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inCider

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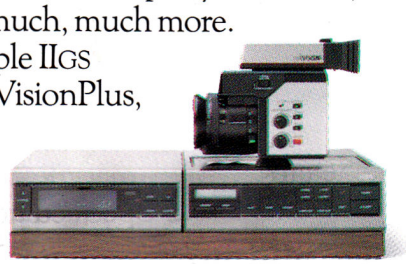

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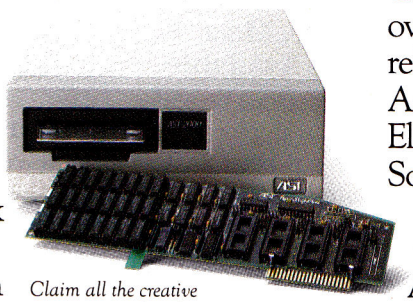

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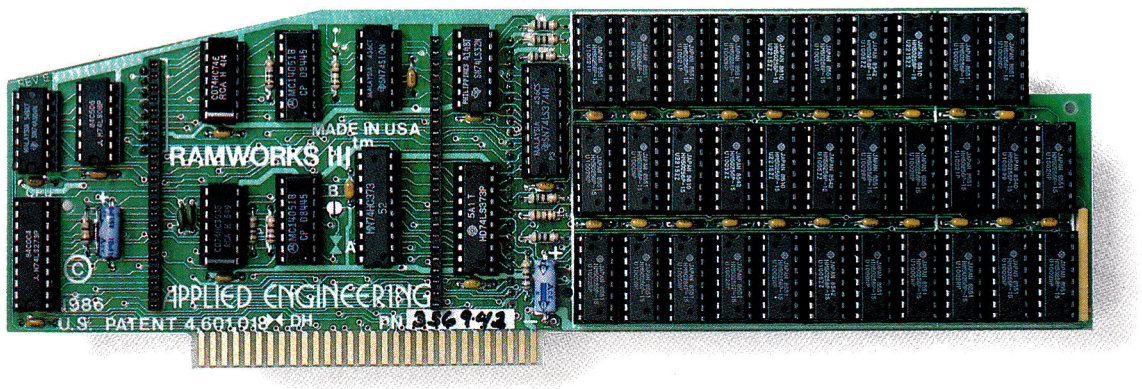

With battery backed RAM port, RGB port, increased memory capacity, full software compatibility and more compact design, RamWorks III is a generation ahead.

RamWorks III is the newest 3rd generation RAM card for the Apple IIe. It incorporates all of the technology and improvements that years of experience and over a hundred thousand sales have given us. By selling more memory cards than anyone else and listening to our customers, we were able to design a memory card that has the ultimate in performance, quality, compatibility and ease of use. A design so advanced it's patented. We call it RamWorks III, you'll call it awesome!

The AppleWorks Amplifier.

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 256K 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.

Only RamWorks eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 25,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 15,000. 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. RamWorks even expands the clipboard. 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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RamWorks III is compatible with all Apple IIe's, enhanced, unenhanced, American or European versions.

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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, 2 MEG, or 16 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. You can also choose non-volatile, power independent expanders allowing permanent storage for up to 20 years.

It Even Corrects Mistakes.

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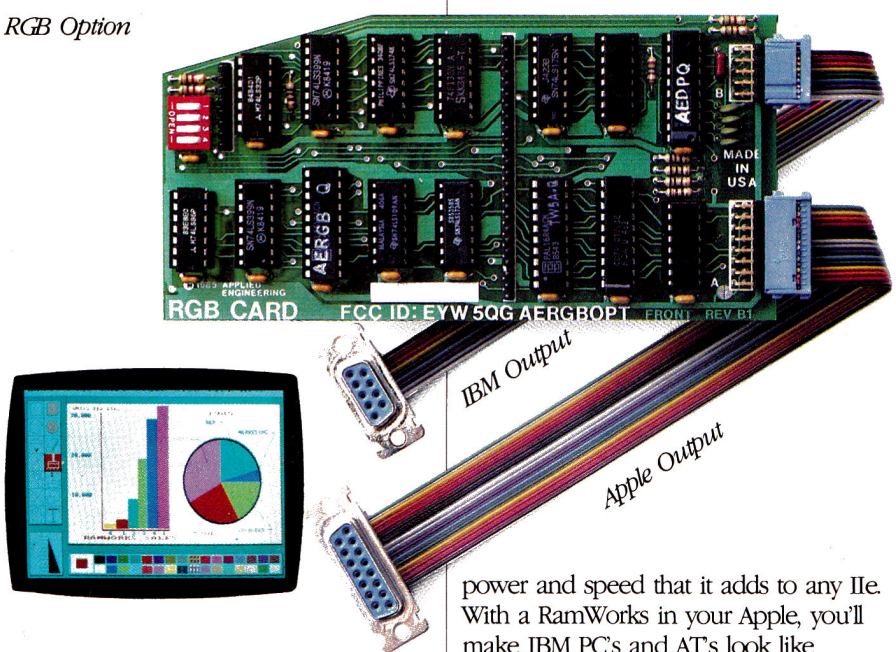
The Ultimate in RGB Color.

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 Apple standard and IBM standard 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.

RGB Option



True 65C816 16 Bit Power.

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 yet maintains full 8 bit compatibility.

Endorsed by the Experts.

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."

"I wanted a memory card for my Apple that was fast, easy to use, and very compatible; so I bought RamWorks."

Steve Wozniak, the creator of Apple Computer

Apple experts everywhere are impressed by RamWorks's expandability, versatility, ease of use, and the sheer power and speed that it adds to any IIe. With a RamWorks in your Apple, you'll make IBM PC's and AT's look like slowpokes.

Quality and Support of the Industry Leader

RamWorks III is from Applied Engineering, the largest, most well supported manufacturer of Apple peripherals and the inventor of large RAM cards for the Apple. With our 5 year no hassle warranty and outstanding technical support, you're assured of the most trouble free product you can buy.

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- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
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- Compatible, RGB option featuring ultra high resolution color graphics and multiple text colors, with cables for both Apple and IBM type monitors
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- Lowest power consumption (U.S. Patent #4601018)
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Software industry standard
- Advanced Computer Aided Design
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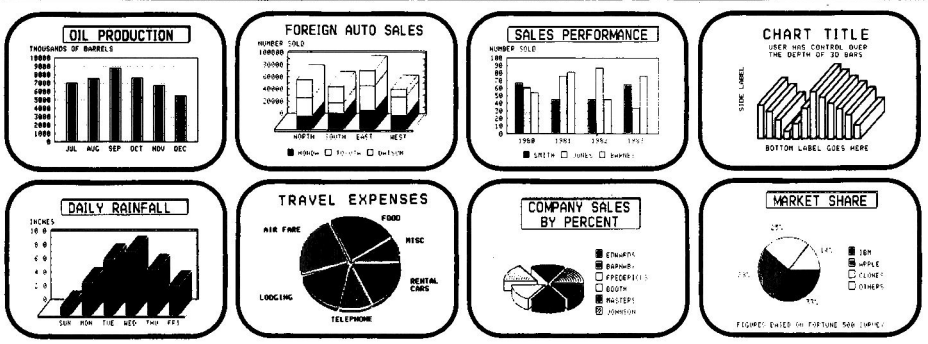

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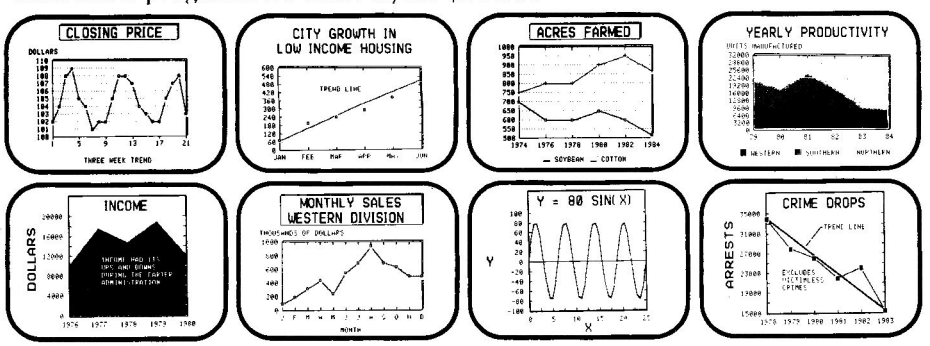

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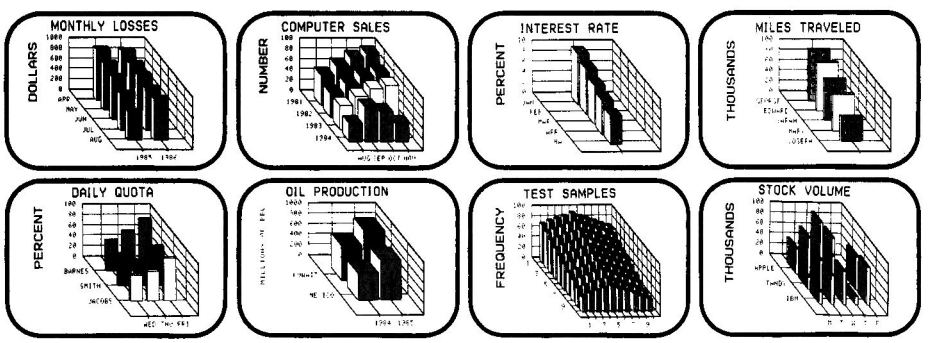

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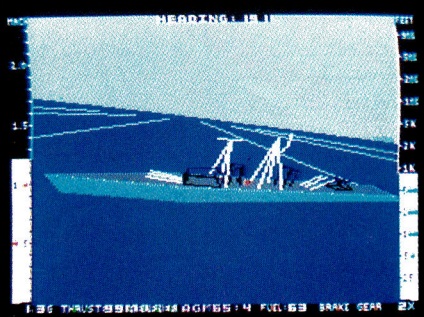

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inCider

Vol. 5 No. 7
July 1987

ON THE COVER

40 Digitize to the Max

With a video card, you can capture images and manipulate them with your Apple II. And whether you want to make your own clip art or conduct medical research, there's a digitizer to help you get the job done.

ARTICLES

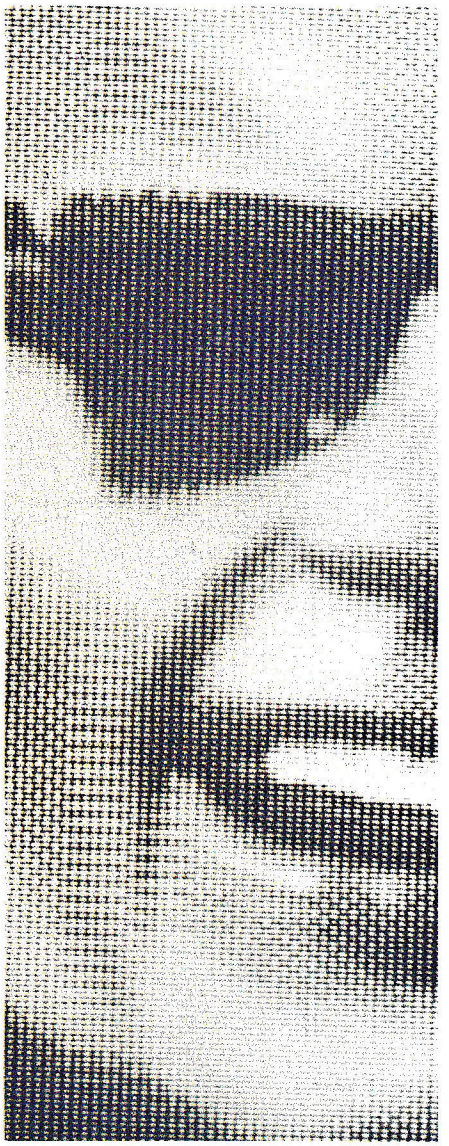
50 Macros: Faster Than a . . .

Macros won't let you execute AppleWorks commands as fast as a speeding bullet, but if you're tired of typing the same keystrokes to perform the same tasks day in and day out, one of these macro programs will make you feel like Superman.

60 Running with the Apple

Whether you're training for the Boston Marathon, or simply trying to run a mile in under ten minutes, a running-software package will keep you on track.

The cover illustration was created by Roger Goode. Roger used AST's VisionPlus to digitize Max Headroom and manipulated the image with Electronic Arts' Deluxe Paint.



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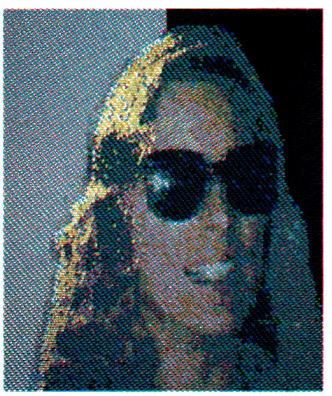
Applesoft Adviser will return next month. Starting this month, E.G. For Example will alternate with Stattus Report. Field Trip, which debuts this month, will alternate with Teachers' Choice.

Digimania

by Deborah de Peyster, Editor in Chief



"We're excited—we've created the art we needed to illustrate a story ourselves."

It came from the same place most of our good ideas do—the bubble of chatter and jokes that runs off and on (mostly on) during the day in our office. This particular notion hatched on a Wednesday. I know that for sure, because some of us had just watched *Max Headroom* on television the night before and were marveling at the computer graphics the show uses.

So when the conversation turned to the problem of illustrating our cover story on video digitization, the idea sprouted quickly. Someone said, "Let's put Max on the cover!" and another chimed in, "Yeah, digitize to the Max!" Everyone laughed. But that was it—we liked the idea. What better way to represent the power of computer-created images than by putting Max Headroom—the ultimate computer-generated personality—on the cover of this month's issue?

But, of course, moving from idea to reality is a different matter. We made lots of phone calls: "Publicity for Max Headroom, please." We called Coca-Cola—the company Max represents in commercials—and Lorimar studios, one of the producers of the *Max Headroom* TV show. While Coke in Atlanta checked with its New York office—"We've had quite a run on Max photos, you know. *Newsweek* just about cleaned us out"—Lorimar pulled through with glossies, slides, press backgrounders, and personality profiles.

Meanwhile, back at the *inCider* office, digimania had set in. Technical editor Paul Statt had gathered all his equipment—an Apple IIGS, video camera, slide projector, and three boards with software—and was digitizing anything that moved. People walking by our office to the cafeteria for coffee found images of themselves captured on screen. You never knew where your image would turn up—or what it would reveal you doing. Even in the sanctity of my office, I discovered, too late, a video-camera lens peering out at me from under a newspaper. Of course it caught my surprise, digitized it, and recorded it for posterity.

In the course of all this fooling around, however, we learned a few things. For instance, a slide projected on a big screen makes a better subject for shooting and digitizing than a glossy photograph (too much light reflected from the photo). We learned that the computer screen stretches images vertically, making Max a little thin in the cheeks. When we digitized him sideways, his cheeks were a little fat. We also learned that an Apple II can store only about three pictures on a floppy disk. On a 3½-inch disk, we could save lots more.

And, finally, we learned that just having the technology didn't make us artists. So we turned over our images of Max to computer artist Roger Goode, who used a prerelease copy of Electronic Arts' Deluxe Paint to turn them into our cover and inside art. He spiffed up the contrast of the cover image by darkening Max's sunglasses and removing some shadows beneath them and by adding detail to Max's hair. On my picture above, he dropped out some of the red and green in my hair and put yellow there instead, created a two-tone background, and added contrast.

Of course, when our art director, Donna Wohlfarth, saw what Roger could do with an Apple IIGS, she got digimania, too. She figures she'll be able to digitize cover art, then size it, shape it, and add color and type until it's just the way she wants it. Using a GS will save money, she says.

We're excited—we've created the art we needed to illustrate a story ourselves. The feature on page 40 tells you more about how we did it and how you can do similar things yourself. The only thing we can't tell you is how Lorimar and Coke created Max to begin with. According to their publicity people, that's still a closely guarded secret. ■

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LETTERS

Viking Responds to Uptime Review

Your review of disk magazines ("Booting the Issues," Reviews, April 1987, p. 37) rang true in some instances, but erred in others. Generally, the article was informative and close to the target with respect to the rapid emergence of this new publishing medium.

In fact, a new disk magazine for one type of personal computer or another appears nearly every month. Viking Technologies has introduced three new disk publications in the last six months: Uptime for the Macintosh, the IBM PC, and the Commodore C64/128. The positive reception all these issues have received has been surprisingly strong. Clearly, the approximately 100,000 readers of disk magazines today will become many times that figure in the next year or two.

And what do subscribers think of disk magazines? *inCider*'s review misses the mark in capturing reader enthusiasm. A survey of representative subscribers taken by an independent researcher, Nagele & Associates, indicates that all Uptime subscribers found that at least Uptime had a positive value for them; 75 percent rated the value good to excellent. The survey also indicates that Uptime's best (most used) features are its entertainment and games (86 percent), educational programs (72 percent), and finance/business programs (56 percent). Overall, 100 percent felt the issue was worthwhile.

inCider's reviewer may be correct in stating that disk publications are unlikely to challenge, let alone replace, printed magazines. Each has its own value. From the Uptime reader survey, our disk subscribers also read an average of 1.9 magazines each—and *inCider* is their top choice.

Charles O. Staples
President
Viking Technologies
174 Bellevue Avenue
Newport, RI 02840

Waste Not, Want Not

George Dick's letter ("Printer Praise," March 1987, p. 8) prompted me to try once more to get an answer to a problem that's bugged me for a long time. Mr. Dick states, "I've simply convinced myself to willingly waste one sheet of paper each time I turn off the printer [with The Print Shop]."

Well I, for one, haven't given up. I've written three letters to Broderbund regarding the excessive number of line feeds that cause signs and cards to run past the paper's perforations. This problem occurs with my C. Itoh and Star NX-10 printers. Broderbund hasn't answered my letters, even though I enclosed an SASE.

The Print Shop is one of the most useful programs I have for my Apple IIe. I've purchased all the Graphics Library disks, along with everything else that works with The Print Shop. I also enjoy Broderbund's newsletter, but for all the concern it expresses for its customers, there's a foul-up somewhere in its failure to respond to letters.

If this problem is impossible to solve (which is hard to believe), why doesn't Broderbund say so and put the matter to rest? I don't have this problem with Springboard's Certificate Maker or other similar programs.

Frank W. Naylor
1911 Sandusky Avenue
Kansas City, KS 66102

Nicknames

My favorite word processor limits filenames to 15 characters. Since I type a lot of letters and other documents, a good filename can help me find an important letter quickly, even though I may have written it long ago.

After typing several names such as *Letter.to.VISA*, *Letter.to.VISA2*, and so on, I found there's not much room for a description after the first ten characters. Instead of "Letter.to.", you can type Ltr2 and give yourself 11 characters instead of five to say what you need, yet still have a nonalphabetic character to break your filename into readable portions. You can also use this form of personal shorthand in other ways, such as for variable names.

C.R. Keith, Jr.
2791 Sacramento Court
Holloman AFB, NM 88330

Macro Working

I recently upgraded from Beagle Bros' MacroWorks to Super MacroWorks, and found the new program even better than the original. It took me a long time, however, to find out why my custom macros, which worked fine in the Recorded Macro mode, didn't work correctly when I tried to compile them in MACROS.file.

I found that to compile macros successfully, you must use a forced carriage return at the end of each line in macros that are longer than one line. Macros in the MACROS SUPER file, supplied on the Super MacroWorks disk, also conform to this rule. Unfortunately, this isn't mentioned in the user's manual. I hope this helps other Super MacroWorks users who've experienced the same problem.

Steven J. Janda
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Bexley South
New South Wales 2207
Australia

Gaining Access

The instructions given in "Apple Access RAM Disk" (Hints/Techniques, March 1987, p. 116) won't work if followed in the order given. To create the new Access disk, first copy the five files listed, then add the other files. BASIC.SYSTEM, though, must be the first system file located on the disk or the STARTUP file won't execute.

You should also delete the one-line startup program and name the EXEC file STARTUP instead. My apologies to anyone I might have led astray.

Brian Zimmerman
14732 Esther Lane
Chester, VA 23831

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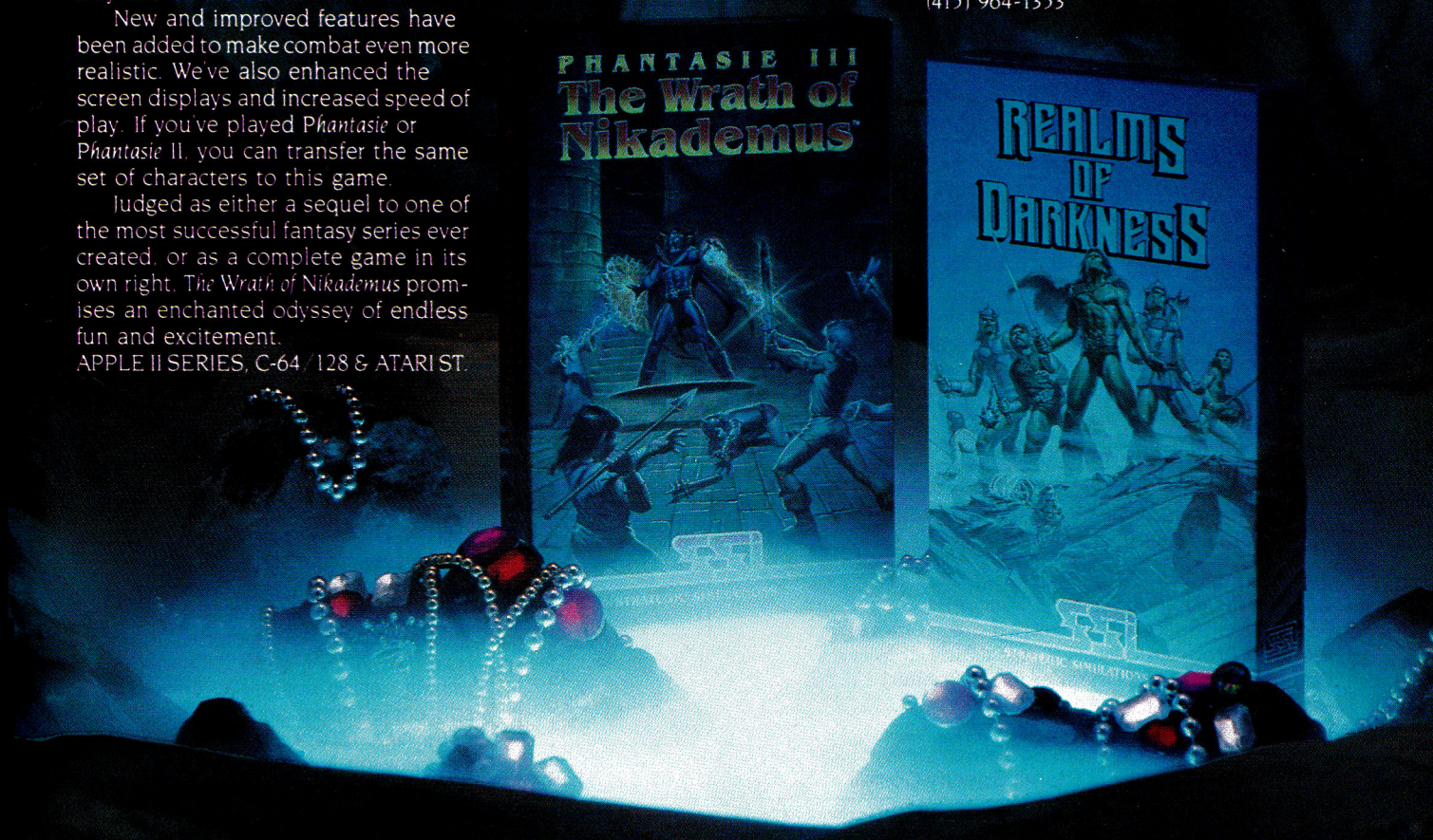

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LETTERS

Interesting Addition

I found an error in "Mortgage-Prepayment Calculator" (Hints/Techniques, February 1987, p. 115). The Interest Paid to Date value the program gives for the first 12 payments is actually the sum of the interest paid with the first 13 payments.

I corrected this error by changing lines 610 and 620 to read:

```
610 GOSUB 710
620 TI = TI + IP
```


Peter J. Koterba
S91 W24920 Riverview Lane
Big Bend, WI 53103

Polishing Your Gems

"Striking Gold in Public-Domain Software" (February 1987, p. 40) was informative to all of us interested in finding a "gem or two." I came across a problem, though, with a couple of public-domain disks I purchased from The Catalog. I hope my solution helps anyone facing the same problem.

Each disk booted and displayed a title screen when I put them into drive 1. But I watched, and watched, and watched—the title screen wouldn't move no matter what I did. Finally I reset the computer and got the title again; it hung up.

I thought about calling The Catalog and registering my disappointment. Instead, I booted with a DOS 3.3 disk, then inserted the program disk into drive 2. From the DOS 3.3 prompt, I typed CATALOG,D2 and the file menu came up immediately. From there, I could run each of the programs.

When I wanted to exit a program at any point, the only way out was to reset, reboot, or hang up on the title again. I wanted a disk that would boot itself so that my kids and grandchildren could use it without hassle.

The problem was definitely in the Hello program. I couldn't change it without cutting notches in the disks, so I copied them and found the culprit in line 160 of each disk. Inserting the following lines solves the problem:

```
150 HOME
160 VTAB 12: HTAB 12 PRINT "Push
    Return for Menu"
```

If you don't press Return, the Select by Highlight menu eventually appears after a delay of several seconds. Pressing Return brings it up instantly.

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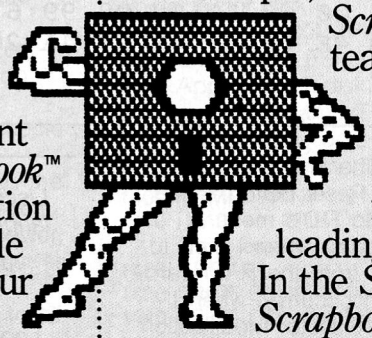

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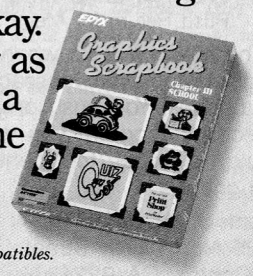

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Circle 201 on Reader Service Card.

If you want to get fancy and personalize your disk a little, you can make the following changes:

```
150 HOME
155 VTAB 8: HTAB 12: PRINT "(Your
    name) requests you to"
160 FLASH: VTAB 12: HTAB 12: PRINT
    "Push Return for Menu": NORMAL
```

The disk will boot when you insert it, displaying your message and listing all the files. You push only one key to select the program you want to run. You'd never see the menu without this change.

Frank J. Wacaser
1025 North 17th Street
El Centro, CA 92243

Moving Files

I had a problem with Applied Engineering's RamFactor 1MB card in my Apple II Plus. The RAM card works fine when I use FID to move files from disk, but not as well on files in the RAM card when I use a wildcard (=). The file catalog recycles as if in an infinite loop. The only way to stop it is to press the Reset button, since you can't return to FID's menu.

This was annoying when I tried to copy files to disk from the RAM card. A similar problem occurred when I tried to use my 16-sector modification of Super-Text—I couldn't store files in the RAM card, and its catalog was recycled.

While using Inspector to look at the RAM card, I found that track $11 sector $01 (which normally has no link) was linked to track $11 sector $00. When I changed the RAM card's link from 1100 to 0000, everything worked fine. I don't know if the RAM card's ROM or INSTALL DOS produced the link, but a patch (see **Listing 1**) corrects the glitch and translates to the assembly-language code shown (**Listing 2**).

Listing 1. Patch for RamFactor card.

```
$5FE3: 20 00 60 A0 00 98 99 67 62 C8 D0 FA A9 11
       8D 4E 61 A9 61 A0 4A 20 B5 B7 A9 00 85 48
$5FFF: 60
```

Listing 2. Corresponding assembly-language patch.

```
$5FE3: JSR $6000      LDA #$11
       LDY #0         STA $614E
       TYA            LDY #$4A
LOOP   STA $6267,Y    LDA #$61
       INY            JSR $B7B5
       BNE LOOP       LDA #$0
                      STA $48
                      RTS
```

First BLOAD INSTALL DOS,A$6000, L$1F7 and enter the monitor with CALL -151. Type in the patch, then BSAVE INSTALL DOS,A$5FE3,L$214.

James King, Ph.D.
University of Wisconsin
Department of Counselor Education
171 Doudna Hall
Platteville, WI 53818

Looking for Software

After months of searching computer-software stores and reading several computer magazines, including *inCider*, I've just about given up hope of locating a program that performs job-cost accounting for general contractors.

Several such programs are available for other computers, but I haven't found any for the Apple IIe. I'd like to purchase the program for home use. If any of your readers know of such a program for the Apple IIe, I'd appreciate the information.

Harriet A. Kerr
108 Armagh Drive
Baltimore, MD 21212

Check out the New Products column in this issue (p. 92) under the heading "Best Estimate." The program described there, BuilderComp, should suit your needs. —eds.

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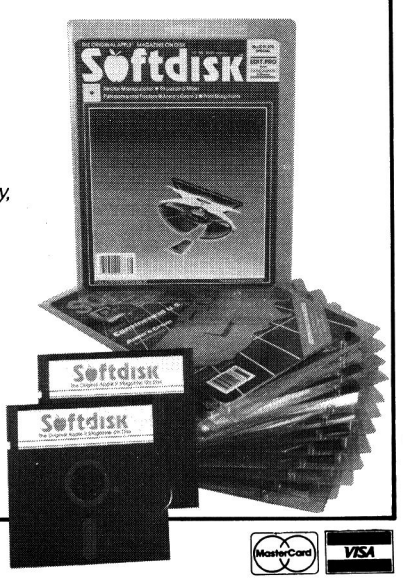

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A Real Beauty

Regarding the April 1987 Stattus Report ("AppleWorks in a Hard Place," p. 18), you're absolutely correct in saying AppleWorks can't do everything and that it requires patches to do the things some people want to do with it.

However, I believe you ignored the true beauty of the program. The real beauty of AppleWorks isn't the power, the interface, or the integration, but its adaptability.

AppleWorks can be all things to all people because you can modify it easily to suit your own needs. For example, I use AppleWorks for writing research papers, so I need a program that can handle large text files, has simple cursor control, and has an integrated database. My setup is ideally suited for that. (I'm currently using AppleWorks on a IIc with a 256K Z-RAM II expansion card and MacroWorks.)

If AppleWorks were upgraded to make it all things to all people, it would probably become a hideously expensive monstrosity that appeals to no one. As it stands, I applaud Apple's decision to provide the basic framework, letting the individual consumer choose what's best for him or her. You can drive a Porsche if you want, but a Toyota with options serves my needs much better.

Richard A. Hubbard III
Lt., USNR (Retired)
2473 Parker Boulevard
Tonawanda, NY 14150

Extra Enhancing

Jonathan McPhee has a wonderful idea ("Enhancing Apple Writer," April 1987, p. 47), but, unfortunately, those of us with IIcs can't use his modification as given. The IIc's System Utilities disk lacks a time program—at least mine does. You can achieve the same result, though, if you have a copy of *BASIC Programming with ProDOS*. (You'll need the /EXAMPLES disk that comes with the book.)

I wrote a startup program on the back of my Apple Writer disk that automatically sets up the RAM disk, runs the TIME program, prompts you to turn the disk over, then runs Apple Writer.

First, on a backup copy of Apple Writer, cut a notch so that you can write on the back of the disk. Then, using your Utilities disk, format this side for ProDOS. Then copy the files PRODOS and BASIC.SYSTEM from your Utilities disk to the back of your Apple Writer disk.

From your /EXAMPLES disk, copy the file /EXAMPLES/EXTRAS/TIME to your Apple Writer disk. Using your Utilities disk, rename TIME, calling it STARTUP. Finally, add the following lines to your new startup program:

```
1400 HOME: PRINT D$;"PR#3"
1410 HTAB 10: PRINT "Turn over the disk
     and press any key.";
1420 GET A$
1430 PRINT D$;"PREFIX /AW2MASTER"
1440 PRINT D$;"-AWC.SYS"
1450 END
```

In line 1430, you should type the correct volume name for whatever edition of Apple Writer you own.

Steven P. Clay
6 Blatchford #1
Troy, NY 12180

Applied Engineering Speaks

Regarding the letter called "Compatibility Questions" (Letters, May 1987, p. 10), please understand that the writer's information is both incorrect and out of date. Most of the problems discussed in this letter are ones Applied Engineering solved long ago. Other statements the writer makes can be recognized as obvious untruths by the majority of your readers.

Dan Pote
Applied Engineering
P.O. Box 798
Carrollton, TX 75006

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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.*

CORRECTIONS

MECA's phone number was quoted incorrectly in our January 1987 (p. 44) and April 1987 (p. 103) issues. The correct number is (203) 222-9087. In addition, the price of Managing Your Money is now $149.95.

The number listed in May's Product Updates (p. 96) for MindScape's Thunder Mountain division is incorrect. You can call Thunder Mountain at (312) 480-9209.

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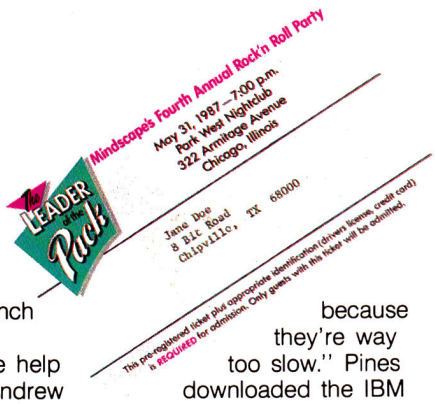
NEWS LINE

by *inCider* staff

UNINVITED

AppleWorks and the IIc teamed up last month up to help Mindscape Inc. manage the crowd attracted by its yearly Consumer Electronics Show party for dealers, distributors, and retailers. About 1000 people are invited, but word gets out that the party is great, and many uninvited guests show up, creating a huge crunch and safety hazards.

This year, with the help of college student Andrew Pines, Mindscape had four IIcs running the AppleWorks database at the entrance to the party. Partygoers presented their tickets, stamped with their names, and they were checked off the database. While the party list came from an IBM PC, Pines says, "I really don't believe in IBM machines because they're way too slow." Pines downloaded the IBM database to a IIGS, divided it into four segments, and transferred them to IIcs.



And so as the party took off, to the theme of The Leader of the Pack, the real leader, the Apple IIc, did its job and kept all but the invited outside the pack.

—D. de P.

SPA AWARDS

Comedian Robin Williams attended the 1986 Software Publishers Association Awards Banquet in April. Douglas Adams, author of The Hitchhiker's Guide to the Galaxy, was master of ceremonies; Williams just showed up, claiming, "I'm only here to get some free software." It seems he means it: He says he's a hopeless game addict with an expensive habit and a weakness for talking software.

The big winner at the banquet was Broderbund Software, who took top prizes in six of 22 categories; Toy Shop and Where in the World Is Carmen Sandiego? won first place in two categories each.

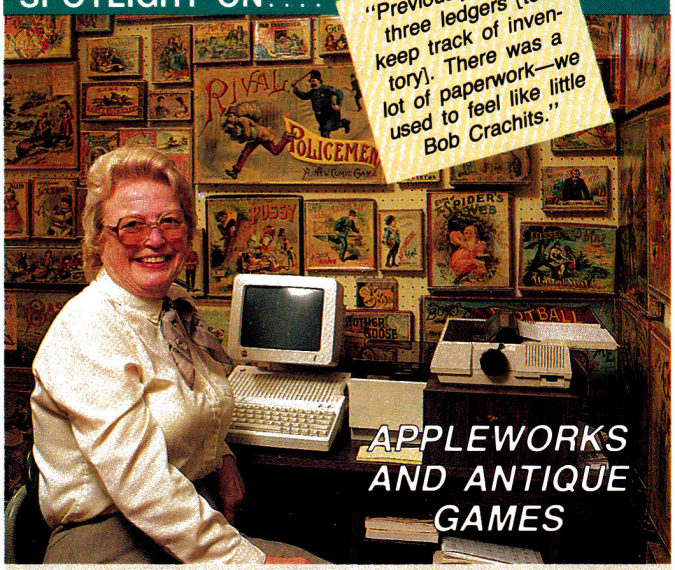
Other Apple products that brought home awards included Leather Goddesses of Phobos (Infocom) for Best Software Packaging (the scratch-and-sniff stickers got the judges) and HomeWorker (Davidson) for Best Secondary Education Product.

—P.S.

SOFTWARE CENTRAL

User groups usually maintain sizable libraries of public-domain software—but when a group in Iowa discovers an interesting public-domain program, clubs in Rhode Island and New Mexico can't take advantage of it.

SPOTLIGHT ON. . . .



The Game Preserve in Peterborough, New Hampshire, is a museum with a collection of nearly 1100 old and antique games and "all the accoutrements," according to Lee Dennis, the Preserve's coproprietor. Lee and her husband, Rally, use their Apple IIc and the AppleWorks database to keep track of the items on display in their museum and record that information accurately for insurance purposes.

Although they use the IIc mainly for inventory of Game Preserve artifacts and that of their antiques business, the Pastime Porch, Lee also does all her correspondence with the AppleWorks word processor. She's looking forward now to finishing the huge task of putting the businesses' records on disk—and in categories. "I'll be able to pull up all card games or all games of skill, [for instance]," Lee notes.

George Goldsmit recognized this problem as an opportunity. Goldsmit has organized the Apple Two Information Exchange (ATIE), a central source of public-domain software that will also offer product reviews and technical hints.

According to Goldsmit, ATIE serves two purposes. First, it provides Apple users with a broad and ever-growing library of public-domain software, which Goldsmit says he hopes to compile from user groups across the country.

