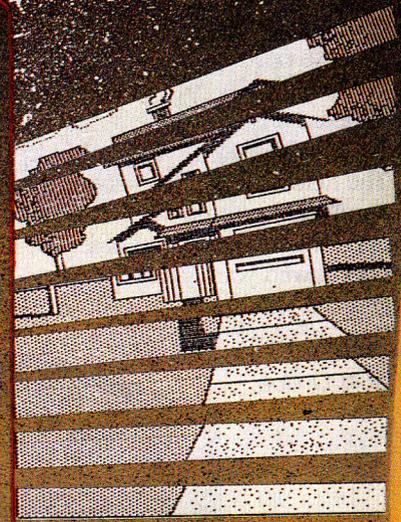
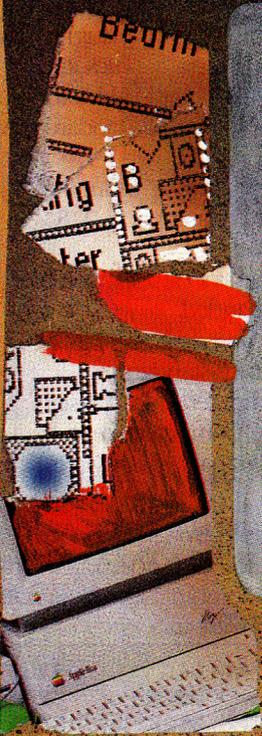
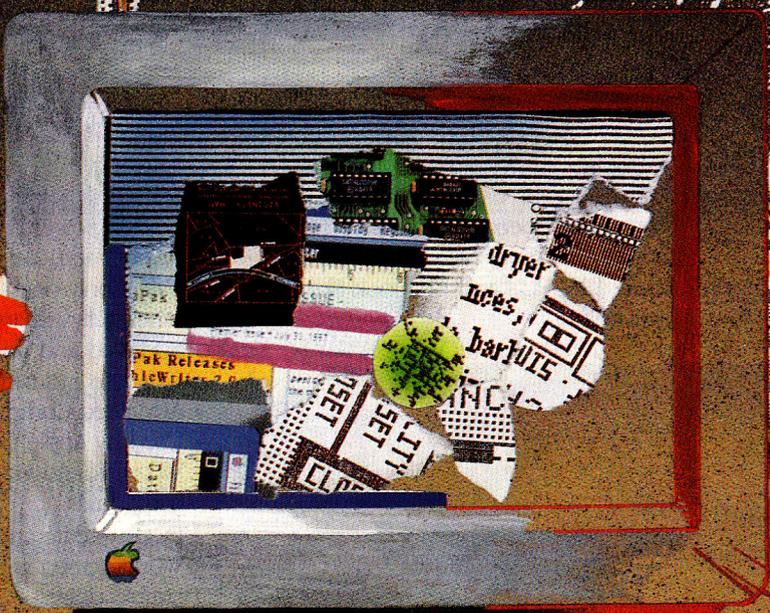
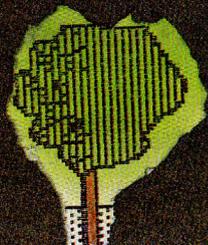
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*With an Apple II on your drafting table,
design takes on new dimensions. Whether you're dreaming up
model homes, machine parts, electronics schematics,
or experimental DNA sequences, there's at least one Apple II
CAD program that will suit you to a T-square.*

by Cynthia E. Field, Ph.D., Contributing Editor

Old perceptions may die hard, but don't let moldy definitions stand in your way. Take CAD, for instance. According to some authorities, CAD means *computer-assisted drafting*. Others call it *computer-aided design*. Still others think of it as *computer-assisted drawing*. Just what is CAD, anyway?

It's anything you need it to be. Whatever connotation rings truest with you, one thing is certain: If you can picture something in your mind, your Apple can help you put it on screen and on paper—better, faster, and easier than ever before.

GLOBAL POSSIBILITIES

Joyce Venturini is one Apple user who's discovered that CAD programs can help you express your creative ideas in often unexpected ways.

Venturini is the proud owner of an Apple IIc and two California-based companies—an interior-design firm and an import/export enterprise. Venturini's Hampton Bay Designs is using the **Interiors** module from Abracadata's **Design Your Own Home** series to furnish and decorate a yacht club's executive boardroom—right down to its cushioned window seats. And the import/export company has used the same program to design an appointment book it's marketing. Not just any run-of-the-paper-mill appointment book, either—this one's manufactured in Italy from fine leather and silk.

GRAPH PAPER'S ALTER EGO

As Venturini's experience shows, the beauty of CAD programs lies in their generic nature. Each program's screen appearance and built-in toolkit simulate and replace the drawing boards, pencils, pens, rulers, T-squares, protractors, and erasers that

occupy conventional drafting workstations. (For a look at CAD programs for hobbyists, see the accompanying sidebar "Computer-Assisted Diversions.")

Two-dimensional CAD programs for the Apple II characteristically offer a screen-based grid you can turn on or off according to your preference. You can usually space these grid lines as you like, creating the electronic equivalent of sheets of graph paper. Even better, this newfangled graph paper is *transparent*. You can overlay drawing upon drawing to create renderings with many separate levels. And one of the biggest advantages of the system is that editing one means leaving the others intact.

With a CAD program, you can create detailed architectural drawings of your dream house. Draft a site plan on the basic "layer," a floor plan on the first overlay, electrical-wiring diagrams on the next layer, plumbing layouts on a fourth level, and finish-carpentry details on the fifth. You'll still have layers to spare.

Some CAD programs let you choose built-in metric and English measurement units such as centimeters or inches. Others offer generic units. Programs such as **discoverCAD**, for example, measure a dimension automatically, but don't specify units.

With CAD software, variously shaped cursors indicate the position of your imaginary pencil point. In one program, the cursor may look like a quivering cross-hair; in another, the cursor may be just a tiny blinking box.

CAD sketch screens are typically based on the Cartesian coordinate system. Some programs also let you type in x and y values instead of plotting points with a mouse or other input device. "Snap" functions make layout not only faster and easier,

but also more precise by pulling objects automatically into line with the grid you've chosen. Other aids, such as discoverCAD's "modifiers," help you plot true vertical or true horizontal lines flawlessly and define text height, width, slant, and angle.

OBJECT ORIENTATION

At your command, CAD programs draw basic shapes automatically; most programs refer to these shapes as "objects" or "primitives." Whatever their tag name, they include simple elements—lines, boxes, circles, and so on—and advanced geometric shapes such as arcs and polygons.

You can pinpoint and select any object from a drawing and edit it exclusively without affecting the rest of your design. Some programs, including StyleWare's GS program **TopDraw**, let you group objects for collective treatment. CAD programs generally let you copy objects, rotate them, mirror them (for perfect bilateral symmetry), and flip them horizontally and vertically.

Because many CAD projects grow into drawings that are too large for a single screen display, most programs offer pan (horizontal and vertical scrolling throughout the design) and zoom (magnifying and reducing sections of the design) functions.

While paint programs offer some similar features, they're not nearly as flexible as object-oriented graphics. Once a shape or a freehand item becomes part of a painting, it's pretty much there to stay. You can obliterate it by rubbing it out with an eraser tool or by marking it and excising it with the Cut command, but both processes can wreak cosmetic havoc on your remaining artwork.

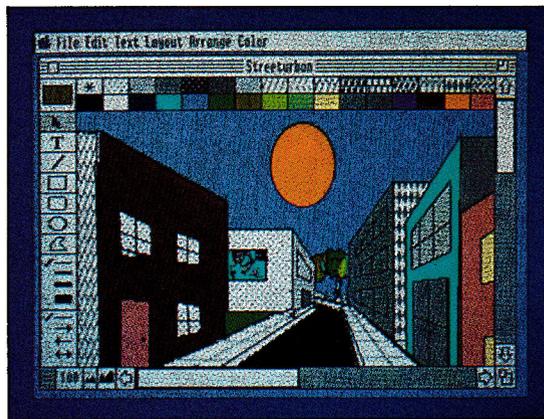
Nevertheless, even these restrictions don't stop crafty GS owners like Al Martin of Portland, Oregon, and Tim Gilliland of Yuma, Arizona, from using **DeluxePaint II** to create house plans and landscape designs. Though Martin is a nonprofit GS Renaissance man, Gilliland sketches and colors his landscape plans as part of his collaboration with a local contractor. Gilliland's created a series of clip-art files containing various species of trees in assorted sizes, plus gazebo and Japanese-garden clip art.

CAD STICKERS

Like Gilliland's paint-program clip art, some conventional object-oriented CAD programs come with ready-made symbol libraries. Abracadata's **Architecture**, **Interiors**, and **Landscape** programs offer built-in representations of, among other things, a 110-volt electrical outlet, a rocking chair, and a Japanese maple tree, respectively.

Activision's **Draw Plus** for the Apple IIGS offers Icon Chooser, a feature you access through the Color pull-down menu. You can select one of the preconfigured icons (including computer peripherals and a strand of DNA) or create your own symbols easily by plotting colored pixels (dots) on a dedicated icon-drawing grid.

MicroSPARC's no-frills **Home Architect** offers only the most basic floor-plan objects (box, circle, door, window). You can create more architectural symbols—or any other kind for that matter—with a second MicroSPARC program, **Designer/Illustrator**.



Activision's Draw Plus sports an Icon Chooser for selecting preconfigured icons quickly and easily.

Designer/Illustrator may be a little too "techie" for novices or nonprogrammers, but like Abracadata's **Hi-Res Electronic Design**, Designer/Illustrator offers a library of electronic components as well as a utility for generating custom shape tables. If you like to design schematics, electronic spare-parts libraries like these should appeal to you.

HARDWARE ADD-ONS

Some CAD programs support cursor control via the IJKM directional keys on the Apple II Plus or the four arrow keys on the IIe, IIc, and GS. Most programs, however, support common peripherals such as game paddles, joystick, or mouse. While typing proves tedious quickly and joystick maneuvering tends to be imprecise, mousing around seems to be gaining favor with many computer-aided designers.

Engineering-oriented CAD programs, including discoverCAD, **CADDraw**, and the Entry Level and Professional versions of **CADApple**, support alternative input devices such as light pens, **KoalaPad**, and other assorted graphics tablets.

These engineering-oriented CAD programs differ from "home CAD" products like Abracadata's in yet another way. For the most part, they don't support dot-matrix printers and instead require a pen plotter. Experts maintain that plotters are crucial for generating variably sized, undistorted, true-to-scale printouts.

As Tom Curtis, a discoverCAD advocate from Hendersonville, North Carolina, observes, "Print a circle on a plotter and it's a true circle. With a dot-matrix printer, any printout of the image on screen may give a distorted picture."

THE "PRINT SHOP" OF HOME DESIGN

Let's take a closer look at design programs from some of the major Apple II CAD publishers.

"We are not engineering CAD and have never wanted to be thought of as such," says Abracadata's David Garnick. The company's three mainstay "home CAD" products—Architecture, Interiors, and Landscape—prove that computer-aided design is something in which nearly anyone can participate.

Abracadata's three programs continue to be reasonably priced despite recent facelifts. Standard Apple II versions now require 64K and sport a primitive Macintosh-style interface. (For a sneak peek at Abracadata's GS version of Architecture and its comparison with other GS programs, see the accompanying sidebar "GS CAD.")



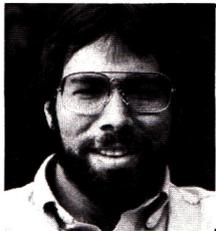
*Requires Apple IIe, II+ or IIGS (64K minimum) with one disk drive.

Prepare to be blown away by your Apple.™

*Phasor produces sound effects, music, and speech so striking,
Applied Engineering feels you should be warned.*

Have a weak heart? Don't read any further. And by all means, *don't go near* an Apple IIe, II+ or IIGS equipped with the new Phasor sound synthesizer from Applied Engineering.

But those of you with the right stuff ... prepare yourself. Because the Phasor is like nothing you've heard before. It's a sound effects synthesizer that makes games explode into life. A music synthesizer that will stun you with 4 watts of stereophonic sound. And a speech synthesizer so realistic, it will send shivers up your spine.



"I recommend Applied Engineering products wholeheartedly!"

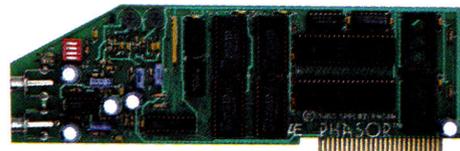
*Steve Wozniak, the creator
of Apple Computer*

What's best, the Phasor works with more off-the-shelf software than any other sound card you can buy. So now all your favorite games — like Skyfox™, Under Fire™, Willy Byte™, Tactical Armor Command™, Maze Craze™, Zaxxon™ and Ultima IV™ — can have shattering sound effects. Educational packages like Music Construction Set™, Guitar Master™ and Music Star™ are also dramatically enhanced.

The Phasor has *four times* the output power and *twice* the accuracy of any other sound card — but of course, you can easily turn down the volume if you need a rest. The Phasor is equipped with 12 simultaneous sound channels, 4 white noise generators, and a voice channel expandable to 2 voices. Programs written for other sound cards, including Mockingboard™, ALF music card™, Synphonix™ and the Super Music Synthesizer™, sound even better with the Phasor. And you can control speech, pitch, volume and more with simple commands.

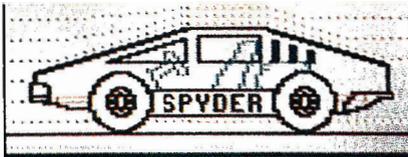
The Phasor comes with its own easy-to-use software (ProDOS based), including 30 ready-to-run, non-copy protected songs and sound effects along with a Music Editor, Sound Effects Editor and Text to Speech program. And of course, it carries our 15 day money back guarantee and five-year warranty.

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Computer-Assisted Diversions

Okay, so you don't want to design a house. Well, how about a glider? Or a locomotive? Or a quilt? The half-dozen CAD programs discussed below can turn you into a first-class designer—even if it's just for fun.

Car Builder (ages 8–adult) won't make you a shoo-in for the next engineering opening at General Motors, but you'll enjoy designing an unlimited number of automobiles with the program's library of car parts. Build the chassis, select a drivetrain, and customize suspension, steering, and braking systems. Each design selection or modification is reflected on screen. When your car is ready, put it through its paces in the program's wind tunnel and on its test track.

If your CAD aspirations are a bit loftier, set your sights on **Glidepath** (ages 12 and up), a design and simulation program for model planes. As you learn fundamental aspects of flight physics, you'll have fun trying to design the perfect glider. The *Glidepath* simulation takes your winged wonder over various types of terrain, including desert, forest, mountains, and sea.

For more interactive fun, consider model rocketry. Estes Industries sells kits and software programs that teach the fundamentals. (Watch for details in an upcoming Field Trip column.) Estes' number-crunching program, **AstroCAD** (ages 15 and up), isn't CAD in the graphics sense—it's more like math CAD. Ten listable BASIC programs on the *AstroCAD* disk include apogee determination, optimum-weight calculation, and drag prediction.

Train lovers of all ages can design and operate their own systems with Abracadata's **Design Your Own Train** and **Run Your Own Train**. (See "On the Road," Mace on Games, June 1988, p. 97, for an evaluation.) Use the keyboard, paddles, joystick, graphics pad, or mouse to lay out straight and curved track that meanders through custom-designed scenes you decorate with predrawn trees, homes, industrial buildings, stores, roads, and vehicles. Build a locomotive from a library of parts, then engineer the train and sound the whistle. ("I know I can, I know I can.")

