

# A+

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OCTOBER 1986  
VOLUME 4/ISSUE 10

## Apple II/Macintosh

THE INDEPENDENT GUIDE TO APPLE COMPUTING

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# WRITE ON!

## 40 Word-Processing Packages Compared

### HOMEBREW HARDWARE

Ilc Write-Protection

### PROFILER

ProDOS Database

### APPLEWORKS ADD-ONS

CommWorks  
& MacroWorks

### MICROSOFT WORKS

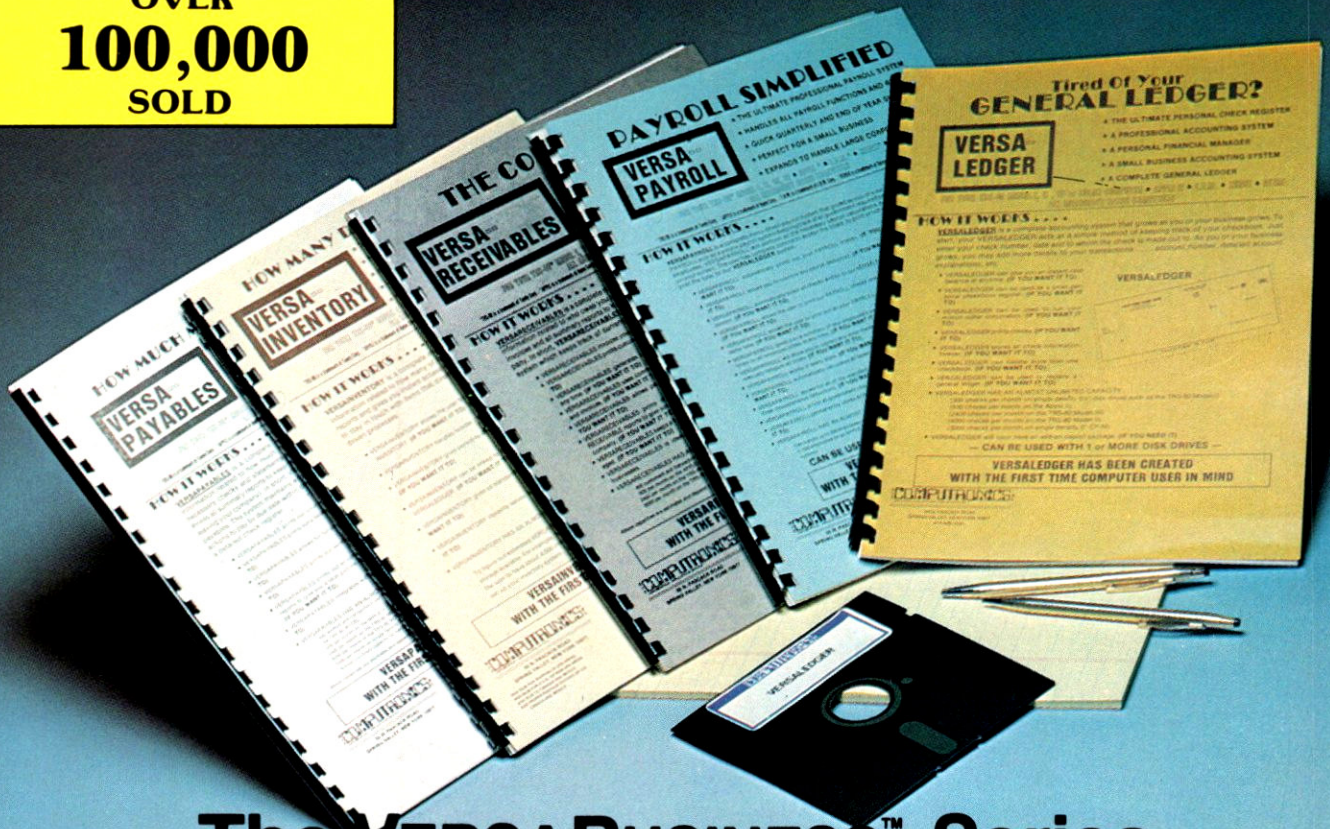
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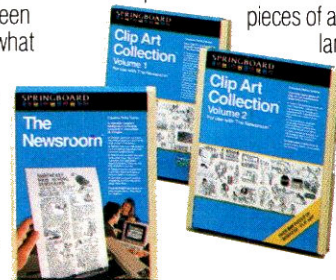
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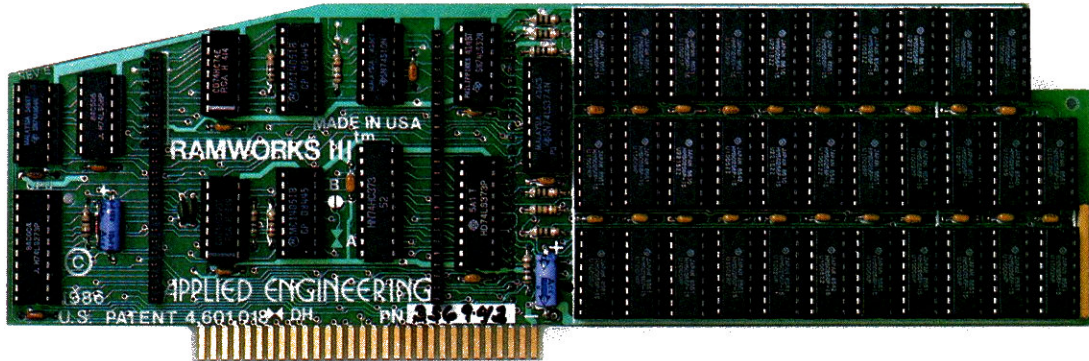
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RamWorks III is the newest 3rd generation RAM card for the Apple IIe. It incorporates all of the technology and improvements that years of experience and over a hundred thousand sales have given us. By selling more memory cards than anyone else and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

## **The AppleWorks Amplifier.**

While RamWorks III is recognized by all memory intensive programs, NO other expansion card comes close to offering the multitude of enhancements to AppleWorks that RamWorks III does. Naturally, you'd expect RamWorks III to expand the available desktop, after all Applied Engineering was a year ahead of everyone else *including Apple* in offering more than 55K, and we still provide the largest AppleWorks desktops available. But a larger desktop is just part of the story. Look at all the AppleWorks enhancements that even Apple's own card does not provide and *only* RamWorks III does. With a 256K or larger RamWorks III, *all* of AppleWorks (including printer routines) will automatically load itself into RAM dramatically increasing speed by eliminating the time required to access the program disk drive. Switch from word processing to spreadsheet to database at the speed of light with no wear on disk drives.

*Only* RamWorks eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 25,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 15,000. And *only* RamWorks offers a built-in printer buffer, so you won't have to wait for your printer to stop before returning to AppleWorks. RamWorks even expands the clipboard. And auto segments large files so they can be saved on two or more disks. You can even have Pinpoint or MacroWorks and your favorite spelling checker in RAM for instant response.

RamWorks, nothing comes close to enhancing AppleWorks so much.

## **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-File, 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.**

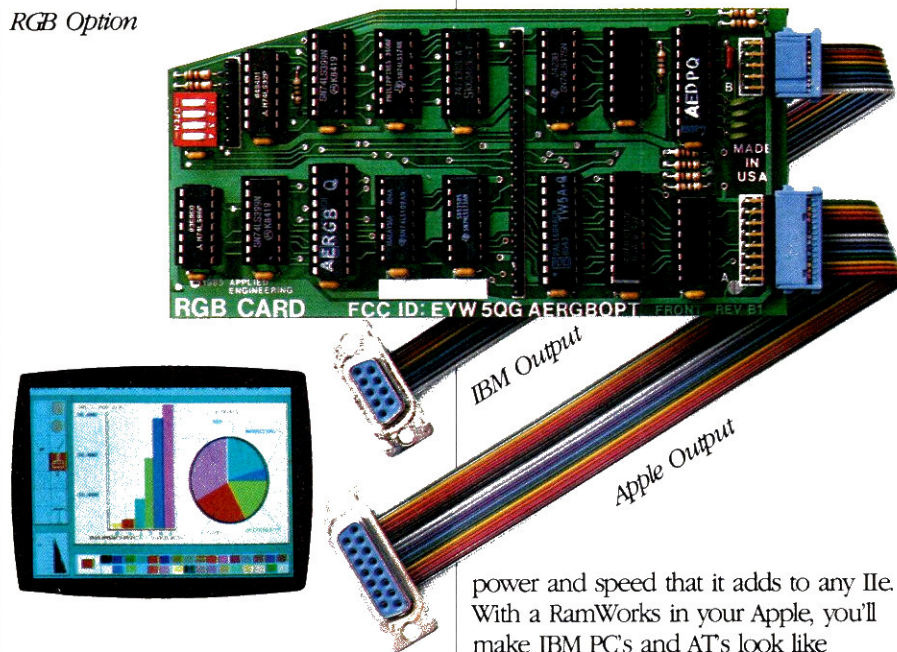
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

## **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



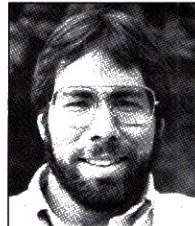
ference and remember you can order the RGB option with your RamWorks or add it on at a later date.