This part of the program is now underway, Goldsmit says: "I've sent informational fliers to 350 user groups, and we've had very good response. I'd like to provide public-domain software and information that clubs can tap into—create a good library of software that user-group leaders could share with members and take to computer shows to raise funds." User groups can also supplement their newsletters with ATIE's reviews and technical information.

ATIE's second purpose is to educate first-time users about software. "This is a vitally important step," Goldsmit observes. "New users don't know what programs can and can't do." If new users had a chance to play with a variety of public-domain programs, Goldsmit says, they'd develop an idea of what they need when they buy commercial software.

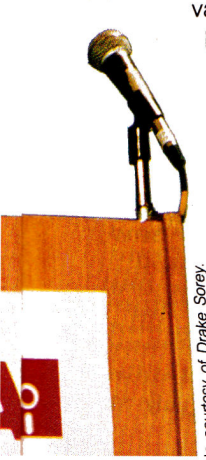


Photo courtesy of Drake Sorey.

Although ATIE is geared primarily for user groups, it's open to libraries, computer stores, or any other group interested in available public-domain software.

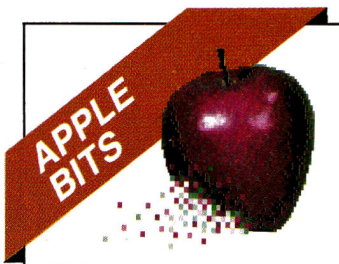
Full membership in ATIE costs $75 a year and includes the ATIE monthly newsletter, any disk from the ATIE library for $2.50, and a "disk of the month" program. Other, less expensive options are also available. For more information, contact the Apple Two Information Exchange, c/o George Goldsmit, 1728 Galewood Court, San Jose, CA 95133. **—D.M.**

BRODERBUND GOES PUBLIC

In April Broderbund Software, the San Rafael, California-based developer of entertainment programs, put 1,275,000 shares of its stock on the market. The company has sold or licensed more than 7.5 million units of software since its founding by the Carlston siblings—Cathy, Doug, and Gary—in 1980.

At press time, no one at Broderbund was available for comment: Most employees were on a company jaunt to Japan to celebrate the stock offering. The trip was more than just fun, though—Broderbund is very interested in the Japanese market. Games such as Lode Runner have been highly successful in the Far East.

In addition, Broderbund has planned a number of new products for the U.S. market. Among them are two Mac programs—Sound Studio, from Bogas Software, and VideoWorks,



■There's something about the information business: Addison-Wesley (Menlo Park, CA) and WNET/Channel 13 (New York, NY) are both getting into it. Addison-Wesley's **Einstein** is a "gateway" to on-line data for schools; WNET's **Learning Link** offers a gateway and other means schools can use to tie into public television. Both provide a simple, consistent interface to scores of on-line databases.

■**Checkmate Technology** founder and president Andy Niemic induced Greg (GBBS Pro) Schaefer to write a classy telecommunications program called ProTerm for Checkmate, then left the company. Andy's at the Apple Programmers and Developers Association in Renton, Washington, now, where we hope he'll straighten out some delivery problems. Good luck, Andy.

■Curtis Sasaki, who handled the conception and delivery of the Apple IIGS, has moved on to **Next**, Apple founder Steve Jobs' latest venture. Next is concentrating on scientific workstations; evidently Jobs was impressed with Sasaki's product management.

■**Activision**'s new president, Bruce Davis, promises a reign of cost cutting at the Mountain View, California, software house—but that won't mean cutting back on innovative products of high quality. Instead, Activision has replaced some highly paid VPs with consultants and is putting some employees in smaller offices. Look soon for Activision's GS program Draw, from Henri Lamiraux at VersionSoft, who's part of the "brain drain" back to *la belle France*.

■Tom Frisina, former CEO at Accolade, a popular game publisher in Cupertino, California, has moved out on his own. His new company, called 360, "comes full circle," according to Frisina. "The **home-computer market** hasn't even started," he claims. He says he doesn't think it will until women start buying in quantity. The first Apple product 360 publishes will probably be **Dark Castle**, a popular Mac arcade adventure, now for the GS.

■Look for software to accompany a **National Audubon Society** television series next season. We hear the Society is collaborating with a widely known West Coast educational-software company on a video/software product.

■**Math coprocessors** are all the rage in the IBM PC and, more recently, Macintosh worlds. Now Redshift Technology's Charlie Springer, the man behind the ImageWorks II video digitizer, is looking into making a high-speed **SANE** (Standard Apple Numeric Environment) card for the Apple II. Here's hoping he can bring it in under $200 as planned, and that more software writers start using SANE routines.

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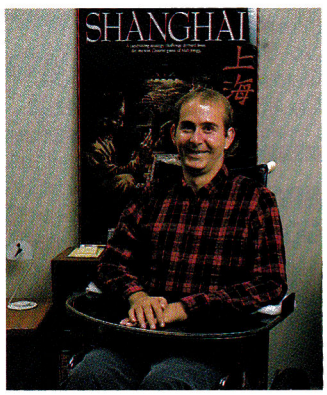
NEWS LINE

from Mark Kantor—the company is considering for the Apple IIGS.

We hear there's another brother in the Carlston clan and that he's designed a couple of board games—no computers involved. Broderbund isn't afraid to step away from the computer: Where in the World Is Carmen Sandiego? comes with *The World Almanac and Book of Facts*, and Toy Shop lets you create working models. A noncomputer board game from Broderbund wouldn't be outlandish. **—P.S.**



SHANGHAI CREATOR

When Brodie Lockard was introduced to the ancient game of mah-jongg seven years ago, he thought it would make an interesting computer game. After putting it on the mainframe he was using at work, he decided to adapt it to a microcomputer. That's when he began programming the game that eventually became Shanghai, first for the Macintosh and now for the Apple II (Editors' Choice, June 1987, p. 112).

"Programming the Mac was a real adventure," Lockard says. It was "totally different" from writing for the mainframes at Stanford University, where he programs educational materials for professors. Learning simultaneously to program the Mac and to write in the computer language C was like "closing your eyes and taking a big jump," he recalls.

Brodie Lockard is paralyzed from the shoulders down, as a result of a gymnastics accident more than seven years ago. To program Shanghai, he used a mouthstick and a device called a View Control System—a headset that receives and returns signals from a unit attached to the computer. Head movements are then translated into cursor movement on screen.

After a year of working on the game evenings and weekends, Lockard completed Shanghai. "I didn't think it would be any great success," he says modestly of his creation. He says he started on the project "mostly for fun, learning on my own. I didn't have any fancy equipment or a staff of programmers helping me. I just went ahead and did it." Lockard says he fully realized the popularity and success of Shanghai only when it won the 1986 MacUser Best New Entertainment Software Award last year.

Lockard likes the game because it's simple and relaxing: "You don't have to memorize rules and complex maps. You can play it for five minutes or a couple of hours." Although he doesn't play Shanghai very often now, he's eager to start work on another game. Right now he's "hunting for ideas" for his next project, he says: "Shanghai was fun to program. I'd like to write another game." **—L.L.**

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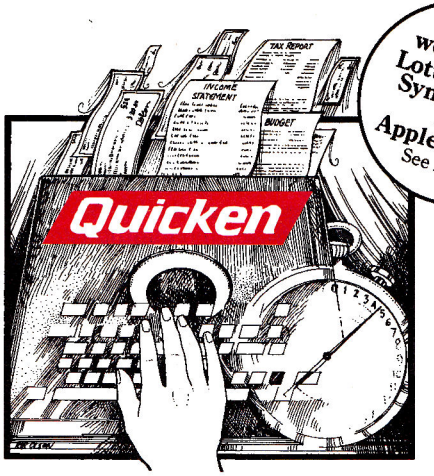

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APPLE CLINIC

by Paul Statt, Technical Editor

Apple Clinic is a forum for discussing Apple II hardware, software, and related subjects. If you have questions or answers, or want to make a statement, write to Apple Clinic, inCider, *Elm Street, Peterborough, NH 03458.*

Apple Clinic Answers

I thank you all for writing. I read every letter I receive and wish I could answer them all. But printing every letter and reply, as many of you have suggested we do, would require an entire magazine, and I regret I can't answer your letters personally.

I try to answer questions that several readers have asked. I probably won't be much help if, say, you're wondering how to print program listings from your CP/M COBOL compiler on your government-surplus printer.

Please keep writing; the questions you send, and your gentle reminders when I make a mistake, are more interesting and more helpful every month.

Lock That File

I neglected an important step when I discussed template building in the April 1987 Apple Clinic ("Template Mysteries," p. 20). Once your AppleWorks template is complete, it's a good idea to lock it. If you've named your correspondence template LETTER and you keep it on a disk called TEMPLATES, it's easy, in ProDOS BASIC.SYSTEM, to type LOCK /TEMPLATES/LETTER. Your template then becomes a "read-only" file. To write on it later, just type UNLOCK /TEMPLATES/LETTER.

Ted Dmytryk, of Bensalem, Oregon, copied BASIC.SYSTEM to his AppleWorks Startup disk so that when he quits AppleWorks, he can use the ProDOS BYE routine to boot BASIC and lock any file. I'd put BASIC .SYSTEM on my AppleWorks Program *disk instead—it's already in the drive when you quit, and you can't confuse it with a second .SYSTEM file.*

Where's the Memory?

I'm using full-page hi-res graphics to write a game program on my Apple IIc. I need to use the shape tables in auxiliary memory to update this page often, then retrieve it later while the program runs.

I need to have one page in main memory and another page, plus shape tables, in auxiliary memory, but I can't use my Apple's extra 64K of memory for programming.

Tim Gordish
MCAS Yuma, AZ

Does Beagle Bros pay people to write to me?

Extra K, Beagle Bros' extended-memory utility, lets you move any screen image—40- or 80-column text, lo- and hi-res pictures, even double-lo-res and double-hi-res graphics—into your IIc's (or 128K IIe's) auxiliary memory.

In fact, Extra K can put everything but the kitchen sink—variables, strings, arrays, and data—into auxiliary memory, freeing that original 48K for your actual program (and the operating system, of course). Keeping variables in auxiliary memory makes it easier to chain two short programs into a single longer one.

Extra K includes other features, too—Beagle Bros always gives you more than you pay for. (Extra K is $39.95, from Beagle Bros, Suite 102C, 3990 Old Town Avenue, San Diego, CA 92110, 619-296-6400.)

Mystery Characters

I discovered in *inCider* that CHR$(80) stands for the letter *P*. I'd appreciate it if you could give the CHR$ code for each letter of the alphabet. It would be a great help to me.

Shawn Stevens
North Vancouver, British Columbia
Canada

The character string, *as CHR$ is called, can be a great help if you're writing a program for your Apple, or if you use a printer or modem.*

*Each byte in your Apple's memory contains 8 bits, and each bit is either a zero or a one. Your Apple doesn't know a P from a Q, but it can tell the difference between 0101 0000 and 0101 0001—*binary *(base 2) numerals that, according to the American Standard Code for Information Interchange (ASCII), stand for P and Q. Your Apple records every P you type, in AppleWorks as well as in Applesoft, as the binary number 0101 0000.*

You sometimes have to refer to a keystroke by its number instead of its name. For example, to ask your Apple to consider "the character associated with the binary number 0101 0000" is cumbersome, so you abbreviate the first part and use a familiar decimal number in place of the binary number: CHR$(80).

The 8 bits in a byte can represent 2^8, or 256, possible characters. The first 128 characters are ASCII *characters; the second 128, called* high-ASCII *characters, duplicate the first ones, but are inverse and flashing. Decimal character strings represent characters from CHR$(0), @, to CHR$(255), "rubout," a nifty little character that does just what its name suggests.*

You can verify that CHR$(80) is indeed a P by asking your Apple, in BASIC, to PRINT CHR$(80). You should see a P. Most often, though, programmers use the CHR$ form for keystrokes that are invisible on screen, such as the Control-D that precedes ProDOS commands like CATALOG or PREFIX in BASIC programs. Since your Apple can't accept a line such as

```
10 PRINT "Control-D";"CATALOG"
```

you use the character-string code for Control-D:

```
10 PRINT CHR$(4);"CATALOG"
```

Escape *codes, as well as control codes, tell your printer how to type. Escape-C, for example, restores ImageWriter printing standards. To see Escape-C in a program, you use its equivalent: CHR$(27) CHR$(99).*

All you asked for, though, was an alphabet. This BASIC ditty should suffice:

```
10 FOR I = 0 TO 255: PRINT I,CHR$(I):
   NEXT I
```

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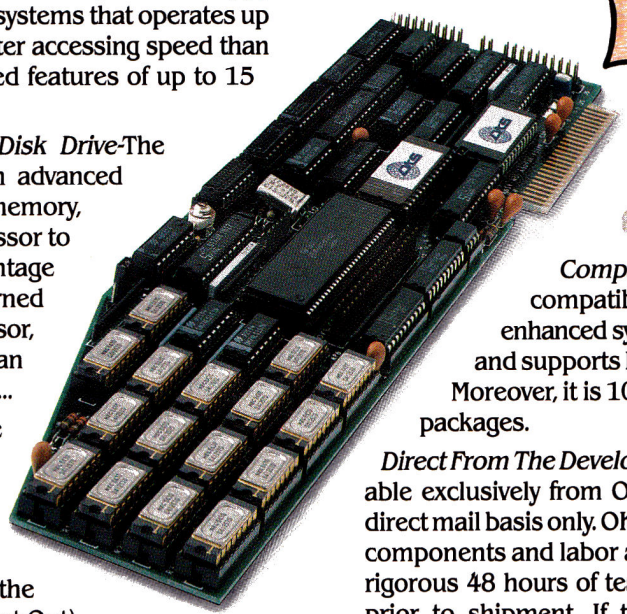

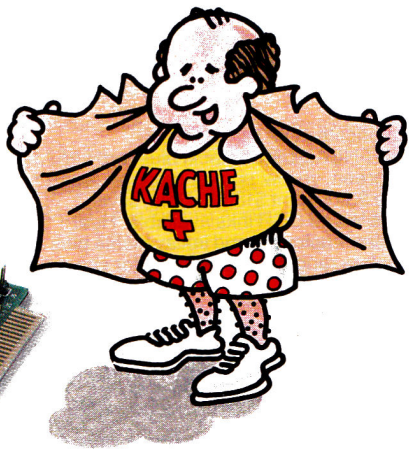

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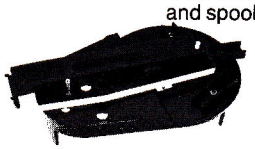

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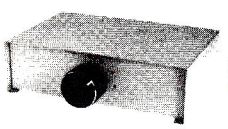

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APPLE CLINIC

Try sending this line's output to your printer for a permanent record. The blanks in the list are the control codes you can't see on screen. Your printer *will see them, though—my ImageWriter II, for example, jumps a page after CHR$(12) because that code represents a form feed, and it prints 15 in headline type because CHR$(14) turns that typeface on, while CHR$(15) turns it off.*

AppleWorks in One

How can I put the entire AppleWorks program onto a single disk, and avoid performing two procedures to start up the program?

Russell Martin
San Antonio, TX

AppleWorks simply won't fit on one side of a single 5¼-inch floppy disk. If you have only 5¼-inch disk drives, the best you can do is to get, or make, a double-sided floppy, and put Startup on one side with Program on the back, the way AppleWorks comes in its package. To make a double-sided disk, cut a notch on the left side of the disk directly opposite the one on the right. The notch lets you write on the back of the disk.

If you have a 3½-inch drive or a hard-disk drive, you can fit Program and Startup comfortably on a single disk. It's rather silly, in this case, to "press spacebar to continue" between Startup and Program. If your Apple has a ProDOS clock, you won't need to type in "today's date," either.

The solution's simple, thanks to Alan Bird at The Software Touch. All you have to do is change three memory locations in the APLWORKS .SYSTEM file:

Version 1.1: 13138, 13522, and 13523
Version 1.2: 13135, 13518, and 13519
Version 1.3: 13193, 13855, and 13856
Version 2.0: 14468, 14148, and 14149

POKE 44 into the first location, 208 into the second, and 19 into the third. You can do it all from BASIC. First type:

```
BLOAD /APPLEWORKS/APLWORKS
.SYSTEM,TSYS,A$2000
```

When you finish POKEing, type:

```
BSAVE /APPLEWORKS/APLWORKS
.SYSTEM,TSYS,A$2000
```

HELLO Again

As a new Apple owner, I'm confused by all the talk about HELLO programs in *inCider* and among my friends who use disks that load with HELLO programs.

What is a HELLO program? Can you tell me how to write it and where to put it? How can I load files onto a HELLO disk? My friends know only enough to select an option to use the HELLO program.

Richard Bird
Selkirk, NY

A HELLO program is the first file (usually a BASIC program) on a DOS 3.3 disk. Every DOS 3.3 "master" disk looks for a certain file by name, usually the one called HELLO, every time you boot it. If you have a DOS 3.3 disk that displays a menu each time you boot it, it's the HELLO program on the disk that creates the menu screen you see. In ProDOS, it's called a STARTUP file, the first file for which BASIC.SYSTEM looks after ProDOS finds BASIC.SYSTEM.

It's easy to write a HELLO program. Just type in the program you want your Apple to run when you boot a disk, and save it with the name HELLO. One possibility is

```
10 PRINT "GOOD MORNING, RICHARD"
```

You can make your disk as friendly as you like—greet users with instructions for using the disk, or meet them with a gruff "What's your name?" and a refusal to recognize any name but yours. Most BASIC HELLO or STARTUP programs return you to Applesoft BASIC unless they contain commands to do something else.

HELLO doesn't have to be the name of the greeting program on your DOS 3.3 disk. You can designate any file on disk as the first program to run by BRUNning MASTER CREATE, a binary program on the DOS 3.3 System Master. As far as I know, this option isn't available on ProDOS BASIC.SYSTEM disks; on these, the greeting program must be called STARTUP.

Greeting programs are one of the Apple II's many strengths compared with the Commodore and the IBM PC, which don't handle self-booting disks. Be careful if you're programming with a disk that has a HELLO or STARTUP program on it, since that program is already in memory when you start writing. Don't forget to type the NEW command, or, better yet, make 100 NEW the last line in your startup program.■

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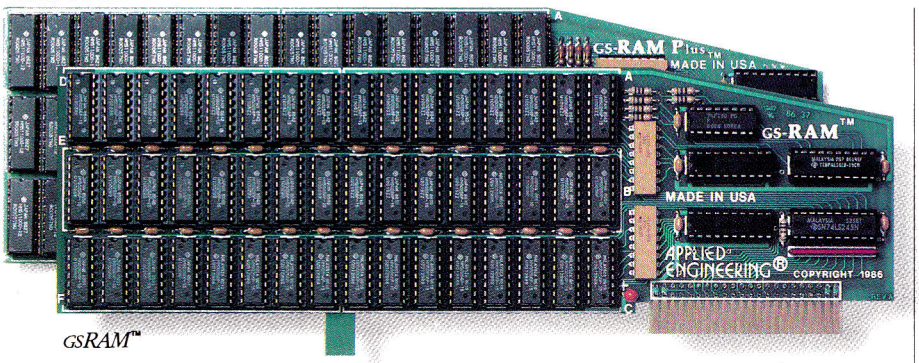

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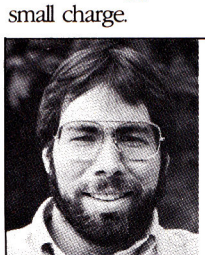

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Room for the Little Guy

by Eric Grevstad, Review Editor

"Small operators have been the mainstay of the Apple II market, and I don't see any reason for that to change."

Considering all the telephone interviews I've done for features and News Line stories, it's surprising how bad I am at being interviewed. A reporter from the Kansas City *Times* called recently, looking for quotes for a story on Bob Shofstall's Nite Owl Productions, whose home database I reviewed in our February issue (Nite Owl Journal #1, p. 97). Flustered at being on the other end of the questions, I expressed myself in vague stammers. I tried to say that Nite Owl seemed to fit between the one-man, kitchen-table operations I often see and the big software firms with 20 programmers and 50 products. What got printed was "Before Nite Owl can make it into the big time, Shofstall will have to hire programmers and develop as many as 50 software products, Grevstad said."

That's far from what I meant, or what anyone who watches the Apple market can see to be true. The Software Touch, for instance, is a big-time company to anyone who tinkers with AppleWorks; it's made up of two guys with four products (five, counting ProBASIC on the back of the Program Writer disk, with a few more on the way). Your best bets in the ProDOS hard-disk-organizer or pseudo-Mac desktop market are two private programmers, Glen Bredon (author of ProSel) and Phil Rosenzweig (head of Harbor Software, author of MouseFiler).

Big companies have their place. On any given day, it's a fair bet that someone from *inCider* will be on the phone with someone from Broderbund, Electronic Arts, Mindscape, or Activision; they're reliable pros, usually producing a steady stream of decent products and helpful about supplying review copies, photos, gossip, and other tools of our trade. On the other hand, when I call those companies I usually talk to marketing or press-relations people. It's more fun to talk to programmers and entrepreneurs.

inCider keeps an eye out for small companies and tests unsolicited products because we find occasional gems among the plastic bags and dot-matrix documentation. The reason they're only occasional is that it's rare for a programmer or developer to impress us with something original. Frankly, AppleWorks templates aren't original.

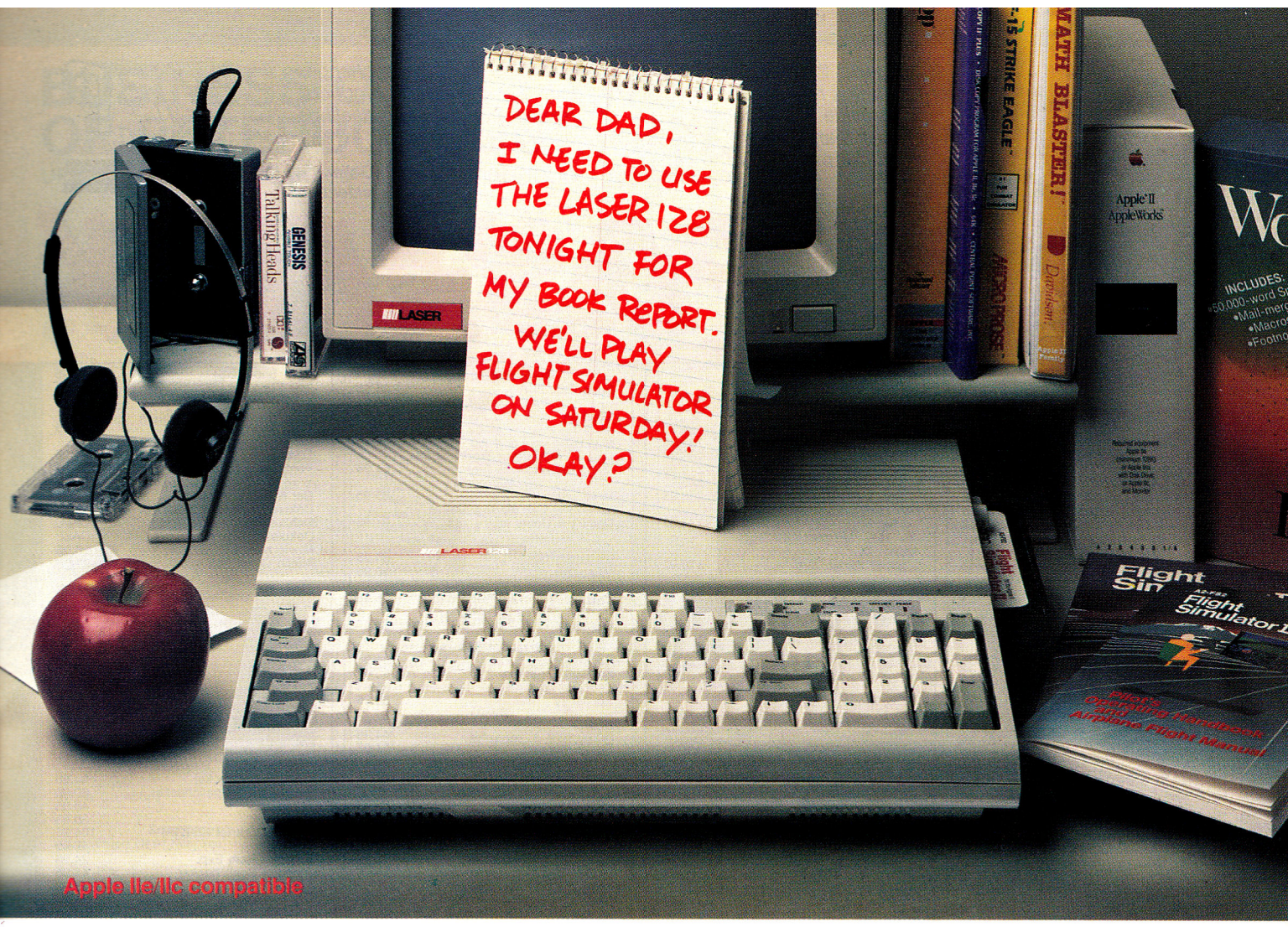
I just had a pleasant talk with and received disks from a gentleman in Iowa City, Iowa; his hi-res graphics screens are great and I spent two happy years in Iowa City myself, but I'm afraid his anatomy programs are mostly drill and practice. Lafe Low and I get persistent calls from a teacher in Brooklyn, but her flash-card spelling program is, well, a flash-card spelling program.

There are neat products at fair prices waiting to be discovered, however, and many more waiting to be created—a patch for AppleWorks, a printer or disk utility, a new twist on an educational topic, anything under $30. (Super MacroWorks author Randy Brandt is getting a post-office box and starting a company for products that, he cheerfully admits, would be overpriced if sold at Beagle Bros' usual rates.)

And once the spark comes, a beginner can meet unexpected success. Last year, Jim Davidson started playing around with a gadget that scans employee badges in nuclear plants; now, JED Design's Scannit has already been upgraded, while Thunderware still hasn't delivered its Thunderscan for the Apple II. Jan Davidson (no relation) confesses that when she started her educational-software company, she expected big textbook publishers to overtake it at any minute. Today, Davidson & Associates is producing workbooks of its own to go with Word Attack and Math Blaster.

Small operators have been the mainstay of the Apple II market, and I don't see any reason for that to change—the early speculation was that the GS would be too tough for mom-and-pop programmers and that ritzy Macintosh developers like Microsoft and Lotus would set the pace, but instead we're seeing big names stay on the fence while people like Brandt and Rosenzweig busily write GS programs. We'll keep looking for small innovators as well as watching the big ones, and we'll stay open to any suggestions or favorites readers discover.

As for Bob Shofstall, the *Times* article revealed him to be more of a kitchen-table type than I'd thought—one guy with four Apples in his basement. Get some nicely printed disk labels and manuals, and you can fool me every time. ■



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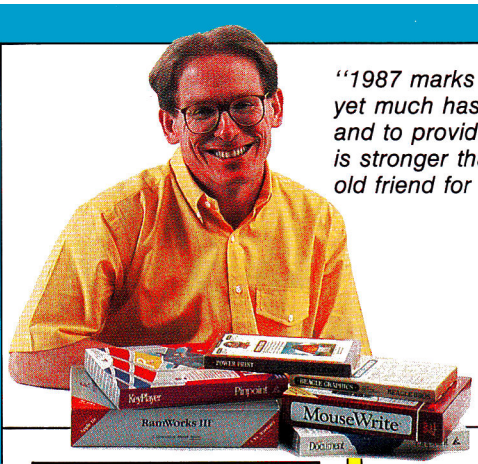

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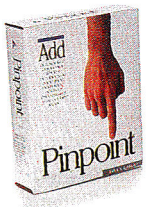

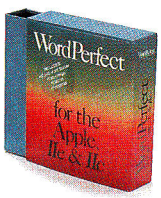

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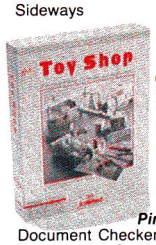

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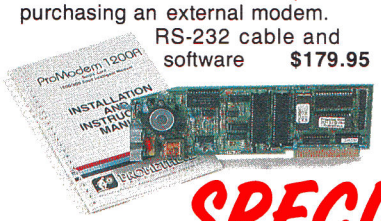

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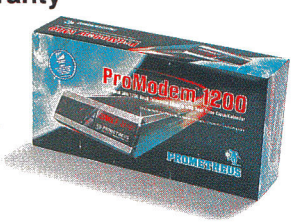

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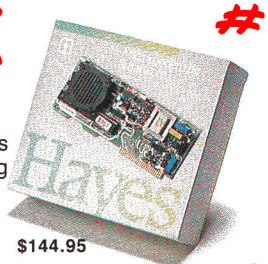

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Franklin Ace 500; Sensible Writer; Ask Me, Drug Alert, Drugs: Their Effects on You, Drugs: Who's in Control?; Print-Quick; The Invoicer

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Apple IIc-compatible computer
$499
Rating: ■■■

A recent press release hinted at smaller, cheaper machines to come, but for now Franklin Computer Corp. looks like a company that's been beaten at its own game. Just as the firm was enjoying modest success with its Apple IIe-compatible Ace 2100 and 2200, Video Technology of Hong Kong introduced the Laser 128, with IIc styling, a IIe-type expansion slot, and a killer price ($395 via mail-order). The Ace series got into the Sears catalogue, but Franklin was no longer the only clone in town—just the most expensive.

Franklin may appear to face uphill odds—a lawsuit aimed at stopping Laser sales was recently settled with no effects other than a revised 128 boot ROM. But dismissing the latest Franklin, the Ace 500, as a washout—$100 more than the Laser without the Laser's expansion slot—is a little unfair. The 500 is a good-looking, nicely Apple-compatible computer worth considering for home or school use. I'd rather have the Laser's slot than the Franklin's extra memory, however, and I was dismayed when our Franklin's 80/40-column switch fell off.

ACE, ADVANTAGE, DEUCE

When I tested the Ace 500, I found my preconceived ideas of Franklin-versus-Laser advantages and disadvantages fading away. For example, there's little real difference in price. When you count shipping and handling, Central Point Software sells a Laser 128 for $415; the Ace 500's list price is $499, but *inCider* bought one for $449 from a New York City discount house.

The rival machines are generally similar in layout. Each resembles an Apple IIc, with a built-in disk drive and a wider keyboard adding a numeric keypad and function keys. Each adds extra ports to the IIc-style back panel; the Franklin has a serial port, parallel port, headphone jack, mouse/joystick interface, two video jacks for composite and either Apple- or IBM-style RGB color monitors (DIP switches control which RGB signal the Franklin sends), and an external disk-drive port. The Franklin's power supply is a bulky wall plug, rather than a box that can sit on the floor.

The drive port worked with 5¼-inch Apple Disk IIc and Laser FD-100C drives; Franklin sells a 5¼-inch drive of its own for $149.95. As the Ace 500 manual says, the port doesn't work with Apple's UniDisk 3.5, and I had no luck trying it with several other 3½-inch drives—the Apple 3.5 from a IIGS, the Chinon drive sold by Central Point, or a 400K Macintosh drive.

Besides the external drive, Franklin options include an RGB monitor ($299.95), a monochrome monitor ($139.95), and a mouse ($79.95). I tested our 500 with Apple monitors and a Macintosh mouse, which worked fine.

Franklin omitted the IIc's least-used feature, the regular/Dvorak keyboard switch. Instead, a row above the keyboard includes an 80/40-column button (rather loosely mounted on our machine), a sliding volume button for the 500's speaker, and two helpful additions: a four-position switch that offers white, green, amber, or blue text with RGB monitors, and a neat button that toggles between a regular and mousetext character set, letting the Ace run both old and new software without bizarre symbols or unreadable inverse-video characters. There are indicator lights for traditional functions (power on, Caps Lock, Num Lock) and also for disk and CPU activity, disk write, IBM or Apple color palette, and double-hi-res graphics mode.

My first impression of the Ace 500 credited it with two advantages over the 128: better looks and a better keyboard. The first still holds true; Laser representatives were unhappy

inCider's Ratings

Excellent—remarkable, a must buy	■■■■■
Very good—impressive and recommended	■■■■
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when I described the 128 (December 1986, p. 58) as plain and homely, but the Franklin's sleek black case and low-slung profile turn more heads. The keyboard race, however, turned out to be a tie. Franklin's feels better for touch typing, crisp and responsive if a little noisy, but I have some complaints about its layout.

The keyboard resembles that of an Apple that fell under the influence of an IBM PC. Besides the usual Apple layout (with open and solid Fs instead of apple keys), there are 12 function keys, an Alt key (neither very useful for most Apple programs), and a numeric keypad.

As on the IBM, the cursor arrows are arranged in a compass pattern on the keypad—much easier than Apple's horizontal line for cursor navigation, but there's a drawback: You can't use the arrow keys and keypad numbers at the same time. I usually left Num Lock off for the sake of cursor arrows, then tapped the keypad to no effect when choosing from AppleWorks menus.

Also, Apple users will instinctively reach for the top right corner of the keyboard for the delete (destructive backspace) key, only to find a plain nondestructive backspace or left arrow. The delete key, like a PC's, is at the bottom right. ("Only users with technical applications," the manual assures you, "are likely to use DEL." I'm trying to think of a productivity package that doesn't.)

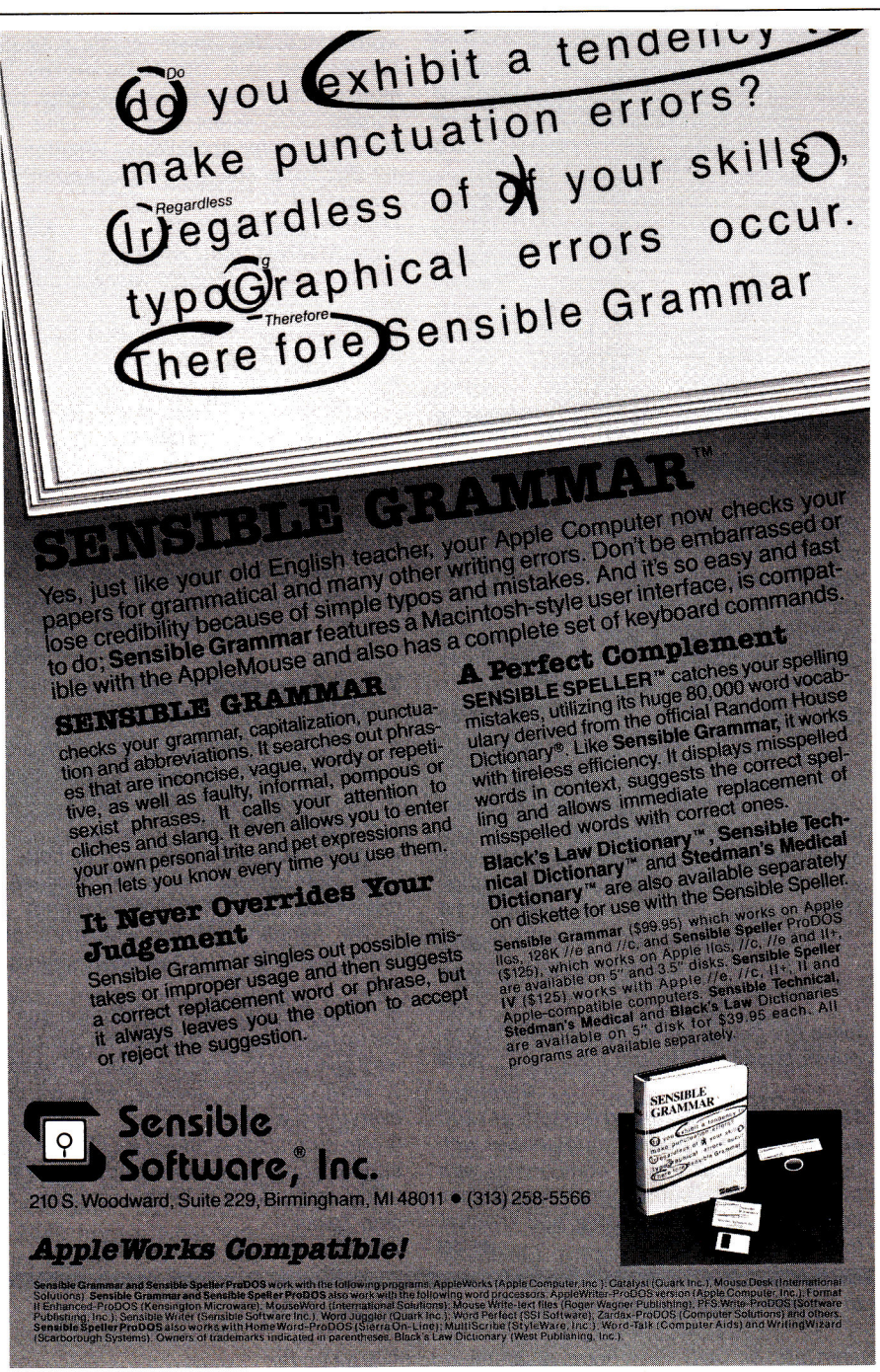
SOFTWARE SELECTIONS

Considering the reams of self-booting Apple software available, I suspect few users will bother with FDOS 2, the Ace's bundled operating system. FDOS looks and works much like Apple DOS 3.3 (with commands such as CATALOG, INIT, and BRUN and a utility program called FUD to Apple's FID). There are minor advantages—as with ProDOS, a simple hyphen replaces either the RUN or BRUN command—and the extra ability to format and read 40- as well as 35-track disks, storing 160K instead of 143K of data, with Franklin drives.