Random House calls **Patchworks** (ages 13 and up) a "quilter's workshop," but this pattern-design tool is just as appropriate for needlepoint hobbyists, or anyone whose arts-and-crafts endeavor is based on a grid with geometric shapes. The program comes with more than a dozen designs on disk, but you can create your own patterns, then rotate, mirror, and flip them. The program calculates material requirements for quilts of various sizes and supports black-and-white output on a number of popular printers and color printing on the *ImageWriter II*. The manual includes a section on the history of quilting and a chapter with quilt-making "how-to's." Whatever hobby takes your fancy, recreational design programs for the *Apple II* prove that CAD is fun not just for kids, but for the kid at heart, too. □

—C.F.

Pull-down menus and mouse input (the software supports certain other input devices, too) make the *Design Your Own Home* series easy to negotiate. This revamped software continues to be compatible with dozens of popular dot-matrix printers and printer-interface cards.

For example, in their drafting and industrial computer-technology classes at the Lincoln County R2 School in Elsberry, Missouri, teacher Lawrence Lake's high-school students use all three *Design Your Own Home* modules on **Laser 128EXs** equipped with **Seikosha** printers.

Among class projects is an assignment to design a 10-by-14-foot or 14-by-14-foot utility shed. Vocational students plan to build the shed on school grounds, then auction it. Lake's computer-savvy students store all plans on disk for future reference.

This ability to save plans for later review or editing is one distinct advantage CAD programs have over traditional forms of design. No longer must would-be homeowners, for instance, flip through stacks of house-plan magazines only to find that their dream house is some aesthetic combination of three or four different designs.

With Abracadata's *Design Your Own Home Libraries*, you can start with a predrawn Tudor-style home (or Victorian, Cape Cod, or any of the dozens of plans provided), alter it, furnish it, even landscape it yourself. Abracadata offers generous discounts to educational institutions and \$20 unprotected backups to all users.

There's also a special backup version for owners of First Class Peripherals' **Sider** hard-disk drives—a feature that should make Charles Harris, a Tennessee horse breeder, one happy man. Harris purchased a *Sider* hard drive recently and found *Design Your Own Home's* modified DOS 3.3 operating system incompatible. Using *Architecture* on his *Apple IIe*, Harris has already drafted a tool shed for his farm and is now working on designing and building jumps for horseback riding.

EARTHSHAKING CAD

While personal and small-business users may favor Abracadata's design products, educators, manufacturers, and engineers may prefer more traditional, engineering-oriented drafting programs such as *CADApple*, *CADDraw*, or *discoverCAD*.

According to *VersaCAD's* Scott Harlin, the company boasts about 10,000 registered *CADApple* Entry Level and *CADApple* Professional work sites. Educational users, especially junior and senior high schools, vocational institutes, and junior colleges, predominate. But seasoned CAD facilities, such as the Albuquerque Seismic Lab in Albuquerque, New Mexico, use *CADApple*, too.

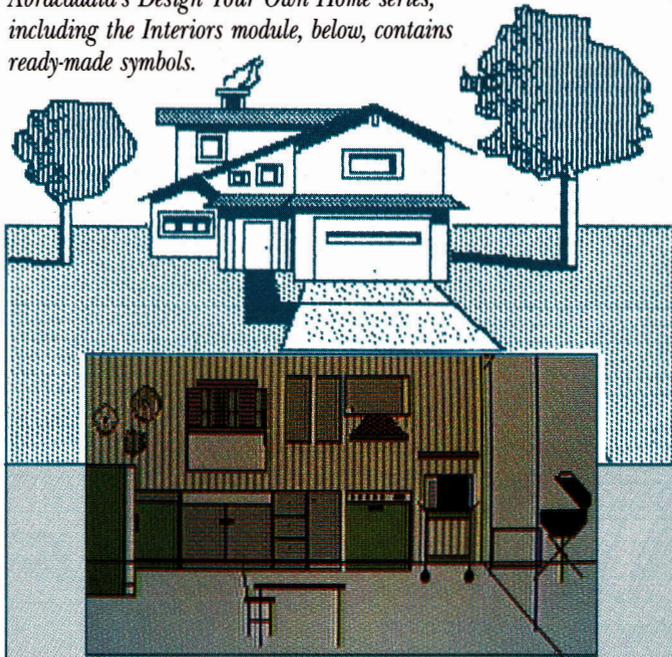
Albuquerque Seismic Lab's Bob Young says his installation develops mechanical and electrical drawings with *CADApple* on an *Apple IIe* tethered to a 5-megabyte **Corvus** hard-disk system and two **Houston Instruments** pen plotters.

According to Young, "The most unique thing we've designed is the front panel for a seismic system installed in China. We had to design the Chinese-language characters freehand, placing

dots, enlarging them, and connecting them with lines. That process alone took about a week. Finally, we had the design silkscreened onto the equipment.”

A subsidiary of Prime Computer, VersaCAD Corporation bases its Apple II products on the Pascal operating system. CADApple’s main menus and submenus sport logically arranged, single-key commands on standard text screens. Want to draw a rectangle? Press A (add), then R (rectangle). Toggle to the graphics screen or a mixed text-and-graphics display. Posi-

Abracadata’s Design Your Own Home series, including the Interiors module, below, contains ready-made symbols.



GS CAD

Let’s face it. Most CAD software described in the accompanying article can work wonders on the standard Apple II, but only a couple of programs show any hint of emulating the GS’ user environment. They do sport mousetext-type pull-down menus and let you see fuzzy hi-res colors on screen—whoopee.

Leave it to GS owners to find a way around this sad state of affairs. Being the creative types they characteristically are, some GS owners have been doing computer-aided design with programs that have *draw* in their names instead of *CAD*.

According to Activision’s Melinda Mongelluzzo, **Draw Plus** owners are using that product for some fairly typical—and some fairly atypical—CAD projects. A Minnesota man uses the program to lay out floor plans. A California teacher promoted Draw Plus to carpenter’s assistant: The program helps students in shop class design furniture and cabinets. A Vermont educator uses it like desktop-publishing software to create tests and worksheets.

Because **TopDraw** and Draw Plus resemble traditional CAD programs in so many ways (they don’t support plotters,

tion the cursor on the custom-designed grid and place the shape. A “coordinate dial” shows the Cartesian equivalent of the cursor’s position.

Both CADApple Entry Level and CADApple Professional support various input devices, including the joystick, KoalaPad, and mouse. Moreover, both versions feature many similar program capabilities, with a basic host of primitives (arc, circle, ellipse, line, polygon, and rectangle), various line styles, user-modifiable text, and autodimensioning. This latter capability empowers CADApple to perform measurements for you and to draw arrowheads, leader lines, and dimension text automatically.

CADApple Professional (128K required) goes beyond the capabilities of the 64K Entry Level version by adding more objects (such as Bezier curves) and layers (250 versus Entry Level’s ten), file saving, and symbol libraries. In addition, this version supports as many as 15 screen colors on the Apple IIGs.

though), it’s easy to imagine the nearly infinite design possibilities you can explore with your GS.

But what if you want a more “dedicated” GS program? One that focuses on architecture, say, and offers a special pull-down menu listing standard construction and design items such as doors and sinks—even shutters and awnings? Click a chimney into place!

Add a “stud” tool to an already-generous shape-tool palette. Include the capability to design your own architectural or other symbols. Don’t leave out rulers precise to the measurement scale you select.

Throw in full GS color capabilities, including RGB-level modification; separate background and border color (for borders *and* text); and color swap, copy, and blend.

Enhance the program by allowing designers to spiff up their drawings with popular GS paint programs and print them in color on an ImageWriter II.

Wrap the entire package in the authentic ProDOS 16-based GS interface with support for desk accessories. Make all windows movable, even tool and paint-palette windows, so that you can design your own screen layout.

Complete the picture with scroll bars, dialog boxes, and the rest of the Apple human-interface entourage, and what have you got? The best thing to hit the work site since nail guns—Abracadata’s **Design Your Own Home: Architecture** for the GS!

This revolutionary CAD program, which should be available late this summer, is expected to require a minimum of 512K. The program retails for \$89.95. Upgrades from Abracadata’s original 48K Apple II version or the newer 64K version cost \$40 and \$30, respectively. With its impressive array of windows, tools, colors, and icons, Design Your Own Home: Architecture promises to set a bold new standard for IIGS CAD software. Stay tuned for further developments. □

—C.F.

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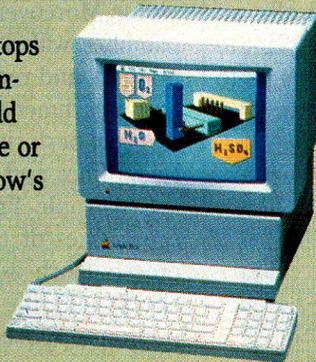
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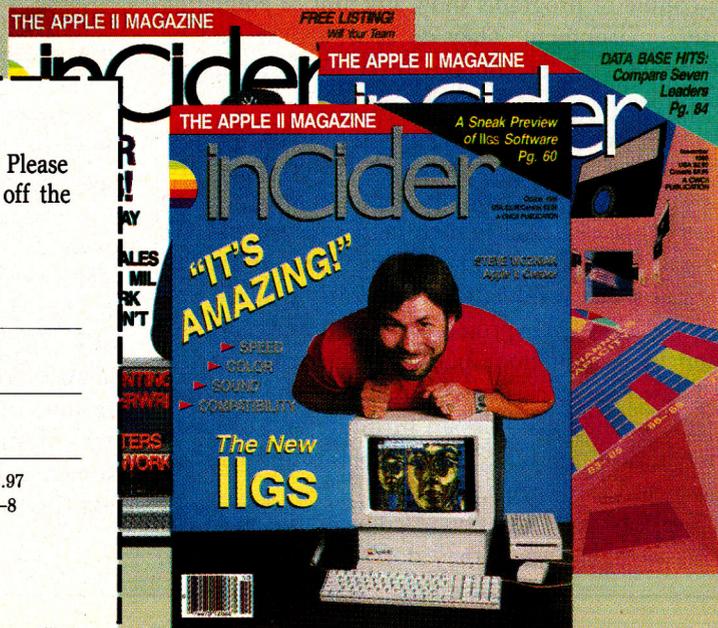
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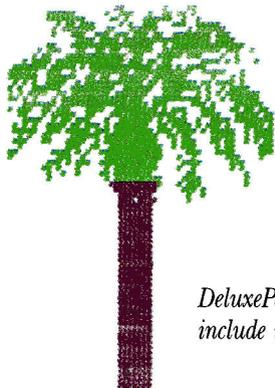
The Professional version supports more hardware devices, too, including digitizers, hard drives, plotters up to E size (37-by-81-inch printouts), and Grappler-interfaced dot-matrix printers with the Apple IIe.

VersaCAD Corporation sells a wide range of educational aids, including audio tapes, videotapes, and instructional books. Educational discounts are available.

CONTEMPORARY CAD

A second major player in the educational/professional CAD arena is Hearlihy & Company, which, like VersaCAD Corporation, offers separate programs for beginners and experienced users.

CADDraw, a low-cost, entry-level CAD system, offers essential drafting features such as grid, mirror, and rotate. CADDraw comes with a number of architectural and engineering libraries con-



DeluxePaint II lets you create and edit objects to include in your design.

taining hundreds of predrawn symbols. Need a baby grand piano? It's there. So are palm trees and bathtubs.

One special CADDraw feature is its Simplicity Lock capability, which lets a mentor turn off complex operations that might otherwise confuse beginners.

CADDraw supports conventional input devices as well as the Gibson Light Pen (no longer on the market) and **TouchWindow**. The program has no built-in shape-creation utility or printer drivers. Two compatible add-ons—**Symbol Maker/Editor Plus**



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continued

and **Triple Dump** (dot-matrix printers only—no plotters) perform those tricks.

Hearlihy's more advanced CAD system, discoverCAD, wears an appealing Mac-like interface. Pull-down menus organize the program's drafting features. Tom Curtis, an engineer and CAD evangelist, praises the program's modern interface as "functional, not gimmicky." Curtis likens it to "a dictionary that's right in front of you and already open to the word you need."

Expected CAD functions such as grid snap, zoom, and pan are built in, as are some special features, such as Trim commands for modifying objects, and compatibility with both Cartesian and polar coordinates.

DiscoverCAD drives plotters directly, but supports dot-matrix printers via a separate screen-dump utility such as Triple Dump. If you use a GS with a dot-matrix printer, you'll need the **FingerPrint GSi** screen-dump utility card with its on-board software.

Like VersaCAD Corporation, Hearlihy & Company sells a

variety of educational aids, including a CADDraw videotape and discoverCAD courseware.

BY DESIGN . . .

Is a vacation home, seismic apparatus, or riding ring among your plans? If so, an Apple II CAD program can do the trick. If you're a pro, CAD can make tough jobs easier; if you're a beginner, CAD can help you get started in design. For fun or profit, Apple II CAD programs give you the electronic tools you need to do your creative best. ■

Cynthia E. Field is the author of Field Trip, in Cider's column on educational software, and Press Room, our column on desktop publishing. She is a free-lance journalist specializing in computer-related topics. Write to her at 60 Border Drive, Wakefield, RI 02879. Enclose a stamped, self-addressed envelope if you'd like a personal reply.

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Sincerely yours,

Covering the Bases with Mail Merge

Conclude your job-search effort with an easy-to-type cover letter, thanks to AppleWorks' mail-merge capabilities.

by Ruth K. Witkin

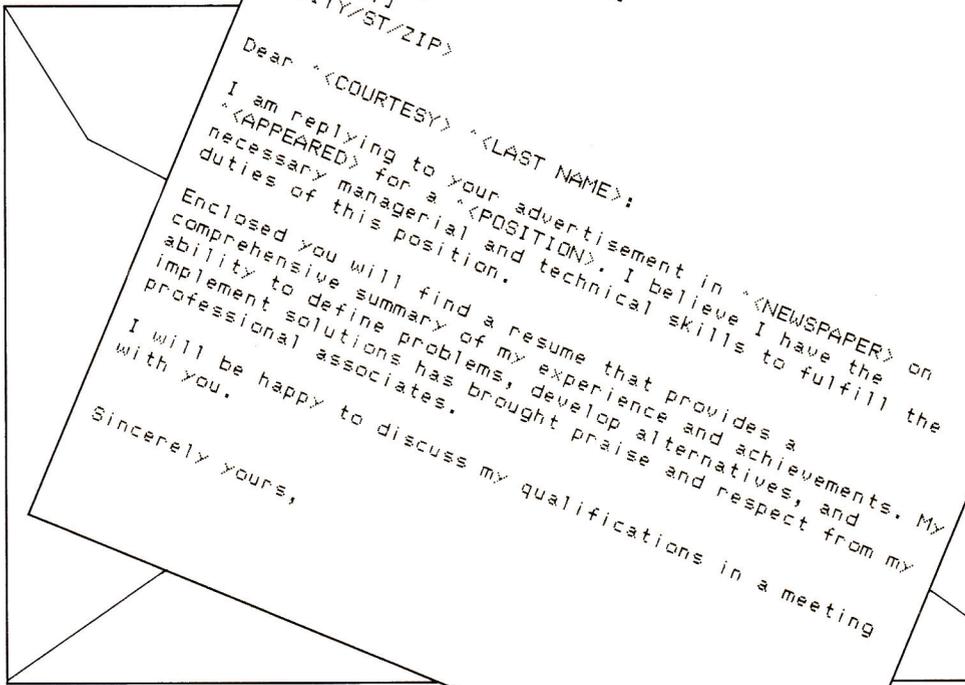
A cover letter for your résumé is *de rigueur* for most job hunts. Although the letter alone can't get you a worthwhile job, it can get you a personal interview during which you can convince an employer that you are indeed the best person for the position.

Your cover letter shouldn't rehash, recapitulate, or refine your résumé. Say it once (and well) in the résumé and leave it at that. Few employers have the patience to wade through repetitive information.

Use the letter to reveal a little of your personality and outlook, add significant facts, or toot your own horn somewhat modestly. Keep the tone friendly and conversational. If you're at a loss for words, simply say here's-my-résumé and please-get-back-to-me. If you're comfortable with words, restrict them to two or three informative, grammatically correct paragraphs. Remember, there's no second chance to make a first impression.