#### 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



Steve Wozniak, the creator of Apple Computer

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

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

coverage no matter where you purchase

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- Expandable to 16 meg with expander cards, with NO slot 1 interference
- Can use 64K or 256K RAMs
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- Accelerates AppleWorks
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- 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
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- Software industry standard
- Advanced Computer Aided Design
- Used by Apple Computer, Steve Wozniak and virtually all software companies
- Displays date and time on the AppleWorks screen with any PRO-DOS compatible clock
- Much, much more!

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.

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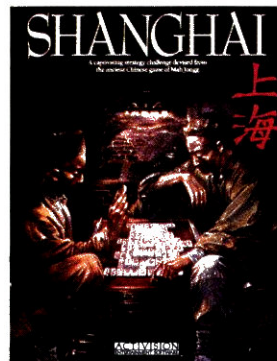
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# A+

THE INDEPENDENT  
GUIDE TO  
APPLE COMPUTING

## COVER STORY

20

### WRITE ON!

BY DAN McNEILL

Word-processing programs are among the most personal of personal-computer applications, and you ought to have one that suits you. Fortunately, with the Apple II, you probably can, although you might have a hard time figuring out which product is the right one for you. Turn to this article for brief reviews and a chart that will help you reach a conclusion.

## COVER CHART

### 40 WORD-PROCESSING PROGRAMS

BY CAROL PERSON  
AND CINDY MARTIN

A graphic overview of word-processing programs for the Apple II series



## SOFTWARE

### MACROWORKS

BY JOHN HEROY

AppleWorks can perform many complex tasks with comparative ease, but the accessibility you find as a new user soon gives way to wishing for more speed and commands. MacroWorks from Beagle Bros., Inc., can help you past these deficiencies.

## QUICKTAKES

### PROFILER

BY LEWIS A. EDGE, JR.

ProFILER from PM Software is a recently introduced database-management program that is one of the few such programs that works with ProDOS. This short review will be of particular interest to owners of UniDisk 3.5s or ProDOS hard-disk drives.

### COMMWORKS

BY RUSS LOCKWOOD

If you're in the market for a good telecommunications program for your 128K Apple IIe or IIc, you should take a close look at this review of CommWorks from PBI Software.

## HOMEBREW HARDWARE

### WRITE-PROTECT SWITCH FOR THE APPLE IIc

BY JON VANWORMER

This article is a do-it-yourself project for the Apple IIc, a step-by-step, illustrated tutorial on how to modify your Apple IIc to gain complete control over the ability to write on its built-in disk drive.

## DEPARTMENTS

### EDITORIAL LETTERS

### NEWSPLUS

BY FREDERIC E. DAVIS

News and views of the personal-computer industry

### THE LEARNING CURVE

BY DAVID D. THORNBURG

Many view mathematics as precise, sterile, and boring. The reality is that math is not a fixed, dry science, and if it's taught correctly, it can even be fun. One method of increasing interest in math is to make more room for tinkering with concepts and encouraging students to use their intuition. In this month's column, David Thornburg discusses Geometry, from Sensei Software, a program that combines structure and freedom to explore.





72

**THAT'S ENTERTAINMENT**

Fokker Triplane Flight Simulator from PBI Software; Paul Whitehead Teaches Chess from Enlightenment, Inc.; Panzer Grenadier from Strategic Simulations, Inc.; Alter Ego from Activision, Inc.; Uninvited from Mindscape, Inc.; Orbiter from Spectrum HoloByte, Inc.; and Silent Service from MicroProse Software, Inc.

82

**COMPUTER CALISTHENICS**

BY MICHAEL WIESENBERG  
Producing three-element addition problems



93

**TELECOMMUNICATIONS**

BY RUSS LOCKWOOD  
A bevy of bulletin boards, MacSoftware, and nuclear war time once again

114

**PIPELINE**

BY CAROL PERSON AND RHODA SIMMONS  
Products you want to know about—for the entire Apple Computer line

131

**THOUGHTWARE**

BY STEVE ROSENTHAL  
This month, Steve Rosenthal takes a hard look at the various pitfalls of hooking up printers and then offers some solutions.



137

**RESCUE SQUAD**

BY CRAIG CROSSMAN AND GARY B. LITTLE  
The traveling Apple, color printing with non-Apple printers, assembly-language random-number generation, the IIc and RGB monitors, and crash protection

138

**MACINTOSH DIRECTORY**

139

**A+ DIRECTORY**

142

**A+ MART**

144

**INDEX TO ADVERTISERS**

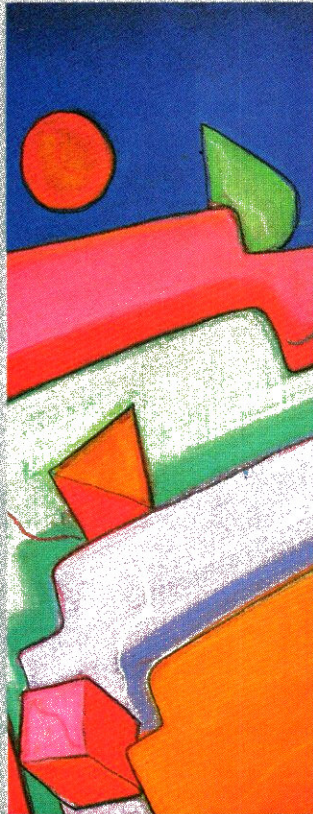
146

**COMING SOON**

# The Macintosh Section

100  
**dMAC III**

BY GLENN A. HART  
Looking for a full-featured, powerful database program for your Macintosh? According to our author, your waiting is over with dMacIII, a new product from a German company called Format Software. If you are familiar with dBASE III from Ashton-Tate, you might well be interested in taking a look at this clone.



102

**THE WHOLE WORKS**

BY SHARON AKER  
Integrated programs have been the rage for several years now, but relatively few in this category have graced the Macintosh market. Patterned after the successful AppleWorks, Microsoft's new product, Works, was introduced to fill the gap. Read Sharon Aker's review, along with Charles Rubin's analysis, to find out the pros and cons of this new software.

(No I.D. required for half-elves.)

# When the Going Gets Tough, the Bard Goes Drinking.

And the going is tough in Skara Brae town.

The evil wizard Mangar has cast an eternal winter spell. Monsters control the streets and dungeons beneath. Good citizens fear for their lives. What's worse, there's only one tavern left that serves wine.

But the Bard knows no fear. With his trusty harp and a few rowdy minstrel songs he claims



are magic, the Bard is ready to boogie. All he needs is a band of loyal followers: a light-fingered rogue to find secret doors, a couple of fighters to bash heads, a conjurer to create weird allies, a magician for magic armor.

Then it's off to combat, as soon as the Bard finishes one more verse.

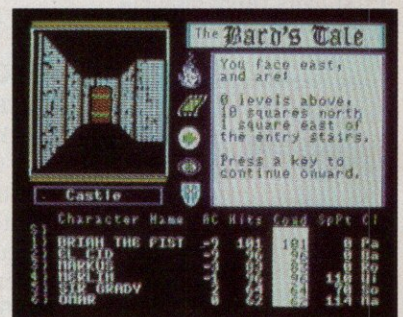
Now what's a word that rhymes with "dead ogre?"



4 classes of magic user, including wizard and sorcerer. 85 new magic spells in all.



128 color monsters, many animated. All challenging.



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Specs: 100% machine language, 400K worth on 2 disks. 64K RAM minimum; enhanced for 128K. Now available for Apple II family for \$44.95, C-64 & 128 for \$39.95. To order: Visit your retailer or call (800) 245-4525 (In Calif. call (800) 562-1112) for VISA or MasterCard orders. To purchase by mail, send check or money order to Electronic Arts, P.O. Box 7530, San Mateo, CA 94403. Add \$5 for insured shipping and handling. Allow 1-4 weeks for delivery. The Bard's Tale is worth the wait.

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CIRCLE 168 ON READER SERVICE CARD

# Message from Maggie

## ON PRICING TRENDS

I've been noticing a trend toward lower prices in both hardware and software products recently.

Determining the price of a product involves more than just what consumers want. Companies must take many basic factors into consideration when deciding on pricing. These factors include development, manufacturing, marketing, and distribution. After firms figure out the basic costs, something more like black magic occurs. The price setters bandy about terms such as *aggregate demand* and tinker with the basic costs until they agree on a price. Many other factors contribute to the almost constant fluctuation of prices during the lifetime of some products.

