

THE APPLE II MAGAZINE

NEW COLUMN:

Mastering the II GS

Page 81

inCider

A CWC/I PUBLICATION

February 1987

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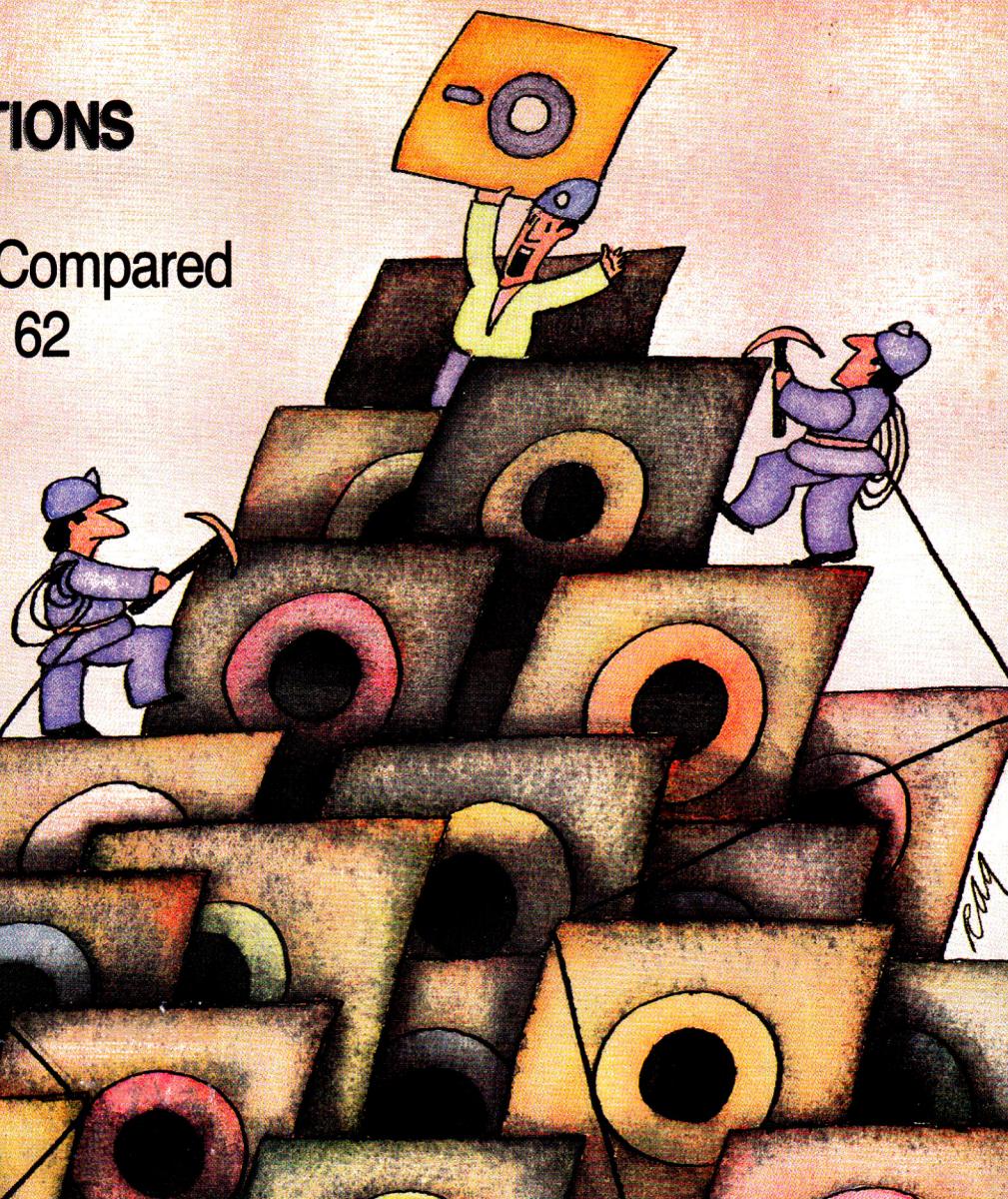
- Nine Programs Compared
- Free Listing pg. 62

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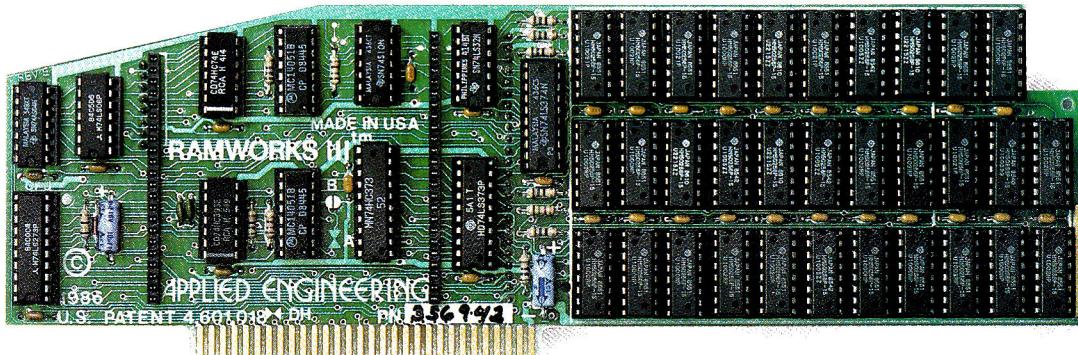
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RamWorks® III

Patented Performance from the Recognized Leader



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.

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RamWorks, nothing comes close to enhancing AppleWorks so much.

The Most Friendly, Most Compatible Card Available.

Using RamWorks III couldn't be easier because it's compatible with more off-the-shelf software than any other RAM card. Popular programs like AppleWorks, Pinpoint, Catalyst, MouseDesk, HowardSoft, FlashCalc, Pro-Filer, Managing Your Money, SuperCalc 3a, and MagiCalc to name a few (and *all* hardware add on's like ProFile and Sider hard disks). RamWorks is even compatible with software written for Apple cards. But unlike other cards, RamWorks plugs into the IIe auxiliary slot providing our super sharp 80 column text (U.S. Patent #4601081) in a completely integrated system while leaving expansion slots 1 through 7 available for other peripheral cards.

RamWorks III is compatible with all

Apple IIe's, enhanced, unenhanced, American or European versions.

Highest Memory Expansion.

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.

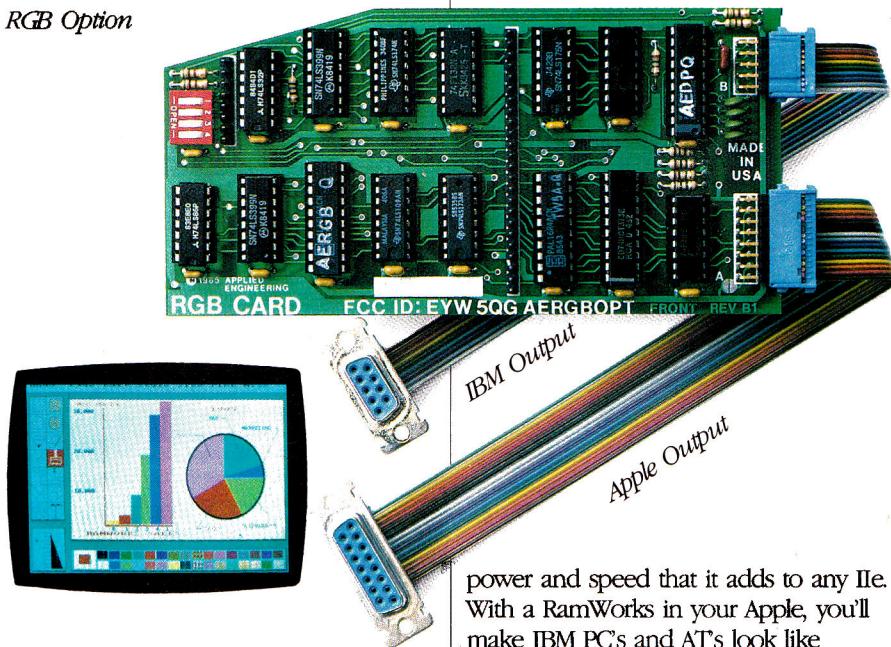
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

The Ultimate in RGB Color.

RGB color is an option on RamWorks and with good reason. Some others combine RGB color output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB

Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks RGB option offers better color graphics plus a more readable 80 column text (that blows away any composite color monitor). For only \$129 it can be added to RamWorks giving you a razor sharp, vivid brilliance that most claim is the best they have ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks RGB option is more than just the ultimate in color output because unlike others, it's fully compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the new RamWorks RGB option provides both Apple standard and IBM standard RGB outputs (cables included). The RGB option plugs into the back of RamWorks with no slot 1 inter-

RGB Option



ference and remember you can order the RGB option with your RamWorks or add it on at a later date.

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



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

Steve Jobs, the creator of Apple Computer

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."

Apple experts everywhere are impressed by RamWorks's expandability, versatility, ease of use, and the sheer

- Built-in super sharp 80 column display, (U.S. Patent #4601081)
- Expandable to 1 MEG on main card
- Expandable to 16 meg with expander cards, with NO slot 1 interference
- Can use 64K or 256K RAMs
- Powerful linear addressing 16 bit coprocessor port
- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- The only large RAM card that's 100% compatible with all IIe software
- RamDrive™ the ultimate disk emulation software included free
- Memory is easily partitioned allowing many programs in memory at once
- Compatible, RGB option featuring ultra high resolution color graphics and multiple text colors, with cables for both Apple and IBM type monitors
- Built-in self diagnostics software
- Lowest power consumption (U.S. Patent #4601081)
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Software industry standard
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- Used by Apple Computer, Steve Jobs and virtually all software companies
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65C816 16 Bit Card	\$159
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Pinpoint with RAM	
Enhancement Software	\$79
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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

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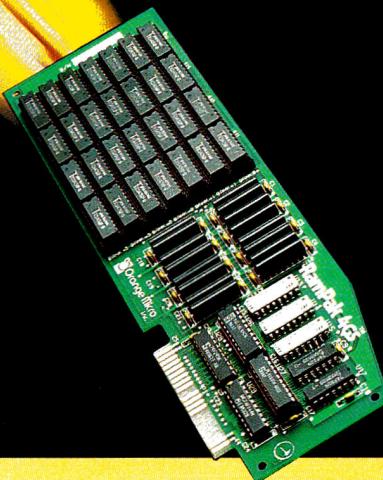
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- 5 year hassle free warranty

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The RamPak 4GS is an important part of any Apple IIgs system. You can relax knowing that it's from Orange Micro. With seven years in the Apple enhancement business, we are recognized as the leader for innovative products and excellent support. Ask your dealer for the RamPak 4GS and go full speed ahead with your Apple IIgs.



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ON THE COVER

40 Striking Gold In Public-Domain Software

There are mountains and mountains of public-domain software available, but if you're willing to do a little digging, you can uncover some valuable nuggets.

ARTICLES

52 Telecommunications— The Software Connection

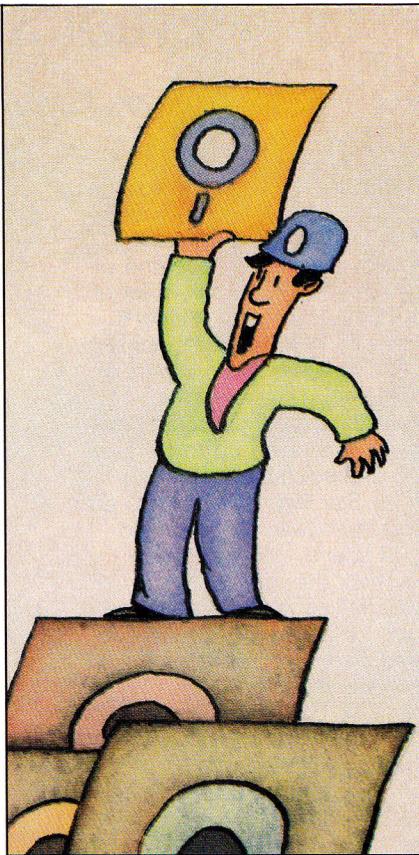
If the word "telecommunications" nauseates you, you're probably using the wrong software. *inCider* compares nine programs that make going on line a little less scary.

62 The Automatic Dialer

This free program lets your computer and modem store and dial phone numbers; it also introduces you to basic telecommunications-programming principles.

66 Grading the Gradebooks

Electronic gradebooks let you do more than simply record grades and keep attendance records—parents and students will appreciate the detailed reports these programs let you create.



TUTORIALS

AppleWorks in Action

Creating an Employee Database—Part 2
by Ruth K. Witkin

76

Mastering the IIgs

How'd They Do That?
by Paul Statt

81

Teachers' Choice

Quick-Grader Calculators
by David Goodrum
and Joel Robbins

84

Applesoft Adviser

Calorie Counter
by Dan Bishop

89

DEPARTMENTS

inCider's View 6

Predictions
by Deborah de Peyster

Letters 8

News Line 16

MS-DOS Is Coming; What Said That?; Tune in for Software; Apple Aerobatics; New Source for Apple Programmers

Status Report 18

Words and Computers
by Paul Statt

Apple Clinic 20

Stuck with a IIc; Two Programs for One; Not AppleWorks Only; More Disk Noise; Build Your Own IIe; TEXT and ASCII; Programming Help
by Paul Statt

E.G. For Example 24

Preaching to the Choir
by Eric Grevstad

Reviews 26

Sideways; Writer's Choice and Planner's Choice; Where in the USA Is Carmen Sandiego? vs. See the USA; It Figures; Fontrix; Nite Owl Journal

New Products 104

Mace on Games 113

The State of Interactive Fiction, 1987
by Scott Mace

Hints/Techniques 115

Mortgage-Prepayment Calculator; ImageWriter II Color Codes; The Apple/VCR Connection; In & Out Update; Hi-Res-Inversion Update; ON n GOTO

Reader Services 126

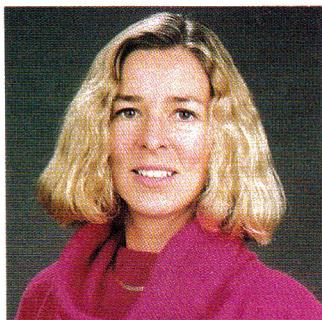
Coming Attractions 127

Editors' Choice 128

Scannit: The ImageWriter Learns to Read

Predictions

by Deborah de Peyster, Editor in Chief



"Developers are beginning to catch up with the GS, and their creations will mark the year."

From the perspective of an Apple II user, 1986 could have been a scene from the film *My Dinner with Andre*: The pace was slow, there was a feeling of comfortable familiarity, a lot of talk, a lot of dreaming, but little action. Only at year's end did we see any of the dreams come true. Apple's IIgs hit the shelves late in the year, but it took time to make waves.

Now, however, things are different. Nineteen eighty-seven is shaping up to be as fun, crazy, and unpredictable as the bar-room scene from *Star Wars*. Developers are beginning to catch up with the IIgs, and their creations in sound, color, and new technology will mark the year.

Programs with voices that sound as real as your own will be appearing on the educational front from First Byte Inc. (Long Beach, California). You'll hear music from Great Wave Software (Menlo Park, California) in its Kids-Notes program, which lets children learn the piano and music construction.

A painting program from Activision (Mountain View, California) lets you use your screen as a palette to mix as many as 4096 colors, and Broderbund Software (San Rafael, California) has a Drawing Table program that lets you create flowcharts, diagrams, floor plans, and architectural drawings. Professional graphics systems that work with AppleWorks will be coming from PBI Software (Foster City, California) and Pinpoint Publishing (Oakland, California). Broderbund's Fantavision, a special-effects generator, has only just scratched the surface of animation.

Desktop-publishing programs from Broderbund and Megahaus Corporation (San Diego, California) will let GS owners design newsletters, resumes, and reports.

New peripherals such as frame grabbers

from AST Research (Irvine, California) and A-Squared Computing (Oakland, California) let you feed video images into the IIgs, then play with the image on screen. And, finally, the long-awaited Apple/Corvus file server will appear, making networking a reality.

inCider plans to join in the excitement for 1987 with surprises of its own.

We've started a column devoted to programming the GS (p. 81). It will teach you about the Tool Boxes and about writing assembly language, C, and Pascal, and it will offer some insight into ProDOS 16 to make the GS work better for you.

The rash of sound and color should begin to have a major impact on the quality of entertainment software available, too. A new column by Scott Mace (p. 113), long-time *InfoWorld* writer and columnist, will cover developments in that area and highlight the most interesting programs.

And, finally, *inCider* itself will adopt a bit of new technology. We'll begin printing program-listing data strips—we'll start slowly, in our Hints/Techniques column (p. 121), but if you like the technology, we'll use it in other spots.

We've decided to use the data strips (strips containing program code you can read directly into your computer with a \$200 scanning device) because you asked us for them. In July, we sent out a questionnaire to more than 500 of you, asking whether you wanted to see data strips in our magazine. Surprisingly, 80 percent of you said you'd like to see both data strips and program listings—and 73 percent of you said you'd like them to be utility and "fix" programs. So we'll do it—please let us know how it's working for you.

We at *inCider* are expecting an exciting, happy year, and we wish the same for you. ■

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SIR-TECH

LETTERS

Making the Upgrade

I'm writing to express my concern and disappointment with Apple Computer regarding the new Apple IIgs upgrade as the company currently offers it.

I own an Apple IIc, and I want to know why Apple is excluding IIc owners from the opportunity to upgrade to the GS. I think this is unfair to a large number of Apple customers.

Sometime in the next year, I'll have to upgrade my system to a 16-bit machine. Unless Apple changes its policy and offers a GS upgrade or trade-in policy, I'll have to go with an IBM.

I urge Apple to adopt an upgrade program for IIc owners. As I see it, I have two choices: an upgrade for my IIc to the GS, or owning a IIc and an IBM. My decision will depend on Apple and its response to IIc owners.

I urge all IIc owners to write Apple and demand their rights. If we don't speak up now, we'll find ourselves with an orphaned computer.

Dr. Ken Flippo
206 Mimosa Trail
Milan, TN 38358

Apple hasn't purposely abandoned IIc owners. There are a number of valid reasons why upgrading a IIc to a GS is impossible—most stemming from the IIc's smaller physical size and its closed architecture. You wouldn't be able to fit a GS power supply or motherboard inside your IIc, and the IIc doesn't have any available slots. If you could somehow manage to stuff all the GS components into your IIc box, it would probably end up costing just as much as buying a GS anyway. The IIc's physical limitations are simply too restrictive to overcome.

—eds.

Great Expectations

I've just finished reading about the new Apple IIgs. I was pleasantly surprised by the "Apple III" look. I liked its compatibility with IIe and IIc software, its detachable keyboard, numeric keypad, bidextrous mouse, expansion slots and ports, its peripherals' compatibility with the Macintosh, and its AppleTalk network compatibility.

It also like the fact that the GS' 16-bit mode has no language; it will be able to use more sophisticated languages such as C, Modula 2, and Prolog (goodbye Applesoft!).

I was somewhat disappointed by the monophonic sound of the GS and its small number of colors compared to the Amiga. Don't get me wrong—the engineers at Apple have made a fantastic computer, but after three years of rumors I was expecting a wee bit more.

My biggest disappointment is the price of the GS—\$1695 in Canada. This figure includes the computer and mouse—no drive or monitor. For that price, I could get a competitor's computer with monochrome monitor and 3½-inch drive.

If I didn't have a IIe and if the GS were priced at \$1995 with drive and monitor, I'd be more willing to buy it. Nevertheless, I'm considering buying the GS upgrade at the price of \$695. The upgrade is worth a good sum of money; I'd buy it if it were priced at \$549. Apple, are you listening?

Apple would fare better if its pricing were more aggressive. I'd like all *inCider*'s readers to write to Apple. Tell the company what you like and don't like about the GS. Do you think the prices Apple charges for the GS and the upgrade are too high?

Ronald Leroux
765 Rue Brunette Est
Saint-Hyacinthe, Quebec
Canada J2T 2C6

Binary to Text to Printer

I've adapted your binary-to-text-file program ("Binary-to-Text Revision," *Hints/Techniques*, November 1986, p. 164) for use with any Apple printer.

First delete lines 70, 90, 140, 150, 160, 170, 180, 190, 510, 530, and 540.

Then add the following lines:

```
55 INPUT "SLOT OF PRINTER (1-7,  
USUALLY 1)";FS  
140 PR#PS  
505 PRINT "TO SAVE THIS BINARY  
PROGRAM TYPE:"  
506 PRINT "BSAVE ";FILE$;"A"  
;AD;"L";LN  
510 PR#0: END
```

Thomas Muller's program will now dump text files to your printer after conversion from binary.

Craig Kelley
536 South 9th
Pocatello, ID 83201

Shopping by Mail

I was in the process of writing *inCider* a letter about mail-order problems when the November 1986 issue arrived with your editorial on this topic ("Risky Business," *inCider's View*, p. 6). That letter is no longer necessary, but perhaps this one is.

Mail order is very important to those of us who don't have easy access to a large computer retail store. For many of us, mail-order houses are the only practical places to buy hardware and software. And, of course, we find out about mail-order houses by reading *inCider* and other computer magazines.

How well do mail-order businesses meet our needs? Not very well at all. Just how bad is the situation? Very, very bad. Over the last few months I've purchased, or tried to purchase, more than \$2000 worth of hardware and software from a total of five mail-order companies.

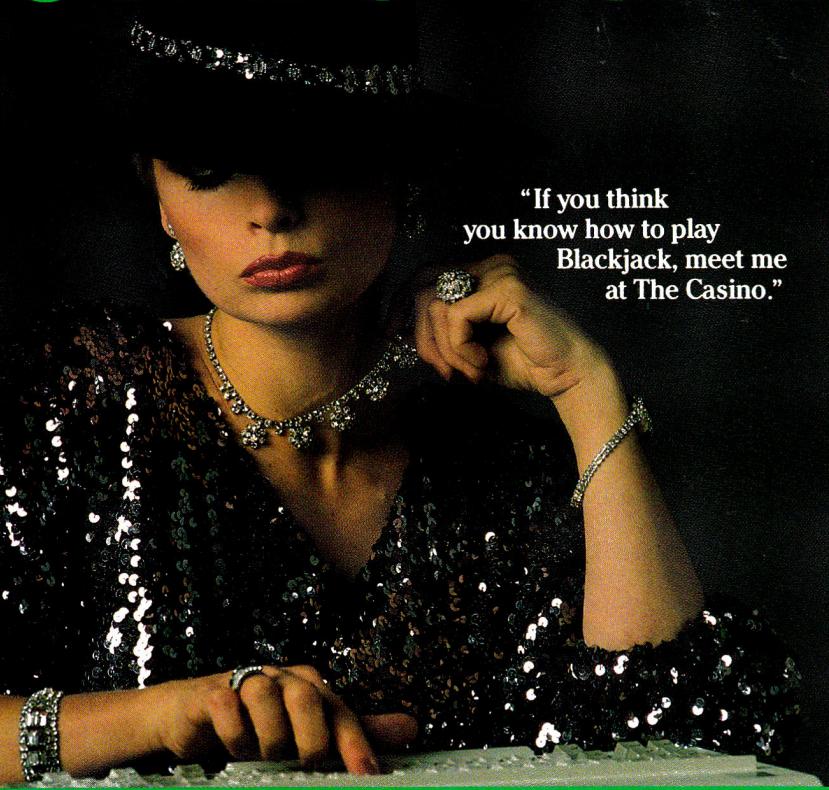
In no case did I receive a prompt shipment. In two cases, the companies involved (Northeastern Software and PC Network) didn't even record the entire order, apparently assuming that I sent them hundreds of dollars extra out of the goodness of my heart.

Getting information about orders via phone proved to be virtually impossible, and letters were usually ignored unless they included threats of Consumer Protection action. The larger companies seemed perfectly content to let my money languish in their bank accounts (drawing interest) while items were on back order or not ordered at all.

I realize there are problems in managing such businesses, but there's no excuse for the deliberate incompetence and lack of concern these companies demonstrate. In the face of this situation, I have two suggestions.

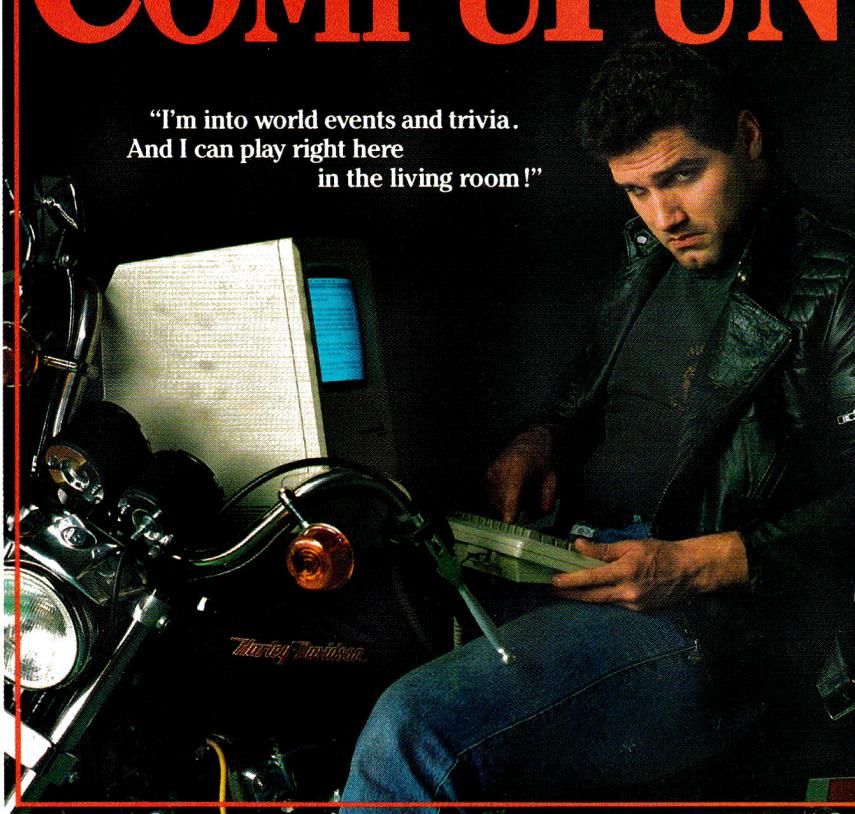
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"If you think
you know how to play
Blackjack, meet me
at The Casino."



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"I'm into world events and trivia.
And I can play right here
in the living room!"



First, deal with smaller companies. They seem more inclined to feel a sense of responsibility and to respond to inquiries. Second, I urge *inCider* to use all its resources to evaluate mail-order companies and make the evaluations public. After all, your staff evaluates hardware and software—why not mail-order companies?

If nothing else, simply ask your readers to respond to a questionnaire about the quality of service supplied by any mail-order companies with which they've done business. This large database would supply more definite conclusions than talking to a company representative on the phone, or even picking up rumors at a computer club—and many of us don't even have that resource.

Please help us. The existing situation is very bad for many of us, and you have it within your grasp to provide real assistance.

Ralph Schneider
Route 2, Box 176
Eleva, WI 54738

*We'll certainly consider your ideas. In the meantime, anyone who has had trouble with mail-order companies should let us know. Write us at *inCider*, c/o Letters to the Editor, Elm Street, Peterborough, NH 03458. And, as our editor in chief, Deborah de Peyster, notes in her January 1987 column ("Yes, We Hear You," *inCider's View*, p. 6), you can also address problems to Rita Rivard, *inCider's* customer-service representative, who has an excellent record of solving complaints.*

—eds.

Graceful Corrections

Readers using my programs published in the October 1986 issue of *inCider* ("Graphics Grace," Hints/Techniques, p. 134) should make the following corrections:

- 1) On page 134, column three, paragraphs three and five, change line 20 to: 20 BLOAD <Listing 3>,A\$300
- 2) On page 136, change line 50 in Listing 2 to:
50 B = 24576 : POKE B, A : B = B + 1
Nadeem Hussain
25 Sycamore Drive
Medford, NJ 08055

COMPU CRAZY

Finding Filenames

I'm a relatively new Apple IIc owner. I recently purchased Alpha Chart and have been pleased with it. My major frustration is remembering the names of data files stored on the specially formatted disk. I overcame this when I found I could access the names of the files with my utilities disk—using the delete function and requesting some of the files. You then can escape without losing files. Conversely, you can delete an Alpha Chart data file or chart in the usual manner when you get the "Disk is full" error message.

I searched for a suitable graphics package for a long time, and found Alpha Chart in the card deck you distribute. A review of graphics packages would be helpful, since we're very isolated in the interior of Somalia.

Robert Lavigne
USAID Wyoming Team
Mogadishu, Somalia

Look for our comparison review of Apple II business-graphics software in an upcoming issue this year. —eds.

No Offense?

I have a pretty good sense of humor, but I saw nothing funny about the advertisement that appeared on page 127 of your September 1986 issue (for Ohio Kache Systems). Sexual abuse is a major problem in our society. Anything that might perpetuate the notion that it's unthreatening, cute little fat guys in boxer shorts who expose themselves isn't very funny. I'm sad that this advertisement met the levels of approval at Ohio Kache Systems, its ad agency, and *inCider*.

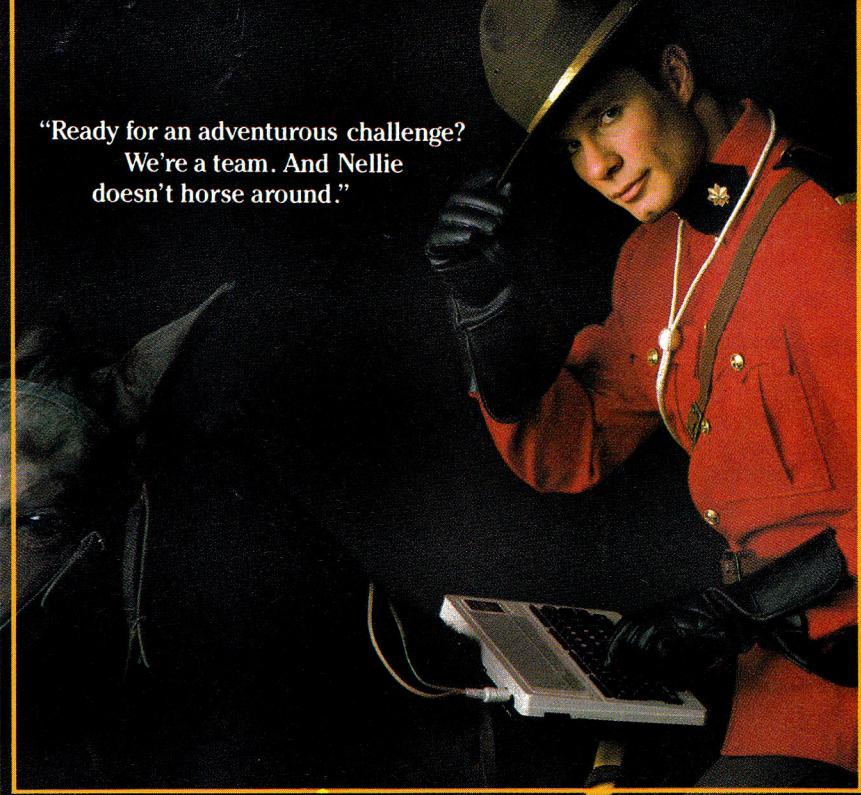
Sexual offenders are ill. They need treatment, but they won't voluntarily seek it. We know that court-ordered group treatment can be effective. Public pressure for sexual offenders to be arrested, tried, and ordered into treatment is needed. If the public thinks sexual offenders are funny little guys, they won't apply that pressure.

I've decided not to cancel my new subscription in anger, and hope you'll take my comments seriously and consider a policy decision against advertising that promotes an unrealistic view of sexual abuse.

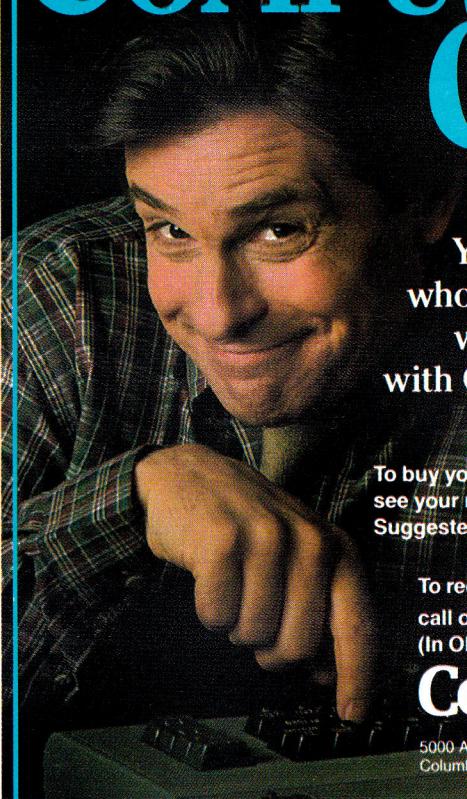
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Mousetext Switching

In the October 1986 *inCider* ("Mouse Cat," Hints/Techniques, p. 136), Travis Jones says the mousetext character set isn't available in the Apple's 40-column mode.

I've been programming with mousetext in both 80- and 40-column modes on my Apple IIc for well over a year now. To access mousetext in 40 columns, enter POKE 49167,0. Any uppercase characters printed in FLASH mode will now display their corresponding mouse characters. To switch mousetext off, type POKE 49166,0 to free FLASH mode for standard flashing text.

Blair Dillman
14 Fellview Drive
Pittsford, NY 14534

Manual Laboring

I recently tried to set up an Apple ProFile hard disk so that I could boot ProDOS from it. Following the instruc-

tions in the ProFile owner's manual, I formatted the disk and copied ProDOS to it. Then I turned off my IIe, removed the disk, and turned the machine back on—leaving the ProFile on all the time. The IIe disk drive came on. I turned it off with Control-Reset and entered PR #5, which should have turned on the ProFile. (Apple recommends you install the ProFile interface card in slot 5.) Instead I got the Monitor prompt.

My local Apple sales representative found out that Apple knows about the problem. To be able to boot from the ProFile, its interface card must be in a higher-numbered slot than the floppy-disk controller card. This means that in a standard setup with floppy-disk drives connected through slot 6, you must connect the ProFile through slot 7.

The problem with such an arrangement is that most commercial software looks for the ProFile in slot 5, where Apple says it should be connected.

It appears that the people who write Apple's manuals and the people who design its computers don't talk to each other as often as they should.

William Tallon
210 Evergreen Drive
Columbia, TN 38401

Peculiar Printing

In your September issue (Applesoft Adviser, p. 75), Dan Bishop notes that some application programs initialize the printer, thus undoing any printer setting you may have established before running them. Also, if the software is in machine language or is protected, you'll just "have to live with it."

There's an easy way out in probably every case. If (as is likely) your program is designed to run with different printers and must first be "taught" the various commands used by your particular printer, don't give the initialization command (listed in the printer's manual). For example, Word Handler II expects 1B 40 (Escape @) when used with Star Micronics printers. If it sees this command, it initializes the printer after printing the first page. But if you give it 00 00, the printer continues to print as initially set up with no problem.

George Vogel
Department of Chemistry
Boston College
Chestnut Hill, MA 02167

ProModem Problems

I found *inCider*'s review of the ProModem 300C (May 1986, p. 32) very accurate. The documentation is less than adequate. I've had great difficulty trying to set up the auto-log-on macros, as well as the (MO) command, which shuts off the sound from the built-in speaker. Also, I couldn't figure out how to set up the auto-redial feature for the number of times to call back when the line is busy.

After reading the enclosed manual for about four days and calling a friend who had just purchased a ProModem, I decided to try Prometheus' technical-support line. I called at approximately 1 p.m. EST and was told by a receptionist that someone would call me back.

I didn't receive a return call so I tried phoning the company again the next day at the same time. I reached someone at the technical-support

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6. How many account numbers can I have for each payable?	10	1	10	12
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10. Can I use different check formats without reprogramming?	YES	NO	NO	NO
COST	\$99.00	\$195.00	\$549.00	\$2125.00

*Payroll and Inventory Control are not available for Apple products.

For information please call: 1-800-628-2828, Ext. 625 or (408) 356-3616

number, but I couldn't get answers to any of my questions, other than that the manual is difficult to understand and I must be entering the codes incorrectly. I tried to be very specific with my questions, but still couldn't get any answers.

Perhaps you might be able to help me in this matter. I don't believe Prometheus understands the consequences of a few unhappy customers. It's a snowball effect—once it starts, it's hard to stop.

William I. Perry
15011 West Michigan Avenue, #20
Marshall, MI 49068

We tried, Bill. We called the Prometheus support people ourselves. They apologized—their phone lines had been down. A technical-support person phoned you to ask what the trouble was, as you reported later to us. He was sincere, but still didn't know what the problem with your Pro-Modem 300C was. You waited three weeks, and he never called back. Nobody at Prometheus thought to of-

fer you a replacement unit, and you've never been able to run the thing. We're sorry, Bill—but it's Prometheus that has a sorry customer-service reputation now.

—eds.

Smooth Printing

Because so many AppleWorks users also own Star Micronics Gemini 10X or 15X printers, I thought the printer codes necessary for smooth operation would be helpful. Most of the following comes from Star, but I've added a couple of codes and comments.

Starting from the main menu, select "Other Activities," then "Specify Information About Your Printer(s)," then "Add a Printer," and finally "Custom Printer." AppleWorks then asks you to supply a name for the printer (call it *Gemini*) and the slot number of the interface card (usually slot 1).

On the "Add a Printer" screen, the choices depend on your hardware setup and whatever software you might be using with AppleWorks. For

"Needs Line Feed After Each Return," start with no, and if everything prints on one line, change to yes. For "Accepts Top-of-Page Commands," select no, even though the Gemini does have a form-feed command. If you're going to use a sheet feeder for forms that aren't the standard 11 inches in length, you'll need the form-feed commands for proper operation, so choose yes. For "Stop at End of Each Page," answer no. Platen width is 7.8 inches for a 10X and 13.2 inches for a 15X.

The setup string for interface cards depends on the card installed. I have the Grafstar and must use Control-I ON. If this doesn't work for you, try the default setting of Control-I 80N.

Here are the printer codes you'll need:

CPI (Characters per Inch)

5	Esc-B Ctrl-A Esc-W Ctrl-A^
6	Esc-B Ctrl-B Esc-W Ctrl-A^
8	Esc-B Ctrl-C Esc-W Ctrl-A^
10	Esc-B Ctrl-A Esc-W Ctrl-@^
12	Esc-B Ctrl-B Esc-W Ctrl-@^
17	Esc-B Ctrl-C Esc-W Ctrl-@^
20	Esc-B Ctrl-C Esc-W Ctrl-@^

LPI (Lines per Inch)

6	Esc-2^
8	Esc-0^

Boldface, Superscript, Subscript

Bold begin	Esc-E^
Bold end	Esc-F^
Sub begin	Esc-S Ctrl-A^
Sub end	Esc-T^
Super begin	Esc-S Ctrl-@^
Super end	Esc-T^

Underlining

Choose "Printer Has Start/Stop Underline Commands," then to begin underline, use Escape-Control-A^, To end underline, use Escape-Control-@^.

For relatively short, simple documents or letters I plan to print in ten cpi (pica type) only, I change the ten-cpi code to Escape-E. For some reason, my printer hardware boldfaces only a paragraph at a time; AppleWorks reverts to standard printing when it encounters a Return symbol. The operation described above prints the entire letter in boldface.

Charles Ouellette
556 South Ely Boulevard
Petaluma, CA 94952

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.

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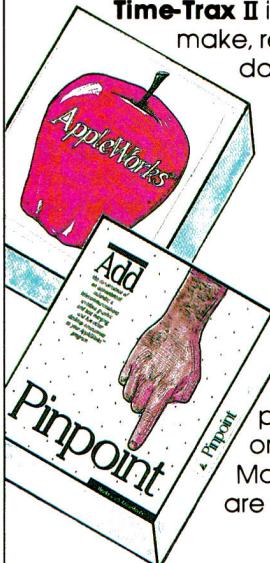
Circle 60 on Reader Service Card.

Time-Trax II

Please excuse the interruption, but a scheduled event has come due...

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Time-Trax II is easy to use. With just a few simple keystrokes you can make, review, copy and edit entries. Easily change the time or date of an event and edit text of any entry. Time-Trax II's cut, copy and paste commands along with its clipboard makes it simple to enter regularly scheduled events. Search for any name, phone number or other information in any entry. Customize Time-Trax II with your own meaningful category labels for your entries. Print out a day, a month or any period of time easily. Keep schedules for any number of users.



And best of all Time-Trax II uses the AppleWorks™ user interface, so if you're using Appleworks you're ready for Time-Trax II!

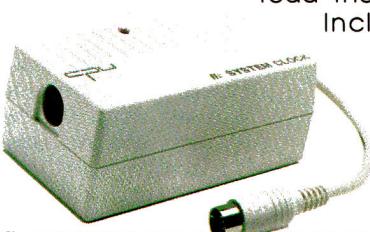
Busy people everywhere need Time-Trax II. Time-Trax II can be installed as a Pinpoint Desk Accessory and then either run as a normal desk accessory or an active one! When active Time-Trax II will run behind other programs like AppleWorks, Manzanita BusinessWorks™ and Profiler™ and will actually interrupt you while you are working to notify you of a scheduled event!

//c System Clock

The //c System Clock™ is a perfect addition to any Apple //c or Laser 128. Simply plug it into either your printer or modem serial port and then plug your printer or modem into the //c System

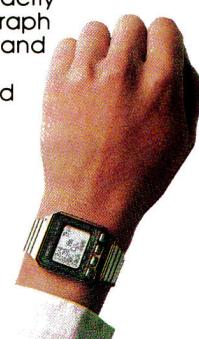
Clocks pass through port. Your ProDOS software will then be able to read the time and date.

Included with software to display the time and date on the AppleWorks menu too!



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Creative Peripherals Unlimited, Inc. 22952 Alcalde Drive, Suite 160, Laguna Hills, CA 92653

NEWS LINE

edited by *inCider* staff

MS-DOS IS COMING

The rumors are true: The Apple II is gaining IBM PC compatibility. With no fewer than four Apple accessory makers shipping or planning MS-DOS products at press time, your II Plus, IIe, or GS may be running Framework II or dBase III by this spring.

Orange Micro of Anaheim, California, has DOS Boot, a compact box that adds an Intel 8088 microprocessor, 256K or 512K of memory, and an IBM-format 5½-inch drive to your IIgs. Marketing Manager Karl Seppala says DOS Boot will cost between \$500 and \$700 at its April debut. Requiring no additional hardware, it uses the Apple's 3½-inch disk or any Pro-DOS device for MS-DOS storage, the GS' memory to expand to 640K, and its RGB port and monitor for IBM Color/Graphics Adapter (CGA) video. The GS keyboard doubles as a PC's, with Open-apple, for in-

stance, as the Alt key.

Meanwhile, The Engineering Department of Campbell, California, is putting the finishing touches on its long-awaited Little Blue card (see News Line, July 1986, p. 16). Apple add-on ace Applied Engineering of Carrollton, Texas, will market the Intel 8086-based board, which The Engineering Department's Dave Larson promises will fit any slot in a II Plus or IIe as well as a GS.

Besides being fully XT-compatible, Larson claims, Little Blue includes 640K of RAM, produces CGA video on composite as well as RGB monitors, and automatically matches its operating environment to your software, booting a 3½-inch MS-DOS disk in a UniDisk 3.5 or an Apple floppy in an IBM-type 5½-inch drive (though a double-sided IBM 5½-inch disk won't work in a single-sided Apple drive). Larson says he expects Little Blue to go on sale around April.

West Germany's Indus-

trielle Computer Technik, at press time, was looking for U.S. dealers for two add-on cards, one with an 8086 chip and 512K and one with a combined Apple and IBM disk controller, for the IIe. The coprocessor seemed some way from production—a spokesman confessed it didn't yet support PC graphics software, for example—but its menu software partitioned a hard disk five ways (ProDOS, DOS 3.3, CP/M, Pascal, MS-DOS) without a hitch.

Finally, Asky Inc. of Milpitas, California, is shipping its \$180 Envoy card, which can't run MS-DOS software, but connects to 5½- or 3½-inch PC drives (not 1.2-megabyte AT drives) to make them ProDOS or Pascal devices. (A DOS 3.3 patch was promised for December.) Accompanying software lets you transfer data files, such as Apple Writer text or a Lotus worksheet for VIP Professional, between systems. A mail-order firm, Club AT of Fremont, California, supplies Envoy buyers with packaged PC drives and power supplies. —E.G.

make it interesting. This quiz is basically easy—but we're working on a harder one as a sequel.

- a) I'm having trouble with the disk
- b) Pg 2 Ln 24 Pos 55
- c) Len: 524 Pos: 219 Tab: 4
- d) A V.I.L.E. henchman! You must be on the right track!
- e) From? Enter range or *graph-number
- f) File [name] already exists. Now what?
- g) As a precaution, you aren't being given the opportunity to replace the old file on disk.
- h) Press the spacebar if you haven't made a mistake yet.

Works: h) Macroworks
Copy II Plus: g) Apple-
dilego? e) SuperCalculator.
the U.S.A. Is Carmen San-
Diego? f) Where in
the WordPerfect 1.1; c) Ap-
ples: a) Apple Logo II;
Answers: b) Apple Logo II;

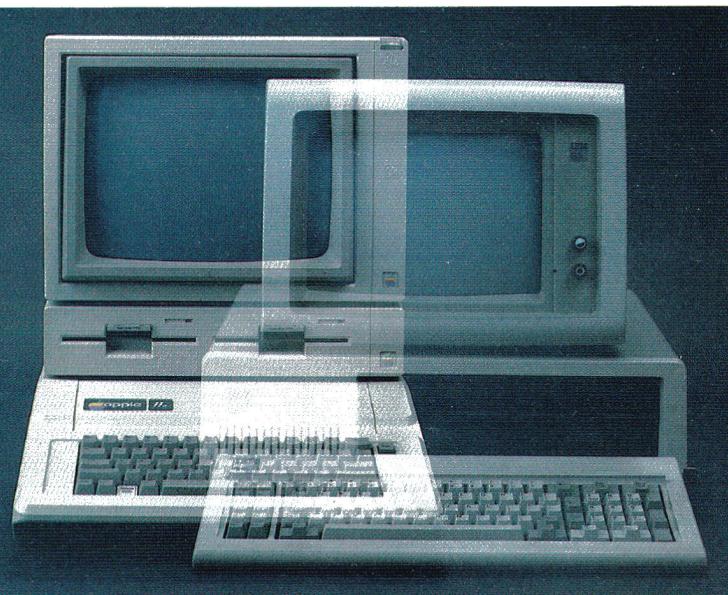


Photo courtesy of Frank Cordeille

WHAT SAID THAT?