It's best to mail your résumé and cover letter early—if possible on the first day an attractive job prospect appears in print or emerges via the grapevine. Don't dally. Employers tend to pay close attention to early returns and schedule interviews accordingly. Jumping quickly into

Above, **Figure 1** shows cover letter for résumé, created on AppleWorks word processor. Below, **Figure 2** shows placeholders where entries in EMPLOYERS database merge with cover letter.



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the job fray can give you an important edge over stragglers that arrive later.

In this session, the last of a three-parter, you'll compose a cover letter for the résumé you created in June (p. 82) and mail-merge it with the database of prospective employers you created last month (July 1988, p. 64) to produce customized form letters that look like one-of-a-kind correspondence. Be sure you're using AppleWorks 2.0 for mail merging; otherwise, you'll need to upgrade your program. (Contact Claris Corporation, 440 Clyde Avenue, Mountain View, CA 94043, 415-962-8946.)

A DOCUMENT FROM SCRATCH

Figure 1 shows the formatted cover letter. **Figure 2** shows its text in raw form with placeholder brackets marking the spots for information from your database. Some category names are enclosed in square brackets ([]), while others are enclosed in angle brackets (<>). I'll explain the difference between them shortly.

Now use the AppleWorks Startup and Program disks to bring up a new word-processor screen. Name this file **COVERLETTER**. You should now see the Review/Add/Change screen with the cursor in line 1 column 1. To simplify transferring and merging information, work with the data disk containing the RESUME and EMPLOYERS files.

LOADING THE RESUME

You can save time by copying the letterhead from the résumé, so bring that file to the Desktop: Press Escape to return to the Main Menu. Hit Return twice to get to the AppleWorks files listing. Move the highlight to RESUME and press Return.

If you haven't created the resume yet, type the four letterhead lines shown in **Figure 2**. Then place the cursor on the J in JAMES, hold down Control, and type B to enter a Boldface Begin caret. Boldface cancels itself at the end of the line. Now skip to the section under "Entering Text."

COPYING BETWEEN FILES

Your résumé appears with the cursor at the top left of the screen. Copy the top four lines to the clipboard: Press OA-C (Open apple-C) to start the Copy command, and type T to select **To clipboard**. (AppleWorks now displays format indicators.) Press OA-right arrow three times to highlight the name, then the down-arrow key three times to highlight the address and phone number, and hit Return. The letterhead lines are now on the clipboard.

Press OA-Q to bring up the Desktop Index. Move the highlight to COVERLETTER and press Return. The empty screen you left a few moments ago reappears. Now copy from the clipboard: Press OA-C and type F. Instantly, AppleWorks places the résumé lines into the letter, with the cursor on the Boldface Begin caret.

ENTERING TEXT

Start making your screen look like the one in **Figure 2**. Press the down-arrow key four times to move to line 5 atop the blot (hard carriage return) below the letterhead. (Press OA-Z to see hard carriage returns on screen; refer to the bottom line of your screen to see the number of the line on which you're working.)

Press Return five times to enter five blank lines. Your cursor should now be on line 10. Type **July 13, 1988** and press Return five times. Leave the cursor on line 15.

PREPARING THE DATABASE

You'll be entering placeholders next, so place the database on the Desktop: Press Escape to return to the Main Menu. Hit Return twice to get to the AppleWorks-files listing. Move the highlight to EMPLOYERS and press Return. You should now see the Review/Add/Change screen.

Start the mail-merge process by *printing* (not moving or copying) the database to the clipboard: Press OA-P to bring up the Report Menu. Type 2 to make a new tables format and hit Return. Type MM (short for mail merge, but any report

name will do) and hit Return again. The Report Format screen appears.

Press OA-P to bring up the Print the Report screen. Type 4 or the number that selects *The clipboard (for Mail Merge)* and hit Return. AppleWorks now confirms that the mail-merge data are on the clipboard.

Switch back to the letter: Press OA-Q to bring up the Desktop Index. Move the highlight to COVERLETTER and hit Return. COVERLETTER appears on cue with the cursor still on line 15.

ENTERING PLACEHOLDERS

Here's the scoop on bracket shapes. (Refer again to **Figure 2**.) Square brackets enclose categories that may not always contain an entry, in which case you want to omit the line. For example, if there's no contact name or title in the company's address, you can tell AppleWorks not to print those lines. Angle brackets enclose categories you know will always contain an entry—for example, a company name (which can be a post-office box number) and a city, state, and zip code.

When you insert placeholders, you tell AppleWorks which brackets to use. To enclose categories in square brackets, type Y at the proper place in the process. To enclose them in angle brackets (the AppleWorks standard), press Return. This will make perfect sense in a moment.

CREATING PLACEHOLDERS

Get ready, 'cause here we go. Press OA-O to bring up the Printer Options screen. Type MM (for mail merge) and hit Return. AppleWorks now displays a list of database categories. The highlight is on FIRST MI, which is what you want, so hit Return. AppleWorks now asks if you want to omit the line when all entries on the line are blank. You do indeed, so type Y. You've just specified a square bracket.

You can now see the placeholder above the format bar. AppleWorks leaves a space after each placeholder to separate it from the next when you have several on the same line. Now enter the next one, LAST NAME: Type MM and hit Return. Type 2, hit Return, and type Y. You can now see two placeholders looking like

those in **Figure 2**. Press Escape to return to the letter, and press Return to move down one line.

Next, enter the TITLE placeholder: Press OA-O. Type **MM** and hit Return. Type **3**, hit Return, then type **Y**, and press Escape. Press Return to move down one line.

Enter the COMPANY NAME placeholder, which is enclosed in angle brackets: Press OA-O. Type **MM** and hit Return. Type **4** and hit Return twice, the second time to confirm *No*. (This category will always contain an entry, so it doesn't matter whether or not AppleWorks omits lines.) Press Escape, then Return to move down to line 18.

Using **Figure 2** as a guide, enter the DIVISION, STREET, and CITY/ST/ZIP placeholders the same way. (Remember, type **Y** for square brackets and press Return for angle brackets.) Press Escape to go back into the letter after CITY/ST/ZIP, then hit Return three times to insert blank lines. The cursor should now be on line 23.

ENTERING MORE TEXT AND PLACEHOLDERS

Refer to the instructions in the **Table** and enter the next few lines, a procedure that involves alternating between typing text and entering placeholders. Press the spacebar *once* between sentences. If you make a typo, press the delete key to back up the cursor and erase.

Proofread everything to make sure it agrees with **Figure 2**. If something is amiss, move the cursor to that spot. You can then type a missing character, press Delete to erase an extra character, or, after you press OA-E to change to the overtype cursor, overtype an existing character.

Now press OA-S and relax while AppleWorks saves your file carefully.

FORMATTING THE LETTER

This letter needs only a bit of formatting to make it look like the one in **Figure 1**. Press OA-1 to jump the cursor to line 1 column 1. Press OA-O to bring up the Printer Options screen. Set a top margin so that

Line	Action
23	Type Dear and press the spacebar. Enter the COURTESY placeholder as you did the others. Now enter the LAST NAME placeholder on the same line. Press Escape to return to the letter. Press the left-arrow key to back up the cursor to the space after the bracket and type a colon. Press Return twice. The cursor moves to line 25.
25	The first paragraph contains three placeholders. Type I am replying to your advertisement in and press the spacebar. Enter the NEWSPAPER placeholder as you did the others. Now type on and press the spacebar. Enter the APPEARED placeholder. Type for a and press the spacebar. Enter the POSITION placeholder. Back up the cursor one space and type a period to end the sentence. Press the spacebar, then type the second sentence. Hit Return twice. The cursor moves to line 30.
30	Type the entire paragraph starting with Enclosed you will find a resume . . . and press Return twice. The cursor moves to line 36.
36	Type the sentence starting with I will be happy to discuss . . . and press Return three times. The cursor moves to line 40.
40	Type Sincerely yours , and leave the cursor where it is, which should be line 40 column 17.

Table. Typing your cover letter.

the letterhead prints one inch from the top of the page: Type **TM** and press Return. Type **I** and hit Return again.

Now increase the size of the letterhead: Type **CI**, hit Return, then type **8** and hit Return again.

Next, center the letterhead: Type **CN** and hit Return. Press Escape to return to the letter.

Move the cursor to line 13 column 1. Tell AppleWorks to justify the text (justification removes the centering and produces lines with a smooth right edge): Press OA-O. Type **JU** and hit Return.

The résumé was printed in a proportional-2 font, so use the same font for the text of the letter (check your manual to make sure your printer supports proportional printing): Type **P2** and press Return. The formatting is complete, so press Escape.

MERGING LETTER AND DATABASE

This is the moment when all your work pays off. Mail merge is at hand, so be sure your printer is turned on. Now press OA-P to start the Print command. Press Return once to confirm *Beginning* and again to select your printer (or type a printer number, then press Return).

AppleWorks asks whether you want to

merge the database and document. Indeed you do, so press Return. Hit Return again to confirm one copy. AppleWorks now takes over. Six customized letters roll off the printer, one after the other, with the first one looking like the one in **Figure 1**. Press OA-S to store the letter on disk.

PRINTING SELECTED RECORDS

To make sure your résumé is the "first-est with the mostest" an employer will see, you want to be able to select new records from all the others. That's easy with the Select Records command. Say it's July 13, 1988, and you've just entered several records into the database. To select those records, press OA-R to bring up the Select Records screen, type **10** to choose the APPEARED category, and hit Return. Then choose the *equals* criterion and type in the comparison information, **July 13, 1988**. AppleWorks now knows which records you're seeking.

Before returning to the cover letter, print the database to the clipboard with the selection intact. That's the key to success. After printing the letters, return to the database and select all records by pressing OA-R and typing **Y** (for *Yes*) or, if you remove the database from the

AppleWorks Q&A

Desktop without saving it, let the record selection disappear.

HERE'S MORE . . .

Customizing your résumé is easy. One of the places where this makes sense is the job title. Refer to Figure 1 in "Résumé On File" (June's column) or switch to the RESUME file on your Desktop. If you replace *Director of Technical Operations* with a POSITION placeholder, you can print résumés with job titles (Field Service Director, Telecommunications Manager, and so on) matching the advertisement as well as your cover letter. Impressive.

Printing mailing labels with the records in the EMPLOYERS database isn't a good idea. You want to create a first-class-mail impression, and glued-on labels are closely associated with junk mail. Stick to typing an address on each envelope. It takes a few minutes more, but it conveys the message that the company to which you're applying is one of a kind and not one of the bunch.

ENDING BOLDFACE BEGIN

Did you know there's a shortcut key for Boldface End? It's the same key as for Boldface Begin—Control-B—which means you don't have to go through the Printer Options screen, as I erroneously stated in my June column. Simply press Control-B where you want boldface to start, and press it again where you want it to end on the same line. This also applies to underline (Control-L). My thanks to Dr. Arthur Mollin of Port Washington, New York, and Peggy Rooks of Asheboro, North Carolina, for the tip.

NEXT MONTH . . .

In September I'll begin another three-parter, this one a sophisticated cash-flow-analysis spreadsheet ideal for business forecasting. You'll also be treated to a special column dealing with reader response to the income-tax question posed in "From My Mailbag" (March 1988, p. 97). Watch for it. ■

Write to Ruth Witkin at 5 Patricia Street, Plainview, NY 11803. Enclose a stamped, self-addressed envelope if you'd like a reply.

Kills Bugs Dead

In Apple Clinic, November 1987, you responded to Bunny Hoffenstein's question about bugs in AppleWorks 2.0 (p. 24): Database files appear to have been saved when in fact they're segmented and irretrievable. Are you aware of a patch to correct the database trouble, and are you still collecting AppleWorks bugs?

**Bill Craig
Byron, IL**

First, to avoid problems with AppleWorks database files that are almost the size of a 5¼-inch floppy disk (143K), try using a 3½-inch disk (800K) or a hard disk. Chances are you'll never need to "segment" a file, that is, split it into two parts. If you need to split a file more than once to save it, you need a bigger disk.

Second, "just say no" when AppleWorks asks you, "Insufficient room for your file on this disk. Is it OK to delete the old copy of this file?" It is okay, but you should answer no, delete the old copy on disk yourself (from the Other Activities menu), then save the new copy and hurry out to buy a bigger disk.

We're always interested in bug collecting, but our friends at Claris Corporation, which markets AppleWorks, promise us that their hobby is fixing bugs. Call technical support at (415) 962-0371.

It Doesn't Add Up

I'm an amateur radio operator who uses PFS:File and Report to keep track of the countries I "work" on the radio and the different "modes" I use to reach them.

I'd like to use the AppleWorks database manager, but I can't figure out how to report the total number of entries that appear in each category, as in the accompanying Table 1. I've tried various report formats, but can't get AppleWorks to print the totals.

**Thomas H. Tozer
Livonia, MI**

The AppleWorks database manager doesn't count totals; at best it "totals," or adds up, the numerical values of all items in a list. That's what the open apple-T command does when you use it to create a database format.

Just replace every X in the database with the numeral 1, then press Open apple-T to total each category. (See Table 2.) The only limitation to this method is that every category must answer a "yes or no" question; that is, it must contain a "1 or 0." That might require you to tweak your database file a bit. □ —Paul Statt, Senior Editor

Got an AppleWorks question? Write to AppleWorks Q&A, c/o inCider, 80 Elm Street, Peterborough, NH 03458.

Code	Country	Zone	Status	SW	SSB	MORSE	VOICE
A5	Bhutan	22	A	X		X	X
EP	Iran	21	A	X	X	X	X
KH9	Wake Is	31	A			X	
Totals				2	1	3	2

Table 1. Sample database, with categories indicated (totals calculated manually).

Code	Country	Zone	Status	SW	SSB	MORSE	VOICE
A5	Bhutan	22	A	1		1	1
EP	Iran	21	A	1	1	1	1
KH9	Wake Is	31	A			1	
Totals				2	1	3	2

Table 2. Calculating totals in the AppleWorks database manager: Use the numeral 1 to indicate a "yes" answer.

Computer Trader

With an AppleWorks spreadsheet template, buying, upgrading, or selling your Apple equipment always adds up.

by David Goodrum and Joel Robbins

You get what you pay for—as every school department knows. But estimating the costs of upgrading, trading, and buying new computer equipment and software can leave administrators confused and harried. To help forecast these purchasing costs and the financial resources your school, students, or family will need, try this month's spreadsheet template, Computer Trader.

FORMATTING THE SPREADSHEET

From the AppleWorks main menu, choose to add a spreadsheet file to the desktop from scratch. Name it **Computer Trader**.

Next, adjust column widths: Increase columns A and F by three spaces each, and columns D and I by two spaces. Decrease remaining columns B and G by one space, C by five spaces, E by eight, and H by four. To adjust each column's width, follow the steps listed below (remember, you have to press only the first letter of the menu items at the bottom of the screen):

- 1) Move your cursor to the appropriate column and press the open-apple key and the letter L for layout (OA-L).
- 2) Choose *columns* and hit Return to highlight the current column.
- 3) Choose *column width*.

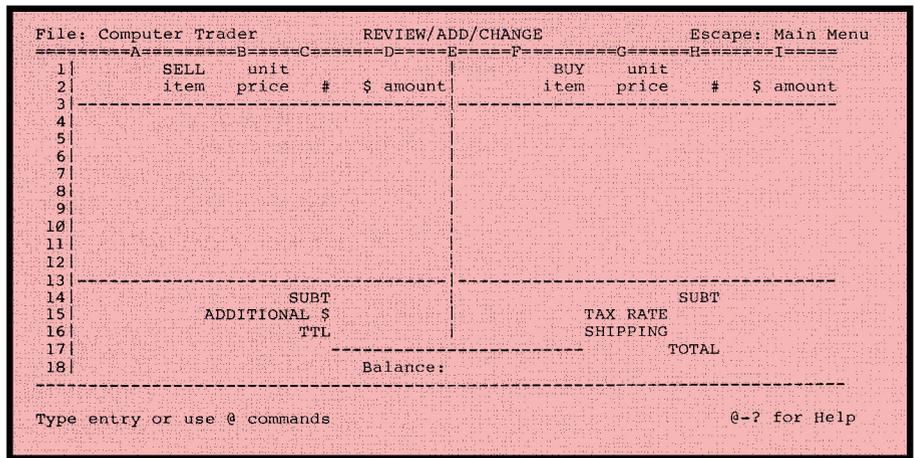


Figure 1. Computer Trader spreadsheet labels.