While it may not lure applications users from ProDOS, FDOS looks like a pleasant environment for BASIC programmers. It lets you program the Ace's function keys (default definitions include such common statements as CATALOG,D1 and UNLOCK), and the keypad provides one-touch entry of BASIC editing commands for tasks such as clearing the screen or listing a program.

The most important software question, of course, is compatibility, and the Ace 500 earns high marks. The Laser had an edge on the Ace 2100 and 2200, but Franklin has been catching up. I tried the 500 with programs including AppleWorks 1.3 and 2.0, Super MacroWorks, DOS 3.3 and ProDOS system disks, MultiScribe 2.0, Catalyst 3.0, MouseFiler, Multiplan, Award Maker Plus, Blazing Paddles, Type, Stickybear Drawing, PFS:Write (ProDOS), and games ranging from Airheart, Borrowed Time, and F-15 Strike Eagle to Marble Madness and Leather Goddesses of Phobos. Most ran with no problems.

There were some quirks. MouseTalk wouldn't start from Control-Open F-Reset, but was fine from a cold (power off) start; Shanghai was just the opposite. MouseCalc 1.1 stumbled, repeatedly hanging up but freeing itself with Control-Reset.



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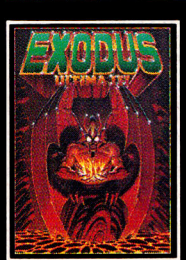

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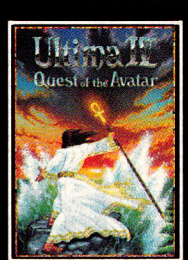

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Homeworker 2.1 worked all right, but the video never jelled—the mousetext character set scrambled highlighted menu choices, while the regular character set couldn't draw menu border lines.

While the Laser emulates an enhanced IIe, software sees the Ace 500 as a IIc—AppleWorks, for instance, offering "Built-in disk" and "Ext. disk IIc" instead of "Drive 1" and "Drive 2." I was impressed when the Ace booted and ran Apple's IIc System Utilities, which neither a Laser nor IIe can, though video gremlins struck again—each menu choice appeared twice on screen as I selected it, and the help screen had been through a blender.

I haven't discussed the rival machines' most telling differences yet. While the Laser has an expansion slot (compatible with the IIe's slot 7), the Franklin has more memory—256K standard, expandable to 512K. The second 128K follows Applied Engineering's RamWorks/Z-RAM or Checkmate Technology's MultiRam C standard; the FDOS disk includes drivers for both FDOS and ProDOS RAM disks, and (for 512K Aces) a program that automatically loads AppleWorks 1.1, 1.2, or 1.3 onto the RAM disk.

The extra memory is a nice feature, but the advent of ProDOS and AppleWorks 2.0 has put some large handwriting on the wall concerning Apple- instead of RamWorks-standard memory expansion. A Franklin (or a Laser, for that matter) with an internal Apple-standard memory card would be more up-to-date.

Sensible Writer recognized the Franklin's RAM, as did Applied's Super AppleWorks Desktop Expander (version 5.3.1, with AppleWorks 1.3) and AppleWorks 2 Expander (version 1.01, with AppleWorks 2.0). Both Applied programs saw the 500 as a IIc with a 128K Z-RAM card installed, which passed Applied's diagnostic bit test but failed on the eighth pass of the overall test. The 2.0 Expander worked perfectly, boosting the AppleWorks desktop from 56K to 116K. The 1.3 Expander, however, reported successful installation and started AppleWorks with an enlarged (109K) desktop, but when I loaded a word-processing file AppleWorks went berserk: It brought up the word-processing screen with the filename at top, but the file turned out to be AppleWorks' help screen.

WORTH A LOOK

Every non-Apple computer has individual compatibility hiccups, and the Franklin's are relatively minor. (Also, since the 500 is in more retail stores than the Laser, you're more likely to find a dealer who'll let you try your favorite software before you buy.)

If you're attracted by its sleek design and nice touches, such as the standard/mousetext switch, and don't need to add expansion cards, the Ace 500 is a fair alternative to the IIc. It's an affordable, compatible machine. I just can't recommend it as enthusiastically as I might the Laser. ■

Eric Grevstad
inCider ***staff***

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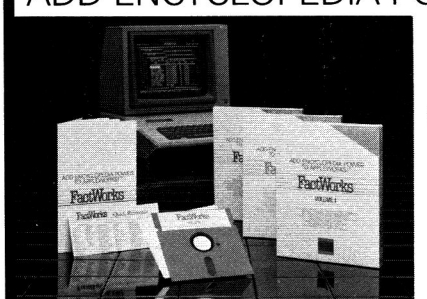

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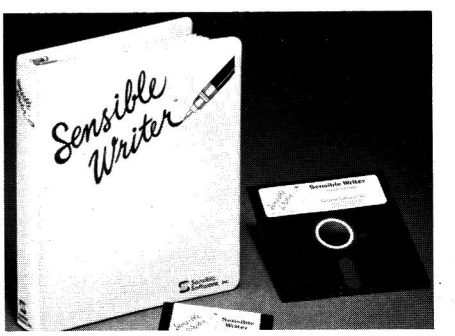


Write It and Check It

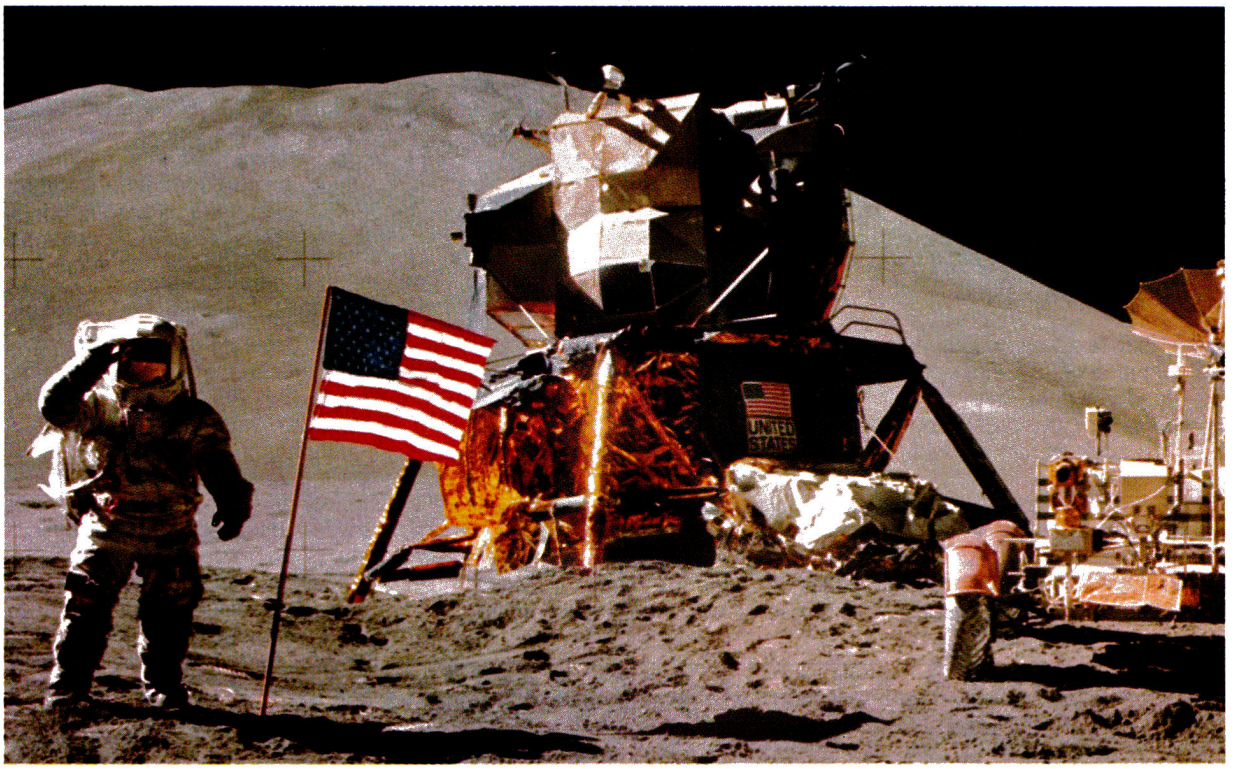
SENSIBLE WRITER

Sensible Software Inc., 210 South Woodward, Suite 229, Birmingham, MI 48011, (313) 258-5566

ProDOS word processor; 128K Apple IIc, enhanced IIe, IIGS; mouse recommended
$99.95
Rating: ■■■

Sensible Writer is a mouse-based word processor for late-model Apple IIs. With its companion programs Sensible Speller ($125) and Sensible Grammar ($99.95), it forms a system that lets you compose, edit, and proofread documents. It's not a

THE AMERICAN WAY TO THE TOP



This July 4th, we at Applied Engineering hope that all Americans will take time out to ponder who and what we are.

It is hoped that we can remind ourselves what it means to be an American.

We invented the telephone, the electric light, the phonograph, and the airplane. Americans invented the first vacuum tube, transistor and the integrated circuit, without which the personal computer would have been impossible. Over 95% of the world's new inventions are invented by Americans. We lead the world in all phases of technology; electronics, physics, chemistry, health science, space and robotics. We've sent men to the moon, landed a robot on Mars, and sent our probes out across the galaxy! Americans by their very nature are inventors, thinkers, winners and doers.

America is a country where two young men started a company in their garage and three years later Apple Computer became the industry leader. Applied Engineering started much the same way and we became the leading Apple peripheral manufacturer, with no outside sales force, no marketing strategy, and no commissioned sales people.

Our business plan at Applied Engineering is simple. BE THE BEST. That means producing tomorrow's peripherals today, it means hard work, high quality, total dedication to Apple Computer and good service at competitive prices.

While some other guys are losing the ball game . . . we're adding to our roster. In the past few months, we've added 6 new products to our line up for a total of 41 and we're working on more. We've added more order lines and more knowledgeable people to serve you.

While others look to the Orient for solutions to their engineering and manufacturing problems, we at Applied Engineering feel differently because we know America's inventive past and her inventive future and we're excited.

To quote Dr. Robert Goddard in a letter to H. G. Wells, "There can be no thought of finishing, for 'aiming at the stars,' both literally and figuratively, is a problem to occupy generations, so that no matter how much progress one makes, there is always the thrill of just beginning."

Æ
APPLIED ENGINEERING
The Apple enhancement experts

heavy-duty word processor; for example, it supports headers and footers, but not footnotes for books or technical papers. But for most home, school, and business applications, Sensible Writer has power to spare.

Besides familiar editing options such as insert and overstrike, search and replace functions, and cursor movement by character, word, page, or mouse placement, Sensible Writer offers flexible formatting and windowed editing of two files at once. You can use one format for an entire document or format some paragraphs individually.

It supports four text justifications (left, center, right, and full) and eight text styles (standard, bold, italic, underline, superscript, subscript, and two custom). In addition, since Sensible Writer documents reside entirely in memory, reformatting and searching operations are impressively fast. On the other hand, you'll need expansion RAM beyond 128K to create documents larger than eight or ten pages.

OF MICE AND WORDS

Since MacWrite appeared in 1984, "mouse people" and "keyboard people" have been arguing about the pros and cons of moving your fingers from the keyboard to control a mouse. Though I'm a touch typist (albeit a slow one), I never favored the keyboard-only argument, since most touch-typing courses don't include computer keys such as Escape and Control. I like mouse-based word processors because they make it easy to handle blocks of text as well as individual words.

Although you can use Sensible Writer without a mouse, I don't recommend it. You can't use the vertical scroll bars from the keyboard, so there's no easy way to move through your document a page or a paragraph at a time. Making selections from dialog boxes is much easier with a mouse than with the keyboard. The best solution is to use both; for instance, I use the mouse to select blocks of text, then use keyboard commands instead of pull-down menus to perform an action on the selected text. Sensible Writer gives you that flexibility.

STYLES AND WINDOWS

When you boot Sensible Writer, the program displays the main editing window with a row of pull-down menus across the top. You select New from the File menu (or type Open apple-N) to enter text for a new document, or choose Open to retrieve a previously saved document from disk. (The designers should have made New the default, but that's a minor detail.) The program can read AppleWorks word-processing documents and ASCII text files as well as Sensible Writer documents.

Once you have a document in the editing window, you can delete, move, and copy blocks of text or specify different typestyles for different words or blocks, although you won't actually see boldface or italics on screen—Sensible Writer uses the Apple's character-generator ROM, which doesn't have bold, italic, underlined, superscript, or subscript characters.

Instead, such text is highlighted with inverse video. Unfortunately, the same highlighting is used when you select text for block editing and formatting, and when you choose a typestyle. An indicator at the bottom of the window tells you whether the character under your cursor is highlighted because it's a special typestyle or because it's selected.

If you select a block of already styled text, carets replace the first and last letters of the affected lines, and the text returns to standard video mode; after you perform some action on the selected text, it returns once again to inverse video. Sensible Writer performs these contortions so that you'll always know when text is selected and when it's in a special style. If you're confused by the distinction, you're not alone; I still get puzzled when I use different styles in my documents.

The one good thing about the way Sensible Writer handles typestyles is that it doesn't add visible formatting characters to your document. A line that's 57 characters long on your screen will be 57 characters long on paper. Within the limits of the character-generator ROM, what you see is what you get.

Sensible Writer uses rulers to govern margins, line spacing, justification,

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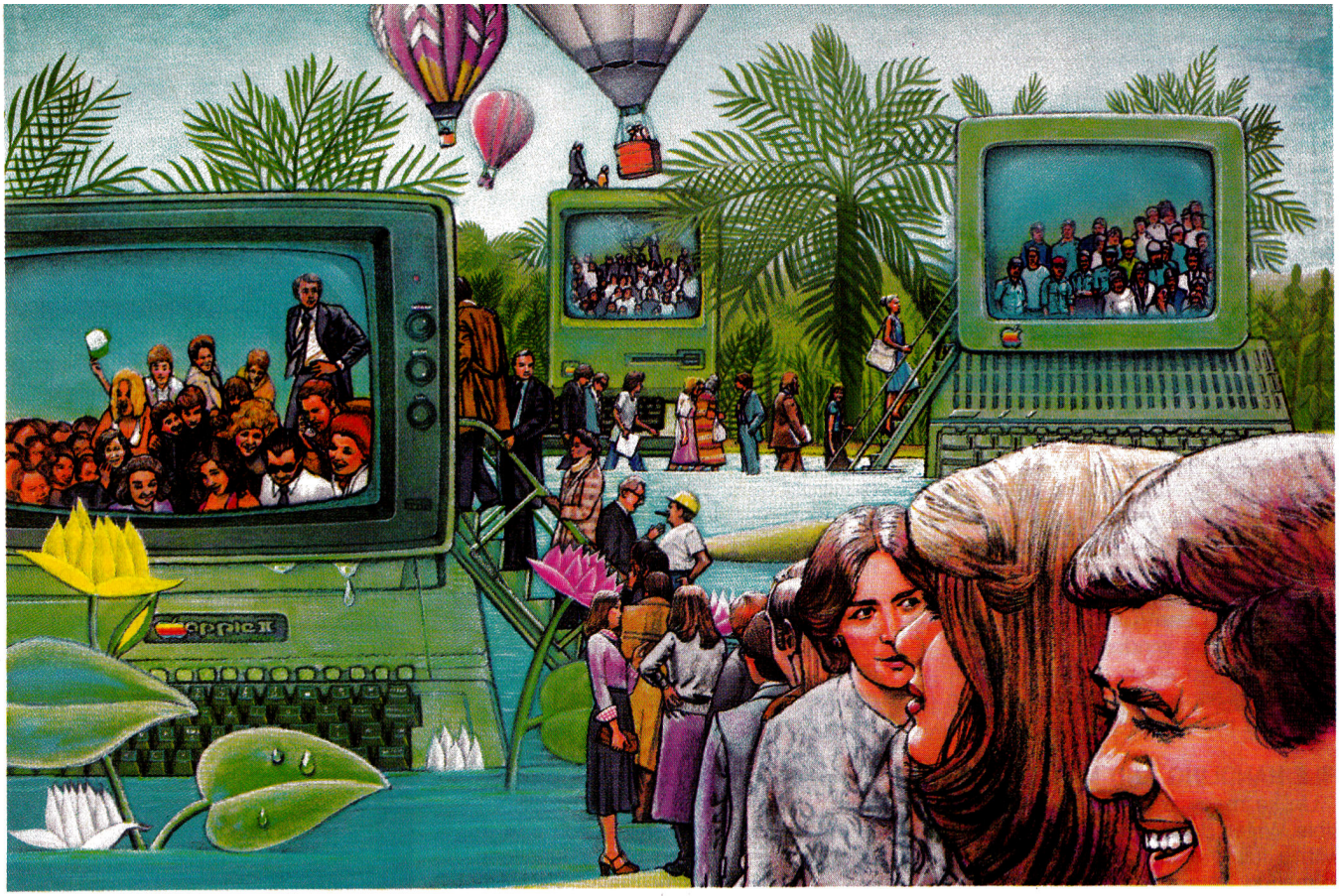

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tabs, and paragraph indents. A master ruler controls the general formatting of a document, while local rulers let you change master settings within a particular area—to indent a quote or format tabular information, for example. You determine the range of a local ruler, beyond which the master ruler retakes control. Though you set line spacing in the ruler, line-and-a-half or double spacing, like typestyles, don't actually appear on screen.

Sensible Writer lets you have two editing windows open at once, and cut and paste text between them as easily as you can within the same document. The windows can't be opened to two areas of the same document, although they can contain copies of the same document.

FILE HANDLING AND HARDWARE

Unlike many word processors, Sensible Writer doesn't let you get stuck with a full disk or caught without a formatted data disk. You can format a data disk, change the location of the data disk, and delete old files from within the program.

The only complaint I have about the program's file-handling capabilities is that it doesn't have a simple save function. Sensible Writer's Save is really a Save As function; each time you use it, you have to indicate your document's prefix and pathname, or at least accept your previous defaults. It would be nice to have an option that didn't call up a dialog box, but saved your document to the default location automatically. After all, the more convenient the save function, the more often you'll use it to protect yourself against power interruptions.

Sensible Writer's configuration options, and the ease with which you can access them, are among its strong points. If your printer (or a compatible) isn't on the configuration menu, you can enter the setup codes from your printer manual. In addition to the supplied text styles, you can add two user-defined printer functions to the Sensible Writer menu. It's also easy to change printer-initialization codes so that the program will work with most printer/interface-card combinations.

Sensible Writer supports both auxiliary-slot and Apple-type extended-memory cards; it automatically recognizes both my 512K Checkmate MultiRAM card and my 1-megabyte Apple board. The word processor uses up to 512K for program code and data; memory beyond 512K is usable as a RAM disk. With 512K, you can create some very large documents—up to about 40 pages.

OPTIONAL ACCESSORIES

While it's a good performer in its own right, Sensible Writer is designed to shine with the publisher's other programs, Sensible Speller and Sensible Grammar. The first, with an 80,000-word dictionary from Random House and options for ignoring, marking, or replacing flagged words, is a solid spelling checker that can read files from most ProDOS word processors, including AppleWorks.

Unlike Sensible Writer, however, Speller isn't mouse-driven. In fact, the program came up in 40 columns on my Checkmate-equipped IIe, resulting in some strange word wraps, and bombed when I used it with my Applied Engineering TransWarp speedup card. Since spelling can be slow in large documents, I was disappointed I couldn't use the TransWarp with the program. On the whole, though, Sensible Speller did a good job of catching errors and letting me create my own dictionaries.

I don't think as highly of Sensible Grammar. While this program supports the mouse, it does so in an awkward and nonstandard way. For example, you don't need Escape to access the menus from the keyboard—the menus are permanently pulled down. (Luckily, you can access all features from the keyboard.)

Sensible Grammar proved skillful at catching punctuation errors, but I found it of limited use in catching grammatical errors, such as irregularities in style or commonly misused words and phrases. Since it doesn't understand the context in which words appear, it frequently flags "errors" that are actually correct. Unless you need its punctuation help, I think you'll be better off buying Strunk and White's *Elements of Style*.

All told, Sensible Writer is a very good word processor, though a bit expensive at $99.95. (The combina-

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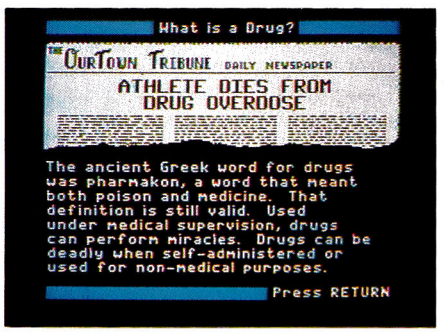
tion of Writer and Speller costs more than high-powered word processors with spellers, such as MouseWrite and WordPerfect.) The program has a good editor, many style and formatting options, and excellent file handling (except for the save function).

Sensible Speller is a nice companion program, and a fine spelling checker in its own right. It would be great if it had the same user interface as Sensible Writer, but even without it the two make a fine writing and proofing system. Sensible Grammar is useful only if your punctuation is atrocious. ■

Robert M. Ryan
Sharon, NH



Important Education

ASK ME

Crown Point Software, 191 First Crown Point Road, Rochester, NH 03867, (603) 332-4090

Sex-education software; 48K Apple II Plus or later
$99.50
Rating: ■■■

DRUG ALERT

Mindscape/Learning Well, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667

Drug-education quiz game; 48K Apple II Plus or later
$49.95 ($59.95 with backup)
Rating: ■■■■

DRUGS: THEIR EFFECTS ON YOU

DRUGS: WHO'S IN CONTROL?

Marshware, P.O. Box 8082, Shawnee Mission, KS 66208, (816) 523-1059

Drug-education programs; 48K Apple II Plus or later
$49.95 each ($59.95 with backup); $84 for both
Rating: ■■■

Pregnancy among teenagers is on the rise. AIDS has reached crisis proportions. Athletes die from drug overdoses and cocaine-induced heart attacks. There's no denying that drug awareness and sex education are critically important issues facing today's youth. Parents and teachers—and now your Apple—can help children make the right decisions.

Four new programs indicate how the Apple can be used in fun, innovative ways to convey information about the harmful effects of alcohol, tobacco, caffeine, and other drugs, or to answer potentially embarrassing questions about sex in a confidential, matter-of-fact way. The private nature of computer use offers the chance to learn without adult supervision, but teachers can also use the programs to supplement class discussions.

ASK ME

Ask Me, subtitled "Sexual Information for Adolescents," is designed to answer questions from junior- and senior-high-school students (ages 12 to 16) on a variety of topics in sex education. Between its subject matter and its explicit language, the program's authors expect it to cause some controversy, yet it does its job of giving unblushing answers and eliminating misconceptions—destroying, for example, the myth that "you can't get pregnant your first time."

The program includes two disks, answering common questions from girls and boys, respectively. The authors expect that students of both sexes will want to try both disks. This is a good suggestion, since some of the topics of importance to girls (such as masturbation, orgasm, sex during pregnancy, drugs and sex, and venereal disease and public toilets) are covered only on the boys' disk.

Each disk answers about 100 questions on four topics frequently asked of its authors, two New York state junior-high counselors. These areas are body changes, sexual intercourse and pregnancy, birth control, and sexually transmitted diseases (STDs).

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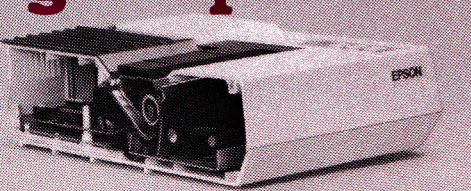

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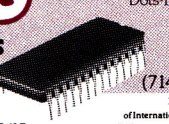

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Individual topics range from menstruation and mood swings to pregnancy, petting, birth control, AIDS, toxic-shock syndrome, and the like.

The program uses a plain, straightforward tone, in keeping with the authors' belief that it's better to ask the computer (hence the title) than to get misinformation from less-knowledgeable friends. A few questions are presented with a touch of humor, such as my favorite: "My boyfriend says condoms are too expensive. What should I use?" Answer: "A different boyfriend." From any question screen, students can check a dictionary of terms with references to everyday or slang expressions.

Ask Me encourages self-esteem and respect for others in a relationship. Both boys and girls are taught that it's not safe to engage in casual sex and that birth control is the responsibility of both partners.

While the program offers much information (such as the national STD hot-line number), it contains a number of spelling errors that detract from the overall professionalism of the presentation. In addition, at $99.50, Ask Me is surprisingly expensive for what it offers. It may be educational, but it's also dull—plain text, with no graphics or animation. For the price, a teacher might do better to purchase a number of illustrated, indexed books that, like Ask Me, could be consulted in private settings without fear of embarrassment or threat of lecture.

Still, Ask Me is a good beginning and I wouldn't hesitate to let my children use it when they reach adolescence (or earlier if they show interest).

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DRUG ALERT!

Drug Alert, "An Adventure in Drug Education," is a program with a touch of class for grades 5 through 12. Designed by Methods and Solutions (creators of the successful MindPlay series), Drug Alert offers "playful software for serious learning"—colorful graphics, some animation and sound, and a challenging simulation game that presents basic information about drugs, alcohol, and smoking without being overly pedantic or heavy-handed.

The Drug Alert handbook, consulted during the game (you can also print it from the disk), is a database of 45 drugs divided into four categories (narcotics and painkillers, stimulants, depressants, and hallucinogens). Each drug is described in terms of its appearance, street names, method of taking, dosage and overdose effects, what it feels like, how long it lasts, how addictive it is, its legal or medicinal status, and other factors.

The goal of the game is to get your friend Pat, who's hooked on an unidentified drug, out of a seedy, cockroach-infested hotel that's a shooting gallery for pushers and users. Pat is in the sub-sub-subbasement, so strung out that she (or he) can't remember the drug in question. You must work your way up through four levels of the building and collect enough information to identify the drug before you can leave.

Somewhere amid each floor's rooms and corridors is a hint about the drug Pat was taking, along with two stashes of hidden drugs you must find and destroy (having found the incinerator). Burn the wrong stash

first and the task of finding the second (the elevator operator's) becomes more difficult. In addition, the inhabitants are sure to block your way until you can answer some drug-related questions.

As you move through the hotel, you collect information that helps you determine Pat's drug. The game is challenging and may have to be played more than once before you can escape successfully. Fortunately, it includes a save option to let you start again where you left off.

Drug Alert comes with a detailed instruction manual and a teacher's guide featuring eight lesson plans and 11 activity sheets. Drug Alert is more than a game. It's a successful instructional tool backed by strong educational objectives, and brightened by the glitter that goes into quality educational programs.

DRUGS: THEIR EFFECTS ON YOU

This, the first half of Marshware's "Drugs Resistive Series," provides information about different drugs through a tutorial appropriate for ages seven through adult. Starting with "What Is a Drug?" it proceeds through the four categories—stimulants, depressants, narcotics, and hallucinogens—to three social topics (peer pressure, taking risks, and saying no). Students can see the entire tutorial or select topics of interest.

The program presents information in a straightforward manner, aided by colorful hi-res graphics. An on-disk dictionary defines 14 terms; the brief manual includes a bibliography for further reading.

The drugs given most attention are caffeine, nicotine, amphetamines, alcohol, marijuana, LSD, and heroin, with others (notably cocaine) given just passing reference. The program describes their effects on the body, social and material costs, and long- and short-term health risks, detailing the physical and psychological dependencies that may result from their usage.

The emphasis is on helping students make informed decisions when offered a drug—knowing the risks and knowing when to say no, because saying yes can lead to losing self-respect, getting into trouble at home or school, getting arrested, becoming addicted, or dying. For that reason, my favorite topics are the later lessons on peer pressure, taking risks, and saying no. The program points out that how you say no is just as important as saying it: "When saying no to peer pressure, let your friends know you mean what you say by standing up straight, establishing eye contact, speaking clearly, and sounding confident."

The tutorial may not be flashy, but it contains solid information. Unfortunately, I found most of the true/false and multiple-choice questions that test students' grasp of tutorial materials to be overly simple. Before or after reviewing the program topics, the student can elect to take a 25-question quiz, using the same questions.

DRUGS: WHO'S IN CONTROL?

The second Marshware program picks up on the themes of peer pressure and saying no, giving students the chance to make decisions about drug use and its results in a safe environment—a classroom simulation. While it's not necessary to use the earlier program first, students should have some knowledge of drugs' ef-

Continued on p. 86.

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DIGITIZE to the MAX

For everything from clip-art creation to experimenting with sophisticated data acquisition and analysis, there's a digitizer that will help you convert video images to Apple graphics.

by Robert M. Ryan

If the greatest paint program in the world won't hide your lack of artistic ability, you're a perfect candidate for a video digitizer—a device that transforms video images into Apple graphics. That's not to say you have to be an artistic klutz to use and enjoy digitizers—many artists use them to enhance their Apple graphics. But if you've always thought you were shortchanged in the right-brain department, a video digitizer may be the great equalizer.

The three Apple II digitizer boards and software compared here—ComputerEyes/2, VisionPlus, and ImageWorks—couldn't be more different. Whether you want to use digitized images as graphics in your PTA newsletter, add to your clip-art library, analyze arteries for medical research, or experiment with GS graphics, one of these three digitizers will meet your needs.

Above, color slide of Max Headroom, whose projected image was shot and digitized to produce the four pictures at right. Left to right, 64-level gray scale with ImageWorks (IIe); VisionPlus duotone (single color added to black-and-white; GS); VisionPlus true color (GS); ComputerEyes/2 false color (IIe).

COMPUTEREYES/2

ComputerEyes/2 is the most flexible of the three. For example, images captured with this system can be used in diverse programs such as **Dazzle Draw**, **Beagle Graphics**, and **The Newsroom**. ComputerEyes/2 also captures to both ProDOS and DOS 3.3 disks, and in both hi-res and double-hi-res formats. You can even display ComputerEyes/2 images from your Applesoft BASIC programs, since pictures are stored in Apple binary format.

ComputerEyes/2 is easy to install and can work from any of your Apple's peripheral slots. Three cables run from the card. One takes input from your Apple's video-

out port; another takes input from a video source; the third connects to your monitor. You configure the accompanying ComputerEyes software by working through a series of simple menus. Using the menus, you tell the software where to find the ComputerEyes card, whether you're using North American Network Television Standard Committee (NTSC) or European (PAL) video, whether you have extended memory for double-hi-res graphics, and whether you have a Video 7 Color Enhancer board (see below), which can display true gray scales. Once configured, the software moves to the main menu.

The menus let you preview your video input before digitizing so that you can focus your camera and frame your shot; adjust the brightness and contrast of the digitized image; capture images in different formats; view the last image captured; and access your data disk to save, load, or delete images, catalog the disk, or format a new data disk.

The heart of the ComputerEyes/2 system is the capture function, which is easy to perform. After indicating the resolution you want (hi-res or double-hi-res), the type of image (two-tone, dithered gray-scale, or false-colored), the software scans the video signal and converts it to Apple graphics. The scanning process takes about six seconds.

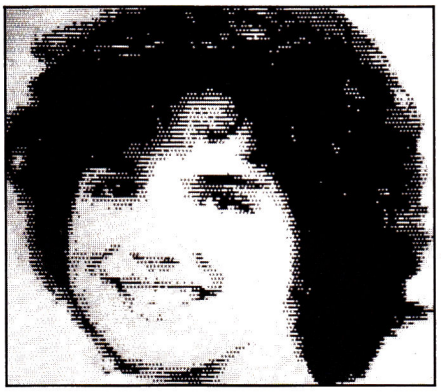
Although you can do more with the images once they're captured, ComputerEyes/2 images aren't as good as those acquired with VisionPlus or ImageWorks. The reason is simple; ComputerEyes/2 is designed to work with the graphics system of your basic Apple II, which can't display gray scales at all.

To get around this, the ComputerEyes/2 software "dithers" black and white pixels to create an artificial gray scale: arranges them to create the illusion of gray. Darker areas in the digitized picture have more black pixels than white, and lighter have fewer. The results are attractive, but dithering reduces the resolution of the picture. Dithering is a slow process because the digitizer's software must determine the pattern of black and white dots that best matches the image input. False coloring is the arbitrary assignment (by the ComputerEyes software) of the Apple's eight discrete hi-res colors to specific ranges of voltage, signifying varying light intensities.

The ComputerEyes/2 system tested for this review included optional enhancement software, which lets you flip images horizontally; negate, scroll, shrink, or expand pictures; and perform some useful conversions—for example, hi-res to double-hi-res, and Apple binary graphics to Print Shop graphics. At $24.95, these utilities are a good buy.

Digital Vision says it intends to release special software that will let ComputerEyes/2 capture true 16-level gray-scale images on the GS. The company notes that it plans to make the software available to current ComputerEyes/2 owners for about $30. At press time, Digital Vision was also in the final stages of producing an all-new board for the

Top to bottom, the best black-and-white images available: ComputerEyes' double-hi-res "dithered" artificial gray scale; VisionPlus' 16-level gray scale; ImageWorks' 64-level gray scale.



Your Equipment

A digitizer isn't a video source; it's simply a device that captures and converts video pictures to digital information you can display on a computer. For a complete digitizing system, you need a video source for the pictures you capture.

For this article, my primary video source was a Kodak Kodavision Camcorder 2400 (but any video camera will work). It's a combination video camera and VCR that's small enough to carry with one hand. To digitize images, plug the Camcorder 2400 into its converter-charger and run a standard RCA cable from the converter-charger to the digitizer. (Each digitizer tested takes input from a standard RCA male plug.) Then point the Camcorder at whatever you want to digitize, boot the software accompanying the digitizer board you're using, and capture the images under software control.

Digitizing images from a VCR is also simple; just remember that digitizers take a standard video signal and not the modulated one most TVs use. (Most VCRs put out both modulated and unmodulated signals.) VisionPlus and Imagemaster both work well with VCRs because you don't have to freeze an image to capture it. ComputerEyes/2, however, doesn't work well with most home VHS machines because most don't have a quality freeze-frame function. with ComputerEyes/2, you're better off using a video camera.□ **—R.R.**

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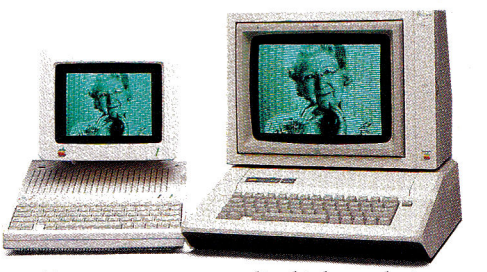

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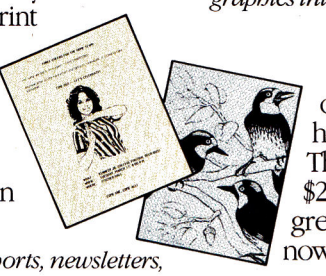

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GS, which will digitize in color, at a cost of about $250. Both products should be ready by midsummer this year.

Finally, for IIe owners who want true gray-scale digitizing instead of pseudo-gray-scale dithering, Digital Vision offers the **Video 7 Color Enhancer** board (with 16 levels of gray) for $79, including Dazzle Draw.

IMAGEMASTER AND IMAGEWORKS

Without a doubt, the **ImageMaster** card ($129) from Redshift Limited produced the most striking gray-scale images of the three digitizers tested. There's a good reason: ImageMaster doesn't use your Apple's built-in graphics system. Instead, ImageMaster uses the proprietary **ImageWorks** graphics card, another Redshift product.

The ImageWorks card ($245) is a graphics system that can display up to 256 levels of gray in a grid of 256 by 256 pixels, to perform digital image processing on your Apple. For example, astronomers can use ImageWorks and a charge-coupled device (CCD) camera to translate

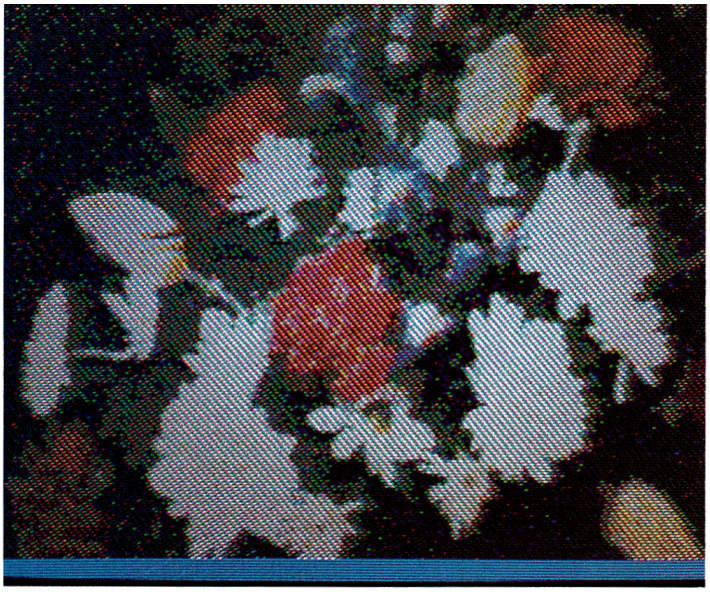


Image digitized with VisionPlus' true color.

Cells to Skateboards: Apple-Digitized Portraits

A digitizer and a video camera or VCR can produce remarkable results on your Apple's monitor. But then you may wonder, "What would I really use this for?" Imaginative Apple II enthusiasts have discovered there are as many applications for digitizers as your creativity allows.

PALETTES AND PORTRAITS

Donovan Hess says his digitizing system, an Apple IIGS and AST's VisionPlus, is a natural extension of his photography and computer skills. Hess has digitized videos of his children doing "action stuff," he explains. For example, he's videotaped and digitized his son's baseball games and his kids riding a skateboard ramp.

Hess says he's pleased with the results: "[VisionPlus'] palette control is excellent. It could be a little more detailed, but you can get around that by altering the light source. The black-and-white digitizing is so easy it's ridiculous."