Here's a quiz for all you Apple experts and software specialists. Everyone knows that AppleWorks says, "Carefully saving this file," but can you recognize the following screen messages from eight popular programs?

Most are prompts or queries you'd see in everyday use; none is from some obscure help menu, though we threw in a couple of error messages to

TUNE IN FOR SOFTWARE

Classrooms in as many as 18 states and five Canadian provinces will soon be receiving educational software the same way they do radio and television broadcast signals. The Software Communications Service (SCS) plans to begin transmitting educational software to schools from coast to coast this summer or early fall.

Says David Hornbeck, Maryland state superintendent of schools, "The SCS represents the first major attempt to link school computers to commercial software sources through modern telecommunica-

tion," at a fraction of the cost of conventional distribution.

The SCS is being initiated by state educational agencies in concert with a variety of public broadcasting organizations, according to David Fornshell, chairman of the Central Educational Network of Chicago and executive director of the Ohio Educational Broadcasting Network Commission. Broadcasters will use television, satellite, microwave, and radio transmission to send licensed software materials to public-school classrooms equipped with special antennas that pick up and store the signals before conversion to the digital data computers require.

For the past year, seven schools in Maryland have been serving as test sites for the new systems the SCS will employ. Similar tests have also been conducted at a number of schools in Ontario. Each new state in the program will be surveyed to determine school software needs, telecommunication facilities, and technical expertise.

Broadcasting will force schools to take a hard look

at the piracy issue, according to Charles Blaschke, president of Education Turnkey Systems and software consultant to the SCS: "Site licensing is an increasingly common contractual procedure, but other legal arrangements such as royalty payments based on usage will be considered as well. The SCS understands the paramount importance of seeing that these adventuresome entrepreneurs make a fair profit on their products." —L.L.

NEW SOURCE FOR APPLE PROGRAMMERS

Programmers have been shopping around for Apple's development tools, utilities, and technical notes too long, according to Dan Cochran, Languages and Tools Manager at Apple.

Cochran endorses the new Apple Programmers and Developers Association (290 S.W. 43rd Street, Renton, WA 98055, 206-251-6548) as a solution: "The primary goal [of the APDA] is to provide the entire Apple programming community

SPOTLIGHT ON . . .

APPLE AEROBATICS



Keeping score for airplane stunt-flying competitions is much like that for the Olympics, says Ward Bryant, organizer of the International Aerobic Competition at Silver Ranch Airport in Jaffrey, New Hampshire. Five judges grade each pilot on a scale of one to ten, giving each maneuver a separate number. The average of these scores produces a raw score, from which penalty points are subtracted. Manipulating this mound of statistics is quite a chore, but with an Apple IIe and a program developed in 1982 by C.R. Rigsby especially for aerobatic competition, two people can handle it all. As Bryant observes, the Apple lets them spend as much time outside watching the show as inside working on scores.

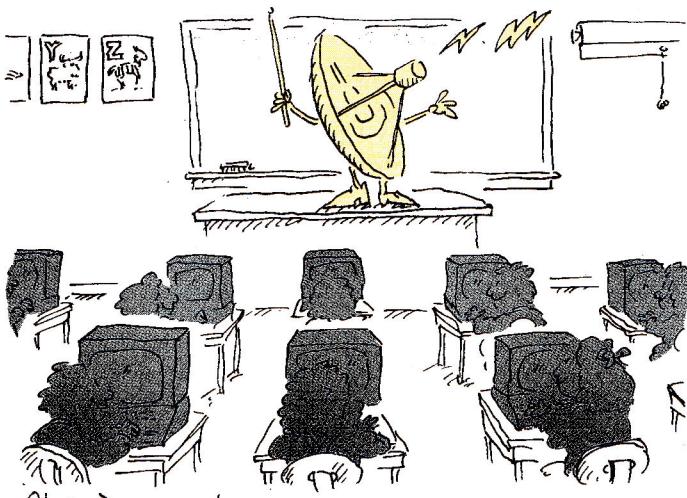
with a highly visible, reliable, and inexpensive source of all the technical tools and information you need."

"Serious programmers and developers need choices in their books, documentation, and software," stresses Dave Lingwood, APDA's executive director. APDA will have that Apple II LISP compiler, C manual, or Apple IIgs Toolbox reference that turns the face of your local Computers R Us dealer as blank as a system crash.

APDA is managed by A.P.P.L.E. Co-Op, the Seattle-area user group that publishes the magazine *Call A.P.P.L.E.* The APDA publishes its own quarterly newsletter, *APDAlog*, which

is independent of *Call A.P.P.L.E.*

APDA membership costs \$20 a year and includes buying privileges and a subscription to *APDAlog*. Members of APDA will get a jump on other Apple programmers: The association promises to be the only official source of prerelease versions of Apple development products. It's the next best thing to being a certified developer. —P.S.

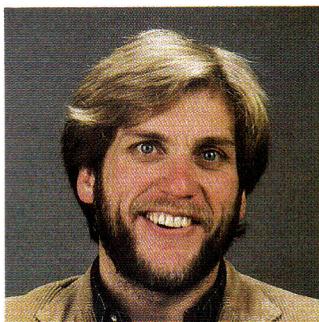


We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, Elm Street, Peterborough, NH 03458.

"[The Apple II] has been a tremendous time saver. [Scoring] used to take six or seven people working full time with hand calculators all day. The scores would never be ready until evening. Now, by the time the pilot lands, the scores are ready."

Words and Computers

by Paul Statt, Technical Editor



"The last word in writing technology is interactive fiction. I hate it."

In the beginning was the word. Then the alphabet, perspective drawing, the printed book, photography, the phonograph, the movie, and the personal computer, in roughly that order.

People complained; at each technological leap, somebody moaned. "Written stories?! People will forget how to remember genealogies." "Perspective drawing?! It's a trick—people will forget the true relation of God to man." Someone might even have objected to the coming of the word, had he the means to say it.

People had a point: Technological innovation changes the way we think. Marx pointed out that what we do daily and how we do it—the "infrastructure" of our existence—has more to do with who we really are than the "superstructure" of our beliefs. Now microcomputers are changing the way we read.

The last word in writing technology is interactive fiction—a story that isn't a story, a play in which you're the star. I hate it. I'm the 20th-century heir of the medieval skeptic: "Interactive novels?! People will forget how to read, they'll forget what plot is, forget how to tell stories."

I'm twice scared: first, that I'm right; second, that I'm a voice crying in a wilderness. Scribbling a shopping list on the back of an envelope, who really cares that the written alphabet took the poetry out of Homer's *Odyssey*? Who cares that Saint Augustine could have committed the entire inventory of the local A&P to memory, without writing down a word?

Someday reading a novel will be an old-fashioned curiosity, like a guest on *The Tonight Show* who can memorize all the viewers' zip codes.

Who'll care that Herman Melville once wrote a novel called *Moby Dick*, a slow-moving, digressive chase after a big fish they never catch anyway? There's probably an interactive game in which you can nuke the whale, if you're clever.

I hate interactive fiction most because it's bad. I've "read" interactive fiction by poets whose poetry is also incomprehensible (Tom Disch's *Amnesia*) and by poets who can write gracefully (Robert Pinsky's *Mindwheel*). But on the video monitor their prose looks like the work of bad science-fiction writers.

My heart leapt when Bard Fregger, a producer at Activision, confided to me, "The dream was to bring literature to the computer, as we brought it to film. We

wanted to write the first true 'computer novel'—literature that could be expressed as a novel or as a film, but [was] expressed best on the computer."

"What is literature?" Fregger wondered—he looks enough like a pipe smoker in tweeds to get away with that kind of question—but didn't answer. I didn't know the answer either, but I doubted it was Portal.

Portal is Activision's new interactive game. It's also a database—a representation of the earth's global government in the 21st century—and you, returning from a weary decade or more of space travel, have "booted it up." The database and an "antique" microcomputer are the only artifacts left—all the home folk have fled.

Where did they go? You poke around in the database, with its records and vital statistics, until you figure it out.

The idea of the game, I take it, is that there's one right answer to the question "What happened?" but many ways to get there. (I may be wrong—I've never put up with the empty prose long enough to finish an interactive story even once, let alone in multiple ways.) It's the conceit all interactive games share: Anything is possible. Nothing is written in stone, as the saying goes.

What sets Portal apart is that it's a database. (I don't want to scare away arcade-sci-fi fans—Portal doesn't look like a database. Spooky music emanates from your Apple, and every screen has that indefinable look of the future.) That makes it, as Fregger says, "literature that's best on the computer," although I'm arguing that it still isn't literature.

Fregger was proud to report that he found "a writer" to work on Portal. Rob Swiggart, author of the successful sci-fi novel *Vector* and the mainstream *Little America*, did something with Portal; I'm not sure what. I'm not complaining, though; at least Portal isn't sullied by bad writing, because it doesn't bother with any writing. That's the way to do it.

I'm of two minds. I don't like Portal because I'm a reader. When bookstores become antique shops, I'll take my entertainment there. On the other hand, I like Portal, because it doesn't pretend to be a novel, just as I like photographs that don't pretend to be paintings.

The future scares me, but let's get on with it, and stop trying to re-create the past. ■

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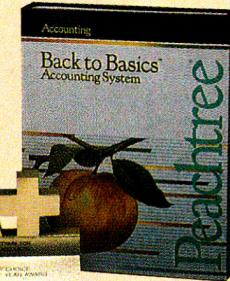
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APPLE CLINIC

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.

Stuck with a IIc

I've been using an Apple IIc for about two years now. I'm considering purchasing a RAM-expansion board, and after reading about the Apple IIgs, I have some questions.

Will RAM-expansion boards using the 65C816 give my IIc the capabilities of the Apple IIgs, which uses the same processor (with the exception of sound and graphics, of course)? For example, could I run Apple IIgs software on a IIc with a 1-megabyte Z-RAM Ultra and the 65C816?

Does Apple plan a IIgs upgrade for the IIc similar to the one for the IIe?

James C. Hardeman
Stone Mountain, GA

Does installing a Mustang engine in your Escort make it a Mustang? That won't do it. Similarly, there's much more that's new in the IIgs than its 16-bit microprocessor.

If nothing else, Apple's IIgs has proprietary ROM firmware—Memory Manager, QuickDraw graphics manager, Window Manager, and lots more—that Apple doesn't plan to share with you. Have you ever seen a "Macintosh clone" at K-Mart? Apple is so jealous of its firmware that it threatened legal action against a software developer (GEM Research) that wrote firmware that looked like the Mac's.

The engine of the Apple IIgs is its firmware, not its microprocessor. Your IIc is less like a IIgs than an Escort—with its motor in the passenger seat—is like a Mustang.

Apple says it doesn't plan a GS upgrade for the IIc. Applied Engineering doesn't. Checkmate doesn't. If you do, get a sharp lawyer.

But Patrick Rose of Naples, Florida, has a better—and legal—idea: He wants a UniDisk 3.5, but "inside the IIc. Then I would have the portability

and ease of use the IIc promised when introduced."

Good thinking, Pat. Apple said it wasn't thinking of it when I called, but it is now. I took apart a UniDisk 3.5 and a IIc and put a tape measure to work: Everything would fit. Has anybody else ever done this?

Two Programs for One

I often write programs for my two children, and have run into one problem for which I can't seem to find an answer. How can I write a command in one program to automatically load a second program? Some of my programs are so long I can't fit them all into memory.

Jerry J. Kiesling
Ottawa, Ontario, Canada

When a BASIC program is too big to fit entirely into memory, you can use the CHAIN command to run first one part, then another. All your variables are preserved among parts of programs connected by a CHAIN.

You don't mention whether you're working under DOS 3.3 or ProDOS; the CHAIN command works differently depending on your operating system.

In DOS 3.3, it's a simple matter of making the last line in the first part of the program something like:

*90 PRINT D\$;"BLOAD CHAIN, XXXX"
100 CALL 520"PART2"*

where XXXX is the memory address where you want the program to run, and PART2 is the name of the second part of the program.

In ProDOS BASIC, that last line should read:

*90 PRINT CHR\$(4);"CHAIN PART2,@XX"
where XX is the line number at which you want the second program to start running.*

Check Apple's BASIC Programming with ProDOS (p. 73) or DOS Programmer's Manual (p. 105) for details.

Not AppleWorks Only

I have an enhanced Apple IIe and Applied Engineering's 1-megabyte RamWorks II. I spend 90 percent of my time on AppleWorks, the rest in Apple Access II to send and receive telexes.

Changing from AppleWorks to Access is a pain. I've expanded my AppleWorks desktop to 1000K, but that means it takes time to load. Is it possible to combine both programs and dump them into RAM the first time I boot up?

Gil Williams
Santa Clara, CA

But of course—that's one of the important jobs Applied Engineering's Super Desktop Expander software does.

Applied's Partition program is an untamed beast in the RamWorks jungle: It divides all that extra RAM into little chunks more than one program can use. In your case it means you can have AppleWorks' expanded desktop and Access in RAM, too. Your AppleWorks desktop won't be as big as it was, but did it ever stretch the limits of 1024K?

Partition isn't hard to use, but it's not Stickybear Programmer either—it helps to know something about ProDOS pathnames and RAM disks. A text file on the Super Desktop Expander disk contains instructions. Using a RAM disk takes a little extra time in the morning, but it sure beats loading AppleWorks into memory 20 times a day, when each load takes five minutes.

More Disk Noise

I believe I've found the reason for the "raucous" noise Apple disk drives generate during formatting. Since, no doubt, all new Apple owners are terrified when first exposed to this terrible sound, I hope you'll pass this information along.

During initialization, DOS instructs the disk-drive head to move outward 40 tracks to ensure that it starts at track zero. Since the disk-drive head isn't often at track 40 at the outset, it can bang against a stopper in the drive as many as 40 times, and that causes the grinding noise. This can also happen, apparently, when booting a disk or during disk errors.

I read about disk noise in the December 1985 issue of *Open-Apple*, an intensive source of technical information I recommend.

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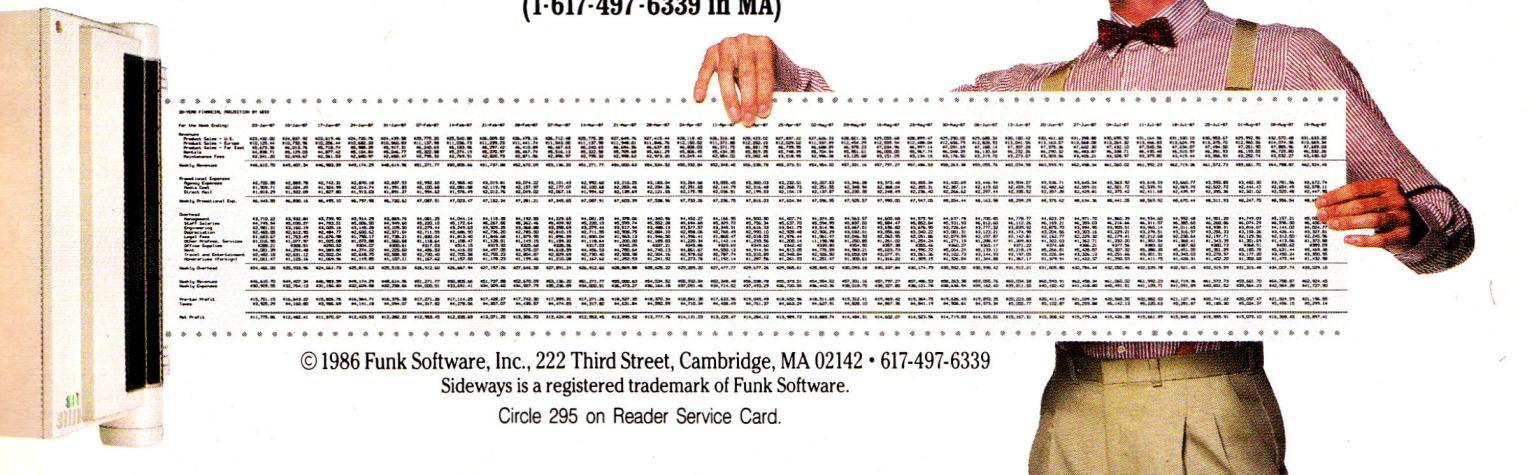
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I was surprised at your frivolous response to a serious question from a reader. Novices rely on your column for good advice; please don't disillusion them with pure conjecture.

Mark Hesse
New York, NY

Thanks for a thoughtful and informative letter. Your explanation seems reasonable to me. I was never "terrified" by the ruckus my Apple disk drives raised, though. I'm sorry if I convinced a reader on the brink of buying a Mac to go over the edge; I only meant to say that disk noise is nothing to lose sleep over (compared to Star Wars, say).

I read Open-Apple more than once a month and can't recommend it enough. If you're serious about the Apple II, the 6502, or just Apple-Works, you deserve Open-Apple.

Build Your Own IIe

Bhavesh Patel ("Dead MMU," Apple Clinic, October 1986, p. 18) would like to find a source for an Apple IIe MMU (memory-management unit). Readers might be interested to know that the chips are available from a company called NDRC, 8411 Manderville, Dallas, TX 75231, (214) 750-9889.

Marvin Wager
San Diego, CA

Thanks. I wonder where NDRC got them. By the way, an MMU costs \$35.

TEXT and ASCII

I've been trying to access ASCII files produced with ProDOS PFS:File on my IIe. PFS suggests these are standard sequential text files, but I get a "file type mismatch" error message when I try to access the files from ProDOS BASIC.

BASIC Programming with ProDOS says the OPEN command works only with file type TXT (text files) "unless Ttype is used" (p. 230). Can you explain how to use Ttype to access "other" files? Is there a solution besides directly modifying the volume directory for each file—a rather tedious procedure? Software Publishing told me it can't "customize software for end users." Unfortunately, I find myself unable to customize problems for software companies.

Todd Koetje
Knoxville, TN

You must use the Ttype command when you SAVE files in ProDOS BASIC, if you want to OPEN files that aren't TXT. In other words, unless you can change PFS:File to include a TTXT command in its "saving files" routine, you can't open those files in BASIC.

ProDOS can open absolutely only TXT files. The only solution is the "rather tedious" one you suggested. Maybe you—or another enterprising reader—can find a way to make the process of changing "other" types of ProDOS files to TXT files less tedious. Let me know.

Programming Help

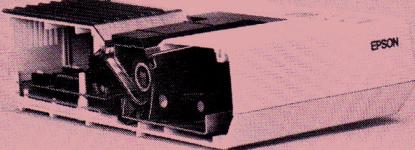
I'm often working on a program when I need to use a global program line editor. With my DuoDisk, there's no problem installing it—I have my data disk in drive 1 and the GPLE in drive 2. What annoys me, however, is getting back to the place in my program where I left off. As it is, I have to do a CATALOG, D1, then go back. It's tedious. Is there a more direct way?

T.J. Pickett
Oxnard, CA

You bet. It's my monthly chance to tell folks about Program Writer from The Software Touch (\$39.95, 9842 Hilbert Street, Suite 192, San Diego, CA 92131, 619-549-3091). The beauty of Program Writer—aside from its charming full-screen program editing—is that it's entirely memory-resident. When you start working with BASIC, you load Program Writer into memory. When you need it, you type a couple of ampersands (&&) at the BASIC prompt, and it's there. Your current program is already in the editor, too. You can't beat it. ■

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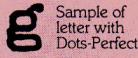
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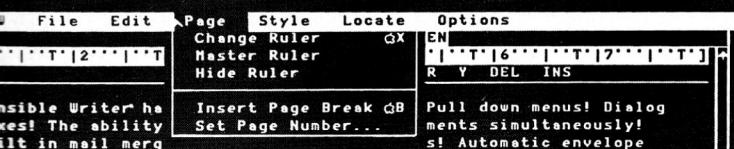
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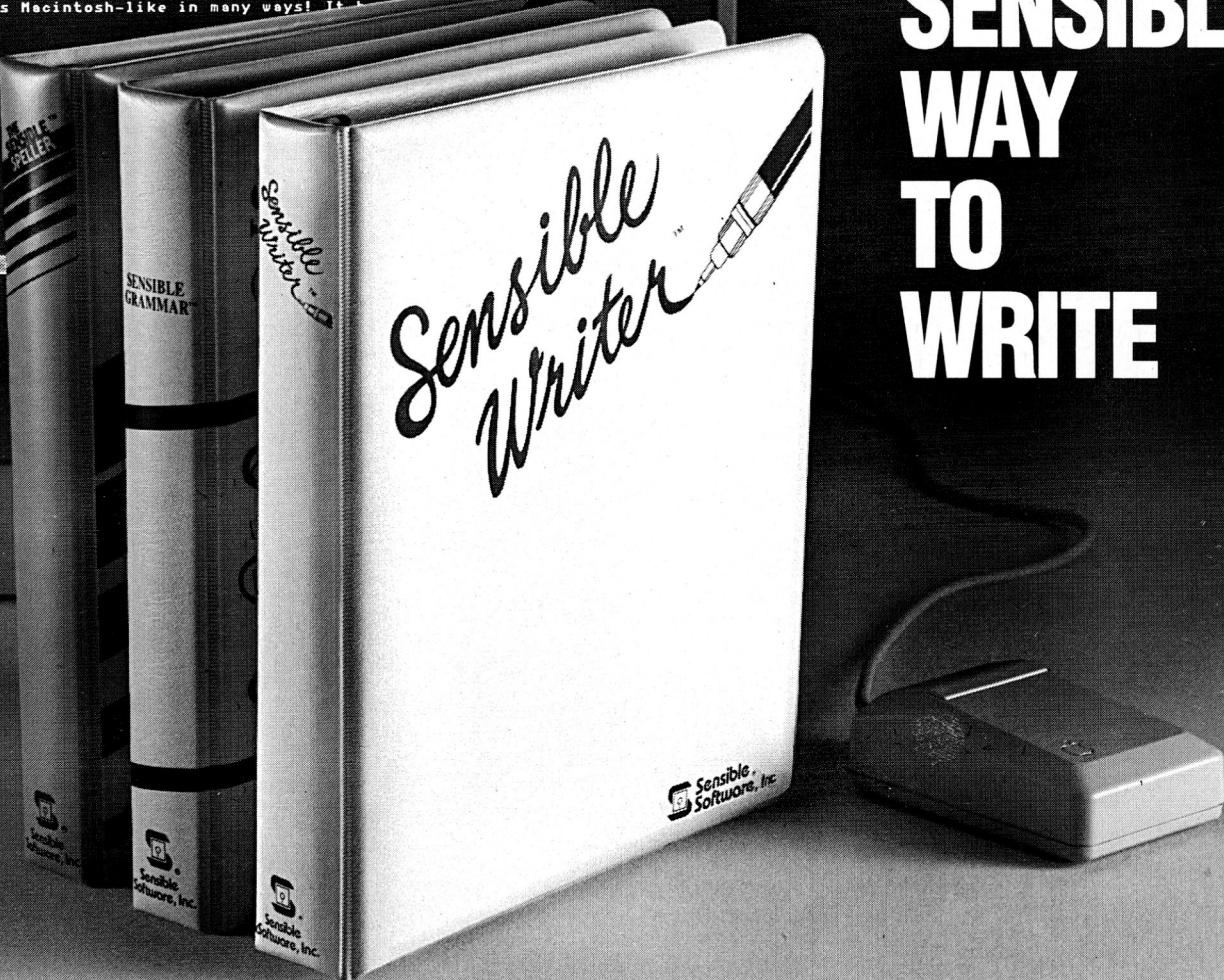


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Page 1



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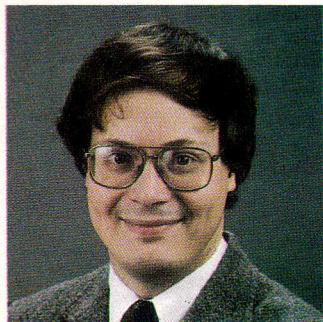
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Something like this has happened since Apple announced the IIgs. The GS is new and glamorous, seen on more magazine covers than Cybill Shepherd (or its only rival as top new computer of 1986, Compaq's Deskpro 386); hackers anticipate years of fun exploring its advanced hardware, and users await swank, colorful software. But the GS is off to a slow start, dealers running on empty while Apple climbs the chip-production ramp—and, after a few weeks' flurry about 16-bit innovations, the rumors floating around our BBS, editors' and ad staffers' road trips, and the Friday 5:00 p.m. beer bash have turned back to 8-bit Apples.

Rumors are rumors, of course, talk that might be proven right or might make me look stupid by the time you read this, but have you heard the one about the IIc with a 3½" instead of 5½-inch disk drive? Or a facelift for the IIe, a new case with a numeric keypad? What have Video Technology and Central Point Software got up their sleeves for the Laser line? (People speculated they'd try a IIgs clone, but that was before anybody saw the new machine—a clever engineer might copy the hardware, but Apple's keeping 128K of Toolbox ROM code behind electrified gates with Dobermanns and lawyers.)

No such 8-bit breakthroughs are definite as I write this, but I can't help noticing that a couple of months ago everyone was buzzing about the "IIx" and pickings were thin for IIe or IIc products; now the IIx is here, but its software's still in the test stages, while we're seeing enough new 8-bit items to fill the review section through April or May. There's no doubt that the GS will be popular or that it represents the future of the Apple II line, but we just might be looking at an 8-bit revival.

Preaching to the Choir

by Eric Grevstad, Review Editor

I don't want to present this as a bold, controversial statement because I don't want to sound ridiculous; declaring "8-bit computers aren't dead yet" in an Apple II magazine is clearly preaching to the converted. But the II's healthy prospects could tie in with today's biggest industry trend. High-profit-margin manufacturers like IBM bewail the emergence of a "commodity market," buyers shunning brand names for low-cost equivalents, but people are finding they can live without the latest designs as well as without designer labels. It's a reaffirmation of a simple truth: Most people don't buy technology. They buy solutions.

I like neat tweaks as much as anybody, but it's refreshing to see the gotta-have-the-newest-gadget syndrome fading. While zealots lustfully await the 68020 Killer Mac or 80386 Godzilla PC, computers with more power than 19 out of 20 buyers can possibly use, a lot of people are finding versatile word-processing or spreadsheet machines for less than a thousand bucks, even getting a few upgrades from old technology. Tandy has added a built-in disk drive and hiked the clock speed of what started as a PCjr rival, the 1000 EX. The Laser 128 adds conveniences like a parallel port and expansion slot to the IIc recipe.

And once we agree that 8-bit computers are still solid performers, who besides Apple is left? CP/M is as dead as the TI 99/4 or Timex-Sinclair, except that there are three CP/M programs (WordStar, dBase II, Turbo Pascal) and the TI never had any. Tandy's Color Computer attracts a few families with the corner-store presence of Radio Shack and a few hackers with its OS-9 operating system. Commodore, I suppose, attracts those who buy colorful game graphics or buy by mistake.

As people continue to buy computers because of software and applications instead of tech for tech's sake, the Apple II could be in its best position in years. Apple will have to make price cuts—I say that every few days in case someone's listening—but at least things won't be boring while the GS gets up to full speed. ■

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Built-in manager's functions provide extra versatility. You can trade team players, draft new players, create your own team, even form your own league. The program's stats tracker keeps track of your team's season statistics and individual player year-to-date stats.

Circle 156 on Reader Service Card.

REVIEWS

Sideways 2.01; Planner's Choice; Writer's Choice; Where in the USA Is Carmen Sandiego?; See the USA; It Figures; Fontrix; Nite Owl Journal #1

Lying Down on the Job

SIDEWAYS 2.01

Funk Software Inc., 222 Third Street, Cambridge, MA 02142

Dot-matrix-printing utility for AppleWorks, ProDOS, DOS 3.3 files; 48K II Plus (DOS 3.3), 64K IIe, IIc, IIgs (ProDOS)

\$69.95

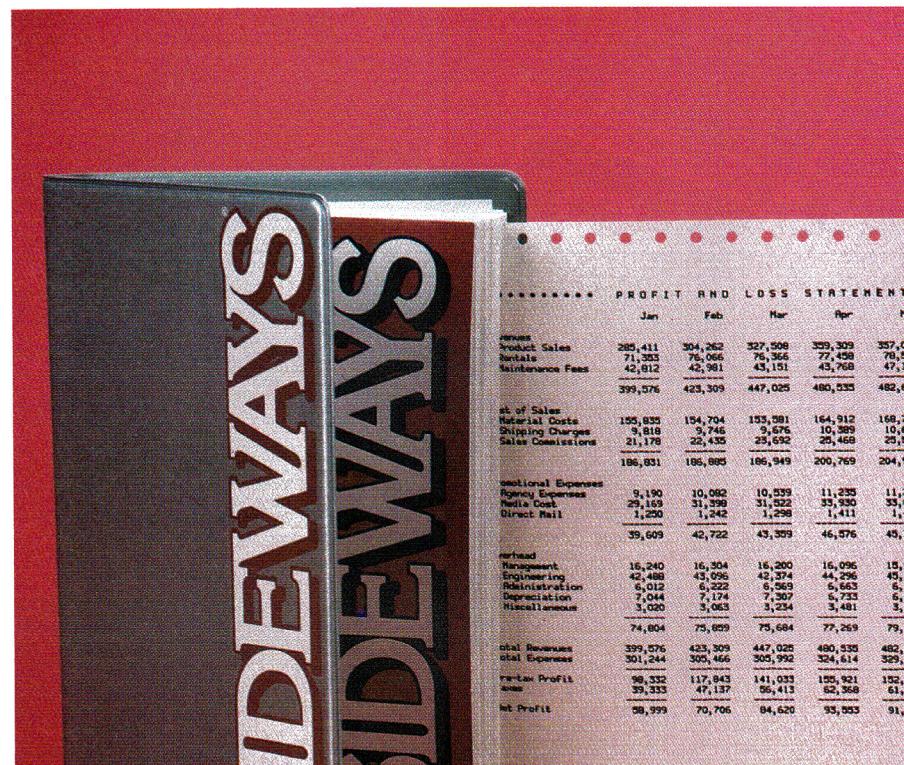
Rating: ■■■

Do your lengthy spreadsheets wind up in as many pieces as Humpty Dumpty? Are you still using Scotch tape to assemble your multipage sales projections? Even if your dot-matrix wonder prints compressed type, you can still manage only about 12 typical spreadsheet columns before running off the edge of an 8½-inch-wide page. What to do?

It won't take all the king's horses—or a king's ransom, either—to solve this business-spreadsheet problem. All it takes is the latest version of Funk Software's original trend-setting program, Sideways, which prints spreadsheet or other files "the long way" on dozens of dot-matrix printers.

The new Sideways ably demonstrates how the program has kept up with the times, adding compatibility and convenience for AppleWorks users while continuing to support older software. To its credit, Sideways isn't copy-protected. Moreover, there are three versions of Sideways, chosen from an opening menu, on one disk. If your spreadsheet program saves files on DOS 3.3 disks, the DOS 3.3 version of Sideways requires only 48K. For ProDOS spreadsheets you use the ProDOS version of Sideways, which requires 64K.

AppleWorks spreadsheets are treated in a special way, with a version of Sideways that uses the familiar structure of stacking-index-card menus. Loading an AppleWorks spreadsheet file into the program is a snap. So is altering the print options to format and fancify spreadsheets. The AppleWorks version uses open-apple-key commands, such as Open apple-O and -P, to customize and print the spreadsheet.



This version of Sideways offers a few other embellishments. You can print all or a selected part of a spreadsheet, add borders for repeating row and column titles, or include a header showing the spreadsheet's date and title. You can save print-options files to disk.

The AppleWorks edition proved my favorite of the three, largely because I prefer its interface. This version also supports other "toys" I own, including my UniDisk 3.5 and Catalyst 3.0.

Still, there's one thing missing. Is it too much to fantasize about a memory-resident, pop-up Sideways? Such a program would allow AppleWorks users more flexibility in editing their spreadsheets before printing. As it is, you must complete and save your spreadsheet with AppleWorks, then boot up Sideways, select the AppleWorks version, and reload the worksheet. If you see a formula, value, or label you'd like to change, you must leave Sideways and restart AppleWorks to do so.

Flexible Printouts

Sideways supports a number of popular dot-matrix printers with dot-addressable-graphics capability, including those that sport Apple, Epson, Star, C. Itoh, Mannesmann Tally, and Okidata nameplates. Nearly two dozen parallel and serial interfaces are supported.

A three-page configuration guide lists compatible hardware and helps you through the not-very-arduous task of selecting printer, interface, slot number, and number of data bits. A successful print test (built into the program) assures you that Sideways and your printer will get along.

inCider's Ratings

Excellent—remarkable, a must buy

Very good—impressive and recommended

Good—average, solid performance

Fair—Flawed but adequate

Poor—unacceptable or unusable



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All three versions (DOS, ProDOS, and AppleWorks) can accommodate variations in paper size, character and line spacing, and margin settings. Additionally, you can select the font size you want: tiny (a 4-by-11-dot matrix), very small, small, standard (5 by 15), large, or extra large (7 by 17). A double-strike toggle enhances spreadsheet appearance.

I tried various combinations of print options with all three versions of Sideways. Standard size is probably adequate for most applications, but a smaller size could be handy for inordinately long spreadsheets, if only to save paper. The extra-large font is useful for preparing transparencies for presentation at business meetings or in the classroom.

Besides spreadsheets saved in AppleWorks or ASCII format, Sideways can print ASCII text files such as you might prepare with your word processor. I tried this feature, but I don't yet see much practical application for paragraphs printed sideways.

Simple and Effective

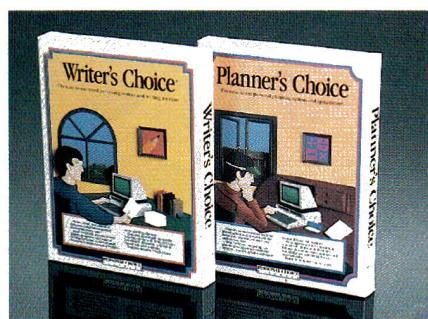
The Sideways manual is complete without being a burdensome bore. An index would be a useful addition, however, for Type As like myself who hate to browse for critical information.

Individual chapters specifically address the three versions of Sideways. Chapter 5 details the print-to-disk routines required in creating print files from popular spreadsheet and word-processing programs (from FlashCalc, VisiCalc, Multiplan, and PFS:Plan to WordPerfect and Apple Writer II) and the AppleWorks database. Appendices deal with topics such as hard-disk use and troubleshooting.

The original version (2.0) sent for review repeatedly crashed when I tried to print an AppleWorks spreadsheet in the extra-large font after selecting Sideways via Catalyst 3.0. In a telephone call to Funk's technical-support line, I learned I had "an older IIc" and that version 2.01 would solve my problem. The next day I received the new version and it worked admirably.

At \$69.95, Sideways seems a tad expensive. There are alternatives—both SuperCalc3a (a \$195 spreadsheet) and FontWorks (a \$49.95 AppleWorks print-enhancement package) have sideways-printing capabilities. To my knowledge, however, only Sideways can handle DOS 3.3, ProDOS, and AppleWorks spreadsheet files. ■

Cynthia E. Field
Wakefield, RI



Two Simple Solutions

PLANNER'S CHOICE

WRITER'S CHOICE

Activision/Personal Choice Software, P.O. Box 7287, Mountain View, CA 94039
Spreadsheet and word-processing programs; any Apple II, 64K, one disk drive \$49.95 each; Planner's, Writer's, and Filer's Choice bundle, \$119.95
Ratings: ■■■ (Planner's Choice)
■■ (Writer's Choice)

Home or personal-productivity software represents one of the hottest ideas right now for software makers. Personal Choice includes three mutually compatible programs: the Filer's Choice database (reviewed in our November 1986 issue, p. 84), a good spreadsheet called Planner's Choice, and a so-so word processor, Writer's Choice.

Planner's Choice is designed to allay the fears of the average user who has never seen a spreadsheet program before, and it excels at this task. Having had only limited exposure to spreadsheets in the past, I found myself doing meaningful work with Planner's Choice 15 minutes after removing the shrink wrap.

Like all good productivity programs, this one comes with a printed tutorial, setting out the basics of operation in a simple, step-by-step format that

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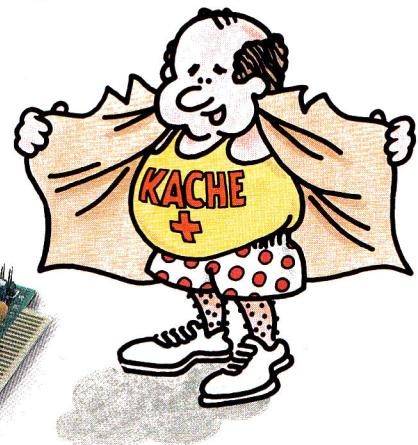
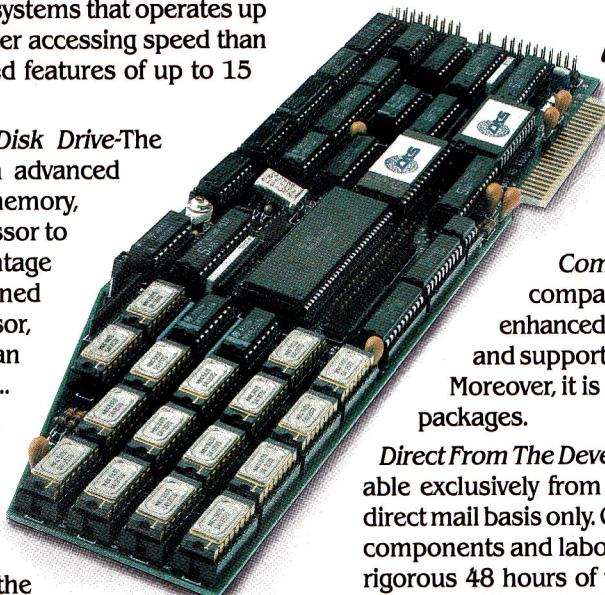
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leaves absolutely nothing to chance. It's practical as well—it guides you through the construction of a home-budget planning tool.

Planner's Choice is organized simply and logically. Its worksheet supports up to 64 columns (designated AA through CL) and 255 rows, navigated with the arrow keys or, more awkwardly, control-key commands on the II Plus. Other control-key commands handle vertical and horizontal scrolling and formula or label editing; Control-C calls a command menu,

with subfunctions for everything from loading or deleting disk files or initializing data disks to setting column widths and number of decimal places.

The program's formula syntax is similar to other worksheets', with cell addresses helpfully spelled out as AF,7 (or whatever) and formulas such as @SUM(AG,9>AG,14). Control-R toggles automatic recalculation, creating a dynamic planning tool that readjusts interrelated factors as fast as you change cell values. Besides simple math, sums, and averages, Planner's

Choice offers a multitude of other functions including exponentiation, logarithm, absolute value, arctangent, cosine, present and future value, maximum or minimum value in range, and periodic loan and interest payment.

And there's more. Windows let you freeze row and column titles or view two areas of your worksheet at once; the Save Results command lets you specify a block of numbers to save for insertion into a Writer's Choice document. All told, Planner's Choice sizes up as a powerful tool for home use.

One criticism is that the software displays only 80 columns when configured for the Apple IIc. If this is truly a program meant to be used in the home, the authors should have realized that many home computerists rely on a color TV as a monitor and need a clearer 40-column display. Fortunately, home IIc users can get around this by simply selecting the "128K Apple IIe, 40 Column" option during startup.

An Ordinary Choice

While I like Activision's spreadsheet, my reaction to the word-processing component of the series isn't as positive. Writer's Choice is not much more than just an average word processor.

On the positive side, the program lets you set up and start writing fairly easily. You can toggle between the work area and a main command menu to save your work or load new documents. Writer's Choice offers all the standard word-processing functions, such as inserting text, moving, copying, or deleting blocks, and search and replace.

There's also a separate spelling program. To check a file, you boot the speller from the initial Writer's Choice menu and find and load your document. As the program finds incorrectly spelled words, it displays them separately; to fix errors, you just type over the misspelled word.

Finally, there's the cross-compatibility of the three Personal Choice programs—Writer's Choice can create complete documents with numbers from Planner's Choice or text records from Filer's Choice. This integrated blend may not have many household applications (and the programs may not be powerful enough to replace other integrated software in business offices), but your college-bound children might find it valuable in preparing term papers and reports.

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*Requires an Apple II+, IIe, or IIc, min. 64K RAM, one disk drive. ProDOS supplied on disk. Does not function under DOS 3.3. VIDEX 80 column cards supported. Applesoft is a registered trademark of Apple Computer Inc.

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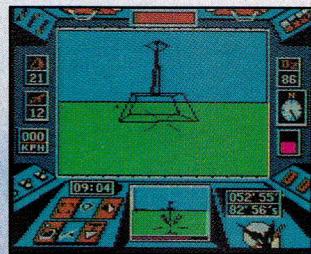
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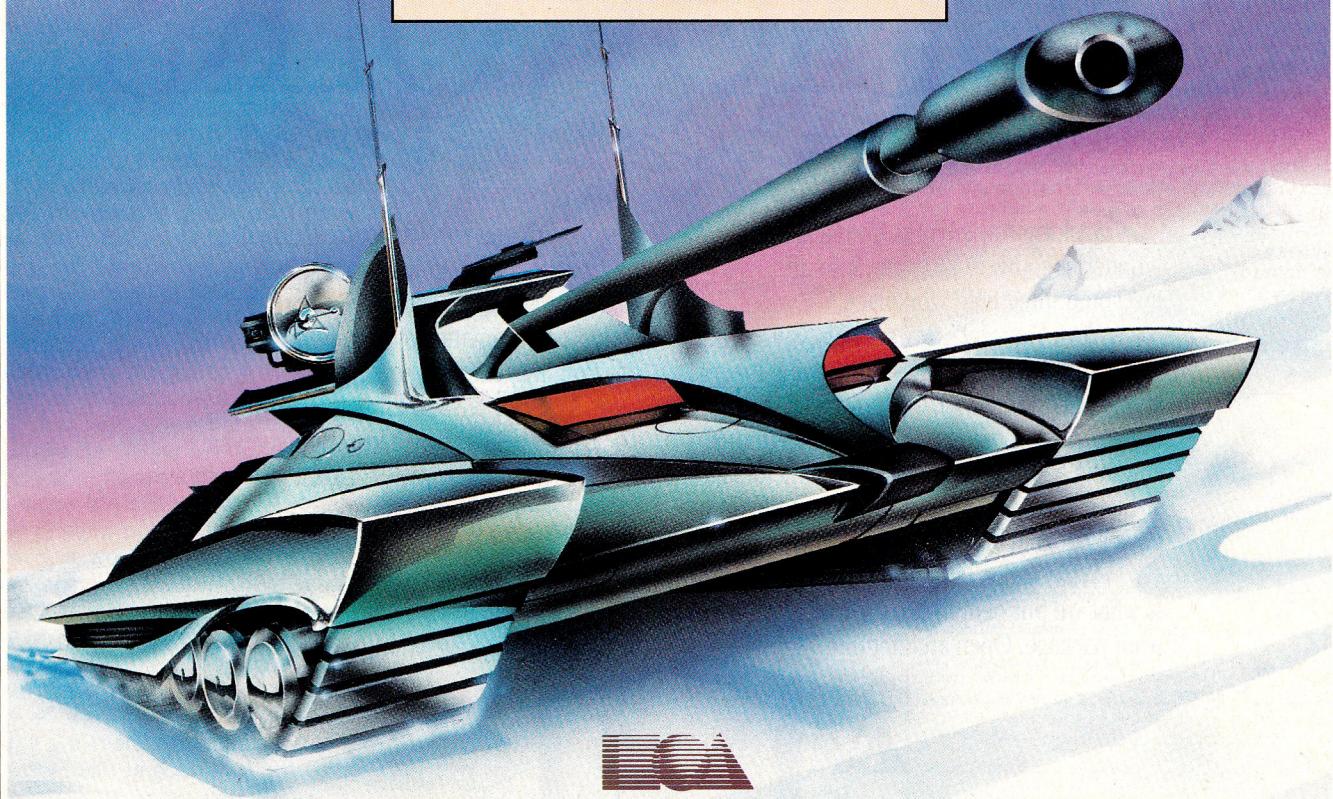
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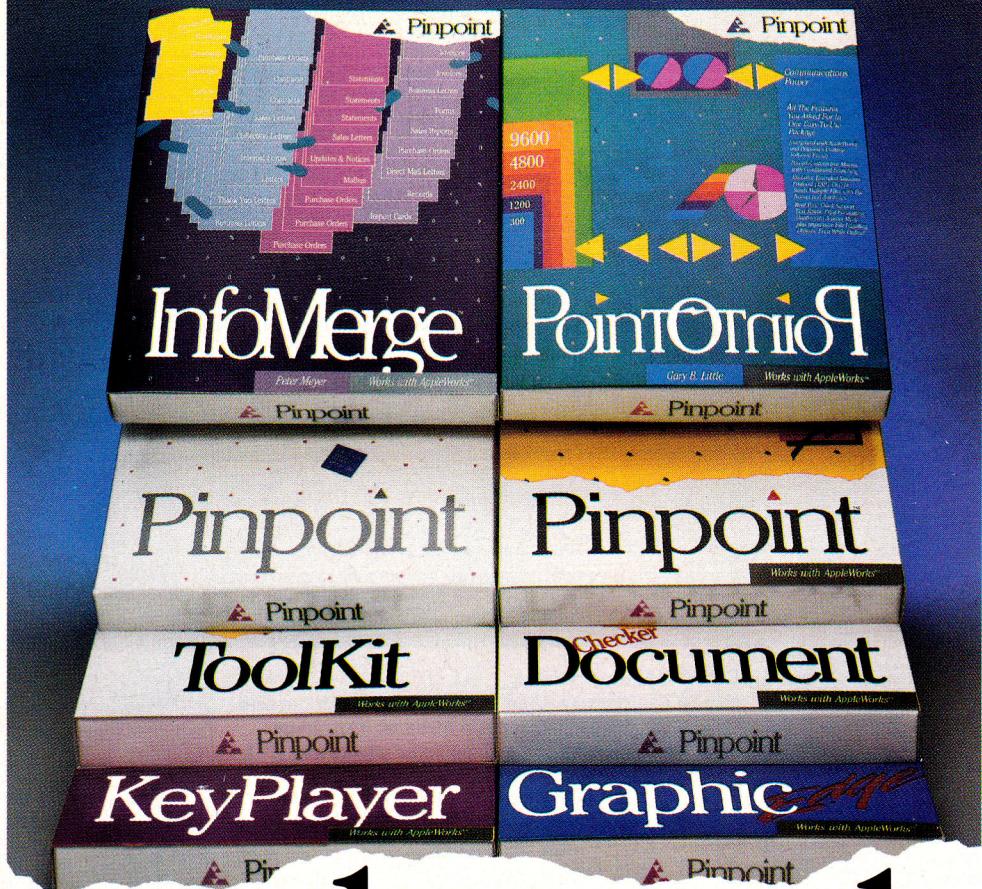
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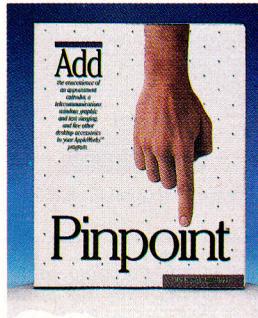
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On the negative side, there's the program's unwieldy system of entering embedded commands. Centering, boldface, underlining, right justification, margin and tab settings, headers, footers, and page breaks are controlled by pressing Control-Shift-@, a two-letter command such as UB for "underline begins" or UE for "underline ends," and Control-Shift-@ again. It looks awkward on screen (*Dickens's greatest classic is @UB@A Tale of Two Cities@UE@*) and takes dozens of keystrokes.