Cell	Formula	Function
D4	(B4*C4)	Unit sell price x number of units
I4	(G4*H4)	Unit buy price x number of units
D14	@SUM(D3...D13)	Sum of sale amounts
I14	@SUM(I3...I13)	Sum of buy amounts
D16	(D14+D15)	Sale amounts + additional money
I15	(I14*H15)	Compute sales tax
I16	(I14*H16)	Compute shipping charges
I17	@SUM(I14...I16)	Sum of all costs
F18	(D16-I17)	Difference between resources and costs

Table 1. Formulas for Computer Trader.

- 4) Hold down the open-apple key (OA) and press the right-arrow key to increase or the left-arrow key to decrease the column width.
- 5) Hit Return.
- 6) To align labels, press OA-V (values), choose *label format*, then select *right justify*.

Now, using **Figure 1** as your guide, type lines and words into the correct cells of the spreadsheet. Be sure to first type the double-quote key for labels beginning with the number or dollar sign. This character tells the spreadsheet that the cell contains a label, rather than a number or symbol to calculate. Use the same technique to add dashes and lines as borders.

To include the vertical line down the middle of the screen, start by entering the vertical-bar character at cell E1: Press the double-quote key, type |, and hit Return. With the cursor still at cell E1, press OA-C (copy), choose *within worksheet*, and press Return to make cell E1 the source. Then type a period to start the range of cells, press the down-arrow key to highlight through cell E16, and press Return.

The template expresses most of the numbers you enter as dollars and cents; to set standard-value format, press OA-V (values), choose *value format* and *fixed*,

then enter 2 as the number of decimal places.

Column C contains the number of each type of item you're selling, expressed as a whole numeral. To set the format, place the cursor at cell C4, press OA-L (layout), and choose *block*. Press the down-arrow key to highlight through cell C12 and press Return. Then choose *value format* and *fixed*, and press Return to accept zero as the default number of decimals to display. Use a similar procedure to format cells H4-H12.

The data you enter in cells H15 and H16 concern tax and shipping rates. To set a percentage format for these cells, place the cursor on cell H15, press OA-L (layout), and choose *block*. Press the down-arrow key to highlight through cell H16 and hit Return. Select *value format* and *percent*, and enter 1 to set the number of decimals to display.

One final formatting problem: The default setting for recalculation in the AppleWorks spreadsheet is columns, but Computer Trader needs to recalculate by rows. To change the setting, press OA-V (values), choose *recalculate*, *order*, and *rows*.

ENTERING FORMULAS

Type the formulas into the appropriate

SELL				BUY			
item	unit price	#	\$ amount	item	unit price	#	\$ amount
1							
2							
3							
4			0.00				0.00
5			0.00				0.00
6			0.00				0.00
7			0.00				0.00
8			0.00				0.00
9			0.00				0.00
10			0.00				0.00
11			0.00				0.00
12			0.00				0.00
13							
14		SUBT	0.00		SUBT		0.00
15		ADDITIONAL \$			TAX RATE		0.00
16		TTL	0.00		SHIPPING		0.00
17					TOTAL		0.00
18		Balance:	0.00				

Type entry or use @ commands @-? for Help

Figure 2. Computer Trader template.

SELL				BUY				
item	unit price	#	\$ amount	item	unit price	#	\$ amount	
1								
2								
3								
4	CPU+Monitor	400.00	2	800.00	CPU	1000.00	1	1000.00
5	Drive 5 1/4	80.00	2	160.00	Drive 3 1/2	300.00	2	600.00
6	Mouse	50.00	2	100.00	Hard Disk	1000.00	0	0.00
7			0.00	Memory	300.00	1	300.00	
8			0.00	Monitor	500.00	1	500.00	
9	blank disks	.25	100	25.00	Printer	450.00	1	450.00
10	Printer	200.00	1	200.00	b/w Monitor	125.00	0	0.00
11	Interface	70.00	2	140.00	Software	100.00	2	200.00
12	Old Software	25.00	5	125.00	Rebate	-150.00	1	-150.00
13								
14		SUBT	1550.00		SUBT		2900.00	
15		ADDITIONAL \$			TAX RATE 5.0%		145.00	
16		TTL	1550.00		SHIPPING 1.5%		43.50	
17					TOTAL		3088.50	
18		Balance:	-1538.50					

Type entry or use @ commands @-? for Help

Figure 3. Computer Trader with sample data.

cells as listed in Table 1. You need to copy only two of the formulas to complete the template.

Place the cursor at cell D4, press OA-C (copy), and choose *within worksheet*. Press Return to designate D4 as the source, press the period key to start the range of cells, press the down-arrow key to highlight through cell D12, and press Return. Choose *relative* once as the reference for cell B4, then again as the reference for cell C4.

Follow a similar procedure to copy the

other formula: Place the cursor at cell I4, press OA-C (copy), and choose *within worksheet*. Press Return to designate I4 as the source, then press the period key and highlight through cell I12 with the down-arrow key. Press Return, choose *relative* as the reference for cell G4, and again as the reference for cell H4.

Now compare your empty Computer Trader template with Figure 2. When you're satisfied it's accurate, press OA-S to save a copy on disk.

TRYING SAMPLE DATA

Enter the sample figures listed in Table 2 to test the template; check your template against Figure 3 to make sure the formulas are working correctly. Of course, you don't have to sell old computers to buy new ones—you can include anything you want to sell.

Note that you can play "what if" easily by including alternate items (for example, color and monochrome monitors). You can also exclude an item by changing the datum in the # column to zero. Computer Trader also helps you keep track of your changing resources and costs as you barter with potential buyers of your old equipment. If you're lucky enough to take advantage of discounts or rebates on new equipment, enter a negative dollar amount.

Balance shows your current cash-flow status. A negative amount indicates how much additional cash or credit you'll need to kick in to purchase your dream system. If it's a positive amount, you're among the lucky few.

Copying the whole template area into empty rows in the worksheet lets you keep track of multiple deals easily. Place the cursor on row 1, press OA-C (copy), and choose *to clipboard*. Using the down-arrow key, highlight through line 18 and press Return, then move your cursor to an empty row farther down the worksheet, press OA-C, and choose *from clipboard*.

Because you don't define the item-description areas in the empty template ahead of time, you can use Computer Trader whenever you're contemplating selling and purchasing any kind of item. ■

Write to David Goodrum and Joel Robbins at Tulip Tree House 1016, Bloomington, IN 47401. Enclose a stamped, self-addressed envelope if you want a personal reply.

SELL ITEMS			BUY ITEMS		
item	price	#	item	price	#
CPU+Monitor	400	2	CPU	1000	1
Drive 5 1/4	80	2	Drive 3 1/2	300	2
Mouse	50	2	Hard Disk	1000	0 (alternate item)
blank disks	.25	100	Memory	300	1
Printer	200	1	Monitor	500	1
Interface	70	2	Printer	450	1
Old Software	25	5	b/w Monitor	125	0 (alternate item)
			Software	100	2
			Rebate	-150	1

tax rate 5% (enter as .05)
shipping rate 1.5% (enter as .015)

Table 2. Sample data for Computer Trader.

BASIC Steps Up to the GS

by Robert M. Ryan

They're here. . . ." No, not those little beasts lurking inside your television set, but the first of the 16-bit BASICs for the Apple IIGS. Absoft (AC/BASIC) and TML (TML BASIC) have beaten everyone, including Apple, in the race to develop a version of BASIC that lets you take advantage of certain advanced features of the IIGS, such as graphics and sound, that aren't available from Applesoft BASIC.

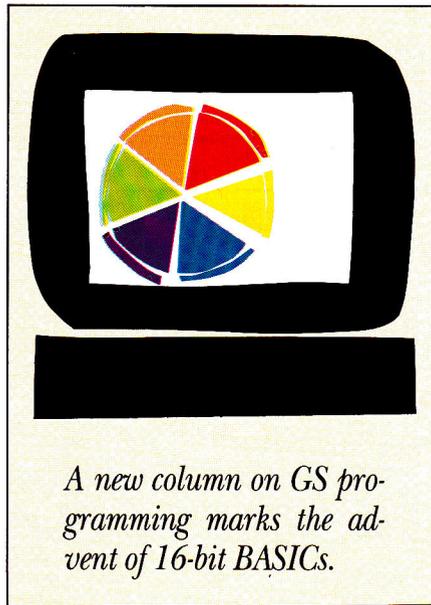
inCider has taken this occasion to launch a bimonthly column dedicated to using BASIC to program the GS. It will alternate with Dan Bishop's Applesoft Adviser. Although I hope you'll learn a lot from GS BASICs, I'm not out to produce a straight tutorial. Instead, each installment will focus on an interesting programming project—simulating a stellar system or creating a 3D game that requires stereo glasses, for instance. You'll certainly learn something about programming by studying the listings, but you'll have just as much fun simply entering them and running the programs.

Before getting into the fun stuff, however, one important question remains: What's the difference between TML and AC/BASIC? I've spent the past few weeks fiddling with both; here's what I learned.

APPLES AND ORANGES

Comparing BASIC compilers is usually a straightforward task. You use each compiler to write code, then compare the speed and size of the resulting programs. Check out special features and the development cycle of each compiler and you usually have a good idea of which one's better.

That's not the case, however, when comparing BASIC compilers for the IIGS. Absoft and TML have taken such radically different approaches that choosing be-



Jean Muller

tween Absoft's AC/BASIC and TML BASIC isn't so much a question of performance as it is philosophy.

BASIC THROUGH THE AGES

BASIC (Beginner's All-purpose Symbolic Instruction Code) was developed at Dartmouth College in the 1960s by John Kemeny and Thomas Kurtz. Their goal was to create a language that would be easy to learn and use. They fulfilled their purpose by inventing a forgiving, English-like syntax that didn't force programmers to learn the details of a computer's innards to write usable programs. Since then, most versions of BASIC, no matter how abbreviated and bastardized, have allowed programmers easy access to the power of their computers.

Absoft's AC/BASIC (2781 Bond Street, Auburn Hills, MI 48057, 313-853-0050, \$125) is a traditional implementation of the language, letting you access the GS' power and special features without having

to understand the complexities of GS hardware and system software. For example, AC/BASIC uses MENU statements to set up pull-down menus and WINDOW statements to open new windows. You don't have to worry about mastering the IIGS ToolBox to use these statements—Absoft has done that for you. You simply have to master Absoft's syntax, an easy enough task.

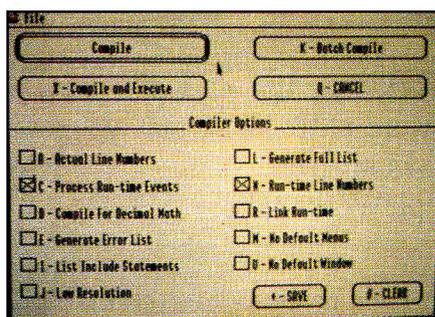
AC/BASIC is the latest in a series of compatible BASIC compilers from Absoft. The company also markets the Microsoft BASIC compiler for the Macintosh and AC/BASIC for the Commodore Amiga. Because Apple produces both the Macintosh and the GS, you shouldn't be surprised to find that compilers for those machines are very compatible. What's more surprising is the degree of compatibility between the Amiga compiler and AC/BASIC for the IIGS. I ported dozens of programs from the Amiga to the GS, most with only minimal modification.

AC/BASIC for the IIGS consists of an editor to enter your program source code and a compiler to translate your source code into machine code. The system comes on a 3½-inch disk and includes a hefty reference manual.

The editor is the weakest part of the AC/BASIC system. If it weren't for its link to the compiler, I would have resorted to another editor or word processor. It's ironic that a system that lets you write programs that take advantage of the GS' event-driven interface comes with an editor that uses nothing from that interface. (If I ever see the word *mode* again I'll scream.)

Once you have a file in the editor you can compile it. Invoking the compiler brings up the Control Window. Here, at a touch of your mouse button, you can set compiler options, which let you create list files of your source code, link your

code to run-time libraries to create stand-alone applications, and suppress the use of standard IIGS menus, among other things. (Suppressing the standard menus is a particularly good idea, because AC/BASIC doesn't let you access them—you can access only the menus you create yourself.) The most important compiler option lets you create programs that respond to run-time events, such as mouse clicks and menu selections. The Control Window also lets you batch-compile a list of files automatically.



The AC compiler—heart of the language.

The AC compiler, the heart of AC/BASIC, understands a rich assortment of statements and functions. It features a large number of variable types and control structures. More importantly, it lets you create colorful, menu-driven programs easily and quickly. It even lets you access some QuickDraw routines (notably those concerned with text styles and graphics primitives) from the ToolBox directly.

Note that calling QuickDraw routines is an option, not a necessity, with AC/BASIC. AC/BASIC tries to give you the power of the ToolBox while insulating you from its complexities. In this, AC/BASIC is very successful.

The downside to this insulation is some inefficiency and loss of precision. High-level statements that access the ToolBox can't be as precise as low-level calls without becoming as complex as those low-level calls. For example, the AC/BASIC WINDOW statement doesn't let you create windows with working close buttons, auto-

Listing 1. AC/BASIC Mandelbrot generator.

```
'Calculate Mandelbrot Set and Plots
'in 320 X 200 Hires Graphics
'By Bill Kennedy, 1988
'A/C Basic version by Bob Ryan

'Compile without default menus, with
'default windows, without run-time events.

lft = -2.2
rgt = .6
top = 1.44
bottom = -1.44
stpx = (rgt-lft)/ 320
stpy = (bottom-top) / 200
xc# = lft

'perform calculation for each on-screen pixel:
FOR i% = 0 TO 319 : 'horizontally
  yc# = top
  FOR j% = 0 TO 199 : 'and vertically
    count% = 0
    x# = xc# : y# = yc#
    xs# = x#^2 : ys# = y#^2
    WHILE count% < 15 AND SQR(xs# + ys#) < 2
      count% = count% + 1
      xs# = x#^2
      ys# = y#^2
      xo# = x#
      x# = xs# - ys# + xc#
      y# = 2 * xo# * y# + yc#
    WEND

    'plot the color value = count of the point
    PSET (i%,j%), (15-count%) * 17
    yc# = yc# + stpy : 'next vertical position
  NEXT j%
  xc# = xc# + stpx : 'next horizontal position
NEXT i%

a$ = INPUT$(1)

END
```

Listing 2. TML BASIC Mandelbrot generator.

```
' Prepare the graphics screen:

library "QuickDraw"
graf init 320
graf on
_clearScreen(0)

' Include the entire Mandelbrot set:

Lft = -2.2
Rgt = 0.6
Top = 1.44
Bottom = -1.44
Stpx = (Rgt - Lft) / 320
Stpy = (Bottom - Top) / 200
xc# = Lft

'Perform calculation:

For i%=0 to 319 ' Pixels horizontal
  yc# = Top
  For j%=0 to 199 'by vertical
    count% = 0
    x# = xc#: y# = yc#
    xs# = x#^2: ys# = y#^2
    do 'Reiterate z = z^2 + c
      while count% < 15 and sqr(xs# + ys#) < 2
        count% = count% + 1
        xs# = x#^2
        ys# = y#^2
        xo# = x#
        x# = xs# - ys# + xc#
        y# = 2 * xo# * y# + yc#
      until

' Plot the color value = count:

SetSolidPenPat(15-count%)
MoveTo(i%,j%)
LineTo(i%,j%)
yc# = yc# + Stpy 'Next vertical position
Next j%
xc# = xc# + Stpx 'Next horizontal position#
Next i%

get$ a$ 'Hold screen until a keypress
graf off

END
```

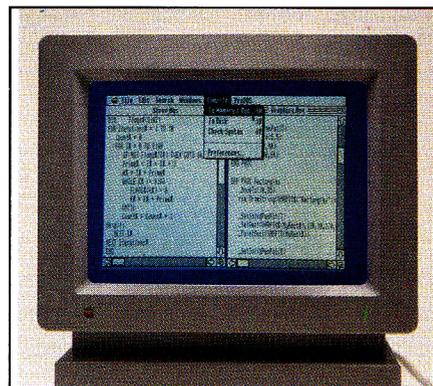
sizing buttons, or scroll bars. AC/BASIC gives you access to much of the power of the ToolBox, but by no means all.