Hess has created black-and-white portraits of his children, made T-shirts with their digitized images, and gotten involved in "posterization." He's also digitized television shows in real time.

MEDICAL RESEARCH

Digitizing video images has scientific as well as business and home applications. Three researchers in Boston use ComputerEyes/2 with their Apple IIs.

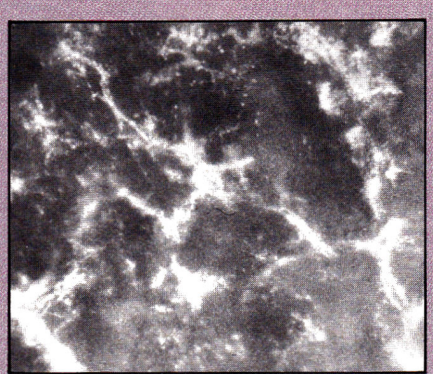
With an RCA video camera hooked up to the side port of her microscope, Dr. Linda Wright, of the Boston University School of Medicine's Department of Anatomy, digitizes images of rat-tissue samples to measure the area covered by nerve cells. By studying the contrast and quantifying the light and dark pixels, she can identify the density of sympathetic innervation (number of neural fibers) in a particular sample. She has identified differences between males and females and between normal and hypertensive rats.

"Digitizing saves a lot of time," Wright emphasizes. "Previously, we would take pictures through the microscope. Digitizing is much faster because it eliminates the photographic process [developing and comparing shots individually]."

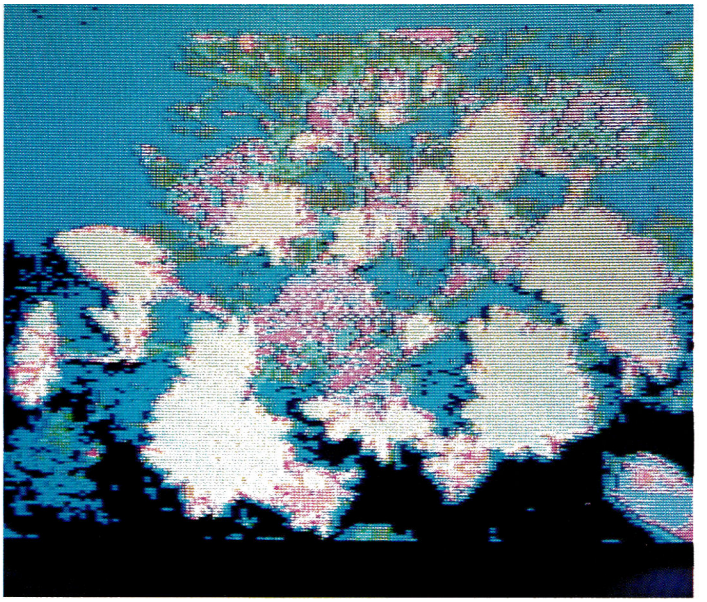
Another BU biologist, Dr. Lawrence Zoller, uses ComputerEyes-digitized images to measure the amount of atrial natriuretic factor (ANF), a recently discovered hormone, in cells of the human heart. ANF is secreted from cells nestled primarily among the muscle cells forming the wall of the right atrium (the upper right chamber of your heart); after appropriate preparation and staining, its presence in tissue is labeled by blue patches under the microscope. ANF acts on the kidneys to help control excretion of water and sodium; an

Donovan Hess uses T-Shirt Shop and his ImageWriter to transfer VisionPlus images.

VisionPlus lets Donovan Hess capture video portraits of his children in action.



ComputerEyes-digitized image of a tissue sample taken from a male rat's pineal gland.



Same image, digitized with ComputerEyes' false color.

the number of photons striking the camera into a number corresponding directly to the brightness of the observed celestial object.

ImageWorks isn't meant for everyone; the product was conceived as an aid in technical applications. As Redshift says in its literature, it built the card to capture, display, and analyze images obtained from CCD cameras.

ImageWorks comes with software that controls the card and complete technical documentation on creating programs to analyze images and building hardware to acquire data for the card. Redshift Limited also offers a color-option board ($129) for ImageWorks, which displays 256 colors at a time from a palette of 4096.

The ImageMaster card is a powerful data-acquisition device for ImageWorks. Using a process called "frame grabbing," it can digitize video signals instantly into 64-level gray-scale images. It's much faster than ComputerEyes/2 because it doesn't have to dither images, but transfers them directly to the ImageWorks display hardware. Using ImageWorks software, you can rotate, crop, save, mirror,

imbalance of this substance plays a role in the development of high blood pressure.

A Panasonic CCTV camera relays a picture of the heart tissue from the microscope to an Apple monochrome monitor; ComputerEyes digitizes the image, and special software, developed by Charles Mazel, then measures automatically the area taken up by ANF: It counts the pixels that turn black and divides that number by the total number of screen pixels.

Previously, Zoller reports, researchers photographed tissue sections, enlarged and developed the negatives, then traced and measured by hand each patch of ANF. The entire process consumed 30 minutes to an hour per section. With digitization, getting an image of and measuring ANF takes only two minutes per slide.

Dr. Peter Madras of the New England Deaconess Hospital has hooked up his ComputerEyes/2 system in a similar manner to study cross-sections of arterial walls. Madras subjects arteries to physical stress that simulates the effects of heart-bypass surgery or high blood pressure, then estimates the arteries' response. Muscle fibers, such as those found in arterial walls, tend to expand under stress; expansion constricts the arterial lumen—the channel through which blood flows.

Madras places cross-sections of an artery on a microscope slide and stains them to show the relative amounts of muscle and connective tissue. He then magnifies the image of the arterial sample and digitizes it. Madras uses Dazzle Draw to enhance the captured image, then boots up a proprietary Apple program to measure the area of the arterial image.

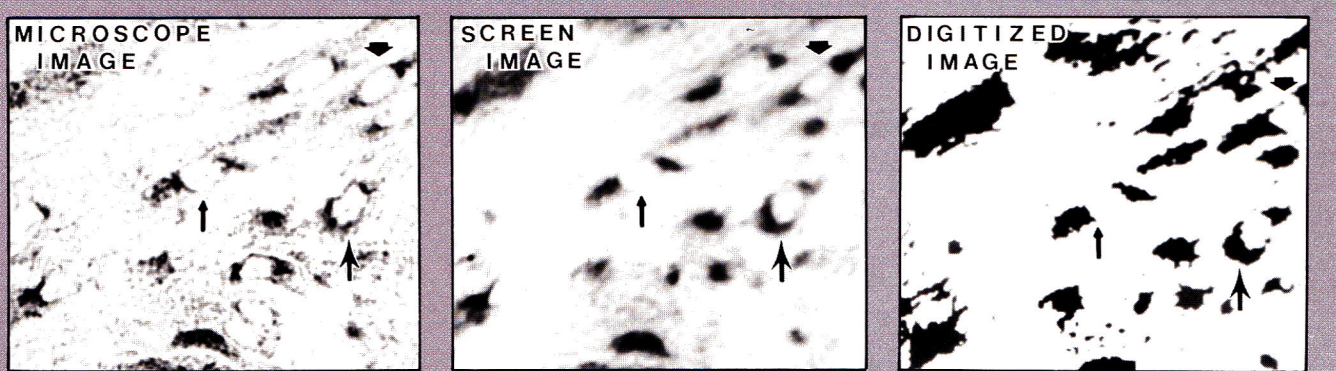
"No one has ever tried to quantify the effects of stress [this way before]," Madras explains. "These types of measurements were typically done by taking Polaroid photo micrographs, cutting them up, and weighing them."

VIDEO CONFERENCING

Ron Sanecki, of Bell Communications Research Laboratory, Red Bank, New Jersey, uses the ImageWorks digitizer from Redshift Limited with an Apple IIe for his research on video phones. Sanecki is working on a process whereby an Apple II would send images to more than one computer at a time—a process he calls coded-access teleconferencing system with video (CATS). He says applications for this type of setup can be found in medicine, real estate, and technical communications.

Sanecki's video-phone system consists of a video camera connected to a digitizing board in the signal-source computer, which sends the image. A high-quality monitor is hooked up to a display board in the receiving Apple. The originating computer then sends the video image via modem over regular phone lines. Sanecki says he's tested the system successfully in coast-to-coast transmissions.□

—Lafe Low, Assistant Editor



Locating the hormone ANF in human heart cells: Arrows point to the same cells in a tissue sample seen (left to right) through the microscope, on the Apple monitor via a video camera, and in a ComputerEyes-digitized photo of the monitor image.

negate, and analyze captured images. You can also write your own programs to analyze images, since ImageWorks operates in conjunction with your Apple's graphics and text modes, not in place of them.

ImageWorks is harder to install than ComputerEyes or VisionPlus. It fits into slot 7 of Apple II Plus and IIe machines and original Apple IIs with Applesoft. It hooks up to the four-pin internal video connector, which is difficult to find and use on a IIe. Also, although the manual states that the video connector is "polarized," meaning it will fit only one way, I managed to plug it in backwards. Fortunately, the manual also alerted me to the problem when I kept shorting out my Apple at powerup.

ImageMaster goes into slot 3 and connects to ImageWorks via a ribbon cable that permits frame grabbing; without the cable you can only slow-scan *à la* ComputerEyes. ImageWorks contains all the hardware you need to synchronize with video signals and perform analog-to-digital conversions. Like all the Apple digitizers, it accepts a standard RCA plug for video input.

ImageMaster and ImageWorks create superb images, but they're not designed for every fan of video digitizing. You can't use the images in other Apple applications—only in those you create for ImageWorks. For the technically inclined, though, you can't beat this system.

At press time, Redshift had begun marketing the new **ImageWorks II** digitizer board, which combines the functions of ImageMaster and the original ImageWorks card. It retails for $295. (Package includes software.) Redshift also offers the ImageWorks II Color Adapter board, priced at $129 (same as the original ImageWorks color-option card).

VISIONPLUS

Unlike ComputerEyes/2 and the ImageWorks/ImageMaster combination, AST's VisionPlus is a GS product exclusively—therefore not limited by the graphics deficiencies of earlier Apples. VisionPlus can digitize gray-scale images in 320- and 640-pixel resolution, and color images in 320.

VisionPlus is fast; with some gray-scale and two-tone images, it can digitize the video signal nearly as quickly as it receives video input. VisionPlus can handle moving objects nearly as well as ImageMaster and much better than ComputerEyes/2. As you add color, digitizing lags behind the video display because there's more information to handle. Color doesn't work well with moving objects.

VisionPlus installs in any GS slot and features completely mouse-driven software. Once you've connected video input and selected gray-scale or color images and 320- or 640-pixel resolution, VisionPlus digitizes until you hit the spacebar or click the mouse button, which freezes the image.

Before you freeze an image, you can control brightness and contrast by moving the mouse. Once frozen, options include colorizing (just as Turner Broadcasting and others have done with old black-and-white movies), negating, and shrinking and expanding parts of the image.

Once you have a picture you like, you can save it to disk. You can load VisionPlus files into Activision's **PaintWorks Plus** for further enhancement and printing. VisionPlus also includes a special file format for images it has "color dithered." Such images appear to have many more hues than the primary colors used in digitizing. Getting good color images from VisionPlus, though, requires practice and experimentation, because the system offers you a number of ways to get color images.

Besides VisionPlus and Digital Vision's forthcoming color ComputerEyes/2, there may soon be a third GS video digitizer. A-Squared Systems (10 Skyway Lane, Oakland, CA 94619, 415-633-0703) announced a card at the GS rollout last September and later showed a prototype at the January Consumer Electronics Show. The company says its product can display two, four, eight, or 16 colors or gray tones at once, choosing the best matches from a full 4096-color palette, and digitize real-time video at 20

Pixels and Pictures

Whether you're watching Dazzle Draw on your Monitor II or Dan Rather on your Sony Trinitron, the picture you see is created the same way. The process, called *raster scanning*, starts at the top left of your screen; a beam of electrons sweeps across each row of your display device, exciting the phosphors on the screen to glow with different intensities. When it finishes one row, the beam returns to the left edge, moves down a row, and "paints" another row of phosphors. Don't be concerned if you've never noticed it: It finishes each screen in one-sixtieth of a second, then returns to the upper left to begin the raster-scan process all over again.

The difference between what you see on your computer screen and what appears on your TV is simply a difference in the quality of information fed to the gun that creates the electron beam. Because computers are digital beasts, they can send only a limited number of discrete information packets to the electron gun in your monitor, resulting in the limited number of colors or gray tones available to programs like Dazzle Draw. Your Apple II, for instance, sends only a one-volt signal for pixel-on, and .25 volts for pixel-off (similar to ones and zeros in binary format), and nothing in between. Color on the Apple II is a function of a signal bit and the location of a pixel's corresponding memory byte on the Apple hi-res-memory page.

On the other hand, video signals like those used to broadcast the *CBS Evening News* aren't limited to pixel-on and pixel-off. They use a continuous range of voltages to send information to the electron gun. Since an infinite number of different voltages lie between any two voltages, video signals can carry an infinite variety of intensity messages to the electron gun. So while computer designers can increase the number of different messages sent to the electron gun by increasing the amount of memory used to store graphics information, they can't match the infinite variety of messages in a video signal.

As with video images, all video digitizers work on the same premise: They turn the voltages that make up video signals into the pixel information that makes up computer-graphics displays. Video digitizing is an example of analog-to-digital conversion: continuous analog voltages converted to discrete (digital) numbers.

Capturing video information and converting it to computer digitization is a more time-sensitive process than most analog-to-digital conversions. Your computer must first synchronize with the video signal before it can turn the voltages into numbers.

Video signals contain special pulses that tell your monitor's electron gun when to return to the top of the screen. The digitizer must detect these pulses so that it begins digitizing at the top of the video frame—not in the middle or at the bottom.

Although synchronizing with the video signal and converting voltages to numeric values are common functions of all digitizers, it's important to remember that the results you get from a specific digitizer depends more on how it manipulates these data and less on how the data are acquired.□ **—R.R.**

Product Information

Beagle Graphics
Beagle Bros
Micro Software
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San Diego, CA 92110
(619) 296-6400
$59.95

Reader Service Number 328

ComputerEyes/2, $129.95
Video 7 Color Enhancer, $79
Digital Vision
66 Eastern Avenue
Dedham, MA 02026
(617) 329-5400

Reader Service Number 329

Dazzle Draw
Broderbund Software
P.O. Box 12947
San Rafael, CA 94903
(415) 479-1700
$59.95

ImageMaster, $129
ImageWorks, $245
ImageWorks II, $295
Redshift Ltd.
P.O. Box 4335
Mountain View, CA 94040
(415) 322-7373

Reader Service Number 330

The Newsroom
Springboard Software
7808 Creekridge Circle
Minneapolis, MN 55435
(612) 944-3915
$59.95

Reader Service Number 331

PaintWorks Plus
Activision Inc.
PO Box 7286
Mountain View, CA 94039
(415) 960-0410
$79.95

Reader Service Number 332

VisionPlus
AST Research
2121 Alton Avenue
Irvine, CA 92714
(714) 553-0340
$295

Reader Service Number 333

frames per second versus AST's 15. Price should be less than $300, though a company representative interviewed in late April declined to predict a final shipping date.

DECIDING ON A DIGITIZER

Which digitizer should you buy? Depending on the application, any one of the three is worth considering.

Due to its reasonable price and flexibility, ComputerEyes/2 is the digitizer of choice for the majority of Apple owners. After all, what good is a digitizer if you can't use the pictures it captures? ImageMaster/ImageWorks is the most impressive digitizing system available, but it's limited by the need to develop your own applications for it. For people who want to do sophisticated digital-image processing on their Apples, however, ImageMaster and ImageWorks are unsurpassed.

VisionPlus' ability to digitize images continuously in near-real time is amazing. Although ComputerEyes for the GS may turn out to be a serious competitor, VisionPlus is the current choice for owners of the latest Apple II.■

Bob Ryan is technical editor for the computer publication AmigaWorld. *Write to him at CW Communications/ Peterborough, 80 Elm Street, Peterborough, NH 03458.*

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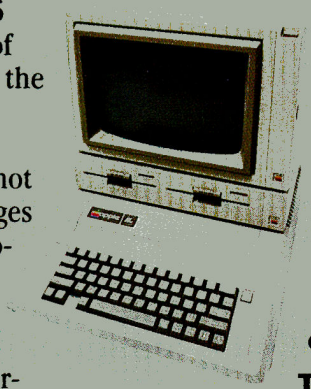

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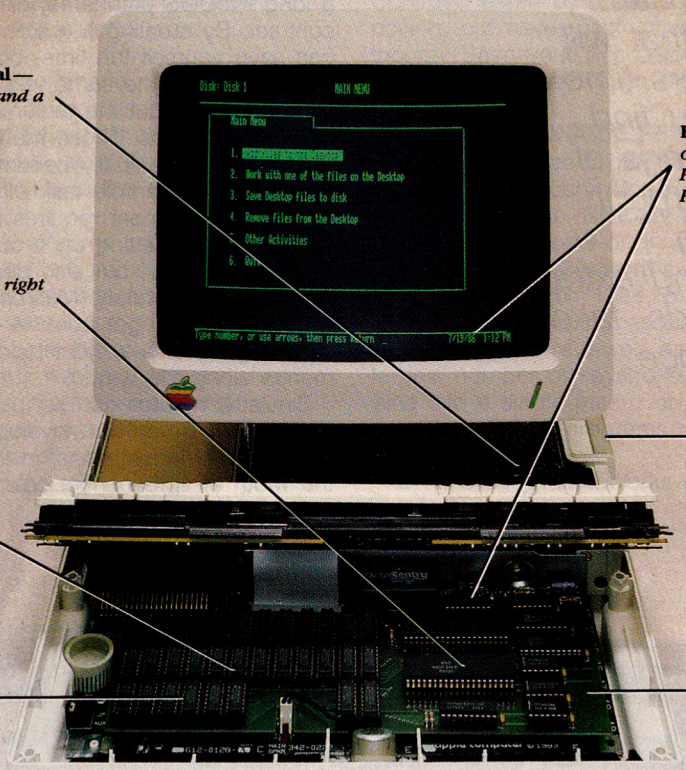

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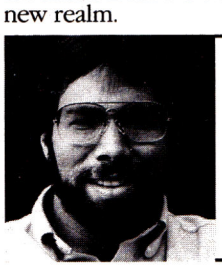

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What makes macros so powerful? inCider *looks at three easy-to-use programs—AutoWorks, KeyPlayer, and Super MacroWorks—that will save AppleWorks users time and keystrokes. If you find yourself repeating strings of text, slowing down through menus and formatting instructions, or needing extra AppleWorks commands, take a look at the convenience macros offer.*

by Tom Sherman

MACROS: Faster Than a...

Remember Superman—able to leap tall buildings at a single bound? If your software makes you take one painful step after another, keyboard macros will make you feel like Superman.

A macro enters many keystrokes at the press of a single key. Holding down the solid-apple key and hitting D (SA-D), for example, might type the current date on screen. SA-P might save your current file to disk, print it, and remove it from memory. You create specific macros to meet your own particular needs. Because macros are fast and don't make typos, they save you time and frustration.

It's easy to see why macros are featured in more and more Apple II applications—word processors, spreadsheets, telecommunications programs, and even utilities. (See the accompanying sidebar, "Macros: A Microcosm," for more information on the variety of programs that now include macro capabilities.) Now AppleWorks users can choose among excellent programs that add the power and speed of macros: **AutoWorks**, **KeyPlayer**, and **Super MacroWorks**. (See the Product Information box for manufacturers and pricing.)

WHAT CAN MACROS DO FOR YOU?

Only your own ingenuity limits the number of possible AppleWorks macros, but all of them perform one or more of the following three tasks: repetitive typing, elimination of menus, and addition of commands.

Think first about the words, phrases, even paragraphs you find yourself typing over and over: your name and address, perhaps, or the name of a client, a memo form, a long ProDOS pathname, or a boilerplate paragraph in a contract. By creating a macro to enter the characters, you can save yourself the time, boredom, and mistakes you incur by typing the same text repeatedly.

Now think about the tedium of AppleWorks' menus and formatting options. Those menus make AppleWorks easy to learn, but eventually become more a hindrance than a help. Even the simple task of starting a new word-processor document requires five steps. More complicated tasks, such as setting up a custom printer, not only require more steps, but also depend on entering detailed information accurately. Macros make it possible, with a single keystroke, to get from here to there—"faster than a speeding bullet"—without plodding through a series of menus along the way.

Similarly, macros can set up the formats you use most often. You can lay out envelopes and letters, with proper margins and indentations, in the blink of an eye. Change the width of spreadsheet columns, center a line of text, enter database selection criteria—you'll quickly discover the formatting shortcuts that suit you.

Finally, think of the commands AppleWorks left out. Erase a word or sentence, undo a deletion, paste repeatedly from the clipboard, convert to upper- or lowercase, change boldface to underlining, jump through lists of filenames, save and delete all desktop files, move to the beginning or end of a word or a line: These features only begin to suggest the possibilities of macros, "more powerful than a locomotive."

AutoWorks, KeyPlayer, and Super MacroWorks share a number of features. First, you must *install* (copy) the macro program on a backup of your AppleWorks startup or program disk—a relatively painless process, menu-driven in most macro packages, that changes AppleWorks so that it recognizes the macro program. Once installed, these programs use the solid-apple key, in conjunction with another key, to call up macro definitions.

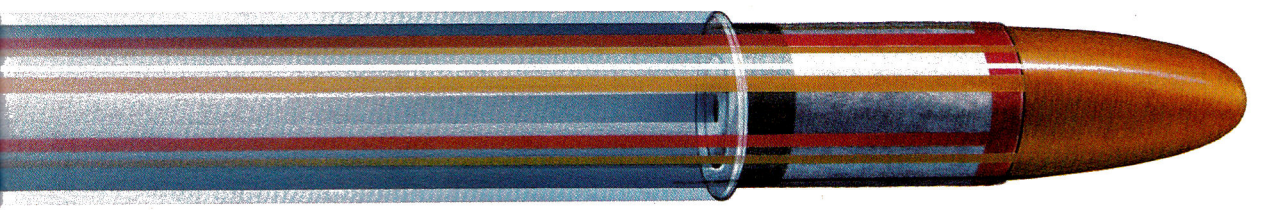
All three programs give you the power to create your own macros—either by "recording" a series of characters (letters or numbers) or by writing out command keystrokes in a word-processor file. Recording is easier. A keypress or two alerts the program that you want to enter a new macro. The program then prompts you for the key that

names the macro, then "remembers" every keystroke you make until you turn off recording mode.

Macros can also substitute for strings of AppleWorks commands. Sometimes there's no keyboard equivalent for the macro feature you want—such as IF/THEN/ELSE logic. In this case, you write out a complete macro definition (or revise a recorded one) with the AppleWorks word processor.

Consider the AppleWorks Find command, Open apple-F (OA-F), which functions differently in the database, spreadsheet, and word processor. With *keywords* or *tokens* such as <IFAWP>, all three programs let you define a *single* macro so that it adjusts automatically to the AppleWorks feature you're using.

A note on convention: Macro programs commonly use brackets to indicate keystrokes the programs will interpret as *commands*, as opposed to *characters*, which are unbracketed. Particulars vary from macro program to macro program, but in most you must type the brackets as well as the letters in between, and any hyphens shown, when you define a macro. So in some programs, entering <RETURN> or <ESCAPE> as part of a macro definition means you must type all eight keystrokes; in others, you'd simply hit the return or escape key.



Here's a typical macro definition for, say, SA-F:

```
<IFAWP><A-1><A-F>T<A-Y><GETSTRING><RETURN>
<ELSE>
<IFADB><A-F><A-Y><GETSTRING><RETURN>
<ELSE>
<IFASP><H><A-F>T<A-Y><GETSTRING><RETURN>
```

If you're in the word processor (<IFAWP>), the macro SA-F moves the cursor to the top of the file (<A-1>), initiates the Find command (<A-F>) for Text, clears characters from any previous Find (<A-Y>), asks what to find (<GETSTRING>), and initiates the search (<RETURN>).

In the database (<IFADB>), the same macro simply sets up a new search string; in the spreadsheet (<IFASP>), it calls another macro (<H>), which lets the cursor home in on cell A1, then initiates a search for text. (This example is taken from KeyPlayer, but it's representative of all three macro packages.)

Whether they're recorded or written, you can save your personal macros or compile them in a file that loads automatically when you boot AppleWorks. You can devise different sets of macros for different purposes and activate each set as necessary. Whatever you need, it won't be long before you've created your own shortcuts. (See the accompanying sidebar, "Programmers' Favorites.")

For the record, some minor glitches showed up in all three programs, provoked by the system I used to test them—combining a hard disk, accelerator card, RamWorks memory-expansion board, and mouse. (Note that you can't use a mouse with KeyPlayer.) These few flukes—a menu that didn't disappear without pressing Escape, a Control-C eaten by a desktop-expander patch—were annoying, but never destructive. One word of advice, though: Save your files before using an untested or unfamiliar macro. (Macros go *through* tall buildings, too.)

AUTOWORKS: UNIQUE FEATURES

The easiest macro program to install is AutoWorks, from The Software Touch. (See Reviews, November 1986, p. 40.) It's unique in its ability to function alone with all versions of AppleWorks or, if you have expanded memory, in conjunction with **Pinpoint**'s desk accessories. (See "Desktop Power," March 1986, p. 35, and Reviews, July 1986, p. 37.) AutoWorks comes with 52 prepared macros. Of the three programs reviewed here, AutoWorks manages the largest number of keystrokes—5000—which you can combine into a single macro or divide among 100. Like the other two macro programs discussed, AutoWorks isn't copy-protected.

OA-X calls an AutoWorks menu with four options: disable, record, list, and update. Once you've recorded your macros, just open a new word-processor file and select "List Macros" from the AutoWorks menu. The program enters all active macros into the word-processor file, which you can edit and save to disk. You activate each macro file by selecting "Update Macros." AutoWorks can update one file automatically when you boot the program, and, if you choose, the first macro will enter commands.

Like Super MacroWorks (see below), AutoWorks features particular keywords that specify a list of items called sequentially, change case, repeat a macro, or return you to an active file from the AppleWorks main menu. Like the other programs, AutoWorks can wait for one or more keys before continuing a macro—but AutoWorks is distinctive in its ability to redefine keys—particularly valuable if you don't have a numeric keypad.

In addition to its macros, AutoWorks adds three other valuable features to AppleWorks. With mail merge, you can easily insert database fields into a word-processor file and reformat as necessary. AutoWorks also lets you use a mouse to move through files and to make menu selections. Because the mouse can even move *horizontally* through database records—a feature unique among these macro programs—it eliminates the awkwardness of moving within fields or from field to field.

AutoWorks' disk organizer reads all files and subdirectories from your hard disk or myriad floppies into an AppleWorks database for searching and sorting. If you can't keep track of what's where, the disk organizer alone makes AutoWorks worthwhile.

KEYPLAYER: NEWEST MEMBER OF THE PINPOINT FAMILY

Current and prospective Pinpoint users will welcome the addition of KeyPlayer to the company's growing family of desktop accessories, which you can invoke, one at a time, within AppleWorks. KeyPlayer is expected to work eventually with all Pinpoint-compatible applications, which now include the telecommunications program **Point to Point** (see "Telecommunications: The Software Connection," February 1987, p. 53), the word processors **Apple Writer II** and **WordPerfect** (Reviews, March 1986, p. 65), the database manager **ProFiler** (Reviews, July 1986, p. 37), and Applesoft BASIC.

Standard Pinpoint accessories and commands take the place of a few of the macros found in other programs. With the ability to manage up to 70 macros containing as many as 3000 keystrokes, KeyPlayer comes with only a few ready-made macros (with several more in the manual). At press time, Pinpoint was testing **PlayMaker**, a separate, KeyPlayer-compatible sampler of 65 prepared macros.

Pinpoint family resemblances make it easier to get to know new members. Like other Pinpoint desktop accessories, you must first install KeyPlayer on Pinpoint, then install Pinpoint on any version of AppleWorks (1.3 or later recommended). And like the other accessories, KeyPlayer works best when you run it with AppleWorks from a RAM or hard disk. After booting AppleWorks, press SA-P (for Pinpoint) to see the pop-up list of accessories; type K to activate KeyPlayer.

Roughly comparable to AutoWorks in the variety of its commands, KeyPlayer also includes a menu to assist in a similar, if somewhat more complicated, process of creating, loading, and saving macro files. It's the most helpful of the programs in correcting mistakes; KeyPlayer also has two special features—keyword recording and list creation.

To enter keywords or tokens such as <REPEAT> in AutoWorks and Super MacroWorks, you edit an AppleWorks word-processor file. KeyPlayer instead presents a "control panel" that lets you select keywords from the screen while recording a macro, to minimize editing. AutoWorks and Super MacroWorks offer "prepackaged" macros that can select items from a list automatically in sequence. KeyPlayer, on the other hand, displays a list of 16 items from which you pick and choose when you design a logical macro.

SUPER MACROWORKS: SUPERPOWERED

Beagle Bros' Super MacroWorks is definitely the most powerful of the three macro programs reviewed here. It's no surprise that you'll need more time to master—and remember—its many features (no pain, no gain, even for Superman). Fortunately, Super MacroWorks comes ready to execute more than 70 macros—which perform many of the tricks you're most likely to want. This program, which can manage 168 active macros totaling almost 4000 characters, works with AppleWorks version 2.0 in English (1.4 in French and German).

Macros: A Microcosm

As programs become more complex and computer users lose patience with strings of hard-to-remember commands, the convenience of macros seems especially appealing. Before you buy any type of program, check for macro capability.

You'll have to look for macros under many names, though. BPI's **Entry Accounting System** (see "Ringing Up Profits," January 1987, p. 51) calls this feature a "command queue." You'll also find "quicks" (**The Bard's Pro-Am Writing System**, Reviews, September 1986, p. 37) and, more commonly, "glossaries" (**Apple Writer II**), among others.

Some macro features are simple and limited—but always useful, whatever they're called. **Bank Street Writer Plus** (Editors' Choice, May 1987, p. 112), for example, simply combines the numbers on your keyboard with the open- and solid-apple keys to create 20 "function keys." Although it doesn't record characters as you type them, this program uses OA-Spacebar to let you enter cursor keys and command keys, such as Escape and Return, into the macro definitions you write.

In other programs, particular characters indicate special functions, as do the keywords in the macro packages reviewed here. **MouseWrite** glossaries (Editors' Choice, July 1985, p. 112; Reviews, March 1986, p. 70) for example, can include the "commercial at" sign (@) to insert the date, the percentage symbol (%) to insert the time, and the number sign (#) to pause for keyboard entry.

What macros can do depends, of course, on your Apple system. A macro can't save a file to a RAM disk if you haven't set one up, or write mousetext to the screen if your IIe isn't enhanced. More importantly, the types of macros you'll find depend on the program using them. For instance, the ZAP program on the **Bag of Tricks 2** disk can create buffers that hold data from two disks—making possible a macro that will load sectors from one disk and compare them with sectors from another.

Other utility programs also come equipped with appropriate macros you can use or change. **Program Writer** (Editors' Choice, June 1986, p. 120) uses OA-C to insert "CHR$( ); Nite Owl's **DAS Editor** uses OA-Spacebar to insert a colon.

To automate the process of connecting to remote computers, macros of various kinds are now a common feature of almost all Apple II telecommunications programs. Although it's cumbersome to create macros with earlier communications software, such as Apple Access II, more recent programs, such as MouseTalk, make it easy to design and edit macros to log on and send strings of characters and commands.

The more complex the program, the more useful and powerful the possible macros. You can use Lotus 1-2-3's macros with **VIP Professional** (Editors' Choice, November 1986, p. 176; Reviews, January 1987, p. 38) on your Apple IIe or IIc. **SuperCalc3a** (see "Serious Business for the Apple II," August 1985, p. 28) and **MagiCalc** also include macro features. **WordPerfect** (Reviews, March 1986, p. 65) names and saves macros separately to disk, so disk space alone limits the number of macros that can automate this sophisticated word processor.□ **—T.S.**

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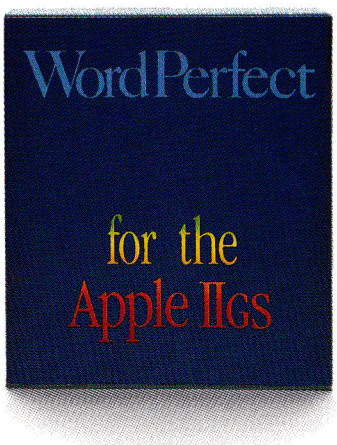

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MacroWorks (Editors' Choice, August 1986, p. 112), a somewhat less powerful program than AutoWorks and KeyPlayer, is available for earlier versions of AppleWorks. Neither MacroWorks nor Super MacroWorks is Pinpoint-compatible.

Like its predecessor, Super MacroWorks includes a number of "reserved macros" you can't change. Although some of them—those that display the time and date, for example—are duplicated in KeyPlayer and AutoWorks, others are unique. The most useful of these special macros, SA-Return, searches a word-processor file for the next carriage return, and lets you move through the file a paragraph at a time or delete carriage returns automatically.

Super MacroWorks also combines an ability to read characters from the screen with logic and programming loops, to create macro branches that depend on matching the character at the cursor position. Like KeyPlayer, Super MacroWorks can also display a message at the bottom of the screen; its logic lets you use macros to create startup menus presenting a variety of choices.

Super MacroWorks can move characters in and out of a dozen small holding areas (840 bytes total). You can store complete pathnames here to avoid typing them, or use this feature to transfer information automatically from one file to another. For instance, you could move telephone numbers from a database Rolodex to a database of long-distance calls.

If you develop different macros to work with particular files, you'll appreciate Super MacroWorks' ability to link them. With a single macro, you can get a particular file and the macro file associated with it, activate the macro file, and execute its first macro.

Given Super MacroWorks' complexity, another feature is especially welcome—its ability to replace AppleWorks' help screens with your own. You might add frequently called telephone numbers or explanations of macros. Super MacroWorks also includes "Bird's Better Bye" command, a ProDOS enhancement that simplifies quitting one program and starting another.

WHAT COLOR IS YOUR CAPE?

Which macro program suits you best? For simplicity, keyboard substitution, special features, and Pinpoint compatibility, get AutoWorks. For easy recording, macro lists,

Programmers' Favorites

inCider asked the authors of AutoWorks, KeyPlayer, PlayMaker, and Super MacroWorks to tell us about their favorite macros—not an easy choice, but instructive, because their answers show that useful macros can be quite simple.

Illustrating the relationship between the acorn and the oak, Randy Brandt wrote MacroWorks because he wanted AppleWorks to be able to delete the character under the cursor. But have you ever wished that OA-arrow would move one word at a time in the database as it does in the word processor? Then you'll appreciate Brandt's choice of Super MacroWorks' SA-left arrow and SA-right arrow, which do exactly that.

Here's the macro definition to jump left one word:

```
<Left>:<adb><left><back><if><spc><right>!
```

And to jump right:

```
<Right>:<adb><ahead><right>!
```

Another of Brandt's macros, SA-Control-S, adds a subdirectory to your current ProDOS pathname. Here's the definition:

```
<Ctrl-S>:<all><OA-Q><esc>5<rtn>2<rtn><SA-Down>
<SA-Down><msg>' Choose Subdirectory '<input><path>
<esc><rtn><up><rtn><OA-Y><SA-O><rtn><esc>!
```

A third Brandt favorite is one of the shorter macros you'll find. For SA-U, restoring material you've moved to the clipboard, here's the definition:

```
U:<all><OA-C>F!
```

Alan Bird names a macro based on one of AutoWorks' unique features—redefining keys. Based on his <SUB> keyword, the macro, SA-T, redefines the characters UIOJKLM as 4561230, creating a numeric keypad on the Apple II keyboard. Here's the definition:

```
T:<SUB>u4,U4,i5,I5,o6,O6,j1,J1,k2,K2,l3,L3,m0,M0
```

If you already have an Apple keypad, a similar macro changes the question-mark character to a down-arrow command to simplify entries in spreadsheet columns:

```
T:<SUB>?<down>
```

Another Bird macro turns off character substitution:

```
Control-T:<NOSUB>
```

Brian Skiba, author of KeyPlayer, and Steve High, developer of PlayMaker, picked a macro, SA-M, that automatically moves data from a word-processor file through an ASCII file to a new database file. Invoked again in the database, it moves data through a DIF file to a new spreadsheet. Quick as a wink with a RAM disk, this macro makes it easy to sort or to add prices to a list of items. Here's the definition:

```
<IFAWP><!>
<ELSE><a>
```

This macro includes and calls three others:

```
SA-!: <A-1><A-O>LM<RETURN>0<RETURN><ESCAPE>
      <A-P>B4<RETURN>/RAM/ASCII<RETURN>Y<A-Q>
      <ESCAPE>1<RETURN>4<RETURN>2<RETURN>1
      <RETURN>/RAM/ASCII<RETURN>DB<RETURN>

SA-@: <IFADB><A-P>2<RETURN>PRINTER<RETURN><A-O>
      PH<RETURN><ESCAPE><A-P>8<RETURN>/RAM
      /DIF<RETURN>Y<A-Q><ESCAPE><RETURN>
      5<RETURN>2<RETURN>/RAM/DIF<RETURN>
      SS<RETURN><ELSE><#>

SA-#: <IFASP><A-P>A4<RETURN><RETURN><ESCAPE>
      <A-Q><ESCAPE>1<RETURN>3<RETURN>1
      <RETURN>WP<RETURN><A-M>F<ELSE><!>
```

All four programmers invite you to send them your own favorite macros, perhaps for inclusion in future versions of their products. For macros submitted by other Apple users, log on to your local BBS, or to GEnie, CompuServe, and other national on-line information services.□

—T.S.