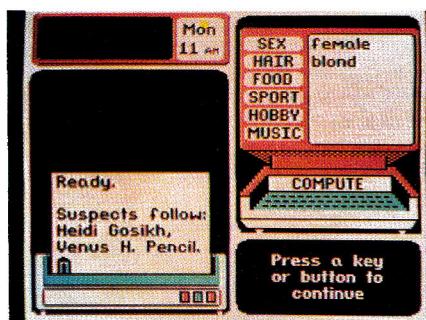
Another problem is that when you're going over previously typed work and find words or phrases you want to underline (or center or print in boldface), you must either retype all the affected text or enter the insert mode to make spaces for the embedded commands—you can't enter the commands in the insert mode. It's all very awkward, time-consuming, and, take it from me, prone to error.

I also didn't care for the "preview" feature. On other word processors, like Screenwriter II (an oldie but goodie), the preview means being able to see the finished or formatted document on screen. With Writer's Choice, you see a small graphic of a blank page with solid lines drawn to indicate where the text will be. I think it would have been better to offer a real preview, with readable text.

The Writer's Choice printer drivers gave me special problems. I have a Juki 6100 printer mated with my IIC via a serial-to-parallel interface; try as I might, I couldn't print anything but gibberish. An Activision technician, noting that the IIC comes with a serial printer port, suggested I try a serial-to-serial connection—a nice idea, but my Juki has only a parallel interface.

While the Writer's Choice manual lists supported printers, that's no help to those of us who foolishly bought our printers before checking with Activision. It would be nice if, on the packaging or somewhere else, a prospective buyer could look through a list of compatible printers before buying. (I didn't have the same problem with the Planner's Choice printer driver, which worked just fine.) All in all, it's a merely adequate word processor, with unsophisticated, sometimes clumsy, operation. ■

Brian J. Murphy
Fairfield, CT



This Land Is Your Land WHERE IN THE USA IS CARMEN SANDIEGO?

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101

Educational (geography) software; 64K Apple II Plus, Ile, IIC
\$44.95

Rating: ■ ■ ■ ■



SEE THE USA

Compu-Teach, 240 Bradley Street, New Haven, CT 06511

Educational (geography) software; 64K Apple II Plus, Ile, IIC
\$59.95

Rating: ■ ■

Broderbund's Where in the USA Is Carmen Sandiego? and Compu-Teach's See the USA are both designed to improve your geography skills, but they take different approaches. One is an adequate tutor for classroom use; the other is sensational fun for both home and school.

Where in the USA Is Carmen Sandiego? is similar to last year's popular Where in the World Is Carmen Sandiego?, but focuses its attention on the 50 states and the District of Columbia. This sequel is more than a geography-education program—it's a fast-paced, animated adventure game designed to appeal to sleuths of all ages. ■

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HOW DOES IT WORK?

1040Works and 1040Works-X modules are data files that configure the AppleWorks spreadsheet as tax schedules and forms. Modules load like any other data file; no hardware or software modifications needed. Both programs calculate each form, advance totals to later forms and print most schedules without recopying data. Uses standard AppleWorks commands. InCider magazine said last year's version (called TAX-WORKS) was the easiest tax software to set up and use that it tested.

WHAT'S 1040WORKS-X?

The standard AppleWorks desktop is 55K, big enough for about half the commonly used tax forms. The standard 1040Works includes two major spreadsheet modules of about 50K, with half the forms on each. Data is moved between them with an electronic Transfer Port. If you have an Apple with 256K or more, however, your AppleWorks desktop is big enough to hold all commonly used forms. 1040Works-X links them up on a single spreadsheet, saving the data transfer step.

WHAT DO USERS SAY?

"Easy to use; cancelled my appointment with my accountant." • "Made ciphering taxes a lot of fun." • "Fun and challenging; my first ever attempt at taxes on a computer." • "Good software at a fair price." • "First class program; excellent value." • "Prompt and courteous assistance." • "Learned AppleWorks features I never used."

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Looking for Clues

You stalk your culprit (one of arch-criminal Carmen Sandiego's minions, with names like Polly Esther Fabrique and Heidi Gosikh) by following geographic descriptions and clues about the villain's current whereabouts—a task that challenges your research and deductive skills, as well as your knowledge of United States geography.

You're presented with one of many crime situations and the location of the crime (for example, *Hartford—Historic Colt revolver stolen by masked male*). Each following screen gives some historic and geographic data about where the criminal was last seen, as well as four options from which to choose: See Connections, Depart by Plane, Investigate, or Crime Computer.

You gather clues with the Investigate option. Helpful bystanders from any of three locations (such as the Historical Society, Tourist Bureau, or Stadium) will give you such clues as "He asked for a book on the con-

struction of the Grand Coulee Dam." From this information, you must determine the new location and "catch a plane" to stay on the criminal's trail.

If you're having trouble determining the next location by the geographic clues given, the See Connections option narrows down the number of locations you need to investigate. As you gather clues about the villain's identity, enter them into the Crime Computer, which eventually issues you an arrest warrant. Each of these activities uses precious time on the computer's clock, and the tension mounts until you gather sufficient clues, find the culprit, and make the arrest.

Where in the USA Is Carmen Sandiego? is a fun-filled exploration game that's not only entertaining and educational, but also quite addictive. The subtlety with which the program teaches geography, deductive reasoning, and research skills while you focus on solving crimes is one of its strongest features.

The game comes with a map of the United States, a "Scrapbook" of

the villains' personal mementos, and a copy of *Fodor's USA* to help with your investigation. The program comes on one double-sided disk and all documentation is printed on the back of the map. (Be sure to read the section on how to use the travel book.)

State by State

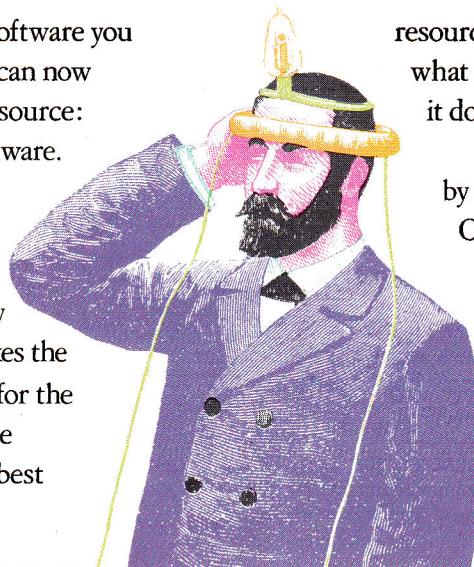
Compu-Teach's See the USA is targeted strictly toward the educational market. Compu-Teach claims the objective of its program is to teach U.S. geography in a manner that's entertaining and fun. To accomplish this, the program has five primary menu options from which to choose: Practice States, Play States, Practice Capitals, Play Capitals, or Play Quiz Games.

If you choose to "Play" States or Capitals, you start a game that consists of moving a cursor from one to another predetermined location within a specific amount of time. To move the cursor from the starting location, type in the name of a bordering state or capital. If you misspell the name,

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the program attempts to help you by suggesting names that are phonetically close.

As you move from place to place, a map of your travels appears on screen with a timer that counts down the time left to complete your journey. If you reach your destination within the allotted time, a graphics display of that location appears (an oceanside scene with boats and lobster traps to represent Maine, for instance).

The Practice States or Capitals option isn't in game format. As you move the cursor from one location to another, the name of the state or capital appears at the top of the screen, thus helping you distinguish names and locations.

When you choose Play Quiz Games, you're given a question you answer by moving the cursor east, west, south, or north to the state or capital that answers the question. You're offered two clues if you make wrong choices. To assist you with the program, Compu-Teach bundles it with a 45-piece puzzle and a colorful 33-by-50-inch map.

The Play Quiz Games option is the strongest part of See the USA. Here the program lets teachers customize the questions, answers, and clues to meet their exact needs. For instance, if you're teaching a class about the Civil War, you can enter your own questions concerning the major battles, which your students then identify by locating the states in which they occurred.

Compared to the engrossing Where in the USA is Carmen Sandiego?, however, the rest of the program is cumbersome and falls short of its intended objective of being educational and entertaining. It's doubtful that you'll find taking a "trip" by simply moving a cursor and typing in the names of states or capitals interesting or challenging. The timer offers little additional incentive, since it's often possible to veer from the best course and still arrive within the allotted time. When you can't reach your destination, the program returns to the main menu without showing you an alternative.

The graphics displayed at the end

of the journeys may be entertaining to younger students, but I doubt they'll provide adequate incentive for older students.

See the USA's strengths lie in two areas: First, the program's learning activities reinforce a conceptual understanding of the geographic locations of the states and capitals. Second, you can easily customize the quiz game.

However, Where in the USA Is Carmen Sandiego? is by far my favorite of the two because it's captivating, entertaining, and highly educational overall. It captures your imagination while you research pertinent geographical information about the United States. Though both programs use graphics-type representations of locations to reinforce your interest, Broderbund's uses graphics more often, more creatively, and often includes animation. I believe this program, like its predecessor, is destined to be a highly acclaimed, award-winning best-seller. ■

*John Coster
Peterborough, NH*

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for APPLE II and II+
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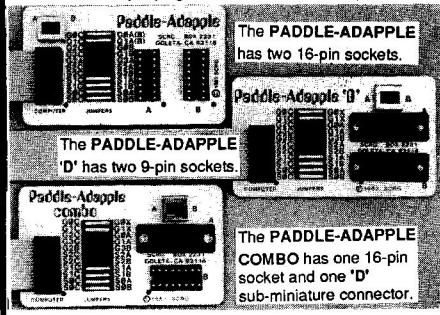
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FEBRUARY CASE HISTORY

Elroy Bond, Vice President and Director of Data Processing at Golden State Mutual Life Insurance had a problem with data transmission. The difficulty was his telecommunications equipment. No matter how reliable and easy-to-use his PC based system was, if the phone lines were down or his PC operator was ill, he would end up sending disks through the mail from their branch offices in Winston-Salem, N.C. and Compton, Westwood, and Los Angeles, CA. Besides the hassle of copying a disk and using a disk mailer, there was always the possibility of having to resend the disk because of damaged data.

Now the branch offices each have their own copy of the STRIPPER™ printing program. When their modem based system fails to operate, they just send a document in data strip format. Bond is planning on installing SOFTSTRIP Readers at every location, so that when he updates their software, all he has to do is print out a data strip document on his Epson printer, photocopy it and mail it in an envelope for 22 cents.

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This data strip contains IBM2MAC, a utility that runs on the IBM and converts an IBM file to Macintosh format.
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Pocket-Sized Spreadsheet

IT FIGURES

SimplSoft Products Inc., P.O. Box 13173, Boulder, CO 80308

Personal spreadsheet/calculator; 128K IIe, IIc, IIgs, ProDOS

\$39.95

Rating: ■■■■

In these days of overindulgence, Apple users often find themselves div-

ing into a huge, cumbersome spreadsheet when their desktop (or desk-accessory software) calculator won't quite do the job. Spreadsheets are incredible tools for big forecasting and modeling jobs, but what do you really need for many routine tasks—hundreds of rows and columns, or just some advanced math functions and the ability to play "what-if" games with variables?

That's the idea behind It Figures, a program its publisher calls a worksheet as opposed to a spreadsheet. (A friend of mine calls it a "lite spreadsheet.") Either way, It Figures packs an amazing amount of power into its screen-sized (three-column, 20-row) workspace.

A Quick Calc

Given It Figures' size and strength, the program wouldn't be worth much if it were difficult to use. Fortunately, the 65-page manual gets you up and running quickly, even if you haven't completely mastered your Apple yet. The first chapter gives step-by-step in-

structions for making a working copy of It Figures and a data disk for your applications (the program is noncopy-protected and can be installed on a hard disk). A thorough tutorial gives clear explanations with plenty of examples, and a reference guide, an index, and on-screen help are all available if you forget a function.

The worksheet's left column contains all numbers, variables, and formulas, while the center column displays all calculations and results. The right column is reserved for your comments about items on the worksheet. For simple applications, just enter numbers and formulas starting at line one, move down the worksheet until your application is finished, then press Open apple-S to save your work to disk.

Calculations can use any of the standard math functions along with trigonometric functions in either degrees or radians, as well as natural logarithms, absolute value, pi (to 13 places), factorials, and even a random-number generator.

Continued on p. 94.

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The time: 1400 hours. Some-where in the Pacific. Some ill-fated coor-dinates in World War II.



Damage Control reports a hit on the starboard side. Send in Alpha, Baker and Charlie to repair.

eyeball to eye-ball action. This time around you'll be right in the middle of it all. You knew it wouldn't be pretty.

But how tough could it be to rescue a downed pilot?

Will it be the twin 40mm Bofors aircraft anti-guns? Or the 5" lead-spewers aft? Depth charges or torpedoes? Autopilot or guts?

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You're at the helm, commanding the greatest concentration of firepower

It sure seemed a lot easier than shelling islands, escorting a convoy or hunting subs.

Or so you thought. But now look what you've got. Thirteen fully-operational, ear-

bursting battle stations to worry about, all armed to the gills. Not to mention radar. Navigation. Sonar.

And half the Japanese fleet crawling up your spine.

Time to make some tactical decisions.

Any choice could be your last, so make it good.

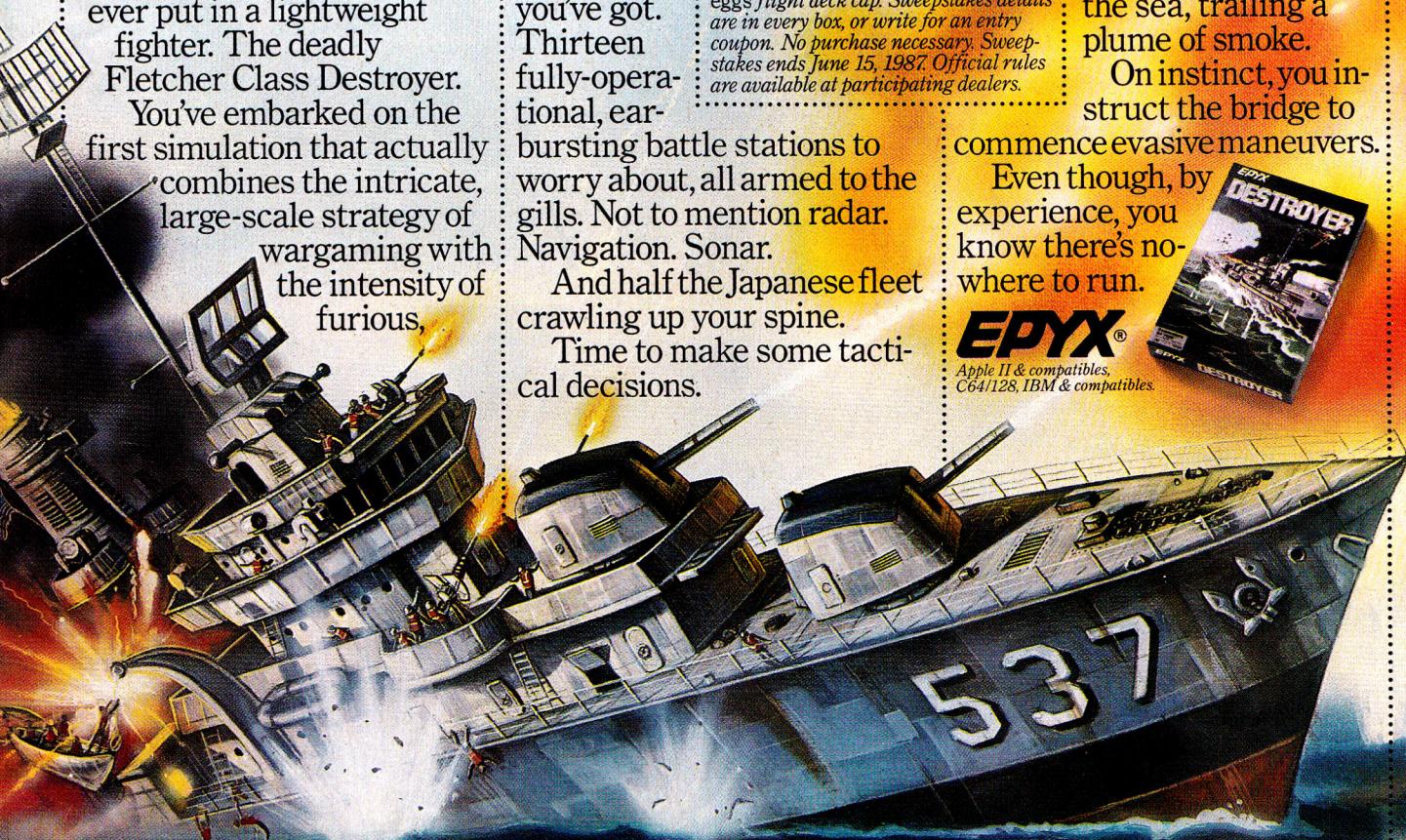
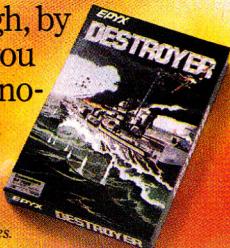
Suddenly, you hear the ominous rumble of incoming Zeroes. You fire, and send one plummeting to the sea, trailing a plume of smoke.

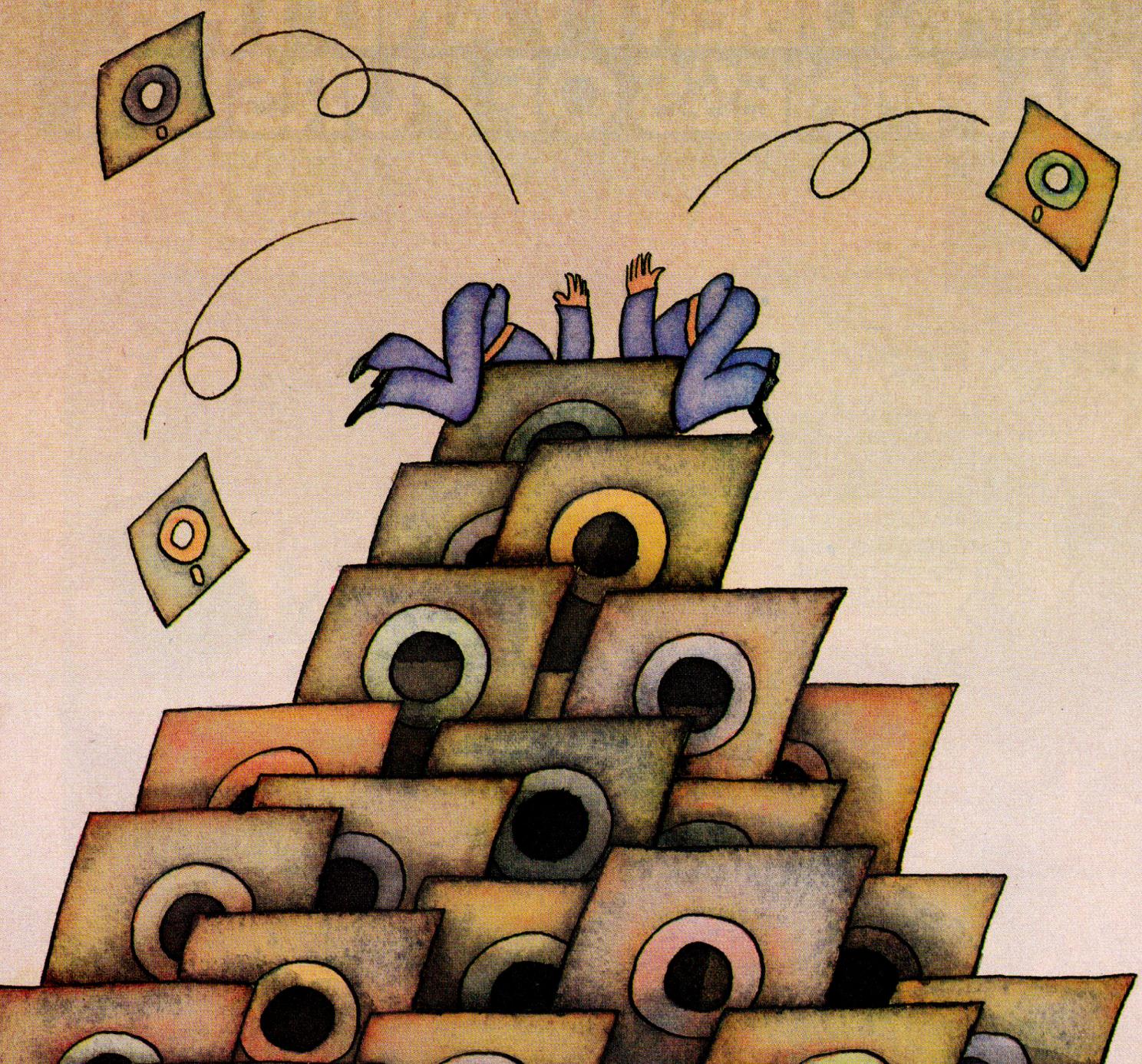
On instinct, you instruct the bridge to commence evasive maneuvers.

Even though, by experience, you know there's nowhere to run.

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STRIKING GOLD IN PUBLIC DOMAIN SOFTWARE

From games to graphics to business, the world of public-domain software offers you a range of programs to meet your every computing need—and all for just a few dollars per disk.

by Cynthia E. Field

If you inherited your aunt's jewelry, would you be willing to sift through her bangles and beads in hopes of discovering a gem or two?

Public-domain software is like a cluttered jewelry box—and you are the beneficiary. Some of these programs are electronic diamonds, sure to enchant you. Others are diamonds-in-the-rough, requiring you to fashion them into something presentable. Still other public-domain programs are so rough-cut you might not hesitate to toss them away.

Whether your interests range from finance to calorie counting or from entertainment to education, public-domain software may offer you an alternative to expensive commercial programs.

The Price Is Certainly Right

Software enters the public domain when the program's author donates it to a public-domain library. Program listings that appear in computer magazines often end up in the public domain. User groups, electronic bulletin-board systems (BBSs), and some commercial vendors also maintain and distribute public-domain software libraries.

If you belong to a user group, your membership often entitles you to disks of public-domain programs. If you have a modem, you can download free programs from many of the thousands of bulletin-board systems across the country—including *inCider's* own BBS.

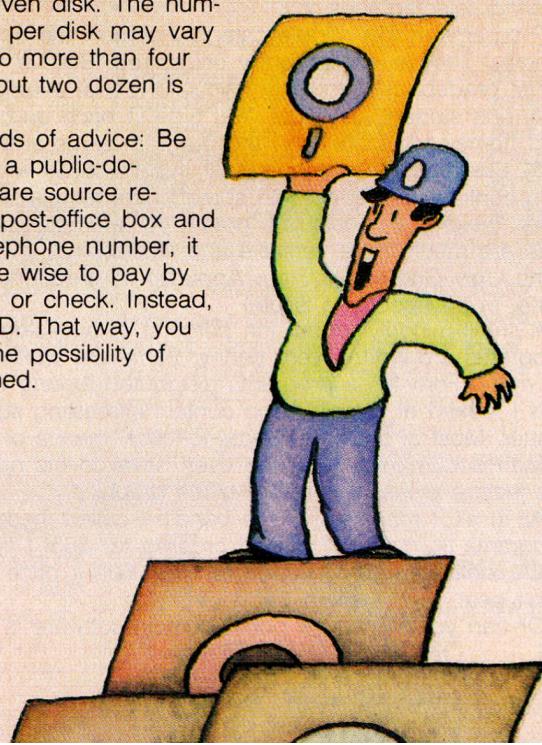
If you're not a joiner and you haven't purchased a modem, you still have access to a vast array of public-domain programs. For anywhere from 75 cents to \$5 per disk, you can order this software from sources that advertise in magazines such as *Nibble* or *Computer Shopper*. Or you can purchase public-domain programs from companies that sell commercial software as well—such as Dynacomp of Rochester, New York. (See the accompanying sidebar, "Sources," for details.)

If the software is free, why does it cost money? A nominal charge covers the cost of the disks and the expense incurred in copying the programs and packaging and shipping the disks to you.

Most sources of public-domain software publish printed catalogues of the programs they distribute. If you're on the same Apple-enthusiast mailing lists I am, you've probably received a catalogue from at least one public-domain software source.

Depending on the catalogue, listings may carry brief descriptions such as "APD #27 Games" or may list every file on a given disk. The number of files per disk may vary from four to more than four dozen. About two dozen is average.

Two words of advice: Be prudent. If a public-domain software source resides in a post-office box and has no telephone number, it may not be wise to pay by credit card or check. Instead, order C.O.D. That way, you minimize the possibility of being burned.



"Public-domain programs lend credence to the old saying 'You get what you pay for.' "

What Does Public-Domain Software Look Like?

As you might expect, public-domain software you get from a user group or order from a company has a low-budget look. Each disk usually carries a label with the "publisher's" name and the designated volume number or code.

That's it—no manuals, no guarantees. And no Madison Avenue-style packaging. In more ways than one, public-domain programs lend credence to the old saying "You get what you pay for."

The majority of public-domain programs are written in Applesoft BASIC and come on disks formatted with the DOS 3.3 operating system. Small libraries of Apple Pascal and Apple CP/M programs are available.

The Fun Begins

What happens when you run a public-domain program is anyone's guess. Some programs are like Schubert's *Unfinished Symphony*—except these programs can't even carry a tune. Either they won't run at all (they crash into the Monitor, for instance), or they run a little, then drop. About ten percent of public-domain programs seem to fall into this group—the woofers (in the canine sense).

The majority of public-domain programs (about 80 percent) fall into a broad-spectrum, middle group. Some of them run well at first, but eventually stop (eliciting a "Break in X" or "Stopped at X" message). This situation often occurs when you press keys a program can't ignore. You might tolerate this fault in a demonstration program, but would be less amused in a game that's keeping score or a financial program that's calculating payments on your dream car.

Incidentally, the ease with which most public-domain programs break down can be a mixed blessing. Since you can readily list a program, you can customize it by altering selected lines.

Programs in this middle category commit the sin of mediocrity. They're almost totally uninspired. Believe it or not, some gradebooks tediously calculate a final average for only one student at a time. You type in each quiz, exam, and homework score, and the program sums and divides. Why use a \$1000-plus computer system to do what a \$5

In contrast, public-domain spreadsheet templates that store, weight, and calculate grades for a whole class at a time are much more versatile and time-saving. (Watch for "The Ugly Gradebook," our AppleWorks gradebook template, in an upcoming issue.)

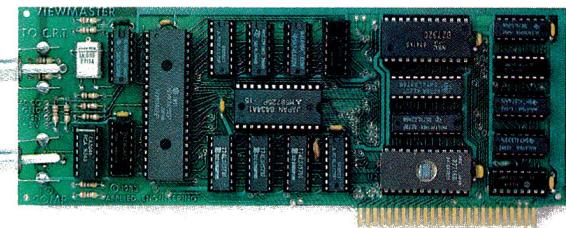
A small minority (about ten percent) of public-domain programs are worth every penny. Some are worth a whole lot more. Forty-three programs distributed among the 458 files I looked at run well and contain interesting subject matter. Most of them offer easy-to-follow menus or on-screen documentation. Some even have on-line help. Others feature pleasant lo-res or hi-res graphics.

All in all, I made out like a bandit! I culled these 43 programs from the 21 disks I ordered for \$65. I figure each useful program cost me only \$1.50—a price you can't beat.

Or can you? Because public-domain software is rarely

Viewmaster 80

Now run AppleWorks™ on your II+ and keep full 80 column compatibility!



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VIEWMASTER 80	✓	✗	✗	✗	✓	✓	✓	✗
SUPTERM		✓				✓	✓	✓
WIZARD 80					✓	✓	✓	✓
VISION 80	✓	✓		✓				
OMNIVISION	✓					✓	✓	
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VIDEOTERM	✓	✓		✓	✓	✓		

One look at the chart will give you some of the reasons there's only one smart choice in 80 column cards for your Apple. But the real secret to Viewmaster 80's success is something even better: Total compatibility.

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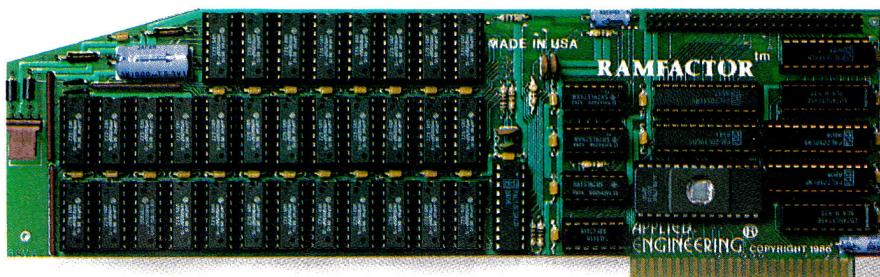
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Features:

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- Fully Apple II Memory Expansion compatible
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- Battery back-up option allows you to turn on your Apple and run your favorite programs in less than 1 second!
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- Much, much more



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 5 1/4", 3 1/2", and hard disks. All this performance is available to anyone with an

Apple IIe, IIGS or II+ with an 80 column card. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

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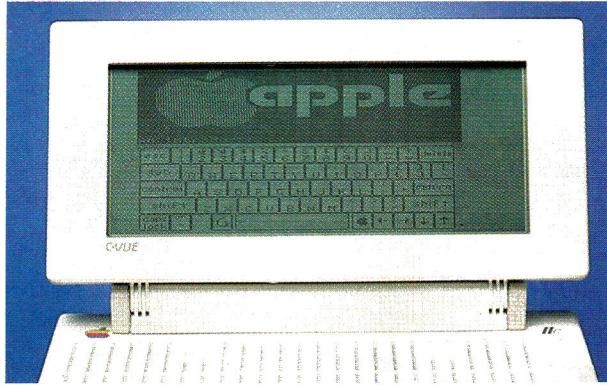
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copyrighted, you're at liberty to copy these programs as much as you like and give them away. Here's one time when no one can accuse you of software piracy! The authors of those public-domain programs that are copyrighted freely give permission to copy them. (Beware of commercial programs that have been "cracked" and may be available on BBSs. Downloading them makes you a thief.) Why not get together with a couple of friends and place a joint order for public-domain software? Divide the cost—but multiply the pleasure.

Short Takes

Some sources claim there are more than 10,000 public-domain programs for the Apple. I perused a small fraction of them, but found a number of programs in various categories that educated, enriched, and entertained me. Here are some highlights.

Business and Finance

For serious business applications, you should probably visit your local computer store and purchase brand-name products. If your needs are basic, though, you might find public-domain programs that suit you. Most of these business programs carry apt titles, such as **Mail Label** (APLPD #27), **File Cabinet** (APLPD #72), and **Loan Amortization** (APLPD #5). (Programs mentioned can be ordered through Dynacomp; disk numbers are listed after program titles.)

There's even a mini-spreadsheet program (ten columns by 69 rows) called **Basicalc** (APLPD #12), written by William V.R. Smith, documented by David Durkee, and originally published in *Softalk* magazine. Although this spreadsheet lacks many of the built-in functions found in commercially available programs, Basicalc offers, well, the basics. If all you need to do is set up a budget or track students' grades, Basicalc should suffice. With practice, you can get used to the program's quirks and avoid crashing it inadvertently.

Two graphics programs you can use at home or in your business are **Three-D Pie Chart** (APLPD #27) and **Pie Chart** (APLPD #31). In both programs you enter the labels (budget categories, for example) and values that constitute the pie. Pie Chart creates a two-dimensional chart complete with labels; the three-dimensional version lacks labels, but is striking in appearance. You can produce either chart on a graphics printer with a screen-dump program. A number of these programs are also available in the public domain.

One unique, unusually good public-domain program is **Decision** (APLPD #5). Originally designed by Phil Feldman and Tom Rugg during the mid-1970s, Decision was adapted by Gordon Stallings for the Apple II. The program helps you choose a course of action by forcing you (gently, of course) to itemize and quantify the factors you should consider. Should you buy a house or continue to rent? Would a public or private school be better for your child? The program is fairly flexible: You can save information on disk and modify variables later on.

The programs described above can be used "as is." Other business-oriented programs require some fine-tuning. One, called **Payroll** (APLPD #12), keeps track of employees and calculates wages, but includes deductions for the New York state income tax.

Personal Enrichment

The public domain is a good source of personal-enrichment programs. For instance, you can acquire whole disks dedicated to diet and nutrition. **Diet Sheet** (APLPD #30) prints forms that help you keep track of everything that passes your lips during the course of a day.

**"Here's one time when
no one can accuse you of
software piracy."**

A number of programs calculate the caloric value of the food you eat. One of their deficiencies is the limited nature of the food databases they contain. Since software like Paul A. Page's **Calorie Counting Program** (APD #25) is listable, though, you can delete foods you never eat and add foods you do. DATA statements within the program store food information. Twinkies aren't listed, but it's a cinch to add them to the database—if you can find out the appropriate nutritional information from the label or from a reference book.

Another modifiable program is **Food Values** (APD #25), with 62 foods in its database. You type in the food you want the program to analyze, and it displays a colorful bar graph showing the food's value as a source of calories, protein, and selected vitamins and minerals.

The program called **Ideal Body Weight** (APD #25) calculates an estimate of percentage of body fat and percentage of body water and lets you know if obesity is creeping in. The program is based on height/weight data from the early 1970s. Since acceptable weights have been raised since then (thank goodness), you might want to load the program, list its DATA statements, and change them—a very easy task.

An entertaining, instructive program called **Life Expectancy** (APD #25) gives you some insight into how much of a future you may have. The program asks questions about your relatives, eating habits, lifestyle, education, and occupation. As you answer the questions, the program adds or deletes years to your "base life expectancy" and explains the effect of certain habits on life expectancy.

While I don't agree with all of the author's views or formulas (for example, increasing your level of exercise may not merit even an extra year), the program seems to be reasonably accurate. Only time will tell....

Education

Clever programmers have donated a number of entertaining educational games to the public domain. Many, like **Word Wars** (APLPD #30) and **Scrambled Words** (APLPD #30), test your verbal skills.

The legendary **Hangman** has gone cosmopolitan. In the French version (APLPD #50), everything you see on screen is in French—even the words you try to decipher are French vocabulary words. There are a couple of spelling mistakes in the program, but you can fix them and then add your weekly French vocabulary words to the lesson. You're taking Spanish? No problem. Modify the program with Spanish instructions and Spanish vocabulary words!

A cute little program called **Alphabet & Sound** (APD #20) offers five different activities to help preschoolers learn the alphabet and acquire simple typing skills. The program is enhanced with graphics and music, and, as a final activity, encourages the child to sing *The Alphabet Song* along with the Apple.

Programs that help elementary-school children master basic math facts include **Fred Fraction** (APLPD #59) and **Arithmetic Tac Dough** (APLPD #5). Another math program, a takeoff on Microsoft's once-popular Olympic Decathlon program, is **Math Decathlon** (APLPD #72). As its name implies, Math Decathlon is made up of ten events that test different computational skills. One to four players can compete, and each can choose one of three levels of difficulty. When I played, the program crashed during the Mental Math event. With a fix or two, Math Decathlon would be a fun way to practice arithmetic skills.

Public-domain programs don't teach verbal and math skills exclusively—some programs delve into other subject areas. One example is **Geography** (APLPD #62), origi-

Running Public-Domain Programs

Under DOS 3.3, on an Apple II Plus, IIe, or IIC, all you have to do is insert the disk into the drive, turn on your Apple, and wait for the disk directory to appear. In most cases, it shows the customary columns, listing file type, size, and name. At this point, check to see that your caps-lock key is down.

If you have a printer, you can make a hardcopy of the disk catalog. Before preparing your printer, you may have to press the return key once or twice to scroll through long listings on the monitor screen. Once the on-screen listing is completed and the Applesoft prompt (J) comes up, type PR#1 (most printers are interfaced via slot 1) and press the return key.

Next, type the command CATALOG and press the return key. If your printer is on line, it should nearly immediately begin printing the disk's directory. When the directory is completely printed and you once again see the Applesoft prompt, type PR#0 and press the return key to take the printer off line. A printed catalog is a good reference and makes it easier to see the programs available on any given disk.

If a file has the designation A (Applesoft BASIC) or I (Integer BASIC) to the left of its name, type RUN followed by the filename, and press the return key. If the file has the designation B, indicating a binary file, type BRUN and the filename, followed by the return key, to start that program. Files designated by a T are text files. They work with some other file listed in the directory and can't be run by themselves.

Watch your spelling. If you don't type everything precisely, you're likely to be greeted with a Syntax Error message.

Some public-domain software disks contain programs written in Integer BASIC, but don't include that language. In this situation, you may receive a Language Not Available message.

Easily fixed! Just dig out the DOS 3.3 System Master disk that came with your Apple and boot that disk first. Integer BASIC will be loaded automatically. When you see the prompt, remove the System Master disk, replace it with the public-domain software disk, and run the Integer BASIC program you selected.□

—C.F.

nally written by Andy Gamble for the Commodore PET and translated to the Apple by Chris Edwards. The idea in Geography is to come up with the name of a valid geographic location ("valid" names are those in the program's database) that begins with the last letter of the location your Apple names. For instance, if it picks *Washington*, you might type *Nevada*. Then your Apple (or an opponent) might suggest *Alabama*, and so on.

As emphasized above, you can modify programs like Geography in myriad ways. If your class is studying the 50 states, you might restrict valid words to the names of the states and their capitals. What if your class is studying the human body? Just name the program Anatomy, alter the instructions as necessary, and enter anatomical terms into the database.

Speaking of science, a public-domain program called **Forecast** (APLPD #62) warrants further investigation by budding meteorologists. The program claims an accuracy of 77 percent in predicting the weather. You might ask your students to watch the evening news and write down information about barometric pressure, temperature, and wind direction, then test the program's predictive ability next day in school. As a lab exercise, you might provide a real barometer, thermometer, and anemometer so that students can make their own measurements. Using Forecast, your students could then pit their predictions against those of the TV meteorologist each evening for a week.

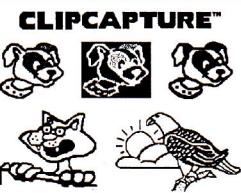
Entertainment

While educational programs can be entertaining, sometimes you need just entertainment without the lessons. When this happens, investigate public-domain software

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games. They cover the whole spectrum, from harmless diversions such as **Rainbow Bunny** (APLPD #71) and **Meteor Blur** (APLPD #71) to countless Space Invaders clones. And whatever your favorite real-life sport, you'll find simulations (such as **Golf**, APLPD #71, and **Volleyball**, APLPD #72) in the public domain.

Looking for more of a challenge? Try text adventures, such as those in the **Eamon** series (call Dynacomp for disk numbers), or **Interna-maze** (APLPD #12) by Dennis Ward and Steve Lawson.

Programming

When the fun and games are over and it's time to settle in for some serious programming of your own, public-domain libraries offer innumerable utilities and subroutines.

Among the programs that can help you design interesting menus is **Flexible Menu** (APLPD #42) by Dale Salyer. This program includes code written by Dan Tobias for creating a nested menu (a menu window within the main menu). Other programs let you change DOS commands, print program listings in various typestyles, copy disks quickly, and test and map DOS-formatted disks.

Electronic Communications

Some public-domain software volumes contain only programs for testing various types of modems or for setting up your own BBS.

If you've always wanted to be a sysop (system operator), you might consider setting up an electronic messaging center using **Diversi-dial** (APLPD #78) by Bill Basham. Basham recommends that your system include seven modems and seven separate telephone lines—at a total estimated cost of about \$2000!

Diversi-dial isn't really "freeware" like the other programs I've described. Basham's program is considered *shareware*, a term that means *user-supported software*. Though you receive a full, working copy of Diversi-dial through public-domain libraries, the author asks that you send him \$50. In return, he'll send you the latest version of Diversi-dial.

What Are You Waiting For?

Whether you have visions of being a sysop or an alien decimator, whether you need a simple label program or want to help your toddler learn the alphabet, you'll have fun sifting and sorting through public-domain software libraries. Even if you come up empty, you'll have hours of amusement—all for the price of some floppy disks. ■

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

Sources

Listed below is a brief sampling of references and sources of public-domain software.

How to Get Free Software, by Alfred Glossbrenner, St. Martin's Press, New York, 1984.

A.P.P.L.E. Co-op
290 Southwest 43rd Street
Renton, WA 98055

Apple Software for Pen-nies, by Bertram Gader and Manuel V. Nodar, Warner Books, New York, 1985.

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Apple IIe Enhancement Kit 62.
Cermetek 1200 Baud internal modem IIe/II+/IIgs . 169.
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Clockworks Clock (Thunder/Time HO™ compat) . 89.
13" RGB Monitor (free cable) 322.
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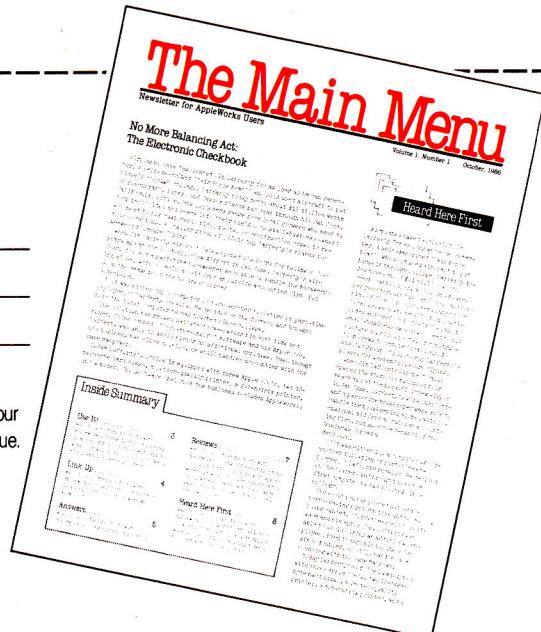
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TELECOMMUNICATIONS

THE SOFTWARE CONNECTION

*Want to put your Apple on line?
One of the nine telecommunications
programs evaluated here can make it easier.*

by Tom Sherman

Do chickens wear contact lenses? It was dawn in Miami when Bob Sherman was awakened by the telephone. A stranger, calling from Seattle, asked that question. Bizarre, you say?

Not so bizarre if your company is Computer Assisted Research On Line. Bob uses his Apple II Plus to search on-line databases all over the world on behalf of individuals, small businesses, and major corporations.

The variety of questions Bob answers is as diverse as the available data: Stock prices, business information, public-domain software, airline schedules, merchandise catalogues, and encyclopedias are just a few of the attractions of telecommunications.

"Maybe you're a writer, wanting to check a crucial fact," Bob says, "or a politician looking for press coverage of your opponent. In the past, one company in Mexico needed weeks to check out existing trademarks before naming a new product. Now I can get them the answer in 24 hours."

The high speed and low cost of on-line communication are powerful attractions. Businesses that used to spend a fortune on one-day courier deliveries are discovering they can transmit messages for pennies in just seconds.

When Izumi Aizu is going to lunch Monday in Tokyo, his colleagues in Washington, D.C., are turning on the Sunday night news. Despite time and distance, Izumi, a founder of the Institute for Networking Design in Japan, finds it easy to collaborate on intercontinental projects.

Like many others—the Electronic Networking Association, the United Church of Canada, and Innovative Technologies, a software developer—Izumi holds business "meetings" on UNISON, a host computer service (3542 East 16th Street, Denver, CO 80206, 303-329-3113). Computer-based conferencing, also used by Exxon Chemical, Kodak, and dozens of other corporations, lets groups of all sizes plan activities and carry on discussions by leaving messages in branching public or private conferences.

"It's certainly better than getting a busy signal or an answering machine," says Cathy Christensen. "I got my modem just nine months ago, and what I like best is meeting people. Our family drove from our home in Rochester, New York, to California, and in lots of places we said hello to people I'd met on line."