HEAVY-METAL BASIC

TML BASIC (TML Systems, 8837-B Goodby's Executive Drive, Jacksonville, FL 32217, 904-636-8592, \$125; see Editors' Choice, June 1988, p. 112) takes an entirely different approach toward programming the IIGS. Rather than wrap the ToolBox in a comforting layer of abstraction, TML BASIC requires that you call ToolBox routines directly to perform ToolBox functions. If you don't have a good understanding of ToolBox routines and the organization of GS system software, you won't be able to use TML BASIC to write programs that take advantage of the machine's special features. TML BASIC isn't so much an implementation of the BASIC language as it is a front end for the GS ToolBox.

If you do have a good understanding of the ToolBox, TML BASIC gives you access to all the power of the IIGS. For most people, however, that's a decidedly mixed blessing. The type of precision required of a programmer using TML BASIC is foreign to most Applesoft programmers. BASIC, after all, is supposed to be easy to learn and easy to use. From my experience, TML BASIC is no more accessible than C.

On the up side, TML BASIC features a wonderful editor and a fast compiler.



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Unlike the Absoft editor, the TML editor is a mouse- and menu-driven beauty that makes entering and correcting source code a joy. And, although the manual explains the syntax of TML BASIC adequately, it supplies only an introduction to the complexities of ToolBox programming. Although the Absoft manual is no prize, at least it provides all the information you need to begin programming the IIGs.

Absoft's language is a 16-bit version of BASIC that's true to the roots of the language. And although less powerful than TML BASIC, AC/BASIC right now is much more accessible to programmers familiar with Applesoft. Programs appearing in this column will be written

first in AC/BASIC; portions of a program that would be different in TML will be shown in that dialect, too.

MANDELBROT MANIA

Let's get started using whichever GS BASIC you prefer. The graphics advantage of the GS over earlier Apple II models is best demonstrated perhaps when you call upon the machine to display mathematically generated pictures. *Fractal* mathematics is the current craze—its calculations and graphics representations can exercise your GS to its limits. The accompanying **Listings** use the now-famous *Mandelbrot equation* to do just that.

We'll discuss fractal mathematics in more detail in a later column. For now,

compare the AC and TML BASIC **Listings** to get a better feel for their similarities and differences.

If you run the Mandelbrot program, be prepared to wait a while for a complete picture to emerge. In fact, it's best to run it overnight with all but your GS' power off. That way you'll have a surprise waiting for you with your morning coffee.

Until next time, send your questions and comments to GS BASICS, *inCider*, 80 Elm Street, Peterborough, NH 03458. ■

Bob Ryan is technical editor at AmigaWorld magazine (IDG Communications/Peterborough) and is a contributing editor at inCider. Write to him c/o inCider, 80 Elm Street, Peterborough, NH 03458.

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- A/D process totally transparent to Apple (looks like memory)
- User programmable input ranges are 0 to 10 volts, 0 to 5, -5 to +5, -2.5 to +2.5, -5 to 0, -10 to 0.

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- On-board memory
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- User programmable output ranges are 0 to 5 volts and 0 to 10 volts

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Opening a Print Shop

by Cynthia E. Field, Ph.D.

It's fun, it's exciting, and it's not that much work—once you get organized." That's how Janet Iwamoto-Lees, a teacher from Alhambra, California, sums up her recent desktop-publishing venture: transforming the Fremont School's 200 fourth-, fifth-, and sixth-graders into stationery designers and salespeople and her classroom into a print shop. All with the help of **The Print Shop**—the popular creativity program from Broderbund Software.

PUBLISHING FOR ART'S SAKE

The impetus that motivates dedicated teachers like Janet Iwamoto-Lees and Linda Meyer (see "Fun-Raising Projects," Press Room, June 1988, p. 90, for a description of Meyer's cookbook-publishing efforts) to eye their Apples as partners in fund raising is the seemingly universal lack of money for those "extras" they want for their students. In Meyer's case, the "extra" was computer hardware.

Iwamoto-Lees, on the other hand, likes to take her fourth-graders on field trips "to get the kids more involved in literature and the arts." She used the \$2000-plus profit the Fremont School classes gained from selling banners, notepads, and stationery to purchase theatre tickets.

BANNERS—BIG MONEY MAKERS

Iwamoto-Lees organized her endeavor by designing separate order forms for banners, notepads, and stationery. She used her Apple II to set them up and duplicated them on a copy machine. The banner order form, for example, contained five major column headings: Name, Message, Font, Graphics, and Total. Students would jot down the customer's name, address, and perhaps phone number in the Name box. Each form accommodated six separate banner orders—from the same customer or from different patrons.



Jan Muller

The Message column included pricing information. Longer banners cost more money. A banner with up to ten characters (including spaces) cost \$1; 11-20 characters, \$2; 21-30 characters, \$3; 31-40 characters, \$4. Besides the order form, a student banner salesperson had a copy of a sheet displaying choices in fonts and graphics. Students would add up the final price of the banner (a "Happy Birthday" message with two graphics, say, would cost \$3) and write that amount in the Total column.

Iwamoto-Lees' project was restricted to the fonts and graphics available in The Print Shop package for the Apple IIe and IIc: RSVP, Alexia, News, Tech, Party (the most popular font according to Iwamoto-Lees), Block, Stencil, and Typewriter. As an option, customers could choose any one or two Print Shop graphics at an additional cost of 50 cents apiece. Broderbund Software does offer add-on disks of graphics, fonts, and borders, however, for greater variety. (See the Product Information box for details about these and

other commercially available disks of Print Shop-compatible graphics.) If you're looking for the most economical way to expand your Print Shop graphics library, investigate sources in the public domain. (Check the accompanying sidebar, "Public-Domain Print Shop Graphics," for more information.)

As you begin your desktop-publishing efforts, you're not limited to The Print Shop for designing banners, notepaper, or stationery. If you own a 128K Apple IIe or IIc, investigate two other contenders as well: Unison's **PrintMaster Plus** and Epyx's **Print Magic**. Both programs come with their own graphics, and both support graphics designed for The Print Shop.

If your school, club, or organization has a IIGS and **The Print Shop GS**, your options are even broader. You could print custom banners in color for even greater profits!

MEANWHILE, BACK IN THE CLAMOROUS CLASSROOM . . .

Each student wrote his or her name and classroom number in designated places at the top of each order form and was responsible for filling all orders taken. A disincentive? Hardly.

"The more banners sold, the more the student got to use The Print Shop," says Iwamoto-Lees. "A project like this gives the kids motivation and more access to the computer."

Turnaround time for banners was two to three days at most, since the banner project was "an ongoing thing." As students took orders, they filled them.

"In my classroom I had three ImageWriters going all day," laughs Iwamoto-Lees. Anyone who's made banners with The Print Shop or any other banner-making program knows all too well what she's alluding to. Banner publishers, especially

classroom teachers, need a good sense of humor to cope with the time and noise involved in projects like this.

SPECIAL REQUESTS

Iwamoto-Lees found that the types of banners ordered often centered around upcoming holidays such as Christmas and New Year's. Anniversary and birthday banners were popular, too.

Younger people often ordered banners with messages such as "Bill's Room" and "Keep Out." Some teenagers opted for no text—just graphics. The skull-and-crossbones graphic was among the most popular, according to Iwamoto-Lees. More romantic teens ordered banners proclaiming "Gina loves Michael," and similar heartfelt declarations.

Iwamoto-Lees estimates that her students sold nearly 200 banners. She figures that, since labor was free, each banner cost only about 10 cents for computer paper and wear-and-tear on the printer ribbon. Estimated profit? About \$700.

One option you might consider is printing your banners on continuous-form colored paper, available from a variety of mail-order firms. Raise your prices accordingly.

NOTEPADS AND STATIONERY

Iwamoto-Lees created a second order form to accommodate customers' needs for notepads and stationery. Again, each student wrote his or her name and classroom number on the form. Students carried actual notepad and stationery samples to show potential customers. Using The Print Shop, students created "master copies," which a commercial printer then reproduced on colored copier paper. Notepads, available in seven different styles, cost \$1 each. The teddy-bear design was done on purple paper; the dinosaur notepad was a gold shade.

To create a master notepad sheet like the ones Iwamoto-Lees used, boot up The Print Shop and place the desired graphic (the dinosaur, say) in the lower right-hand

corner on the front of The Print Shop's greeting-card setup. Place another graphic in the lower right-hand corner of the inside page. Print two identical cards, then fold them in fourths as usual.

Use scissors to cut the panels. Four will be blank. The other four will look like pieces of notepaper. After careful placement, paste (a glue stick works nicely) these graphics panels on an 8½-by-11-inch piece of cardboard. Take this paste-up board to a local copy center and print on colored paper. Iwamoto-Lees' notepads contained 50 sheets each. Printing 50 copies of your master would make four notepads.

To keep the pads-to-be neat, have the copy center cut the notepaper in fourths. Trying to cut perhaps thousands of sheets of paper yourself, even with a paper-cutting machine, would be too difficult.

Assembling the notepads, though time consuming, is fun. Iwamoto-Lees had the

Public-Domain Print Shop Graphics

If the hundreds of graphics supplied with The Print Shop and its commercially available add-ons don't excite you, take a look at the hundreds more available at little or no cost through the public domain.

Dynacomp, a New York software publisher, offers at least a dozen disks containing nearly 1000 Print Shop graphics—costing as little as four cents per graphic!

For example, disk volume DAP 13 from Dynacomp contains 84 graphics, including a handsome schooner, a fuming trash can, and assorted animals, including a unicorn. Action-movie buffs might enjoy the "Rambo's Knife" and

"Karate Kid" graphics. Imagine the labels you could create with the "Ex Libris" and "Ex Discis" graphics.

Best of all, if any picture isn't quite right, you can modify it with The Print Shop's Graphics Editor feature.

The following list identifies other sources of public-domain software. Write or call for catalogues listing available Print Shop graphics disks. (These programs may also be available through your local user group.) For additional sources of public-domain software see "Striking Gold in Public-Domain Software," February 1987, p. 40. □

—C.F.

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Santa Clara, CA 95050
(800) 331-8125
(408) 496-0624 (CA)

kids count out 50 sheets of notepaper, add the index-board bottom, and paint on the compound that holds the pad together.

To save time and effort, she suggests preparing pads in batches. Take 50 sheets, the index-board bottom, another 50 sheets, another index-board bottom, and so on, until you have as many pads as you can handle stacked in front of you. Then, using a household paintbrush, paint the compound onto all the pads in the batch at one time.

Padding compound is available in red or white. According to Iwamoto-Lees, it has the consistency of thick glue, is innocuous, and has no offensive odor. Weight the stack with a heavy book or other suitable object. If you're handy in the tool shop, construct a jig with screw clamps. Depending on humidity and temperature, the padding compound dries in 24 hours or less. Separate the pads manually—and deliver them to your eager customers.

The Fremont School classes sold their notepads for \$1 apiece; Iwamoto-Lees estimates the cost at about 50 cents, which includes the cost of colored paper (\$3.15 per 500 sheets), printing, cutting, index board (\$3.44 per 250 sheets), and padding compound (\$14.50 per gallon).

COLORFUL STATIONERY

Those lucky enough to buy their stationery from the Fremont School last year could select from five varieties, including a frame of sailboats at the top of their blue sheets and musical notes on gold paper.

Each stationery packet contained ten sheets of printed paper, ten sheets of plain color-matched paper, and ten color-matched envelopes (\$6.23 per 500). The stationery was packaged in a 9-by-12-inch Zip-loc (TM) bag (about eight cents each).

Iwamoto-Lees estimates the cost of each packet, which sold for \$2.50, at about 65 cents. The school made about \$1000 on this phase of the project alone. Selling custom letterhead (with name and address in your choice of type style, plus graphic) wasn't a practical option for Iwa-

moto-Lees's classes, but offering this service could boost your organization's sales and profits. Much more work would be involved: taking orders carefully to be sure you spell everything correctly, typing, proofing, and printing small batches.

THREE PUBLISHING PROJECTS FOR EVERYONE

Imagine the field trips your students could enjoy as a result of these desktop-publishing projects: the aquarium, the ballet, the arboretum, the philharmonic, nature walks, even whale watches. It seems the Alhambra School District is on to a good thing. And from this consumer's point of view, cookbooks, banners, notepads, and stationery sure beat fat-

tening candy bars and unneeded magazine subscriptions.

Even if you're not profit-minded, you can still use Iwamoto-Lees' system to create gifts for family and friends. Name someone who can't use all the notepads he can get his hands on. And most people would love to receive birthday banners instead of ordinary greeting cards. How many people would turn down custom-letterhead stationery—especially if you created it in color with The Print Shop GS? ■

Cynthia Field is the author of Field Trip, inCider's column on educational software. 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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				143	Silicon Express	55
				64	Silver Burdett & Ginn	92
				292	Softdisk	1
				96	Softronics	92
				270	Software Discount of Am.	25
				*	Southern Cal. Research Grp.	93
				160	Strategic Simulations, Inc.	CV2
				239	StyleWare, Inc.	2, 3
				156	subLOGIC Corp.	36
				78	TCX Ltd.	94
				130	Top "20" Plus	67
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				175	Video Tech	
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					Zimco	39

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CLASSIFIEDS

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THE FINANCIAL PLANNER

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Continued on p. 89

NEW PRODUCTS

edited by Pat O'Dell

Hardware

LASER LABELS

Now you can print your **mailing labels on a laser printer**, thanks to a new product from Avery. Laser labels feed into your printer automatically, letting you print large batches at once, and are specially designed to stand up to the heat of a laser printer. They're available in a variety of colors and sizes, priced at \$7.32 for a 25-sheet package or \$24.89 for a 100-sheet box. For more information, contact Avery Consumer Products Division, 818 Oak Park Boulevard, Covina, CA 91724, (800) 535-3232 x30, or circle Reader Service number 353.

COPYCAT

The CoPy Box, a new release from CoPy Master, lets you **duplicate disks** quickly. The machines can copy 60-70 disks per hour of unattended use. The CoPy Box is available for \$2750 for the 5¼-inch version and \$2950 for the 3½-inch version from CoPy Master, Inc., P.O. Box 615, Reading, PA 19603, (215) 372-6444. Circle Reader Service number 354 for more information.

NEVER STOP

The Omnipower **battery-backup system** from Tripp Lite protects your computer system from lengthy brownouts, monitors the line voltage into your computer, and supplies power as needed.

Omnipower has four outlets and is available in two models: Omni-450 supplies 450 watts of power (sufficient for most per-



The Omnipower battery backup from Tripp Lite will protect your computer from power loss and brownouts.