Hardware prices have been dropping for years because of advances in technology, especially chip technology. Because of VLSI (very-large-scale integration), chip makers can add more and more functions to their products. For instance, when Apple was developing the Apple IIe, advancements in VLSI technology enabled it to reduce the number of chips from the well over 100 in the Apple II Plus to about 30.

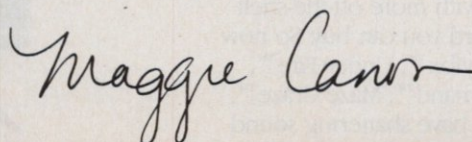
The reduction of hardware prices is most evident in the clone wars. Inexpensive personal-computer clones are flooding the market. They are taking market share from the major manufacturers and changing the marketplace into a free-for-all. Apple and IBM are not taking this intrusion into their market lightly and are fighting back by reducing costs through advancements in technology and automation of manufacturing processes. Thus, next-generation Apples will have fewer chips and more power, and their price will be competitive. (IBM will take the additional step of making its

personal computers more proprietary, like Apple's.)

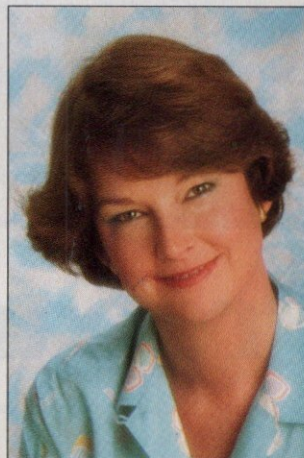
Pricing software is a much different process than pricing hardware. It involves a lot more black magic and a lot fewer basic factors. Most of the price is based on the costs of developing and marketing the products. Unlike hardware, software seems to get more time-consuming and expensive to produce and support, and marketing costs have skyrocketed.

The decline in software prices, which is not as dramatic as it has been with hardware, is attributable to market demand. Reducing prices is a classic way to increase a company's market share or enliven a sluggish market. The decline in software prices started with Philippe Kahn's bold pricing moves with Turbo Pascal, which sells for less than \$100, and other products from Borland. Software manufacturers have generally groused about his moves, but some companies are coming around. Electronic Arts, for instance, recently announced a major price reduction on its line of classic entertainment software, including such greats as Pinball Construction Set. The firm lowered the price on 14 of its products to \$14.95—a pretty good price for some of the best entertainment software on the market.

With the increasing threat of clones from the Far East, hardware prices will definitely continue to decline gradually over the years. Software, on the other hand, is much harder to gauge. Personally, I think you will see a wide gap between prices over the next several years—there will be expensive and inexpensive, with little in between. +



MAGGIE CANON/EDITOR IN CHIEF



*Unlike hardware, software seems to get more time-consuming and expensive to produce and support, and marketing costs have skyrocketed.*



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

# Prepare to be blown away by your Apple.™

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

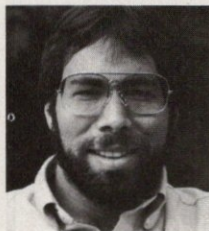
Have a weak heart? Don't read any further. And by all means, *don't go near* an Apple IIe or II+ equipped with the new Phasor sound synthesizer from Applied Engineering.

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

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The Phasor comes with its own easy-to-use software (ProDOS based), including 30 ready-to-run, non-copy protected songs and sound effects along with a Music Editor, Sound Effects Editor and Text to Speech program. And of course, it carries our no-hassle, five-year warranty.

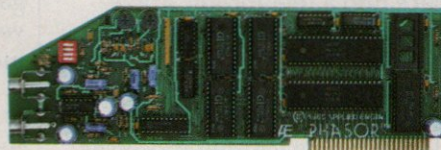
Order a Phasor for your Apple today — and prepare to be blown away! Call (214) 241-6060 to order (9 a.m. to 11 p.m. 7 days). Or send check or money order for \$179 to:



***"I recommend Applied Engineering products wholeheartedly!"***

*Steve Wozniak, the creator of Apple Computer*

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



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We invite your comments.

# Letters

## UPDATE EXPERIENCE

Dear A+: After reading the letter from Kenneth Clybor regarding software-update policies in your July 1986 issue, I feel compelled to relate an experience of mine.

A couple of weeks ago I purchased WordPerfect from a local software dealer. When I discovered that the version of WordPerfect I had acquired did not support the Apple ImageWriter II, I called the technical-support number for WordPerfect. Guess what? No busy signals. They actually answered the phone on the second ring. Anyway, after I'd explained my findings, they asked me for my product serial number and promptly advised me that I did in fact have an older version of WordPerfect. They indicated that they would mail me "free" updates to the most current version that same day. In a couple of days, I had my new, complete WordPerfect system. Class act!

I can only assume WordPerfect Corporation truly values the customer, as most successful businesses do.

After discovering the beauty and power of this program, I decided to order the spelling checker for \$30. Upon so doing, I was advised that I would be placed on a list to receive the next version of WordPerfect at no cost when it was released.

As a former AppleWorks word-processing user, I am simply amazed by this product's ease of use and the power it provides. WordPerfect Corporation has developed an outstanding product and a technical-support group that other companies should envy.

John L. Phillips  
Pomona, CA

## PIRACY SOLUTION UP TO COMPANIES

Dear A+: I am writing to comment on several letters in your August 1986 issue concerning software piracy. Someone suggested putting software on CD-ROMs to prevent copying. There is no way that would work, however. First, the Grolier's Electronic Encyclopedia is (I believe) a picture-oriented database that uses the computer as a smart controller. Even if it isn't, the market for such a read-only device is very limited. I doubt that many people would buy a CD storage system until it had a write capability. This defeats the whole argument. Even so, ROM storage systems are, inherently, the easiest to copy, and there is no law requiring you to copy onto another compact disk. A 3.5- or even 5-inch floppy would do. Also, serializing diskettes would not help much. The court system is quite reluctant to, say, put an eight-year-old in jail for five years and charge him \$50,000 for being caught with (gasp!) an illegal copy of Learning with Leeper.

It also seems unfair for people to dump on companies who put out copying programs. A lot of people can't differentiate between "copying" and "backing up." Copying programs are good for making backups but play almost no part in the widespread copying of software. In order for a certain piece of software to see widespread distribution, it has to be deprotected. Copying programs will not do this for you. Once it is deprotected, it gets distributed very quickly.

Here is a hypothetical situation: An average 12-year-old with only enough computer experience to boot

up the communications software that came with his \$19.95 110-bps permanent-carrier modem calls up the SIIIC0n SlaVezzzzz 10-MeGz Ellte BBS and sees a new program. "TURBO FID 3.1!!! How k0000l!" he cries as he puts his telecommunications program into receive. Afterwards he calls all his "friends" (*friend* being defined as the guy who gave him Sooper Taxman IX), and they call their friends, and so on and so on and so on, until everyone has TURBO FID 3.1. Other than banning all 12-year-olds or modems that cost less than \$200, there is no real solution.

People will not change their attitude toward copying, so the real solution lies with the software companies. Even the most adamant of pirates feel at least slightly guilty when copying Beagle Bros. software. Beagle Bros. is a company with the right attitude: good prices, good service, and they don't spend \$10,000 trying to come up with new, improved copy-protection schemes because they know that some new and improved pirate will figure out a way to copy it anyway. If more software companies would act civilized toward their users and stop charging exorbitant prices for frivolous software, perhaps the piracy problem would end on its own.

Robert V. Zimmers  
Tacoma, WA

## SENSIBLE CLARIFICATIONS

Dear A+: We'd like to call your attention to several inaccuracies in your article "Spell It Right" (July 1986, pages 48-61) and the companion article on Sensible Grammar.

Sensible Grammar works directly on most ProDOS word-processing documents (you don't need to save the document to a text file). The program lets you immediately replace misused phrases in your documents. The latest version of Sensible Grammar works directly with AppleWorks, Apple Writer, Format II, MouseWord, PFS:Write, Word Juggler, WordPer-

fect, and Zardax documents.

Sensible Grammar has been enhanced to use extended memory cards for additional phrases and includes a utility for automatic installation onto RAMdisks and hard disks. The phrase library that comes with Sensible Grammar has been expanded to more than 2000 phrases (compared with the 300-500 phrases common to most IBM PC products).

The Life Science and Physical Science dictionaries mentioned in the ar-

ticle are not separate products. They are both included as part of our Sensible Technical Dictionary. The price of the combined dictionary is \$39.95. One of our dictionary products your article does not mention is Black's Law Dictionary (\$39.95). It is the "standard" for the legal profession and includes keywords from 800 of the most important legal cases.

If you have a UniDisk 3.5 or hard disk, you can merge any combination of these different dictionaries into

one large dictionary, using the new Merge Dictionary option.