Cathy is now organizer of the American Apple Round Table and User Group on GENie (401 North Washington Street, Rockville, MD 20850, 800-638-9636), a place where both novices and experts can get help from the Apple Computer technical staff and developers of Apple II hardware and software. "The only trouble," Cathy says, "is that my children are also getting interested. We have to put an egg timer on the computer so that everyone gets a turn."

Which brings us back to chickens. Bob's early caller, producer of a major television show, got his answer: Yes, chickens do wear contact lenses to diffuse their vision and keep them from pecking at their neighbors in crowded coops.

Computer illustrations were created by Roger Goode, using a digitized image and Electronics Arts' Deluxe Paint.

Point-to-Point and CommWorks. Like those two programs, Access II uses the AppleWorks menu convention of stacked index cards. Like other programs from Apple, Access II is distinguished by the excellence of its manual, training disk, and on-line help files.

And, as you might expect, Access II offers most standard communication features, and most of them are simple to use. This program also lets you construct sophisticated command files that can automatically do almost anything possible from the keyboard—for example, sign on to a service, send or receive files, and exit.

Apple Access II has two significant weaknesses. First, you must use a separate word processor to create Access II command files. Because it's easy to make a mistake, especially at first, automating a log-on may require switching back and forth several times between Access II and a word processor that can create the necessary text files.

Some programs handle this situation with a built-in editor, but Access II has none—it's second major weakness. The program provides no way to edit or look at material before you save or send it.

If you can overlook these two problems, you might choose Access II (version 1.1) for reliability and documentation.

ASCII Express

ASCII Express "The Professional," known as AE Pro, has been the Apple program of choice among experienced electronic networkers. Harder to use than more recent, comparable programs, it continues to serve serious users with a number of special features.

Bulletin boards using AE Pro can automatically save transferred files on the disk of an AE Pro caller. AE Pro can emulate ten different terminals, even imitating one for sending data and another for receiving data in the same connection. It can convert programs to readable text files, including CP/M as well as Applesoft, binary, and Pascal programs (which you can also convert with Point-to-Point).

With an Apple Cat modem, AE Pro can operate with the Baudot standards used by terminals for the deaf. In addition to its important special and standard features, AE Pro offers little niceties—such as the ability to slightly modify speed of text transmission with the less-than and greater-than keys, and to change full command messages to brief ones.

Installing and using all AE's powerful features may dismay the novice or casual user. Its 350-page manual and on-line help screens are well organized and clear enough, but their very scope indicates the complexity of the program.

For example, AE Pro, like all other programs, requires a

particular key to let your computer know you're sending it a command instead of transmitting a message. Most programs use either the escape or open-apple key to make this switch from terminal mode to command mode.

AE Pro uses Control-Q as the "terminal escape key," but Control-Q is also the sequence you use to restart incoming text you stopped with Control-S. So you must either change the "terminal escape key" through AE Pro's installation menu, or type Control-W before Control-Q to let the program know you're speaking to the remote computer. You must make similar adjustments for Hayes-compatible external modems. They're not especially difficult, but they require at least close reading.

CommWorks

Lacking some useful refinements, CommWorks nevertheless strikes a good balance between ease of use and sophisticated capabilities. The AppleWorks menu convention makes CommWorks easy to use, and a few special features distinguish it from other programs:

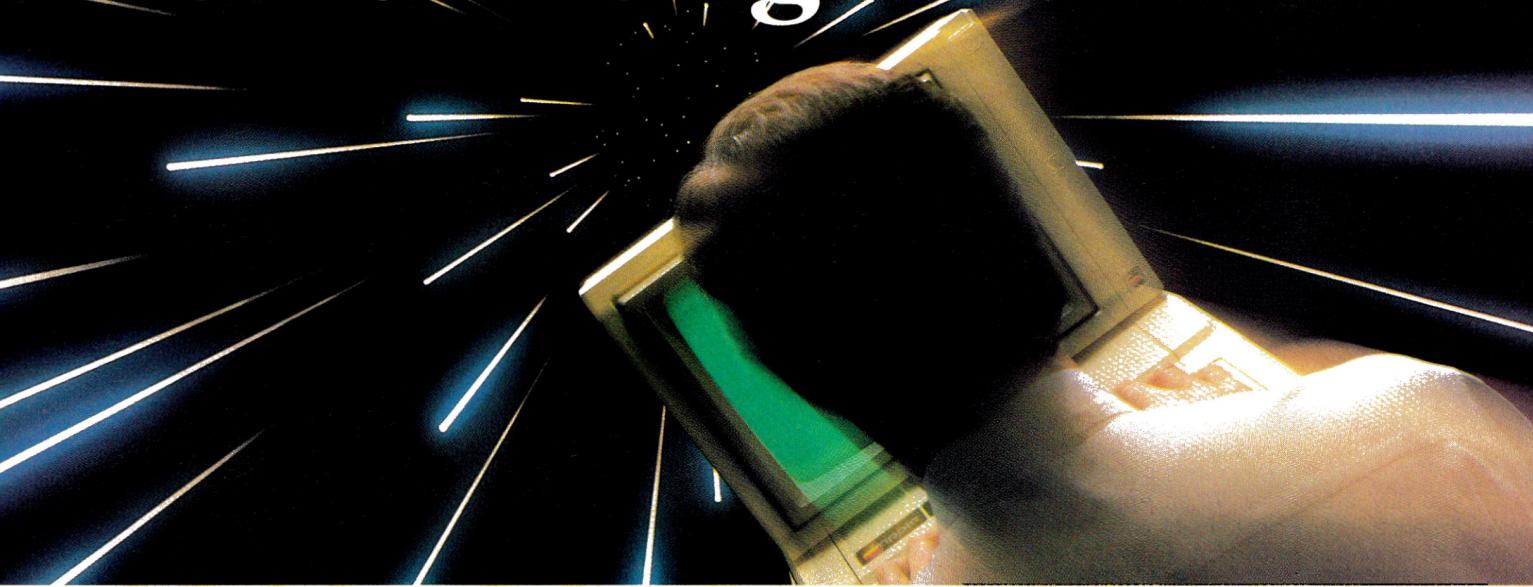
- 1) AppleWorks users will be pleased that CommWorks can automatically save incoming text as an AppleWorks word-processing file.
- 2) Owners of Checkmate and Applied Engineering RAM cards may be glad CommWorks automatically partitions as many as 16 capture buffers of 35K each, letting you write or save files to each of them.
- 3) Because, like ASCII Express, MouseTalk, SoTerm 2, and CommWorks store information about each service in a separate file, only disk space limits the number of services to which they can automatically connect. In addition, CommWorks is the only communications program to work with Jeeves desktop accessories, also from PBI Software.

The current version of CommWorks corrects many of the earlier deficiencies noted by *inCider* in our review (September 1986, p. 99), improving file transfer, macro features, and data protection. CommWorks doesn't yet implement all the file-transfer and macro features available in other programs—it can't automatically stop an incoming file when the buffer is full, for example—and its documentation, although complete, is occasionally confusing. It works with a limited number of modems, but (in version 1.3) will work with the Apple IIgs, although some difficulties have been reported with this feature.

Somewhat harder to use than Talk Back or PFS:Access, somewhat less powerful than Point-to-Point or ASCII Express Pro, CommWorks is a reasonable program at a reasonable price.



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Steve Wozniak, the creator of Apple Computer

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What Do You Need to Know?

Intriguing? Definitely. But for many, it's intimidating, too. The on-line world sometimes seems to speak its own peculiar language, and the tangle of "baud rate," "stop bit," and "XModem protocol" has discouraged more than one would-be explorer. Not so many years ago, the problem of connecting micros to mainframes reinforced the notion that only those who understood these secret incantations could enter the mysterious realm of computer-based communications.

Most of the Apple II communication programs now on the market, though, simplify your connection with the "network nation." In addition to commercial programs, a few public-domain programs are available. All these programs have a number of features in common, so let's look first at the general questions you'll want to answer when selecting the best program for your needs.

Will the program work with your equipment? Given the variety of modems, cards, and printers, it's important to choose a program you can configure for your hardware. Most of the programs reviewed here let you identify your equipment in a series of menus. Modem MGR, for example, specifies the proper connection even for peripherals that link your computer to a short-wave radio receiver.

Determining a program's hardware requirements before you buy is essential. When Apple announced the IIgs, for instance, only Point-to-Point and CommWorks 1.3 could use its built-in serial port. PFS:Access and Softerm 2 are available only in DOS 3.3. ASCII Express and Modem MGR have both DOS and ProDOS versions. The rest of the programs reviewed here run under ProDOS.

Will the program connect correctly to the services you want? Once you've hooked up the necessary hardware, your Apple speaks the right language—like a high-speed Morse code. To exchange information, though, your computer must also speak the same dialect (and at the same speed) as the computers to which you talk. So all communication programs let you set a variety of parameters: speed (baud rate; or bits per second), "word" length (seven or eight bits), and error checking (parity).

Some programs, notably Softerm 2, let your Apple imitate various computer terminals when connected to other kinds of computers. Bulletin-board systems (BBSs) or commercial host systems don't require this feature, called *terminal emulation*, but it may be crucial if you need to connect to a multi-user computer at your office.

How does the program manage the flow of information? Programs control the pace of incoming and outgoing files

in a variety of ways. All of them let you stop and start receiving information manually (when you can't read at 700 words per minute) and automatically (when your computer is busy saving text and so can't display it).

Not all systems can receive text as quickly as you can send it, so many programs also let you set millisecond delays after each character or line sent. More sophisticated programs can also wait for a specific prompt before sending another line.

How does the program transfer files? All of these programs can send (upload) or receive (download) plain ASCII text files. Most of them also include a method (called XModem, or Christensen, protocol) to ensure that noisy phone lines don't cause errors in transmission. If you and the host computer both have XModem, you can transfer any kind of file—binary, BASIC, even a word-processing file complete with control codes.

CommWorks, ModemWorks, MouseTalk, and Point-to-Point offer an extended XModem protocol, used first by ASCII Express, that saves information about a downloaded file with the file itself. Point-to-Point is strongest in file transfer, with Apple Access II, ASCII Express Professional, and CommWorks close behind. A number of communication programs have special file-transfer features when connected to another computer running the same program.

How does the program edit, store, and print information? Apple Access II, PFS:Access, and Softerm 2 have no editors, but the rest can, with varying ease, edit text files loaded from disk or downloaded from a remote computer. All of these programs can save a file to disk; some let you change ProDOS pathnames more easily than others. Some programs let you set up your printer with special commands; some can print a file while you're receiving it.

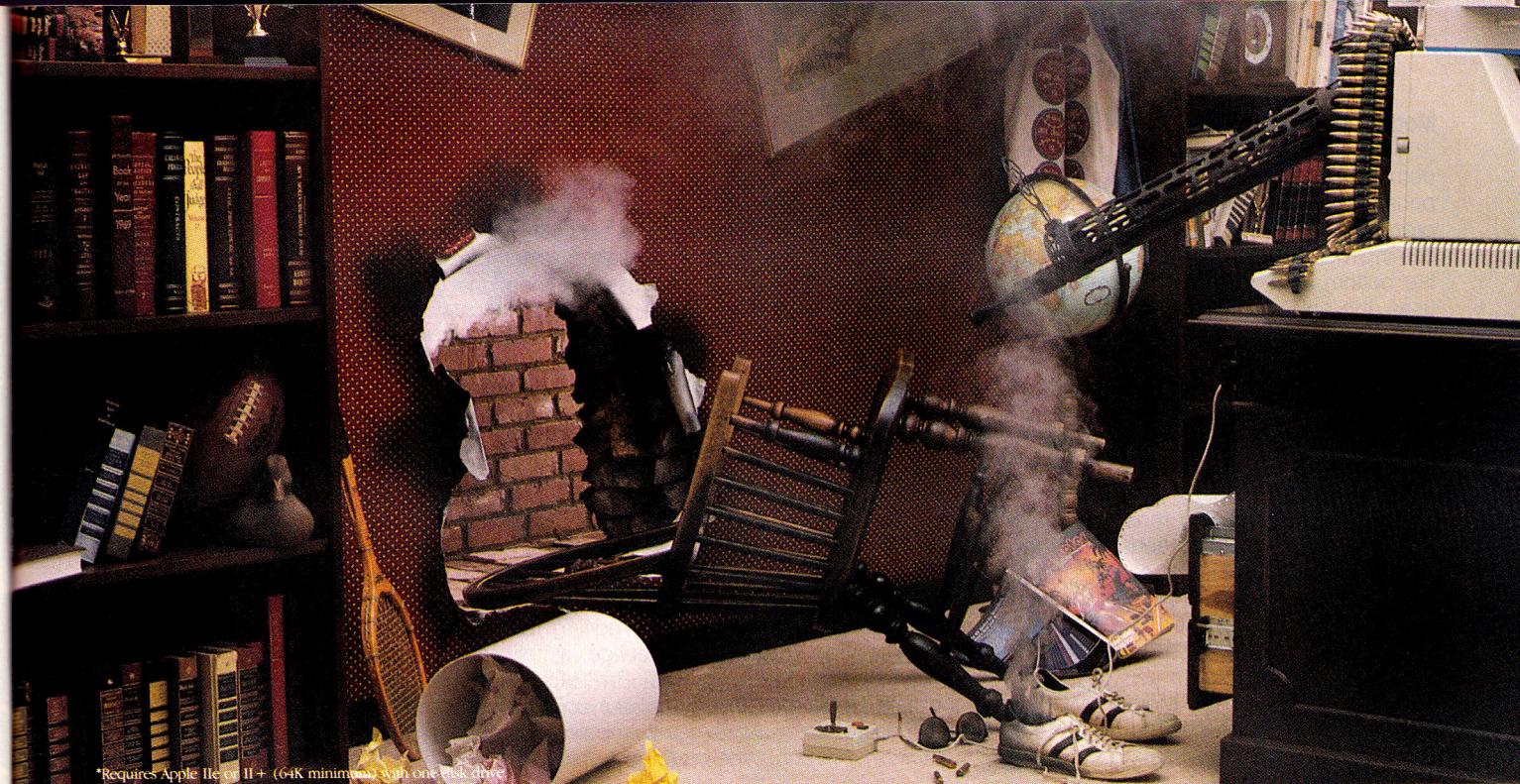
How does the program automate the process with macros and command files? With varying difficulty, communication programs let you write a script to dial a phone number, respond to prompts, and even execute commands to send or receive files.

Some offer macro construction, letting you send a string of information with a single keystroke. (Point-to-Point can display your macros in a window and, like ASCII Express, lets you send part of a sequence if necessary.) A few programs even watch your clock card and carry out a series of commands at a predetermined time.

Apple Access II

Although it's reliable and popular, Apple Access II now suffers in comparison with more recent programs such as





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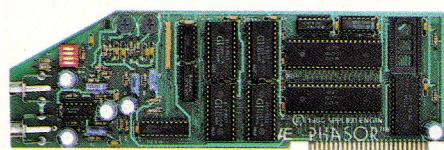
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Modem MGR

Although some other programs are easier to use, Modem MGR offers features not found even in the most expensive programs. It's the only Apple II communication program with the option of a split screen, separating incoming data in the top 19 lines from the text you enter in the bottom four. Although it can be distracting for other uses, the split screen is especially helpful for people who enjoy live conversations on line (often called *CB simulation* or *real-time conferencing*).

Modem MGR also lets you construct your own emulation files by defining terminal control codes for various video functions. It's one of a few programs that will wait for a clock card to reach a set time before automatically initiating a call and other commands.

Although you can find most Modem MGR commands in easily accessible help screens, you may find it takes some time to learn them all. For example, there are 23 different CONTROL commands in the editor alone. Flexibility also has its cost in file transfer; you must select pacing controls each time you send a file, rather than saving them in the configuration for separate services.

In features per dollar, Modem MGR leads the field by a wide margin, but the complexity of its commands carries a price for the infrequent user.

ModemWorks

Unlike the other programs reviewed here, ModemWorks is a "communications construction set." With ModemWorks' tools, a BASIC programmer can build a variety of modem-related applications—including a customized communication program, bulletin-board system, timed upload/download facility, and more. You need to know at least the rudiments of BASIC and ProDOS, but you don't need to be a certified expert.

The ModemWorks manual offers fundamental information about using its ampersand interpreter and 50 routines. With these routines, your program can, among other things, CALL a phone number, send a BREAK, HANGUP the phone, set answer or originate MODE, PICKUP the phone, and receive a file with XModem.

ModemWorks also comes with a related utility program called AmperWorks, which adds to BASIC a number of useful commands that copy files, type a text file, read clock time, and sort arrays, for instance. Although it didn't work with my accelerator card, ModemWorks is happy with Hayes-compatible external modems, the Novation Apple Cat II internal modem, and the Apple Super Serial or compatible card.

The single ModemWorks disk includes a number of sample programs, including simple communication and bulletin-board programs. You can modify them to suit your own needs or list them to learn how to write similar programs. The communication program, although it lacks automatic log-on, an editor, and a buffer to capture text, includes the fundamental features familiar in other programs. It can also execute scripts you write to include more sophisticated features.

ModemWorks was originally designed to create message systems, and you can see for yourself how good it is by calling the Living Legends bulletin board, ProLine, at (619) 281-7222. Sign on as "guest" for a guest account or as "register" for a permanent account.

ModemWorks is an inexpensive alternative for the competent do-it-yourself BASIC programmer or a novice willing to learn.

MouseTalk

The newest of the Apple communication programs, MouseTalk, is distinguished by use of the mouse. Running

on an enhanced Apple IIe, IIc, or IIgs, MouseTalk offers easy-to-use pull-down menus, scrolling windows, dialog boxes, and other Macintosh-type features. In general, it's possible, but awkward, to use MouseTalk without a mouse. Even with a mouse, you'll find keystroke alternatives (when they're available) faster for some tasks.

The mouse is exceptionally useful, however, in MouseTalk's editing features, which are far superior to those available in other communication programs. MouseTalk has an 8K review buffer that always saves incoming information, with the newest text bumping out the oldest. A separate full-screen editor also lets you enter, download, or load from disk another 33K (about 12 typed pages) of text.

You can exchange text between the review buffer and the editor with a 3.5K clipboard. By dragging the mouse, you can highlight text to be cut, moved, saved to a file, or copied to a printer. The MouseTalk editor can also search for a text string, change case, clear out control characters, and manipulate line length up to 255 characters. These editing features also work in creating 20 macros per service, simplifying that process.

Like AE Pro, MouseTalk is a product of United Software Industries, but unlike more complete programs, MouseTalk has some important limitations. It lacks any special transfer features for AppleWorks files and doesn't let you set or

Product Information

Apple Access II 1.1

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
\$75

Reader Service Number 300

ASCII Express 4.30P

MouseTalk
United Software Industries
8399 Topanga Canyon
Boulevard
Suite 200
Canoga Park, CA 91304
(818) 887-5800
\$129.95 (ASCII)
\$149.95 (MouseTalk)

Reader Service Number 301

CommWorks 1.3

PBI Software
1111 Triton Drive
Suite 201
Foster City, CA 94404
(415) 349-8765
\$95

Reader Service Number 302

Modem MGR 1.20

MGR Software
305 South State College
Boulevard
Suite 10
Anaheim, CA 92086
(714) 993-0294
\$49.50 (plus \$3 shipping)

Reader Service Number 303

ModemWorks 1.1

Living Legends Software
1915 Froude Street
San Diego, CA 92107
(619) 222-3722
\$30

Reader Service Number 304

PFS:Access

Software Publishing
1901 Landings Drive
Mountain View, CA 94043
(415) 962-8910
\$140

Reader Service Number 305

Point-to-Point 1.50

Pinpoint Publishing
5901 Christie Avenue
Emeryville, CA 94608
(415) 654-3050
\$129

Reader Service Number 306

Softerm 2 2.01

Softronics
7730 North Union Boulevard
Suite 203
Colorado Springs, CO
80918
(303) 593-9540
\$195

Reader Service Number 307

Talk Back A.3

Russ Systems
320 Dufour Street
Santa Cruz, CA 95060
(408) 458-5080
\$79.95

Reader Service Number 308

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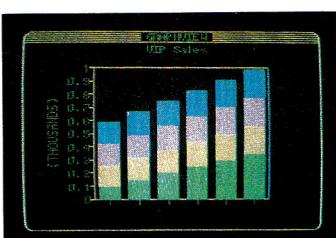
Better than AppleWorks.

Like AppleWorks, VIP Professional integrates a spreadsheet, database and text processing. But VIP Professional's spreadsheet and database are far more powerful—and VIP also offers colorful graphics and a mouse interface.

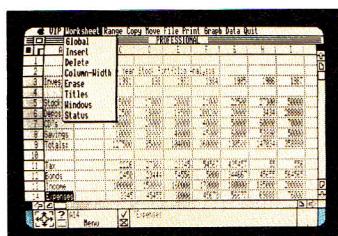
VIP Professional reads all AppleWorks' files and is supported by templates and macros to speed common functions.

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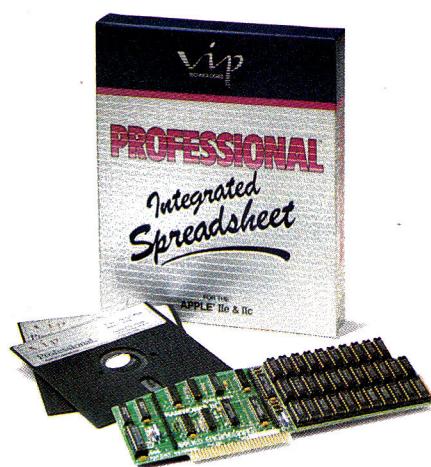
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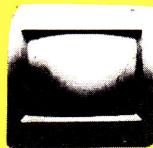
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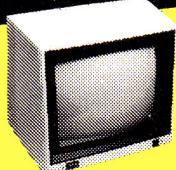
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MONOCROME MONITOR



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FREE TRIAL PERIOD COLOR



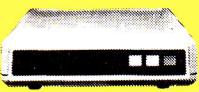
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change the type of downloaded file. It disables any ProDOS RAM disk appearing in slot 3, although it recognizes extended memory, like the GS' /RAM5.

MouseTalk works only with internal modems, like the Prometheus 1200A, which combine modem and serial card. Because this program itself almost fills one floppy disk, it requires an additional floppy or larger-capacity disk to store separate service parameters. MouseTalk lacks some of the conveniences of a program like Point-to-Point—displaying the time or connect time, for example, or automatically saving downloaded text when the editor is full. MouseTalk documentation and help screens are good.

Although the first version of MouseTalk did freeze once when trying to save to a full disk during my initial tests, its powerful editor makes it a natural choice for anyone requiring extensive manipulation of ASCII text.

PFS:Access

If you use PFS:Write, this companion telecommunication program will easily manage your introduction to the on-line world. Like Talk Back, PFS:Access greatly simplifies installation and connection to remote computers. It's the only one of the programs reviewed here that can easily "memorize" the sign-on procedure as you do it the first time, then play it back to automate subsequent connections to the same service.

Unlike other programs, it can also let you read the beginning of an incoming file while the sender is adding text at the end.

PFS:Access is severely limited, though, primarily because it saves downloaded data only on disks formatted with PFS:Write. Without that program, you can't save any of the information you receive on line. Working with a limited number of modems, lacking such features as macros and XModem, PFS:Access is less satisfactory than other easy-to-use programs like Talk Back. Of the reviewed programs, only PFS:Access is copy-protected, making it impossible to duplicate more than once.

PFS:Access is a simple program of some interest to people who use PFS:Write.

Point-to-Point

Among the more powerful Apple communication programs, Point-to-Point is also among the easiest to use. It's the only one of these programs that can translate an AppleWorks word-processing file into a plain text file while transmitting it. It's the only one that works with the popular Pinpoint desktop accessories. It's the only one that can print both a text file and an AppleWorks word-processing file from disk.

Like Talk Back and PFS:Access, Point-to-Point always displays its major commands on the screen. With a ProDOS-compatible clock installed, it will also display both the time of day and length of time connected. Although refinements like these aren't essential, they contribute to the pleasures of telecommunication.

Point-to-Point doesn't offer terminal emulation, a set time to initiate a call, or a split screen. Although it stores parameters separately for each service, it can list only 16 services in its directory. Unlike CommWorks and Apple Access II, it can't format a disk.

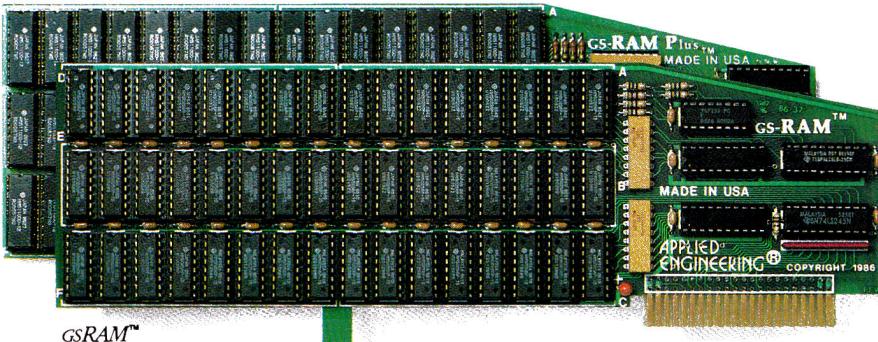
And, although Point-to-Point offers some shortcuts between menus, it sometimes takes too long to move from one feature to another. If you want to quit the program properly to a program selector, for example, you must escape back through three menus from terminal mode to the main-menu "quit" option.

Arguably the best of the complete programs, Point-to-Point will satisfy all users except those demanding special features like terminal emulation.

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Softerm 2

Ranking with ASCII Express as the most complicated programs to understand, Softerm 2 is also the most sophisticated and reliable in terminal emulation. To imitate the specialized commands of 25 different machines—from DEC, Televideo, IBM, Honeywell, and others—Softerm 2 requires its own hardware.

The most recent version (for the Apple IIc and IIe with 128K) plugs a small three-key expander into the game port. The version for earlier Apples requires its own small board plugged into a slot. The additional keys (two of them equivalent to the IIe open- and solid-apple) work like shift keys in combination with the regular keyboard. For example, the third Softerm key together with P is equivalent to the Televideo 925 function key that enables and disables a printer port.

Using Softerm 2 for simple communication is, in fact, somewhat easier than the manual makes it seem. And some of its specialized features are very useful—for example, converting DOS 3.3, CP/M, and Pascal files on one disk to DOS 3.3 or Pascal on another. But the extraordinary number of options available for complex tasks—and the lack of on-line help—make the program difficult to master. There are 23 possible macro commands, many with subcommands, letting you, for example, automatically change the carriage returns in a transmitted file to linefeeds.

Other programs—Apple Access II, AE Pro, CommWorks, MouseTalk, and Modem MGR—also permit various degrees of terminal emulation. Softerm 2 is without question the most complete.

Talk Back

Although it lacks some helpful features, Talk Back is among the easiest communication programs to install and use. Completely menu-driven, with status and command lines visible on screen, Talk Back is also distinguished by concise documentation that clarifies the basics of computer-based communication.

You can even create your own help files for each different service or BBS you use. In its current version, 1.3, Let's Talk has corrected the minor difficulties in answer mode *inCider* cited when we selected it as Editors' Choice last September (p. 128). From Russ Systems, creators of the Let's Talk bulletin-board program (Reviews, May 1986, p. 34), Talk Back will gracefully and easily get you on line.

Simplicity is achieved, in part, at the expense of more complex features. For example, although the Talk Back editor is good, you can't send files directly from the editor or edit unwanted information from a downloaded file before saving the file to disk. Satisfactory in most respects, its macros, like CommWorks', don't permit branching—for example, to get waiting mail or move directly to another task.

Talk Back offers no automatic pacing controls for sending text, can't change file type for downloaded files, and won't work with the internal Hayes Micromodem II, Micro-modem IIe, Zoom, or Novation Apple Cat.

If it works with your modem, Let's Talk is a fine choice for basic telecommunication.

Going On Line

What's in it for you? Convenience, profit, or just the fun you'll have "meeting" other computerists—all it takes is the right hardware-and-software combination. Connect your modem, boot up one of these programs, and get hooked on Apple telecommunication. ■

Write to Tom Sherman at 224 South Chester Road, Swarthmore, PA 19081.

Free Listing

THE AUTOMATIC DIALER

Put your modem to work: With the six program listings presented here, you can construct a dialer and phone directory that will add a little convenience to your life.

by Abdulreza Maleki

Modems are useful for communicating with remote computers, mainframe or micro, but I wanted more for my money. To get the most out of my modem, I wrote *Tele* (see **Listing 1**), a program that uses the dialing capability of your telecommunication hardware, and *Phone* (**Listing 2**), an electronic telephone book. With a modem and your Apple, these two programs combine to provide an interface between you and your phone line.

The complete package includes a startup program (**Listing 3**) and two short utilities, *Creator* (**Listing 4**) and *Variable Constant* (**Listing 5**), for the *Tele* and *Phone* programs; these last two aren't necessary for program operation (after your initial setup), but they're helpful. The startup routine gives you the package's main menu: directory dialing (the *Tele* program); directory (*Phone*); system parameters; and quit.

Option 3 on this menu represents one additional program that is essential: *System Parameters* (**Listing 6**). It sets six values for *Tele*: name of the volume from which the programs run; area code; outside service-area prefix (usually 1); overseas-calling prefix (011 for AT&T); system-clock availability (type N if you don't have a system clock); and cancellation of call-waiting option.

Basic Equipment

Let's look at the standard system setup for the Apple IIc. I wrote these routines for the Apple IIc and Apple Personal Modem, but if you have a bit of programming expe-



rience, you can modify them for the enhanced Apple IIe and other ASCII-commanded modems.

First connect your modem to port 2 of the computer. Turn on the modem before running Tele, because the beginning of the program initializes the modem for no answer and one-second carrier-detect time. Refer to your modem manual for further information on phone-line and power-line setup. Typically, you should connect a line from the wall outlet to one of the phone jacks at the back of the Apple Personal Modem (or any other modem with two phone jacks). Connect your telephone set to the other jack.

Your Telephone Data File

The Phone program's options include record entry, look-up (to check numbers you've stored in the Phone indexes—one index per letter), modification, deletion, and printing from the current index (only if you've first asked Phone to read from an index).

In Phone's main menu you have one hidden option—access mode. Press D for direct access and M for menu access. The second option on the menu, look-up, changes to reflect your choice.

Menu access lists all records (names and numbers) you've previously entered for that index. If you choose to look up numbers in direct access—that is, check an individual record—Phone prompts you to enter a first name, then a last name. The last name determines the index in which the program should search.

Suppose you want to look at a name such as Abdul-reza Maleki. Enter Abdulreza (you can mix uppercase, lowercase, and spaces in any format) at the first-name prompt and Maleki at the last-name prompt. The program searches the M index file for the name. If you have a one-name entry, such as "inCider," though, press the return key at the first-name prompt and type "inCider" at the last-name prompt.

The deletion part of the program erases one record at a time. Pressing Control-I prompts you for a record number, displayed in the first column. After you enter the number, Phone shows you that individual record to let you check that you've selected the right one.

In the modification section, press Control-I, then the number of the record you want to edit. The program presents an option line: name or telephone number. To make a selection, press the first letter of that option (a capital): For name, press N; for number, press T. The program prompts you to type in the new information to replace the old.

Option 7 quits the startup program, and you can run Tele or Phone again.

Dialing from Your Keyboard

Tele reads index files created by the Phone program and dials the numbers stored in those files. In conjunction with the open-apple key, it also prepares numbers for international dialing. It's fun to use, and its logic is easy to follow.

Continued on p. 108.

William F. Gollan
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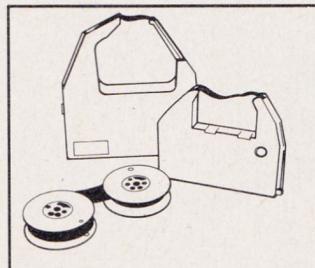
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GRADING THE GRADEBOOKS

An Apple gradebook may be your key to better teaching. inCider looks at nine programs that maintain student records and print a variety of informative reports for students, parents, and teachers.

by Kenneth W. Carlson



I suppose some teachers enjoy spending evenings and weekends figuring grades: balancing quizzes and homework assignments, weighting tests. Then there's extra credit, of course. Reading that smudge that must be a 90 for Johnny's third science quiz is also loads of fun. For years teachers have been crying for a Messiah to lead them out of the wilderness of grades. That day has come.

Now, with one keystroke, your Apple can instantly calculate the grades on which you used to spend long hours. A computerized gradebook lets the teacher send home a complete list of the student's grades on a regular basis.

Gradebooks Earn High Marks

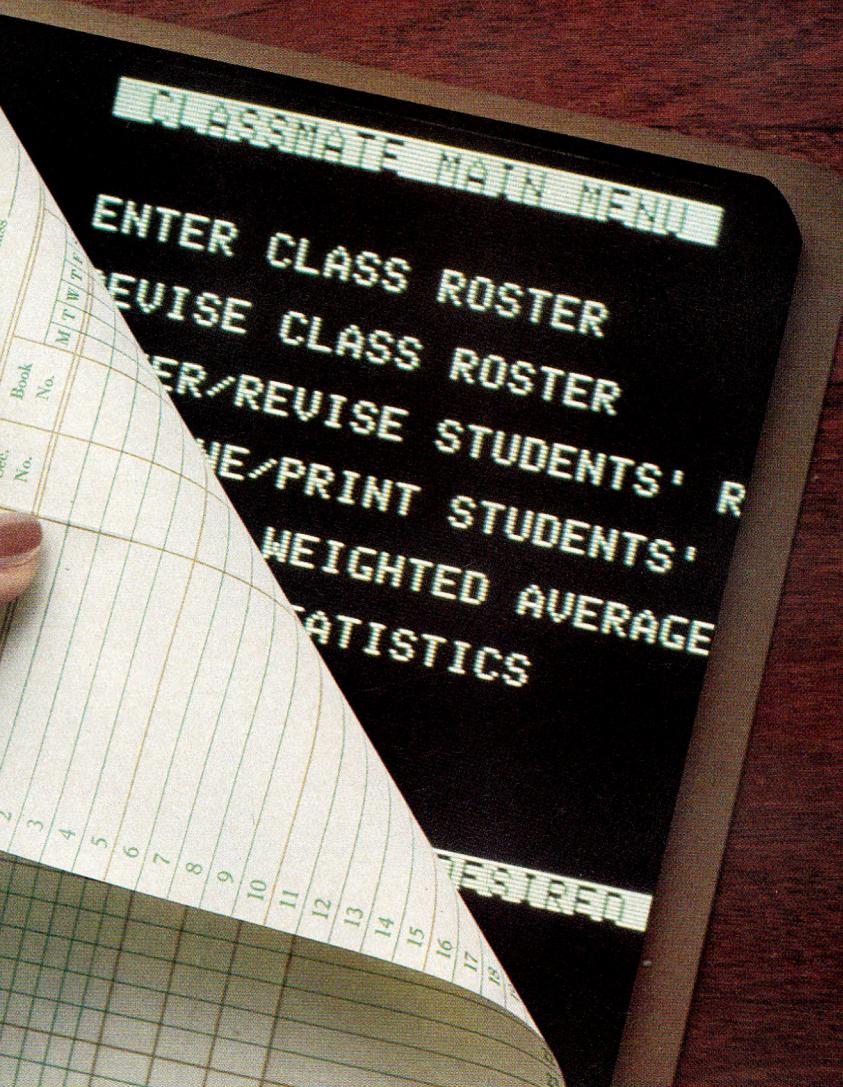
Although many teachers use spreadsheet systems of their own design, the software marketplace has responded with a number of computerized gradebooks (such as the nine reviewed here: Classmate, EA Gradebook, The Electric Gradebook, Grade Master, Grade Manager, The Graphic Gradebook, The J&S Gradebook, Master Grades, and Report Card) that accomplish a wide range of tasks. (See the accompanying Product Information box for prices and manufacturer addresses.)

Although all have features in common, each has characteristics that set it apart. Take a look at **Figures 1, 2, 3, and 4**. Think how much more information is available from a report like this. Instead of "Johnny is doing well," we can see exactly how Johnny is doing. We know the number of assignments he's missed, the grade on each test, what the assignment is worth, and the total average.

Some gradebooks will also assign a letter grade, according to teacher-entered parameters. Some can even print a comment sheet with a checklist and room for comments. Master Grades, from Midwest Software, will even gather the grades of all your students and, according to pre-entered data, print one of three reports: outstanding, informational (for average students), and unsatisfactory. Each report includes the name of the teacher and invites parents to call for a conference.

Most computerized gradebooks print averages alone, as well, so that if the school administration requests that information, it's just a keystroke away.

Some gradebooks print results by student number to preserve privacy when posting progress reports, lab grades, and so on.



“Although most gradebooks have features in common, each has unique qualities that may make it desirable or not in certain circumstances. If possible, try before you buy.”

Although you have to spend some time initially to learn to use the program and set it up, the time you save at the end of each marking period and at conference time will make your investment worthwhile.

One feature of particular interest to those who teach more than one subject per class is the so-called "elementary-school" option, which lets you use a previously entered roster for more than one class, saving you lots of typing time. Almost every gradebook includes this feature, and one, The Electric Gradebook, was designed from the ground up as a program for elementary-school teachers.

Although individual packages vary as much as each teacher's requirements, you should examine a few aspects in particular before deciding on a program:

- 1) number of students you can record on one disk (usually about 200)
- 2) number of grades per student (you may run out of space if you give many assignments)
- 3) number of classes you can record on one disk (inversely related to the number of students and the number of grades per student)
- 4) ease of changing grades
- 5) versatile printed-report options
- 6) grades recorded on data disk, not program disk (you can duplicate data saved on separate disks)
- 7) special hardware requirements (memory, two drives, printer requirements, and so on)

Although most gradebooks have features in common, each has unique qualities that may make it desirable or not in certain circumstances. If possible, try before you buy. Many software companies have a 30-day trial period during which you can determine the suitability of a particular program for your purposes.

Figure 1. Averages computed with EA Gradebook.

CARLSON --- SCIENCE1 --- 1

AVERAGES: 4 ASSIGNMENIS.

1) ARNOLD, BENEDICT..74
2) JEFFERSON.....77
3) WASHINGTON.....84
4) WASHINGTON.....81

CARLSON --- SCIENCE1 --- 1

RECORDS FOR JEFFERSON,

	WEIGHT
SO12.1.....80	(1)
CHPITEST.....80	(4)
WORKSHEET 5/.....58	(2)
SO12.2 5/12.....80	(1)

CARLSON --- SCIENCE1 --- 1

CHPITEST WEIGHT: 4

1) ARNOLD, BENEDICT..70
2) JEFFERSON.....80
3) WASHINGTON.....90
4) WASHINGTON.....80

Classmate

Classmate is a menu-driven gradebook with several unique features. In addition to the usual printouts, Classmate lets you keep attendance records in an easy-to-use, printable format. You can also maintain a file of comments for each student, with up to 239 characters per pupil. To maximize space in this file, Classmate includes a list of comment codes (DR = discipline referral, CU = cutting, and so on). Classmate can also produce a distribution graph of grades or a simple list of the number of students attaining each grade.

Special features include easy editing and a comfortably large number of characters you can enter for assignment names—up to 27 letters and spaces. (Some programs allow only seven or so.) Classmate keeps data on a separate disk and is more efficient with two drives. The manual is informative and easy to follow. You can order a backup disk for \$10.

EA Gradebook

EA Gradebook is easy to use. Even a novice can enter grades in a very short time. In addition, EA Gradebook can keep averages (**Figure 1**) for a whole year on disk. Most computer programs demand you erase all files at the beginning of a new semester. EA Gradebook keeps quarter and semester grades.

This program is designed for use with one drive, as all files are kept on the program disk. It comes with a free backup.

The Electric Gradebook: For Elementary Teachers

The Electric Gradebook is designed for elementary teachers who teach all subjects to the same students. Almost all the hard work has been done for you: The package even includes a data disk.

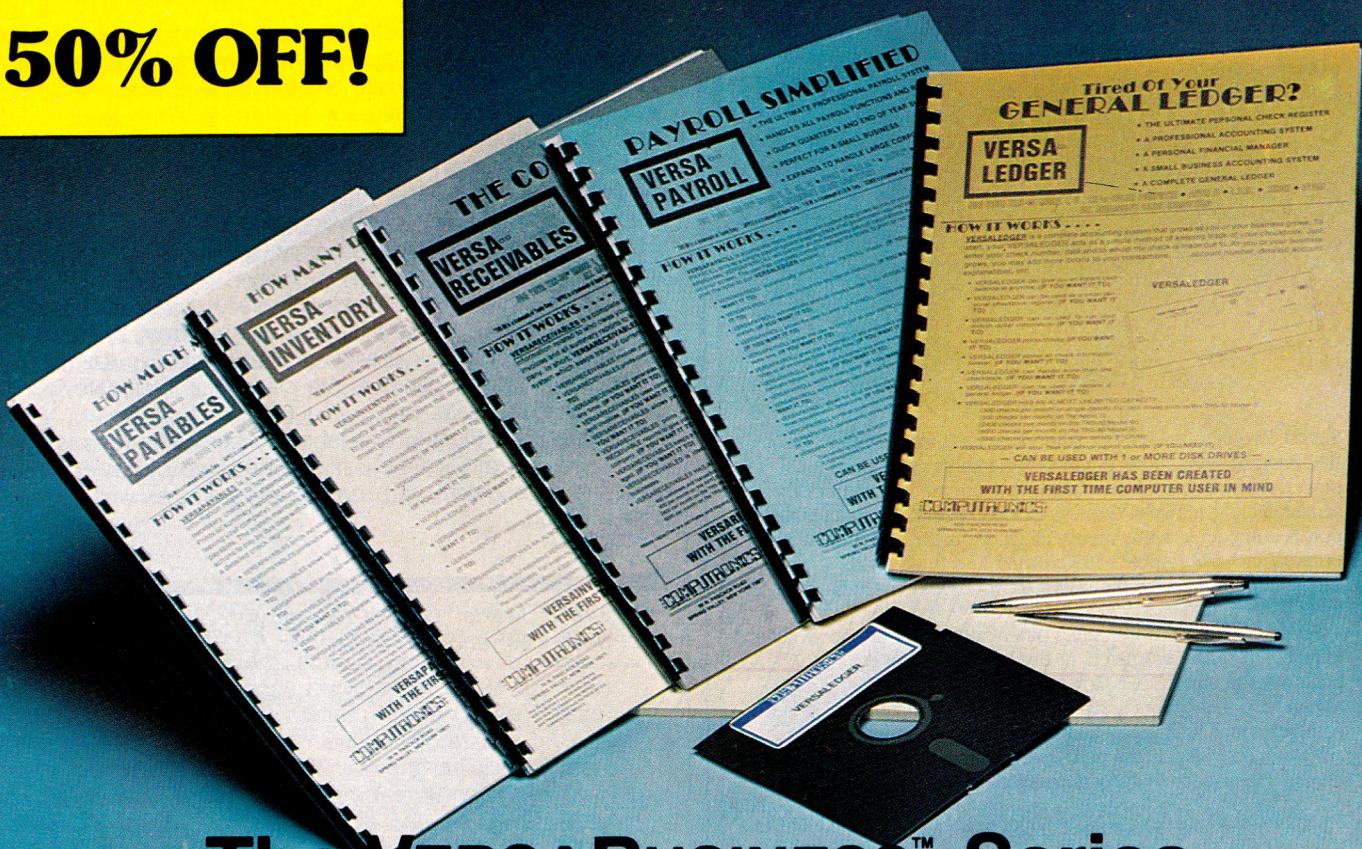
Figure 2. J&S Gradebook report with checklist.

PROGRESS REPORT			
Jesnette Patterson			
10/27/86			
eightb			
No.	Type	Grade	Maximum
1.	Misc. 1	9/3/text	100
2.	Misc. 1	1.1-29/5	100
3.	Misc. 1	9/30/job	9
4.	Misc. 1	CHIPREVIEW	92
5.	Misc. 1	9/15/read	95
6.	Test	9/15ch1	91
7.	Misc. 1	9/10TEXI	95
8.	Quiz	9/19SPAC	80
9.	Misc. 1	9/19SKYC	94
10.	Misc. 1	9/24EXPL	90
11.	Misc. 1	10/14ch4	94
12.	Misc. 1	10/14ch1	73
13.	Misc. 1	10/8rev	100
14.	Misc. 1	9/28star	90
15.	Misc. 1	10/18ato	100
16.	Misc. 1	10/17rev	95
		-----	-----
AVERAGES:		Overall Average = 81.9%	
Test average = 87.5%		Quiz average = 80%	
Misc. 1 average = 93.7%			
	E	S	U
GRADE	_____	_____	_____
Assignments	_____	_____	_____
Attitude	_____	_____	_____
Attentive	_____	_____	_____
Notes	_____	_____	_____
Class Participation	_____	_____	_____
E = Excellent			
S = Satisfactory			
U = Unsatisfactory			
Teacher: CARLSON			

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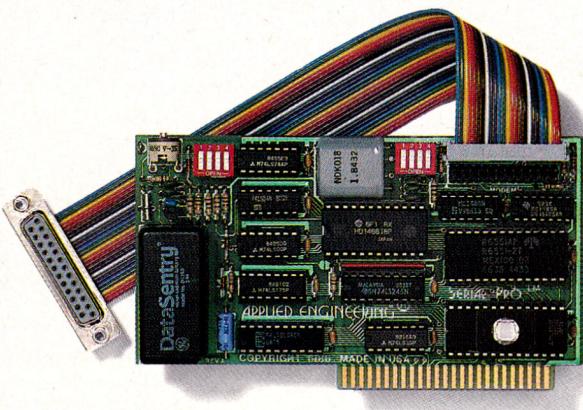
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Set up is easy, because unlike other cards, there are no switches to program serial parameters or disks to use. Serial Pro has a built-in setup screen that allows all parameters to be set. And on-screen help that makes it super-easy. An on-board battery stores your selections for over 20 years, but you can change them at any time. Serial Pro is the perfect upgrade for Super Serial card owners looking for more performance or a built-in clock.