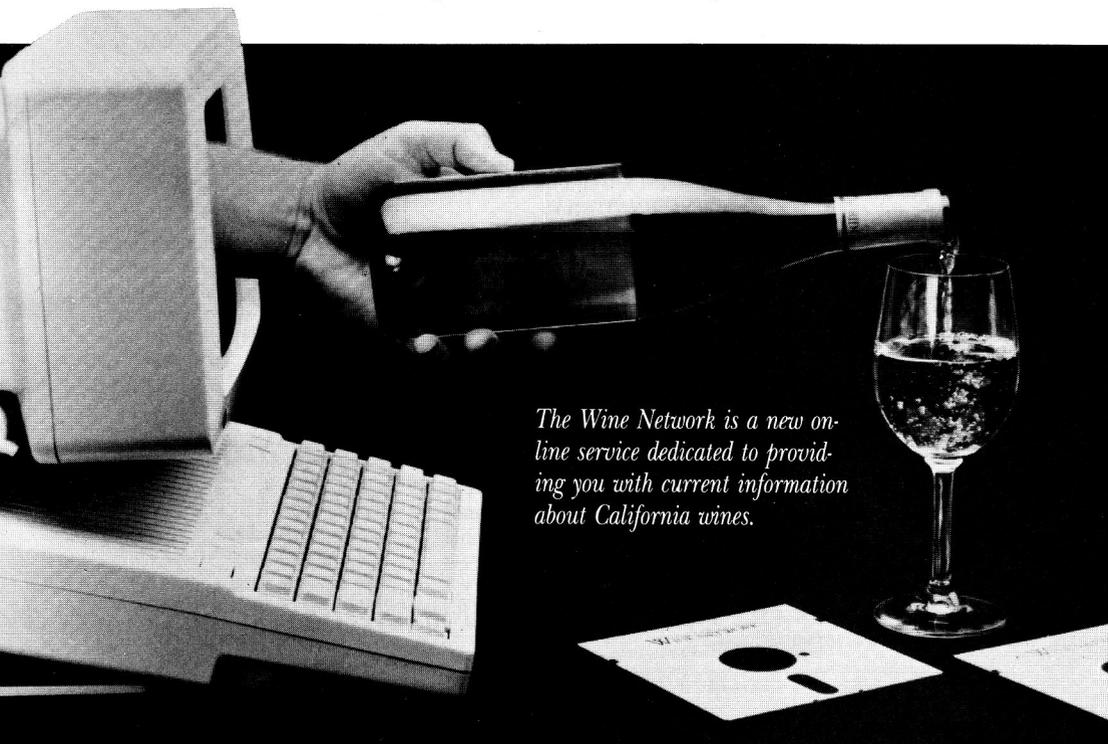
sonal-computer systems), while the Omni-1200 outputs 1200 watts. The units are available for \$729 and \$1349, respectively, from Tripp Lite Manufacturing Company, 500 North Orleans Street, Chicago, IL 60610, (312) 329-1777. For more information, circle Reader Service number 355.

Resources

WINE AND DINE

With the Wine Network you'll get plenty of information about new **wines**—via your

computer. You'll also be able to use this on-line service to order your favorite vintages. Subscribers can browse through lists of new wine releases, notes on wine tastings, and upcoming wine-release schedules. The service also provides access to winery profiles, recipes, and a calendar of events. For a free computer tour of the Wine Network, log on at (707) 963-9101. Subscriptions to the Wine Network are available for \$55 per year. For more information, contact Robert M. Bruno's Wine Network, 930 Dowdell Lane, St. Helena, CA 94574, (707) 963-9098, or circle Reader Service number 357.



The Wine Network is a new on-line service dedicated to providing you with current information about California wines.

Product descriptions contained in this section are based on information supplied to us by the respective manufacturers. These announcements are provided solely as a service to our readers and do not constitute endorsement by inCider of any given product.

Software

PINT-SIZED

Scholastic Software is offering kids a new series of **interactive programs**. Microzine JR. consists of five issues, each of which contains four interactive programs. Designed for children aged 6-9, the programs teach early reading, language, and computer skills in ways that appeal to kids' imaginations. Microzine JR. is available in both school and home editions, priced at \$169 for the series and \$29.95 each, respectively. The school edition includes a teaching guide, student handbook, and poster. Order from Scholastic Software, Scholastic Inc., P.O. Box 7502, 2931 East McCarty Street, Jefferson City, MO 65102, (800) 325-6149, (800) 392-2179 (MO). For more information, circle Reader Service number 350.

ELECTRONIC EVOLUTION

Help your kids learn all about **dinosaurs** with *Dinosaurs Are Forever*. The newest of the Electric Crayon Deluxe

The Audubon Wildlife Adventure Series casts youngsters in the role of investigator to teach them about nature.

computer coloring-book series from Polarware, *Dinosaurs Are Forever* helps kids learn what dinosaurs were really like—how they evolved, how big they were, and what they ate. The program is available for \$29.95 from Polarware, 1055 Paramount Parkway, Suite A, Batavia, IL 60510, (312) 232-1984. Circle Reader Service number 351 for more information.

GO WILD

The Audubon Wildlife Adventure Series, new from Advanced Ideas, helps kids get excited about **nature**. There are four titles in the series—Grizzly Bears, Whales, Sharks, and Poacher Patrol. In all four programs, children play multiple roles. In *Poacher Patrol*, for example, they can choose whether to be an undercover agent or an informer. The series is intended for children aged 9 and up. Each program is \$49.95 for the standard version, \$79.95 for the IIGS version, and \$79.95 for the school edition, from Advanced Ideas, 2902 San Pablo Avenue, Berkeley, CA 94702, (415) 526-9100. For more information, circle Reader Service number 352.

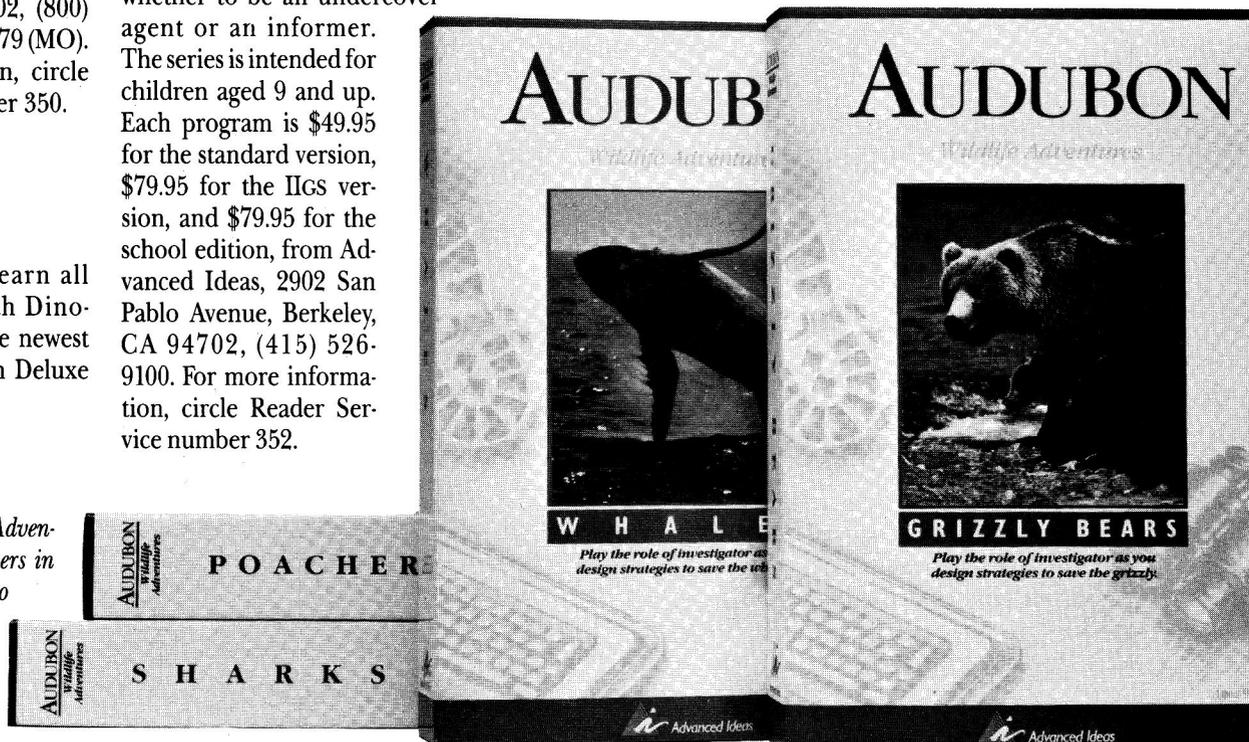
Product Updates

•RolandCorp US is now offering an upgraded version of its MC-500 MIDI microcomposer. Called the **MC-500 Mark II**, the new version can record up to eight tracks, each with 16 different MIDI data parts. For more information, contact RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040-3647, (213) 685-5141.

•Activision is offering GS owners an opportunity to upgrade to **Paintworks Gold**. To qualify, you must send Activision page 1 from your existing paint-program manual and a check for \$40 to Paint-

works Upgrade, Activision Inc., P.O. Box T, Gilroy, CA 95021-2249. (Add \$3.50 shipping and, if you're a resident of California, 6½ percent sales tax.) Activision is making this offer to owners of all GS paint programs. For more information, contact Activision, Inc., P.O. Box 7286, Mountain View, CA 94039, (415) 960-0410.

•**Video Technology Computers, Inc.**, the company that sells the Laser 128 computer, has moved to new offices. The new address is 550 East Main Street, Lake Zurich, IL 60047, (800) 551-5742. In Illinois, call (312) 540-8086.



Serendipitous Software

by Cynthia E. Field, Ph.D.

In laboratories the world over, professional scientists have been using computers for years. Now, young scientists living in your home can train and even set up shop—with any Apple II.

This Field Trip begins a two-month focus on science programs that reflect many disciplines and various approaches to learning. In preparation, I previewed more than two dozen software packages and, as Darwin might have said, only the fittest have survived such scrutiny.

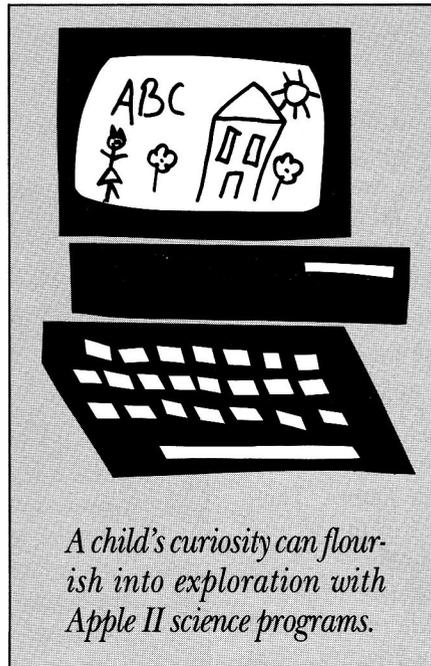
I've saved rocketry and astronomy programs for next month's Field Trip, "Space Odyssey." For now, let's look at three programs that deal with general science and human anatomy and two packages (one brand-new!) that let your child set up his or her own research lab.

CONCENTRATING ON SCIENCE

Most parents would agree that younger kids love games that mimic the golden-oldie TV show *Concentration*. Software designers have picked up on this appeal and created programs in which children choose sets of windows in the calculated hope that the objects hidden behind the window shades match. That's the idea behind **Master Match** from Advanced Ideas. Each colorful graphics game in this program challenges children to make correct picture/word, fill-in-the-blank, or equation matches.

The proverbial wise old owl moderates each game. Rather than simply uncover each window you choose, he pulls down the contents and displays them side by side at the bottom of the screen, for easier comparison. He turns his head left and right, converses via mouth balloons, and keeps score. Your child can play alone or with a competitor.

The Master Match program disk contains not only scientific categories (Flowery



Jan Muller

Words, Animal Sounds), but information about topics ranging from U.S. geography to arithmetic (Count and Match) to foreign languages (Opposites—Spanish).

One nice feature, besides the program's inexpensive price and low 48K memory requirement, is Master Match's appeal to all age levels. On the Science and Math disk, for example, there are categories to challenge young scientists (Animal Parts, All About Plants) and their more mature laboratory assistants (Solar Power, Mass Words, You and Your Senses). Older children or parents can create custom games or edit existing ones through the Author Work Menu. Alternative character sets provide the rudiments for drawing your own graphics, but you may find the results dissatisfying. Stick with text-based information.

Creating their own special games is an entertaining way for children to review their science homework, or even better,

apply the information they learned during a family outing to the aquarium, zoo, city park, or science museum.

MORE QUIZ-SHOW SCIENCE

A second, NEA-certified (National Education Association) program from Advanced Ideas, **The New Game Show**, helps kids enjoy learning about science and other subjects through a strikingly appealing format.

This program's graphics almost make it look like a real TV game show, complete with set, cameraman, studio audience, and scrolling credits. Of course, there's the ever-smiling moderator and two celebrity partners, Nora and David. Nora provided the hints (via mouth balloons) that helped me figure out correct answers. David helped my competitor.

Nora and David are a scream. They smile, fidget if you take a long time to come up with an answer (you type it in), and wave their arms excitedly when you deduce correctly. As in some TV game shows, the more hints you need, the lower your score.

The New Game Show program disk contains 40 assorted categories that cover virtually all curriculum areas and appeal to budding geniuses aged 6 and up. For a modest \$19.95 each, you can purchase supplementary disks, such as the Science—Grades 3 & 4 and Science—Grades 5 & 6 disks I experimented with for this column.

Topics on the 3rd- and 4th-grade science disk include Magnets and Electricity, Light, Weather and Temperature, Human Body, Plant Life, Food Chain, Water Environment, and Insect World—enough areas to satisfy even the most cosmopolitan scientists. The 5th- and 6th-grade science disk offers categories with more advanced information: Vertebrates, Digestion, Nervous System, Heredity,

Ocean Environment, Changes in Matter, and Electronics.

Like Master Match, The New Game Show features an authoring system whereby you create your own game questions. You can include a minimum of 20 items in a topic and up to ten clues per item. The authoring system employs simple codes you type into an answer to accommodate various correct responses. According to the program manual, for instance, if you want the game to accept either "KENNEDY" or "JFK" or "J.F.K.," you would type in "KENNEDY@JFK@J.F.K." when composing your game.

The New Game Show provides an enticement for youngsters to learn more about science—and other areas as well. They learn to discern information the clues provide, to jolt their memory banks, and to make Nora and David proud. I can't wait for Advanced Ideas to release a "talking" GS version! (This edition runs on any 64K Apple II.)

NAME THAT BONE

Sometimes science is all fun and games, but it has its serious side, too. Anyone who's had to learn the difference between the pancreas and the patella knows how difficult it can be to remember seemingly infinite anatomical details. Ask all the moms and dads who are medical professionals!

No doubt they'd have given an arm and a leg for Dr. Harold J. Peters' series of anatomical study aids, **Body Language**, to help them learn to identify body parts. After all, it's rarely convenient—or permitted—to take skulls or intestines home from lab. Pictures in books are okay, but they're not interactive.

Body Language, now available to students at low cost, covers more than 2000 terms associated with the eight major systems of the body. Each disk is filled with surprisingly good graphics (it requires only 64K), based on those published in the fifth edition of *Principles of Anatomy and Physiology* by Tortora and Anagnostakos (Harper & Row, 1986).

For example, one Skeletal System disk (there are four covering this system) contains diagrams of various aspects (anterior, posterior, inferior, lateral) of the skull, its component bones, and sinuses.

inCider

When using Body Language, you first watch as the program labels the parts one by one. Body Language also provides the phonetic spelling of each part. Often, just pronouncing the names of some of the structures—such as the intervertebral foramen ("in-ter-VER-te-brull fo-RAY-mun")—seems to require an advanced degree! Next, the program displays the diagram, but this time *you* label the part: Using cursor keys, move the on-screen label into its proper place. You might want to use a mouse or joystick to speed up this process, but the program doesn't permit it. (Dr. Peters tells me he's considering support for alternative input devices in future projects.)