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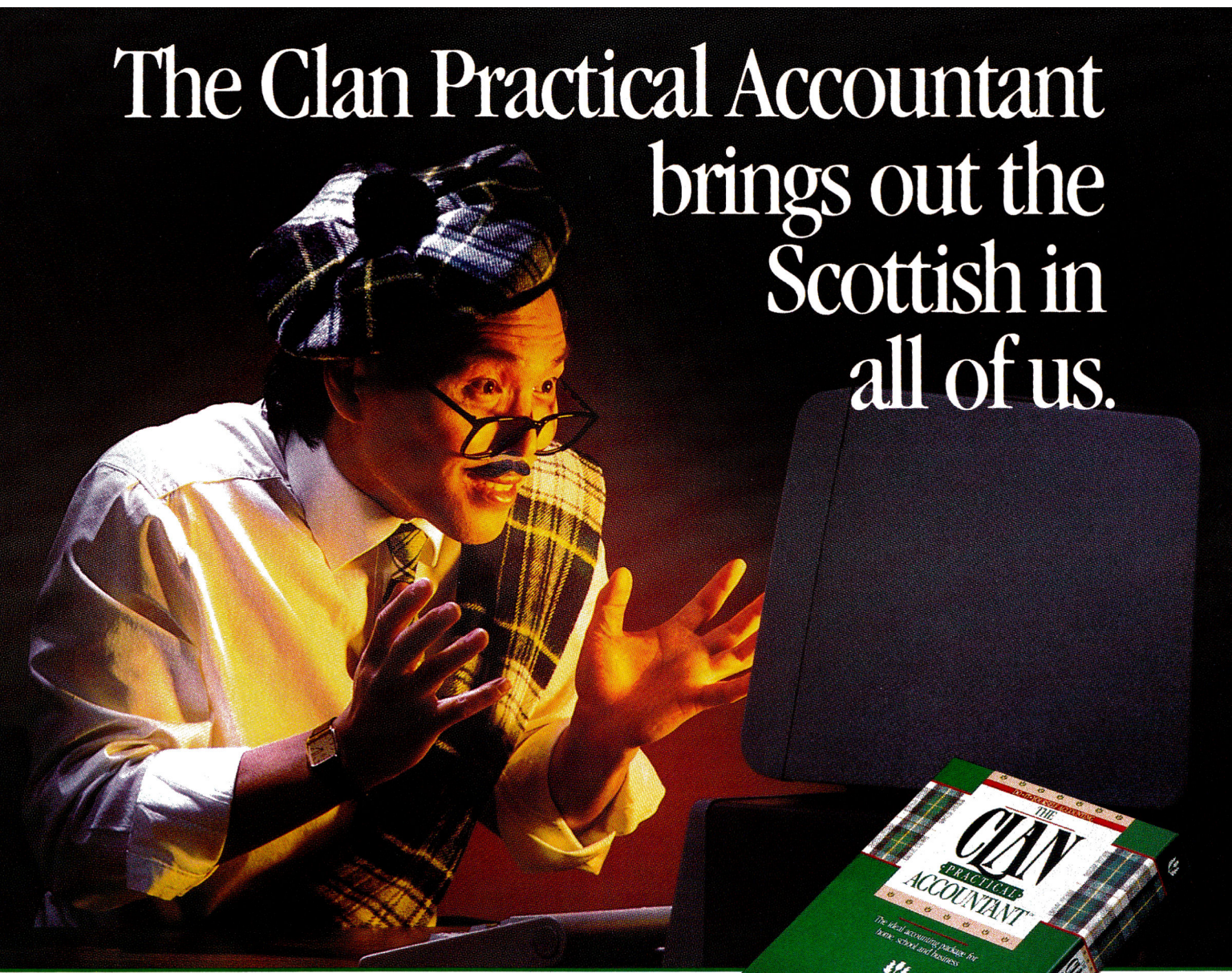

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and compatibility with Pinpoint accessories and other programs, KeyPlayer's the one to look for. For power and sophisticated, ready-made macros, you can't beat Super MacroWorks. Whatever you choose, once you've begun using macros with AppleWorks, you'll wonder how you managed without them.■

Tom Sherman is a business consultant and free-lance journalist. Write to him at 224 South Chester Road, Swarthmore, PA 19081.

Diversi-Key: Macros for Your GS

Diversi-Key (Diversified Software Research, 34880 Bunker Hill, Farmington, MI 48018-2728, 313-553-9460, $45) is Bill Basham's entry into the macro race. (Basham is the author of the utility program Diversi-Copy, Editors' Choice, January 1987, p. 160.) Diversi-Key runs only on the Apple IIGS—and that means this macro program takes advantage of the machine's unique strength.

Diversi-Key loads itself into the GS' expansion memory. Not all Apple IIes and IIcs have expansion memory, but every GS does. More importantly, the GS has a "smart" keyboard: Basham tickles the keyboard's own microprocessor with GS firmware so that the macros you define remain active at all times—when you're running AppleWorks, when you're playing a text adventure, or when you're programming in BASIC. Diversi-Key macros work with any program that supports the GS Control Panel.

"The IIGS is made for macros," Basham says. "When I first got the machine and saw the hardware keyboard buffers, I knew I could add macros as easily as I could on my old II Plus."

Programmers will drool over Diversi-Key. You can write macros that load a DOS 3.3 file, convert it to ProDOS, and load the new ProDOS file. Diversi-Key is virtually a new programming language. Basham even includes a macro that lets hard-core programmers interrupt an application program to work in the Apple monitor.

Diversi-Key supports 9999 macros. You probably won't use them in one application; more likely you'll define a different set for each program. With some macros, you might even completely redesign the keyboard.

If you're an everyday user, though, don't be put off by all the chatter about buffers and interrupts. Diversi-Key comes with a set of 100 AppleWorks macros that load automatically—all you have to do is try to remember them all.□ **—Paul Statt, Technical Editor**

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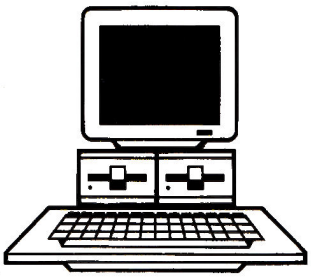

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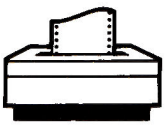

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RUNNING WITH THE APPLE

Whether you're a weekend jogger or a competitive marathoner, you'll make great strides in your training when you team up with a running program.

by Cynthia E. Field

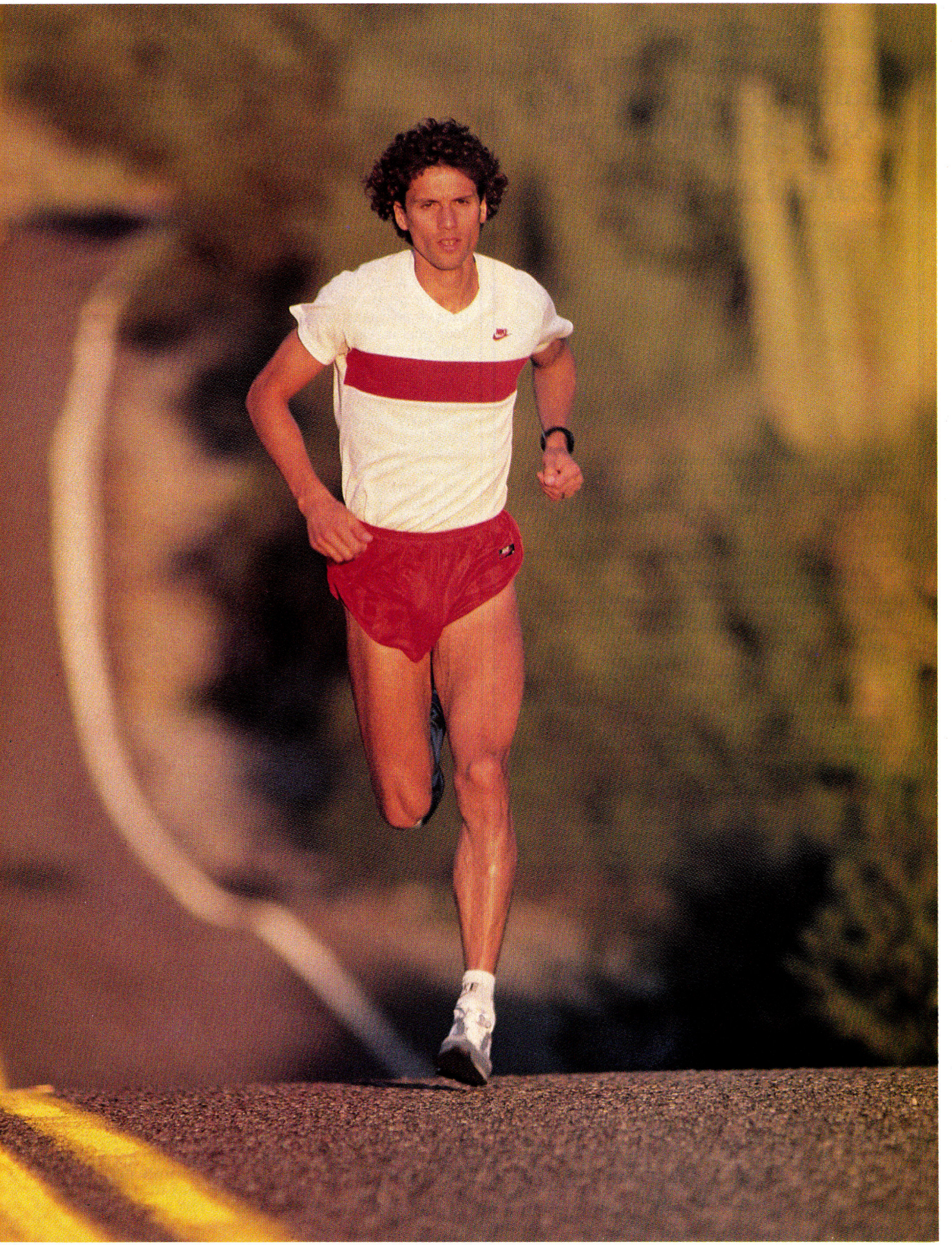
"What if" is a technique you use with spreadsheet programs, right? Not so. At least, not according to Wade Spane, a freshman at Everett High School, in Everett, Washington. Spane, a self-styled computer hacker and an aspiring cross-country and track runner, hopes to shave 14 seconds from his 4:54 mile. To see how hard he has to work to achieve his speed goal, Spane plays "what if" on his Apple IIc with the program **Peak Performance: Run**.

Whether you're a high-school runner, a dedicated marathoner, a recreational jogger, or a speed walker, the right software can help you computerize your personal fitness program. Three such programs are Peak Performance: Run, **Running Your Best Race**, and **Jogger**. (For a less traditional approach to analyzing your running progress, see the accompanying sidebar, "The Electronic Pedometer": the **Puma RS-Computer Shoe**, an "intelligent" running shoe that interfaces with your Apple to help you track your success.)

Each of the three runners'-software packages covered here offers a different method of monitoring your fitness regimen. All provide a log of runs, races, and personal "bests," but their approaches are quite different. (See the accompanying Product Information box for manufacturers' addresses and details on pricing. Also check the sidebar "For Do-It-Yourselfers" for suggestions on using your AppleWorks spreadsheet to track your performance.)

THE MANUAL UPSTAGES THE SOFTWARE

The only program among the three that offers training advice as well as a recordkeeping option is Running Your



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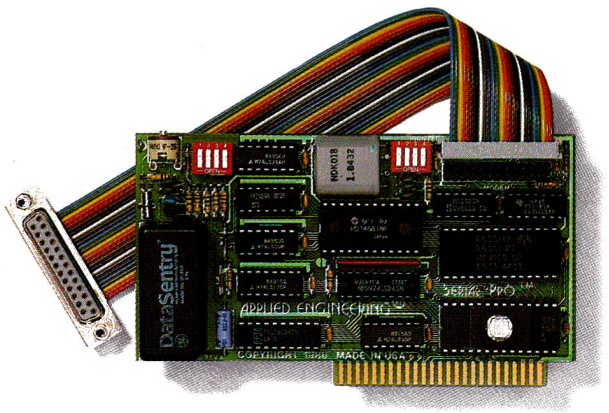

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Serial Pro is perfect for Apple IIe, II+, IIGs or compatible owners in need of a serial port or clock/calendar or both. But unlike other multifunction cards on the market, Serial Pro does not use phantom slots, so all the slots in your computer are useable.

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Best Race, by Joe Henderson. A 190-page book of the same name accompanies this program.

As the title implies, the software is designed for athletes who are serious about competing—not only with themselves, but with other runners. Henderson's comprehensive book provides information as fundamental as which shoes and clothes to wear when running. These introductory chapters on the basics lead into sections devoted to testing for 10K races (kilometers, not kilobytes—a kilometer is about .6 of a mile), half-marathons, and marathons. Ten chapters on racing, with guidance on "Forecasting Times" and "Pacing and Tactics," complete the text.

Running Your Best Race offers five modules: Training, Testing, Racing, Reviewing, and Record Keeping. The first four options ask you to input data, which the program then computes and analyzes. Sometimes the results are disappointingly trite. For example, when the program asks for your pace goal for a race, then your average daily pace, it calculates wondrously how much faster or slower your goal is. Or if you place 125th in a field of 250, it tells you, "You beat 50 percent of the entrants." And some people scorn checkbook-balancing programs!

Not all the capabilities of Running Your Best Race are so trivial. The author, through the program, offers advice based on calculated results—advice such as "you are prepared to run any race lasting this long or less" or ". . . you are lacking in distance. Before the race, try a long test run." But even in these situations, you might arrive at the same conclusions by using your common sense.

The fifth menu option is Record Keeping. On either a daily or weekly basis, you can Enter New Data (for new runs) or review data for one or all of your last 30 running days. Monthly analyses tell you the number of days you ran, your total running time, your average daily running time, the number of days you raced or tested, and the percentage of racing/testing time.

According to Tom Mills, a spokesman for Joe Henderson, the publisher has discontinued Running Your Best Race, but about 1000 copies of the book and software package are available at a close-out price of $9.95 each from Wm. C. Brown Publishers. The program is no great shakes, but Henderson's running expertise as provided in the book is worth the price—especially for novices.

NEXT BEST THING TO A PHYSIOLOGY LAB

Peak Performance: Run's claim to fame is its ability to quantify your performance in physiological terms. Based on the work of Dr. David Costill and the Ball State Human Performance Lab, Peak Performance: Run calculates your VO_2 Max, or the maximum volume (in milliliters, about .001 quart) of oxygen each kilogram (about 2.2 pounds) of your body consumes per minute of aerobic exercise.

Unlike many other running programs, Peak Performance: Run works not only with distance and time data, but with body weight, terrain, and training (straight run or intervals) information as well.

When you enter these data, the program calculates the percentage of VO_2 Max you achieved during any given run. According to the program, working out at less than 65 percent of VO_2 Max results in little or no improvement. Aerobic fitness improves well at 65–80 percent, but best at 80–95 percent. Working beyond that—at around 100 percent VO_2 Max—offers little aerobic benefit, since your muscles switch to an anaerobic (without oxygen) metabolism that can keep you going not much more than another half mile.

Wade Spane, the high-school runner from Washington, plays "what if" by telling the program he ran a 4:40 mile. The program responds by calculating Spane's performance index, the percentage of VO_2 Max required to hit that hypothetical pace. The program has already calcu-

The Electronic Pedometer

The Puma RS-Computer Shoe looks like a traditional running shoe—with a bad case of heel spurs. A compartment is built into the right heel and houses a compact battery-powered circuit board that functions like a pedometer. Black "On—Test" and red "Reset" buttons protrude from the compartment. A tiny plastic lid protects a recessed four-pin interface port.

The companion left shoe is similarly styled, but its compartment is buttonless and empty. Like that of the other compartment, its cover is secured to the shoe's heel extension by two small Phillips screws. This empty compartment might be handy for keeping your ID, change for a phone call, perhaps a spare house key—if you didn't have to carry a screwdriver to open it.

A detachable cable connects the RS-Computer Shoe to your Apple. The "computer" end terminates in a 16-pin connector that plugs into the game I/O port inside the Apple II Plus and IIe. An adapter cable for the Apple IIc isn't available, according to the manufacturer.

The RS-Computer Shoe is accompanied by copyable software on a 5¼-inch disk. Like the other products reviewed here, the RS-Computer Shoe program requires a bare-minimum Apple system: 48K, one floppy drive.

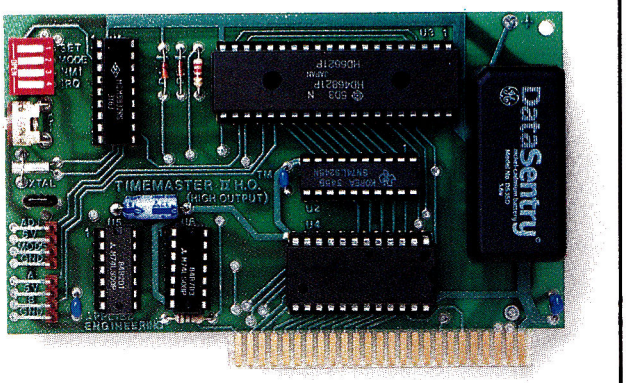
Main-menu choices help you Read/Write Shoe Data, Enter Running Data from the Keyboard, Review/Edit Monthly Goals, Review Monthly or Annual Stats, and Create New File/Data Disk. You calibrate the shoe's supporting software by performing about 15 initial runs with the shoes; each time you must connect the right shoe to your Apple via the cable and follow the instructions the program provides.

The RS-Computer Shoe and accompanying software, first released about two years ago, have run into their share of problems. According to a spokeswoman at The Locker Room, a retailer in Willowbrook, Illinois, testing of new software this spring has held up shipments to her special-order customers. According to the retailer, there have been problems with the operation of previous versions of the program.

According to a Puma spokesman, you can't purchase the shoe from your neighborhood athletic-footwear store. Instead, Puma will provide the name of its sales representative for your territory, or you can order the shoe from The Locker Room.

At $200, and with uncertain reliability and limited availability, the RS-Computer Shoe and its software may not be your best investment. For a lot less money, you could purchase a new pair of running shoes *and* one or more of the three stand-alone runners'-software products reviewed here.□ **—C.F.**

The first clock card to add time and date to AppleWorks'™ screens and files.



Timemaster H.O. So many features it's become the world's best selling clock card.

It's the smart way to put the time and date on your Apple IIe® or II+®. Because only the Timemaster H.O. packs *ALL* the important features of all the competition *combined,* including leap year, year (not just in PRO-DOS), month, date, day of week, hours, minutes, seconds and milliseconds. It's totally PRO-DOS, DOS 3.3, PASCAL and CP/M compatible. And, of course, it works better than any other clock with AppleWorks.

With the Timemaster H.O. you're assured of reliable, trouble-free operation along with simple, built-in, one-command time setting, accuracy through leap years, and a firmware maintained interrupt setting.

If you're using or writing software for other clock cards, you're still covered. Because the H.O. will *automatically* emulate them. And only the Timemaster H.O. adds 15 new commands to BASIC. The H.O. even comes complete with two disks full of sample programs, including a computerized appointment book, a DOS dating program, interrupt programs, and over 30 programs that others charge you extra for — or don't even offer. As a low-cost option, you can add true BSR remote control to the H.O., giving you remote control of up to 16 lights and appliances in your home or office.

• Time in hours, minutes, seconds and milliseconds; date with year, month, day of week and leap year • 24-hour military format or 12-hour AM/PM format • Eight software controlled interrupts so you can run two programs at the same time (many examples included) • Can be set precisely to the exact second • Digital I/O port for advanced applications • Allows AppleWorks to time and date stamp all data automatically • Displays time and date on AppleWorks screens and files • Five-year warranty

Timemaster H.O. **$99.00**
BSR option (may be added later) **$29.00**

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lated Spane's performance index for the 4:54 mile, so Wade has an idea of how much harder he'll have to exert himself to achieve a faster pace.

Among other features, Peak Performance: Run calculates the caloric cost of a workout if you're trying to lose or maintain weight. The program automatically saves your best times for one-mile, two-mile, and 10K runs. The software is flexible; it lets you save runs (and edit them later) and print all results.

That the program is copy-protected and designed for individuals doesn't stop John Geringer, track coach at Omaha, Nebraska's Central High School, from using the program with his team. Geringer spends up to two hours every night at home on his Apple IIc to circumvent the program's inherent limitation: It can handle variables and data for only one runner at a time.

Sometimes Geringer can pool milers with similar performance indices, such as those who can run the mile in 4:30 or 4:35. Grouping team members this way saves time, but Geringer admits "the degree of accuracy can be off a little bit."

Geringer prints daily results for each team member and posts them in the school library, where each runner assesses the intensity of his workout and develops a strategy for increasing his anaerobic threshold.

When asked about the program's success, Geringer responded, "Call back at the end of May and see!" At press time (late April) he'd been using Peak Performance: Run for about four months—for himself and his 12 distance runners. "The information I'm getting back is at least somewhat scientific. . . without having [to perform] the treadmill test. I'm trying to correlate this scientific evidence with performance," he added.

Geringer says he hopes to determine whether using the program has contributed to the reduction in injuries the team has experienced so far this year. "My gut feeling is [that the program] appears to be pretty accurate," he notes. Considering Geringer's 13 years of experience as a track coach, his gut feelings are probably not far off the mark.

THE FAMILY THAT RUNS TOGETHER

Unlike Peak Performance: Run, which is designed for individual use, Jogger, from Parsons Software, can be put to work by the whole family—or track team. The program prepares a separate data file for each runner.

Jogger offers unusual value for its $29 price. With flexibility and features galore, it's the most generous program of its kind.

The program includes a built-in calendar; all you have to do is select the date of your run and key in the distance and the time. A Footnote option lets you type in an abbreviated, two-character comment for each run. You might type RC for race days, for example, or codes for the places you run: TR for track, BC for your run along the beach, or CC for cross-country.

In standard mode, Jogger calculates weekly and monthly stats each time you enter data for a single run. Like a spreadsheet program, Jogger offers a way to turn off this automatic recalculation. It's called Fast Data Entry, and it's designed for joggers who like to enter a week's

For Do-It-Yourselfers

If you're the type of person who says, "I'd rather do it myself," you can set up a basic running diary that keeps track of your data and calculates simple statistics, such as your average monthly pace. Use the AppleWorks spreadsheet—or any other spreadsheet program—to set up a template, similar to the one shown here (see **Figures 1** and **2**).

You might want your diary to include the label "Name" so that other members of your family or running club can track their individual progress. A block called GOALS keeps track of the time and distance for which you're aiming each month. The formula in cell D12 (+D10/D11, **Figure 2**) calculates your pace goal. Until you enter your goals (not now—wait until you finish and save the template), this cell will say ERROR (**Figure 1**).

The main part of the spreadsheet, the RUNNING LOG, keeps track of the data for each day you run. Instead of typing in all the days of the month, enter the numeral one in cell A18, then the formula +A18+1 in cell A19 (**Figure 2**). Use the AppleWorks spreadsheet Open apple-C command to copy that formula all the way down the column to cell A48. Make the cell designation relative in all cases.

If you want to be technical, you can create separate templates for 30-day months and for February (a 28- or 29-day month). Or you can simply ignore the days that don't exist in any given month.

Columns C, E, and F are labeled "Distance (miles)," "Time (minutes)," and "Pace (minute/mile)," respectively. When you come back from a run, or when you sit down at the end of the week to enter data, simply fill in the appropriate information.

Cell G18 contains the formula (+E18/C18, **Figure 2**) required to calculate the daily pace. Copy this formula from G19 through G48, with both numerator and denominator relative. When you first set up the spreadsheet template, you won't enter any data, so any cell in which a formula is located will read ERROR (**Figure 1**). Although your formulas are correct, Column G will be filled with ERROR cells. As you fill in your daily running data, your calculated daily pace will replace the error message.

The "monthly stats" section of the spreadsheet consists of cells D49–D54 and E49–E53. The formulas in cell E49, @AVG(C18.C48), and E50, @AVG(E18.E48), calculate your average daily mileage and average daily time. The formula in cell E53 (+E50/E49, **Figure 2**) calculates your average pace for the month.

Using AppleWorks' Open apple-L (layout) command, you can professionalize the template by protecting the formulas, lest stray keystrokes delete or alter them. Other subcommands accessed through Open apple-L let you express all numbers to two decimal places and right-justify the heading "Day" above the list of dates.

If you want to create more stats, you can do so—or add a "Comments" column so that you can enter notes about race conditions, running surface, climate, or other variables.

Once you've set up this blank template, save it as is—without entering any running data. Now you'll have a "blank form"—like a limitless pad of notepaper. Tear off one sheet (load the template) each month, and rename the file by using AppleWorks' Open apple-N command to add a date suffix (such as RUN.DIARY.JUL87).

Printing the spreadsheet in part (with Open apple-H, the screen-printing command) or in full (with Open apple-P, the file-printing command) gives you a hardcopy report of your progress. The template's current design lets each monthly status report fit on one standard page. If you enlarge the spreadsheet by adding extra columns of data or stats, try printing in compressed mode or sideways to produce one continuous report.□ **—C.F.**

or month's data at one sitting, instead of booting up after each run.

Using Jogger's database functions, you can search by footnote entry, distance, range of distances, date, and so on. You can compare your performance from season to season or in different locations. At your option, equations included in the program can allot aerobic points to each run. Number of points depends less on speed than endurance: Longer runs merit more points.

Jogger calculates just about any running statistic you can think of, including mileage, pace, days jogged, average miles/day, average time/day, aerobic points, and high/low/average mileage, time, or pace. The program also creates a histogram showing the total number of days you ran two miles, three miles, and so on (up to 26 miles). Weekly, monthly, and annual stats can be calculated, displayed in graphics form, saved, or printed.

Jogger's high-resolution-graphics printing utility supports , only the Epson MX-80 with Graftrax, but you can save Jogger graphics as packed (seven- or eight-sector) or unpacked (34-sector) pictures. You can then use a stand-alone graphics-dump utility and a non-Epson printer to create hardcopy Jogger graphs.

Peak Performance: Run takes a near-proven, scientific approach that serious runners and track coaches find appealing. Running Your Best Race gives the novice a guru's personal system for successful competition—at a flea-market price. But if you're the kind of person who can benefit from the motivation that, next to a personal trainer, only graphics can provide, Jogger may be the best program for you in the long run.■

Write to Cynthia Field at 10 Border Avenue, Wakefield, RI 02879. Include an SASE if you'd like a personal reply.

Product Information

Jogger 2.00
Parsons Software
1920 Briar Meadow
Arlington, TX 76014
(817) 465-4720
$29
Reader Service Number 309

Peak Performance: Run
Peak Performance
P.O. Box 60681
Palo Alto, CA 94306
(415) 424-0208
$49
Reader Service Number 310

Puma RS-Computer Shoe
Puma USA, Inc.
492 Old Connecticut Path
Framingham, MA 01701
(617) 875-0660
The Locker Room
329 West 75th Street
Willowbrook, IL 60514
(312) 920-1127
$200
Reader Service Number 311

Running Your Best Race
Wm. C. Brown Publishers
2460 Kerper Boulevard
Dubuque, IA 52001
(319) 588-1451
$9.95
Reader Service Number 312

Figure 1. *AppleWorks-template screen printout showing column and row designations.*

```
File:    RUN.DIARY

RUNNING DIARY

Name:
Month/Year:


GOALS:

         Time (minutes)
         Distance (miles)
         Pace (minutes/mi.)     ERROR

RUNNING LOG:

      Day          Distance          Time              Pace
                   (miles)           (minutes)         (min./mi.)
        1                                              ERROR
        2                                              ERROR
        3                                              ERROR
        4                                              ERROR
        5                                              ERROR
        6                                              ERROR
        7                                              ERROR
        8                                              ERROR
        9                                              ERROR
       10                                              ERROR
       11                                              ERROR
       12                                              ERROR
       13                                              ERROR
       14                                              ERROR
       15                                              ERROR
       16                                              ERROR
       17                                              ERROR
       18                                              ERROR
       19                                              ERROR
       20                                              ERROR
       21                                              ERROR
       22                                              ERROR
       23                                              ERROR
       24                                              ERROR
       25                                              ERROR
       26                                              ERROR
       27                                              ERROR
       28                                              ERROR
       29                                              ERROR
       30                                              ERROR
       31                                              ERROR

                          Avg. Mi.:     ERROR
                          Avg.Time:     ERROR

                          Avg. Pace
                          for Month     ERROR
                          (min./mi.)
```

Figure 2. *Formulas in the AppleWorks running-statistics template.*

```
File:    RUN.DIARY

RUNNING DIARY

Name:
Month/Year:


GOALS:

         Time (minutes)
         Distance (miles)
         Pace (minutes/mi.)+D10/D11

RUNNING LOG:

      Day          Distance          Time              Pace
                   (miles)           (minutes)         (min./mi.)
1                                                     +E18/C18
+A18+1                                                +E19/C19
+A19+1                                                +E20/C20
+A20+1                                                +E21/C21
+A21+1                                                +E22/C22
+A22+1                                                +E23/C23
+A23+1                                                +E24/C24
+A24+1                                                +E25/C25
+A25+1                                                +E26/C26
+A26+1                                                +E27/C27
+A27+1                                                +E28/C28
+A28+1                                                +E29/C29
+A29+1                                                +E30/C30
+A30+1                                                +E31/C31
+A31+1                                                +E32/C32
+A32+1                                                +E33/C33
+A33+1                                                +E34/C34
+A34+1                                                +E35/C35
+A35+1                                                +E36/C36
+A36+1                                                +E37/C37
+A37+1                                                +E38/C38
+A38+1                                                +E39/C39
+A39+1                                                +E40/C40
+A40+1                                                +E41/C41
+A41+1                                                +E42/C42
+A42+1                                                +E43/C43
+A43+1                                                +E44/C44
+A44+1                                                +E45/C45
+A45+1                                                +E46/C46
+A46+1                                                +E47/C47
+A47+1                                                +E48/C48

                          Avg. Mi.:@AVG(C18.
                          Avg.Time:@AVG(E18.

                          Avg. Pace
                          for Month+E50/E49
                          (min./mi.)
```

Creating an Employee Handbook

The AppleWorks word processor can help you publish your company's policies and procedures.

by Ruth K. Witkin

A handbook that clearly spells out a company's policies and procedures is one of the best ways to communicate with employees, and, in some states (New York is one of them), to satisfy legal requirements to provide such information in writing. Some employers think that an employee handbook creates an irrevocable one-sided contract, but a company has a right to change existing policies as circumstances warrant, and it's important to include a paragraph in the handbook that says just that.

Employee handbooks generally contain an opening message from the company president, followed by sections on:

- hours of work, probationary period, coffee breaks, and location of company facilities (such as lunchroom, snack machines, and bulletin boards)
- pay policies that discuss time cards, performance reviews, where and when paychecks are distributed, how overtime and shift pay are calculated, and whom to tell about an error in a paycheck
- what the company expects in attendance, competence, safety, and behavior on the job
- what-you-need-to-know policies, such as leave of absence and how it affects seniority, where to get first aid, care of tools and equipment, training opportunities, social and athletic activities, personal phone calls, grievance procedure, and the like
- company-paid benefits, including medical and life insurance, holidays, vacations, sick days, and retirement plans

Companies typically spend an amount equal to 35 percent of every salary dollar on benefits, so it's important to let employees know about them. Be sure to mention insurance programs required by state and federal governments, such as worker's compensation, short-term disability, social security, and unemployment. Your employees should know that you're paying for these, too.

Figure 1. Two pages in an employee handbook produced on the AppleWorks word processor.

ABOUT YOUR BENEFITS

Paid Vacation

As a regular employee, you are eligible for a paid vacation each year. The vacation year begins on July 1 and ends on June 30. Vacation is earned according to your length of service. The vacation schedule is:

Length of Service As of June 30	Paid Vacation As of July 1
Less than 1 month	0 days
1 month less than 3 months	1 day
3 months less than 6 months	3 days
6 months less than 9 months	6 days
9 months less than 1 year	9 days
1 year less than 5 years	10 days
5 years less than 10 years	15 days
10 years or more	20 days

For example, Karen E. starts work on September 1 and is employed ten full months by June 30. As of July 1, she is eligible for nine days of paid vacation. David C. starts work on February 15 and is employed four full months by June 30. As of July 1, he is eligible for three days of paid vacation. When the next vacation year begins, they will both be eligible for ten days of paid vacation.

The plant is customarily closed for two weeks during the summer, and you are expected to take your vacation during this period. The date of the shutdown will be announced as early as possible.

You will receive your vacation pay on the last workday before the shutdown. Your paycheck will include only those days for which you are eligible to be paid. Vacation pay is based on the number of hours in your regular workday, to a maximum of eight hours.

- 1 -

Employees eligible for more than two weeks of vacation may request that it be scheduled at any time during the vacation year. Each request will be considered in light of production requirements. If you would like your vacation pay before leaving, be sure to notify the Payroll Department at least two weeks in advance.

There is no carryover of vacation from year to year, and borrowing against future vacation is not permitted.

- 2 -

RamFactor™

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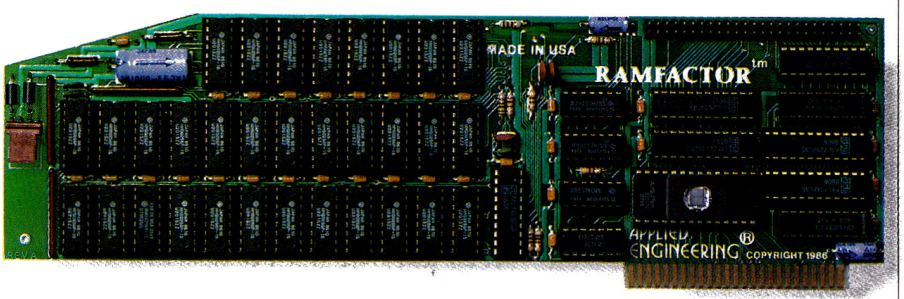
Now anyone with an Apple II+, Franklin, Laser 128, Apple IIe or IIGS preferring to use slots 1 through 7 can now enjoy the speed and performance that they've been waiting for.

With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 MEG on the main board and an expansion connector can address an additional 16 MEG of memory for possible future expansion. Since virtually all software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger data bases, and expanded spreadsheets. And with the battery back-up option, you can switch on your Apple and your favorite software will be up and running in less than 1 second!



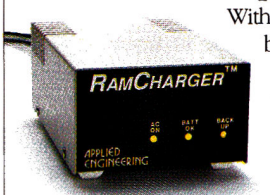
Very Compatible

All the leading software is already compatible with RamFactor. Programs like AppleWorks, Pinpoint, BPI, Managing Your Money, Dollars and Sense, SuperCalc 3A, PFS, MouseWrite, MouseDesk, MouseCalc, Sensible Speller, Applewriter IIe, Business Works, ReportWorks, Catalyst 3.0 and more. And RamFactor is fully ProDos, DOS 3.3, Pascal 1.3 and CP/M compatible. In fact, no other slot 1-7 memory card is more compatible with commercial software.

AppleWorks Power

There are other slot 1-7 cards that give AppleWorks a larger desktop, but that's the end of their story. But RamFactor is the only slot 1-7 card that increases AppleWorks internal memory limits, increasing the maximum number of records in the database and lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load all of AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 5¼", 3½", and hard disks. All this performance is available on the Apple II+, IIe, Franklin, or Laser 128 when used with an 80 column display. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

The "Instant On" Apple.



With the RamCharger battery backup option, RamFactor will retain programs and data during power failures or even when you turn your computer off. And because RamFactor plugs into slots 1-7, it's the only memory card that can cold boot an Apple without using slow floppy or hard disks. An available "Y" cable allows one RamCharger to power two RamFactors.

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With RamFactor, you can organize memory into multiple work areas and switch between them. Each work area can contain different programs and even different operating systems. Now you can switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/M to Pascal to ProDos in under a second. And with our battery back-up option, you can have permanent storage for up to 20 years.

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- Built-in RamDrive™ software (a true RAM disk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or 2.0
- Allows Apple II+ and IIe to run your AppleWorks without buying any additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDos clock
- Fits any I/O slot except slot 3
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- Much, much more

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RamFactor with 512K	**$289**
RamFactor with 1 MEG	**$369**
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"Y" cable	**$24**

(Allows one RamCharger to power two RamFactors.)

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ULTRA III	$294	$364
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Many employee handbooks are published in a compact size, though there's no single "correct" form. The only requirements are that the information be correct, clearly written, and easy to read. It's a good idea to have a lawyer or labor-relations specialist review the handbook before publication.

Figure 1 shows a two-page spread dealing with vacations, which gives you the chance to create a page footer, set tab stops, and use the AppleWorks printer options to produce a document with a polished, typeset look. The layout is designed to print 5½-by-8½-inch pages you can paste two-up on letter-size paper, reproduce on a copy machine, staple, and distribute at minimal cost.

Figure 2 contains the handbook text, line numbers, and blots that show where to press the return key. The final version will be proportionally spaced, which gives each character only the width it needs, unlike standard spacing, which gives every character the same width.

Proportional spacing has a strange effect on tabular text, such as the two-column vacation schedule. Since the printer spaces the characters according to their widths (from narrow *1* to intermediate *e* to wide *m*), the lengths of the lines in the left column will vary. Therefore, the starting point for each line in the right column will vary, creating an unsightly jog in the finished product. To prevent this, I inserted spaces between the columns, which involved a good deal of trial-and-error—spacing and printing again and again. The vacation schedule in **Figure 2** looks strange, but the result in **Figure 1**, though not perfect, made the extra effort worthwhile.