Roger Tuttleman  
Vice President  
Sensible Software, Inc.  
Birmingham, MI

*We apologize for any inconvenience the errors in our article have caused Sensible software.—Editors*

## SATISFIED SUBSCRIBER

**Dear A+:** I have meant to drop you a line for quite some time to compliment A+ for the consistently informative articles, month in and month out. For a year or so after I purchased my Apple IIc system for my part-time First Day Cover business, I would pick all sorts of computer magazines, in addition to A+—only to finally realize that the others were not much more than an excuse to pack ads between two covers.

A+, every month, has at least two articles that are useful and many times essential reading if I am to stay on top of developments in the industry. The articles on modems, expansion boards, desktop publishing, and software packages have helped me sort through the maze of new developments in the Apple line.

Please add me to the list of very satisfied A+ subscribers. The money I spend for the annual subscription is perhaps the best bargain available!

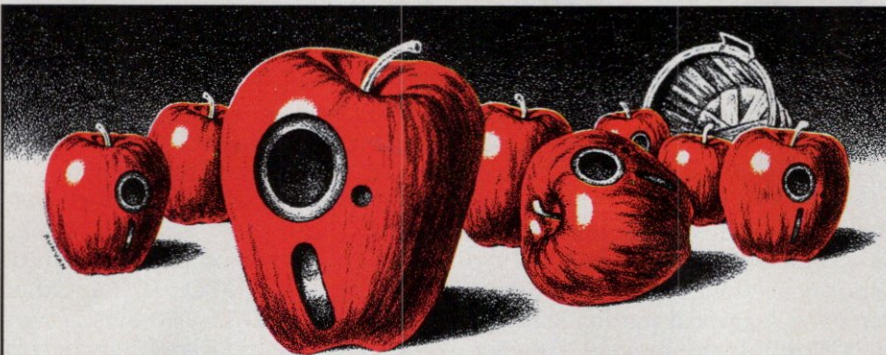
Richard C. Leavitt  
Springfield, VA

## ABUNDANT INFORMATION

**Dear A+:** In a past issue of A+ magazine (October 1985), I read Mr. Ravich's letter regarding the lack of support for his Starfire drive and heard a familiar ring.

I own a Rana Elite II floppy-disk drive and wanted to use its extended capacity under ProDOS 1.1.1, but no support was available. Being fed up with this, I decided to modify the diskette driver myself. I purchased a copy of *Beneath Apple ProDOS* by Quality Software and spent many hours in deduction and recoding. Now I am able to use ProDOS with my expanded drive as well as the Elite I or II drives. It's nice to know that an abundant amount of information is available on the Apple II (a luxury many other microcomputer owners may not enjoy).

L. Crandall  
Bonita, CA



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Find business and educational software, application programs, utilities and exciting games all for only \$5 each. Here are a few selections from the SoftCore collection of over 3500 programs for the Apple II family.

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**Create drawings with *Hi-Res Doodle*** and your keyboard or joystick. Use the cursor to draw lines, or make circles and rectangles with keyboard commands. Then fill areas fast in 23 flavors and enter text in many sizes. Shareware.  \$23...\$5.

***FreeWriter*, a full-featured word-processor** by the author of *AppleWriter II*, makes use of special Apple keys. With them you can search and replace words, move and insert text, delete and save characters.  \$37...\$5.

***Bank 'n System—the checkbook program*** that does more than balance your account. Check off transactions from your bank statement and it does the rest. Want to know how much you paid the landlord last year? Use the query option and find the total. Instructions included on disk. Shareware.  \$56...\$5.

***Omnifile database program*** works in RAM, eliminating slow disk accesses. All the standard features are here and then some: add, delete and rename fields, perform variable sorts and math functions in fields, and generate reports.  \$57...\$5.

***Best of Education*** has 19 programs for different grade levels covering subjects like math, U.S. history, geography, music, spelling, and typing.  \$64...\$5.

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CIRCLE 256 ON READER SERVICE CARD

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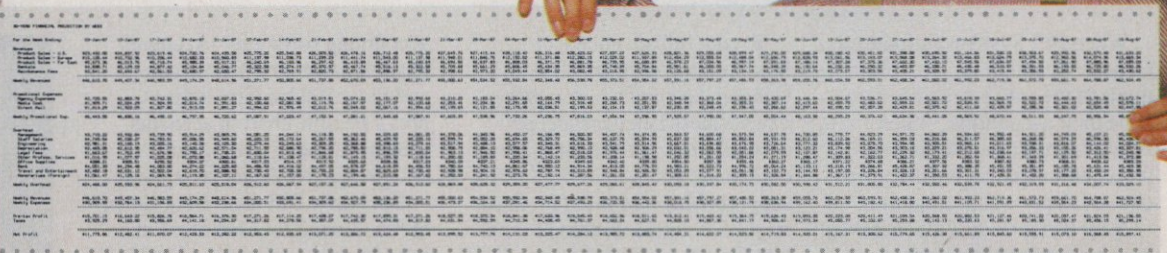
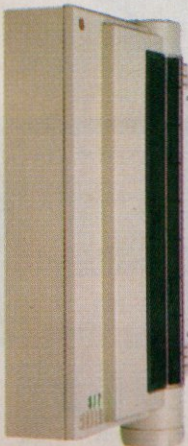
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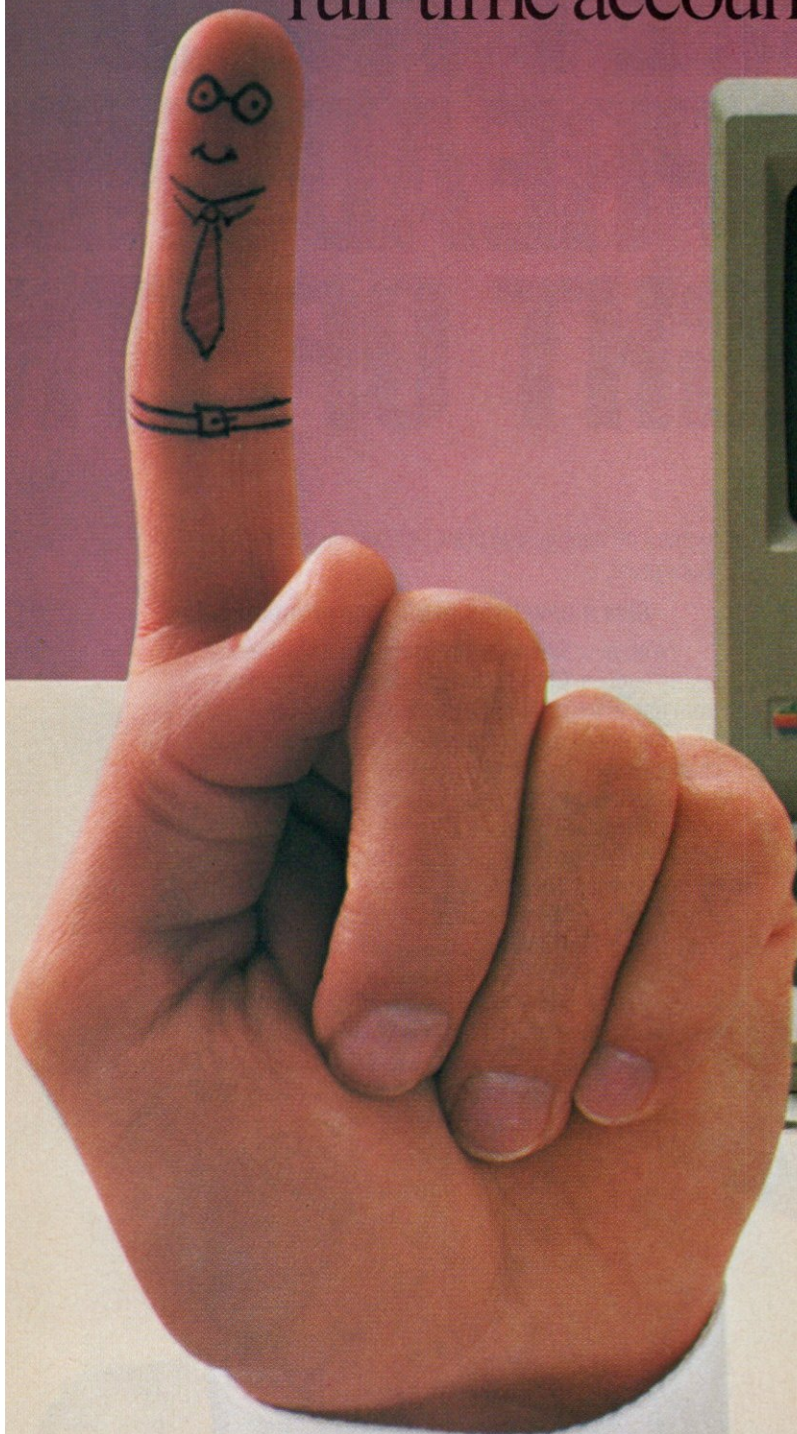
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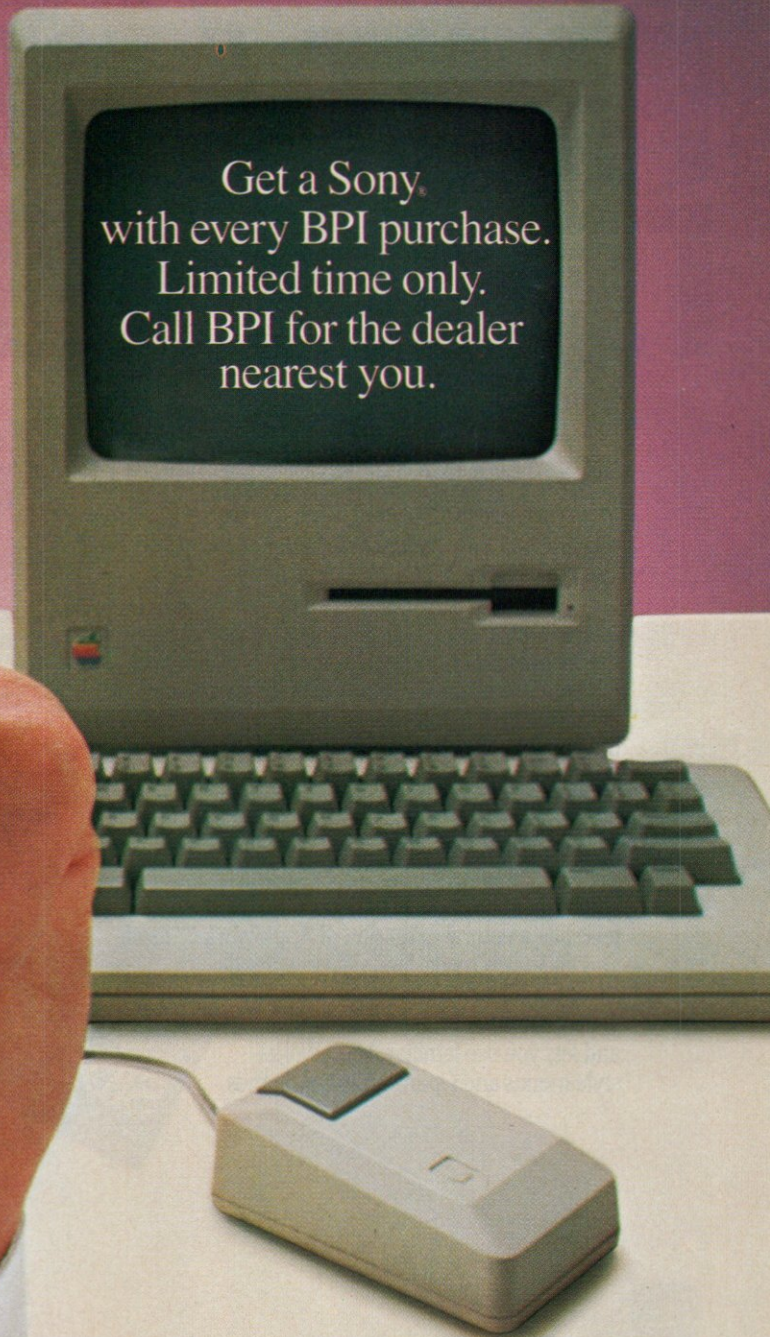
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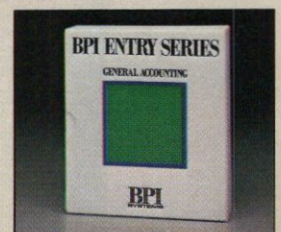
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So with a touch of a button you can find out exactly how your business is doing, instead of how it was.