The final step in mastering the fine points of anatomy is to meet the Recall Drill challenge. Here Body Language presents the diagram without labels. The program points to a structure, and you identify it.

Like other good-quality educational products before it, Body Language presents drills based on the student's performance in sequence. If you're having problems with a particular term, expect the program to repeat it more often, until you've mastered its definition. The program uses a system called VIPQ (Variable Interval Performance Queuing), a process the user's guide likens to reshuffling flashcards but stacking the deck so that cards you didn't identify properly pop up more often than others.

Body Language isn't intended as a substitute for hands-on experience in an anatomy lab, nor does it replace your textbook or class notes. Body Language is more like *Cliff's Notes* for overwrought anatomy students.

If your son or daughter can't make cranium nor coccyx of anatomical structures, consider one or more of Dr. Peters' disks. The series would be useful, too, for parents continuing their medical educations.

SETTING UP SHOP

At least two hardware/software combination packages let you turn your 64K Apple into a data collection/analysis system. It's as easy as plugging in a joystick.

Broderbund's **Science Toolkit:Master**

Module includes a special interface box and two probes—a thermistor and a photocell. Using these tools, along with the four graphics instruments (thermometer, light meter, timer, and strip chart) available on disk, your child can perform nearly unlimited kinds of experiments.

Broderbund also offers Science Toolkit enhancement products—**Speed and Motion**, **Earthquake Lab**, and **The Body Lab**, to begin with—that extend your child's collection of scientific instruments and his or her curiosity. (See Reviews, July 1988, p. 37.) Program manuals include clear instructions for studies demonstrating the effectiveness of various methods of seed dispersal, the amount of light different colors reflect, the top speed a balloon-powered car can achieve, the construction materials that best resist vibration—and lots more.

The newer science-lab package comes from Sunburst Communications. **Playing with Science:Temperature** focuses in-depth attention on temperature-over-time experiments. The "hardware" consists of a three-way adapter that plugs into the Apple's game port at one end and accommodates three color-coded temperature probes at the other. (On the IIc you use only two of the probes.)

The manual, which is really a teacher's guide, includes 33 activities for children aged 5–13. Experiments are organized into categories, including Thermometers, Earth Science, Control of Variables, Human Physiology, and more. While younger children require some parental assistance in performing experiments, older children can probably "wing it."

A terrific Saturday-morning project would be making your own hardware "spares." The Sunburst manual shows you how to construct an Apple interface, thermistor probes, and extension cable from parts available at electronics stores like Radio Shack. A little soldering is as complicated as it gets.

I like both Science Toolkit:Master Module and Playing with Science:Temperature. They both offer pleasant, graphics-based, easy-to-use interfaces. (According to Matt Thompson at Broderbund's quality-assurance department, however, the company's had problems

Product Information

Body Language:

A Review of

Anatomical Terms

ages 15 and up

Cardiovascular System

Digestive System

Nervous System

\$9.99 each (student pricing)

2 disks per system

Muscular System, \$14.99

(student pricing)

3 disks

Reproductive System

Respiratory System

Urinary System, \$5.99 each

(student pricing)

1 disk per system

Skeletal System, \$19.99

(student pricing)

4 disks

Demonstration Disk, free upon request

Educational Software Products

12 Bella Vista

Iowa City, IA 52240

(319) 354-3095

Reader Service Number 323

Master Match, \$39.95

ages 6 and up

supplementary disks (require Master

Match program):

Basic Skills

ages 6-9

Science and Math

ages 6-9

Math and Social Studies

ages 9-11

Foreign Languages

ages 11-adult

\$19.95 each

The New Game Show, \$39.95

ages 6-adult

supplementary disks (require The

New Game Show program):

Science—Grades 3 & 4

Science—Grades 5 & 6

Language Arts—Grade 3

Language Arts—Grade 4

Language Arts—Grade 5

Language Arts—Grade 6

Social Studies—Grade 3

Social Studies—Grade 4

Social Studies—Grade 5

Social Studies—Grade 6

You & Your World

ages 6-9

Win with Words I

ages 6-9

Win with Words II

ages 9-11

People, Places, & Things

ages 9-adult

Movies & Television

ages 15-adult

Foreign-Language Words

ages 11-adult

\$19.95 each

Advanced Ideas

2902 San Pablo Avenue

Berkeley, CA 94702

(415) 526-9100

Reader Service Number 324

Playing with Science:Temperature,

\$99

ages 5-adult

Word Detective, \$65

ages 8-adult

Sunburst Communications

39 Washington Avenue

Pleasantville, NY 10570

(800) 431-1934 (U.S.)

(800) 247-6756 (Canada)

(914) 769-5030 (collect from Alaska)

Reader Service Number 325

Science Toolkit:Master Module,

\$79.95

ages 10 and up

supplementary modules (require

Master Module):

Module 1: Speed & Motion

Module 2: Earthquake Lab

Module 3: Body Lab

\$39.95 each

Broderbund Software

17 Paul Drive

San Rafael, CA 94903-2101

(415) 492-3200

running Science Toolkit in 80-column mode on the GS; he recommends GS users run the program in 40-column mode at standard speed.)

Perhaps not surprisingly, Sunburst's product is a tad more academically oriented—it includes more options for analyzing and printing data and graphs, for instance. And, with three probes, you can perform real-time comparison experiments.

Broderbund's product is appealing if you want to widen your experimental options and include studies of light and motion. Depending on your child's current interest and future science-fair expectations, either "toolkit" would be a worth-

while addition to your Apple II media center.

UPDATE: WORD GAMES

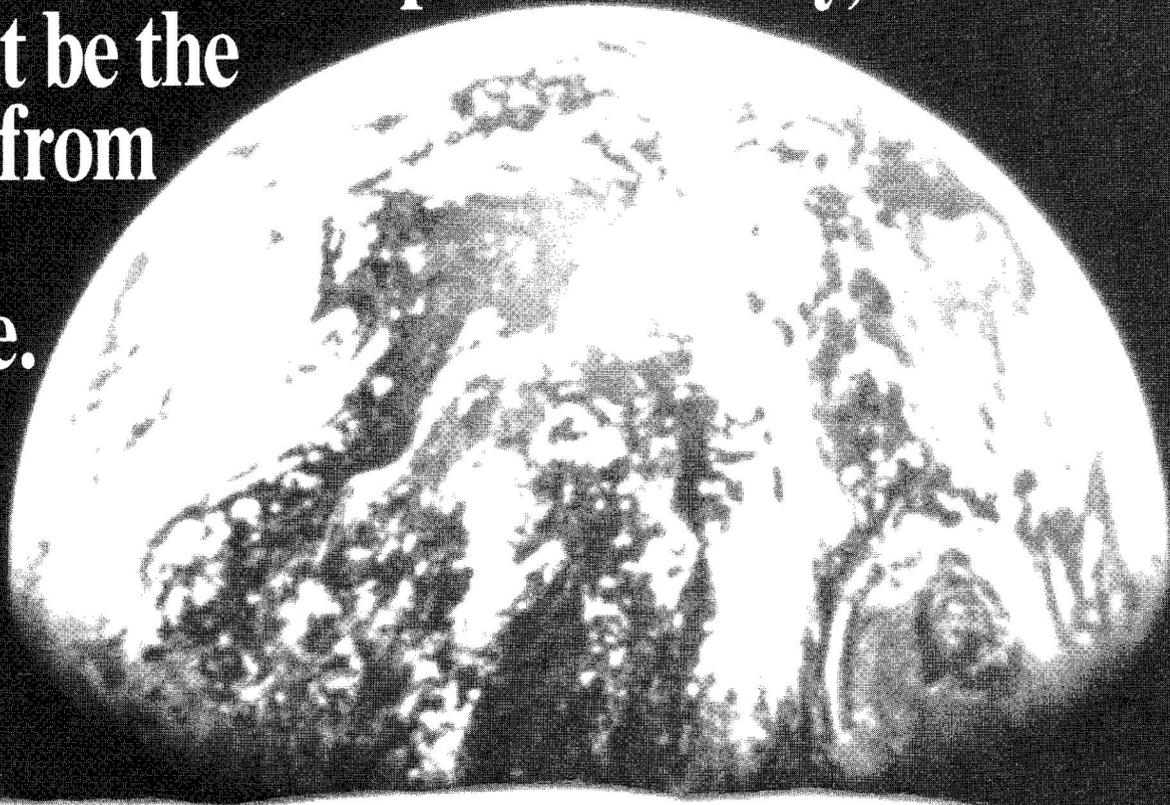
Field Trip will cover reading programs sometime soon—if only for the benefit of yours truly. Describing Sunburst's **Word Detective** in "Apple Word Play" (February 1988, p. 84), I noted that "the only enhancement I'd like to see is the ability to add words to the [program's built-in] dictionary." Program author Kathleen Magnuson was way ahead of me!

Claire Kubasik at Sunburst reminded me about the Teacher Options Menu, a Sunburst program feature I had over-

looked when playing Word Detective. Accessed via a Control-T command, the Teacher Options Menu includes utilities for setting up your printer, customizing various student activities, and—in Word Detective—adding words to (or deleting them from) the program's dictionary. I apologize for the oversight and promise to read manuals more closely. ■

Cynthia E. Field is a free-lance journalist specializing in computer-related topics and is the author of Press Room, our 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.

If the space program had advanced as fast as the computer industry, this might be the view from your office.



And space stations, Martian colonies, and interstellar probes might already be commonplace. Does that sound outlandish? Then bear these facts in mind:

In 1946 ENIAC was the scientific marvel of the day. This computer weighed 30 tons, stood two stories high, covered 15,000 square feet, and cost \$486,840.22 in 1946 dollars. Today a \$2,000 portable can add and subtract more than 20 times faster. And, by 1990, the average digital watch will have as much computing power as ENIAC.

The collective brainpower of computers sold in the next two years will equal that of all computers sold from the beginning to now. Four years from now it will have doubled again.

It's hard to remember that this is science fact, not fiction.

How do people keep pace with change like this? That's where we come in. We're CW Communications/Inc. — the world's largest publisher of computer-related newspapers and magazines.

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In the United States, we have twelve publications: *Computerworld*, *InfoWorld*, *Micro MarketWorld*, *Network World*, and *Digital News* serve computer and communica-

tions professionals, including MIS executives and professionals, communications managers, executives at reseller organizations, micro experts, and industry executives and marketers.

We also have six publications which concentrate on specific personal computers and their compatibles. *PC World* (IBM), *MacWorld* (Macintosh), *inCider* (Apple II), *80 Micro* (TRS-80), *RUN* (Commodore C-128/C-64) and *AmigaWorld* (Commodore Amiga). And we have a new publication dedicated to the emerging field of desktop publishing: *Publish!*

And we have similar publications in every major computer market in the world. Our network publishes over 70 computer publications in more than 25 countries — Argentina, Australia, Austria, Brazil, Chile, Denmark, Finland, France, Greece, Hungary, India, Israel, Italy, Japan, Mexico, The Netherlands, Norway, People's Republic of China, Saudi Arabia, Singapore, South Korea, Spain, Sweden, Switzerland, United Kingdom, United States, Venezuela, and West Germany.

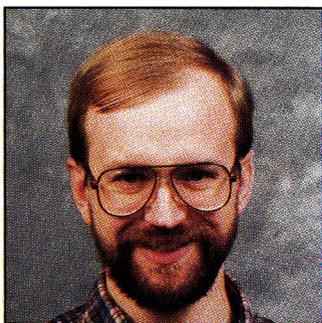
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The Name of the Game Is Compromise



by Scott Mace

"Introducing such complex elements as politics and astrology adds more to a game than new monsters ever will."

Beating the tradeoff between innovation and low-memory compatibility—that's the goal game authors are aiming for as they continue to shape the evolution of the Apple II fantasy genre. The result? Two of the most elaborate adventures ever released—**Ultima V: Warriors of Destiny**, from Origin Systems (136 Harvey Road, Londonderry, NH 03053, 603-644-3360, \$59.95), and **Bard's Tale III: Thief of Fate**, from Electronic Arts (P.O. Box 7530, San Mateo, CA 94403, 415-571-7171, \$49.95), designed to run on the entire Apple II family, including the II Plus.

Companies seeking to improve their games, particularly sequels, often just pour more dungeons and caverns into them. That requires adding more floppy disks to the package, or compressing more data

onto each disk—two simple steps. But to truly progress—adding new, exciting features and taking advantage of the IIGS' speed and increased memory—publishers have to move to 128K games. As long as the buying public continues to demand that every game run on the II Plus and other low-memory systems, though, that won't happen.

Now, I'm not asking you to abandon your beloved II Plus. But think about it, because a game with twice as many dungeons as its predecessor can end up being a crashing bore. Recognizing that, I commend Origin Systems and Electronic Arts for upping the ante in fantasy role-playing games by adding a number of innovations to the Ultima and Bard's Tale lines. Brace yourself for more monsters, deeper dun-

geons, vaster worlds, and trickier puzzles than ever before. Unfortunately, only the faithful and the fanatic can finish these ambitious adventures, while the rest of us just marvel at their dedication.

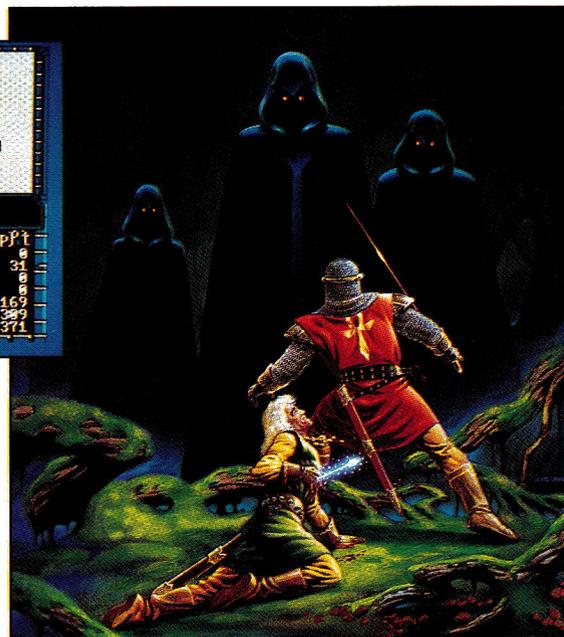
THE POLITICAL FACTOR

Ultima V, after two-plus years in the making, is clearly the more intricate and finely polished of the two. Thief of Fate may be more innovative, but it looks as though the company rushed it to market.

In Ultima V, Lord British, the benevolent ruler of Britannia, is lost on an expedition to the vast reaches of a newly discovered underworld. Panic erupts in Britannia when the sole survivor returns with horror stories. To restore peace, Lord British's trusted but ambitious subject Blackthorn

Character	HP	Hits	Cond	SpPt
1 Ironpants	-21	659	659	0
2 Greenbolt	-42	624	621	31
3 Backstabber	-24	417	417	0
4 El Cid	-28	738	738	0
5 Corwin	-9	589	589	16
6 Lorini	-12	418	418	389
7 Redbeard	-9	471	471	371

Above, the animation's better than ever in Bard's Tale III. Right, rescuing Ultima V's Lord British demands more than the usual battle skills: You'll need political savvy and an awareness of the significance of astrology, too.



seizes control of Britannia. He rules too well, meting out severe punishments for the mildest crimes. You must stop him by rescuing Lord British.

Success demands not only battle skills, but also a keen awareness of the forces at work in Britannia, particularly politics and astrology. Introducing these complex elements adds more to a game than new monsters ever will.

You'll be fascinated to see Britannia's development—towns grown or rebuilt, newly discovered islands, more sophisticated sailing vessels. But the underworld is the same size as Britannia and threatens to drag the game down with it. Ultima V is just too huge and, ultimately, too tedious.

A ROGUE AMONG US

Although Thief of Fate is the third Bard's Tale, the Bard and his songs aren't the most important elements. As the title suggests, a thief character, known as the Rogue, holds the key to success. His role is to hide in the shadows and occasionally decide a battle's outcome by jumping out and attacking your foe from behind.