Figure 2. Text for a vacation policy, before formatting.

```
Line
 1
 2  ABOUT YOUR BENEFITS※
 3  ※
 4  ※
 5  Paid Vacation※
 6  ※
 7  As a regular employee, you are eligible for a paid vacation each
 8  year. The vacation year begins on July 1 and ends on June 30.
 9  Vacation is earned according to length of service. The vacation
10  schedule is:※
11  ※
12       Length of Service                          Paid Vacation※
13          As of June 30                             As of July 1※
14  ※
15        Less than 1 month                                0 days※
16        1 month less than 3 months                     1 day※
17        3 months less than 6 months                   3 days※
18        6 months less than 9 months                    6 days※
19        9 months less than 1 year                       9 days※
20        1 year less than 5 years                       10 days※
21        5 years less than 10 years                    15 days※
22       10 years or more                                   20 days※
23  ※
24  For example, Karen E. starts work on September 1 and is employed
25  ten full months by June 30. As of July 1, she is eligible for
26  nine days of paid vacation. David C. starts work on February 15
27  and is employed four full months by June 30. As of July 1, he is
28  eligible for three days of paid vacation. When the next vacation
29  year begins, they will both be eligible for ten days of paid
30  vacation.※
31  ※
32  The plant is customarily closed for two weeks during the summer,
33  and you are expected to take your vacation during this period.
34  The date of the shutdown will be announced as early as possible.※
35  ※
36  You will receive your vacation pay on the last workday before the
37  shutdown. Your paycheck will include only those days for which
38  you are eligible to be paid. Vacation pay is based on the number
39  of hours in your regular workday, to a maximum of eight hours.※
40  ※
41  Employees eligible for more than two weeks of vacation may
42  request that it be scheduled at any time during the vacation
43  year. Each request will be considered in light of production
44  requirements. If you would like your vacation pay before leaving,
45  be sure to notify the Payroll Department at least two weeks in
46  advance.※
47  ※
48  There is no carryover of vacation from year to year, and
49  borrowing against future vacation is not permitted.
```

A DOCUMENT FROM SCRATCH

Use the AppleWorks Startup and Program disks to bring up a new word-processor screen. Name this file HANDBOOK. You should now see the Review/Add/Change screen with the cursor in line 1 column 1.

At several points, I'll ask you to save the document. If you're working with a one-drive system, watch the screen for prompts that tell you when to swap the Program disk for the data disk.

You'll need to change the existing tab stops to make entering the text easier. First clear all the tab stops: Press OA-T and type **R**. Now watch the indicator at the bottom right of the screen for the cursor's position, and set the following tab stops. Press the right arrow key to move the cursor to column 7 and type **S**; hold down the right arrow key until the cursor reaches column 51 and type **S** again. That's it. Press the escape key.

Next, to prevent wraparound when you type the text, reduce the width of the left margin: Press OA-O to bring up the Printer Options screen. Type **LM** and press the return key. Type **.5** and hit the return key again. Press the escape key. And finally, press OA-Z to keep the blots and printer options visible. Your cursor should now be in line 2 column 1.

Now enter the text in **Figure 2** according to the instructions in the **Table**. Press the spacebar only once between sentences, so that your results match mine. If you make a typo, press the delete key to back up the cursor and erase.

When you finish entering the text, store the document on disk: Press OA-S and relax while AppleWorks "carefully" saves your file.

Now turn on your printer, and let's see what this document looks like before formatting: Press OA-P to start the Print command. Press the return key to confirm *Beginning*. Press the return key again to confirm the printer (or type a printer number, then press Return), and press the return key again to confirm *one copy*. And here it is (yawn).

FORMATTING THE DOCUMENT

The text in this handbook—5½ inches by 8 inches—needs different margins from the AppleWorks standards, which are designed for letters. This text prints 4½ inches across and 6½ inches down, which, in AppleWorks terms, translates to a left margin of .5 inch (which you set earlier),

a right margin of 3.3 inches, a top margin of .6 inch, and a bottom margin of 3.2 inches.

Press OA-1 to jump the cursor to line 1 column 1. Now press OA-O to bring up the Printer Options screen. Type **RM** and press the return key. Type **3.3** and press the return key again. Now type **TM** and press the return key. Type **.6** and press the return key again. And finally, type **BM** and hit the return key. Type **3.2** and hit the return key again.

You're still in the Printer Options screen, so have AppleWorks center the title ABOUT YOUR BENEFITS and print it at six characters per inch: Type **CN** and press the return key. Type **CI** and press the return key. Type **6** and hit the return key again. Now press the escape key to exit the Printer Options screen.

Don't be alarmed at the condition of the text, which is now centered. First, enter the code for proportional spacing: Move the cursor to line 10 column 1. Press OA-O. Type **P2** and press the return key.

CREATING A PAGE FOOTER

The next few steps create a footer that produces a page number at the bottom of each page. Type **FO** and press the return key. Press the escape key to exit the Printer Options screen. The cursor is now in line 12 column 1. Press the return key to insert a blank line for the footer, then the up arrow key to move the cursor to line 12 column 1.

The footer is centered and looks like this: **- 1 -**. Type a dash and press the spacebar. Leave your cursor in line 12 column 27. Now tell AppleWorks to print the page number. Press OA-O, type **PP**, and press the return key. Press the escape key. Press the spacebar and type a dash. The screen should now show **- ^ -**. Carets all look alike on screen. To see what this caret stands for, press the left arrow key three times so that the cursor is on the caret. Your answer is displayed at the bottom of the screen: Print Page No.

JUSTIFYING, SKIPPING LINES, AND BOLDFACING

Justifying ends the centering and prints the lines with a smooth right edge. Move the cursor to line 13 column 19 (atop the P in *Paid*). Press OA-O, type **JU**, and press the return key. Press the escape key. At the bottom of the screen you can see part of the vacation schedule. Though it looks like a mishmash, it will print just fine.

Next, make room for that jaunty vacation illustration. Press OA-8 to jump the cursor to line 67. Move the cursor to line 73 column 1, and press OA-O. Type **SK** and press the return key. Type **9** and press the return key again. Hit the escape key.

The final step is to boldface the headings so that they'll really stand out. Press OA-2 to jump the cursor to line 10, then move the cursor to line 7 column 1. Hold down the control key and type **B**. A caret appears and the cursor jumps to the A in *ABOUT*. It's not necessary to end boldface, because it cancels itself at the end of a line.

Now tell AppleWorks to print *Paid Vacation* in boldface: Move the cursor to line 14 column 1, hold down the control key, and type **B**. Next, boldface the vacation-schedule headings: Move the cursor to line 22 column 6, hold down the control key, and type **B**. Move the cursor to line 24 column 9, hold down the control key, and type **B** again.

Table. Instructions for entering the text in ***Figure 2****.*

Line	Action
2	Type **ABOUT YOUR BENEFITS** and press the return key three times to end the paragraph and insert two blank lines. The cursor moves to line 5.
5	Type **Paid Vacation** and press the return key twice to end the paragraph and insert a blank line. The cursor moves to line 7.
7	Type the entire paragraph starting with *As a regular employee, you are eligible for a paid vacation*. . . . At the end, press the return key twice. The cursor moves to line 12.
12	Press the tab key, then the left arrow key to move the cursor to column 6, and type **Length of Service**. Press the tab key to move the cursor to column 51 and type **Paid Vacation**. Press the return key. The cursor moves to line 13.
13	Press the tab key, then the right arrow key twice to move the cursor to column 9, and type **As of June 30**. Press the tab key, then the right arrow key three times to move the cursor to column 54. Type **As of July 1**. Press the return key twice to move the cursor to line 15.
15	Press the tab key and type **Less than 1 month**. Press the tab key, then the right arrow key until the cursor reaches column 56. Type **0 days**. Press the return key to move the cursor to line 16.
16	Press the tab key and type **1 month less than 3 months**. Press the tab key, then the right arrow key to move the cursor to column 52. Type **1 day**. Press the return key to move the cursor to line 17.
17	Referring to **Figure 2**, press the tab key, type the text that belongs in the left column, then tab to the right column and type the corresponding text at the following cursor locations: line 17 column 51 — 3 days line 18 column 52 — 6 days line 19 column 53 — 9 days line 20 column 53 — 10 days line 21 column 51 — 15 days
22	Press the tab key, then the left arrow key, and type **10 years or more**. Press the tab key, then the right arrow key five times to move the cursor to column 56. Type **20 days** and press the return key twice. The cursor should now be in line 24 column 1.
24	Type the remaining text, starting with *For example, Karen E. starts work on September 1*. . . . Press the return key twice between paragraphs. When you finish, your cursor should be in line 49 column 52.

PRINTING THE PAGES

Now, the moment of truth. To see what this formatting does to the document, turn on your printer and press OA-P to start the Print command. Press Return three times—once to confirm *Beginning*, again to select your printer, and again for *one copy*. Your pages (*sans* illustration) should now look like the ones in **Figure 1**. Press OA-S to store them on disk.

Next month, I'll show you how to create a checkbook spreadsheet that keeps a running balance of your financial transactions and reconciles your bank statement.■

Ruth K. Witkin is a consultant in computer applications for business. Write to her at 5 Patricia Street, Plainview, NY 11803. Enclose a self-addressed, stamped envelope if you'd like a personal reply.

More Power for APPLEWORKS™

MACROWORKS

by Randy Brandt
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(Version 2.0 requires Super MacroWorks.)

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–A+ Magazine, October 1986

"What is your FAVORITE Apple II software for 1986?"
1. AppleWorks
2. The Print Shop
3. MACROWORKS
–InCider Magazine's "Reader's Choice" Poll

MACROWORKS PUTS *YOU* IN CHARGE OF APPLEWORKS

After updating your AppleWorks disk once, you can put the MacroWorks disk away, then use AppleWorks like you always do. MacroWorks remains invisible until you need it. Most new features are accessed using the SOLID-APPLE (🍎) key (or IIGS OPTION key). All standard AppleWorks commands remain in effect.

Here are some of the new features that MacroWorks adds to AppleWorks:

APPLEWORKS MOUSE CONTROL
Optionally use your mouse for quick, precise control of menus, scrolling, highlighting, etc.

❑ **CREATE YOUR OWN MACROS**
Convert any series of AppleWorks keystrokes into a new single-keystroke AppleWorks command or "macro." Use our built-in macros or create your own.

For example, 🍎-N could type and center your name and address. Or 🍎-P could print (or save) *all* of your Desktop files, nonstop.

Or you could set up a macro that skips unwanted questions like *"How many copies?"* and *"Are you sure...?"*.

❑ **NEW SINGLE-KEYSTROKE WORD PROCESSOR COMMANDS**
- Character-delete and Word-delete
- Jump to the start or end of a line
- Erase an entire line
- "Undo" the last delete command
- Many more.

❑ **FOR THE WORD PROCESSOR, DATA BASE AND SPREADSHEET**
Create macros for all three applications. For example, in the Spreadsheet, you may find yourself typing the same series of keystrokes every day to sort a column of numbers. Set it up as a one-key macro!

❑ **PERSONALIZED HELP**
Rewrite AppleWorks' "Help" screens to display whatever information you want.

❑ **DESKTOP EXPANDER COMPATIBLE**
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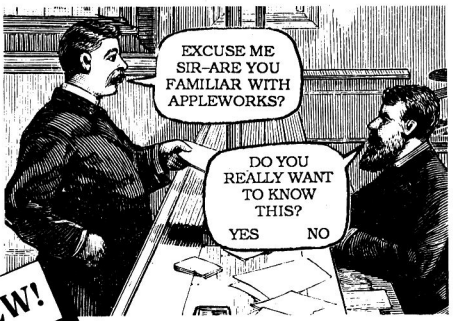
You can install MacroWorks on a floppy disk, 3.5" disk, hard disk or RAM disk.



NEW!

SUPER MACROWORKS

by Randy Brandt
$49.95–Apple IIGS, IIc and 128K IIe
For new AppleWorks version 2.0.
(Version 1.3 & earlier requires MacroWorks.)

←MACROWORKS FEATURES PLUS...

Super MacroWorks provides the same AppleWorks enhancements and improvements as MacroWorks (left), **PLUS** the features below.

❑ **AUTO STARTUP**
Boot AppleWorks and it gets itself up and running without another keypress. You can also have any file automatically load, so you're ready to go to work!

❑ **DIRECTORY DATABASE**
Quickly read the file names from any or all of your ProDOS disks into the Data Base. Search and sort by file name, type, date, etc., and make printouts, to see what's *really* in that disk library of yours.

❑ **ON-THE-SPOT COMPILING**
Create and compile new custom macros "live" without leaving AppleWorks.

❑ **NO MORE TYPING PATHNAMES!**
When you want to access another disk or directory, you now select from a menu instead of typing a pathname. Simply highlight the directory name you want–it's just like loading files.

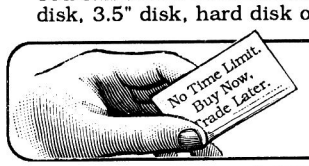
❑ **LINKED FILES**
Many possibilities–like the ability to define custom macros that work with a particular file. One keystroke can load a file, then load its associated macros.

❑ **READ-THE-SCREEN MACROS**
Lets you do many things, like convert characters, words or paragraphs from lower-case to UPPER-CASE and back.

And now you can cut and paste *anywhere*, including from field-to-field and record-to-record in the Data Base.

❑ **LOCAL/GLOBAL MACROS**
Define macros that work differently in different applications. For example, you could make 🍎-N do 3 different things:
- Word Processor ..... Type your name
- Spreadsheet ..... Type "3.14159"
- Data Base ..... Sort by Zip code

❑ **TIME & DATE MACROS**
One 🍎-keystroke automatically types the current date or time in any document.



Trade Up to SUPER MACROWORKS

MacroWorks owners with AppleWorks 2.0 may get a Super MacroWorks trade-in by mailing the front cover of their MacroWorks manual+$22.50 to Beagle Bros. (Calif. add $1.20 tax)

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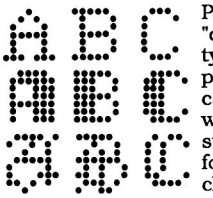


Power Print lets you "download" a second typestyle into your printer's memory so you can alternate printing with your printer's standard font and a new font with special characters and symbols.

OUR FONTS OR YOURS
Ten different fonts are included on the disk. An easy-to-use font editor lets you redraw any character in our fonts or design your own fonts from scratch.

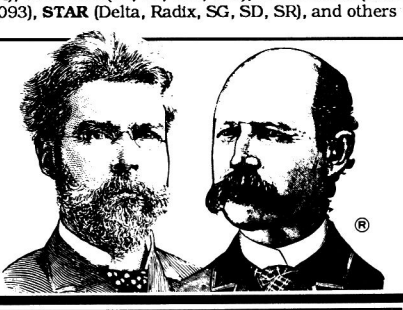
APPLEWORKS COMPATIBLE
In fact, Power Print is *everything* compatible. Just download a font (in less than 2 seconds), then boot AppleWorks, AppleWriter, ProDOS, DOS 3.3–or practically anything else–and custom printing is yours!

MIX GRAPHICS AND TEXT
Design up to 96 custom characters that combine to print a small illustration.

You may then include this drawing as part of your regular printouts.

←This logo was actually typed with AppleWorks and printed on an Apple ImageWriter. Other software and printers work equally well.

FULL-SPEED AHEAD!
Unlike other font software, Power Print *won't* slow your printer down one bit. Power Print works with most full-font downloadable printers, including:
APPLE DMP and **IMAGEWRITER** (I and II), **BROTHER** M1509, **CITIZEN** (20, 25), **EPSON** (EX, FX, JX), **OKIDATA** (92, 93, 192, 193), **PANASONIC** (1092, 1093), **STAR** (Delta, Radix, SG, SD, SR), and others



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AD #361

Circle 229 on Reader Service Card.

A File Named SU

Learn how your GS locates disk drives and simulates slot numbers, then use the System Utilities to rename your disks and files.

by Tom Swan

When it comes to formatting and copying disks, do you let someone else pilot the ship? Does the thought of duplicating a disk or erasing old data files give you the heebie-jeebies? Do you hold your breath every time the disk-drive light comes on?

If so, welcome to the club. As a flag-waving member, let me reveal myself not as the Fearless Freddy many assume me to be, but as Timid Tommy, just as certain as most of you that the next key I press will wipe out six database files and the addresses of everyone who owes me money.

In fact, I reaffirmed my membership just this week. No matter what I told it to do, my IIGS System Utilities refused to copy files. Finally, after excavating deeply into the technical manuals, I dug out the answer. Silly me, I'd been copying not to my second disk drive, as I'd thought, but to that sneaky RAM disk about which I raved so eloquently last month. For reasons that are now clear, my GS had switched slot numbers on me, placing my RAM disk where I expected the second drive to be.

I could have saved myself much trouble by learning my way around the System Utilities, a program I now call friend instead of. . . well, I can't tell you here. What follows are my discoveries, plus the story of how I acquired a file named SU.

MUSICAL SLOTS

Forget everything you know about Apple II slots. Because you plug disk drives into the GS Smartport—and not into a card in a slot inside the computer—referring to slot 5, drive 2 to locate a disk is potentially confusing. The Smartport firmware *simulates* slot numbers to be compatible with Apple II software that refers to disks that way. But you're better off using disk *names* instead of assuming that a drive is in one of the simulated slots. You won't always be able to use disk names in place of numbers, but it pays to get into the habit of typing /SYSTEM.DISK instead of S5,D1 as you do on other Apple IIs.

Using disk names is important for another reason. A draft Apple technical manual indicates that drive numbers might change in future versions of ProDOS to allow more than the current limit of two drives per slot. As things stand now, if you have two 3½-inch drives and a RAM disk, the GS pretends that the first real drive is in S5,D1, the RAM disk in S5,D2, and the second real drive in S2,D1. Why slot 2? Because that's the slot Apple chose to make up temporarily for ProDOS' inability to specify more than two drives per slot. That's why I became confused when I tried to copy files. I thought my second 3½-inch drive was in simulated slot 5, but ProDOS had put it in slot 2.

THE NAME GAME

Disk names have their drawbacks, though, the worst being their length. After typing the pinky-twisting -/SYSTEM.DISK/SYS.UTILS/SYSUTIL .SYSTEM umpteen times to run the System Utilities program, my fingers insisted I use a shorter name. If you want to do the same, first boot your system disk. You should see the Program Launcher. Click open the SYS.UTILS folder, then SYSUTIL .SYSTEM. If you're in BASIC, type the previous long command, with the preceding dash. Both methods run the System Utilities program.

You should now see these main sections displayed on screen:

* Work on Entire Disks
* Work on Individual Files
* Work on ProDOS Disks Only

Use the arrow keys to move the highlighting bar to *List Volumes* and press Return. This shows you a list of disk names, formats, and simulated slot and drive numbers. If you must use numbers instead of disk names, refer to this list.

Press Return or Escape to go back to the main screen. At other times, you can usually press Escape to stop any operation and choose another command. **Table 1** shows these and other keys you can type. If you get mixed up, press Open apple-? (with or without pressing the shift key) to see help messages on screen.

If you haven't copied your system disk, now's the time. Choose *Dupli-*

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Table 1. System Utilities keys.

Arrow keys	Choose menu options
Escape	Cancel operation
Return	Return to main menu or enter
Spacebar	Select files
Open apple-?	Display help

cate a Disk; the GS asks for the slot and drive number of your source (original) disk. I wish it would instead ask for the name, but it doesn't. If the correct numbers are showing, press Return. Otherwise, type in the right numbers, using the left- and right-arrow keys to move the cursor. If you don't know what numbers to type, press Escape and choose *List Volumes* to locate your disk.

Repeat this procedure for the destination disk, the copy. Here again, specify a slot and drive. Make certain you type the correct numbers, and remember that a second 3½-inch drive might be in S5,D2 or in S2,D1, depending on how many other drives you have. Press Return twice, once to skip the prompt asking for a new volume name and again to give the copy the same volume name as the original. (*Volume* means disk.)

Put a fresh blank into your second drive and press Return to begin copying. If you have only one drive, swap the original disk for the copy—a tedious, but necessary, procedure. Follow the instructions on screen.

With your copy in the drive, press Escape to return to the main screen. Choose *Rename Volumes*, the last instruction in the right column. You now see a different prompt that asks "Where is your disk?" (It's in the drive, of course.) Press Return to see the familiar slot- and drive-number prompt, make sure the numbers are correct (probably S5,D1), and press Return. Stop here. You should see the prompt "Enter new name for volume /SYSTEM.DISK/. . . ."

Type a slash to erase the old name and replace it with something else. Typing anything but a slash adds to the name that's already there. You can move the cursor left and right to correct mistakes, use the delete key to erase characters, and type Control-Y to remove all letters to the right of the cursor.

To finish renaming your disk, type SD and press Return. The bottom line should say, "Renaming Complete." Press Escape or Return to go back to the main screen.

You now have to tell the program you changed the disk name. Choose *Set Prefix*. This brings up a slightly different prompt, again asking "Where is your disk?" In this case you can choose from two responses, *Slot and Drive* or *ProDOS Pathname*. Use the

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- A/D process totally transparent to Apple (looks like memory)
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up and down arrows to select *Pathname* and press Return. If you make a mistake, press Escape and try again. Type /SD to change the prefix—the name the program uses, unless you tell it to use another.

Return to the main screen again and choose *Rename Files*. Choose *ProDOS Pathname* and type SYS.UTILS. Press Return. A prompt asks whether you want to select Some or All files in this folder. Press Return to choose *Some*. You should see the following, an example of a *file list*:

```
SYSUTIL.SYSTEM
GSSU0
GSSU1
GSSUE1
```

Use the arrow keys to move the bar from name to name and the spacebar to select a name. Whenever you perform an operation on a group of files this way, you select the files you want beforehand. This gives you the chance to change your mind about renaming, deleting, or copying certain files. No changes occur until you press Return.

Choose *SYSUTIL.SYSTEM*, the first filename in the list, and press Return. Unfortunately, the prompt then shows the old filename where you want to type a new one. To remove it, type slash-Delete, a quick trick to remember when you want to get rid of everything on the prompt line. Type SU and press Return.

You now have a file named SU—just like mine. But there's one more thing I want to show you. Get back to the main screen and again choose *Rename Files*. Specify *Pathname* and press Return to use the prefix /SD/. This time, choose *All*.

You'll then see a list of files and folders on disk. Press Return until you get to folder SYS.UTILS, then type slash-Delete to remove the old name. Type UTIL and press Return. Press Escape to return to the main screen. In the future, remember to select *Rename Files* and specify *All* when you want to change other folder names.

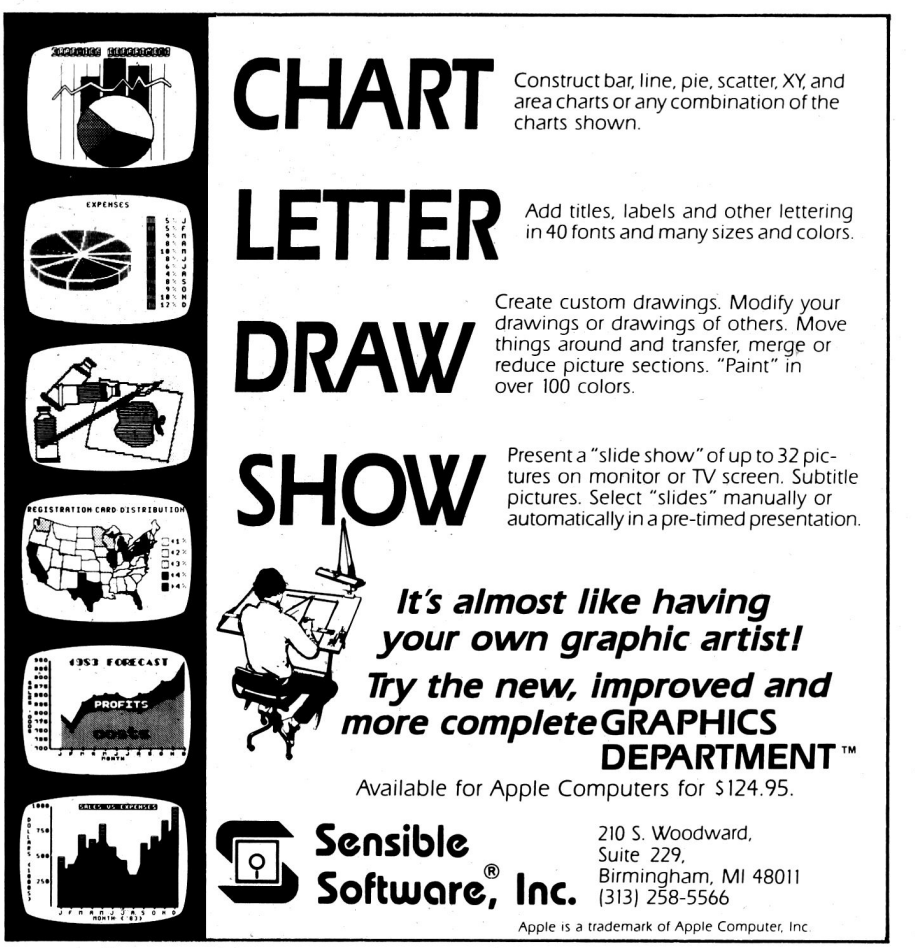
You now have a disk /SD, a folder /UTIL, and a file named SU. From BASIC, you can type -UTIL/SU to run the System Utilities—much easier on the fingers. I use similar two-letter names for all my most-used programs: WP for word processors, and so on.

If you followed the previous hands-on lesson, you've now seen most of SU's prompts. Because other commands use similar prompts and messages, you should be able to master them with no further instruction. See **Table 2** for a list of SU's commands. If you're nervous about using any of these, make a duplicate of your system disk and experiment with that until you've tried every command. In fact, that's good advice for all new software. It doesn't matter if you mess up a copy of a disk. You can always copy another.

If you have a 5¼-inch floppy-disk drive, always keep a disk in it while using SU. I like to keep a formatted

Table 2. *System Utilities commands.*

Catalog a Disk	Display filenames
List Volumes	Show names of disks in all drives
Duplicate a Disk	Copy entire disks
Format a Disk	Prepare blank disks
Other Options	Verify disks are readable
About the IIGS System Utilities	Brief program instructions
Quit	End program
Copy Files	Copy files between two disks
Delete Files	Erase files permanently
Rename Files	Change file and folder names
Lock/Unlock Files	Lock files to prevent erasure, or unlock to permit removal
Create Subdirectory	Create new folders, also called subdirectories
Set Prefix	Set default disk and folder name
Rename Volumes	Change disk names



Circle 242 on Reader Service Card.

Tricks, Tips, and Tidbits

Apple Programmer's Workshop (APW) (Apple Programmer Developers Association, 290 S.W. 43rd Street, Renton, WA 98055, 206-251-6548) users with 1.2 megabytes of memory—the recommended minimum for serious programming—can speed up their systems by creating a 256K RAM disk and typing

```
PREFIX 3 /RAM5
```

APW uses disk space to store files temporarily during various operations, and sending those files to the RAM drive helps speed compiling, linking, and other jobs. You can also add the same line to your SYSTEM/LOGIN file. Use the Editor to type it in. Then every time you run APW, it automatically uses the RAM drive for its temporary storage. This also works with ByteWorks' ORCA/M (4700 Irving Blvd. N.W., Suite 207, Albuquerque, NM 87114, 505-898-8183).

In this month's "Sneak Previews," I mention MouseTalk, the communications program from United Software Industries, Inc. Since first running it, I've discovered a problem that turned out to be my fault—those darned simulated slots again. For lack of a cable, I temporarily attached my Hayes Smartmodem to a serial card in slot 2.

When I received the cable, I removed the card and plugged the modem into the GS serial port, but couldn't get MouseTalk to run. I was just about to call the company when I remembered that I had set slot 2 in the control panel to *Your card*. Setting it back to *Modem Port* cured the problem. If you have trouble with programs, especially communications software and modems, check your slot settings. Programs can't see you plug in cables.□ **—T.S.**

blank disk around for such purposes and for temporary storage. Having disks in all drives makes many ProDOS programs happier, and avoids that annoying burping sound when programs find an empty drive.

Thanks to many of you who've sent letters. Next month, I'll relay some of your questions and discoveries. If there's enough response, I'll start a question-and-answer section.■

Tom Swan is the author of Pascal Programs for Data Base Management *and* Mastering Turbo Pascal, *published by Howard W. Sams. Write to Tom at P.O. Box 206, Lititz, PA 17543.*

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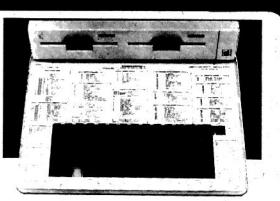

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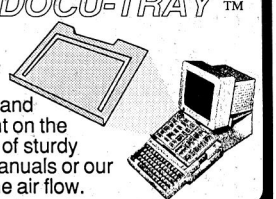

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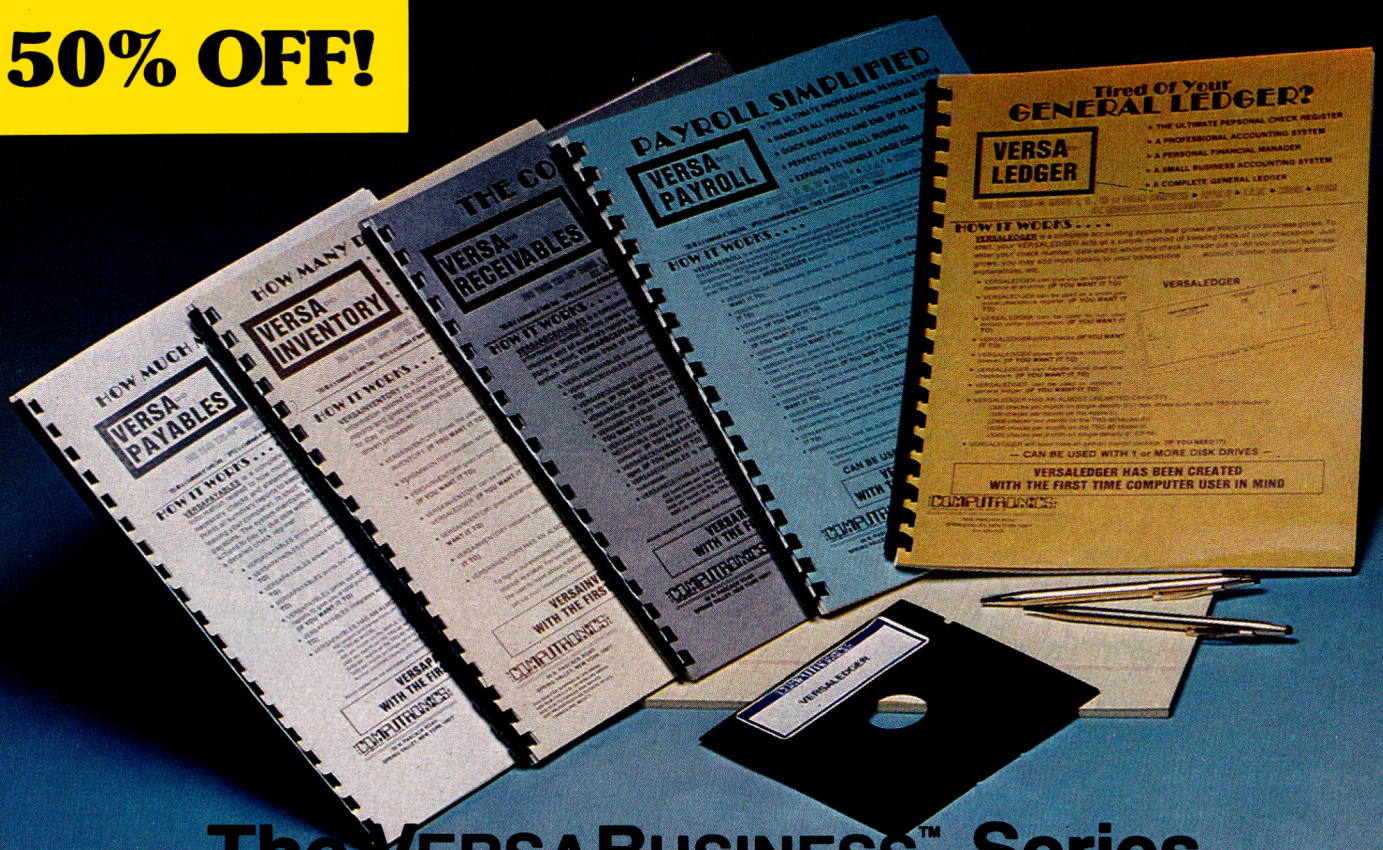

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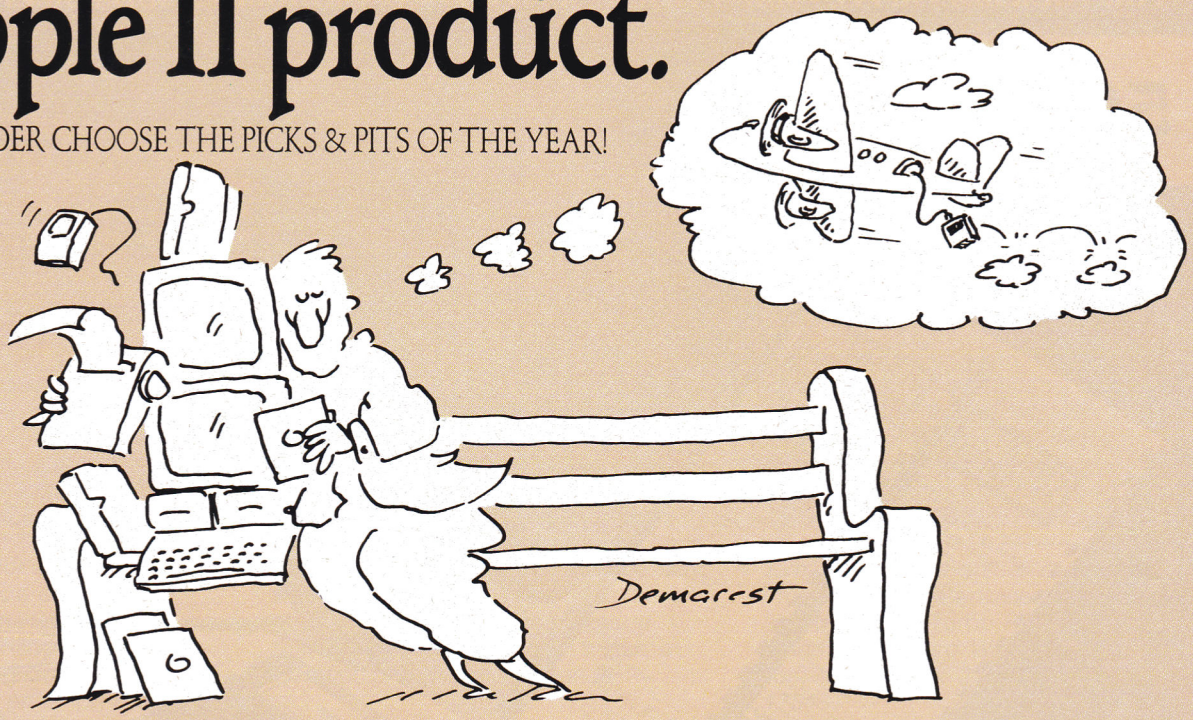

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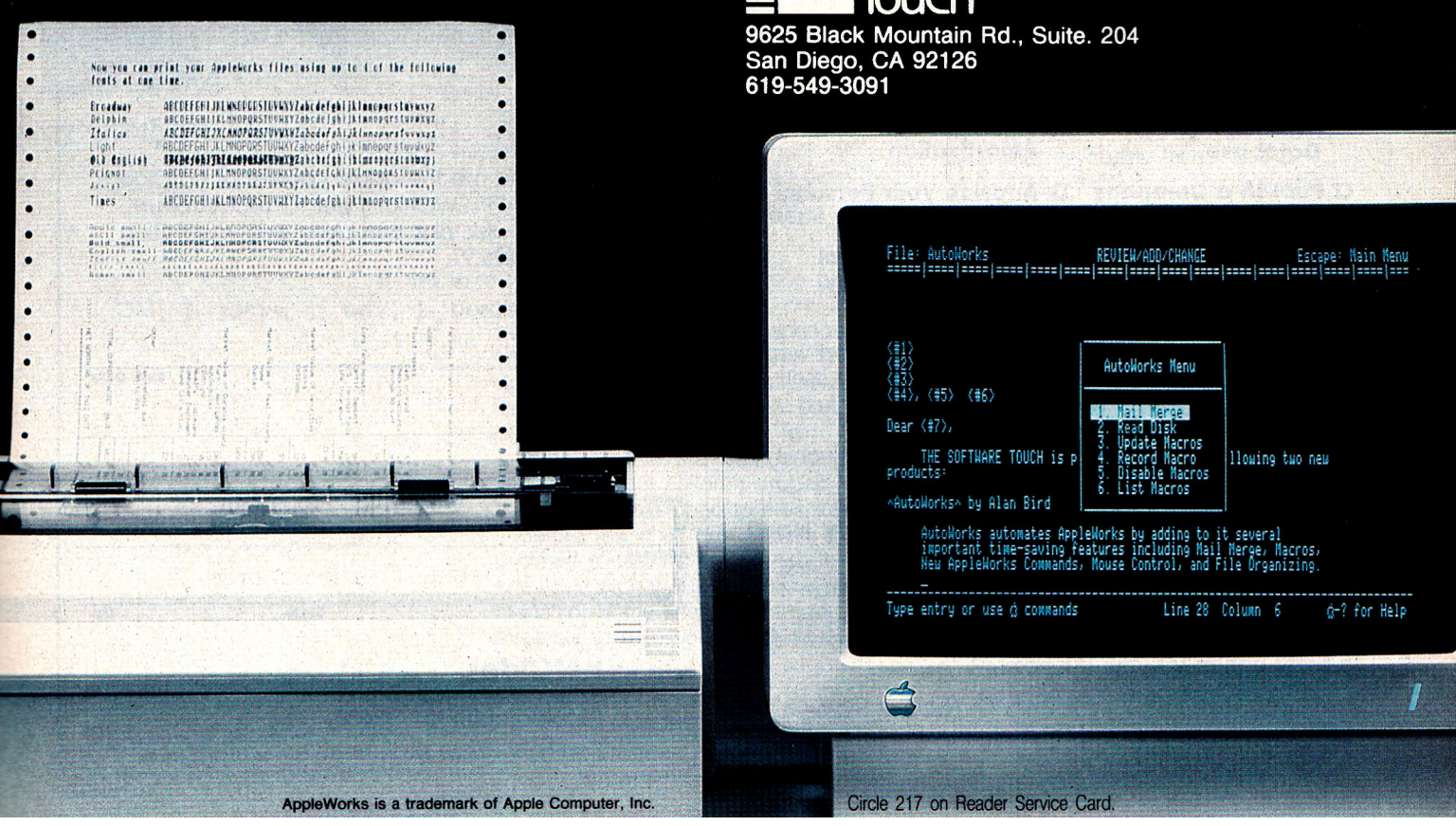

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Fundamental Writing Skills

Whether your child is writing reports or just learning the alphabet, a number of fine educational programs are available to help.

by Cynthia E. Field

This month inCider *presents Field Trip, a series of columns for parents on educational software that will alternate with Teachers' Choice.*

As an Apple-owning parent, you've already taken a giant step toward helping your child prepare for the traditional classroom, cope with it, even transcend it. Are you jittery about laying out $75, $50, or even $25 for software when you don't know whether it will pay off?