Serial Port Features • Fully Super Serial Card compatible but more versatile and easier to use • Compatible with printers • Compatible with modems • Prints graphics to printer (without software) in normal mode, 90° rotation, double size, side by side, and black/white inversion • Variable word length, number of stop bits and parity selection • Crystal controlled circuits are used to provide ultra accurate baud rates.

Clock Calendar Features • ProDOS, DOS and AppleWorks compatible. Displays time and date on the AppleWorks screen • Automatically time and date stamps AppleWorks files • 20 year auto recharging nickel-cadmium battery • Realtime interrupts • Built-in on screen time and date settings (no software needed) • Does not use phantom slots.

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.

Serial Pro comes complete with manual, cable and instructions for connecting to all the leading printers and modems.

Serial Pro \$159

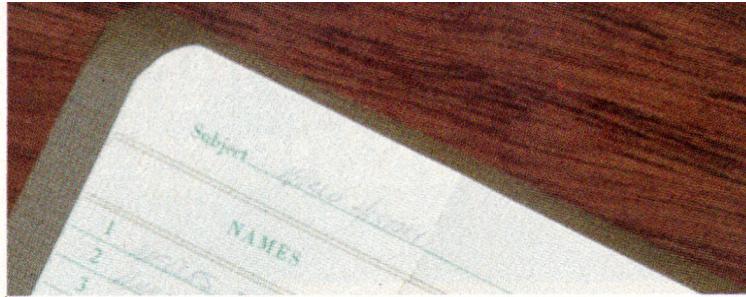
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The program comes with letter-grade ranges, subjects (reading, language arts, spelling, handwriting, math, social science, science, art, music, and physical education), and grade-weighting factors already built in. You can tailor them to your needs, though—if you don't teach music but do teach home economics, for example, you can edit the program accordingly. It even includes an easy way to give extra credit, something not every gradebook can handle.

Use two drives with this program; a single drive slows your work considerably.

It's obvious this program was carefully designed. For example, when you delete a student's name from the class list, Electric Gradebook preserves it elsewhere in the program. If the student reenters the class at a later date, you can recall these data.

The quality of Electric Gradebook's printed reports is excellent. Its one minor fault is the annoyance of having to enter the date before you use the program, as well as print a report.

Figure 3. Master Grades reports with averages, number of absences, and text messages.

GENERAL SHERMAN
REPORT OF STUDENT PROGRESS FOR THE PERIOD ENDING 10/27/86.
DAN BOORSTEIN GRADE 08 PERIOD 1 CLASS: SCIENCE
DAN HAS AN AVERAGE OF 91.7 OR A WITH 1 ABSENCES.
I FIND THIS LEVEL OF ACHIEVEMENT TO BE OUTSTANDING!
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CONGRATULATIONS!

GENERAL SHERMAN
REPORT OF STUDENT PROGRESS FOR THE PERIOD ENDING 10/27/86.
LEROY LADURIE GRADE 08 PERIOD 1 CLASS: SCIENCE
LEROY HAS AN AVERAGE OF 33.3 OR F WITH 0 ABSENCES.
I FIND THIS LEVEL OF ACHIEVEMENT TO BE UNSATISFACTORY.
IF YOU DESIRE A CONFERENCE, PLEASE CALL THE SCHOOL
OFFICE AT 5551212 FOR AN APPOINTMENT.
SINCERELY, MR. CARLSON
I BELIEVE THAT LEROY COULD IMPROVE IN THE AREAS CHECKED BELOW:
...ATTENDANCE ...PREPARATION ...ATTITUDE ...DAILY WORK

GENERAL SHERMAN
REPORT OF STUDENT PROGRESS FOR THE PERIOD ENDING 10/27/86.
SAM MORISON GRADE 08 PERIOD 1 CLASS: SCIENCE
SAM HAS AN AVERAGE OF 66.7 OR D WITH 3 ABSENCES.
I FIND THIS LEVEL OF ACHIEVEMENT TO BE SATISFACTORY.
IF YOU DESIRE A CONFERENCE, PLEASE CALL THE SCHOOL
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I BELIEVE THAT SAM COULD IMPROVE IN THE AREAS CHECKED BELOW:
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"More and more software developers are including some sort of report in their computer gradebooks."

Grade Master

More and more software developers are including some sort of report in their computer gradebooks. Included on Grade Master's grade report is the name of the teacher and school and the phone number where parents can reach the teacher.

Grade Master can produce most of the usual printouts, plus blank gradebook sheets, complete with student names, and a grade-distribution graph with mean, median, mode, and standard deviation. Grade Master keeps up to 36 grades per student, but doesn't include the titles of assignments on progress reports or other printouts. The program keeps assignment information in a file called the "scratch pad." It prints all grades, however, on reports. Grade Master can even print data-disk labels.

The program isn't as easy to run as some others—be sure to consult your manual. The package includes a demo program on the flip side of the program disk, plus a free backup.

Grade Manager

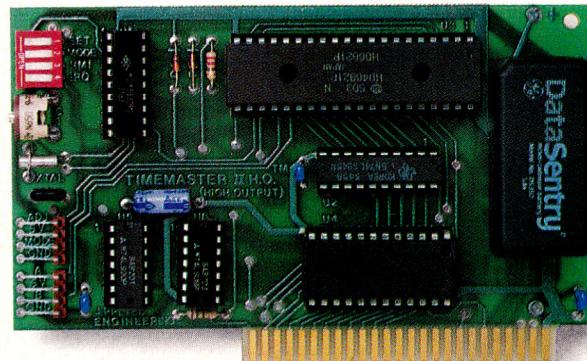
MECC's Grade Manager lets you record an entire year's averages on one disk. It doesn't keep the names of assignments in the program, though.

One of Grade Manager's printout options is a gradebook page with students' names. Unlike Grade Master, though, this program can't maintain information on assignments, quizzes, and the like anywhere on disk. It keeps all grades on disk in categories (grades are numbered within categories—quiz 1, quiz 2, and so on), letting Grade Manager handle up to 50 scores for each of nearly 1000 students.

Figure 4. Report Card listing with individual weighting.

CLASS: BA				
DATE: OCT. 27 1986				
STUDENT 2: LISA BERSCHEID				
NAME	WEIGHT	MARK	TOTAL	PERCENT
1: WKSTP.59	3/26	1	81	/ 100 81.0%
2: SD10.3-4	3/26	1	100	/ 100 100.0%
3: CHEMREACT	3/27	1	75	/ 100 75.0%
4: QUIZ10.1-2	3/2	2	80	/ 100 80.0%
5: CHP 10 TEST4/17	4	97	/ 100 97.0%	
6: ADD IT UP	4/21	.5	100	/ 100 100.0%
7: SKLSHTP.64	1	80	/ 100 80.0%	
8: CHP11 TEST	4/28	4	85	/ 100 85.0%
9: SD12.1	4/28	1	100	/ 100 100.0%
10: wkshtp. 69	4/29	.5	38	/ 100 38.0%
11: WKST P.71	5/1	1	90	/ 100 90.0%
12: P22B-9	4/11	1	84	/ 100 84.0%
13: QUIZ12.1-2	5/1	.5	40	/ 100 40.0%
14: 12.4&REVIEW	5/2	1	86	/ 100 86.0%
15: QUIZ13.1	5/7	2	80	/ 100 80.0%
16: SD 13.2/3	5/8	1	100	/ 100 100.0%
17: WKST P.77	5/8	1	100	/ 100 100.0%
18: SD12.1	4/28	1	100	/ 100 100.0%
19: SD 11.3	4/23	1	100	/ 100 100.0%
20: WKST P.65	4/24	1	80	/ 100 80.0%
21: SD13.1	5/5	1	100	/ 100 100.0%
22: SD22.2	5/13	1	100	/ 100 100.0%
23: CHP12TEST	5/6	3	94	/ 100 94.0%
24: CHP13TEST	5/13	4	75	/ 100 75.0%
25: QUIZ 22.2	5/14	2	70	/ 100 70.0%
26: EXPACID&BASE4/8	2	95	/ 100 95.0%	
27: SD22.3	1	50	/ 100 50.0%	
28: CP22TESTM	5/19	4	80	/ 100 80.0%
29: ESSAY	5/27	2	100	/ 100 100.0%
PERCENTAGE: 85.9 %				

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Grade Manager also lets you print progress reports according to name, student identification number, high score (all students whose averages are above a certain score), low score (all scores below a certain number), and all students with missing scores.

You can also add personalized comments to encourage, inform, or give suggestions. Grade Manager can also automatically alphabetize names of students added later in the grading period.

MECC has a reputation for producing excellent manuals, and Grade Manager's is no exception. Besides the usual information, it includes case studies and suggestions to guide the new user. Appendices include discussions of grading systems, statistics, weighting scores, and so on.

Grade Manager includes a backup disk. Use a separate disk for data storage. To load Grade Manager you must first enter a password. Although this gets tiresome if you're the only person using the book, it does make your Grade Manager records more private.

The Graphic Gradebook

Graphic Gradebook is the most complicated of the programs reviewed here. It prints the usual reports, but its real strength lies in its ability to produce impressive pie and bar graphs (with an ImageWriter or Scribe printer only, however).

The program keeps data on separate disks and comes with a backup. Its manual is in tutorial format, divided into 22 exercises.

The J&S Gradebook

The J&S Gradebook is one that functions best with two drives. It works with one, but you must continually switch program and data disks. It comes in two formats, up to 40 grades per student and up to 50. The current program is a bit slow when loading modules, but a ProDOS version is in the wings.

J&S offers a complete set of printouts, including a student report with checklists for behavior, class participation, and so on (Figure 2), as well as progress reports, class averages, conversion of scores to letter grades, and reports for students below or above certain limits. Progress reports are dated and come with the teacher's name.

Backup disks are \$10 each, and an upgrade costs \$20. One annoying flaw is that assignment names are limited to only eight characters. You must also tell the program the number of drives you have hooked up every time you use the J&S Gradebook.

J&S handles extra credit easily—just type in the total number of points awarded.

Master Grades

Master Grades is another program that doesn't function as a gradebook in the usual sense of the word. It doesn't keep a list of grades for each student; instead, it functions as a calculator. You type in the grades for an assignment and Master Grades holds them on the data disk as a cumulative total.

The program prints three kinds of reports (Figure 3): one for students doing unsatisfactory work, another for those at an average level, and a congratulatory report for those doing well.

Other printed reports include a gradebook page for daily grades, class lists, and a complete list of all students on the data disk.

Report Card

Report Card is a versatile, easy-to-use gradebook, ideal for use with one disk drive; the program loads completely

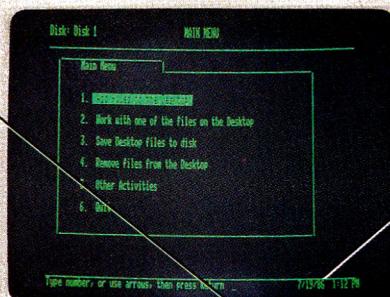
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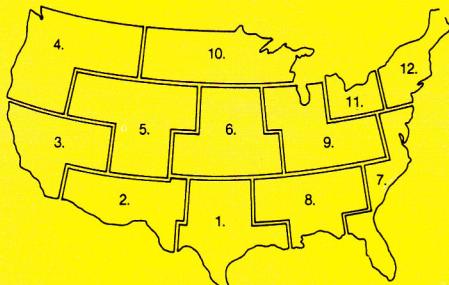
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into your Apple's memory, then operates from the data disk. It's menu-driven and simple to understand. The documentation is almost superfluous, but if you're someone who compulsively reads manuals, this one comes in a small ring binder and is clear and easy to follow.

Although many gradebooks weight grades by category (tests at a particular percent, quizzes at another, and so on), Report Card lets you weight each grade individually (**Figure 4**). Title names are allotted 15 letters; corrections are easy.

activities, class roster, and a class table for ten successive grades. Report Card also converts numerical scores to letter grades or pass/fail and prints them.

Report Card comes with a backup disk and saves records on a data disk.

Toward Better Education

Apple gradebooks offer the teacher an advantage that hasn't come along in a while: a way to become more efficient and save time. If you use it right, an Apple gradebook can enhance education for all concerned—teachers, parents, and students alike. ■

Write to Kenneth W. Carlson at 1407 Middletree Road, Joliet, IL 60433.

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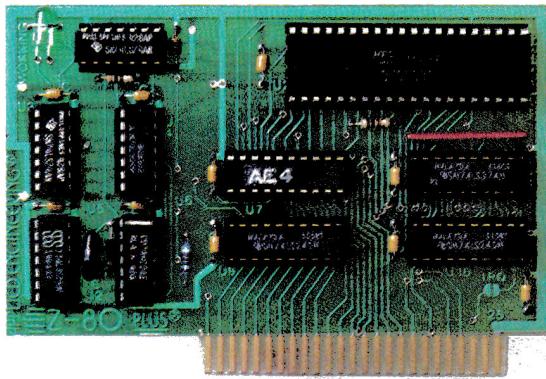
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Creating an Employee Database—Part 2

AppleWorks offers an array of convenient functions that help you keep your database up to date.



by Ruth K. Witkin

After all is said and done, there's usually a sequel." The sage who penned those immortal words must have had this column in mind. When we left off last month, you had created an employee database, inserted the first batch of records, changed the layout of the multiple-record screen, arranged records, switched categories, created a report format, printed an employee roster, and updated a record. With multifaceted, many-featured AppleWorks, just when you think you've done it all, here comes more.

In this session, you'll sample a few more goodies, including how to delete a record in the Employee database, duplicate a report format, insert deleted categories, add the entries in a category, right-justify the entries, insert a record, select records on two criteria, view a report on screen, and produce two reports, one containing the wage and salary information in every record, and the other the upcoming salary reviews in the sales department. To all the letter writers who asked about selecting records, this is the column I promised.

Start up the AppleWorks program and load the EMPLOYEES file. When the Review/Add/Change screen appears, you should see 12 records in the multiple-record layout.

Deleting a Record

It's important—and easy—to keep your employee database up to date. For instance, Tony Tate, a sales engineer, resigned to accept another position, so you'll have to delete his record. When your database is loaded with records (and we're pretending this one is), you can use either the Record Selection or Find command to locate a record, as you did last month. Though not quite the last word in efficiency, you can also use the AppleWorks ruler: Press OA-7 to jump the cursor to the Tate record. Press OA-D to start the Delete command, and press the return key to confirm the deletion. Now press OA-1 to display all the remaining records.

Creating the Wage & Salary List

You're reviewing the salary structure of the company and want to know

who's doing what and for how much. **Figure 1** shows the wage and salary report. It's similar to the employee roster you created last month, so the best approach is to duplicate the roster format, then modify it. Press OA-P to bring up the Report Menu. Type 4 to select *Duplicate an existing format* and press the return key twice (the second time selects ROSTER). Press OA-E to switch to the overtype cursor (a blinking rectangle). Now type **WAGE & SALARY LIST** and press the return key again. The Report Format screen appears.

You don't need the hire dates in this report, so delete them. Press the right arrow key three times to move the cursor to column D. Now press OA-D.

Next, insert the categories that contain wage and salary information. These categories, which you created initially, then deleted on the employee roster, contain the increase amounts, last review dates, next review dates, and salaries. Deleted categories remain in limbo until you need them on another report, unlike record deletions, which are permanent.

Inserted categories appear to the left of the cursor. Press the right arrow key twice to place the cursor atop the Len indicator. Press OA-I to bring up the Insert a Category screen. Type 4 to select AMOUNT and press the return key. Press OA-I again. Type 3 to select L INC DATE and press the return key. Press OA-I, type 3 to select N REV, and press the return key again. And finally, press OA-I and the return key to confirm SALARY.

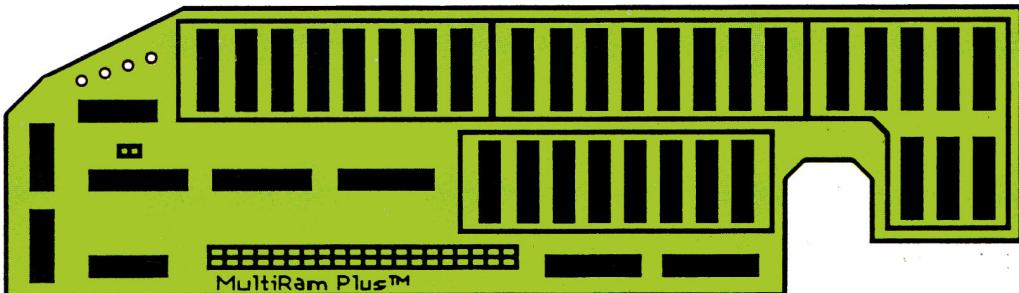
Adjusting the Column Widths

Now press the right arrow key four times and you can see Len 115, the print width of this report. When you print at 12 characters per inch, you can fit up to 97 characters across a page, so the next task is to pare the print width.

Press the left arrow key to move the cursor to column I (AMOUNT). Reduce its width by pressing the OA-left arrow keys six times. Move the cursor to each of the following columns and reduce its width in the same way:

Column H (L INC DATE) OA-left arrow (2 times)

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INSTANT SAVES

We all know better than to allow a large file to remain in memory without saving the data every few minutes. Or do we? That huge AppleWorks file takes forever to save, and sometimes we make the risky decision to put convenience before safety. Normally if you try to save an AppleWorks file, you watch the cursor take a coffee break. With Checkmate's MultiRam™ Plus card, you're back inputting data within seconds.

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APPLEWORKS IN ACTION

Column G (N REV) OA-left arrow (4 times)
Column F (SALARY) OA-left arrow (3 times)
Column E (POSITION) OA-left arrow (2 times)
Column D (DEPARTMENT) OA-left arrow

The print-width indicator should now read *Len97*.

Adding the Entries in a Category

It's useful to know what the weekly payroll is. Press the right arrow key twice to move the cursor to column F. Press OA-T to tell AppleWorks to add the salaries. Specify two decimal places and confirm three blank spaces between columns F and G by typing **2** and pressing the return key twice. AppleWorks now displays nines in place of the salaries, and lines below the nines indicating this category is totalled.

Right-Justifying a Category

The increase amounts can use a similar treatment. Press the right arrow key three times to move the cursor to column I. Press OA-J to tell AppleWorks to right-justify the entries. Now type **2** and press the return key. Since the AMOUNT category is in the last column, you don't need any blank spaces between it and its nonexistent neighbor to the right. AppleWorks won't let you enter zero blank spaces, so type **1** and press the return key again. The nines show the alignment and decimal places.

Setting the Printer Options

Now, get ready to print. Press OA-O to bring up the Printer Options screen. This is a wide report, so you want to return the left and right margins to the standard zero inches. Type **LM** and press the return key. Type **0** and press the return key again. Type **RIM** and press the return key. Type **0** and press the return key again.

Next, have AppleWorks print the report at 12 characters per inch: Type **CI** and press Return. Type **12** and press the return key. And finally, have AppleWorks double-space the records: Type **DS** and press the return key.

When a category has no entry, as with a new employee who doesn't have a last increase date or amount, you can tell AppleWorks to print either a dash or a zero. A dash prints in place of the date, and a zero in place of the increase amount. To toggle this

setting, type **PD** and press the return key. Now press OA-S to store the database on disk. After AppleWorks saves, it brings up all the records in the Review/Add/Change screen.

Inserting a Record

Tony Tate's resignation in the midst of your big season certainly left a big gap in your sales staff. Happily, your good buddy was offered the position, and he accepted it, so it's time to insert a record. Press OA-I to bring up the Insert New Records screen. Since your cursor was in the Aven record, an empty Record 1 appears and all the succeeding records are renumbered.

Type the following entries and press the return key after each one, just as you did when you inserted the first batch of records. Have a bit of fun and use the name of someone you know (or your own name). After you type the hire date, press the return key three times to move past the empty categories (L INC DATE and AMOUNT), then type the next review date and press the return key again:

LAST NAME:	(Last Name)
FIRST MI	(First Name Middle Initial)
EMP:	152
DEPARTMENT:	Sales
POSITION:	Engineer
SALARY:	(enter a salary, but remember, fantasies don't count!)
HIRE DATE:	2-2-87
L INC DATE:	
AMOUNT:	
N REV:	AUG 87

You should now see an empty Record 2 on screen. Exit the Insert New Records screen by pressing the escape key.

Arranging the Records by Salary

It helps to know who the big earners are, so arrange the records from lowest to highest salary. Press the tab key five times to move the cursor to the SALARY category. Press OA-A to start the Arrange command. Type **3** to select *From 0 to 9* and press the return key. Any arrangement has a universal effect, so the employee roster you created last month is now in salary order, too. Press OA-S to store the database.

Bring up the wage and salary list again: Press OA-P to bring up the Report Menu. Press the return key to confirm *Get a report format*. In the

Report Catalog screen, type **2** to select *WAGE & SALARY LIST* and press the return key again.

You can get an idea of what a printed report will look like by viewing it on screen. Press OA-P to bring up the Print the Report screen. Type **2** to select *The screen* (or type your screen number if you have more than one printer) and press the return key. Type today's date and press the return key. You now see the first seven categories in the first seven records. Looking good. Press the return key again, and the other records and salary total appear. Return to the Report Format screen by pressing the return key again.

Printing the Wage and Salary Report

Now let's see how everything looks on paper. Be sure your printer is on. Press OA-P. Type your printer number and press the return key three times. The printer whirs and here's a report that should look like the one in **Figure 1**. The Report Format screen returns.

Selecting Records

Salary review time is near, and you want a list of salespeople who are up for review next month, which means selecting records on two criteria: **SALES** and **MAR 87**. The current record selection, *All records*, is shown in the top left of the screen. Watch how it changes as you go through the next few steps. Press OA-R to bring up the Select Records screen. Type **4** to select **DEPARTMENT** and press the return key. The proposed response, *equals*, is fine, so press the return key again. AppleWorks now asks for the comparison information. Type **SALES** and press the return key again.

Confirm the connector and by pressing the return key. Type **10** to select **N REV** and press the return key. Again, *equals* is fine, so press the return key. Now type **MAR 87** and press the return key again. You don't have any other criteria, so press the escape key. The Report Format screen reappears.

Printing a List of Selected Employees

First, view the selected records: Press OA-P, type the number that selects *The screen*, and press the return key twice. AppleWorks now displays two records that meet both criteria—

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- Center text
- Chaining of macros
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- Headers and footers
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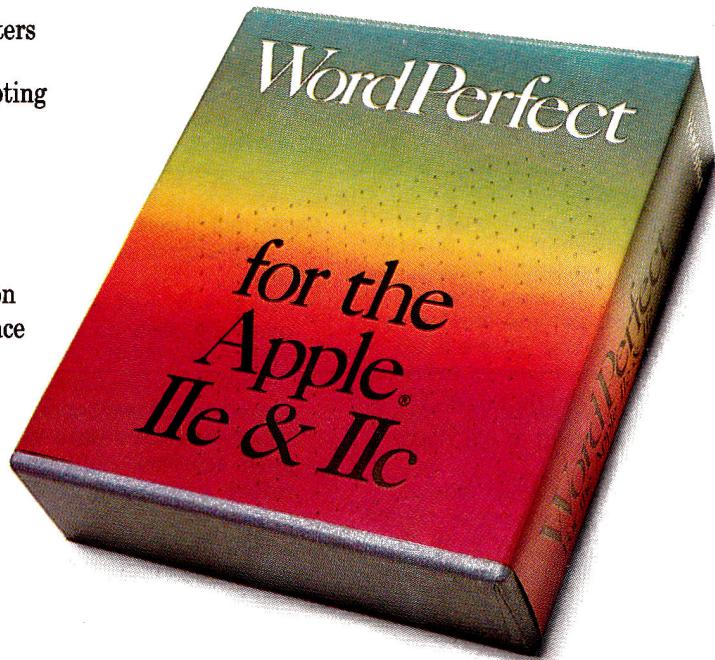
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APPLEWORKS IN ACTION

Figure 1. A wage and salary report, arranged by salary, created with the employee database.

File: EMPLOYEES Report: WAGE & SALARY LIST								Page 1 2-5-87
EMP	LAST NAME	FIRST MI	DEPARTMENT	POSITION	SALARY	N REV	L INC DATE	AMOUNT
95	CLARK	DAVID	WAREHOUSE	ORDER PICKER	237.00	AUG 87	Feb 28 86	18.00
134	RYAN	MICHAEL	WAREHOUSE	ORDER PICKER	300.00	FEB 87	Apr 21 80	21.25
105	AVEN	EVELYN S.	ADMINISTRATION	BOOKKEEPER	367.50	MAR 87	Sep 1 86	28.00
86	TUZZOLINO	PHILIP	SALES	SALES	375.32	MAR 87	Feb 24 86	27.50
122	MORITA	TAEKO	ADMINISTRATION	SECRETARY	375.50	MAY 87	May 1 86	33.00
134	WENNERSTROM	JEFFREY M.	SALES	ENGINEER	380.75	MAR 87	May 23 86	24.50
161	WEISSMAN	BEN	TELEPHONE	SALES	400.50	NOV 87	Nov 12 86	28.50
27	SPOLBERG	CLARA W.	TELEPHONE	SALES	482.00	JAN 88	Jan 12 87	55.00
45	FULTON	FRISBY	WAREHOUSE	MANAGER	575.17	DEC 87	Dec 12 86	48.50
152	WITKIN	RUTH K.	SALES	ENGINEER	600.00	AUG 87	-	0.00
143	GREENE	NAT	ADMINISTRATION	CONTRACTS	617.33	APR 87	Mar 30 86	45.00
103	BYRD	BURT E.	SALES	MANAGER	625.00	SEP 87	Sep 10 86	50.00
								5336.07*

Figure 2. A listing of employees in the employee database selected by department and next review date.

File: EMPLOYEES Report: WAGE & SALARY LIST								Page 1 2-5-87
Selection: DEPARTMENT equals SALES and N REV equals MAR 87								
EMP	LAST NAME	FIRST MI	DEPARTMENT	POSITION	SALARY	N REV	L INC DATE	AMOUNT
86	TUZZOLINO	PHILIP	SALES	SALES	375.32	MAR 87	Feb 24 86	27.50
134	WENNERSTROM	JEFFREY M.	SALES	ENGINEER	380.75	MAR 87	May 23 86	24.50
								756.07*

Tuzzolino and Wennerstrom. Press the escape key to return to the Report Format screen.

Next, print the selected records: Press OA-P, type your printer number, and press the return key three times. Your report should look like the one in **Figure 2**. Now press OA-R and type Y to return the selection to All records.

This database is yours to play around with. If you add new categories, be aware that the custom

screen layout and report formats will vanish and you'll have to re-create them. Now that you know the techniques, you should have no trouble at all.

Next month, I'll explain how to create an AppleWorks spreadsheet that makes it easy to compare different deals when you're in the market for a car loan. ■

the author of the *hotCider* Success with AppleWorks (inCider, CW Communications), Managing with AppleWorks (Howard W. Sams & Co.), and Personal Money Management with AppleWorks (Hayden Books). Write to her at 5 Patricia Street, Plainview, NY 11803. Enclose a stamped, self-addressed envelope if you'd like a personal reply.

Ruth K. Witkin is a consultant in computer applications for business. She is

How'd They Do That?

Get "under the hood" of your IIgs—you don't have to be a programmer to understand it.



by Paul Statt,
Technical Editor

*An array of firmware tools in the GS offers Apple II programmers a new challenge. This month inCider introduces a tutorial column, *Mastering the IIgs*, to help you get the most from the machine's operating system, tools, and languages.*

Ever notice the family resemblance all your IIgs application programs share? That new graphics program, for instance, inherited your word processor's habit of talking to you through windows and dialog boxes. That likeness is no random mutation; it's a carefully bred result of the *firmware tools* that determine the look and feel of Apple IIgs programs.

If you're the kind of "end user" who couldn't care less how your 16-valve turbo engine gets from zero to 60 in five seconds, you can stop reading now. But if you're the sort of driver who likes to get under the hood and at least understand what makes your motor run, read on. You don't have to be a programmer to understand the IIgs Toolbox; you just need to wonder how it works.

Tom Swan, *inCider*'s Pascal Primer columnist, will turn his attention to the IIgs here in the upcoming months. Tom's pretty handy with Pascal on his trusty IIe; more importantly, he's been (secretly) fooling around with a Macintosh.

"Tools are a pretty radical concept for an Apple II programmer," Tom told us, "but for a Mac programmer they're old hat."

Mastering the IIgs, then, is a quick course in a radical concept. We'll also talk about ProDOS 16—Apple's newest operating system—65816 assembly language, Pascal and C compilers for the IIgs, and maybe some IIgs hardware. We'll stress the tools, though. And that's where we'll start.

What's a Tool?

A *tool*, says Webster, is "a means to an end." Apple puts it this way: The IIgs Toolbox is a collection of routines applications can call. The "end," for Apple, is that all GS programs work alike, and that you'll have less work to do when writing new programs (in Pascal, C, or assembler,

the three languages that can call tools). Who knows? Maybe some resourceful user will find a way to call a helpful tool after crashing into the Monitor.

Tools work fast—faster than any higher-level language—because they're written in machine language. And a tool makes programming faster because every routine you call with a tool is a routine you don't have to write yourself.

Tools do things like draw windows, read the hardware clock, and divide memory. Remember that tools are machine-language routines you can call only from Pascal, C, or assembler, and not even from every implementation of those languages at that. At press time, the only available language that could produce executable files for the new machine was the ORCA/M Assembler for the IIgs (\$69.95, Byte Works, 4700 Irving Boulevard NW, Suite 207, Albuquerque, NM 87114, 505-898-8183). C and Pascal compilers that write Apple IIgs code are expected from Manx Software (One Industrial Way, Eatontown, NJ 07724, 201-542-2121) and TML Systems (4241 Baymeadows Road, Jacksonville, FL 32217, 904-636-8592). Early on, Apple hinted it might be possible to reach some tools, especially to the QuickDraw II graphics program, from Applesoft BASIC, but we have yet to hear any more about that.

Working with "someone else's tools" needn't constrain you, either—you can write your own. Nobody has come up with any handmade tools yet, but it's early, and Apple do-it-yourselfers haven't had a crack at the IIgs yet. When programmers write custom tools, the IIgs will use them just as it uses Apple's—thanks to a built-in ROM routine called the Tool Locator.

How do you use a tool? All you have to know is the name of the tool and how to access it. Calling instructions vary from language to language; in a future column we'll discuss procedure in detail.

Apple divides its tools into five groups: Desktop, Math, Print, Specialized, and the "Big Five."

The Big Five are the tools Apple II programmers are most likely to welcome without reservation: They include QuickDraw II, which creates the GS' unique graphics environment; the Memory Manager, which keeps the GS' mammoth RAM under control and divvies it up among applications; the Event Manager, which controls keyboard and mouse input; the Tool Locator, which finds the others for your application program; plus a handful of Miscellaneous Tools that perform small but important tasks such as watching the clock.

QuickDraw Primitives

QuickDraw II is the child of QuickDraw, the graphics firmware that powered the Mac. QuickDraw didn't offer color because the Mac didn't, but with that exception you'll find that QuickDraw II has fewer routines than QuickDraw.

Drawing objects in super-hi-res graphics is QuickDraw II's bread and butter. To represent simple objects—

lines, rectangles, oddly shaped regions, irregular polygons, ovals, rectangles with rounded corners, arcs of circles, pixel images, and any text characters and strings your application displays in windows—you don't need to write code; call QuickDraw from within your program to do it for you.

QuickDraw II draws horizontal lines, its *primitive objects* from which it builds vertical lines, rectangles, circles, and other more complex objects. They may enjoy their own QuickDraw commands—SetRect calls a rectangle, for instance—but QuickDraw still relies on horizontal lines to draw them.

QuickDraw also defines an application's *drawing environment*, a set of rules that determines what happens when you draw—the area of memory in which the drawing is located, the pen and font for which the application calls, and so on.

QuickDraw keeps each drawing environment in a separate record, called a *GrafPort*. Naming the environment

with a single call makes switching, say, between text and graphics environments simple.

Memory Allocation

The GS Memory Manager keeps your GS' RAM under control. One of its more important jobs is to permit coresident applications—desk accessories and the like. The GS' System Loader software calls the Memory Manager every time it loads a program into RAM, to allocate the memory space the application needs. This program in turn can call the Memory Manager to ask for additional memory if it needs it, to release unused memory back to the system, or to learn the amount of currently available memory.

Your GS allocates memory in blocks, but they're not like the 512K ProDOS block you may know, nor the two 64K banks in a 128K IIe or IIc. The Memory Manager assigns each GS memory block a number of attributes.



Pascal for the Apple IIgs!

TML Pascal - one of the most popular development systems available for the Apple Macintosh is now available for the Apple IIgs!

TML Pascal

\$125.00

TML Pascal is a fast, one-pass native code 65816 Pascal compiler supporting full GS ROM access for developing stand-alone ProDOS16 applications and desk accessories. The compiler supports separate compilation of units, Pascal strings, type coercion, SANE, and much more.

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Resource Edit is a multi-window, mouse based tool used to graphically create and modify the definitions for the menus, windows, dialogs, alerts, cursors, etc. used in an application. After creating the resources for an application, Resource Edit automatically generates the code necessary to use each resource in your application. This tool is a must for any serious Apple IIgs developer! Can be used with TML Pascal, APW C, and APW Assembler.

TML Source Code Library

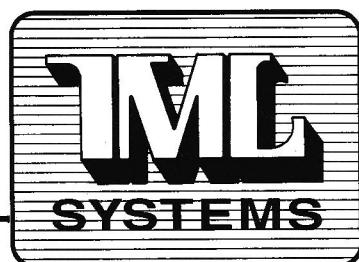
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The Source Code Library is a large collection of Pascal source code examples with complete documentation demonstrating the techniques for programming the many fascinating features of the APPLE IIgs. Examples include the use of QuickDraw, Sound, Menus, Windows, Dialogs, and many more all ready for use in your own applications.

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Special

First, a memory block can be *movable* or *fixed*. By and large, blocks of code stay put, with fixed addresses (for instance, the graphics-screen block is always in the same place), but blocks of data move when necessary to compress memory.

Some blocks don't have to be held exactly in place, but must start in a specific bank—a zero-page block, for instance, must start in bank zero. In addition, blocks of code must never cross bank boundaries; this attribute is called *Bank Boundary Limited*.

Locked blocks are those to which a program can't write until the Memory Manager unlocks them.

And if you have a non-GS Apple II program, the *Special Memory Usable* attribute dictates that it must run in two places in the new machine at the same time, according to a technique called *memory shadowing*.

GS Events

Tapping a key or clicking the mouse button is an "event"—at least

to the GS' Event Manager, a central part of the operation of the new machine. If an application is "event-driven"—that is, if it performs in response to tickling the keyboard or mouse—its core is a loop that calls the Event Manager and adds a series of conditional statements.

An Event Manager routine called *GetDblTime*, for instance, determines the length of the pause between clicks of the mouse button, so that your GS can tell the difference between the required double click and the single clicks of a lazy finger. It's this value, *GetDblTime*, you change with the GS Control Panel to adjust the sensitivity of the mouse's double click.

Additional Tools of the Programming Trade

GS ROM includes arithmetic routines (the Standard Apple Numerics Environment, SANE), as well as routines that access the Ensoniq sound chip and the desktop bus.

Other ROM tools don't fall into neat categories. Three clock routines, for example, read and write to the GS' non-*ProDOS-compatible* clock. *ReadTimeHex* and *WriteTimeHex* read or set the clock in hexadecimal format. *ReadASCIITime* returns the time in ASCII format—call this routine if you want to display the date and time during an application.

In upcoming columns, we'll tell you more about using GS tools. We've just received the Apple IIgs System Disk, for instance, and we hope to have the ORCA assembler soon. If you're serious about IIgs programming—take a look at Apple's "Roadmap to the GS Technical Manuals" in *Technical Introduction to the Apple IIgs* (Addison-Wesley, 6 Jacob Way, Reading, MA 01867, 617-944-3700) to learn where you can get more information. And watch this space in the months to come. ■

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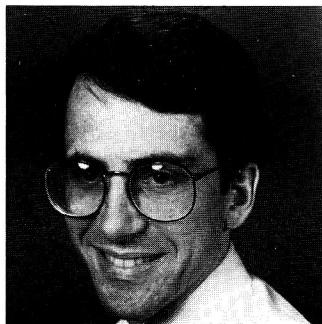
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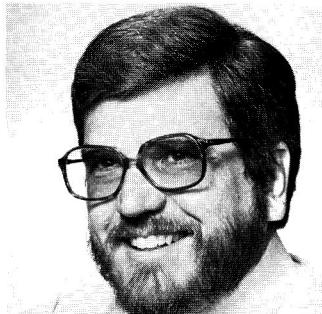
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Quick-Grader Calculators

BASIC and AppleWorks provide two formats for creating your own electronic gradebook.



by David Goodrum



and Joel Robbins

I want to use a computer for grading, but I don't always have access to one at school." "I like the traditional gradebook, but hate to calculate all those grades at the end of each term." "I wish there were programs students could use at home or in the lab to determine their own letter grades, to save me time."

We often hear comments such as these from teachers, so this month we're presenting two BASIC programs and two AppleWorks templates to help you calculate final grades. Parents and students can use these applications to figure percentage or total-points grades anytime during the school year. These programs and templates perform basically the same function; choose the one that works best for you, or set up a couple of them for different situations.

BASIC Program for Percentage Grades and Averages

The first application, a BASIC program (see the **Program listing**), figures percentage grades and averages. It's handy if you're unfamiliar with AppleWorks or don't always have an AppleWorks data disk available.

To begin, boot up a DOS 3.3 or ProDOS disk and type in the **Program listing**. Now change lines 20 and 25 to reflect your personal grading scale. Each number in these lines represents a cutoff point for the letter grade after it. For example, 90,B+ in line 25 applies the letter grade B+ to any grade average that's equal to or greater than 90 percent, unless it's equal to or greater than the next cutoff point.

Replace "Mr. Smith" in line 50 with your name or your class name. This label identifies the program or grading scale for a particular class, if you leave copies of the program in the computer lab for student use. You can have a different scale for each class, and students will know when they have the right program, even if it's already booted.

Save the program on disk as QKGRADER and run it. (Correct any typos you've made, and save and run it again.) The first prompt asks you to enter a weight and a grade. To save time, the weight and grade are combined into one entry. For example, if a quiz carries a weight of 1, and the score is 85, you'd type 185. A major test might be entered as 1092 (weight = 10, score = 92). Ten is the highest possible weight. Type in weights/grades until you're finished. Then type in a P instead of a weight/grade to print the average and letter grade on screen. Press N and you're ready to enter the next student's score. Remember that an individual score can be 110 percent (allowing for extra credit).

Adjusting the Program for Total Points

If you'd rather figure total points, make the following changes as you type in the **Program listing**:

- 1) Leave out lines 85 and 86, or delete them if you've already typed in the listing by typing DEL 85,86 at the BASIC prompt.
- 2) Leave out or delete lines 150-310.
- 3) Add or change the following lines:
15 HOME : VTAB 7: INPUT "ENTER TOTAL POSSIBLE POINTS >";TP
16 HOME:SPEED = 225
40 RESTORE
80 PRINT:PRINT "ENTER THE RAW SCORE"
92 PRINT "RAW SCORE TO PRINT AVERAGE"
105 AA = 0:TS = 0:CD = 0
130 PRINT "RAW SCORE ";:INVERSE : PRINT AA;
142 IF SC\$ = "P" OR SC\$ = "p" THEN 380
330 W = 1 : SC = VAL(SC\$)
380 GT = TS / TP * 100

If you use total points, you'll still want to use lines 20 and 25 to enter your cutoff points.

MACROWORKS

\$34.95 (for AppleWorks version 1.3 or older)
by Randy Brandt

Note: New AppleWorks Version 2.0
requires New SUPER MACROWORKS→

MACROWORKS streamlines AppleWorks' word processor with new features. For example, one keystroke now deletes the character or word at the cursor. Another keystroke jumps to the start or end of a line. Another erases an entire line.

Change your mind? Press ⌘-U to "undo" your last delete-command.

New! AppleWorks MOUSE CONTROL

MacroWorks lets you use your Apple's Mouse to control AppleWorks' menus, scrolling, word-block highlighting, and so on.

APPLEWORKS MACROS. MacroWorks will convert any series of keystrokes into a new one keystroke solid-Apple (apple) command. (All open-Apple commands stay intact.)

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You can set up macros that execute any often-repeated function. You can even skip over unwanted AppleWorks questions like "How many copies?"

JUST BOOT APPLEWORKS, AND GO!

MacroWorks is not a time-consuming "pre-boot" disk. To start up, just boot AppleWorks like you always do. Now you've got optional Mouse control and you've got over 4,000 keystrokes-worth of macros at your fingertips.

SHAPE MECHANIC

\$39.95 (for any version of Apple II)
by Bert Kersey & Mark Simonsen

SHAPe MECHANIC converts hi-res drawings into animatable shapes that can be put on the screen with simple Applesoft commands. It also converts sections of hi-res pictures into "drawable" shapes.

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Program listing. QKGRADER.

```

10 REM "QKGRADER" BY JOEL ROBBINS WITH DAVID GOODRUM
20 DATA 65,D-,69,D,72,D+,75,C-,78,C,81,C+,84,B-
25 DATA 87,B,90,B+,93,A-,96,A,98,A+,100,(ERROR?) A+
30 SPEED= 225
40 RESTORE : CLEAR
50 HOME : INVERSE : PRINT "MR. SMITH'S CLASS"
55 REM REPLACE MR. SMITH WITH YOUR NAME
60 NORMAL : VTAB 4
70 PRINT " * FIGURE STUDENT SCORES *"
80 PRINT : PRINT "ENTER THE WEIGHT FOLLOWED BY THE"
85 PRINT "PERCENTAGE GRADE. EXAMPLE:"
86 PRINT "284 WOULD EQUAL WEIGHT 2, GRADE 84"
87 PRINT
90 PRINT "ENTER A <P> INSTEAD OF THE NEXT"
92 PRINT "WEIGHT/RAW SCORE TO PRINT AVERAGE"
93 PRINT "TO SCREEN."
100 PRINT
110 AA = AA + 1
120 W$ = "":W = 0
130 PRINT "WEIGHT/RAW SCORE ";: INVERSE : PRINT AA;
135 NORMAL : PRINT " = ";
140 INPUT SC$
150 CI = VAL (SC$): IF CI < 10 THEN 250
160 LL = LEN (SC$): IF MID$ (SC$,2,1) = "0" AND LL > 2 THEN
180
170 GOTO 190
180 W$ = MID$ (SC$,1,2)
190 CI = VAL (SC$): IF CI > 10110 THEN 250
200 IF SC$ = "P" OR SC$ = "p" THEN 380
210 IF W$ > "10" THEN 250
220 IF W$ = "10" THEN 270
230 W$ = LEFT$ (SC$,1): IF W$ = "0" THEN 250
240 GOTO 270
250 IF SC$ = "P" OR SC$ = "p" THEN 380
260 PRINT CHR$ (7);: INVERSE
265 PRINT "WEIGHT OR SCORE INCORRECT. RE-ENTER"
266 NORMAL :W = 0:W$ = "": GOTO 130
270 IF SC$ = "" THEN 190
280 SC$ = RIGHT$ (SC$,LL - 1)
290 W = VAL (W$): IF W = 10 THEN SC$ = RIGHT$ (SC$,LL - 2)
300 SC = VAL (SC$)
310 IF SC > 110 THEN 250
320 PRINT
330 W = VAL (W$)
340 T = W * SC
350 TS = TS + T
360 TW = TW + W
370 GOTO 110
380 GT = TS / TW
390 GOSUB 480
400 PRINT
410 INVERSE : PRINT "PERCENT & GRADE--> ";: NORMAL : PRINT "
";GT"%,"G$"
420 PRINT
430 PRINT " TOUCH <N> FOR NEXT, <Q> TO QUIT."
440 GET C$
450 IF C$ = "N" OR C$ = "n" THEN 40
460 IF C$ < > "Q" AND C$ < > "q" THEN 440
470 HOME : END
480 IF GT < 65 THEN G$ = "F"
490 READ DS,DG$: IF GT = > DS THEN G$ = DG$
500 CD = CD + 1: IF CD > 10 THEN 520
510 GOTO 490
520 READ DS,DG$: IF GT > DS THEN G$ = DG$
530 CD = CD + 1: IF CD > 12 THEN RETURN
540 GOTO 520

```

Your score total can exceed 100 percent of the total points you entered in the total-points version, but you'll get an ERROR? prompt with your percentage and letter-grade display. You can then decide whether an average of more than 100 percent is because of extra credit or an error in your entries. You enter the total points only once for the class. Later, if you want to grade a class with a different number of total points, choose <Q> to quit and then type RUN to start again.

AppleWorks as a Quick Grader

If you're an AppleWorks user, try one of the Quick Grader templates outlined below. They'll do the same job as the BASIC programs above, but with some advantages: If you use AppleWorks for some of your classroom-management chores, you can press OA-Q to switch to the Quick Grader template. Another advantage is that you enter the weights only once, and *all* the grades and weights are visible on screen if you need to check your entries.

Creating the Quick-Grader Template

To begin, boot up AppleWorks and choose to add a new file for the spreadsheet from scratch. Name this file QUICKGRADER, then follow these steps:

- 1) Shrink the width of column A to three spaces and column B to six: Place your cursor in the appropriate column, press OA-L (layout), choose *columns*, press Return for *highlighted* column, choose *column width*, and press OA-left arrow.
- 2) Press OA-V (standard values) and choose *recalculate*, *frequency*, and *manual*. The spreadsheet will now calculate only when you press OA-K (calculate).
- 3) Move the cursor to cell D1 and type the information shown in cell D1 of **Figure 1**. You must press Shift- (hold down the shift key and press the quote key) before typing %.
- 4) Type the appropriate data from **Figure 1** into cells E1, F1, G1, and I1. Column I will have to be widened one space, so press OA-L (layout) and choose *columns*, press Return on highlighted column I, choose *column width*, press OA-right arrow once, then press Return.
- 5) Place the cursor in cell B2, press Shift- (hold down the hyphen key until the line reaches beneath the

Figure 2. Additional values off screen.