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# NewsPlus

*Dr. Timothy Leary has created a new vocabulary that mixes psychobabble with technobabble.*

## TURN ON, TUNE IN, BOOT UP

Dr. Timothy Leary, the former Harvard psychology professor and psychedelic experimenter whose quip, "Turn on, Tune in, Drop out" became a slogan for the Woodstock generation, has turned his attention to computers, with the new call of "Turn on, Tune in, Boot up."

In shifting gears from the realm of mind expansion to the realm of memory expansion, Leary has created a new vocabulary that mixes psychobabble with technobabble. His whimsical new software package, Mind Mirror, which is being marketed for the Apple II by entertainment giant Electronic Arts, is full of high-tech Learyisms. In the software's documentation, Leary refers to his Mind Mirror program as "a thought qualifying

device . . . interactive headware . . . an idea-scope . . . an intelligence appliance [that uses] psychometric techniques [to] dissolve ambiguous macro-thoughts into specific mind elements."

The Mind Mirror software consists of several components, including Mind Maps, Mind Play, Mind Tools, and Life Simulations. The Mind Maps section assists you in rating any person, place, or concept for 16 different attributes and then creates Mind Maps, which are comparison charts of your ratings in the four areas of bio-energy, emotional insight, mental abilities, and social interaction. Mind Play allows you to use Mind Mirror to explore topics such as religion, politics, film stars, journalism, music, computing, athletics, and cops and robbers. Mind Tools takes a more serious tack and lets you explore the areas of psychological insight, career productivity, and education.

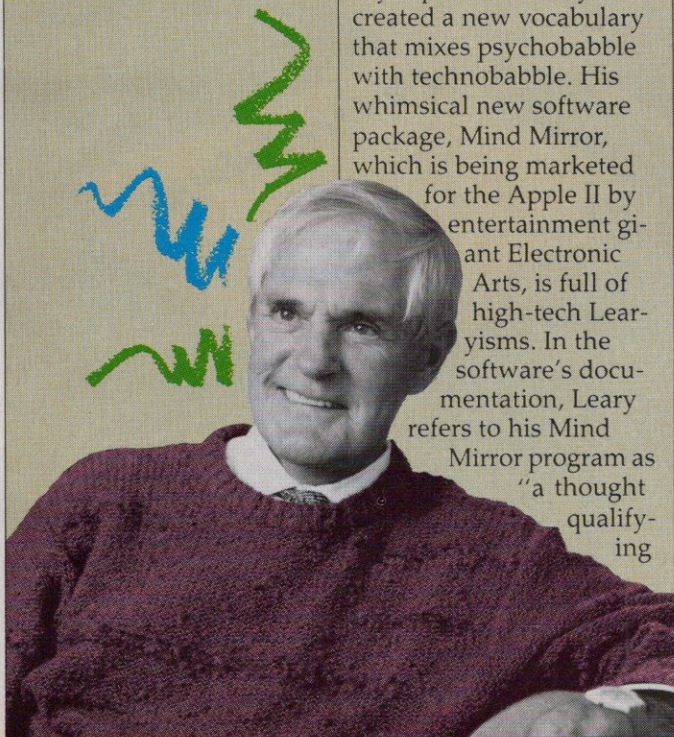
In Life Simulations, the computer creates models of various situations based on the Mind Maps you create with Mind Mirror. The product is even pitched as a party-game alternative to Scruples and

Trivial Pursuit; groups can do things such as rate friends or foes and place them in life simulations. Warning: Comparing your ideal mate to your current one can cause quite a stir.

Although many parts of Mind Mirror are whimsical and lighthearted, Dr. Leary views the computer as a serious psychological tool. Says Leary, "I see the computer as an electronic mirror of the mind. This wonderful mirror is the ultimate tool for tracking, measuring, and reflecting thoughts. It is interactive; it allows you to take any thought or concept and slice it, microscope it, magnify it, plot it, or change it. My consummation with software, headware, and the computer as an electronic mirror is because of my lifelong obsession and compulsion with the notion of TIFYQA, Think For Yourself and Question Authority." A + will be reviewing Leary's Mind Mirror in an upcoming installment of our "That's Entertainment" department.

## BIG NEWS NEXT MONTH

Watch for big news from Apple in next month's A +! We can't tell you what's up quite yet, but next month you'd better be sure to be the first one to grab your copy of A + when it arrives!



**IT'S BACK AND IT'S**  
**THE 3RD ANNUAL A+ READERS**

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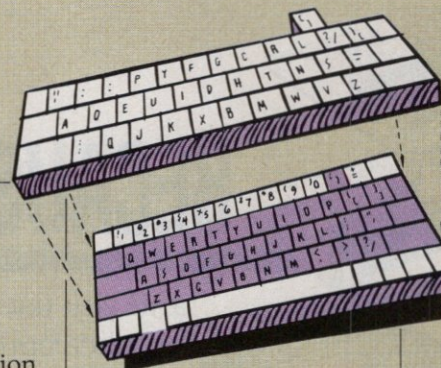


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# NewsPlus



## KUDOS FOR BUSINESS FILEVISION

Telos' Business Filevision database program for the Macintosh took top honors in the software category in the prestigious American Federation of Information Processing Societies (AFIPS) 1986 Products of the Year ceremony. AFIPS chose Business Filevision from a field of 72 products from 58 companies that competed in the three categories of computer hardware, software, and systems.