If I may borrow a widely known fast-food chain's catch phrase, reporting on "the good stuff" is what this column is all about. In some issues I'll write about Apple software that revolves around traditional academic subjects, while others will focus on areas that sometimes get short shrift in school—such as art, music, and creative writing.

I'll also discuss software that fosters real-world survival and personal-productivity skills—such as health and safety awareness, consumer competence, and time-management skills. I'll tap my resources in search of Apple programs for children aged 2 to 15 that promote learning in ways no textbook can, as well as those that offer unusual value.

The only way I'll know whether I'm hitting the bull's-eye or way off the mark is through your feedback. So please write to me with your concerns, suggestions, and ideas.

FIRST THINGS FIRST

When was the last time you booted up your word processor to prepare business or personal correspondence? Or grabbed a pencil and pad to jot down your grocery list? Writing, in all its forms, is such an integral part of our lives that we may take for granted the skills we learned long ago—skills your children probably haven't yet developed to their fullest.

Before any child can write in the ordinary sense, he or she needs to know the alphabet and basic penmanship. Some nifty programs are available to help your child master both.

If you want to take a low-budget approach for now, you might investigate programs that have been donated to the public domain. These programs aren't commercial products, so they don't always work perfectly. Public-domain software usually comes with a dozen or more programs on each disk. At least one is worth the $2 to $4 you pay for the disk. (See "Striking Gold in Public-Domain Software," February 1987, p. 40, and "Public Domain's Greatest Hits," September 1985, p. 22, for more information on sources.)

That's exactly what I found with two disks I ordered from Dynacomp (see the Product Information box for details). On one (APD #20), I discovered a delightful program called **Alphabet & Sound**, consisting of five activities that help your preschooler learn the alphabet.

On-screen instructions explain how each activity works. One game prompts the child to fill in the missing letters in an alphabetic sequence. Another challenges him or her to find the number of occurrences of a particular letter in a line of text. There's even a typing exercise in which your child can play around with the keyboard or you can reinforce what he or she has learned in previous activities. Success is rewarded with words of praise, a "happy face," and a sing-along rendition of *The Alphabet Song*.

The second public-domain "find" is a program called **Alphabet Antics** (APLPD #63), offering four activities: Letter Match, Three-Letter Sequence, Follow the Letter, and Find the Missing Letter. Like Alphabet & Sound, Alphabet Antics gives plenty of positive reinforcement. The first two activities worked fine, but the program crashed during the others.

If you want software with a little more pizzazz than these public-domain programs offer, you can move up to high-resolution color graphics, animation, and music, featuring some favorite friends—the Peanuts gang and the Muppets.

Random House publishes a series of early-learning programs featuring

"good ol'" Charlie Brown, Snoopy, and the gang. All those I've seen are worth the $39.95 list price—including **Charlie Brown's ABCs**.

One side of this program disk contains the letters A through M, while the other side covers N through Z. Your child simply presses a letter key on the keyboard to make the corresponding letter appear on screen.

Like traditional alphabet books, letters are drawn in an upper- and lowercase pair along with a picture of an object whose name begins with that letter. Pressing the correct key again entertains the child with an animated musical scene.

Press the C once and a birthday cake appears. Press the key again and Charlie Brown presents Snoopy with the cake. Snoopy blows out the candles, leaving him and Charlie Brown in the dark. During this little party, the song *For He's a Jolly Good Fellow* plays.

To keep the letters in sequence, the child need only press the next key (if he or she knows it) or press the right-arrow key. To learn selected letters (such as the letters in the child's name), press the appropriate keys one by one.

Unlike public-domain programs, commercial educational software is usually accompanied by a manual, which often contains instructions for modifying the program to suit a particular child's level of development. Charlie Brown's ABCs doesn't have this degree of flexibility (an alphabet program probably doesn't need it), but the manual offers some enticing "away from the computer" activities, such as using scissors, glue, and some old magazines to make a "letter collage."

The Charlie Brown's ABCs package also contains 55 activity cards, which you (or a big brother or sister) can use as flashcards to familiarize the new learner with the alphabet and with upper- and lowercase pairs.

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THE SECOND 'R'

If you're willing to spend more for a program that promises to do more, try Sunburst's **Muppet Word Book** (see Reviews, April 1987, p. 33). This program offers six colorful activities to help your youngster learn letters and simple words.

In Parking Lot, Kermit helps the child direct a stream of letters and nonletters (symbols like +, for example) to appropriate parking spots. In Elevator, Scooter helps children match upper- and lowercase letters with illustrations and words. In Pigs in Space, Miss Piggy and Link Hogthrob maneuver a spaceship. When your child presses a letter key, an object whose name begins with that letter flies by the spaceship's window.

In Circus, Gonzo becomes a humanoid cannonball when your child picks the correct consonant to complete a word, whose ending is shown on screen. In Muppet Labs, Bunsen and Beaker cook up some strange objects when your child picks the correct ending to make a complete word from the given letter.

Muppet Word Book has a baby word processor that looks like a lined slate on screen. Your child can type letters, words, or short messages, to learn simple tasks such as spacing between words and correcting wrong keypresses.

Like most educational programs, Muppet Word Book performs best with a color monitor. You don't need an RGB monitor or an Apple IIGS, though—a less expensive, composite color monitor such as the Apple Color Monitor II works fine, as do others in that price range. The large, clear text in these programs is easy to read.

Muppet Word Book—and some other Sunburst programs—support the Muppet Learning Keys (see Reviews, April 1985, p. 98), a child-style keyboard you attach to the game port of your Apple. At press time, I hadn't received mine, so I can't endorse it yet. I'll keep you posted.

Muppet Word Book also supports a more common pointing peripheral, the mouse. Whenever the program requires your child to use the arrow keys to make selections, such as in Elevator, he or she can use the mouse instead to point and click.

A WORTHWHILE HARDWARE ADD-ON

If your child finds it difficult to use a keyboard or mouse, take a look at the **TouchWindow** (see Reviews,

March 1986, p. 66), a transparent input device you attach to your monitor screen with Velcro ® strips. The TouchWindow removes easily and plugs into the game port on your Apple.

You can use the TouchWindow as a menu selector, a drawing tool, or a game device by touching the screen with your finger or with a stylus.

The TouchWindow isn't cheap ($199.95), and not every program supports it. Still, according to the manufacturer, a wide variety of programs do, including The Print Shop, Dazzle Draw, Blazing Paddles, Sunburst's Muppet series, and others.

To soften the blow in terms of price, TouchWindow comes with an Interactive Book containing a variety of software programs, including educational games. In this kind of application, you place the book over the TouchWindow (on a desktop instead of the monitor) and the child makes selections by pressing the pictures in the book. In one activity, your child has to find all the monkeys hidden in a picture by pressing them one at a time. On screen, the monkeys dance as they're discovered.

Other programs that come with the TouchWindow include Touch Checkers (for one or two players), Bishop's Square (a sliding-puzzle game), a commandless word processor (you touch the option you want), and a travel-expense spreadsheet. Investing in the TouchWindow can pay off—not just for preschoolers or handicapped children, but for the whole family.

THE PALMER METHOD: TWO APPROACHES

A unique program from Sunburst you use with the TouchWindow is **Touch 'n' Write: Palmer Manuscript Penmanship**. I was skeptical at first, but working with this program convinces me that your Apple really can teach penmanship.

Touch 'n' Write features a little pointing-hand cursor that forms the basic writing stroke on screen. Your child mimics the stroke by tracing it with his or her finger or with the stylus on the TouchWindow. Practice makes perfect, and Touch 'n' Write offers plenty of that. In fact, your child can't draw a stroke or a letter wrong—the program stops the child before he or she develops any bad writing habits. The little hand encourages children to try again until they master each lesson.

As your child progresses, he or she moves from simple strokes such as lines and curves to letter families, then words. Each lesson includes a module that lets him or her select the color from a palette at the touch of a finger or with the stylus. Colorful scenes and an electronic coloring book provide reinforcement.

If extra hardware isn't within your budget, consider another program that helps children learn how to print. It's **Learning to Write with Ed Emberley**, by the award-winning children's-book illustrator. The program is available in two versions—one for uppercase letters and one for lowercase.

In this program, your child selects a letter from the menu. A hi-res color illustration appears along with the quivering letter. Your child finds and presses the correct key, and an invisible hand draws the first stroke. When he presses the key again, the second stroke appears. Another keypress draws a third stroke (if the letter has one).

Once the letter is completed, another keypress animates the scene while music plays. The objects in the picture tend to begin with the same letter as the one the child selected. For instance, the F illustration shows a frog sitting near a flower and catching a fly.

Learning to Write with Ed Emberley comes with manuscript practice sheets, one for each letter of the alphabet, to reinforce what the child observes at the computer.

If your computer table is large enough, the child can use the practice sheets and the Apple at the same time. Try doing one letter at a time with your child. Begin with the computer, work on the practice sheet, then go back to the computer for animated reinforcement and review.

While the Touch 'n' Write program can monitor your child's progress without your supervision, Ed Emberley's program almost presupposes that you stay with your child at least initially to be sure that he or she prints each letter properly.

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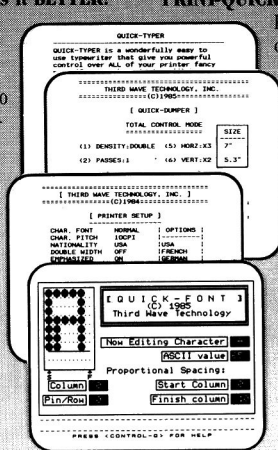

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BEYOND THE ABCS

Even if your child masters the alphabet and basic penmanship, he or she probably still isn't ready for AppleWorks or Bank Street Writer. Your child needs something between alphabet programs and real word processing—a program like **Cotton Tales**.

This delightful program from MindPlay is billed as "word processing and desktop publishing for the beginning reader." Cotton Tales has a little bunny cursor, a database of 616 first- and second-grade vocabulary words, and 192 pictures in 12 categories, such as people, animals, house, numbers, food, and holidays.

Your child can create lists, thank-you notes, and stories by mixing words he or she knows with pictures representing unfamiliar words. Like a rebus, a Cotton Tales story might contain more pictures than words—or vice versa, depending on your child's level of expertise.

Cotton Tales displays all program options in picture form at the bottom of the screen, so your child doesn't have to memorize program commands.

Like all MindPlay programs, this one offers Challenge Upgrade, a series of utilities that let you select various levels of difficulty or program features, create custom word lists, and configure a graphics printer.

Accessory products are available, too. **Cotton Works** is a disk-based set of 50 ready-to-print worksheets. You might think of these as teacher's tools, but why can't parents make Word Match, Not Belong, or What's Next worksheets for their children?

Another accessory is **Cotton Plus**, a disk containing 160 additional graphics in the same 12 categories as Cotton Tales graphics. Cotton Plus nearly doubles your child's Cotton Tales dictionary.

The Cotton Tales manual includes suggested related activities. Your child could use the program to create an alphabet book, book covers, a dictionary, or flash cards.

EARLY SENTENCES

Children aged 7 to 10 graduate from Cotton Tales to a more mature rabbit—**Writer Rabbit**. (See Reviews, January 1987, p. 123.) This program is a "Sentence Party" of five games, the object of which is to identify the different sentence parts: Whos, Whats, Did Whats, Whens, Wheres, Whys, and Hows.

In Ice Cream Game, your child learns to recognize a phrase such as "in New York" as a *Where*, for example. In Cake Game 1 your child has to find the Who or the Did What in the sentence appearing on screen before Writer Rabbit can feed carrots into his cake machine. You can make the program more challenging or less so by altering game options, such as speed.

In Silly Stories, your child fills in the blanks in stories such as Fetch a Pail or Garden with his or her choice of Whos, Whats, Hows, and other word parts. When your child completes each story, he or she can read it on

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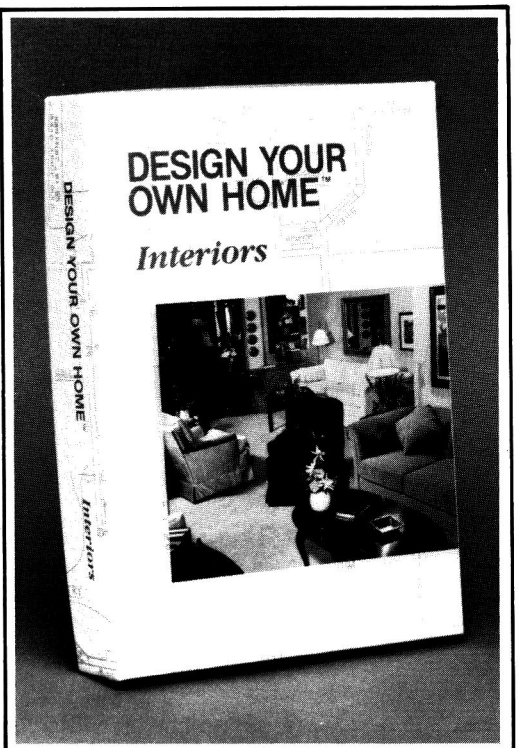

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screen or print it. Writer Rabbit supports many common printers.

FOR SOPHISTICATED AUDIENCES ONLY

Once your young person reaches junior-high-school age, things get more serious software-wise. Instead of bunnies, programs have nondescript blinking cursors. Instead of worrying about accumulating carrots, students worry about squeezing homework into their busy social calendars.

Just because its name reminds you of a food additive, that's no reason to ignore **Homework Helper: Writing** (see Editors' Choice, May 1986, p. 120). This program includes modules for helping your child brainstorm, organize, and write book reports and essays.

For example, if your child needs to prepare a book report, the program queries him or her about the kind of book (fiction, nonfiction, or biography). It then extracts data and ideas from your child based on the kind of work he or she read. For a book of fiction, for instance, Homework Helper: Writing asks questions about setting, character, plot, and style. Far from trite, these questions encourage the student to probe his or her memory and to think ideas through, sometimes chiding him or her to think harder and come up with more information.

In response to each question, the student types in his or her ideas, which the program collates and saves in special files, then later transfers to its word processor. A Helper option lets the student organize ideas into an outline, and, after he or she creates the first draft, helps prepare a rewrite.

Editing and rewriting are the steps most students skip, so Homework Helper: Writing is particularly useful in getting them to consider whether they've included only one idea per paragraph, whether they've used a variety of evidence to support and develop each idea, and whether the report is logically developed.

Homework Helper: Writing offers a spelling checker, but this module is the weakest part of the program. The dictionary includes only the 500 most commonly misspelled words. Unless students check suspect words with a regular dictionary, they may submit papers containing spelling errors the checker didn't catch.

SOMETHING FOR EVERYONE

Whether your child is a toddler or a cool dude, a prodigy or an all-American kid, there are quality programs in all price ranges to lend a hand with fundamental writing skills—from learning the ABCs to composing essays on world events. ■

Write to Cynthia Field at 10 Border Avenue, Wakefield, RI 02879.

Product Information

Alphabet & Sound (APD #20)
Alphabet Antics (APLPD #63)
Dynacomp, Inc.
P.O. Box 18129
Rochester, NY 14618
(800) 828-6772
(716) 671-6160
$3.95 each (public domain)
Requirements: 48K
Ages 3–7

Reader Service Number 300

Charlie Brown's ABCs
Random House Software
201 East 50th Street
New York, NY 10022
(212) 751-2600
$39.95
Requirements: 48K
Ages 3–7

Reader Service Number 301

Cotton Tales, $39.99
Cotton Plus, $29.99
Cotton Works, $29.99
MindPlay
82 Montvale Avenue
Stoneham, MA 02180
(800) 221-7911
(617) 438-5454
Requirements: 48K
(Plus and Works require Cotton Tales)
Ages 4–8

Reader Service Number 302

Homework Helper: Writing 2.0
Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(800) 826-0706
(800) 826-1330 (IL)
$49.95
Requirements: 128K II Plus, IIe, IIc, IIGS
Ages 13–18

Reader Service Number 303

Learning to Write Upper Case Letters with Ed Emberley
Learning to Write Lower Case Letters with Ed Emberley
Right On Programs
1737 Veterans Memorial Highway
Central Islip, NY 11722
(516) 348-1577
$35 each (both for $60)
Requirements: 48K
Ages 4–6

Reader Service Number 304

Muppet Word Book
Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570
(800) 431-1934
(800) 221-5912 (NY)
(914) 769-5030 (Collect from Alaska or Canada only)
$59
Requirements: 64K, II Plus, IIe, IIc, IIGS
Supports: Mouse, Muppet Learning Keys, TouchWindow
Ages 5–6

Reader Service Number 305

Touch 'n' Write
Sunburst Communications
$69
Requirements: TouchWindow, 64K II Plus, IIe, IIc
Ages 5–7

Reader Service Number 306

TouchWindow
Personal Touch Corporation
4320-290 Stevens Creek Boulevard
San Jose, CA 95129
(408) 246-8822
$199.95 ($9.95 for Apple II, II Plus cable)
Requirements: 64K; color monitor recommended
Ages 3–adult

Reader Service Number 307

Writer Rabbit
The Learning Company
545 Middlefield Road
Menlo Park, CA 94025
(800) 852-2255
(800) 852-2256 (CA)
$39.95
Requirements: 64K; color monitor recommended
Ages 7–10

Reader Service Number 308

Continued from p. 39.

fects on the body to make informed decisions.

Students work in groups of six, with three taking the roles of "friends" and three being "followers." The group views a scenario in which the computer character Jon or Ann tempts the followers to do something that may get them into trouble. One scenario, for instance, begins, "You have a history test tomorrow and plan to be up very late studying. Jon offers you some 'pep' pills that will help you stay awake and concentrate."

After watching the scenario, the followers leave while the friends scan a list of possible actions they can take. This list always includes a harmful choice and at least one safer option, such as "Take several pills so you can stay awake and learn the history" versus "Tell Jon you would rather not take the pills because you want to be completely in control to study for the test."

The friends select a choice and try to convince the followers of their decision; the followers decide what they want to do and enter their decision into the computer. There's more than one possible result for most decisions, including the realistic chance of peer disapproval or other undesirable consequences for safe choices. ("Jon gets upset and accuses you of not trusting him as a friend. You study hard and get a decent grade on the test.")

A round consists of four scenarios (each with Jon and Ann versions); in the many rounds I played, I encountered 14 different episodes. The first scenario of each round is always relatively low-risk—pressure, for example, to go to a party without parental permission or smoke a cigarette. Followers who opt for a safe choice continue to see low-risk options until they make a dangerous choice; after that, scenarios become more risky. Some of these portray students who must decide whether to drive under the influence of alcohol or smoke crack to be part of a group.

The package includes reproducible discussion forms and can print scenarios, choices, and results for discussion away from the computer. A save option lets students restore a session in progress.

There are limited graphics and no sound, but that doesn't really detract from the program's educational objectives—teaching students the risks involved in certain behavior and showing them that there are always alternatives, that there's always a choice. If Who's in Control? gets students to examine their feelings about drugs and their anxieties about bucking peer pressure, it's a step in the direction of teaching them how to do what's right when an actual situation arises.■

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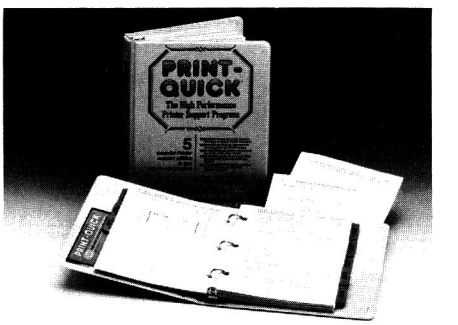
Circle 293 on Reader Service Card.



Dot-Matrix Marvels

PRINT-QUICK

Third Wave Technology Inc., 11934 Lorain Avenue, Cleveland, OH 44111, (216) 671-8991

Printer-utility program; 48K Apple II Plus or later, Applesoft in ROM
$49.95
Rating: ■■■■

For most of us, the paperless office or home is a myth. The computer, instead of doing away with paper, has simply let us fill more pages more rapidly. The problem involves putting our words on paper efficiently and with style—and, for owners of dot-matrix printers, Print-Quick offers several solutions for less than $50.

Most software programs offer a limited number of options or drivers for a limited number of printers. ImageWriters and Epsons are more commonly supported than others, but few programs support all their features; for those of us with other printers,

such as my old Okidata 92 workhorse, even minimal support can be hard to find.

Unless you're a skilled programmer, you probably won't be able to write your own printer driver or know exactly how to connect it to your application. Some programs help you write a custom printer driver by presenting a series of prompts, which you answer with control codes from your printer manual. This usually works adequately, if the installation procedure includes the features you want to use and if your printer and software manufacturers agree on terminology or command syntax. In at least one program I use, the format required by the software for control-code input doesn't match the command output my printer requires.

If you're frustrated by these limitations, look into Print-Quick. On its double-sided, copyable DOS 3.3 disk are five independent (and, at times, interrelated) routines: Quick-Setup for controlling printer output and maximizing capabilities; Quick-Typer to turn your Apple and printer into a simple typewriter; Quick-Dumper to handle your hi-res-graphics printing needs; Quick-Font to release your typographic creativity; and a set of utilities to display or print Apple text files with or without hidden control codes.

The program supports more than 50 printers and 20 interface cards, as well as IIe-compatible 80-column cards, most RAM cards, and Apple- or Thunderclock-compatible clock cards. Configuring Print-Quick to your hardware is a breeze, as the only information you need to supply is the interface card, printer, and slot you're using. The program senses other equipment, including the mouse, automatically.

ONE-STEP SETUP

The Quick-Setup module must be considered the centerpiece of the package. It lets you create a setup sequence of printer-control codes, save it to disk, load it back into memory, and revise it as you see fit. The module also includes the aforementioned text-file utilities, plus the ability to download custom fonts if your printer supports them.

Making a menu selection in this or any other module is simple and democratic—you have a choice of typing a command, thumbing through choices with the arrow keys, or picking one with your joystick or mouse. Some later commands, after the desired portion of the program is loaded into memory, are control-key sequences, listed on a handy quick-reference card; Control-Q always calls a help screen. I found that I very seldom had to refer to the manual for information.

Most Quick-Setup options fit on a single menu, with choices for character font, pitch, nationality set, emphasized, double-width, double-strike, underlined, unidirectional, and letter-quality printing, along with line spacing, page length, perforation skip, left margin, and horizontal tabs. Options with more than two alternatives bring up a secondary menu, listing available choices for your printer.

If your printer won't support a particular option, or two choices conflict with each other, Print-Quick tells you the problem. If you ask the printer to do two mutually exclusive things, such as condensed print and correspondence quality on an Okidata, the program gives you the chance to decide which item is more important to you.

You can test and revise completed setups without leaving Print-Quick or loading extraneous files. You can then save a setup to disk for future use or send it to the printer for immediate action.

Since the disk file is a standard text file, you can run it without Print-Quick by using Applesoft's EXEC command, letting you put your favorite print format—such as condensed mode for spreadsheets or double-spaced correspondence quality for letters—on the program disk you'll be using. Unless the program sends new printer-control codes of its own, your setup will work every time.

Remember, these are general setups for entire documents. It's not easy to embed code for specific words, cells, or sentences, even with Print-Quick, though an appendix provides information on using setup files within AppleWorks.

SCREENS AND STYLES

Quick-Dumper, a graphics-screen-dump utility, is equally easy to use. There are two menu-driven modes, "Quick 'n' Easy" and "Total Control." Both let you select the screen portion to be printed, marking an area with the keyboard, mouse, or joystick. The easy method also offers double-strike and inverse printing and rotation, while "Total Control" lets you specify paper size, horizontal and vertical magnification, left, right, or center justification, and one to five printhead passes.

With standard Apple hi-res-graphics files, output is consistently good. Even with old ribbons, the multiple-pass option yields acceptable results, though multiple passes take longer than single ones, of course, if time is a factor. The only omission or weakness is that the module doesn't support the newer graphics modes, such as double-hi-res on the IIe and IIc or super-hi-res on the IIGS. Otherwise, it's one of the simplest and most effective screen-dump programs I've used.

If you're tired of ordinary text and own a printer that supports downloadable fonts, the Quick-Font module lets you design, draw, and download your own letters and symbols. The font editor is elegant, less complex, and more intuitive than most, though font generation is always a tedious task—plotting 52 capital and lowercase letters, ten numerals, and punctuation and special symbols, pixel by pixel, isn't a job to be taken lightly. Quick-Font, however, lets you move through the process as easily as possible and test your results quickly on the printer. If you do want to try your hand at custom characters, you may as well start with Quick-Font.

Three custom-font sets, by the way, are included in the package—bold, computer style, and a special graphics set you can use to generate custom forms such as invoices. Third Wave Technology sells two disks of 15 additional fonts for $19.95 each. The first includes a disk-drive head-cleaning utility, the second a joystick-, mouse-, or paddle-checking program.

I must confess that using a computer as a single-line text editor and typewriter has no major attraction for me, but it must be valuable to lots of other people, because I see it more and more in word-processing packages as well as utility programs. Quick-Typer is one of the better typewriter emulators. Like others, it lets you enter and edit text one line (up to 254 characters) at a time, then send it to the printer or a disk file by hitting the return key. Unlike many others, it also lets you embed a limited set of printer-control codes, such as double-strike, italics, or underlining, within the text.

Text-editing features include tabs, an insert/overwrite toggle, and dele-

tion by character, word, or to the end of the line. The documentation contends that Quick-Typer is easier to set up and use than a full-blown word processor for memos, short notes, and letters; I'd rather have more editing power, but I can see its use for envelopes or labels.

As this review went to press, Third Wave announced an updated Print-Quick 4.0, converted from DOS 3.3 to ProDOS and compatible with the IIGS clock and serial port as well as their older equivalents. The new version includes ImageWriter II color-printing support for Quick-Setup and Quick-Typer, faster operation, easier menu control, and simpler insertion of Quick-Typer feature codes. The company also plans to offer enhanced separate versions of the four main modules for $24.95 each.

GOOD IMPRESSIONS

Besides the reference card, Print-Quick comes with a well-written 150-page manual—complete, concise, informative, easy to read, and occasionally even humorous. The index is good. Each function is detailed in a section of its own, while appendices cover system configuration, terminology, and printer capabilities.

Customer support is very good as witnessed by the lack of copy protection, the program's ease of use, and Third Wave's toll-free phone number. The couple of calls I placed indicate that the company cares about its customers and is willing to help with accurate and friendly service.

Overall, Print-Quick is a high-caliber combination of ease and power. I could ask for a little more from the screen-dump routine, but regardless of your computing status—novice, intermediate, or advanced user—Print-Quick has something to offer.■

Douglas Young
Fresno, CA

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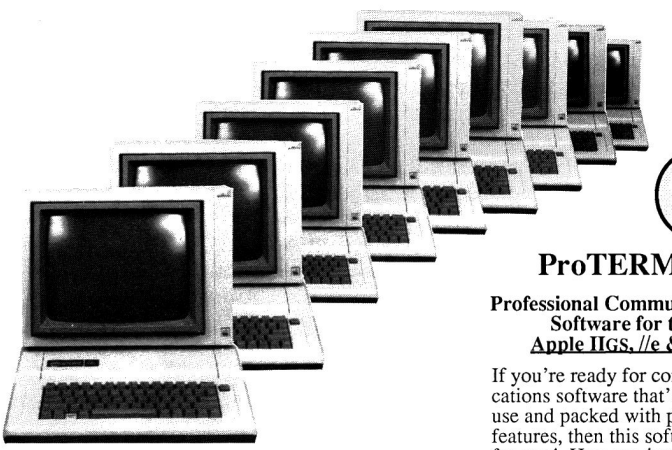

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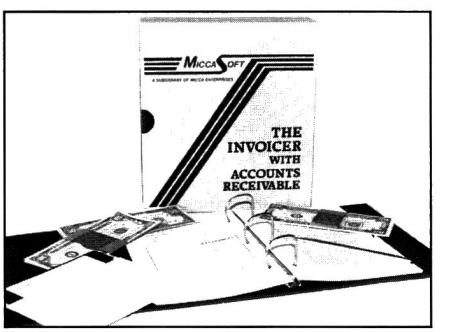


Keep an Eye on Accounts

THE INVOICER

MiccaSoft, 406 Windsor Lane, New Braunfels, TX 78130, (512) 629-4341

Invoice-billing and accounts-receivable manager; 128K, 80-column Apple IIe, IIc, DOS 3.3
$125
Rating: ■■■

MiccaSoft's Invoicer with Accounts Receivable is designed to create invoices and store data on those transactions in an accounts-receivable file. From this file you can retrieve information about who owes you what and the age of each account. It's by no means a full-fledged accounting package, but it doesn't claim to be—nor, at a reasonable $125, is it priced like one. The package says it'll print invoices and store information for

a limited number of accounts (512 maximum), and it does just that.

The system's built-in database lets you store a description and price for up to 1024 inventory items (or billing rates). When you prepare an invoice for something you normally have on hand, the disk whirs briefly as the package enters the item name and amount for you. It also calculates pricing extensions (12 whatchamacallits at $5 apiece total $60), and, once each line on your invoice is complete, asks if that particular item is taxable or not. That's good for those of us who sell both taxable items (such as material) and nontaxable ones (like labor). You can also post transactions without generating an invoice—a nice feature.

You can decide on an open-item system, in which each invoice is kept on file until paid, or a balance-forward approach, where all accounts are tallied at the end of every month and only their balance is sent along to the next accounting period. To clear an open-item amount, you must credit both the exact amount and invoice number. That makes it awkward for companies that offer discounts or use different invoice numbers for credits or payments from those used for a customer's bill.

Once you've entered your customer details—you can assign two macro key combinations to enter repetitive data quickly—the program prints the top half of your invoice. You then enter each item and extend its pricing, and The Invoicer prints each line after you approve it. I'd prefer that it print the entire invoice at once; The Invoicer's approach means that you don't sit and wait for the entire invoice to go through your printer, but you wait in smaller increments as each line is printed. Once its invoicing work is finished, The Invoicer prints a summary for you, showing amount sold, sales tax, and so on.

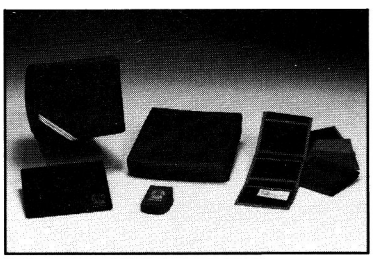
The program is designed for someone who sells things by mail order—there are fields for "Date Shipped," "Shipped Via," and "FOB Point," and whether you've sent an item prepaid or collect. If you don't use these fields, you skip through each with a press of the return key.

On the accounts-receivable side, the package can add finance charges to past-due accounts at the rate you specify, and print statements to accounts with a balance. An aging report tells you how old each account is, and the aging summary adds the cash in each aging period (current, 30–60, 60–90, and over 90 days). You can choose to print only accounts with balances older than the specified aging period. Other printing features include putting names and addresses on standard Rolodex cards and various sizes of labels.

MiccaSoft offers custom modification to fit the program to your company's specific needs. It also provides a demo disk for $5, credited toward purchase of the program, and free phone support, which I found to be excellent. The person with whom I talked knew the program and its design thoroughly. The Invoicer's 57-page manual offers instructions for the IBM and Commodore versions along with the Apple program; they're kept to a minimum and aren't too intrusive. The manual lacks an index, though.

SOME WEAK SPOTS

The Invoicer includes no way to distribute your sales so that you know



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Circle 296 on Reader Service Card.

how each item is selling. If you have only one product, fine, but if you handle several and would like to know how many of each you've sold, you're out of luck. The program can total sales for any two items for each invoice run, however.

The Invoicer also keeps account balances and name information in separate files. When you ask to delete an account, the screen displays the customer's name, address, and so forth, but not the amount still owed you—you may delete an active account without warning.

This separation causes another problem. Let's say you sell something and create an invoice for one of your customers, then unintentionally delete the account. If you ask to view it, The Invoicer reports that it's not an active account. But if, before you close out a month, you assign that account number to a new customer—who'll naturally have a different name and address—you're in big trouble.

You'll think you're doing fine until you view or print the account—and discover that the old account's billing details are still there, and that the new guy owes you for what the old account did. In effect, The Invoicer doesn't delete amounts, but only account names and addresses; it leaves the old balances in its files to raise havoc with any new customer unluckily given the old account number. Closing out a month deletes these old amounts, but it seems to me there has to be a better way.

Each field has a fixed, nonadjustable length; when you fill one, any excess spills over into the next field. That's probably okay for shorter entries such as COL or P.P. (for Collect or Prepaid); when you fill them up, you're sent along to the next field, which is where you want to be. It's not so good for name and address fields; if they're not long enough, the last part of your typing (or macro input) runs into the following field. I also somehow got the program to show an account with a balance of 7355.98001—not a professional way to print someone's statement.

I didn't care for the way The Invoicer handles the data you enter into its fields, but perhaps that's a matter of taste. I know it's not right to let you delete an account with no warning of the customer's outstanding balance, and the program's happily giving that balance to an unsuspecting future customer is still worse. MiccaSoft is reviewing this problem and may adjust its file-deletion routine in a later version of the package.

Meanwhile, if you're aware of its limitations and watch your step a bit while using it, The Invoicer does what it claims for a reasonable price. Its invoices are clean, and the accounts-receivable module keeps good records, if you don't need to distribute the items you sell. The program's ease of use is to its credit, as is the 30-day money-back guarantee and free telephone support from people who know what they're talking about.■

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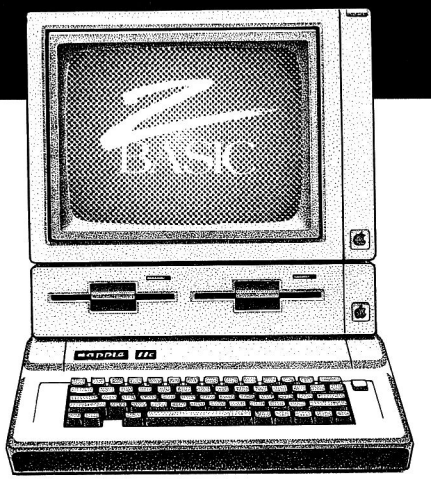

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NEW PRODUCTS

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Software

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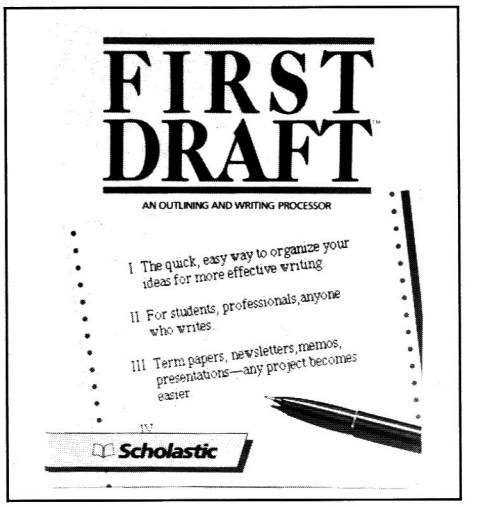
LINE 'EM UP

RAMUP is a menu-driven utility that lets you link your programs for fast and easy **RAM-disk access**, with no programming knowledge required. Select your ProDOS program from a menu, and RAMUP will prompt you to insert the disk for copying to your RAM card. Once programs are loaded, you can choose them from a desktop menu for instant access, flip between programs, or boot an application from disk before returning to the programs on your RAM card. RAMUP requires a minimum 512K of memory and can be installed on a hard disk or 3½-inch disk. It costs $34.95 from Quality Computers, 1365 Berkshire, Grosse Point, MI 48081. For more information, circle Reader Service number 353.