J	K	L	M	N	O	P	Q
36							
37	.9	.93	.96	1	1.001		
38	9	10	11	12	0		
39							

again. If one student completed fewer projects and you want to calculate his or her grade on just those scores, make sure you remove the weights from the cells that have no corresponding scores before you calculate.

Adjusting the Template for Total Points

If you want to use the template for total points, make the following changes, rename it, and save it to disk:

- 1) Change the heading for column D from % SCORE to RAW SCORE.
- 2) Change the heading for column E from WEIGHT to POSSIBLE.

3) Change the heading for column F from TOTAL to PERCENT.

4) Change the formula (use OA-U) in cell G3 to divide total raw score by possible points:

$@SUM(D3...D32)/(@SUM(E3...E32))$

5) Now copy that formula into cells F17 and F33.

6) Replace the formula in F3 with the following formula:

$@IF(E3>0,D3/E3,0)$

This formula divides the particular raw score by the possible points for this item. If no possible points are given, the spreadsheet prints a zero. This avoids a lot of error messages.

7) Copy the formula down that column using OA-C as you did in step 10 above.

8) Press OA-L to format the values in column F for percentages.

Type possible scores for each assignment into column E, then add scores as you would for the weighted-grading template above. Press OA-K to calculate.

Next month, we'll show you how to use your Apple's monitor to display daily announcements, open-house messages, and graphics-type classroom presentations. ■

David Goodrum and Joel Robbins are the developers of SchoolWorks, AppleWorks templates for education, published by K-12 MicroMedia Publishing, and other educational software. Write to them at Tulip Tree House 1016, Bloomington, IN 47401. Enclose a self-addressed, stamped envelope if you want a personal reply.

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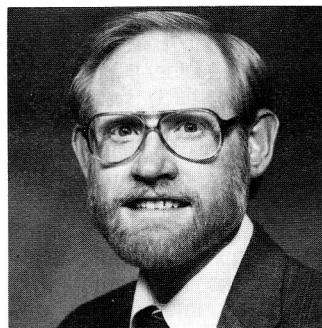
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Calorie Counter

Calorie Counter can help you stick to that New Year's resolution.



by Dan Bishop

Every year, January 1st rolls around with great promise for new beginnings and lists of resolutions to make us better persons in the new year. And now, just barely into 1987, we're ready to scrap our meager efforts and say, "Oh well, maybe next year!"

If one of those resolutions has to do with counting calories, perhaps it's not too late. Calorie Counter (see the **Program listing**) might be just the thing to keep you working on that resolution.

Calorie Counter uses the same basic data-filing system we've developed over the last four months in Applesoft Adviser, and includes a new feature that lets you maintain a cumulative calorie count as you identify the kinds and amounts of food you've eaten during the day. A print function lets you print either the entire list of food items, or just those you've counted for that day. Spending a few minutes with Calorie Counter at the end of each day will help you keep on top of your calorie consumption.

Using Calorie Counter

Calorie Counter uses an *internal* database—the information on which it draws is within the program itself in a series of data statements. The **Program listing** contains only 30 items; the data lines begin at line 1998 and continue to the end of the program. After typing the program into your Apple, you enter lines of data containing information about items you include in your own diet. A good book on cooking or nutrition should contain the information you need. (The data in my version of Calorie Counter come from *The Joy of Cooking*, by Irma S. Rombauer and Marion Rombauer Becker, ©Bobbs-Merrill.)

Each data statement from line 2001 on must contain three items, separated by commas. The first item is the food name, starting with the word you want the program to alphabetize in your list. For example, enter "whole wheat bread" as "bread, whole wheat." If you need to use commas in the entry, as in the example above, or if a text entry begins with a number, be sure to enclose the entry within quotes.

The second item on each data line is the number of calories associated with the entry; the third item is the quantity needed to supply the given number of calories. (Since most of these quantities begin with a number, you must enclose this item within quotes.) Be sure to provide enough information in your entry, but abbreviate wherever possible. Remember, your Apple displays only 40 columns, and the item name and quantity combined are limited to 28 characters. The program truncates extra characters from the quantity entry.

If you begin your entries at line 2001 and number them consecutively (2002, 2003, and so on), you can tell at a glance the number of items you've entered. This is important, because you'll need to correct line 1998 to reflect the number of items in your list. Don't forget to change this line each time you add a new entry to the list.

When you've finished entering your data lines, save the program to disk. It's now ready to tally calories for you.

When you run Calorie Counter, you'll first see the following menu:

ENTER THE NUMBER OF YOUR SELECTION

1. LIST ALL ITEMS.
2. SEARCH FOR AN ITEM.
3. SORT ITEMS IN LIST.
4. RESET CALORIE COUNTER.
5. END THE PROGRAM.

CHOICE ===>

Since Calorie Counter is set to zero each time you first run the program, you'll use option 4 only after you've made some selections and want to start the counter over again. The computer reads the list into memory in the order in which the items appear in the data lines you typed in. Selecting option 3 automatically sorts your list into alphabetical order. You must sort the list each time you run the program; it takes only a few seconds, and Calorie Counter will automatically include in the fresh sort any new items you add.

Select option 1 to list the items in your database. The program first asks: DO YOU WANT RECORDS PRINTED ON A PRINTER? (Y/N). Answering N displays the entire database eight entries at a time, listing

Program listing. Calorie Counter.

```

1  REM  CALORIE COUNTER
2  REM  APPLICATION PROGRAM FOR
3  REM  SIMPLE DATABASE FILER
4  REM
5  REM  ****
6  REM  BY DAN BISHOP
7  REM  APPLESOFT ADVISOR
8  REM  • INCIDER MAGAZINE-02/87
9  REM  ****
10 READ NE: DIM FD$(NE),CA(NE),AMS$(NE),QY(NE),IX(NE)
11 L$ = "-----": READ TS
12 L$ = "---" + L$ + L$ + L$ + L$           ": REM 30 BLANK SPAC
13 BL$ = "
14 REM
15 GOSUB 200: REM READ DATA
16 GOSUB 700: REM DISPLAY MENU
17 ON M GOSUB 300,800,1100,250,90
18 GOTO 50
19 HOME : END
20 REM
21 REM
22 REM  ****
23 REM  COMMONLY USED ROUTINES
24 REM  ****
25 REM
26 INPUT "PRESS <RETURN> TO CONTINUE...";XS
27 HOME : RETURN
28 REM
29 REM
30 GOSUB 190
31 PRINT "ITEM.....CALORIES..QTY"
32 PRINT L$: PRINT : RETURN
33 REM
34 GOSUB 500: PRINT PL$
35 PRINT L$:
36 IF P$ = "Y" THEN GOSUB 1500
37 P$ = "N": RETURN
38 HOME : PRINT TS: PRINT "TOTAL CALORIES IN COUNTER... ";T
39 C: PRINT L$: RETURN
40 REM
41 REM
42 REM  ****
43 REM  ROUTINE TO READ DATA
44 REM  ****
45 REM
46 READ NR
47 FOR J = 1 TO NE
48 READ FD$(J),CA(J),AMS$(J)
49 IX(J) = J
50 NEXT J
51 TC = 0
52 FOR J = 1 TO NE
53 QY(J) = 0
54 NEXT J
55 RETURN
56 REM
57 REM
58 REM  ****
59 REM  ROUTINE TO DISPLAY
60 REM  NR RECORDS AT A TIME
61 REM  ****
62 HOME : CT = 0:P$ = "N"
63 INPUT "DO YOU WANT RECORDS PRINTED ON PRINTER? (Y/N):"
64 ":";P$:
65 IF P$ = "Y" THEN GOTO 400
66 GOSUB 120: FOR J = 1 TO NR:CT = CT + 1
67 GOSUB 150: REM DISPLAY RECORD IX(CT)
68 IF CT = NE THEN J = NR
69 NEXT J
70 GOSUB 100: IF CT = NE THEN 390
71 GOTO 330
72 P$ = "N": RETURN
73 REM
74 REM
75 REM  ****
76 REM  PRINT ROUTINE FOR
77 REM  ENTIRE LIST
78 REM  ****
79 REM
80 HOME : PRINT "WHAT DO YOU WANT PRINTED...": PRINT " 1.
81 ENTIRE FOOD LIST.": PRINT " 2. ONLY ITEMS ENTERED IN
82 COUNTER."
83 INPUT "    ==> ";EL: IF EL < 1 OR EL > 2 THEN 400
84 PRINT CHR$(4); "PR#1"
85 GOSUB 120
86 FOR J = 1 TO NE
87 CT = J
88 IF EL = 2 AND QY(IX(CT)) = 0 THEN GOTO 480

```

Listing continued.

name, number of calories, and quantity for each. If you've sorted them with option 3, they'll appear in alphabetical order. Each line also displays the quantity consumed for that item if you had already entered an amount during the run (see below). Press Return to display the next eight items in the database.

If you elect to print the list, Calorie Counter then asks:

WHAT DO YOU WANT PRINTED...

1. ENTIRE FOOD LIST.
2. ONLY ITEMS ENTERED IN COUNTER.

= = = >

Be sure your printer is on. Selecting option 1 from this menu prints the entire database (including the quantity consumed, as described above), and does it in alphabetical order if you've already sorted the list (see **Figure 1**). Selecting option 2 prints only those items with some entry other than zero in the "quantity consumed" column, giving you a list of just those items consumed during that particular day (see **Figure 2**).

The painful part of this process, of course, is admitting to what you've actually eaten during the day and entering the quantity for each item into Calorie Counter. (No fudging now....)

Enter quantities by selecting option 2 (the search option) from the main menu, then enter a string of characters the program can use for the search. Enter all or part of a specific item name. For example, BREA will bring up all entries containing the string BREA, including BREAD, WHOLE WHEAT; BREAD, WHITE; and BREAKFAST CEREAL.

When the computer finds an item that contains a match, it displays the item with the following menu prompt:

PRESS <N> FOR NEXT MATCH:
 <A> TO ADD TO CALORIE COUNTER;
 <P> FOR PRINTED COPY;
 <Q> TO QUIT SEARCH. = = = >

If the displayed item isn't the one for which you're searching, simply press N to continue searching. If you want to print just that item, press P. If this is the item for which you're searching and you want to add it to Calorie Counter, determine the appropriate number to enter. The program adds this value to any quantity already listed, and updates Calorie Counter by the appropriate amount.

For example, say you've already entered the number 2 for "2 slices of bread" when you typed in your

breakfast menu, and now you're entering dinner items. To add one more slice of bread, simply type 1. The quantity will change from two to three, and Calorie Counter will add the number of calories for one more slice of bread. Be sure to use decimals for fractional quantities.

Selecting option Q from the above menu returns you to the main menu. Selecting option 5 from the main menu ends the program and terminates Calorie Counter, resetting it to zero for the next session. If you want to record the results of a particular session, either write down the total number of calories entered, or print the list containing only the items in the counter by selecting option 1 to list the items, then the option to print them.

About the Program

If you've been following my column through the last few months, you'll recognize much of Calorie Counter's programming. Like the credit-card-inventory example, Calorie Counter requires three arrays for database entries (FD\$, CA, and AM\$, for food name, calories, and quantity description), and an index array (IX) for sorting.

One additional array, QY (see line 10), contains the "quantity consumed" you enter during the program run. The variable TC is the calorie accumulator. Note that I've added lines 250-290 to initialize TC and the QY array. The program calls these lines at the beginning of a run and whenever you select option 4 from the main menu.

The subroutine at line 600 handles the number of items (quantity consumed) you enter. IX(CT) indexes the displayed item, and the program adds the quantity consumed (as X) to QY(IX(CT)). The computer then multiplies (in line 640) the calorie entry for this item, CA(IX(CT)), by X, and adds the result to the calorie accumulator, TC.

The subroutine for printing lists begins at line 400. After you choose an option from the prompt menu (print a complete listing or only the items in the counter), the subroutine prints the header line, then cycles through the entire database. Only line 460 differentiates between the two options; the subroutine skips this line if you choose to print a complete listing (EL = 1). To list selected items (EL = 2), the program considers the QY entry. If it's zero, indicating that you entered no quantity for that item, Calorie Counter skips the entry, and the program loop selects the next entry in the list.

Listing continued.

```

470  GOSUB 500: PRINT PL$: PRINT LS
480  NEXT J:P$ = "N"
490  PRINT CHR$(4); "PR#0": RETURN
494  REM
495  REM
496  REM ****
497  REM DISPLAY FORMATTER
498  REM ****
499  REM
500  PL = 26 - LEN (FD$(IX(CT)))
510  PL$ = LEFT$(AM$(IX(CT)),PL) + " " + FD$(IX(CT))
520  PL$ = LEFT$(PL$ + BL$,29)
530  PL$ = PL$ + RIGHTS (" " + STR$ (CA(IX(CT))),5)
540  PL$ = PL$ + RIGHTS (" " + STR$ (QY(IX(CT))),5)
550  RETURN
594  REM
595  REM ****
596  REM QTY ENTRY ROUTINE
597  REM ****
598  REM
599  REM
600  PRINT : PRINT "BASED ON THE QUANTITY SHOWN, ENTER THE"
610  PRINT "NUMBER OF ITEMS YOU WISH TO ENTER INTO"
620  PRINT "THE CALORIE COUNTER..."; INPUT X:QY(IX(CT)) = QY(IX(CT)) + X
640  TC = TC + X * CA(IX(CT))
650  RETURN
694  REM
695  REM
696  REM ****
697  REM ROUTINE TO DISPLAY MENU
698  REM ****
699  REM
700  GOSUB 190
710  PRINT "ENTER THE NUMBER OF YOUR SELECTION...": PRINT
720  PRINT " 1. LIST ALL ITEMS."
730  PRINT " 2. SEARCH FOR AN ITEM."
740  PRINT " 3. SORT ITEMS IN LIST."
750  PRINT " 4. RESET CALORIE COUNTER."
760  PRINT " 5. END THE PROGRAM."
770  PRINT : INPUT " CHOICE ==> ";M$
780  M = VAL (M$): IF M < 1 OR M > 5 THEN PRINT "**** INVALID
D
0
790  RETURN
794  REM
795  REM
796  REM ****
797  REM ARRAY SEARCH ROUTINE
798  REM ****
799  REM
800  GOSUB 190
810  PRINT : PRINT "YOUR FOOD ITEM LIST WILL BE SEARCHED"
820  PRINT "FOR ANY PARTIAL MATCH ON ITEM NAME.": PRINT
830  PRINT "ENTER THE CHARACTER STRING TO BE USED"
840  PRINT "FOR THE SEARCH (OR PRESS RETURN):"
850  PRINT : INPUT "==> ";S$
860  IF S$ = "" THEN RETURN
870  S = LEN (S$):CT = 0
880  GOSUB 1000
890  IF F = 0 THEN GOTO 980
900  GOSUB 120: GOSUB 150
910  PRINT
920  PRINT "PRESS <N> FOR NEXT MATCH;": PRINT " <A> TO A
DD TO CALORIE COUNTER;": PRINT " <P> FOR PRINTED CO
PY;": PRINT " <Q> TO QUIT. ==> ";
930  GET X$
940  IF X$ < > "N" AND X$ < > "A" AND X$ < > "P" AND X$ <
> "Q" THEN 930
950  PRINT X$: IF X$ = "P" THEN GOSUB 1500: GOTO 900
960  IF X$ = "Q" THEN GOTO 995
965  IF X$ = "A" THEN GOSUB 600: GOTO 900
970  IF CT < NE THEN GOTO 880
980  PRINT : PRINT "NO FURTHER MATCHES FOUND."
990  GOSUB 100
995  RETURN
996  REM ****
997  REM SEQUENTIAL ARRAY
998  REM SEARCH ROUTINE
999  REM ****
1000  F = 0:CT = CT + 1
1005  HOME : PRINT "SEARCHING INDEX ENTRY "CT"..."
1010  L = LEN (FD$(IX(CT)))
1020  IF S > L THEN 1090
1030  D = L - S + 1
1040  FOR J = 1 TO D
1050  DS = MID$(FD$(IX(CT)),J,S)
1060  IF DS = S$ THEN J = D + 10:F = 1
1070  NEXT J
1080  IF J > = D + 10 THEN GOTO 1095

```

Listing continued.

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Listing continued.

```

1090 IF CT < NE THEN GOTO 1000
1095 RETURN
1096 REM ****
1097 REM SORT INDEX BY
1098 REM FOOD NAME
1099 REM ****
1100 GOSUB 1300
1110 FOR J = 1 TO CT
1120 IF FD$(IX(J)) > FD$(IX(NXT)) THEN K = J:J = CT + 10
1130 NEXT J
1140 GOSUB 1330
1150 IF NXT < = NE THEN GOTO 1110
1160 RETURN
1296 REM ****
1297 REM GENERAL ROUTINES
1298 REM USED BY SORT
1299 REM ****
1300 HOME : PRINT "SORTING RECORDS."
1310 PRINT " PLEASE WAIT...""
1320 CT = 1:NXT = 2: RETURN
1330 IF J < CT + 10 THEN GOTO 1390
1340 XX = IX(NXT)
1350 FOR J = NXT TO K + 1 STEP - 1
1360 IX(J) = IX(J - 1)
1370 NEXT J
1380 IX(K) = XX
1390 CT = CT + 1:NXT = NXT + 1
1395 RETURN
1494 REM
1495 REM
1496 REM ****
1497 REM PRINT-OUT ROUTINE
1498 REM ****
1499 REM
1500 PRINT CHR$(4); "PR#1"
1510 GOSUB 120
1520 GOSUB 500: PRINT PL$ 
1550 PRINT LS
1560 PRINT
1570 PRINT CHR$(4); "PR#0"
1580 RETURN
1990 REM
1991 REM
1992 REM ****
1993 REM DATA BASE
1994 REM ****
1995 REM
1996 REM
1998 DATA 30 : REM NUMBER OF ITEMS CURRENTLY IN YOUR DATAB
ASE.
1999 DATA CALORIE COUNTER
2000 DATA 8: REM NUMBER OF ITEMS TO BE DISPLAYED AT ONE TI
ME ON SCREEN.
2001 DATA APPLE, 117, "1 LARGE"
2002 DATA BANANA, 130, "1 MEDIUM"
2003 DATA CABBAGE, 10, "1/2 CUP RAW"
2004 DATA DOUGHNUT, 135, "1 PLAIN CAKE"
2005 DATA EGG, 130, "1 SCRAMBLED"
2006 DATA FRANKFURTER, 125, "1"
2007 DATA GREEN PEPPER, 20, "1 WHOLE"
2008 DATA HONEY, 62, "1 TABLESPOON"
2009 DATA JELLY, 60, "1 TABLESPOON"
2010 DATA ICECREAM, 125, "1/2 CUP PLAIN"
2011 DATA LIVER, 147, "2 SLICES CALF"
2012 DATA MILK, 166, "1 CUP WHOLE"
2013 DATA MUFFIN, 280, "1 LRG ENGLISH"
2014 DATA MACARONI, 110, "1/2 CUP PLAIN"
2015 DATA MACARONI & CHEESE, 300, "1/2 CUP"
2016 DATA PANCAKE, 75, "1 4INCH"
2017 DATA ORANGE JUICE, 110, "1 CUP"
2018 DATA OATMEAL, 75, "1/2 CUP"
2019 DATA PEAS, 56, "1/2 CUP FRESH COOKED"
2020 DATA POPCORN, 100, "1.5 CUPS UNBUTTERED"
2021 DATA POTATO, 90, "1 MEDIUM, BAKED"
2022 DATA RAISINS, 107, "1/4 CUP SEEDLESS"
2023 DATA SALMON, 286, "1/2 CUP CANNED"
2024 DATA SQUASH, 19, "1/2 CUP SUMMER"
2025 DATA BREAD, 65, "1 SLICE WHITE"
2026 DATA WINE, 85, "3 OZ. DRY"
2027 DATA YOGURT, 83, "1/2 CUP WHOLE"
2028 DATA ZUCCHINI, 40, "1 CUP COOKED"
2029 DATA TUNA FISH, 165, "1/2 CUP WATER PACKED"
2030 DATA CHEESE, 100, "1/2 CUP COTTAGE"

```

End of Listing.

Formatting Output with Strings

Because of the variety of entries possible for food names and quantity descriptions, you must format each line to fit the 40-column display width. The subroutine at line 500 first determines the number of characters from the quantity description to use by subtracting the length of the food name from 26 (the number of characters that will fit the display).

Figure 1. Partial alphabetized listing of the database.

CALORIE COUNTER		
TOTAL CALORIES IN COUNTER... 0		
ITEM.....	CALORIES..	QTY
1 LARGE APPLE	117	0
1 MEDIUM BANANA	130	0
1/2 CUP RAW CABBAGE	10	0
1 PLAIN CAKE DOUGHNUT	135	0
1 SCRAMBLED EGG	130	0
1 FRANKFURTER	125	0
1 WHOLE GREEN PEPPER	20	0
1 TABLESPOON HONEY	62	0
1 TABLESPOON JELLY	60	0
1/2 CUP PLAIN ICECREAM	125	0
2 SLICES CALF LIVER	147	0
1 CUP WHOLE MILK	166	0
1 LRGE ENGLISH MUFFIN	280	0
1/2 CUP PLAIN MACARONI	110	0
1/2 CUP MACARONI & CHEESE	300	0
1 4INCH PANCAKE	75	0
1 CUP ORANGE JUICE	110	0
1/2 CUP OATMEAL	75	0
1/2 CUP FRESH COOKED PEAS	56	0
1.5 CUPS UNBUTTERED POPCORN	100	0
1 MEDIUM, BAKED POTATO	90	0
1/4 CUP SEEDLESS RAISINS	107	0
1/2 CUP CANNED SALMON	206	0
1/2 CUP SUMMER SQUASH	19	0
1 SLICE WHITE BREAD	65	0
3 OZ. DRY WINE	85	0
1/2 CUP WHOLE YOGURT	83	0
1 CUP COOKED ZUCCHINI	40	0
1/2 CUP WATER PAC TUNA FISH	165	0
1/2 CUP COTTAGE CHEESE	100	0

Line 510 combines this portion of the quantity description with a blank space and the item name. Line 520 adds 30 blank spaces to the end of this combined string and extracts the first 29 characters. Thus BREAD, WHOLE WHEAT and 1 SLICE BURNT become 1 SLICE BREAD, WHOLE WHEAT. In this case, Calorie Counter can use only eight characters from the quantity description, and needs none of the 30 trailing blank spaces.

On the other hand, BANANA and 1 ROTTEN will become 1 ROTTEN BANANA with 14 trailing blank spaces.

To this string of 29 characters, the program adds a five-character string it obtains by converting the number of calories to a string, adding five blank spaces before the digits, and taking the five rightmost characters from this "padded" string (line 530). The program follows the same procedure to add a five-character string from the quantity-consumed array, to make a 39-character string, PL\$, which it then displays or prints.

Figure 2. Printed listing of selected items for which "quantity-consumed" amounts have been entered.

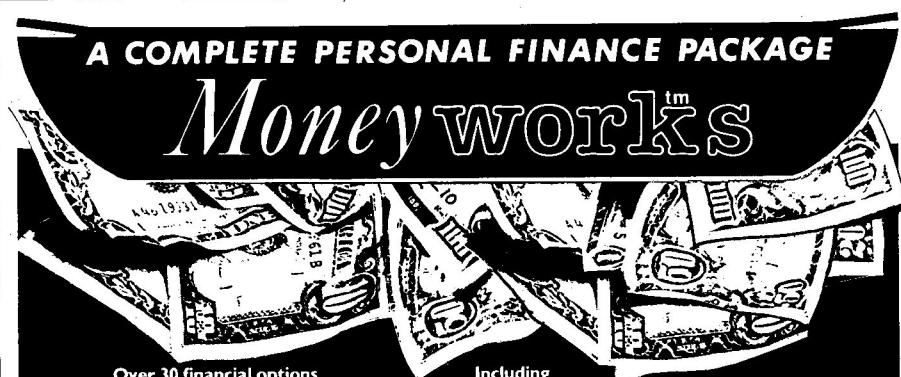
CALORIE COUNTER		
TOTAL CALORIES IN COUNTER... 470		
ITEM.....	CALORIES..	QTY
1 MEDIUM BANANA	130	.5
1/2 CUP FRESH COOKED PEAS	56	3
1/4 CUP SEEDLESS RAISINS	107	1
1 SLICE WHITE BREAD	65	2

Once you've entered the database, you can keep the program current with only an occasional entry for new items. Just remember to change line 1998 to reflect the total number of entries, and don't forget to save the revised program before you turn your Apple off or run another program. ■

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Continued from p. 38.

The real power of the program, however, lies in more advanced functions. The open-apple key and other keys control commands such as Change, Undo, Insert, Delete, Move, and View (the last shows the full length of a formula at the bottom of the screen, as only 26 characters fit into each column). According to SimplSoft, the View command has recently been updated to a simpler arrow-key arrangement.

Another unique feature is It Figures' use of abbreviations—the letters *G* (giga), *M* (mega), *K* (kilo), *m* (milli), *u* (micro), and *n* (nano)—for entering very large or small numbers. For example, *5M* is a shortcut method for entering 5,000,000.

It Figures supports two types of variables—words or strings of characters that represent values or formulas in the worksheet. *Local* variables are specific to an individual sheet, but *global* variables, stored in a special file, are available to any worksheet

you create with It Figures, letting you define and save frequently used formulas. This feature is especially useful for financial or scientific work in which the same constants may be used in many applications.

Free Applications

The people at SimplSoft could have stopped there and had a good, solid product. They went further. Perhaps one of the nicest things about It Figures comes as a bonus: a package of 50 preprogrammed application templates you can use as is or modify to fit your own needs. These include INCOMAPR to determine the value of income property; GPA to calculate grade-point average; and 1040TAX to prepare drafts of the IRS tax form. Besides being useful in their own right, the packaged applications serve as examples or guides to help you develop templates of your own.

Overall, It Figures would be a good software value even without the 50 templates. Calculations are swift, the

manual and publisher's support are very good, and SimplSoft will even sell you additional copies of the manual for \$9.95 each. If you need the power of a spreadsheet without the size, you owe it to yourself to check out It Figures. ■

*Tim McDonough
Springfield, IL*

The Artistic Type

FONTRIX

Data Transforms, 616 Washington Street, Denver, CO 80203

Typesetting and graphics printing package; Apple II Plus, IIe, IIc, 48K, DOS 3.3; graphics tablet, mouse, joystick, or paddles optional

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Rating: ■■■■■

Desktop publishing may be a hot topic now, but the concept didn't begin with the Macintosh and LaserWriter. Data Transforms' Fontrix lets Apple II users design and print pages with a larger variety of fonts and options than those packaged with the LaserWriter. Its three major modules give you almost total control over the design, drawing, and dot-matrix printing of text and graphics layouts.

Minimum Hardware

Compared to today's 512K Mac publishing packages, Fontrix has almost no hardware requirements—a 48K Apple II Plus with DOS 3.3 is sufficient. You don't even need a mouse; Fontrix can use the keyboard for graphics input as well as text entry, though a different input device makes drawing easier. Data Transforms recommends an Apple, Koala, or Talos graphics tablet or joystick, which can access the entire drawing window at once; I personally find the mouse or paddles more conducive to freehand artwork, although these devices are confined to a smaller window whose contents scroll as you push past its boundaries.

Fontrix's menu-selected drivers support 32 printer cards and 60-plus printers, including serial printers and cards (although serial output of graphics data, due to their slower processing time, isn't recommended). Its

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output, while ideal for announcements and newsletters, isn't quite up to a corporate annual report; while supported printers range from Anadex through Toshiba, no laser-printer drivers are currently available.

Setting Up

The Fontrix manual explains the system and options in a concise, readable manner. After you make working copies of the program and font disks (neither is copy-protected) and boot your system, Fontrix starts a self-running demo, giving a fairly good overview of the program and its capabilities.

Once it cycles through the presentation, you're given the main menu, with options to configure or change your system, access disk drives, edit and design font sets, write to a graphics file, print your masterpiece, or return to Applesoft. After you configure Fontrix for use with your hardware, the demo is a menu option, but no longer appears at startup.

Setting the system parameters is a simple, well-prompted procedure. You simply inform Fontrix of your printer brand and model, the interface card attached to it, and the device you want to use for graphics input. Each option is menu-driven; multiple screens list the many printers and interfaces. It's here I encountered my first minor problem with Fontrix: My interface card wasn't listed. That's not the problem—the driver for a similarly designed card worked fine—but I tried to enter the number of a card from a previous screen. It wouldn't work. You can select only those options currently on screen, and there's no way to page back to previous screens. The only solution was to reboot my II/e and begin the configuration routine anew.

You must also tell Fontrix which Apple you're using, whether or not you can display lowercase, and the slots in which your disk or hard-drive controllers and interface card are installed. (For a II/c, all you have to

specify is whether your printer is connected to the modem or printer port.) Once you've saved your set-up information to the system disk, the main menu returns. Choosing an option here brings a nested menu, which may, in turn, call still another. In short, the program is almost self-documented and is quite easy to use.

The disk-access option, from whichever menu you select it, handles file-maintenance chores such as cataloging disks, searching for files with wild-card characters, renaming, deleting, locking, or unlocking files, and displaying the space remaining on the disk in sectors. There's no option to format a data disk, however, so you need to have a supply on hand before starting Fontrix.

Making Pages

The centerpiece of the program is the Graphics Writer module, used to design and lay out pages. The master menu here lets you select the font to use, load or save a graphics screen, or "graffle," or write to either one.

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A/D SPECIFICATIONS

- 0.3% accuracy
- On-board memory
- Fast conversion (.078 MS per channel)
- A/D process totally transparent to Apple (looks like memory)
- User programmable input ranges are 0 to 10 volts, 0 to 5, -5 to +5, -2.5 to +2.5, -5 to 0, -10 to 0.

The A/D process takes place on a continuous, channel sequencing basis. Data is automatically transferred to its proper location in the on-board RAM. No A/D converter could be easier to use.

D/A SPECIFICATIONS

- 0.3% accuracy
- On-board memory
- On-board output buffer amps can drive 5 MA
- D/A process is totally transparent to the Apple (just poke the data)
- Fast conversion (.003 MS per channel)
- User programmable output ranges are 0 to 5 volts and 0 to 10 volts

The D/A section contains 8 digital to analog converters, with output buffer amplifiers and all interface logic on a single card. On-card latches are provided for each of the eight D/A converters. No D/A converter could be easier to use. The on-board amplifiers are laser-trimmed during manufacture, thereby eliminating any requirement for off-set nulling.

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- 4.5" square for standard card cage and 4 mounting holes for standard mounting. The signal conditioner does not plug into the Apple, it can be located up to $\frac{1}{2}$ mile away from the A/D.
- 22 pin .156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
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A graffile is Fontrix's term for a block of up to about 14 contiguous Apple screens, arranged to your specified height and length, but covering no more than 480 sectors. Once you've opened a file and selected a font, entering text is as easy as using the keyboard reference provided with each font set to type in characters. You can change font sets at any time and use * or ? wildcards to load them (Fontrix brings up filenames one at a time for your selection).

The menu for writing on a graphic lists more than 20 commands, summoned by control-key sequences (the I, J, K, M, and arrow keys are reserved for cursor movement). These commands do everything from showing the help screen to changing background or foreground colors, toggling caps-lock on or off, setting linefeeds and carriage returns, sizing the gap between characters, and more. As there are a lot of commands and options, I found myself referring to the help screen often, as well as the manual.

Changing the background color affects only the screen currently displayed, not the entire graffile. Drawing modes include normal, replace, overlay, and transparent, allowing you considerable leeway in finding the pattern that best suits your taste and application.

While Data Transforms states that any hi-res graphics file can be incorporated into a graffile at your specified location, this needs some clarification. Double hi-res screens aren't supported, so drawings from systems such as Dazzle Draw aren't acceptable. Neither are packed hi-res screens. However, any standard 33-to-34-sector file can be placed on your design. This greatly increases Fontrix's flexibility; I experienced no problems, for example, loading files created with Polarware's Graphics Magician.

If your Apple has lowercase capabilities, lowercase lettering is available in font sets. You must, however, use uppercase when performing any of

the control-key command sequences— inconvenient with a //e or //c, as you must press the caps-lock key before entering any command and release it again when you want to use lowercase keys.

Overall, Fontrix has considerable power as a design tool, but is weaker in freehand-drawing options. To put a picture within a graffile, you're better off creating it with another software package, then incorporating your finished product into the Fontrix page layout. Also, to be honest, Fontrix's extensive options make it easy to get carried away and create an esthetic mess, combining inconsistent fonts, too many drawings, and all the other hazards of abusing a powerful, easy-to-use tool. A rough layout on paper, archaic though it may seem, is probably a good idea.

Print Options and Font Editor

When it comes time to send your project to the printer, Fontrix's print menu guides you through such diverse options as magnifying the image (up to 99 times), using negative or inverse video, setting the paper width (8½ or 14 inches), left, center, or right justification, vertical page placement, left-margin offset, cropping, sideways output, gray-scaling versus color, and setting the bit-to-pixel ratio (1:1 or 1:2). You can also tell Fontrix whether you want the output to exceed one page. If not, files extending over an area larger than a printed page will be truncated.

The print function is fairly strong, easy to use, and will even serve as a screen dump for other graphics software if you like. It won't, however, support double hi-res dumps.

If you're creative and feel like designing your own lettering, the font editor is as easy and flexible as any I've used previously. You make new fonts or modify existing ones in a postage-stamp-like window, moving pixel by pixel with the I, J, K, M, and arrow keys. The spacebar toggles each pixel on or off, depending on its previous state. To the side of the editing window, the font appears in its actual size.

While creating a complete character set takes lots of thought, planning, and work, the possible results are almost unlimited. Some enterprising programmers have gone beyond lettering to design character sets for architectural, scientific, and technical applications. Data Transforms encour-

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ages you to submit your own by paying \$100 a set for any chosen for release in its "Fontpaks," disks of ten font sets each, available for \$25 per disk. The firm also sells a utility package with a number of drawing routines related to lines, polygons, frames, and spirals.

Final Impressions

While I found Fontrix generally exciting and fun to use, it's not entirely unflawed. The user interface, notably the frustration of commands restricted to uppercase input, reflects the program's genesis in the II Plus era and could be updated to reflect more current standards and hardware. The inability to back up through the configuration windows is equally annoying.

If possible, a miniature or shorthand representation of an entire, multi-screen graffile would be a tremendous help. The most difficult thing to do in Fontrix as it stands now is to judge accurately just where you are in a big file and how the material

you're entering at any given time relates to the layout as a whole.

Overall, however, you have to give Data Transforms credit for the excellent package it has assembled. Fontrix may not be the state of the art in some ways, but it lets your II make some pretty fancy printouts. ■

*Douglas Landin-Young
Alexandria, VA*

A Database Discovery

NITE OWL JOURNAL #1

Nite Owl Productions, 5734 Lamar,
Mission, KS 66202

Home database manager with disk-copy and

program-menu utilities; 64K (128K preferred)
IIe, IIc, IIgs

\$29.95

Rating: ■ ■ ■

"Greetings from the center of the
Silicon Prairie! Hoo, hoo, hoo-hoo!"
That's the voice of the Nite Owl, or at

least the barely decipherable voice of Nite Owl Productions programmer Bob Shofstall, coming from your Apple's speaker to introduce a little-known, low-priced productivity package. Behind its generic name, Nite Owl Journal #1 hides an effective home database, a utility that copies 5½-inch disks more than twice as fast as the ProDOS Filer, and even a simple program selector that makes Applesoft a little like Catalyst or Mouse-Filer. It may be a trifle rough around the edges, but it's a great deal of software for \$29.95.

Casual users of self-booting software may not appreciate the ingenuity of Nite Owl products. Shofstall specializes in mixing BASIC and machine-language routines to enhance ProDOS or allow extra commands from the Applesoft prompt; Journal

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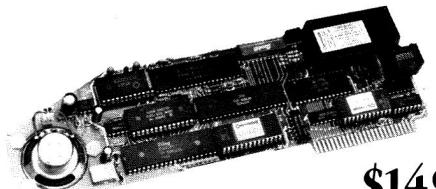
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#1 and its Home Filing System (HFS) make use of several 1K to 4K tools, for things like copying files or setting the date, also sold in separate developer's disks.

All are copyable to a 3½-inch or hard disk, though they're designed for good old 5¼-inch drives. At start-up, for example, the database looks for files on a disk called /HFS.DAT, the name its "Format Data Disk" routine assigns; you can type another pathname anytime, but can't make your choice the default.

Similarly, HFS' surrounding NORT (Nite Owl Run Time) selector adds a menu routine for ProDOS BASIC instead of a Mac-like mouse affair for users who've never written a START-UP program—but it makes the most of its 4K size. Its "Quick Index" lists the locked (read-only) files or subdirectories on a disk for one keystroke access, either to run a program or to type an ASCII text file on screen in 80 columns with word wrap, arrow-key scrolling or review, and optional

printout. (It's how HFS shows its help files.)

Quitting a BASIC, binary, or text file returns you to the Quick Index, though the same isn't true of .SYSTEM programs (so NORT isn't an all-purpose program organizer like Catalyst). Quitting NORT executes a specified series of ProDOS commands—in the case of the self-booting Journal #1 disk, entering NORT again, so Home Filing System users can happily live without ever seeing the Applesoft prompt.

Simple and Swift

Friendliness to beginners is what HFS is all about. The database is utterly menu-driven, with a main menu and submenu boxes listing every possible step from editing records to selecting sort fields or handling disk files.

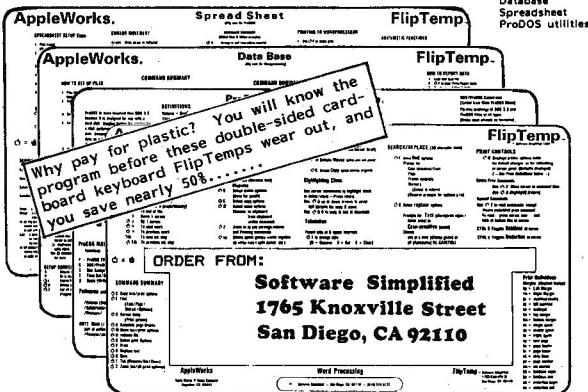
The main menu uses arrows to indicate which choices are appropriate at a given time, such as "Begin New List [database]" after booting up and

"Add Records" after you've set up fields. On-screen scoreboards tell you how much memory is left, the number of records in your database, or that six records match your search criteria, the first of those being number 15 overall and the last number 47. It takes strenuous work to get the least bit lost or confused.

Besides being easy to operate, HFS is useful. It's impressively fast, both because it loads its program segments into the auxiliary /RAM disk on 128K Apples and because it keeps the current database entirely in memory, going to disk only to load a file or save a new or changed one. This restricts any one database to a maximum 24,924 characters, so you determine the maximum number of records by dividing that size by the average length (number of fields times field length) of each record.

For most home or other small database jobs, HFS' size limits pose no problem. You're restricted to 12 fields, but can type away for up to 240

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characters as far as field length goes—there's no hassle about assigning data types or field lengths when setting up a list, and you can add, delete, or rename fields or swap them around before starting to enter records (or anytime thereafter). Field names or labels shouldn't exceed 12 characters; I used longer ones with no ill effects on the program, but they hogged screen space, pushing my data out of sight behind HFS' menu boxes when entering or editing records or search or sort instructions.

Editing commands—insert or overstrike, move to beginning or end of field, delete to end or by character—are sufficient for smooth data entry. If your database is full of Karens, Smiths, or Main Streets, typing a slash will copy the corresponding field (whose first 20 characters appear as a reminder) from the previous record.

HFS doesn't perform word wrap when a text field trails onto a second or third line, and I found a few circumstances in which long comments or other fields produced quirky on-screen behavior. When I loaded my own or the supplied sample files on my unenhanced IIe, HFS put a large gap between field labels and data, and the first dozen characters of the long field's second line popped up in another corner of the screen altogether. (At press time, Shostall announced an update, adding word wrap and fixing the video glitch.)

The bug didn't recur on an enhanced IIe, IIC, or Laser 128, or when I used HFS' 40- instead of 80-column data mode. On the Laser, however, when I used overly long field labels and then typed run-on text in the middle of a list, the new text appeared above the old, overwriting lines at random until I pressed Return to reformat the screen and position the text properly. The Laser also skipped the highlighted borders around some HFS menus.

Sorting and Reporting

HFS' menus make clearing or entering search or sort criteria easy. An AND/OR toggle governs searches on multiple fields, and a search-and-replace function changes every occurrence of a string in the database.

You can sort your database on a primary and, optionally, a secondary field in ascending or descending order. Since all records remain in RAM, sorting is almost as fast as search-

ing—HFS sorted a simple list of 200 first and last names in 14 seconds.

HFS' surprisingly flexible report generator lets you send all, a numbered range, or searched-for records to your printer, screen, or a ProDOS text file. You can use the supplied columnar report format, or build your own by choosing margins, spacing, a title, and whether to skip each field or print it followed by a space, tab, or carriage return. An auxiliary program on the NORT menu lets you create and print four-line mailing labels; the editing functions are the same as HFS', and the specialized label printer is convenient, though you must type the labels yourself instead of importing them from a database.

A High-Speed Freebie

The Journal comes with a modest manual (the text of the help files plus sample screen pictures) and a disk with three practice files (one, a list of computer magazines, prepared before *inCider* moved from 80 Pine Street to Elm Street).

The best bonus, though, is on the flip side of the HFS disk (there's room to copy it to the front, though it won't return to NORT's Quick Index after use). It's Fast Disk Copy II, a tidy 3K utility that makes short work of duplicating unprotected disks on either one or two 5 1/4-inch drives. Its two-drive time, 38 seconds, was barely slower than the office speed champion, Diversi-Copy (see Editors' Choice, January 1987, p. 160). It lacks Diversi-Copy's support of 3 1/2-inch disks, but it's 12 seconds quicker than Copy II Plus and 40 seconds ahead of the ProDOS Filer—and getting it and the Home Filing System for \$30 is a terrific bargain.

Nite Owl Journal #1 is hardly as slick as bigger brand-name programs, but does a fine job of light database or address-list management. It's fast and simple for casual users; Applesoft fans can try NORT with their own programs or tinker with LOCK and UN-LOCK commands to customize the menus and help screens; and every 5 1/4-inch-disk owner can appreciate Fast Disk Copy II. How can you knock a program that goes, "Hoo, hoo, hoo-hoo"? ■

*Eric Grevstad
inCider staff*

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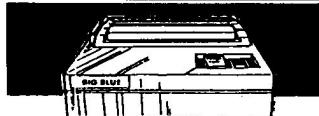
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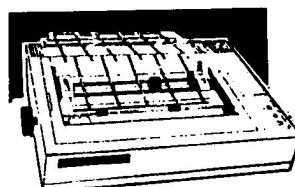
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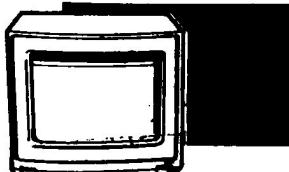
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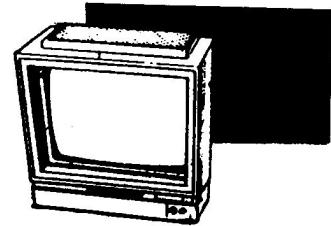
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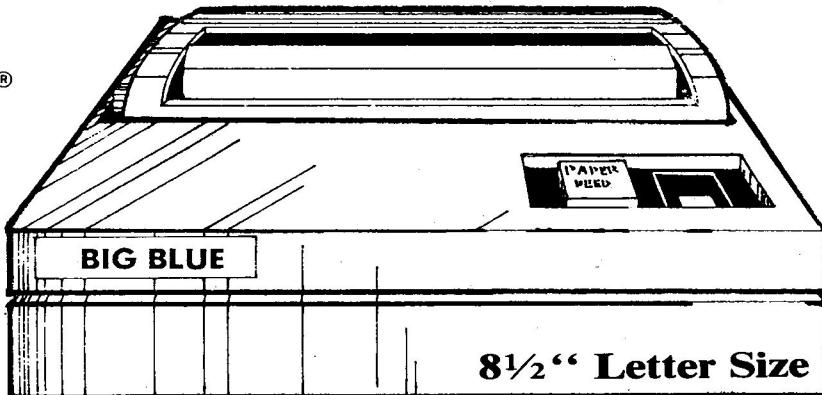
Now you can have a full fledged 8½" letter size 80 column printer for less than the cost of a large box of paper. This printer uses advanced dot matrix, heat transfer technology to print upper and lower case (with true lower descenders), underline, enlarged, all points addressable graphics plus More. Print out pictures, program listings, wordprocessing pages, graphics and more. Perfect for the homeowner or student and definitely affordable. List \$199.00 Sale \$39.95

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This printer was made by Canon® for the IBM PC and PCjr. The Big Blue printer comes ready to hook up to the serial port of the IBM®PC jr. Plus with low cost adapter cables you can connect the Big Blue printer to the Apple® II, IIe, IIc, Apple Compatibles, Atari®, Commodore® 64, 128, SX-64, Vic 20, Plus 4, IBM®PC, IBM®XT, IBM®AT, IBM Compatibles, TI-99, Tandy 1000, plus many more.

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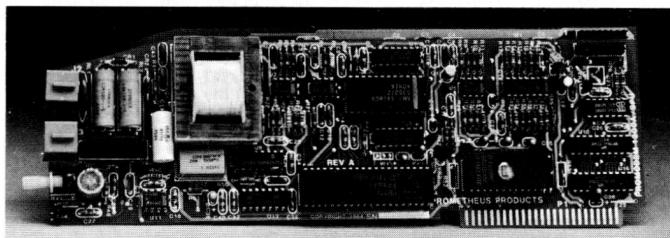
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NEW PRODUCTS

edited by Lafe Low

Hardware



The Prometheus ProModem 1200A, an internal Hayes-compatible unit, offers 300/1200-baud operation, built-in serial port, automatic redial, and two phone jacks that let you switch between voice and data.