## LOTUS 1-2-3 CLONE FOR APPLE II

VIP Technologies of Santa Barbara, California, claims to have come up with a program, called VIP Professional, that uses the command structure of and is functionally identical in other ways to Lotus 1-2-3 version 1A. This program would work well with a product such as the Envoy (see next page) that lets you read from and write to IBM PC-style diskettes, since you would be able to use your Apple II to work on IBM PC-created Lotus 1-2-3 files. For more information, contact VIP at 132 Aero Camino, Santa Barbara, CA 93117; (805) 968-4045.

## DVORAK UPDATE

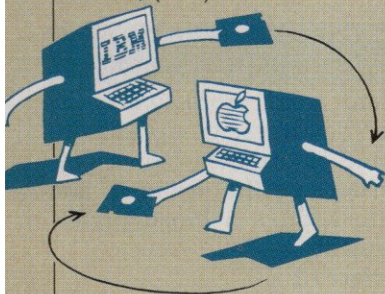
A considerable body of research has shown that the Dvorak system for arranging keys on a typewriter or computer keyboard makes typing easier to learn and faster to perform. People who favor the Dvorak keyboard layout over the standard QWERTY layout may want to check out a newsletter called *Dvorak Developments*, which is published four times a year by Freelance Communications, P.O. Box 1985, Upland, CA 91785. Subscriptions are \$12 per year, and single issues are available for \$2.

Here are a couple of examples of the type of useful tidbits this publication offers: A recent edition had a feature about how Aetna Life and Casualty had increased productivity using Dvorak keyboards, and the same issue contained a letter from a reader explaining that Apple IIc owners needed a Revision D keyboard ROM in order to get the correct ANSI-standard Dvorak keyboard layout (earlier Apple IIc ROMs had a less-popular Dvorak variant known as ASK).

*The Envoy allows  
Apple users to write and  
read data to and from  
IBM PC-style diskettes.*

## AXLON RAMDISKS

Axlon RAMdisks are no longer manufactured, and Axlon is now out of the computer-peripheral business. Owners of Axlon RAMdisks can take heart, however, because a company called MOS Sorcery now offers service and support for Axlon's RAMdisks. MOS Sorcery purchased the right to these products and offers repair service, parts, batteries, software drivers, and the like. You can contact MOS Sorcery at 23240 Deerfield Road, Los Gatos, CA 95030; (408) 353-3708.



## IBM DISKS MEET THE APPLE II

Quite a few companies are hard at work on products that will help bridge the compatibility gap between the Apple II and the IBM PC families of computers. One of these companies is Asky, Inc., a Silicon Valley company best known for its diagnostic software for disk drives. Asky is devel-

oping a new disk-controller card called the Envoy that allows use of IBM-style 5¼- and 3.5-inch disk drives with an Apple II system.

The company claims that its product allows Apple users to write and read data to and from IBM PC-style diskettes, as well as use the drive with ProDOS, DOS 3.3, and CP/M. An IBM-style disk drive connected to an Apple II would provide a fairly easy way for Apple IIs to share data with IBM PCs and compatibles. For more information about the Envoy board, watch for coverage in an upcoming issue of *A+* or contact Asky, Inc., at 4320 Stevens Creek Blvd., Suite 287, San Jose, CA 95126; (800) 228-5136 or, in California, (800) 634-8245.

## APPLE COMPUTER CLUBS

Hey, kids! Do you belong to an Apple Computer Club? Did you know that more than 300,000 kids belong to one of the 15,000 clubs around the country? If not, you should check it out. Maybe you can help get a club started if there isn't already one nearby. For information, contact Apple Computer Clubs International, 175 Middlesex Turnpike, Redford, MA 01730; (800) 343-1425. +

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*Thumbnail sketches and a comprehensive chart of word-*

# WRITE

Word-processing programs can be among the most personal of personal-computer applications, and you ought to have one that suits you. Fortunately, with the Apple II, you probably can.

I recently surveyed more than three dozen word-processing programs for use with the Apple II. They come in great variety, from the simple to the highly exotic. At one end is HomeWord Plus, which children can use. At the other is Gutenberg, Sr., which works in at least six different alphabets and can send your prose to a typesetting system. You can buy 15 pages of hexadecimal code in a book that you must type into your computer, a style formatter for psychologists, two programs that do logarithms on the side, and much more.

In general, they fall into seven categories: standard, mouse, output-oriented, integrated, semi-integrated, home/child, and budget. A few items, such as Mouse Word, can fit into more than one class, but the scheme exists only for clarity, and software that's hard to pigeonhole merely shows the diversity of the field.

The overall level of quality is good. Most of the 38 programs below can handle global search and replace, block copy, headers and foot-

ers, forced page breaks, automatic page numbering, right- and center-justification, linkage of multiple files for printing, and printing in styles. The thumbnail sketches that follow focus on their more distinctive attributes. For their other vital statistics, see the chart that accompanies this article.

## STANDARD PROGRAMS

Standard word processors easily comprise the largest group and include some of the best-known programs. They are full-featured and purport to address a broad professional audience.

### WordPerfect 1.1

WordPerfect is like a goblet overflowing with pleasant qualities. Like most other programs with numerous commands, it takes time to master, but the keyboard template, which fits just above the top row of keys, helps a lot. One major virtue is print spooling, the ability to print while you write. Another is automatic footnoting. The program does mail-merge and comes with a 50,000-word spelling checker. It boxes paragraphs, counts words, and permits hanging indents. It also allows macros, strings of functions or words controlled by a single command, which you can chain together. It turns lowercase words and phrases into uppercase



## word processing programs for the Apple II series

# ON!

and back and automatically eliminates widows (the first line of a paragraph stranded at the bottom of a page) and orphans (the last line stranded at the top). The RAM does not limit document size, which can be vast. WordPerfect is expensive but worth it.

### Apple Writer II

Apple Writer II is another best-seller and has plenty of power. Unlike WordPerfect, it offers split screens. It does automatic footnoting (although you must treat each line as a separate footnote), changes block lowercase into uppercase and vice versa, lists items with bullets, retrieves deleted characters, and prints a specified page range. Its most distinctive trait is WPL, its own programming language, which lets you set up form letters, do arithmetic, and create numerous macros. The Apple Writer II package now routinely contains both 5¼- and 3.5-inch disks.

### Perfect Writer 2.0.

Here is a gem, easy to learn and filled with striking features. First, its pop-up menus act as learn-as-you-work devices, which you can leave behind as you pick up the mnemonic commands. Perfect Writer also has a graceful strength. It comes with a 50,000-word spelling checker, plus a thesaurus, which also has 50,000 words, including synonyms. It does automatic footnoting, indexing, and

tables of contents. With it, you can edit documents in two windows at once. It transposes two adjacent characters, for fast correction of typos. It offers hanging indents, lists items with bullets, and numbers paragraphs. Its headers and footers can automatically print not only page number but chapter and subchapter number.

It turns block lowercase into uppercase and vice versa and even provides a format for verse.

### The Bard's "ProAm"

Not an Elizabethan golf tournament, this product is actually an array of three word processors: Starter's, Experienced, and Professional. Starter's lacks even a cut-and-paste capacity. The Experienced program is more advanced, performing operations such as block delete, but still does not make block moves or copies. The Professional level is flexible, handy, and easy to like. It has a 50,000-word spelling checker and does mail-merge. It also has a complete Undo function, which restores deletions as well as cutting additions—a particularly helpful attribute. The program has a mobile cursor and macros for phrases and printer commands. It lets you control both the start and end of printouts, print selected blocks of text, and use the printer as a typewriter.

### Superscript

Superscript is the only program I looked at that had a tutorial on audio-cassette. It uses a system of menus and submenus across the top, which you access fairly often. The software can work with a mouse but even without one has versatile cursor-movement and deletion commands. It has macros for commands as well as



prose, thus expediting creation of boilerplate documents. It allows headers and footers of two lines—most programs allow only one—and can place different ones on odd and even pages. It can also print just the odd or just the even pages, useful if you're printing on both sides of each page. It changes the case of text and, finally, comes with an integrated five-function calculator, a nice touch.

#### **Word Handler II**

If you need a good spelling checker, you may like Word Handler, which is compatible with the giant 90,000-word Spell Handler. This program also lets you set different headers and footers for odd and even pages, insert half-line spaces between paragraphs, and create canned formats. It changes case in blocks and offers an unbreakable space, so two words can't be separated at the end of

*Word-processing  
programs come in  
great variety, from the  
simple to the exotic.*

a line. It also automatically removes widows and orphans. Warning: If you call the company with an innocent query about Word Handler's features, you may get a hard sell.

#### **PFS:Write**

PFS:Write is bread-and-butter software, a comfortable word-processing program with decent features and few unusual trappings. It boasts a 75,000-word spelling checker and, used with PFS:File, can do mail-merge. It lets you specify the full page range for printing and makes provision for envelope printing. It has no macros and doesn't allow triple-spacing, however.