BuilderComp: a menu-driven estimation and budget-tracking program for contractors.



FACT FINDING

Kids in grades 7–12 can brush up on their **social studies and science** skills, as well as the elements of database retrieval, with Mindscape's two new Quest for Files series. The Social Studies lineup includes the titles Families of the World: The Melting Pot; The American Presidency: Hail to the Chief; and The First Congress: Dawn's Early Light. The Science series comprises Rocks and Minerals: The Upper Crust; Elements, Compounds, and Mixtures: A Matter of Mystery; and Nutrition: Food, Glorious Food.

By comparing, contrasting, and combining the facts they uncover from Quest for Files databases, students learn to formulate theories and provide examples from which to draw conclusions. There are hints to help with research, an on-line tutorial, and a file manager to help with the database. The Quest for Files series sells for $125 for an entire series, or $49.95 for individual titles, from Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667. Circle Reader Service number 354 for more information.

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Outlining features include a rank command for sorting ideas alphabetically or numerically, a collapse command for concealing minor ideas, and a paragraph command to help develop paragraphs with headings and subheadings. Once students create outlines, they can save them as files that are compatible with Bank Street Writer and most other word processors.

First Draft is available in a home edition for $69.95 or a school edition with teacher's and reference guides, backup disks, and suggestions for student activities for $87.45. Contact Scholastic Software at 730 Broadway, New York, NY 10003, (212) 505-3000 for more information, or circle Reader Service number 350.

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For class or individual student reports, teachers can choose from five printout formats and add comments to individual reports. Reports can be listed by student name or code number. Gradebook Deluxe retails for $59.95; a networking or copying site license is an additional $45 from EduSoft, P.O. Box 2560-PR, Berkeley, CA 94702, (415) 548-2304. For more information, circle Reader Service number 355.

Kalglo's Spike-Spiker gives you eight outlets with built-in surge protection.

Hardware

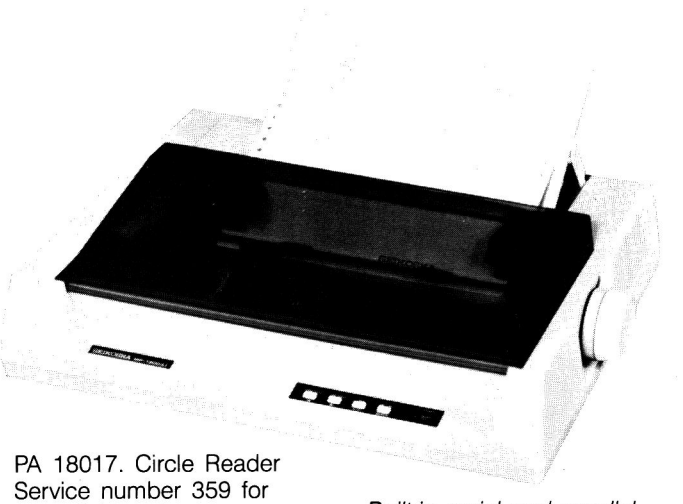
TIMELY CONNECTIONS

Applied Engineering's new Serial Pro combines a **serial port** with a full-function clock and calendar card. The board can connect a printer, modem, or any other serial device to your computer and is fully compatible with Apple's Super Serial Card at baud rates from 50 to 19,200. The clock is compatible with DOS and ProDOS and automatically time- and date-stamps AppleWorks files.

Serial Pro features a 20-year automatically recharging battery and switch selection for real-time interrupts, and comes with a manual, cable, and instructions for hooking up most popular printers and modems. Get connected for $159, from Applied Engineering, P.O. Box 798, Carrollton, TX 75006, (214) 241-6060. For more information, circle Reader Service number 358.

STOPPING THE SURGE

Spike-Spiker provides you with **eight 120-volt, 15-amp protected outlets** to keep your computer equipment safe from power-line surges and spikes. The unit also features a main on/off switch, fuse, status light, and seven-inch grounded heavy-duty cord. You can monitor protection modes at a glance by looking at the status light. The Spike-Spiker is available from Kalglo Electronics, 6584 Ruch Road, East Allen Township, Bethlehem, PA 18017. Circle Reader Service number 359 for more information.



Built-in serial and parallel ports and optional color round out the Seikosha MP-1300AI dot-matrix printer's list of handy features.

SHARE AND SHARE ALIKE

Connect one or two printers to several computers with Sierra Exchange. This **serial data spooler** features self-diagnostics, simultaneous bidirectional communications at speeds of up to 38.4K bps, automatic switching among computers or terminals, and a buffer you can expand to 2 megabytes. The Sierra Exchange accepts and buffers data from different computers simultaneously, then sends the data to one or more printers as if they'd been received sequentially. Each port is individually configured for baud rate and data format.

The 64K five-to-one version (five computers to one printer) of the Sierra Exchange retails for $595; the 64K four-to-two version costs $645. The 256K versions are $695 and $745 respectively, and the 512K units cost $795 and $845. Each additional 256K of buffer memory is $50. Connect to the Sierra Exchange from Reliable Communications Inc., 10280 Imperial Avenue, Cupertino, CA 95014, (408) 996-0230. For more information, circle Reader Service number 362.

VERSATILE PRINTER

The Seikosha MP-1300AI **dot-matrix printer** features built-in parallel and serial ports and an optional color kit. The MP-1300AI prints at 300 cps with a noise level of less than 59 dBA, and can simultaneously handle one original or four carbonless copies up to ten inches wide. The standard ribbon offers an 8-million-character print life. The MP-1300AI also features automatic cut-sheet and rear- and bottom-feed fanfold-paper loading. The printer retails for $799; the color kit is an additional $155, from Hattori Seiko Computer Peripherals, 1111 Macarthur Boulevard, Mahwah, NJ 07430, (201) 529-4655. Circle Reader Service number 361 for more information.

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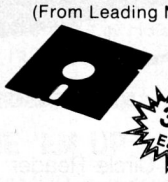

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II-cue #3

Using the AppleWorks spreadsheet, you may occasionally see a message that "some cells were lost" from a row as you enter data. This is caused by an undocumented limit in the amount of data that will fit in one spreadsheet row. If you save a spreadsheet after seeing this message, the file can become unreadable. To rescue the file, load it into AppleWorks 2.0. If version 2.0 expands into a memory card, it allows more data per row and can read the "damaged" spreadsheet. For more information, see "Row too long to hoe" in the April 1987 ***Open-Apple***, page 3.19.

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Product Updates

● Megahaus has cut the price of its three AppleWorks enhancements—**MegaWorks**, **ReportWorks**, and **ThinkWorks**—from $125 to $99.95 each. Contact Megahaus for details at 5703 Oberlin Drive, San Diego, CA 92121, (619) 450-1230.

● Zork I, Zork II, and Zork III, the three stories in this award-winning adventure series, are now bundled in one package. The **Zork Trilogy** sells for $69.95, a $60 savings over separate purchase, from Infocom, 125 CambridgePark Drive, Cambridge, MA 02140, (617) 492-6000.

● Passport Designs has released an enhanced version of its Master Tracks MIDI sequencing program. **Master Tracks Pro** now supports expanded memory for longer songs—up to 2 megabytes on an Apple II. To make working on longer pieces of music easier, Master Tracks Pro allows recording or playback from any point within a sequence, so you don't always have to take it from the top. You can keep the Main Sequencer, Quikstep Step Editor, and Song Mode resident in memory, eliminating disk access when switching among applications. The new Master Tracks Pro sells for $299.95 from Passport Designs, 625 Miramontes Street, Half Moon Bay, CA 94019, (415) 726-0280.

● New addresses and phone numbers: **Omnitronix** has moved to 760 Harrison Street, Seattle, WA 98109, (206) 624-4985; **Computer Aids Corp.** is now at 124 West Washington Blvd., Suite 220, Fort Wayne, IN 46802, (219) 422-2424 or (800) 647-8255.

● **Tax Advantage**, previously published by Continental Software/Arrays, is now available from Double Eagle Software, a company formed by the authors of the program. The new Tax Advantage will sell for $59.95, beginning with the 1986 version, from Double Eagle Software, 2210 Wilshire Boulevard, Suite 875, Santa Monica, CA 90403, (213) 459-9748.

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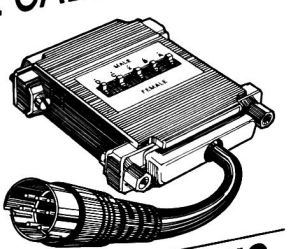

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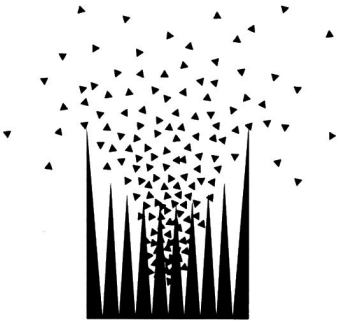

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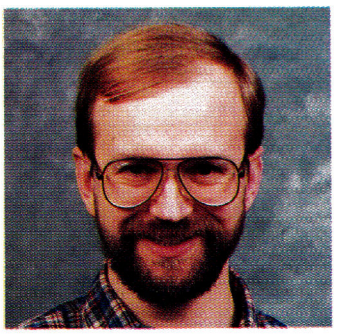


"Current trends in computer-game development should bring us better graphics and more realistic simulations."

Shanghai: Infinite variety makes it addictive.

PHM Pegasus: Your missile-craft will see plenty of action.

by Scott Mace

What makes the best computer games? It's a question game designers have debated for years. Some say it's an element of reality intertwined with computer technology. Others say fancy graphics and fast action are where it's at.

We've seen sensational programs in both genres. For example, **Shanghai** (Activision, P.O. Box 7286, Mountain View, CA 94039, 415-960-0410, $34.95; IIGS version $44.95), one of the most popular games of the year, merely mimics reality. This simple puzzle is based on the Chinese game mah-jongg, with the same set of 144 tiles arranged in a pyramid-like pile, called The Dragon.

You remove pairs of tiles from the pile until they're all gone, or until you can make no further moves. It's deceptively simple, like the card game Solitaire. But as simple as it sounds—and some designers attack Shanghai as mindless diversion—it's also addictive.

The computer enhances the realism of the game by giving it infinite variety. (Since the Apple places the tiles randomly, there are virtually no repeat games.) And when my cat comes bounding through the room, not a single tile gets knocked out of place.

Now that Shanghai is available for the Apple IIGS, you can decide for yourself if designer Brodie Lockard's game deserves its popularity. But I challenge you to walk away after only one game!

DEEPER INTO REALITY

Realism in computer games is also a priority for Chris Crawford, another widely known game designer. Apple II enthusiasts are about to meet Crawford through the Apple II version of **Balance of Power** (published by Mindscape, 3444 Dundee Road, Northbrook, IL 60062, 312-480-7667, $49.95), a fantastic political simulation in which you're the President of the United States. The country is on the brink of nuclear war, and you and the leaders of other countries must use diplomacy to avoid it.

In Crawford's Balance of Power, you make the life-and-death political and military decisions that determine whether your computer-controlled opponent will pull the trigger.

For Crawford, realism is the essential design element, before simplicity or fun. "Fun comes right at the end" of the design, he says. And by enhancing the technology to produce more realistic programs, the games become more fun.

For example, Crawford is working on a more sophisticated link between you and the computer. His next program will use an *inverse parser*, an icon-oriented alternative to typing sentences in English. The idea is to let you create complex sentences and ideas by just pointing and clicking the mouse.

Today's standard interface limits you to simple interactions with computer characters. "All you can do is walk up to them and say, 'Up,' 'Down,' 'Right,' 'Left,' or 'Fire.' How could you interact with them?" Crawford asks. When his new interface appears in future games, he'll indeed have moved computer-game technology forward.

GOING BEYOND REALITY

But it's not just realism in computer programming that's moving forward. Consider the popularity of the action-oriented **Hacker** and **Hacker II**, Activision's series of adventures ($39.95 each), designed by Steve Cartwright. In these games, you break into a simulated computer system while a complex adventure unravels. "Walk into any arcade, and you'll notice that the popular games are still the ones full of action," Cartwright says.

Although they may appeal primarily to 14-year-old boys, don't discount fast-action games' contribution to computer gaming in general. Action-packed games are Noah Falstein's focus, for instance. Falstein is the designer of **PHM Pegasus**, a new, smart-looking, hydrofoil-missile-craft simulator from Electronic Arts (1820 Gateway Drive, San Mateo, CA 94404, 415-571-7171, $39.95). Falstein headed the programming team at Lucasfilm Games, which created PHM Pegasus.

Both trends are important. We need action-packed games with good graphics for the arcade set, and realistic simulations for adult players. Who knows? Maybe, as the IIGS moves further into the computing mainstream with its superior graphics, sound, and added memory, we'll see each group playing the other's games. ■

Scott Mace is editor and publisher of Microcosm, *a monthly newsletter on computer games. You can write him at 6510 Copper Ridge Drive #T-1, Baltimore, MD 21209.*

Apple users know that 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. See p. 103 in this issue for data strips accompanying programs in this section.

A Nine-Pin Adapter for the II Plus

by Susan W. Rollinson

Most input devices require a nine-pin socket, such as that of the Apple IIc, but the older Apple II Plus accepts only 16-pin plugs. I could have bought an adapter to use Muppet Learning Keys with my II Plus, but I wanted to see if I could save a few dollars and get the satisfaction of solving the problem myself. The adapter described here will let you plug any nine-pin game-paddle device into your II Plus.

You can obtain all the necessary materials (listed in **Table 1**) from Radio Shack for about $8.50 for one adapter, or $13 for two.

Table 1. Parts list.

Radio Shack Part	Price
18-inch ribbon jumper cable (RS# 276-1976A)	$3.99
D-subminiature female nine-position solder-type connector (RS# 276-1538)	$2.49
Nine-position D-subminiature connector hood with hardware (RS# 276-1539)	$1.99

You'll also need a pencil-tip soldering iron, solder, scissors, and wire strippers.

Table 2 gives the relevant pin connections. Most game-type input devices use only paddles 0 and 1 and their button connections, so connecting pins for paddles 2 and 3 are optional.

Table 2. Connections.

DB-9	16-Pin DIP	Purpose
1	3	Button 1
2	1	+5 volts
3	8	Ground
*4	7	Paddle 2
5	6	Paddle 0
*6	4	Button 2
7	2	Button 0
8	10	Paddle 1
*9	11	Paddle 3

*Optional

CONSTRUCTION

Cut the 18-inch ribbon cable in half (see **Figure 1**). You can use the other half to make another 16-pin adapter, although you need only one. Next, carefully cut apart the wires on the cut end to a length of about two inches.

Figure 2 gives the pin numbers corresponding to each wire in the ribbon cable. Be sure to count the wires from the blue line. Bend wires 9, 5, 12, 13, 14, 15, and 16 out of the way. Since wires 4, 7, and 11 are optional, you can bend these out of the way, too.

Strip about ⅜ inch of insulation from the remaining wires. Tin the ends to keep the wire strands together by melting a small amount of solder onto the wires. Be careful, though—if you apply too much solder, the wires won't fit into the DB-9 solder connections.

Figure 2. Ribbon-cable pin assignments.

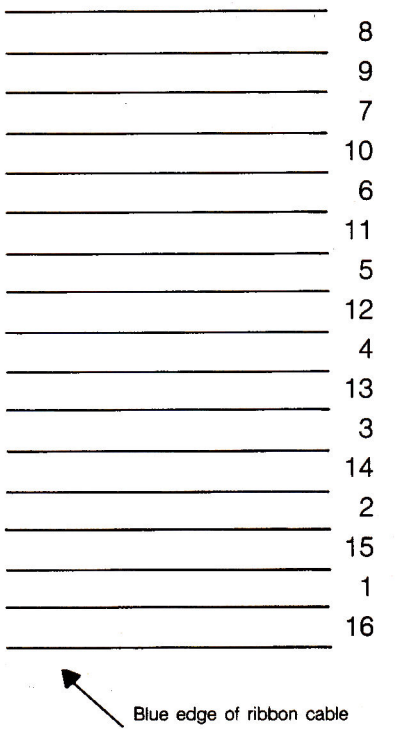
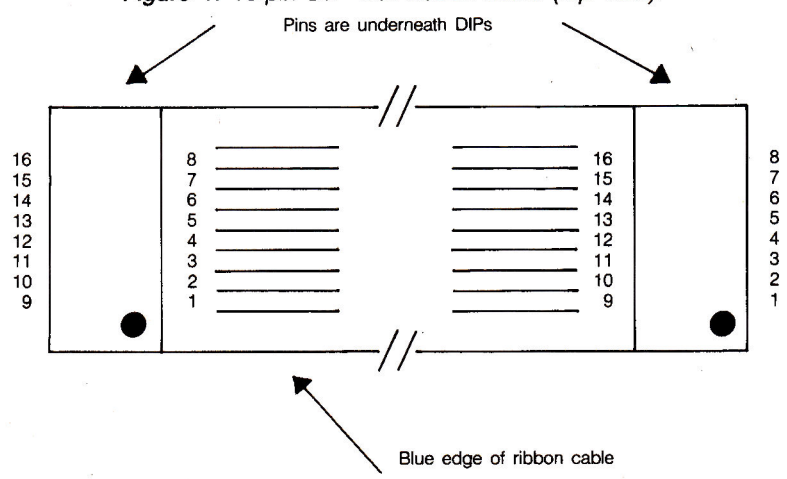


Figure 1. 16-pin DIP with ribbon cable (top view).



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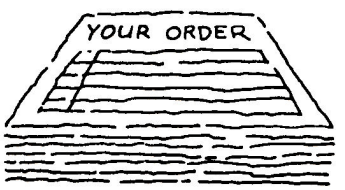

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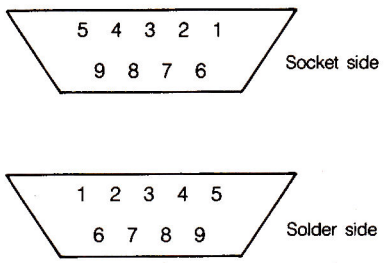
Figure 3. DB-9 pin assignments.



Now solder the wires to the back of the DB-9 connector, referring to **Table 2** to make your connections. **Figure 3** shows the DB-9's pin arrangement, and small numbers are also embossed onto the connector itself. Solder the connections carefully, and be sure not to "bridge" any neighboring positions.

When you're finished, protect your work by encasing the DB-9 connector in the hood. You'll have to curl the ribbon cable to fit the round cable slot at the top of the hood.

You're now ready to test your handiwork. Plug the 16-pin DIP into the socket on the Apple II Plus motherboard. The white dot should be in the lower-right position. Run the ribbon cable out the back panel of the Apple. Finally, plug your nine-pin game controller into the socket at the other end of the ribbon cable, and run your favorite game program.

If the controller doesn't work properly, turn off your computer and remove the adapter from the motherboard. Remove the hood from the DB-9 connector and check for loose or wrong connections. Make any corrections before you try it again.■

Write to Susan Rollinson at 849 Lou Avenue, Clifton Forge, VA 24422.

Customized Drill and Practice

by Edward D. Watson

As parents and teachers alike discover, drill and practice materials are often designed for the "general" class, not for the needs of your own classroom or your own child working at home after school. Drill and Practice Generator (see the accompanying **Listing 1**) is an outline to which you add your own questions, appropriate to your whole class, a small group, or an individual. Tailor the content to any grade level and any subject—vocabulary, social studies, geography, science, music, art, health, reading, spelling, and so on. There's no end to the possibilities.

Drill and Practice Generator presents one question at a time. If the child enters a wrong answer, the program displays the number of letters in the correct answer. It follows a second wrong answer with another clue, the first letter of the correct response. After a third incorrect response, the right answer appears on screen.

Students must use correct spelling when typing answers—the program doesn't accept extra spaces, commas, or other variations. When the child completes a drill, the program displays the number of correct responses.

Drill and Practice Generator lets you control the number of items in the drill, the level of reading vocabulary, and the correct responses. As written, the program includes only four practice items, contained in the data statements in lines 300–330.

Listing 1. Drill and Practice Generator.

```
10  HOME
20  FOR X = 1 TO 4
30  READ X$,Y$
40  VTAB 8
50  PRINT X$
60  INPUT Z$
70  IF Y$ = Z$ THEN 210
80  PRINT
90  PRINT "CLUE-> THE ANSWER HAS " LEN (Y$)" LETTERS"
100  INPUT "TRY AGAIN  ";Z$
110  IF Y$ = Z$ THEN 210
120  PRINT
130  PRINT "NO, THE FIRST LETTER IS ";
140  INVERSE : PRINT  LEFT$ (Y$,1): NORMAL
150  INPUT "TRY AGAIN  ";Z$
160  IF Y$ = Z$ THEN 210
170  PRINT
180  PRINT "SORRY, THE CORRECT ANSWER IS "Y$
190  GOSUB 1000
200  GOTO 240
210  VTAB 20: HTAB 17: INVERSE : PRINT "CORRECT": NORMAL
220 C = C + 1: PRINT
230  GOSUB 1000
240  NEXT X
250  HOME : VTAB 12: HTAB 11
260  PRINT "YOU HAD "C" CORRECT": PRINT : PRINT : HTAB 16: PRINT "ALL
     DONE"
270  END
300  DATA  WHAT PLANET IS NEAREST THE SUN?,MERCURY
310  DATA  WHAT IS THE LAST NAME OF THE AUTHOR WHO WROTE KIM?,KIPLING
320  DATA  DOVER IS THE CAPITOL OF WHICH STATE?,DELAWARE
330  DATA  WHAT WAS THE LAST NAME OF THE FATHER OF OUR COUNTRY?,WASHIN
     GTON
1000  VTAB 22: HTAB 7: INVERSE : PRINT "PRESS SPACEBAR TO CONTINUE": GET
     A$: NORMAL : HOME : RETURN
```

Simply retype them, using as many lines as you need, to include your own questions and answers.

When you're finished, change the terminal value in line 20 to reflect the number of data lines you're using. For example, if you want ten drill questions, type 20 FOR X = 1 TO 10. Be sure to type DATA after each line number, followed by the question, a comma, and the appropriate answer. Always leave line 1000 untouched.

That's all there is to it. Now you have a practice generator that drills *your* students or children on the content *you* want.■

Write to Edward Watson at 24 Rain Lily Road, Levittown, PA 19056.

Volume Capturing

by Joseph Kline

I often have as many as four ProDOS volumes on line at the same time. Out of necessity, I wrote a start-up program for my hard disk to check each slot and drive and display any volume names found (see **Listing 2**). It can run independently, and you can put ProDOS volume names into an array for easy manipulation.■

Write to Joseph Kline at 5929 16th Street, Lubbock, TX 79416.

Listing 2. Capturing a ProDOS volume name with Volume.Finder.

```
10 HOME : D = 1 : D$ = CHR$(4)
20 ONERR GOTO 50
30 PRINT D$ "PREFIX,S"S",D"D : REM S = SLOT, D = DRIVE
40 PRINT D$ "PREFIX" : INPUT "";V$ : REM V$ = VOLUME NAME
50 POKE 216, 0 : REM RESET ONERR FLAG IF NO VOLUME FOUND
60 PRINT "SLOT "S" DRIVE "D" "; : PRINT V$ : V$ = ""
70 S = S + 1 : IF S = 8 THEN D = D + 1 : S = 0
80 IF D < 3 THEN 20
```

File Counter

by Harold D. Portnoy

It's wise when developing a program to keep one or two backup copies in case your last modification doesn't work out. You can keep track of these backups by date- and time-stamping them with ProDOS, but this requires a clock card, and manually updating the time with a date- and time-set program is a chore.

File Counter is an alternative to stamping your files with a clock card—it's a patch to BASIC.SYSTEM that adds a minute to the time stamp whenever BASIC .SYSTEM processes a DOS command (such as SAVE, BSAVE, or LOAD). After 59 "minutes," the minute counter returns to zero and the program increments the hour counter by one. File Counter generates up to 1440 different time stamps, more than enough for a day's programming.

To use File Counter, get out your word processor and type the short EXEC program in **Listing 3**. Save it as a text file, then enter the date using a date- and time-stamp program. (STARTUP, on the ProDOS User's Disk, has a date-stamping program.) Now EXEC File Counter, and the time will be set to 0:00.

Each time your program calls BASIC.SYSTEM, the clock counts a minute. File Counter records the time when you save your file, letting you identify it easily.

File Counter is a patch to BASIC .SYSTEM, so don't make it permanent. Use it only when you need to see the order in which files are saved.■

Write to Harold Portnoy at 1431 Woodward, Bloomfield Hills, MI 48013.

Listing 3. File Counter.

```
CALL -151
BC65:EE 92 BF
BC68:AD 92 BF 49 3C D0 06 8D
BC70:92 BF EE 93 BF 6C AB BC
A836:4C 65 BC
BF92:00 00
3D0G
? "WARNING: This is a patch to BASIC.SYSTEM"
```

File-Type Converter

by Brian L. Zimmerman

Certain programs won't accept a particular file on disk because its directory file-type parameter isn't of the right kind. For example, if you want to examine an AppleWorks word-processing file with a program that reads only text files, you must first convert its directory file-type parameter from type AWP to type TXT. Use the conversion utility in **Listing 4** to change it to the correct type. You can then open and read the file from a BASIC program with the GET command.

The program uses the ProDOS machine-language interface (MLI) routines Get File Info and Set File Info to change the file-type byte in the volume directory. Just run the program and enter the new file type at the prompt. Lines 720–820 list the file types you can use.

This utility doesn't change the file's contents, just the file type listed in the volume directory. The AppleWorks file format above, for instance, isn't changed to ASCII text; it still contains any embedded control characters.■

Write to Brian Zimmerman at 14732 Esther Lane, Chester, VA 23831.

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Listing 4. Type Converter.

```
10  REM  ************************
20  REM  * FILE-TYPE CONVERTER *
30  REM  ************************
40  REM A UTILITY FOR CONVERTING THE DIRECTORY FILE TYPE
50  REM     INSTALL MACHINE-LANG ROUTINE THAT RUNS PRODOS MLI 'GET/SET
FILE INFO' ROUTINES
60  FOR I = 768 TO 782
70  READ J
80  POKE I,J
```

Listing continued.

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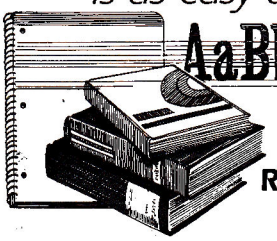

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HINTS/TECHNIQUES

Listing continued.

```
90  NEXT I
100  DATA  32,0,191,196,12,3,144,3,141,30,3,96,10,31,3
110  REM  ================
120  REM   INPUT FILENAME
130  REM  ================
140  TEXT : HOME
150  PRINT "PLEASE ENTER PATHNAME OF THE FILE"
160  PRINT "WHOSE TYPE WILL BE CONVERTED:"
170  VTAB 10: PRINT "NOTE- USE THIS FORMAT FOR PATHNAME:": PRINT
180  PRINT "     /VOLUME/DIRECTORY/FILE
190  PRINT "OR  /VOLUME/FILE
200  PRINT "OR  SET PREFIX BEFORE RUNNING PROGRAM"
210  PRINT "     AND ENTER FILENAME ONLY"
220  VTAB 21: PRINT "ENTER 'Q' TO QUIT"
230  VTAB 4: INPUT FILE$
240  IF FILE$ = "Q" THEN  HOME : END
250 L =  LEN (FILE$)
260 X = 0
270  REM  STORE LENGTH AND NAME OF FILE IN PATHNAME BUFFER
280  POKE 799,L
290  FOR I = 800 TO (799 + L)
300 X = X + 1
310  POKE I, ASC ( MID$ (FILE$,X,1))
320  NEXT I
330  REM ======================
340  REM  READ FILE PARAMETERS
350  REM ======================
360  POKE 798,0: REM RESET ERROR CODE INDICATOR
370  CALL 768: REM GET FILE INFO
380  GOSUB 400: GOTO 520
390  REM ==================
400  REM  CHECK FOR ERRORS
410  REM ==================
420 EC =  PEEK (798): VTAB 21
430  IF EC = 39 THEN  PRINT "I/O ERROR": POP : GOTO 480
440  IF EC = 43 THEN  PRINT "DISK IS WRITE-PROTECTED": POP : GOTO 480
450  IF EC = 64 OR EC = 69 OR EC = 70 THEN  PRINT "INVALID PATHNAME OR
VOL/FILE NOT FOUND": POP : GOTO 480
460  IF EC < > 0 THEN  PRINT "GETTING ERRORS TRYING TO READ/WRITE":
PRINT "PRODOS MLI ERROR CODE= ";EC;" (DECIMAL)": POP : GOTO 480
470  RETURN
480  VTAB 23: PRINT "PRESS <RETURN> TO CONTINUE";: GET K$: PRINT
490  IF K$ < >  CHR$ (13) THEN 480
500  GOTO 140
510  REM ================
520  REM  INPUT NEW TYPE
530  REM ================
540  HOME
550  PRINT "PLEASE ENTER THE 3-LETTER ABBREVIATION"
560  INPUT "FOR THE NEW FILE TYPE: ";FT$
570  GOSUB 690
580  IF FT = 0 THEN  PRINT : PRINT "SORRY, THAT FILE TYPE NOT
AVAILABLE": PRINT : GOTO 550
590  REM ====================
600  REM  SAVE NEW FILE TYPE
610  REM ====================
620  POKE 771,195: REM  SET FUNCTION CODE TO 'SET FILE INFO'
630  POKE 784,FT: REM CHANGE FILE TYPE
640  POKE 780,7: REM  CHANGE NO. OF PARMS TO 7
650  CALL 768: REM SET FILE INFO
660  GOSUB 400
670  HOME : PRINT "YOUR FILE HAS BEEN CHANGED!": GOTO 480
680  REM ================
690  REM  GET TYPE CODE
700  REM ================
710 FT = 0
720  IF FT$ = "TXT" THEN FT = 4
730  IF FT$ = "BIN" THEN FT = 6
740  IF FT$ = "DIR" THEN FT = 15
750  IF FT$ = "ADB" THEN FT = 25
760  IF FT$ = "AWP" THEN FT = 26
770  IF FT$ = "ASP" THEN FT = 27
780  IF FT$ = "PAS" THEN FT = 239
790  IF FT$ = "BAS" THEN FT = 252
800  IF FT$ = "VAR" THEN FT = 253
810  IF FT$ = "REL" THEN FT = 254
820  IF FT$ = "SYS" THEN FT = 255
830 FT$ = "": RETURN
```

End of listing.

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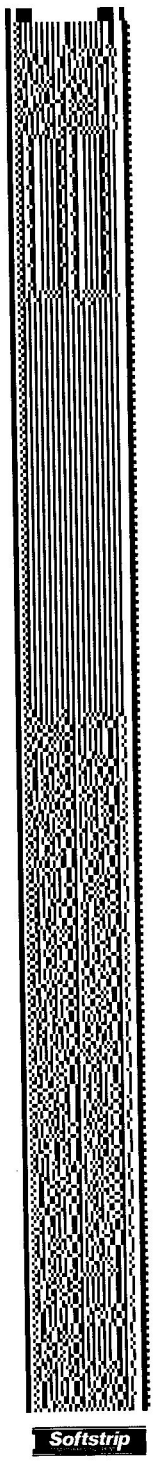

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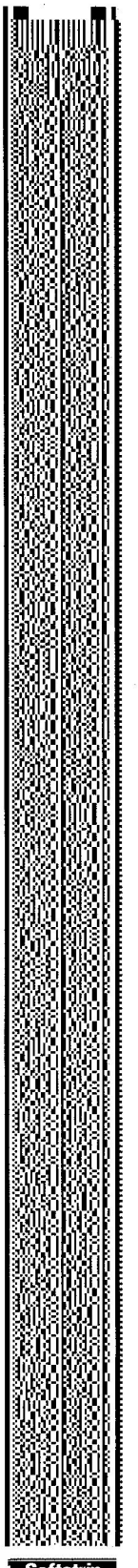

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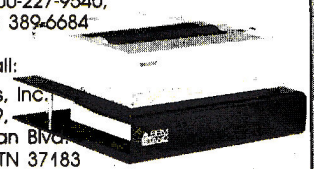

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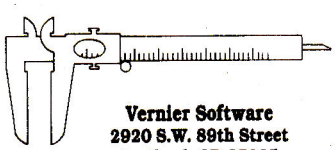

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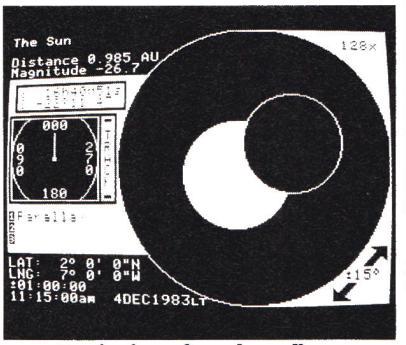

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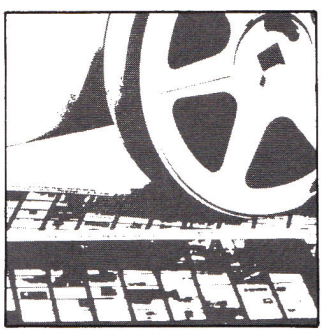

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Visualizer: Plain or Fancy AppleWorks Graphics

Spreadsheets are great, but they're not much to look at. There's a time when even the most avid AppleWorks user feels a trace of Lotus 1-2-3 envy—when it's time to take some spreadsheet numbers and put them into a nice graph or chart. You can't do that within AppleWorks, but you don't have to retype those numbers into a business-graphics program, either. PBI Software's **Visualizer** produces versatile pie, bar, line, and point charts from AppleWorks spreadsheet files. The 8-bit version is a flexible performer if you don't mind a few extra keystrokes, but its GS cousin is a mouse-controlled graphics bonanza.

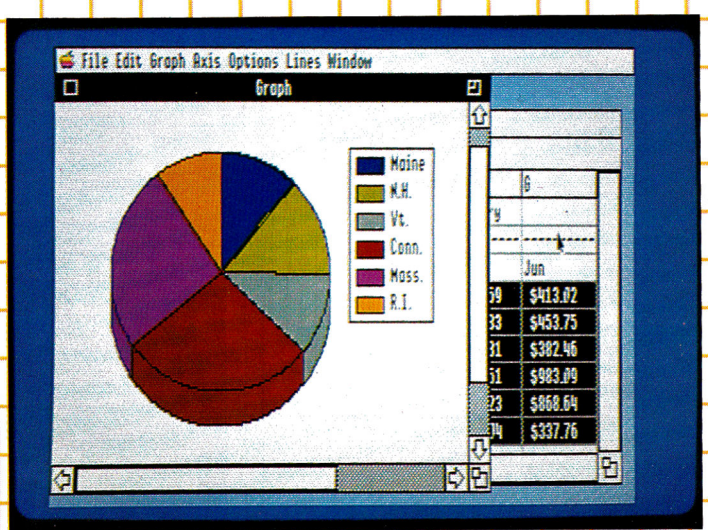
While both versions let you load an AppleWorks spreadsheet from disk and select ranges or labels from it for your graph, the 128K Apple IIe or IIc Visualizer ($89.95) is in some ways closer to PBI's earlier GraphWorks program than to Visualizer IIGs ($99.95, requires 512K). It can plot up to six data ranges, each with 52 points or values for line charts (pie and bar charts stop at 12 points per range); the GS program, with four times the memory, can plot four times as much data (24 ranges).

AppleWorks users will quickly master 8-bit Visualizer's file-card menu structure, though they may stumble over its horizontal option names: Where AppleWorks lets you type an option's first letter, Visualizer makes you move the cursor with the arrow keys and press Return. Compared to the point-and-click GS version, the IIe/IIc program makes marking ranges a minor chore, and all but discourages changing or entering new data instead of sticking with the imported spreadsheet. But it offers a good variety of output, from flashy 3-D bar graphs to automatic or manual Y-axis scaling to Roman or italic text in standard, fat, thin, or double-size type. It works with scores of printers and interface cards, even printing in color on the ImageWriter II.

Still, it looks dowdy beside the GS version. The 3½-inch Visualizer's pull-down menus add extra functions such as area and high-low graphs; plotting of mean, regression, standard deviation, and other graphs; and paint-program images as backgrounds. It combines point-and-click value editing or range marking with cut-and-paste clipboard control, and even lets you draw boxes around text or lines between text and points on a chart.

In fact, we have only one complaint with Visualizer: It comes in a sealed plastic box you must break open with a knife or screwdriver. Getting the disk is harder than making a graph.

Both versions of Visualizer are available from PBI Software Inc., 1163 Triton Drive, Foster City, CA 94404, (415) 349-8765. ■



The 8-bit Visualizer (left) creates versatile graphs from AppleWorks spreadsheet data, but the GS version (right) adds sophisticated extras and plots four times as much data.

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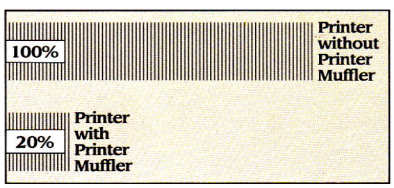

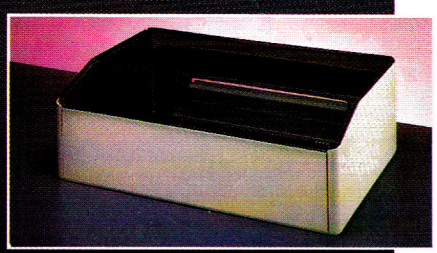

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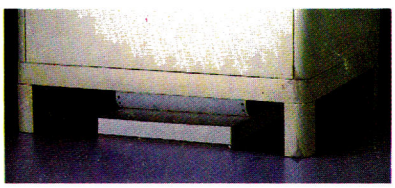

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