GS Modem

Telecommunicate with your Apple IIgs and the Prometheus ProModem 1200A, an **internal Hayes-command-compatible 300/1200-baud modem**. This compact modem plugs into an expansion slot in your GS. It automatically senses whether to tone- or pulse-dial, and features a built-in Apple Super Serial-compatible port, automatic redial, a speaker with volume control, and two phone jacks for easy switching between voice and data. The package includes ProCom-A communications and word-processing software. The ProModem 1200A with software retails for \$295, from Prometheus Products, 4545 Cushing Parkway, Fremont, CA 94538, (415) 490-2370. For more information, circle Reader Service number 362.

trap is a plug-in replacement module for your **character-generator ROM**. It gives you standard characters on an enhanced IIe and mouse text on an unenhanced IIe. No other parts or programs are necessary, and you can switch modes anytime in any program. The Mousetrap comes with a six-month limited warranty for \$49.95, from Bone Frontier, P.O. Box 279, Broomfield, CO 80020, (303) 427-8729. For more information, circle Reader Service number 358.

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

Unenhancing

With the flip of a switch, you can change from original characters to mouse text and back again. The Mouse-



With Data

With Data Spec's PC1025 you get all-in-one power control: surge suppression and switches for up to five system components—computer, printer, monitor, and two other peripherals.

Under Control

Data Spec's new **PC1025 multifunctional power-control unit**, the first in its Director series, incorporates surge suppression, an A/B data switch, a digital LED clock, and individual switching for up to five components. Five switches mounted on the front of the unit control your computer, printer, monitor, and two auxiliary peripherals. A master switch turns on the entire system. Three-stage surge suppression protects your system from voltage irregularities, and the low-profile unit fits directly beneath your monitor. The PC1025 retails for \$199, from Data Spec, 20120 Plummer Street, P.O. Box 4029,

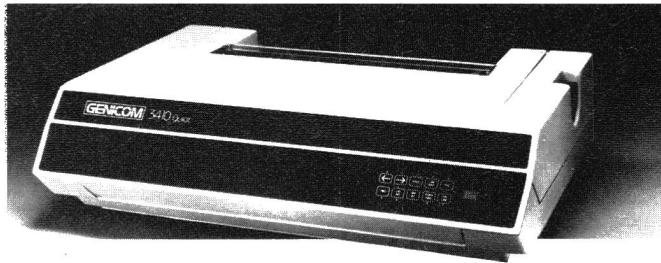
Chatsworth, CA 91313, (818) 993-1202. Circle Reader Service number 359 for more information.

Remotely Controlled

Protect your system with the Ferrups **uninterruptible power supply**, featuring a hand-held remote-control unit with 16-character keypad, LCD, three status lights, and audible alarm. The unit attaches to the Ferrups system through a standard RS-232 communications port and ten feet of cable. Ferrups retails for \$395, from Best Power Technology, P.O. Box 280, Necedah, WI 54646, (608) 565-7200. Circle Reader Service number 361 for more information.



A remote-control unit lets you operate your Ferrups uninterruptible power supply from up to ten feet away.



Operating at less than 55 decibels, the Genicom 3410 Quiet features wide-carriage dot-matrix printing and a snap-in ribbon cartridge.

Shhh...

Print quickly and quietly (at less than 55 decibels) with the Genicom 3410 Quiet. This **wide-carriage dot-matrix printer** uses an 18-wire printhead and operates at speeds of 400 characters per second in draft mode and 120 cps in letter-quality. At 10 and 18 characters per inch, the 3410 Quiet prints 136 and 244 columns per page, respectively. A snap-in cartridge with built-in re-inking reservoir eliminates the messy chore of ribbon changing. Print your documents quietly with the Genicom 3410 Quiet, from Genicom, Genicom Drive, Waynesboro, VA 22980, (703) 949-1188. Circle Reader Service number 363 for more information.

Graphics Tools

Outfit your Apple II with a complete **graphics system**. Graphics Tool Kit hardware stores complete drawings in memory, and allows automatic scrolling. You can dump a full page of graphics to any dot-matrix printer. The board instantly displays any of eight

640-by-384-pixel hi-res screens, and has a built-in 100 percent Apple-compatible mouse port. The accompanying software is a graphics-design package similar to MacPaint, with automatic windowing, fonts, font editor, shape editor, sample pictures, and clip art. The Graphics Tool Kit sells for \$395, from Demco Electronics, 10516 Greville Avenue, Inglewood, CA (213) 677-0801. For more information, circle Reader Service number 360.

Quick Switch

Now it's easy to attach two peripherals to one computer or link two computers to one peripheral. Data Spec's DSM802 two-way **data switch**, designed specifically for the Apple IIgs and Macintosh Plus, features reinforced printed circuit boards, eight-pin DIN connectors, all-metal construction, Duranium-plated switch contacts, and anti-skid feet. The DSM802 retails for \$69.95, from Data Spec, 20120 Plummer Street, P.O. Box 4029, Chatsworth, CA 91313, (818) 701-5848. For more information, circle Reader Service number 366.

Software

Words and Colors

Activision has released two new programs for the Apple IIgs—Writer's Choice Elite and Paintworks Plus. Writer's Choice Elite, a **word processor** with an easy-to-learn user interface, offers text and highlighting in blue, yellow, red, black, or green. You can review and switch to portions of up to 16 separate documents on screen at one time, and you can cross out words or blocks without deleting them.

Paintworks Plus gives you access to the GS' 4096 separate colors and allows custom designing and editing with a wide array of shapes and patterns. You can save 128 customized color palettes for future use. Paintworks Plus also features a color search that identifies all areas of an image of any particular color or shade, a mirror option for drawing symmetrical shapes, and a lasso for moving images without capturing the background.

Writer's Choice Elite and Paintworks Plus work together to combine text and color images that are instantly accessible. Writer's Choice Elite retails for \$99.95, Paintworks Plus for \$79.95, from Activision Creativity Software, 2350 Bayshore Parkway, Mountain View, CA 94043, (415) 960-0410. Circle Reader Service number 357 for more information.

Get Your Wings

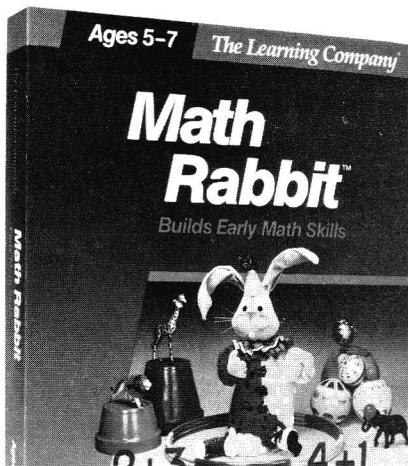
Fly a land-based F-16 Falcon or a carrier-based F-18 Hornet in Jet, SubLogic's latest **flight simulation**. Jet lets you pilot a jet fighter in free-flight non-combat mode, or choose from a variety of target-strike and dogfight options. Your "aircraft" is equipped with a full display for monitoring instruments and environment simultaneously. Jet is compatible with all SubLogic scenery disks, covering the continental United States.

SubLogic is also offering two new **scenery disks** that let you explore the San Francisco Bay area and the islands of Japan. Both can be used with Jet and Flight Simulator II.

Jet retails for \$39.95; each scenery disk costs \$19.95, from SubLogic, 713 Edgebrook Drive, Champaign, IL 61820, (217) 359-8482. For more information, circle Reader Service number 351.



Jet lets you command an on-screen fighter plane in non-combat mode or simulated dogfights.



Math Rabbit helps children master the basics of arithmetic, including addition, subtraction, and numeric relationships and patterns.

The Third R

The Learning Company rounds out its Rabbit series with Math Rabbit. Joining Reader Rabbit and Writer Rabbit, Math Rabbit introduces children ages 5-7 to **basic concepts of arithmetic**. Children learn to relate numbers and counting by arranging clown "notes" on a numeric scale to make music. They then move on to matching numbers with groups of objects or mathematical expressions. In the final games, children practice addition and subtraction. You can customize all games to suit individual needs and progress. Math Rabbit retails for \$39.95, from The Learning Company, 555 Middlefield Road, Suite 170, Menlo Park, CA 94025, (415) 328-5410. For more information, circle Reader Service number 354.

Picture This

Put your business data into pictures with Visualizer, a **business-graphics program** that creates bar, column, pie, line, and scatter graphs. You can display title and legend boxes, and choose from more than 100 colors for graphs, text, and

individual ranges. You can realign or incrementally change the axis of any graph, and display the background of a graph in a different color or with pictures from any standard paint program.

The program features a mouse interface with icon bars and super-hi-res displays. Visualizer supports desk accessories and can print in color on an ImageWriter II. You can edit spreadsheet data directly on your graphs, without returning to your spreadsheet program. Visualizer sells for \$99.95, and runs exclusively on the IIgs, from PBI Software, 1111 Triton Drive, Suite 201, Foster City, CA 94404, (415) 349-8765. Circle Reader Service number 355 for more information.

Resources

IIgs Guides

The Apple IIgs Book, by Jeanne DuPrau and Molly Tyson, and **The Apple IIgs Toolbox Revealed**, by Danny Goodman, will help you discover your new Apple II. *The Apple IIgs Book* covers all aspects of Apple's latest machine, from its conception and development to its features and capabilities. It explains the

GS' 16-bit environment and the new software that will run on it. It includes a detailed description of the mouse interface, Finder, and its improved screen resolution and sound. Interviews with Steve Wozniak and members of the development team reveal details of the GS' history and design.

The Apple IIgs Book retails for \$18.95, *The Apple IIgs Toolbox Revealed* for \$21.95, from Bantam Books, 666 Fifth Avenue, New York, NY 10103, (212) 765-6500. For more information, circle Reader Service number 364.

subroutines available to the GS user. It explains on-screen windows, animation, graphics, programming languages, and how to use them.

The Apple IIgs Book retails for \$18.95, *The Apple IIgs Toolbox Revealed* for \$21.95, from Bantam Books, 666 Fifth Avenue, New York, NY 10103, (212) 765-6500. For more information, circle Reader Service number 364.

Product Updates

• Version 2.0 of the ProDOS-based **Kyan Pascal** for the Apple II is now available. It includes a full-screen editor, native-code compiler, macro-assembler, and programming utilities. Kyan Pascal runs on any Apple II with 64K and costs \$69.95. An advanced version of the compiler for more experienced programmers, **Kyan PLUS**, has also been introduced. It includes KIX (a ProDOS enhancement that provides an operating-system command structure), additional technical documentation, and a quick-reference card for \$99.95.

Six new Kyan Pascal **programming toolkits**, priced at \$29.95 to \$149.95, are also on the market. Contact Kyan Software at 1850 Union Street, #183, San Francisco, CA 94123, (415) 626-2080.

• The **Clipcapture** program disk now doubles as a Newsroom clip-art disk. Along with the utilities are more than 185 pieces of clip art from public-domain Print Shop graphics. Clipcapture is located at 477 Windridge Drive, Racine, WI 53402. The order line is (800) 628-2828 x863.

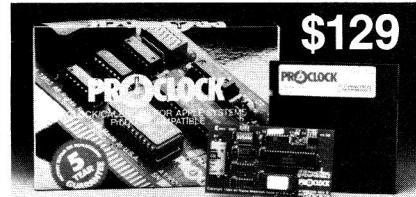
• **PARTICIPATE**, The Source's computer-conferencing service, is now easier to use and more powerful, to benefit novices and advanced users alike. Changes include a comprehensive system of menus and help screens to guide new users through PARTICIPATE commands, powerful project-coordination capabilities, and a full-featured electronic-mail system. Registration on The Source costs \$49.95. Per-minute charges for PARTICIPATE are 36 cents on weekdays and 14 cents on evenings and weekends. Contact The Source at 1616 Anderson Road, McLean, VA 22102, (703) 734-7500.

• Spectrum Holobyte has added **Wilderness** and **Lunar Explorer**, both developed by Electric Transit, to its product line. The two companies have reached an agreement making Spectrum Holobyte the exclusive distributor of the two games. *Wilderness* retails for \$49.95, *Lunar Explorer* for \$29.95. Contact Spectrum Holobyte at 1050 Walnut, Suite 325, Boulder, CO 80302, (303) 443-0191.

MAKE YOUR APPLE MORE PRACTICAL. RIGHT TO THE CORE.

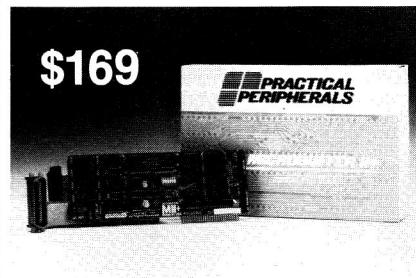
Save time, make time, even keep time with cost-effective Apple upgrades from Practical Peripherals.

Ordinary apples just don't cut it anymore. But there are plenty of practical ways to increase their performance. Each designed to add convenience at prices that are irresistible.



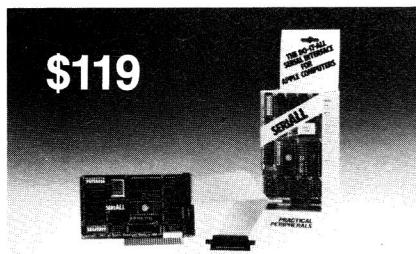
\$129

PROCLOCK and PROCLOCK IIc™ are timely ProDOS add-ons. Once installed, they go to work immediately on applications that automatically use a clock. Writing your own programs is just as simple. It'll save money, too, by timing your modem to transmit when rates are cheapest. And its battery back-up keeps the clock accurate even when not in use for long periods of time.



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MICROBUFFER II+™ lets you lose wait easily, inexpensively. This unique buffer lets you print and process simultaneously with either serial or parallel printers or both. The compact board works perfectly with your Apple II or IIe to provide complete software selectable text and graphics. And you can select the buffering capacity you want... from 16 to 64K.



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The SeriALL™ printer/modem RS232C interface affordably provides a complete range of functions. It's ideal for any type of printer or plotter, modem, external video terminal or any other RS232C serial I/O device. 27 formatting commands provide text/graphics printing versatility with any serial dot matrix or daisywheel printer. It has a full terminal package on board. And the graphics command set is compatible with virtually all popular printers.



\$99

SWITCHPORT IIc™ converts serial into parallel for Apple IIc users. This compact unit is completely software transparent; it never interferes with printer commands. Word length is switch-selectable. A low power design means no external power is needed. You can print high-resolution graphic images on most popular printers with a unique utility disk which includes graphic drivers that function with all popular software.



\$69

Printerface™ makes high performance affordable. It provides 27 easy commands that let you send formatted text and controls to the printer, even dump 80 column text screens. Optional kits add complete graphics, too.



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GraphiCard™ gives greater graphics capabilities to 37 of the most popular parallel printer models. 35 commands permit a variety of text and graphics functions.

Both interfaces are: hardware/software compatible with Apple Parallel Card; slot independent fitting into any slot but zero; features available in DOS, Pascal, and CP/M; Supports all printers with Centronics interface.

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Listing 1. *Tele* (save as *TEL*).

```

10 D$ = CHR$(4): GOSUB 1720
20 PRINT D$"OPEN/TELE/SYS.PAR": PRINT D$"READ/TELE/SYS.PAR":
  FOR I = 1 TO 6: INPUT SY$(I): NEXT I: PRINT D$"CLOSE/TE
  LE/PHOADD/SYS.PAR"
30 XX = 0: DD = 1: EM = 0: IF SY$(2) = "Y" THEN PRINT D$"/TEL
  E/AE.BT"
40 FS = "A"
50 FI$ = "TEL.BILL": DIM A$(300), N$(300), DT$(100), T1$(100), T2
  $(100), DC$(100), T7$(100), N5$(100)
60 MI$ = CHR$(15) + CHR$(27): MOS$ = CHR$(14) + CHR$(24
  ): Y$ = CHR$(9): BES$ = CHR$(7)
70 HOME
80 GOSUB 340: GOSUB 90: GOTO 120
90 GOSUB 110: VTAB 7: HTAB 5: PRINT "You must hold the recie
  ver while dialing, and then at the end of any call.": PRINT
  TAB(5); "hang-up to end calls or busy numbers.": GET
  CS
100 VTAB 3: CALL - 958: PRINT : GOSUB 370: RETURN
110 VTAB 4: HTAB 35: INVERSE : PRINT "ATTENTION": NORMAL : RETURN

120 VR = 0: GOSUB 400: VTAB 22: HTAB 25: PRINT "": GET CS
130 IF CS = CHR$(8) THEN DI$ = "d": GOSUB 610: GOTO 120
140 IF CS = CHR$(21) THEN DI$ = "u": GOSUB 610: GOTO 120
150 IF CS = CHR$(11) THEN DR$ = "": GOSUB 670: GOTO 120
160 IF CS = CHR$(10) THEN DR$ = "d": GOSUB 670: GOTO 120
170 IF CS = CHR$(1) THEN CS = "r": GOSUB 810: CS = ""
120
180 IF CS = CHR$(13) THEN CS = "f": GOSUB 810: CS = "": GOTO
120
190 IF (CS = "R" OR CS = "r") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN GOSUB 450: VR = 1: IF EM = 1 THEN VR
  = 0
200 IF VR = 1 THEN GOSUB 810: VTAB 6: HTAB 1: PRINT MI$;"D"
  ; MOS
210 IF (CS = "Q" OR CS = "q") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN HOME : PRINT D$"SY$(1)"START1"
220 IF (CS = "D" OR CS = "d") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN GOSUB 1000: PRINT D$"PR#0": VTAB 1:
  HTAB 35: PRINT "": VTAB 1: HTAB 35: PRINT
  NU$: GOSUB 1440: GOTO 120
230 IF (CS = "S" OR CS = "s") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN GOSUB 1120: GOTO 120
240 IF (CS = "?" OR CS = "/") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN GOSUB 280: GOTO 120
250 IF CS = CHR$(32) AND (PEEK(49249) > 127 OR PEEK(49
  250) > 127) THEN GOSUB 1260: GOSUB 810: VTAB (DD + 5): HTAB
  1: PRINT MI$;"U": MOS: GOTO 120
260 IF (CS = "B" OR CS = "B") AND (PEEK(49249) > 127 OR PEEK
  (49250) > 127) THEN GOSUB 1560: GOTO 120
270 PRINT BES$: GOTO 120
280 MSS$ = "HELP": GOSUB 410: PRINT : FOR L = 3 TO 18: VTAB L:
  HTAB 1: CALL - 868: NEXT L
290 VTAB 5: HTAB 5: PRINT "The following commands are availa
  ble as follow:": PRINT : PRINT TAB(5); MI$;"A"; MOS; "-
  R, S, D, Q, "MI$;"H"; MOS; "MI$;"U"; MOS; "MI$;"J"; MO
  $; "MI$;"K"; MOS: PRINT TAB(5); "D issues the dialing
  process. R reads the index
300 PRINT TAB(5); "Pressing OA - S will convert the selected
  number to an overseas number.": PRINT TAB(5); "Left
  right arrows select the index. Q quits the program."
310 PRINT TAB(5); "Pressing OA - <SB> will stop the call ti
  ming, invoked by the dial command.": PRINT TAB(5); "Pre
  ssing OA - B will provide a copy of file records on the
  printer."
320 PRINT TAB(5); "Up down arrows select numbers.": GET
  CS: PRINT : FOR L = 3 TO 18: VTAB L: HTAB 1: CALL - 868
  : NEXT L: IF TU = 1 THEN GOSUB 810: VTAB (5 + DD): HTAB
  1: PRINT MI$;"U": MOS: GOSUB 430: RETURN
330 GOSUB 430: RETURN
340 REM
  SCREEN
350 MMS$ = MI$ + "A" + MOS + " PHONE DIALER"
360 HOME : VTAB 1: HTAB 1: PRINT MI$;"@"; MOS; "MI$;"U"; MOS
  ; "FS; "MI$;"H"; MOS; HTAB (84 - LEN(MMS$)): PRINT MM
  S
370 PRINT : VTAB 2: HTAB 1: PRINT "=====":
  VTAB 20: HTAB 1: PRINT "Read": VTAB 20: HTAB 10: PRINT
  "Dial": VTAB 20: HTAB 19: PRINT "Quit": VTAB 20: HTAB 28
  : PRINT "O-S #": VTAB 20: HTAB 37: PRINT "Index": VTAB 2
  0: HTAB 46: PRINT "Select"
380 VTAB 20: HTAB 56: PRINT "Record display": VTAB 21: HTAB
  1: PRINT MI$;"A"; MOS; "- R"; MI$;"A"; MOS; "- D"; "M
  I$;"A"; MOS; "- Q"; MI$;"A"; MOS; "- S"; MI$;"U"; MOS
  ; "- M"; MI$;"H"; MOS; "- K"; MI$;"K"; MOS; "- J"; MI$;"J"; MOS
  ; "- M"; MI$;"M"; MOS; "- ?"; MI$;"M"; MOS; "- ?"; RETURN
390 VTAB 21: HTAB 55: PRINT MI$;"MOS"; "A"; PRE: "MI$;"M"; MOS; "/
  NXT": VTAB 21: HTAB 75: PRINT MI$;"A"; MOS; "- ?"; RETURN
400 PRINT : VTAB 22: HTAB 1: CALL - 868: PRINT : VTAB 22: HTAB
  1: PRINT "Use options to choose...": RETURN
410 REM
  TITLE
420 VTAB 1: HTAB 9: PRINT "": VTAB 1: HTAB 35: INVERSE : PRINT
  MSS$: NORMAL : RETURN
430 VTAB 1: HTAB 9: PRINT "": RETURN
440 VTAB 1: HTAB 5: PRINT FS$: RETURN
450 REM
  READ FILE
460 EM = 0: DD = 1: XX = 0
470 MSS$ = "Reading...": GOSUB 410: GOSUB 1210
480 VTAB 3: CALL - 958: GOSUB 340
490 PRINT D$"OPEN/TELE/PHONE.INDEX"; "F$"; ",150"

```

Listing continued.

From the *Tele* menu, select commands with the open-apple or solid-apple key combinations that follow:

1) OA-D issues the command to dial the number associated with whatever name the pointer indicates.

If you don't have a touch-tone line, issue the pulse-dialing command available to your modem, in the format ATDP, where P stands for pulse dialing. Be sure to edit lines 1090 and 1100 accordingly.

To disable touch-tone call waiting, type *70 before dialing (see line 1090). Check with your phone company for information on the call-waiting-cancellation format for pulse lines. Be sure to type a period after the appropriate disabling string. The period tells your modem to pause for a second or two, just as you must pause when dialing 9 for an outside line from your office.

2) OA-R reads the index file you select with left- and right-arrow keys. *Tele* displays the index in the upper left corner of the screen.

3) OA-Q quits *Tele* and runs the startup program, from which you can choose System Parameters, Phone, or *Tele* again.

4) OA-S adds an overseas prefix (set in System Parameters) to the selected number.

5) OA-? brings up the help menu, with a brief description of *Tele*'s commands.

6) Pressing the return key jumps to the next group of ten records; pressing Control-A jumps back to the previous set of ten records. (Note that you don't need to depress the open-apple or solid-apple key in conjunction with these commands.)

7) My Apple IIc is equipped with a system clock from Applied Engineering, so I created a routine in the *Tele* program to time my calls and record them in a file called *Tel.Bill* (lines 30, 1290, and 1480).

Line 30 searches to see whether a clock is connected. The binary file AE.BT is a machine-language program on the System Clock Utility Disk supplied with the clock from Applied Engineering. The call to location 970 in lines 1290 and 1480 reads the clock and passes the information to the second arguments of the call, T1\$ and T2\$. DT\$ is the date portion of the T1\$ variable. You can modify these lines to accommodate other types of clocks.

Timing starts automatically when you issue the dial command; you can stop it by hitting OA-spacebar. The program tells you when your call began, when it ended, and its duration. You also have the option of saving this information.

Pressing OA-B reads your records from disk and prints them (line 1640). As written, *Tele* assumes you have an ImageWriter connected to your computer. If you're using another printer, refer to your manual for tab-setting commands.

The dialer and directory programs presented here illustrate some fundamental principles of BASIC telecommunications programming. If you're looking for something more than just another BASIC program, these modules give you plenty of opportunity to experiment. (For easy program entry, owners of data-strip readers should turn to p. 121.) ■

Write to Abdulreza Maleki at 2601 North Grand Avenue #328, Santa Ana, CA 92701.

Listing continued.

```

500 PRINT DS$"READ/TELE/PHONE.INDEX/";F$;"R": INPUT TR: PRINT
  DS
510 TP = INT (TR / 10)
520 IF TR = 0 THEN PRINT DS$"CLOSE/TELE/PHONE.INDEX/";F$: VTAB
  1: HTAB 35: PRINT "Index empty..": GET C$: VTAB 1: HTAB
  35: PRINT "
  :EM = 1: GOSUB 430: RETURN
530 FOR I = 1 TO TR
540 PRINT DS$"READ/TELE/PHONE.INDEX/";F$;"R";I
550 INPUT NS(I): INPUT AS(I)
560 NEXT I
570 PRINT DS$"CLOSE/TELE/PHONE.INDEX/";F$
580 DC$ = AS(1)
590 TU = 1
600 GOSUB 1680: RETURN
610 REM
  INDEX

620 IF DI$ = "u" THEN F$ = CHR$(ASC(F$) + 1): GOSUB 640:
  GOSUB 440: RETURN
630 IF DI$ = "d" THEN F$ = CHR$(ASC(F$) - 1): GOSUB 640:
  GOSUB 440: RETURN
640 IF ASC(F$) > 90 THEN F$ = "A"
650 IF ASC(F$) < 65 THEN F$ = "Z"
660 RETURN
670 REM
  SELECTION

680 IF DR$ = "u" THEN DD = DD - 1: GOSUB 700: GOSUB 740: RETURN
690 IF DR$ = "d" THEN DD = DD + 1: GOSUB 700: GOSUB 740: RETURN

700 ML = 1
710 IF DD > 10 THEN DD = 10:ML = 0
720 IF DD < 1 THEN DD = 1:ML = 0
730 IF DD > TR - (XX * 10) THEN PRINT CHR$(7):DD = DD - 1
  : RETURN
740 IF DD = 10 THEN VTAB 14: HTAB 1: PRINT "": VTAB 15: HTAB
  1: PRINT MI$;"U";MO$: RETURN
750 IF DD = 1 THEN VTAB 7: HTAB 1: PRINT "": VTAB 6: HTAB
  1: PRINT MI$;"U";MO$: RETURN
760 PRINT : VTAB (5 + DD): HTAB 1: PRINT MI$;"U";MO$: IF ML =
  1 THEN GOSUB 780
770 RETURN
780 IF DR$ = "u" THEN VTAB ((DD + 5) + 1): HTAB 1: PRINT "
  "
790 IF DR$ = "d" THEN VTAB ((DD + 5) - 1): HTAB 1: PRINT "
  "
800 RETURN
810 REM
  DISPLAY RECORDS

820 FOR L = 3 TO 18: VTAB L: HTAB 2: CALL - 868: NEXT L:BN =
  1: GOSUB 900: IF EM = 1 THEN EM = 0: RETURN
830 IF TU = 0 THEN RETURN
840 FOR TT = ((XX * 10) + 1) TO ((XX * 10) + 10)
  BN = BN + 1
860 VTAB (BN + 4): HTAB 5: PRINT NS(TT): VTAB (BN + 4): HTAB
  50: PRINT AS(TT): IF NS(TT) = "" AND AS(TT) = "" THEN BN
  = BN - 1
870 NEXT TT
880 IF DD > = BN THEN FOR T1 = (BN + 5) TO 18: VTAB T1: PRINT
  CHR$(29): NEXT T1: DD = BN: GOSUB 700: VTAB (DD + 5): HTAB
  1: PRINT MI$;"U";MO$: RETURN
890 RETURN
900 REM
  DISPLAY REV. FOR.

910 IF C$ = "f" THEN GOSUB 940: RETURN
920 IF C$ = "r" THEN GOSUB 970: RETURN
930 RETURN
940 XX = XX + 1
950 IF XX > TP THEN XX = TP
960 RETURN
970 XX = XX - 1
980 IF XX < 0 THEN XX = 0
990 RETURN
1000 REM
  DIAL

1010 IF AL = 1 THEN AL = 0: R3$ = DC$: N5$ = NS(DD + (10 * XX))
  : GOTO 1080
1020 GOSUB 1030: GOTO 1080
1030 MS = AS(DD + (10 * XX))
1040 IF (MID$(MS,2,1) < > "0") AND (MID$(MS,2,1) < > "1")
  THEN DC$ = MS: RETURN
1050 DC$ = SY$(4) + "-" + AS(DD + (10 * XX)): R3$ = AS(DD + (1
  0 * XX)): N5$ = NS(DD + (10 * XX))
1060 IF MID$(DC$,3,3) = SY$(3) THEN DC$ = MID$(DC$,7,7)
1070 RETURN
1080 MS$ = "Dialing...": GOSUB 410
1090 IF SY$(6) = "W" THEN VTAB 23: HTAB 1: PRINT DS$"PR#2": PRINT
  "ATDT#70.": DC$; NU$ = DC$: GOSUB 430: RETURN
1100 VTAB 23: HTAB 1: PRINT DS$"PR#2": PRINT "ATDT": DC$; NU$ =
  DC$: GOSUB 430: RETURN
1110 RETURN
1120 REM
  SPECIAL CODE

1130 IF DC$ = "" THEN PRINT BE$: RETURN
1140 MS$ = "Converting...": GOSUB 410: PRINT : VTAB 22: CALL
  - 868: PRINT : VTAB 22: HTAB 1: PRINT "Converting to ov
  er-seas number..": FOR L = 1 TO 350: NEXT L
1150 VR = 1
1160 GOSUB 400: GOSUB 1220
1170 IF VR = 1 THEN DC$ = SY$(5) + "-" + DC$: NU$ = DC$
1180 IF VR = 0 THEN PRINT BE$: VTAB 22: HTAB 1: PRINT "Inva
  lid operation. Command aborted.": GET T$: GOSUB 400: GOTO
  1200
1190 AL = 1
1200 GOSUB 430: RETURN
1210 FOR J = 1 TO 200: AS(J) = "": NS(J) = "": NEXT J: RETURN

```

```

1220 REM
  CHECK VALIDITY

1230 GOSUB 1030
1240 IF MID$(DC$,1,2) = "1-" OR LEN(DC$) = 7 THEN VR = 0
1250 RETURN
1260 REM
  END TIMING

1270 IF SY$(2) = "N" THEN RETURN
1280 CALL 970, T2$ 
1290 T1$ = MID$(T1$,12,8): T2$ = MID$(T2$,12,8)
1300 T3$ = MID$(T1$,1,2) + "-" + MID$(T1$,4,2) + "-" + MID$(T1$,7,2)
1310 W1$ = MID$(T2$,1,2) + "-" + MID$(T2$,4,2) + "-" + MID$(T2$,7,2)
1320 T1 = VAL(MID$(T1$,1,2)) * 3600 + VAL(MID$(T1$,4,
  2)) * 60 + VAL(MID$(T1$,7,2))
1330 T2 = VAL(MID$(T2$,1,2)) * 3600 + VAL(MID$(T2$,4,
  2)) * 60 + VAL(MID$(T2$,7,2))
1340 T3 = ABS(T2 - T1): T4 = INT((T3 / 3600): T5 = INT((T3
  - (T4 * 3600)) / 60): T6 = T3 - (T4 * 3600) - (T5 * 60)
1350 T7$ = STR$(T4) + ":" + STR$(T5) + ":" + STR$(T6)
1360 T8$ = STR$(T4) + "-" + STR$(T5) + "-" + STR$(T6)
1370 HOME : VTAB 2: HTAB 1: PRINT "Your call lasted
  "; T3"
  Seconds."
1380 VTAB 3: HTAB 1: PRINT "Call starting at "; T1$
1390 VTAB 4: HTAB 1: PRINT "Call ending at "; T2$
1400 VTAB 6: HTAB 1: PRINT "Would you like to save this reco
  rd on disk?": GET QS
1410 IF QS = "y" OR QS = "Y" THEN QS = "": GOSUB 1490: GOSUB
  340: RETURN
1420 IF QS = "n" OR QS = "N" THEN QS = "": GOSUB 340: RETURN
1430 QS = "": PRINT BE$: GOTO 1400
1440 REM
  START TIMING

1450 IF SY$(2) = "N" THEN RETURN
1460 PRINT BE$: BES: BE$: VTAB 22: PRINT CHR$(29): VTAB 23: HTAB
  1: PRINT "Press any key to start timing...<ESC> to exit
  ";: GET QS: IF QS = CHR$(27) THEN GOSUB 1480: RETURN
1470 CALL 970, T1$: DT$ = MID$(T1$,3,8): GOSUB 340: RETURN
1480 VTAB 23: HTAB 1: PRINT CHR$(29): RETURN
1490 REM
  PUT IN RECORDS

1500 G6 = 1
1510 PRINT DS$"OPEN/TELE/TEL.BILL,L100": PRINT DS$"READ/TELE/T
  EL.BILL,R0": INPUT R1
1520 PRINT DS: PRINT DS$"WRITE/TELE/TEL.BILL,R"; R1 + 1
1530 PRINT DT$: PRINT T9$: PRINT W1$: PRINT T8$: PRINT R3$: PRINT
  NSS
1540 PRINT DS$"WRITE/TELE/TEL.BILL,R0": PRINT R1 + 1
1550 PRINT DS$"CLOSE/TELE/TEL.BILL": RETURN
1560 REM
  PRINT BILL

1570 PRINT DS$"OPEN/TELE/TEL.BILL,L100": PRINT DS$"READ/TELE/T
  EL.BILL,R0": INPUT R1: IF R1 = 0 THEN PRINT DS$"CLOSE/TE
  LE/TEL.BILL": RETURN
1580 PRINT CHR$(4)
1590 FOR R2 = 1 TO R1
1600 PRINT DS$"READ/TELE/TEL.BILL,R": R2
1610 INPUT DT$(R2): INPUT T1$(R2): INPUT T2$(R2): INPUT T7$(R2)
  : INPUT DCS(R2): INPUT N5$(R2): NEXT R2
1620 PRINT DS$"CLOSE/TELE/TEL.BILL"
1630 PRINT DS$"PR#1": PRINT CHR$(27): "(012,024,036,048,067,
  "): Y$: CHR$(22)
1640 PRINT "DATE"YS"START TIME"YS"END TIME"YS" DURATION"YS"NU
  MBER"YS"PLACE CALLED": PRINT "-----": PRINT
  -----": PRINT
1650 FOR R2 = 1 TO R1
1660 PRINT DT$(R2) CHR$(9) T1$(R2) CHR$(9) T2$(R2) CHR$(9)
  T7$(R2) CHR$(9) DCS(R2) CHR$(9) N5$(R2)
1670 NEXT R2: PRINT CHR$(12): PRINT DS$"PR#0": RETURN
1680 REM
  CAPITALIZE FIRST LETTER OF A RECORD NAME
1690 FOR L = 1 TO TR: B4 = ASC(LEFT$(NS(L),1))
1700 IF B4 < 123 AND B4 > 96 THEN B4$ = CHR$(B4 - 32): NS(L
  ) = B4$ + MID$(NS(L),2, LEN(NS(L)) - 1)
1710 NEXT L: RETURN
1720 PRINT DS$"PR#2": PRINT "ATQ1S=0$S7=1": PRINT DS$"PR#0": RETURN

```

End of Listing.

Listing 2. Phone.

```

10 PRINT CHR$(4)"RESTORE/TELE/PHONE.VAR"
20 DS$ = CHR$(4): DIM LPS$(50), SP(11), AS(300), NS(300)
30 ZOS$ = "MENU"
40 MI$ = CHR$(15) + CHR$(27): MO$ = CHR$(14) + CHR$(24
  )
50 F1$ = " "
60 HOME : VTAB 1: PRINT "*****Inde
  x is from A-Z ***** Present index [ "; F
  1$; " ]-----"
70 PRINT :-----:-----:-----:-----:-----:-----:-----:-----:
80 PRINT :-----:-----:-----:-----:-----:-----:-----:-----:
90 IF ASC(F1$) > 96 THEN F1$ = CHR$(ASC(F1$) - 32)
100 IF ASC(F1$) < 65 OR ASC(F1$) > 122 THEN PRINT CHR$(7): CHRS(7): GOTO 60
110 PRINT DS$"OPEN/TELE/SYS.PAR": PRINT DS$"READ/TELE/SYS.PAR
  ": INPUT SY$(1): PRINT DS$"CLOSE/TELE/SYS.PAR": F$ = "/TEL
  /PHONE.INDEX/" + F1$
120 ONERR GOTO 1120

```

Listing continued.

Listing continued.

```

1090 VTAB 1: PRINT "INDEX [\";F1S;\" ];" ;" ;M1$;"@";MO$; TAB(78 - LEN (MM$));M1$;"@";MO$;" ;" ;MM$; PRINT "
1100
1100 QW = LEN (DF$): VTAB 1: HTAB ((80 - QW) / 2) + 1: PRINT DEF$"
1110 VTAB 3: PRINT : RETURN
1120 REM
1130 VTAB 22: HTAB 1: PRINT "Error "; PEEK (222);" encounter
ed.": & GET CS
1140 POKE 216,0: POKE 222,0: PRINT D$;"CLOSE": GOTO 120
1150 REM
1160 NS = ":";A$ = "": RETURN
1170 REM
1180 MM$ = "Record deletion";DF$ = "^I to insert"
1190 HOME : GOSUB 1080: GOSUB 2110: GOSUB 2060;I = 1
1200 V = 1: GOSUB 2190: GOSUB 640: IF EOF = 1 THEN 1340
1210 VTAB 22: HTAB 1: PRINT QMS(4);": & GET CS
1220 IF CS = CHR$ (13) THEN GOSUB 2230: GOTO 1200
1230 IF CS = CHR$ (1) THEN GOSUB 2260: GOTO 1200
1240 IF CS = CHR$ (9) THEN GOSUB 2170: GOTO 1270
1250 IF CS = CHR$ (27) THEN 130
1260 IF CS < > CHR$ (27) THEN PRINT CHR$ (7); GOTO 1210
1270 VS = ":"; VTAB 22: HTAB 1: PRINT QMS(5);"deleted"; & INPUT
VS:V = VAL (VS): IF V < 1 OR V > TR THEN PRINT CHR$ (7); GOTO 1270
1280 GOSUB 2210: GOSUB 2290
1290 VTAB 22: HTAB 1: PRINT "Right one? "; & GET CS
1300 IF CS = "y" OR CS = "Y" THEN 1390
1310 IF CS = "N" OR CS = "n" THEN 1200
1320 IF CS = CHR$ (27) THEN 1200
1330 IF CS < > CHR$ (27) THEN PRINT CHR$ (7); GOTO 1290
1340 VTAB 22: HTAB 1: PRINT QMS(3);": & GET CS;EOF = 0
1350 IF CS = CHR$ (1) THEN GOSUB 2260: GOTO 1200
1360 IF CS = CHR$ (9) THEN GOSUB 2170: GOTO 1270
1370 IF CS = CHR$ (27) THEN 130
1380 IF CS < > CHR$ (27) THEN PRINT CHR$ (7); GOTO 1340
1390 REM
1400 PRINT D$;"OPEN";F$;,"L50"
1410 FOR I = 1 TO TR: IF I = V THEN GOSUB 1450: GOTO 1190
1420 PRINT D$;"WRITE";F$;,"R";I
1430 PRINT NS(I): PRINT A$(I)
1440 NEXT I: PRINT D$;"CLOSE";F$: GOTO 1190
1450 REM
1460 FOR I = V + 1 TO TR
1470 PRINT D$;"WRITE";F$;,"R";I - 1
1480 PRINT NS(I): PRINT A$(I)
1490 NEXT I: PRINT D$;"WRITE";F$;,"R0":TR = TR - 1: PRINT TR
: PRINT D$;"CLOSE";F$: RETURN
1500 REM
1510 MN$ = ":";NM$ = ":";M$ = ":";EX$ = ""
1520 HOME :MM$ = "Direct access": GOSUB 1080
1530 VTAB 5: HTAB 1: PRINT "Enter the first name... "; & INPUT
EX$:EX$ = " " + EX$ .
1540 PRINT
1550 VTAB 6: HTAB 1: PRINT "Enter last name... "; & INPUT
MS:MS = " " + MS
1560 KS = LEFT$(MS,2)
1570 IF EX$ < > "" THEN M$ = EX$ + M$"
1580 GOSUB 1850;MN$ = NM$"
1590 PRINT D$;"OPEN";KS;,"L50"
1600 PRINT D$;"READ";KS;,"R0": INPUT TR: IF TR = 0 THEN 1700
1610 PRINT D$"
1620 FOR X = 1 TO TR
1630 PRINT D$;"READ";KS;,"R";X
1640 INPUT NS
1650 M$ = NS: GOSUB 1850;XM$ = NM$"
1660 IF MN$ = XM$ THEN PRINT D$: GOTO 1710
1670 NEXT X
1680 VTAB 3: CALL - 958: PRINT
1690 VTAB 21: HTAB 1: PRINT "No records by that name. "; &
GET A$: GOSUB 1800: GOTO 1520
1700 VTAB 21: HTAB 1: PRINT "Index empty. "; & GET A$: GOTO
1510
1710 REM
1720 VTAB 4: CALL - 958
1730 PRINT D$;"READ";KS;,"R";X
1740 INPUT NS: INPUT A$
1750 PRINT
1760 VTAB 5: HTAB 1: PRINT "NAME": VTAB 5: HTAB 15: PRINT N
$"
1770 VTAB 7: HTAB 1: PRINT "PHONE #": VTAB 7: HTAB 15: PRINT
A$"
1780 IF SK$ = "yes" THEN GOSUB 233
1790 GOSUB 1800: GOTO 1510
1800 VTAB 19: CALL - 958: PRINT
1810 VTAB 21: HTAB 1: PRINT "<ESC> to main menu. "; & GET A
$"
1820 PRINT D$;"CLOSE";KS
1830 IF A$ = CHR$ (27) THEN GOTO 130
1840 RETURN
1850 REM
1860 NM$ = ""
1870 FOR I = 1 TO LEN (M$)
1880 LPS(I) = MID$ (M$, I, 1)
1890 IF ASC (LPS(I)) > 90 THEN LPS(I) = CHR$ (ASC (LPS(I))
) - 32)
1900 IF LPS(I) = CHR$ (32) THEN GOTO 1920
1910 NM$ = NM$ + LPS(I)
1920 NEXT I: RETURN
1930 REM
1940 SPEED= 198
1950 VTAB 4: HTAB 55: PRINT "
1960 FOR I = 54 TO 78: VTAB 3: HTAB I: PRINT " ";: NEXT
1970 FOR I = 4 TO 13: VTAB I: HTAB 53: PRINT "T": NEXT
1980 FOR I = 54 TO 79: VTAB 13: HTAB I: PRINT "T": NEXT
1990 FOR I = 4 TO 13: VTAB I: HTAB 79: PRINT "T": NEXT
2000 VTAB 5: HTAB 55: PRINT "Pressing 'D' will cause"
2010 VTAB 6: HTAB 55: PRINT "phone# selection to be"
2020 VTAB 7: HTAB 55: PRINT "directly accessible. "

```

Listing continued.