#### **PaperClip**

PaperClip specializes in columns. It lets you create, move, delete, add, and sort whole columns of text or numbers. If the columns are numerical, it can also perform arithmetic operations on them. PaperClip does mail-merge and allows your files to be hundreds of columns wide, for use as financial documents.

#### **Better Working Word Processor**

Aside from the two Gutenberg programs, this software is the resident linguist, letting you create Greek, Spanish, French, and other

characters for printing. It comes with a 50,000-word spelling checker and offers 1-, 1½-, and 2-line spacing and multiple windows where menus appear. Its manual alternates Apple instructions with Commodore ones, making you feel kind of special.

#### **The Write Choice**

The Write Choice comes with a "style checker" that analyzes the sentence, word, and syllable count of your prose and estimates the education needed to read it. It also provides a game that teaches typing. The program lets you jump to a particular page by specifying its number, and you can print out two columns per page. Its modest windowing capacity lets you freeze nine lines at the top of the screen for sustained scrutiny.

#### **Zardax**

Zardax 6.0 is like a fine gentleman with a few irritating quirks. Some of its features are excellent. It does print spooling, though slowly, since it prints only while you're thinking at the keyboard. It also lets you make one paragraph leapfrog up or down over another, a splendid capacity. It has macros for oft-used phrases, and it lets you place headers on specified pages. This program has strange limitations, however. It crams print up to the top of the page unless you adjust the position of the paper in the printer, numbers pages only at the top, centers only short lines, and lacks triple-spacing. And its price is high.

#### **Letter Perfect**

Oriented toward the earlier Apple models, Letter Perfect comes with a 30,000-word dictionary disk that can't be edited. It has good cursor mobility and flexible deletion commands. It also locks files, spaces up to 256 lines apart, and provides hanging indents.

#### **Writer's Choice**

Writer's Choice is easy to use but not remarkably powerful. It has a built-in 50,000-word spelling checker. You can enter comments you don't want to print and have it display file length in both words and lines.

#### **Format II Enhanced Version**

This program has no page wrap-around, an incredible omission. If you reach the end of a page and try to type further, the software beeps at you. You have to save the page before you can move on. On the positive side, Format II has mail-merge and a sort capacity for its file manager. It can also align a column of numbers. But why bother?

## MOUSE PROGRAMS

Several Apple II word-processing programs are compatible with mice, but the ones below also have pull-down menus and, to a greater or lesser extent, take you down the trail toward the Macintosh. They are all easy to learn, attractive, and streamlined.

#### **MouseWrite**

The mouse is optional with the MouseWrite program, which has a ruler for swift margin and tab control, split screens, a scroll bar, and numerous cursor commands. Version 1.5.7 (a newer one is imminent) displays justification and instantly reformats margins on the screen. Since it allows customizing of printers, it should work with almost any of them. It dates pages automatically and can include the time of day. It shows you the file length in words and estimates the level of education needed to read it. It has shortcut commands, and comes with a puzzle and a clock.

#### **MultiScribe**

MultiScribe has the best-looking display of any of the programs. It follows the Mac model very closely and displays not only ten fonts—named after authors such as Milton, Asimov, and Twain—but also five sizes, print styles including outline and shadow, and any combination of these. Its font editor lets you create new fonts, and it shows spacing too. About the only thing it doesn't display is justification. It has a ruler and a scroll bar with the page number in it and jumps at once to the page number you select. You can fully specify the page range for printing and invert the screen if you prefer light-on-dark. The software seems to offer a clock, calendar, calculator, control panel, and puzzle, although on my copy of the program they were dim and inaccessible. MultiScribe does not produce headers or footers, and it limits documents to 32 pages total.

## OUTPUT-ORIENTED PROGRAMS

Some of the most distinctive word processors available focus on output, specializing in different languages, fonts, and formats. If you need what they offer, they can be indispensable.

#### **Gutenberg, Sr.**

This extraordinary software lets you feed data from your Apple II directly into a "front-end" typesetting



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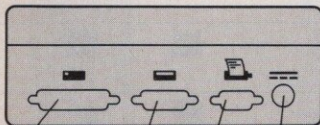
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system. It comes with the Latin, Greek, Cyrillic, and Hebrew alphabets and can "flip" the screen so you can write Hebrew right-to-left. (Flipping the screen reverses English commands as well.) The company also sells Cree and Syriac alphabets. The program is fully equipped to handle diacritical marks in any of these scripts and to mix alphabets in a single document. It lets you create characters, fonts, and technical symbols and has a paint feature, for drawing pictures, graphs, borders, and diagrams. It also permits split-screen editing. The manual is a 740-page hardbound tome, not professionally written. But this program is a singular item.

### Gutenberg, Jr.

The offspring is less ambitious but more approachable. Gutenberg, Jr., supports the Greek and Cyrillic alphabets; provides numerous print styles; and prints math symbols, patterns, and borders. It also lets you create your own fonts and special characters. It has macros for phrases but makes particular use of them for formatting. Indeed, it comes with eight "super-macros," canned formats for drafts, one-column story, two-column story, one-column story with title, two-column story with title, term papers, vita, and title page. The program handles hanging indents; paragraph numbering; forced and conditional page and column breaks; and spacing 1, 1¼, 1½, 1¾, and 2 lines apart. It lets you copy only about half a page, and, although it offers a split screen, the second screen is somewhat limited.

### Manuscript Manager/APA Style

Addressed to writers who must adhere to the stylistic conventions of the American Psychological Association, this competent word processor formats abstracts; appendices; author's notes; equations; footnotes; headings; title pages; and, most important, citations/references. It also takes care of references, captions, numbers, and text-placement indicators for figures and tables. Moreover, its Scanner feature analyzes your prose and comments if, say, an abstract is a bit longer than what the APA suggests. The software also locks documents and does mail-merge. You may find it a godsend.

### Master Type's Writer

This economical, ingratiating product comes with fonts and lets you create your own, although its de-

# FORTY WORD-PROCESSING

SOFTWARE	HELP SCREENS	SPELLING CHECKER	SAVES AS ASCII FILE	FOOTNOTES
<b>STANDARD PROGRAMS</b>				
<b>AppleWriter II</b> Apple Computer, Inc.	■		■	■
<b>The Bard's "ProAm" Apple IIe/c Writing System</b> Writing Software International	■	■	■	
<b>Better Working Word Processor with Spell Checker</b> Spinnaker Software	■	■	■	■ <sup>1</sup>
<b>Format II Enhanced Version</b> Kensington Microware		Compatible with most	■	
<b>Letter Perfect</b> LJK Enterprises, Inc.		■	■	■ <sup>1</sup>
<b>PaperClip</b> Batteries Included			■	
<b>Perfect Writer</b> Thorn EMI Computer Software	■	■	■	■
<b>PFS:Write</b> Software Publishing Corporation	■	■	■	■ <sup>1</sup>
<b>ScreenWriter II</b> Sierra On-Line, Inc.	■	■	■	■
<b>Superscript</b> Progressive Peripherals & Software	■	■	■	■
<b>Word Handler II</b> Advanced Logic Systems		Spell Handler optional	■ <sup>4</sup>	
<b>WordPerfect 1.1</b> WordPerfect Corporation	■	■	■	■
<b>Write Choice</b> Roger Wagner Publishing, Inc.	■		■	
<b>Writer's Choice</b> Activision, Inc.	■	■	■	
		IIe/IIc only		
<b>Zardax</b> Action-Research Northwest			■	
<b>MOUSE PROGRAMS</b>				
<b>MouseWrite</b> Roger Wagner Publishing, Inc.	■	■	■	■
<b>MultiScribe</b> StyleWare, Inc.			■	
<b>OUTPUT-ORIENTED PROGRAMS</b>				
<b>Executive Footnoter</b> Sof/Sys, Inc.	■	■	■	■
		With option		
<b>Gutenberg, Jr.</b> Gessler Education Software			■	■
<b>Gutenberg, Sr.</b> Gutenberg Software Ltd.			■	■
<b>Manuscript Manager</b> Pergamon Journal, Inc.	■	Works with Sensible Speller	■ <sup>6</sup>	■

#### NOTES:

1. Not automatic
2. IIe with 80-column card

3. Except with spell check and print

4. With conversion utility

5. Make your own master

# PROGRAMS

BY CINDY MARTIN AND CAROL PERSON

This chart contains a sampling of products, and the information herein is based on manufacturers' claims. The number of features of any given program does not necessarily indicate the product's quality.