With the main city of Skara Brae in ruins, you won't find the weapons shop or the Adventurers Guild. You travel to seven locations outside Skara Brae; from these sites you teleport to different dimensions in your search for various objects to help you stop the mad god Mangar from conquering the world.

These developments improve game play. For instance, you can now save your game position anywhere you travel, instead of returning to the Guild as in previous Bard's

Tales. In those earlier games a ten-member review board advanced your abilities; here only one member, the Old Man, remains.

One note for true fantasy buffs: Ultima's city of Skara Brae isn't the same community as the Skara Brae you'll find in Bard's Tale, nor is some secret place in one town a gateway to the other game. Skara Brae is the inspiration of Roe Adams III, a longtime game expert who helped design both Ultima IV and Bard's Tale I. Adams says he liked the name of this prehistoric Celtic village, which is actually located on the coast of the main Orkney isle off Scotland.

Much of Thief of Fate's razzle-dazzle is modestly improved over its predecessors'. Animation, including changing facial expressions, is better than ever. The automap feature illustrates the game's innovation best: It keeps track of where you are in the various dungeon passages you're exploring, even when your flame goes out. You'll enjoy not having to take graph paper and pencil in hand as often.

Intricate puzzles, exciting stories, and elaborate schemes are welcome additions to the Apple II gamer's library of fantasy adventures—but for this genre to continue coming of age, manufacturers need to take advantage of the latest Apple II hardware. Let's hope the Ultima and Bard's Tale lines continue to evolve in that direction. ■

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.

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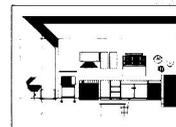
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Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what *Hints/Techniques* is all about. It's an information swap for readers who want to share their programming pointers, DOS tips, hardware secrets, AppleWorks applications, WPL enhancements, and all those other insights that make you go "Aha!" in the night.

REM Stripper

by Peter Meyer

If you're developing large Applesoft applications and memory or disk space is getting tight, Stripper will prove handy. By stripping REMs (remark statements) from an Applesoft program, this 6502 assembly-language routine can shorten a program.

To create REM Stripper, type in Stripper Maker (**Listing 1**) and run it. BSAVE STRIPPER, A\$8000,L232 on your disk for later use. It's relocatable, so you can BRUN it starting at virtually any address.

To use the routine, just LOAD your Applesoft program, then BRUN STRIPPER. The program in **Listing 2** illustrates Stripper's effects: It removes the remarks from all REM statements in the Applesoft program, leaving only a line number and the word REM. Also, as this listing demonstrates, Stripper works on all REM statements except those in lines numbered less than 100 and those in which a double-quote sign follows REM. This preserves title REM statements at the start of a program and also allows for protected REM statements. Stripper concludes by indicating the number of bytes by which it has shortened your program. ■

Write to Peter Meyer at 2215-R Market St. #485, San Francisco, CA 94114.

Listing 1. Stripper Maker.

```
10 REM Applesoft BASIC REM Stripper MAKER [3033]
20 REM by Peter Meyer [1539]
30 REM Copyright 1988, inCider [2221]
50 FOR I = 32768 TO 32999: READ N: POKE I,N: NEXT I [2161]
60 PRINT "BSAVE as STRIPPER from A$8000 to E$80E8": END
   [3204]
100 DATA 165,103,164,104,133,26,132,27,165,176 [2091]
110 DATA 72,165,175,72,160,1,177,26,240,8 [1861]
120 DATA 169,174,32,237,253,24,144,25,165,175 [2109]
130 DATA 164,176,133,105,132,106,32,142,253,104 [2159]
140 DATA 56,229,175,170,104,229,176,32,36,237 [2098]
150 DATA 76,142,253,160,3,177,26,208,7,136 [1951]
160 DATA 177,26,201,100,144,32,160,3,200,177 [2035]
170 DATA 26,240,25,201,178,208,247,132,28,230 [2109]
180 DATA 28,200,177,26,240,15,201,32,240,247 [2061]
190 DATA 201,34,240,4,208,5,208,172,24,144 [2003]
200 DATA 117,160,1,177,26,133,61,136,177,26 [2078]
210 DATA 208,2,198,61,133,60,198,60,165,175 [2068]
220 DATA 164,176,133,62,132,63,165,26,24,101 [2110]
230 DATA 28,133,66,165,27,105,0,133,67,165 [2029]
240 DATA 60,56,229,66,133,64,165,61,229,67 [2055]
250 DATA 133,65,165,175,56,229,64,133,175,165 [2214]
260 DATA 176,229,65,133,176,160,0,240,2,208 [1848]
270 DATA 181,32,44,254,165,26,164,27,133,80 [1895]
280 DATA 132,81,24,160,1,177,80,240,29,160 [1844]
290 DATA 4,200,177,80,208,251,200,152,101,80 [1909]
300 DATA 170,160,0,145,80,165,81,105,0,200 [1850]
310 DATA 145,80,134,80,133,81,144,221,160,0 [1885]
320 DATA 177,26,170,200,177,26,133,27,134,26 [1992]
330 DATA 208,193 [625]
```

Listing 2. Stripper Demo.

```
1 REM Stripper Demo [1489]
2 REM by Peter Meyer [1521]
3 REM Copyright 1988, inCider [2194]
4 GOTO 10 [272]
5 PRINT CHR$(4)"SAVE STRIPPER.TEST" [1957]
6 : [64]
10 TEXT : HOME [356]
99 REM PM, 6/21/86 [899]
100 REM LINE 100 [783]
110 : [168]
200 REM "LINE 200 [950]
250 I = 1: REM LINE 250 [1327]
350 REM "LINE 350 [819]
400 I = 2: REM LINE 400 [1220]
500 I = 3: REM "LINE 500 [1356]
63999 REM LINE 63999 [1318]
```

Dazzle Draw Picture Loader

by Michael Ko

Try BLOADing a hi-res Dazzle Draw picture, and the result is a mixed-up picture on screen. This occurs because Dazzle Draw requires double-hi-res mode, but HGR (or HGR2) turns on only your Apple's standard hi-res mode. The two accompanying listings turn on your Apple's double-hi-res and load your Dazzle Draw picture.

Listing 3. Set double-hi-res mode and clear your screen.

```
300:AD 50 C0 AD 52 C0 AD 57
308:C0 8D 01 C0 8D 0D C0 AD
310:5E C0 AD 54 C0 20 26 03
318:AD 55 C0 20 26 03 AD 54
320:C0 60 AD 55 C0 60 A9 00
328:85 26 A9 20 85 27 A0 00
330:A9 00 91 26 C8 D0 FB E6
338:27 A5 27 C9 40 90 EF 60
```

Listing 4. Picture Loader.

```
10 REM Dazzle Draw Picture Loader [2663]
20 REM by Michael Ko [1390]
30 REM Copyright 1988, inCider [2221]
60 DS = CHR$(4) [736]
90 HOME [241]
100 REM LOAD SUBROUTINE [1478]
110 PRINT DS"BLOAD SUBROUTINE" [1638]
120 REM GET FILE NAME [1259]
130 INPUT "Enter NAME of picture : ";AS [2484]
140 PRINT "INSERT picture disk then press ANY KEY..."
    [3837]
150 GET AN$ [519]
160 REM CHANGE PICTURE INTO READABLE FORM [2674]
170 PRINT DS"BLOAD "AS",AS2000" [1422]
180 PRINT DS"BSAVE "AS".II,AS4000,LS2000" [1991]
190 REM DRAW PICTURE [1306]
200 CALL 768 [505]
210 PRINT DS"BLOAD "AS".II,AS2000" [1654]
220 CALL 802 [514]
230 PRINT DS"BLOAD "AS [1075]
240 GET AN$: TEXT : HOME : END [1199]
```

Type in Listing 3 and BSAVE it as SUBROUTINE,AS300,L\$40. When executed (CALL 768), it turns on double-hi-res mode and clears the screen. Now type in Picture Loader (see Listing 4), which loads your Dazzle Draw picture into the double-hi-res screen.■

Write to Michael Ko at 1808 Country Club Drive, Cherry Hill, NJ 08003.

Timer

by Perry Meade

Having difficulty accessing the real-time clock on the IIGS? Try Timer (see Listing 5), an Applesoft BASIC program

that POKEs into memory a machine-language program that accesses the ReadAsciITime tool.

Program lines 10-100 demonstrate how to access the clock. The actual machine-language clock driver is POKEd into memory locations \$300-\$315 in lines 60000-60100. You need to access Timer only once, at the start of the pro-

In many applications involving timing, you're interested in the number of seconds elapsed between two events. For this reason, the value of the current time is translated into seconds in the variable TS. To calculate the time required for completion of a certain process, simply GOSUB 50000 before and after the op-

Listing 5. Timer accesses the GS clock.

```
10 REM IIGS Clock Interface with BASIC [2851]
20 REM by Perry Meade [1519]
30 HOME : REM Copyright 1988, inCider [2494]
40 GOSUB 50000: REM Access Clock [1815]
50 VTAB 10: HTAB 10: PRINT "Current time: ";TIMES$ [2616]
60 HTAB 10: PRINT "Current hour: ";HH$ [2165]
70 HTAB 10: PRINT "Current minutes: ";MM$ [2512]
80 HTAB 10: PRINT "Current seconds: ";SS$ [2512]
90 HTAB 10: PRINT "Current time in seconds: ";TS [3197]
100 GOTO 40 [371]
49990 REM Routine to read the time at address 825 throug
    h 832 decimal. [5701]
49995 REM HH$,MM$,SS$ contain character strings, TS =
    time in seconds [5500]
50000 CALL 768 [580]
50010 IF PEEK (825) > 160 THEN GOTO 50050 [1899]
50020 HH$ = "0" + CHR$ ( PEEK (826) ) [1778]
50030 HRS = ( PEEK (826) - 176) * 3600 [2060]
50040 GOTO 50070 [738]
50050 HH$ = CHR$ ( PEEK (825) - 128) + CHR$ ( PEEK (
    826) - 128) [3182]
50060 HRS = VAL (HH$) * 3600 [1673]
50070 MM$ = CHR$ ( PEEK (828) - 128) + CHR$ ( PEEK (
    829) - 128) [3218]
50080 SS$ = CHR$ ( PEEK (831) - 128) + CHR$ ( PEEK (
    832) - 128) [3228]
50090 TS = HRS + VAL (MM$) * 60 + VAL (SS$) [2693]
50100 TIMES$ = HH$ + ":" + MM$ + ":" + SS$ [2546]
50110 RETURN [562]
60000 REM [540]
60010 REM Routine sets up clock access [3214]
60020 REM 2nd data statement specifies starting address
    $348 [5139]
60030 FOR J = 1 TO 22 [1113]
60040 READ X [593]
60050 POKE 767 + J,X [1135]
60060 NEXT J [594]
60070 RETURN [577]
60080 DATA 24,251,194,48,244,0,0 [1575]
60090 DATA 244,48,3 [984]
60100 DATA 162,3,15,34,0,0,225,56,251,226,48,96 [2335]
```

gram, before attempting to read the clock.

Calling the subroutine starting at line 50000 with the command "GOSUB 50000" invokes the routine stored in memory. Timer places the current values of the hours, minutes, and seconds into string variables HH\$, MM\$, and SS\$, respectively. It also stores the time formatted as HH:MM:SS in string variable TIMES\$.

eration and find the difference between the values returned in TS.■

Write to Perry Meade at Department of Psychology, University of New Brunswick, Bag Service #45444, Fredericton, New Brunswick, Canada E3B 6E4.

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TimeOut PowerPack: Powerhouse Utilities for AppleWorks

Beagle Bros is doing anything but taking time out following the introduction of its TimeOut series of AppleWorks add-ons. The first wave of applications (reviewed in the May 1988 *inCider*, p. 22) included DeskTools, SideSpread, FileMaster, Graph, QuickSpell, SuperFonts, and UltraMacros; now, according to an announcement at AppleFest in Boston last May, the company's souping up the line with Thesaurus, DeskTools II, MacroTools, and this month's Editors' Choice, **PowerPack**. PowerPack's an appropriate name—Beagle Bros has packed a lot of powerful utilities into this disk.

inCider's editors previewed an early version of TimeOut PowerPack in late April. Here's a preliminary rundown of some of the program's options:

- an *ASCII chart* displays ASCII,

decimal, hexadecimal, binary, and screen equivalents for any number from zero to 65535

- an *AWP-to-TXT converter* turns AppleWorks word-processor files into standard ProDOS files without inserting hard carriage returns after every line

- a *category-search function* looks through a file according to whatever field you indicate and finds all data incorporating the criterion you name

- the *file librarian* reads your disk files into a database for easy cataloging and location

- a *help-screens option* lets you design your own hint notes, which you can then turn into TimeOut "applications" appearing on the menu when you boot up your PowerPack disk

- a *program selector* lets you exit AppleWorks directly to another program and return when you're finished. (Note that the program doesn't save your desktop.)

PowerPack's *triple desktop* and *triple clipboard* are the neatest accessories, though—they're kind of like subdirectories. (Extra memory is really necessary.)

Only one of your three desktops is active at a time, but each can fit up to 12 files, just like a standard AppleWorks desktop. You can switch from desktop to desktop and rearrange your files among them.

The triple clipboard functions similarly, but it can be a little confusing—individual clipboard screens indicate merely the type of information stored there (word processor, database, or spreadsheet). If you don't remember what you put where, the only way to find out is to pull out the clipboard and look.

All in all, TimeOut PowerPack is well worth the \$49.95 you'll plunk down for it. This new member of the gang makes TimeOut an even more formidable collection of AppleWorks accessories.

At press time two other programs, TimeOut Accountant and a TimeOut communications package, were scheduled for June release. Beagle Bros says it's also planning to add a third new application, a module called TimeOut Paint, to its Graph and SuperFonts disks. For more information, contact Beagle Bros, Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 452-5500. ■

Every month, hardware and software manufacturers release dozens of new products into the Apple II market. Editors' Choice singles out one product each month that the inCider editors feel is a significant addition to the Apple II family of products. Products evaluated in Editors' Choice are among the most recent releases and may not be available yet for retail distribution.



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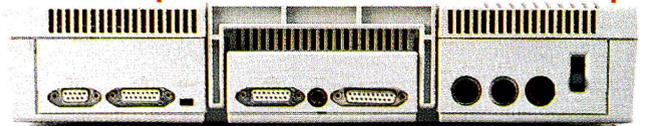


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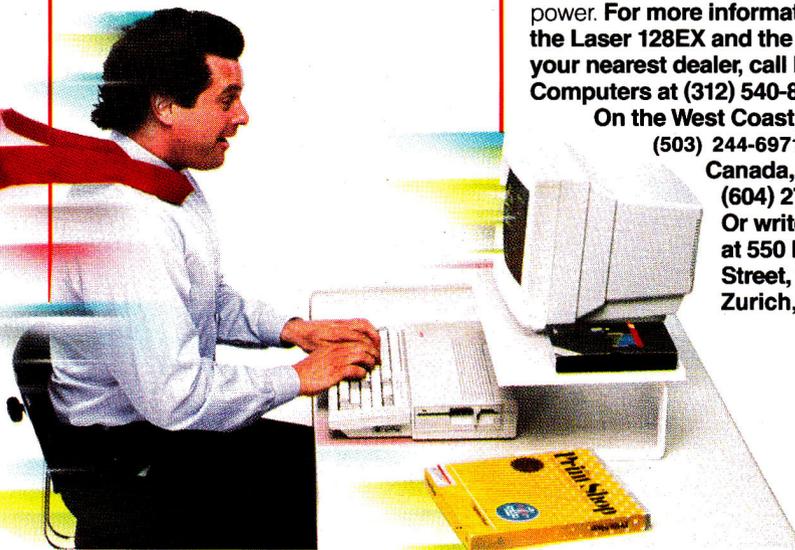
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