Listing continued.

```
2030 VTAB 8: HTAB 55: PRINT "M' will alter this to"
2040 VTAB 10: HTAB 55: PRINT "a menu driven"
2050 VTAB 12: HTAB 55: PRINT "accessing.": & GET A$: SPEED=255: RETURN
2060 REM
2070 FOR I = 1 TO TR
2080 PRINT D$;"READ";F$;";R";I
2090 INPUT NS(I): INPUT A$(I)
2100 NEXT I: PRINT D$;"CLOSE";F$; GOSUB 2490: RETURN
2110 REM
2120 PRINT D$;"OPEN";F$;";L50"
2130 PRINT D$;"READ";F$;";R0": INPUT TR
2140 IF TR = 0 AND GG = 1 THEN 2160
2150 IF TR = 0 THEN GOSUB 2170: VTAB 22: HTAB 1: PRINT "No
records available.": & GET C$: PRINT D$;"CLOSE";F$; GOTO
130
2160 GG = 0: PRINT D$: RETURN
2170 REM
2180 VTAB 21: CALL - 958: PRINT : RETURN
2190 REM
2200 VTAB 5: CALL - 958: PRINT : RETURN
2210 REM
2220 VTAB 3: CALL - 958: PRINT : RETURN
2230 REM
2240 X = X + 14: IF X > TR THEN X = TR
2250 RETURN
2260 REM
2270 X = X - 14: IF X < 1 THEN X = 1
2280 RETURN
2290 REM
2300 VTAB 5: HTAB 1: PRINT "ORIGINAL RECORD:"
2310 VTAB 7: HTAB 1: PRINT "REC #": VTAB 7: HTAB 10: PRINT "
NAME": VTAB 7: HTAB 40: PRINT "TELEPHONE #"
2320 VTAB 8: HTAB 1: PRINT "-----": VTAB 8: HTAB 10: PRINT "
-----": VTAB 8: HTAB 40: PRINT "-----"
2330 VTAB 9: HTAB 1: PRINT V: VTAB 9: HTAB 10: PRINT NS(V): VTAB
9: HTAB 40: PRINT A$(V): RETURN
2340 REM
2350 GOSUB 2170
2360 VTAB 21: PRINT "Which to change...(<N>ame <T>elephone #"
): & GET C$: IF C$ = "N" THEN KK = 1: RETURN
2370 IF C$ = "T" THEN NS = "": K1 = 1: GOSUB 2170: VTAB 22: HTAB
1: PRINT "Name": & INPUT NS: RETURN
2380 IF C$ = "T" THEN A$ = "": K2 = 1: GOSUB 2170: VTAB 22: HTAB
1: PRINT "Telephone #": & INPUT A$: GOSUB 2470: RETURN
2390 IF C$ < > "T" THEN PRINT CHR$(7): GOTO 2360
2400 REM
2410 PRINT D$;"PR#1": PRINT CHR$(27);"(030.": PRINT CHR$(9): CHR$(22)
2420 FOR I = 1 TO TR: PRINT NS(I): CHR$(9);A$(I): NEXT I: PRINT
CHR$(9): PRINT D$;"PR0": RETURN
2430 IF K1 = 1 THEN K1 = 0: NS(V) = NS: RETURN
2440 IF K2 = 1 THEN K2 = 0: A$(V) = A$: RETURN
2450 IF MID$(A$(5,1) < > "-") THEN A$ = LEFT$(A$(4) + "-"
+ MID$(A$(5,LEN(A$) - 4)
2460 RETURN
2470 IF MID$(A$(4,1) < > "-") THEN A$ = LEFT$(A$(3) + "-"
+ MID$(A$(4, LEN(A$) - 3)
2480 RETURN
2490 REM
2500 FOR L = 1 TO TR: B4 = ASC (LEFT$(NS(L),1))
2510 IF B4 < 123 AND B4 > 96 THEN B4$ = CHR$(B4 - 32): NS(L)
) = B4$ + MID$(NS(L),2, LEN(NS(L)) - 1)
2520 NEXT L: RETURN
End of Listing.
```

Listing 3. Startup routine (save as START1).

```
10 D$ = CHR$(4): HOME
20 PRINT D$;"OPEN/TELE/SYS.PAR": PRINT D$;"READ/TELE/SYS.PAR"
INPUT SY$: PRINT D$;"CLOSE/TELE/SYS.PAR"
30 A$ = "1. Telephone directory dialing..."
40 J = INT ((80 - LEN (A$)) / 2) + 1
50 VTAB 2: HTAB J: PRINT A$
60 VTAB 3: HTAB J: PRINT "2. Telephone directory..."
70 VTAB 4: HTAB J: PRINT "3. System parameters..."
80 VTAB 5: HTAB J: PRINT "4. Quit..."
90 VTAB 7: HTAB J: PRINT "Choose...": & GET A$
100 A = VAL (A$)
110 IF A < 1 OR A > 4 THEN PRINT CHR$(7): GOTO 90
120 ON A GOTO 130,140,150,160
130 PRINT D$;"-SYS"TEL"
140 PRINT D$;"-SYS"PHONE"
150 PRINT D$;"-TELE/SYS.PARAMETERS"
160 & EXIT: PRINT D$;"BYE"
End of Listing.
```

Listing 4. Creator.

```
10 D$ = CHR$(4):X = 0: HOME
20 PR$ = "/TELE/"
30 VTAB 5: HTAB 5: PRINT "BUILDING DATA FILES PLEASE WAIT...
"
40 REM
CREATE INDEX SUBDIRECTORY AND FILES
50 PRINT D$;"CREATE"PR$"PHONE.INDEX.TDIR"
60 PRINT D$;"PREFIX"PR$"PHONE.INDEX"
70 FOR I = 65 TO 90
End of Listing.
```

```
80 PRINT D$;"OPEN" CHR$(1)"L50": PRINT D$;"WRITE" CHR$(1)"
, R0": PRINT X: PRINT D$;"CLOSE" CHR$(1)
90 NEXT I: PRINT D$;"PREFIX"PR$"
100 PRINT D$;"OPEN"PR$"TEL.BILL.L100": PRINT D$;"WRITE"PR$"TE
L.BILL,R0": PRINT X: PRINT D$;"CLOSE"PR$"TEL.BILL"
110 PRINT "DONE..."
120 PRINT "RUNNING 'SYS.PARAMETERS' IN A MOMENT...": FOR I =
1 TO 500: NEXT I: PRINT D$;"-SYS.PARAMETERS"
End of Listing.
```

Listing 5. Variable Constant (save as VAR.CONST).

```
10 D$ = CHR$(4)
20 FOR I = 1 TO 5
30 READ QM$(I)
40 NEXT I
50 PRINT D$;"STORE/TELE/PHONE.VAR"
"
60 END
100 DATA "Is data correct?... (Y
/N/ <ESC>)", "Press <RETURN>
to continue or <ESC> to go b
ack.", "End of records. A pr
evious records"
110 DATA "<RETURN> to continue.
A previous records", "What
record # to be"
End of Listing.
```

Listing 6. System Parameters (save as SYS.PARAMETERS).

```
10 D$ = CHR$(4)
20 GOSUB 350
30 HOME
40 A$ = "SYSTEM PARAMETERS SETUP"
50 J = INT ((80 - LEN (A$)) / 2): VTAB 2: HTAB J: PRINT A$
60 GOSUB 70: GOTO 140
70 VTAB 4: HTAB 3: PRINT "1. Volume name containing programs(
/TELE)": A$(1)
80 PRINT TAB(3); 2. System clock available.....(No
)"; A$(2)
90 PRINT TAB(3); 3. Area code.....(714
)"; A$(3)
100 PRINT TAB(3); 4. Outside service area prefix...(1
)"; A$(4)
110 PRINT TAB(3); 5. Long distance prefix.....(011
)"; A$(5)
120 PRINT TAB(3); 6. Disable call waiting.....(No
)"; A$(6)
130 RETURN
140 VTAB 11: PRINT TAB(3): PRINT "Press number to change v
alues or <ESC> to quit": : GET B$:
150 IF B$ = CHR$(27) THEN 210
160 B = VAL (B$): IF B < 1 OR B > 6 THEN PRINT CHR$(7): PRINT
: GOTO 140
170 PRINT : VTAB 21: HTAB 1: INPUT "Enter value": A$(B): IF
B = 1 THEN GOSUB 250
180 IF B = 2 OR B = 6 THEN GOSUB 320
190 GOSUB 200: GOSUB 30: GOTO 140
200 VTAB 21: HTAB 1: PRINT CHR$(29): PRINT : RETURN
210 REM
SAVE PARAMETERS
220 GOSUB 290
230 PRINT D$;"OPEN/TELE/SYS.PAR": PRINT D$;"WRITE/TELE/SYS.P
AR": FOR I = 1 TO 6: PRINT A$(I): NEXT I: PRINT D$;"CLOS
E/TELE/SYS.PAR"
240 PRINT D$;"-A$(1)"START1"
250 IF A$(1) = "" OR A$(1) = "/" THEN A$ = "": RETURN
260 IF LEFT$(A$(1,1) < > "/") THEN A$(1) = "/" + A$(1)
270 IF RIGHT$(A$(1,1) < > "/") THEN A$(1) = A$(1) + "/"
280 RETURN
290 FOR I = 1 TO 6: IF A$(I) = "" THEN GOSUB 310: NEXT I
300 RETURN
310 FOR T = 1 TO I: READ G$: NEXT T: RESTORE : A$(I) = G$: RETURN
320 A$(B) = LEFT$(A$(B,1): IF ASC (A$(B)) > 96 THEN A$(B)
= CHR$(ASC (A$(B)) - 32)
330 RETURN
340 DATA "/TELE/", "N", "714", "1", "011", "N"
350 REM
get values
360 PRINT D$;"OPEN/TELE/SYS.PAR": PRINT D$;"READ/TELE/SYS.PA
R": FOR I = 1 TO 6: INPUT A$(I): NEXT I: PRINT D$;"CLOSE
/TELE/SYS.PAR"
370 RETURN
End of Listing.
```

INDEX TO ADVERTISERS

Reader Service	Page	Reader Service	Page	Reader Service	Page
* AST Research	CV2, 1	275 Dresselhaus	22	13 Powersine Products	126
* Applied Engineering	2, 3, 42, 43, 55, 57, 59, 61, 70, 71, 73, 75, 83, 95	148 Electronic Arts	31	291 Practical Peripherals	107
20 Atlaz Computer Supply	125	82 Elfware	124	273 Precision International	44
14 Azure Mountain Products	124	201 Epyx	39	* Preferred Computing	49
229 Beagle Bros.	85	295 Funk Software	21	50 ProComp	13
35 Bible Research	96	146 Golem Computers	92	128 Programs Plus	50, 51
151 Big Red Apple Club	114	66 H&E Computronics	69	32 Pro-Tech-Tronics	60
225 Black Sun	125	88 HowardSoft	CV3	16 Quinsept	118
71 Borg Industries	124	inCider Magazine		41 Quorum	119
149 Brickhouse Software	125	Main Menu		212 RC Systems	38
* Broderbund	27	Moving		46 Russ Systems Inc.	28
* Business Computers of Peterborough	64, 65	9-12 Interactive Microware	88	84 Sensible Software	23
233 Cauzin Systems	37	3 Intrinsic Systems	125	85 Sensible Software	118
60 Central Point Software	14	36 JED Design	125	30 Signum Micro Products	126
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51 56 61 66 71	201 206 211 216 221	351 356 361 366 371
52 57 62 67 72	202 207 212 217 222	352 357 362 367 372
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51 56 61 66 71	201 206 211 216 221	351 356 361 366 371
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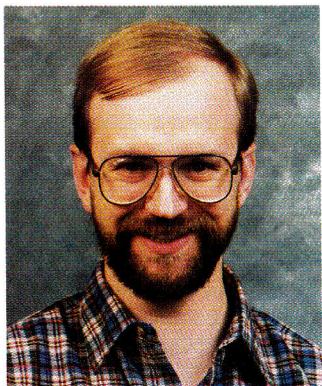
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The State of Interactive Fiction, 1987

by Scott Mace

This month inCider introduces Mace on Games, a column of commentary on trends and developments in the world of Apple entertainment.



"No fancy graphics—words are the source of the adventure."

It's computer entertainment without graphics or sound. Sound boring? Well, it isn't. In fact, interactive fiction is one of the most popular forms of entertainment software today.

And as new technology offers ways to get more information into your computer, interactive fiction will expand to new dimensions.

Interactive fiction that's purely text is the computer equivalent of a novel. No fancy computer graphics appear—words, flowing across your screen to describe a setting, are the source of the adventure. It's up to you to ask questions and write commands to explore the unknown.

"You are dreaming... that you wake up to find yourself in a strange hotel."

So begins one of the most exciting new interactive novels, **Amnesia** by Thomas M. Disch, published by Electronic Arts (1820 Gateway Drive, San Mateo, CA 94404, \$44.95). Using only words, Disch creates the Sunderland Hotel in the heart of New York: Reading those words, you see the hotel, and, gradually, you begin to see the surrounding city.

Amnesia gets more dramatic. The package includes a map of Manhattan to guide you down 650 streets and through virtually the entire subway system, with 94 stops. The size of this world is startling compared to that of previous

text adventures. In fact, the authors say **Amnesia** contains nearly as much text as a regular novel. Many earlier adventure games aren't much more than a series of puzzles, with little attempt to fully describe scenes.

Disch also uses a time-honored literary and cinematic vehicle, the flashback—all the more intriguing because in **Amnesia**, the object is to find out who you really are. One typical flashback scene, for instance, reads: *"You are locked in a cell. It is bare and dark and smells of lives gone sour.... At last, your screams attract the attention of your jailer. The grill of the door is pushed aside, and his face appears, leering in the aperture."*

Unlike novels, which can have only one ending, an interactive story may have several. **Amnesia** even features a "happy ending" early in the game that leaves you feeling incomplete: *"You are still wondering who you are and what you'd done and what your life might have been like if you hadn't...."* I won't tell you how the game arrives at this conclusion, but if

you end up there, remember that you can always start over.

Disch is a noted science-fiction author and one of a growing roundtable of interactive-fiction writers who meet occasionally in New York City. As in the days when literary greats assembled at the Algonquin Hotel, these modern-day artists are helping to shape the future of their medium. We may soon see anthologies and collaborative efforts.

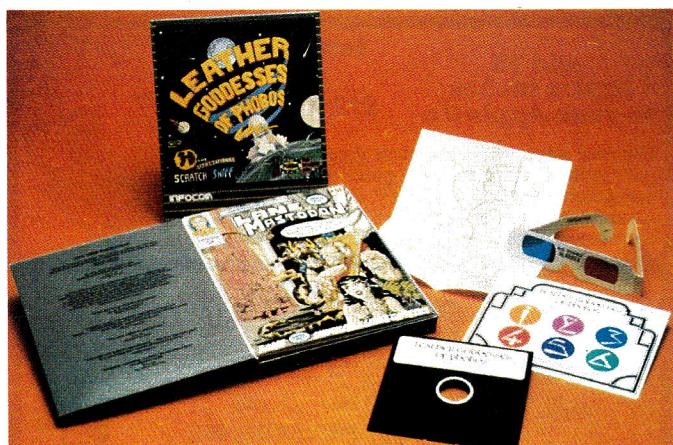
The work of this group represents the cutting edge of interactive fiction, where the unfolding of plot is as important as the game aspect, where puzzles don't interfere with the story, where you can enjoy time spent playing as you would reading a good book.

Bravo, Tom Disch!

Creatures from Another Planet

Hinting that the traditional form of interactive fiction may be wearing thin, other recent interactive novels range from the far-out to the bizarre. If you appreciate the offbeat, you'll like these new titles.

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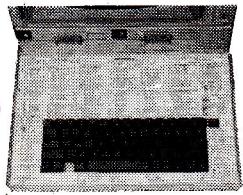
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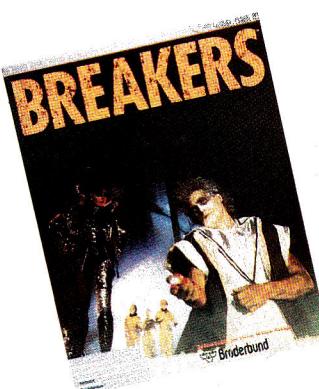
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MADE ON GAMES



Breakers: A whole new experience in chaos for sci-fi fans.

since the appearance of **Hitchhiker's Guide to the Galaxy** (Infocom, 125 CambridgePark Drive, Cambridge, MA 02140, \$39.95), which features a King Midas-type character whose touch turns people not into gold, but into 45-degree angles. The game describes one of these, the king's daughter, as a 45-degree angle with golden hair and a gown. Only through words could an author get away with something so ludicrous and funny. Graphics adventures, though, are too limited to include such images.

Infocom, which also brought us **Zork**, the first and best text-adventure game, has released a new one called **Leather Goddesses of Phobos** (\$39.95). What can you expect from a game that comes with a 3-D comic book and a scratch-and-sniff spot? Lots of humor—and veteran interactive-fiction writer Steve Meretzky delivers it.

On Phobos, a moon of Mars, the Leather Goddesses test you in unspeakable ways to prepare for their invasion of Earth. Naturally, you can't let that happen. Parents, be warned: **Leather Goddesses of Phobos** includes risqué language, which you can turn on and off as you enter expert or beginner mode. With adult situations appearing in most of our movies and books, they inevitably crop up in interactive fiction, too.

The strangest game of the month has to be Broderbund's **Breakers**, by Rod Smith, Joe Vierra, and Wil-

liam Mataga (17 Paul Drive, San Rafael, CA 94903, \$44.95). **Breakers** uses a parser—a software routine that understands English sentences—but you'll find it responds to commands more slowly than other games.

In **Breakers**, as in some other Broderbund adventures, the action continues all around you even if you don't type anything for a while. Everything about this game is strange. Set in the space colony Nimbus and on the planet Borg, you must gather "sacred elements" to restore order to a chaotic planet, where **Breakers** (smugglers who deal in contraband and slaves) clash with **Gaks**, mutant space cops. If you're used to the relatively clearheaded way most Infocom games operate, you'll find **Breakers** jarring. If you're ready for a whole new experience—"This just can't be happening"—try **Breakers**.

What's next for interactive fiction? That depends partly on which computers people buy. Even now, the 128K Apple II is beginning to have an impact; a few text adventures now require 128K of RAM. With more memory, authors can write more complicated plots with more alternative endings, and publishers can put more text on fewer disks with larger-capacity drives. For interactive-fiction fans, it's a trend to watch. ■

Write to Scott Mace at 6510 Copper Ridge Drive #T-1, Baltimore, MD 21209.

HINTS/TECHNIQUES

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, and AppleWorks applications. Program listings in this section are in data-strip format on p. 122 in this issue.

Mortgage-Prepayment Calculator

by Vera Bagboudarian

If you've ever wondered how much money you could save on your mortgage by increasing the amount of your monthly payment, Mortgage-Prepayment Calculator (see **Listing 1**) can easily refigure your mortgage, list your monthly payments for the remainder of the loan, and display the total interest.

Type in and run **Listing 1**. At the screen prompts, type in mortgage principal, interest rate, monthly payment (including principal and interest, but subtracting any taxes), and the extra amount you'd like to pay each month to reduce the principal. The program then displays a menu from which you can choose to recalculate, list your new monthly payments, or end the program.

If you choose to list monthly payments, the program displays them 12 lines at a time with the total interest paid to date at the bottom of each screen. Mortgage-Prepayment Calculator uses the subroutine Print Using (*Hints/Techniques*, January 1986, p. 116). As is, the program doesn't offer a printout option, but you can easily change it to generate a hardcopy listing.

Try running the program first with no increase in the monthly-payment amount, then with a slight increase, and see the thousands of dollars you can save during the life of your mortgage. ■

Write to Vera Bagboudarian at 7949 Vanalden Street, Reseda, CA 91335.

Listing 1. Mortgage-Prepayment Calculator.

```
10 REM PREPAYMENT PLAN
11 REM WRITTEN BY VERA BAGBOUDARIAN
12 REM
15 REM TI--> TOTAL INTEREST PAID
16 HOME
20 TI = 0:K = 4
30 GOSUB 1000
40 GOSUB 100
50 IF F1 = 1 THEN GOSUB 300: GOSUB 420: GOSUB 500: GOTO 40
60 IF F1 = 2 THEN 10
70 END
95 REM
96 REM ****
97 REM MENU DISPLAY
98 REM ****
99 REM
100 HOME : PRINT "DO YOU WANT.."
110 PRINT TAB( 3)"1.A LISTING OF YOUR MONTHLY PAYMENTS."
120 PRINT TAB( 3)"2.ANOTHER CALCULATION."
130 PRINT TAB( 3)"3.END THE PROGRAM."
140 PRINT
150 PRINT TAB( 20):: INPUT F1
160 IF F1 < 1 OR F1 > 3 THEN 100
170 RETURN
190 REM
200 X$ = ""
210 INPUT "";X$
220 RETURN
230 REM ****
240 REM OUTPUT ROUTINES
250 REM ****
300 HOME
310 PRINT "MORTGAGE PREPAYMENT PLAN"
315 PRINT
320 PRINT "MORTGAGE PRINCIPAL: $M"
330 PRINT "INTEREST RATE: "AI * 100" PERCENT"
340 PRINT "TERM OF MORTGAGE: "N" YEARS"
350 PRINT "MONTHLY PAYMENT: $"MP
360 PRINT "EXTRA MONTHLY PRINCIPAL PAYMENT: $"PP
370 PRINT
380 RETURN
390 REM ****
400 REM HEADING
410 REM ****
420 GOSUB 4000
430 HOME : PRINT TAB( 25)"EXTRA"
440 PRINT "PYMT AMT OF AMT OF PRNCPL BALANCE"
450 PRINT " NO. INTEREST PRINCIPAL PYMT OF LOAN"
460 RETURN
470 REM ****
480 REM PAYMENT CALCULATION
490 REM ****
491 REM J--> PAYMENT NO.
492 REM PB--> PREVIOUS BALANCE
493 REM IP--> INTEREST PAYMENT
494 REM AP--> AMOUNT OF PRINCIPAL
495 REM NB--> NEW BALANCE
500 J = 1
510 PB = M
520 IP = INT (PB * (AI / 12) * 100 + .5) / 100
530 IF PB < MP GOTO 580
540 AP = INT ((MP - IP) * 100 + .5) / 100
550 IF PB - AP < PP THEN PP = PB - AP
560 NB = INT ((PB - AP - PP) * 100 + .5) / 100
570 GOTO 610
580 AP = PB
590 PP = 0
600 NB = 0
610 TI = TI + IP
620 GOSUB 710
630 PB = NB:J = J + 1
640 IF PB > 0 GOTO 520
650 GOSUB 800
660 GOTO 70
670 REM
680 REM ****
690 REM PRINT ROUTINE
700 REM ****
```

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**HINTS/TECHNIQUES**

Listing continued.

```

710 K = K + 1
720 IF K = 17 THEN GOSUB 5000: GOSUB 420:K = 5
730 HTAB 2: VTAB K:Z$ = "#":Z = J: GOSUB 2030
740 HTAB 6: VTAB K:Z$ = "#,##.##":Z = IP: GOSUB 2030
750 HTAB 15: VTAB K:Z$ = "#,##.##":Z = AP: GOSUB 2030
760 HTAB 25: VTAB K: PRINT PP;
770 HTAB 31: VTAB K:Z$ = "#,##.##":Z = NB: GOSUB 2030
780 RETURN
790 REM
800 PRINT
805 Z$ = "#,##.##":Z = TI
810 PRINT "TOTAL INTEREST PAID OVER LIFE OF MORTGAGE: ";: GOSUB 2030
820 RETURN
950 REM M--> MORTGAGE PRINCIPAL
960 REM AI--> ANNUAL INTEREST RATE
970 REM N--> TERM OF MORTGAGE
980 REM MP--> MONTHLY PAYMENT
990 REM PP--> EXTRA MONTHLY PRINCIPAL PAYMENT
995 REM
996 REM ****
997 REM DATA INPUT ROUTINE
998 REM ****
999 REM
1000 HOME : PRINT "ENTER..."
1010 GOSUB 1200: GOSUB 200
1020 IF X$ = "" THEN GOSUB 1200: PRINT M: GOTO 1040
1030 M = VAL (X$)
1040 GOSUB 1210: GOSUB 200
1050 IF X$ = "" THEN GOSUB 1210: PRINT AI: GOTO 1070
1060 AI = VAL (X$)
1070 GOSUB 1220: GOSUB 200
1080 IF X$ = "" THEN GOSUB 1220: PRINT N: GOTO 1100
1090 N = VAL (X$)
1100 GOSUB 1230: GOSUB 200
1110 IF X$ = "" THEN GOSUB 1230: PRINT MP: GOTO 1130
1120 MP = VAL (X$)
1130 GOSUB 1240: GOSUB 200
1140 IF X$ = "" THEN GOSUB 1240: PRINT PP: GOTO 1160
1150 PP = VAL (X$)
1160 PRINT
1170 RETURN
1195 REM
1196 REM ****
1197 REM INPUT SCREEN DISPLAY
1198 REM ****
1199 REM
1200 HTAB 4: VTAB 2: PRINT "MORTGAGE PRINCIPAL: ";: RETURN
1210 HTAB 4: VTAB 3: PRINT "ANN. INT. RATE (EG. 0.1425): ";: RETURN
1220 HTAB 4: VTAB 4: PRINT "TERM OF MORTGAGE: ";: RETURN
1230 HTAB 4: VTAB 5: PRINT "MONTHLY PAYMENT AMOUNT: ";: RETURN
1240 HTAB 4: VTAB 6: PRINT "EXTRA MONTHLY PRINCIPAL"
1250 HTAB 4: HTAB 7: PRINT "PAYMENT AMOUNT: ";: RETURN
2000 REM ****
2010 REM PRINT USING ROUTINE
2020 REM ****
2030 Z1 = LEN (Z$):Z2 = 0:Z3 = 0
2040 FOR Z4 = 1 TO Z1: IF MID$ (Z$,Z4,1) = "," THEN Z2 = Z4
2050 IF MID$ (Z$,Z4,1) = "." THEN Z3 = Z4
2060 NEXT
2070 IF Z2 = 0 AND Z3 = 0 THEN ZA$ = Z$: GOTO 2110
2080 IF Z2 = 0 THEN ZA$ = LEFT$ (Z$,Z3 - 1) + RIGHT$ (Z$,Z1 - Z3): GOTO 2110
2090 IF Z3 = 0 THEN ZA$ = LEFT$ (Z$,Z2 - 1) + RIGHT$ (Z$,Z1 - Z2): GOTO 2110
2100 ZA$ = LEFT$ (Z$,Z2 - 1) + MID$ (Z$,Z2 + 1,Z3 - Z2 - 1) + RIGHT$ (Z$,Z1 - Z3)
2110 Z5 = 0: FOR Z4 = 1 TO LEN (ZA$): IF MID$ (ZA$,Z4,1) < > "#" THEN Z5 = 1
2120 NEXT
2130 IF Z3 = 0 THEN Z3 = Z1
2140 Z4 = 10 ^ (Z1 - Z3):Z = INT (Z * Z4 + .5) / Z4:ZA$ = STR$ (Z): IF Z2 = 0
AND Z3 = Z1 THEN 2230
2150 IF Z3 = Z1 THEN 2210
2160 Z5 = 0: FOR Z4 = 1 TO LEN (ZA$): IF MID$ (ZA$,Z4,1) = "." THEN Z5 = Z4:Z4
= LEN (ZA$)
2170 NEXT : IF Z5 = 0 THEN ZA$ = ZA$ + ".":Z5 = LEN (ZA$)
2180 IF Z5 = 2 AND SGN (Z) = - 1 THEN ZA$ = "-0" + RIGHT$ (ZA$, LEN (ZA$) - 1):Z5
= 3
2190 IF Z5 = 1 THEN ZA$ = "0" + ZA$:Z5 = 2
2200 IF Z1 - Z3 > LEN (ZA$) - Z5 THEN ZA$ = ZA$ + "0": GOTO 2200
2210 Z5 = LEN (ZA$): IF Z2 = 0 OR Z5 < = (Z1 - Z2) THEN 2230
2220 ZA$ = LEFT$ (ZA$,Z5 - (Z1 - Z2)) + "," + RIGHT$ (ZA$,Z1 - Z2)
2230 IF LEN (ZA$) > Z1 THEN ZA$ = "%" + ZA$: GOTO 2250
2240 IF LEN (ZA$) < Z1 THEN ZA$ = " " + ZA$: GOTO 2240
2250 PRINT ZA$:: RETURN
3970 REM ****
3980 REM CONTINUE ROUTINE
3990 REM ****
4000 PRINT : PRINT : PRINT " PRESS"
4010 PRINT " <RETURN> TO CONTINUE..."
4015 PRINT " <O> TO MAIN MENU...";"
4020 INPUT " ";X$;
4030 IF X$ = "O" THEN GOTO 40

```

Listing continued.

Listing continued.

```

4040 RETURN
4990 REM
5000 PRINT
5010 Z$ = "#,##,##.##":Z = TI
5020 PRINT "INTEREST PAID TO DATE: ";: GOSUB 2030
5030 RETURN

```

End of Listing.

ImageWriter II Color Codes

by J.C. Ballezza

If you've got an ImageWriter II printer but haven't stocked up on color-ready software, here's an enhancement that will let you use your DOS 3.3 Apple Writer glossary to create color text.

First, press Control-N to clear memory. Type Y and press the return key. Type in the list of codes in **Listing 2**; start at the leftmost column on screen.

Press Control-B, then Control-F. Type in the following line (no spaces, no period): /\$/Control-V Escape Control-V/a. Hit the return key. Press Control-S to save your file to disk; name it COLOR. Press Return. Inverse Vs (A) should now replace all string symbols (\$) in your code list.

Next press Control-N and answer Y to clear memory. Load your glossary into Apple Writer: Type Control-Q to get the Additional Functions menu; select E; type COLOR and press Return. (Your glossary is now loaded, but you won't see anything on screen until you use it.)

To embed color and printing codes into your Apple Writer document, press Control-G (for glossary) in the appropriate spots and type in a one-

Listing 2. Creating an Apple Writer glossary of ImageWriter II color codes.

```

r$K2
b$K3
o$K4
y$K1
g$K5
p$K6
d$K0
P$N
E$E
C$q
U$Q
D$n
L$X
1$Y
F$!
f$" 
R$c

```

letter code from the **Table**. Remember that Control-G followed by R will reset your text to its default appearance. ■

Write to J.C. Ballezza at the Computer Lab, Springfield High School, Erdenheim, PA 19118.

Table. Apple Writer embedded codes for color and print style.

r	red	F	boldface on
o	orange	f	boldface off
y	yellow	L	underline on
g	green	l	underline off
b	blue	E	elite
p	purple	P	pica
d	black (default)	C	condensed
D	doublewidth	U	ultracondensed
R	reset all codes to defaults		

The Apple/VCR Connection

by Susan W. Rollinson

Do you have a videocassette recorder? If so, you may be able to use your Apple to create video graphics.

Apple users never give up. For years, everyone told me you couldn't send computer displays to a videotape machine. I recently had an opportunity, however, to copy some video material from a VHS VCR to a beta machine (a Sanyo Beta Hi-Fi

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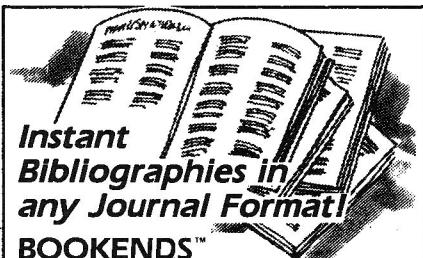
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HINTS/TECHNIQUES

VCR). In the process, I noticed that the beta had, in addition to coaxial-cable and antenna inputs, two RCA-type phono jacks labeled "video in" and "video out." Since my composite Apple Monitor III had exactly the same type of plug, I decided to attach it to video out. Watching *Moonlighting* in high-persistence phosphorescent green was pretty weird! A composite color monitor (NEC JC-1215MA) was less exciting, if more watchable.

If video out worked, why not video in? I disconnected cable TV, ran a video cord from my 64K Apple II Plus to the VCR, and booted up a "kaleidoscope" program: There it was

in living color on the TV. (I now had the world's most expensive RF modulator for the Apple II.) I had no problem capturing it on videotape. Of course, only the video comes from the computer; the audio comes from whatever source you choose.

With computer-generated video, you can add impressive titles to your home movies, create video tutorials for computer classes, watch Pac-Man while you listen to the 11 o'clock news, or merge Choplifter with *The A-Team*—the possibilities are endless. Just don't take no for an answer! ■

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

In & Out Update by Harold D. Portnoy

In the December 1986 issue of *In-Cider* (Hints/Techniques, p. 174), I presented In & Out, an ampersand-mediated input and wraparound-print routine written in machine language. Let's take a look now at how you'd use it as a practical supplement to your programs. Any BASIC program requiring inputs and the printing of long string variables is an ideal candidate for In & Out.

Listing 3 is a short EXEC program, In & Out Addition. It creates a BASIC file, ADD.IN.OUT, containing a BASIC subroutine that sets up the am-

persand vector to point to In & Out and append it to the end of the file.

When you want to write a BASIC program that contains In & Out, start by loading ADD.IN.OUT. Delete END from line 10 and write your program between lines 10 and 60000. You must call the subroutine before you use &INPUT S\$ or &PRINT S\$ in your BASIC program (**Listing 4** is an example). That's all there is to it. You can add, delete, and edit lines in your program without losing In & Out.

Here's how it works. Line 1 (**Listing 3**) calculates the value of the end of file pointer, PGND (Program End), at 175-176. Line 2 BLOADs the binary file IN.OUT at the end of the

Listing 3. In & Out Addition.

```
NEW
0 LOMEM: 5120: REM Prevent overwriting variables.
1 PGND = PEEK (175) + PEEK (176) * 256: REM Determine
   end of BASIC program.
2 PRINT CHR$ (4); "BLOAD IN.OUT, B 256, A"; PGND: REM
   Load binary routine to start at end of BASIC program.
   (skip IN.OUT launcher.)
3 LN = 510: REM Length of ML program.
4 PGND = PGND + LN: P2 = INT (PGND/ 256) :POKE 176, P2
   : P1 = PGND - P2 * 256 : POKE 175, P1 : REM Calculate
   new end of BASIC + binary program and poke into program
   end pointer.
5 END
10 GOSUB 60000: END
60000 LN = 510: BINADR = (PEEK (175) + PEEK (176) * 256)
   - LN : REM Find address of beginning of binary
   routine.
60010 P2 = INT (BINADR/ 256) :POKE 1015, P2 : P1
   = BINADR - P2 * 256 : POKE 1014, P1: REM Point
   ampersand vector to start of binary routine.
60020 RETURN
RUN
DEL 0,5
SAVE ADD.IN.OUT
```

Listing 4. Sample program incorporating In & Out Addition.

```
10 GOSUB 60000
20 &INPUT A$: PRINT
30 &PRINT A$
40 END
60000  LN = 510: BINADR = (PEEK (175) + PEEK (176) * 256)
      - LN : REM Find address of beginning of binary
      routine.
60010  P2 = INT (BINADR/ 256) : POKE 1015, P2 : P1
      = BINADR - P2 * 256 : POKE 1014, P1: REM
      Point ampersand vector to start of binary routine.
60020  RETURN
```

BASIC file. Note that it loads the binary file beginning with byte 256, which is the start of the main routine. (It skips the code for the launcher.) Line 3 defines the length of the binary routine. Line 4 changes PGND to point to the end of the BASIC program with IN.OUT appended. These lines are necessary only for the initial setup; you can delete them later.

Line 60000, which remains part of the BASIC program, calculates the current value of PGND and subtracts the length of the binary routine. Line 60010 POKEs this value, which represents the current beginning of the binary routine, into the ampersand vector.

You can use the same technique to append any ampersand-mediated, relocatable, machine-language routine to a BASIC program. The technique works because a BASIC program

ends in three zeros, while the PGND pointer determines the end of a BASIC file. Program editing and listing depend on the three zeros; program execution ends when your Apple reaches them.

On the other hand, as the program is written, the PGND pointer is increased or decreased by the number of bytes added or subtracted. The appended binary routine always remains at the end of the file, transparent. When you load or save your BASIC file, PGND determines the end of the file; thus, both the BASIC and binary routines always remain part of your BASIC file. ■

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

Hi-Res-Inversion Update

by Jason Jones

Machine language, as demonstrated in Brian S. Lovejoy's Invert.Create program (Hints/Techniques, September 1986, pp. 118-119), lets you quickly and easily invert large portions of the Apple hi-res screen. With my 1979 DOS Toolkit assembler, I adapted this general principle and came up with an even more efficient program, EOR, short for Exclusive-Or.

Enter the code in **Listing 5**, then type BSAVE EOR,A\$300,L\$A3. To use it, just BLOAD (not BRUN) the program, and issue the following commands: CALL 768 (inverts current hi-res screen); CALL 771 (changes all colors to green/purple/white0/black0); CALL 774 (changes all colors to orange/blue/white1/black1); CALL 777 (EORs color bit).

These commands affect only the current hi-res page (you don't need two versions), which is stored at zero-page location \$E6 (230) and contains the most significant byte (MSB) of the starting address of the page. For page 1, the value is \$20 (32); for page 2, it's \$40 (64). If you select neither hi-res page, the program goes to Control-G and ends.

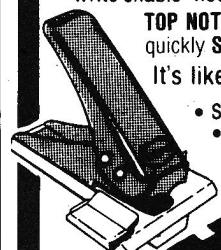
Note that the Applesoft command HGR selects page 1, while HGR2 selects page 2; if you POKE location 230 with a different value, though, you can write on one page while displaying the other.

The fourth function listed above, CALL 777, EORs each screen byte with the constant \$80 (128), which changes the color bit (the seventh, or high, bit) to switch all colors to their opposites: green/blue, purple/orange, blue/green, orange/purple. Sounds just like a standard EOR? It isn't. The

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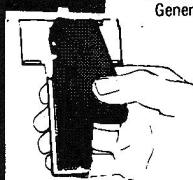
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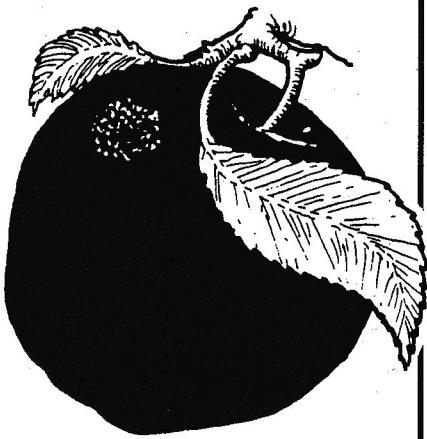
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HINTS/TECHNIQUES

Listing 5. Exclusive-Or.

```
0300.030F: 4C 16 03 4C 23 03 4C 30 03 A9 80 8D 5A 03 A9 49
0310.031F: 8D 59 03 4C 3A 03 A9 FF 8D 5A 03 A9 49 8D 59 03
0320.032F: 4C 3A 03 A9 7F 8D 5A 03 A9 29 8D 59 03 4C 3A 03
0330.033F: A9 80 8D 5A 03 A9 09 8D 59 03 A9 00 85 FC A9 08
0340.034F: 85 FD A6 FC A5 E6 F0 54 85 FF 85 01 BD A0 03 85
0350.035F: FE 85 00 A2 00 A0 27 B1 00 49 FF 91 00 88 C0 FF
0360.036F: D0 F5 A0 27 E8 E0 08 F0 0A 18 A5 01 69 04 85 01
0370.037F: 4C 57 03 C6 FD A5 FD F0 16 18 A5 FE 69 80 85 FE
0380.038F: 85 00 A5 FF 69 00 85 FF 85 01 A2 00 4C 57 03 A9
0390.039F: 08 85 FD E6 FC A5 FC C9 03 D0 A7 60 20 3A FF 60
03A0.03AF: 00 28 50 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

difference comes with white and black: White0 becomes only white1, and so on. Do this fast to see a neat effect on screen.

The second and third functions also use the color bit, but simply turn it on and off. CALL 771 turns the high bit off everywhere on the hi-res page, to change all colors to purple/green/white0/black0 if they're not already so. CALL 774 turns on the high bit.

The original Invert.Create trashes any program more than approximately 1280 bytes long as soon as you load the Invert routine. The routine in Listing 5 doesn't "step" on Applesoft that way, however, because it's located below Applesoft at \$300. ■

Write to Jason Jones at 3115 Bryan Street, Dallas, TX 75204.

ON n GOTO

by Edwin D. Thompson

Although Applesoft doesn't permit computed GOTO statements, you can achieve a similar effect with ON n GOTO. The segment of Applesoft code shown in Listing 6 demonstrates a rather elegant use of this statement. When you're writing a menu into your program, ON n GOTO is an excellent substitute for reams of IF/THEN statements.

If you've ever written an application that needed to test a string, then branch accordingly, you'll recognize the simplicity of this routine. The more acceptable are the values for AN\$, the more time and memory you save. And if you enter a character that's not in the command string, the pro-

gram ignores it and waits for a valid keypress.

If your program includes a variety of options in different places, you can still use the program segment as a subroutine as long as all your options are unique. For an even more streamlined program, try entering a control character in the command string. ■

Write to Edwin Thompson at 11768 East Atlantic Place, Aurora, CO 80014.

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Listing 6. Using the ON n GOTO statement for testing and branching.

```
1000  COMMAND$ = "LUDCVTEQ"
1010  GET AN$
      : FOR P = 1 TO 8
      : IF AN$ = MID$(COMMAND$, P, 1) THEN N = P
      : P = 8
      : NEXT
      : ON N GOTO 2000,3000,4000,5000,6000,7000,8000,9000
1020  NEXT
      : GOTO 1010
```

DATA STRIPS

*Data strips 1A-7A
contain Listings 1-6
from "The Automatic
Dialer" (p. 62) in con-
tinuous format:
START1, PHONE,
TEL, SYS.PARA-
METERS, CREATOR,
and VAR.CONST.*

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1A

2A

3A

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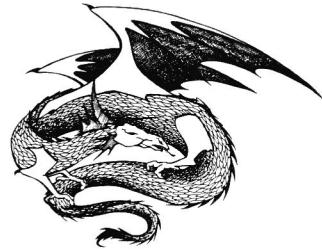
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Scannit: The ImageWriter Learns to Read

The trouble with graphics software is that the pictures you draw are never as good as the samples on the program disk. Wouldn't it be neat if you could digitize an existing picture or photo and load it into your Apple—if you had, in fact, what one panelist in our December roundup nominated as a favorite fantasy product, an Apple II equivalent of the Macintosh best-seller Thunderscan?

Well, sometimes fantasies come true. We've just tried a prototype of JED Design's **Scannit**—an invention that lets the ImageWriter run in reverse, feeding a picture through the printer and reproducing it in hi-res or double-hi-res on screen. You can save scanned images as ProDOS binary files, suitable for viewing, printing, or editing with your graphics software.

Our Scannit showed its preproduction status; we found a few hiccups in its software menu and needed a few phone calls to designer Jim Davidson to set the DIP switches on our ImageWriter. (That's the boxy, beige, discontinued one; at press time, Davidson was hard at work on a patch for the different bidirectional logic of the ImageWriter II. Other plans include a IIgs version that can scan and scroll larger images, and possibly support for some non-Apple printers and rival brands of computers.)

Once running, though, Scannit is sensational. The scanning unit, like Thunderscan's, snaps in place of the ImageWriter ribbon cartridge; a flexible cable connects it to a box with gray-level and contrast controls that plugs into your IIc or enhanced IIe's joystick port. (The printer connects to the serial port or Super Serial Card as usual.)

Put a picture into your printer—magazine pages are fine, though stiff photos can be balky about curling and feeding prop-

erly—and twiddle the scanner's focusing knob as directed by the Scannit software. Then choose hi-res or double-hi-res and scan away, watching the seeing eye whirr back and forth while a monochrome picture trickles onto the screen, one pixel line at a time. A scan takes several minutes, ample time to fine-tune the sensitive contrast and level controls and restart the scan once you find the sharpest setting.

It takes some practice and patience, but the results are as entrancing as the first Thunderscan images were to Mac users: pictures on disk ready for touching up with Dazzle Draw, pasting into AppleWorks documents with Pinpoint, or just admiring on the Apple. According to Managing Editor Dan Muse, "We noticed that Scannit works better when you feed it high-contrast black-and-white as opposed to color images; our best results came from a *Boston Globe* photo of Red Sox pitcher Roger Clemens. Even in preliminary form, though, this is a product a lot of *inCider* readers have been waiting for."

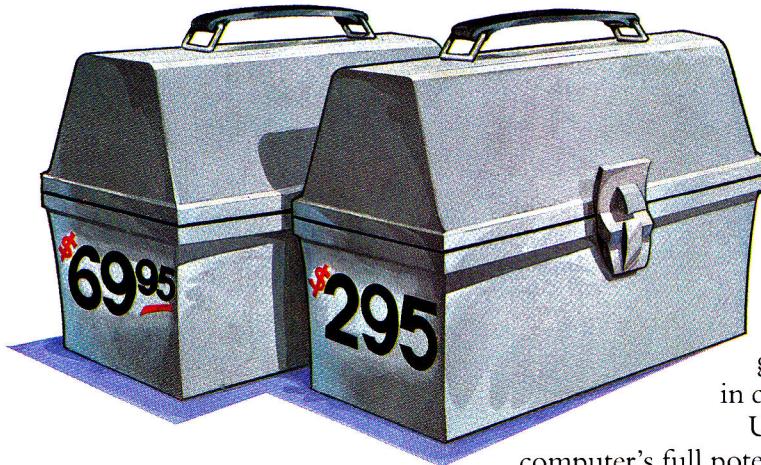
"Scannit works," Technical Editor Paul Statt says. "That's the amazing part. It's cheap. It's simple to set up if you've got an ImageWriter. What practical use is it? Beats me—but if I were the kind of computer owner who

bought a machine two years ago and were beginning to feel burned out, tired of databases, I'd take a longing look at Scannit. It's the kind of neat toy that might be the start of something big."

JED Design Inc. is located at 3300 Central Avenue S.E., Canton, OH 44707, (216) 484-1834. At our deadline, Scannit was scheduled to go on sale for \$219 in November—just as *inCider*'s December issue appeared, describing it as an imaginary product. ■



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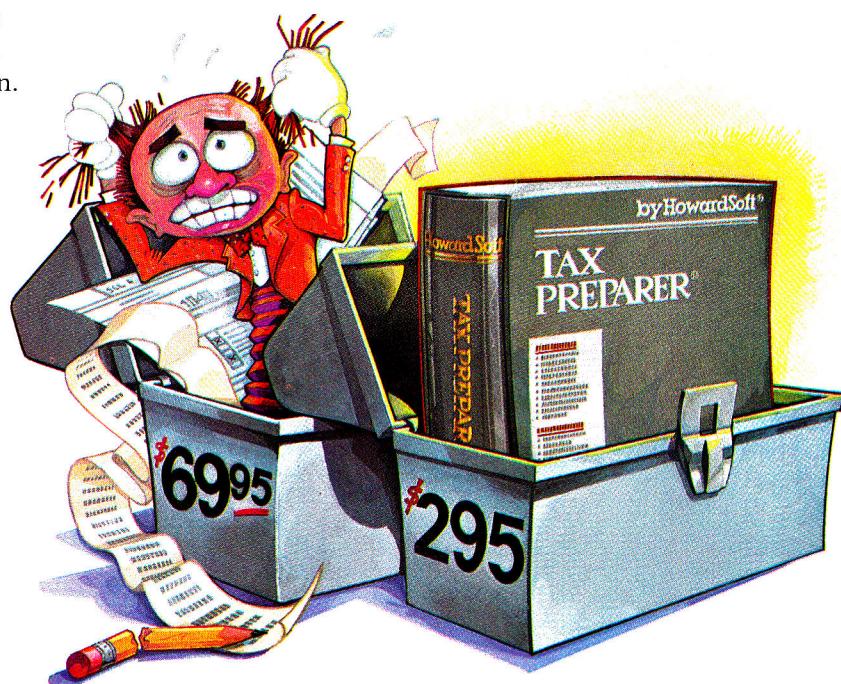
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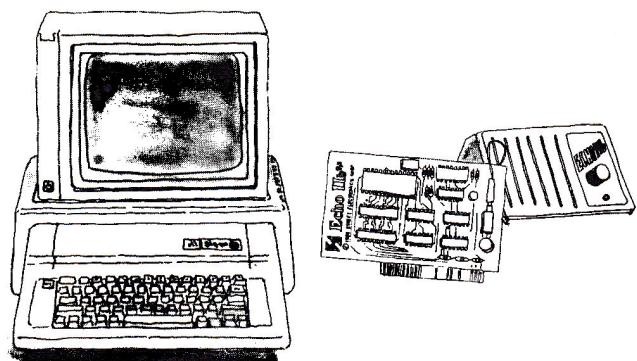
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