INDEX	TABLE OF CONTENTS	WINDOWS	SPLIT SCREEN	AUTOMATIC BACKUP OF FILE	PREVIEW DOCUMENT ON SCREEN	COPY-PROTECTED	PRICE	SYSTEM REQUIREMENTS
			■				\$149	Ile w/80-col. card, or Iic; 128K RAM; ProDOS
					■		\$69.95	Ile (Extended 80-Col. Card recommended) or Iic; DOS 3.3—64K RAM; ProDOS—128K RAM
■ <sup>1</sup>	■ <sup>1</sup>				■ <sup>2</sup>	■	\$59.95	Ile or Iic; 48K RAM; DOS 3.3
							\$150	II+, Ile, or Iic; DOS 3.3—64K RAM; ProDOS—128K RAM
■	■ <sup>1</sup>				■		\$99.95	II+, Ile, or Iic; 48K RAM; DOS 3.3
	■				■		\$59.95	Ile w/80-col. card, or Iic; 128K RAM; ProDOS
■	■		■	3	■		\$139	Ile or Iic, 64K RAM, DOS 3.3
					■	■	\$125	Ile or Iic, 128K RAM, ProDOS
■	■				■	■	\$129.95	II series, 48K RAM, DOS 3.3
■	■ <sup>1</sup>				■	■	\$79.95	Ile or Iic; DOS 3.3—64K RAM; ProDOS—128K RAM
					■	■	\$99.95	II series, 48K RAM, proprietary OS
					■		\$179	Ile or Iic, 128K RAM, ProDOS
		■	■		■		\$64.95	II series, 48K RAM, DOS 3.3
					■	■	\$49.95	II+, Ile, or Iic; 64K RAM; DOS 3.3
					■		\$210	II series, 48K RAM, DOS 3.3
■	■	■	■		■	■	\$149.95	Ile or Iic, 128K RAM, ProDOS
		■			■		\$59.95	Ile or Iic, 128K RAM (won't work with Rev. A motherboard), ProDOS
■	■				■		\$69.95	II series, 64K RAM, DOS 3.3
■	■		■	■	■	■	\$99	II+, Ile, or Iic; 64K RAM; DOS 3.3
■	■		■			■ <sup>5</sup>	\$360	II series, 64K RAM, 2 disk drives recommended, proprietary OS
■	■					■	APA, \$175 <sup>7</sup> CBE, \$195	Ile w/80-col. card, or Iic; 128K RAM; ProDOS

6. Conversion utility in development

7. APA = American Psychological Association style  
CBE = Council of Biology Editors style

8. Semiautomatic

9. \$12.95 (disk) + \$2 shipping/handling

10. With conversion utility included

Continued next page

fault font is pleasing. It allows color printing (with the ImageWriter II only). It sorts lists alphabetically or numerically and lets you edit documents in two screens at once. The Move instruction displays the prose you are moving in the second window, so it is never out of sight. The program also has keyboard macros for both phrases and commands.

### PowerText

Version 1.78 of PowerText is an intriguing piece of work, if you can get past the leaden documentation. You commence within one of the program's canned formats: memo, letter, report, outline, video, or screenplay. (The latter two offer the greatest payoff.) You can change these formats or create your own. PowerText handles footnotes adeptly, printing them in a smaller pitch and different font. It also does tables of contents, boxes paragraphs, and lets you define function keys.

### The Executive Footnoter

Aimed at students, this software produces footnotes (at page bottom or document end) and tables of contents. It also offers indexing and can alphabetize entries as well as rotate them (that is, it turns "Thomas Edison" into "Edison, Thomas"). It lets you use macros for phrases and provides "binding margins," wider margins on alternate sides of odd and even pages, for bound work. It isn't the slickest program available, but it may serve your needs.

## INTEGRATED PROGRAMS

Some word-processing programs, of course, are part of fully integrated programs, and here we'll look at four of them.

### AppleWorks 1.3

This enormously popular software includes a spreadsheet program and a database manager, as well as a word-processing program. The latter somewhat resembles Apple Writer II, although it lacks WPL. Its speedy cursor can jump to preset markers, particular pages, and tenths of the document. It copies up to 250 lines at a time, does conditional page breaks, and creates hanging indents with bullets. The program lets you customize the printer, and it forestalls widows and orphans. It can print marked segments but otherwise prints only from a specific starting page. Like Apple Writer II, it now comes with disks of two sizes.

# FORTY WORD-PROCESSING PROGRAMS

SOFTWARE	HELP SCREENS	SPELLING CHECKER	SAVES AS ASCII FILE	FOOTNOTES
<b>MasterType's Writer</b> Mindscape, Inc.	■			■
<b>PowerText V.1</b>		PowerSpell optional		
<b>PowerText V.2</b> Beaman Porter, Inc.	■			■
<b>INTEGRATED PROGRAMS</b>				
<b>AppleWorks</b> Apple Computer, Inc.	■		■	
<b>Foundation</b> Foundation Corporation	■		■ <sup>10</sup>	■ <sup>1</sup>
<b>Nine to Five</b> Nine to Five			■	
<b>Trio</b> Sofsys, Inc.	■		■	
<b>SEMI-INTEGRATED PROGRAMS</b>				
<b>Executive Secretary</b> Sof/Sys, Inc.	■	With option	■	
<b>Magic Window IIextra</b> Artsci, Inc.			■	
<b>Personal Secretary</b> Sof/Sys, Inc.	■	With option	■	
<b>Simply Perfect</b> LJK Enterprises, Inc.		■	■	■ <sup>1</sup>
<b>Word Juggler</b> Quark, Inc.		■	■	■ <sup>1</sup>
<b>Write Away</b> Peregrine Software	■	Works with Sensible Speller	■	■ <sup>8</sup>
<b>HOME/CHILD PROGRAMS</b>				
<b>Bank Street Writer V.1</b>	■	Bank Street Speller optional	■	
<b>Bank Street Writer V.2</b> Brøderbund Software, Inc.	■		■	
<b>CircaScript Plus</b> Circadian Software	■	Works with Webster Spell Checker	■ <sup>10</sup>	
<b>Cut &amp; Paste</b> Electronic Arts	■			■
<b>Homeword Plus V.1</b>	■	■	■	
<b>Homeword Plus V.2</b> Sierra On-Line, Inc.	■	■	■	
<b>Milliken Word Processor</b> Milliken Publishing Company	■	Available in integrated package	■	
<b>BUDGET PROGRAMS</b>				
<b>SpeedScript</b> Compute! Publications, Inc.			■ <sup>4</sup>	
<b>FreeText</b> Logos Systems	■			

#### NOTES:

1. Not automatic
2. Ile with 80-column card

3. Except with spell check and print
4. With conversion utility
5. Make your own master

cont'd.

INDEX	TABLE OF CONTENTS	WINDOWS	SPLIT SCREEN	AUTOMATIC BACKUP OF FILE	PREVIEW DOCUMENT ON SCREEN	COPY-PROTECTED	PRICE	SYSTEM REQUIREMENTS
		■	■	Optional	■	■	\$69.95	Ile or Iic, 128K RAM, 2 disk drives recommended, ProDOS
	■			■	■		\$99.95	II, 64K RAM, 2 disk drives, Apple Pascal
	■			■	■		\$99.95	Ile or Iic, 128K RAM, 2 disk drives, Apple Pascal
					■		\$250	Ile w/80-col. card, or Iic; 128K RAM, ProDOS
		■	■	■	■		\$250	Ile with 80-col. card, or Iic; 128K RAM; proprietary OS
				■			\$99.95	Ile or Iic; 128K RAM; 2 disk drives; proprietary OS
		■			■		\$99.95	Ile enhanced or Iic, 128K RAM, ProDOS
■					■		\$159.95	II series, 64K RAM, DOS 3.3
		■			■	■	\$199.95	Ile or Iic, 128K RAM, DOS 3.3
					■		\$69.95	II series, 64K RAM, DOS 3.3
■	■				■		\$169.95	Ile w/80-col. card, or Iic; 128K RAM; DOS 3.3
■	■				■	■	\$99	Ile or Iic, 64K RAM (128K recommended), ProDOS
					■		\$9.95 (shareware)	II series, 64K RAM, DOS 3.3
						■	\$69.95	II+, Ile, or Iic; 64K RAM; DOS 3.3
						■	\$69.95	Ile with 80-col. card, or Iic; 128K RAM; DOS 3.3
							\$39.95	II, II+, or Ile; 48K RAM; DOS 3.3 (Applesoft must be in ROM)
						■	\$14.95	Ile or Iic, 64K RAM, DOS 3.3
				■	■	■	\$69.95	II series, 64K RAM, DOS 3.3
				■	■		\$69.95	Ile or Iic, 128K RAM, ProDOS
					■	■	\$69.95	II series, 48K RAM, DOS 3.3
					■		\$9.95 (book) <sup>9</sup>	V1: II series, 48K RAM, DOS 3.3; V2: II series, 128K RAM, ProDOS
					■		\$10	Ile or Iic; 64K RAM; DOS 3.3

6. Conversion utility in development

7. APA = American Psychological Association style  
CBE = Council of Biology Editors style

8. Semiautomatic

9. \$12.95 (disk) + \$2 shipping/handling  
10. With conversion utility included



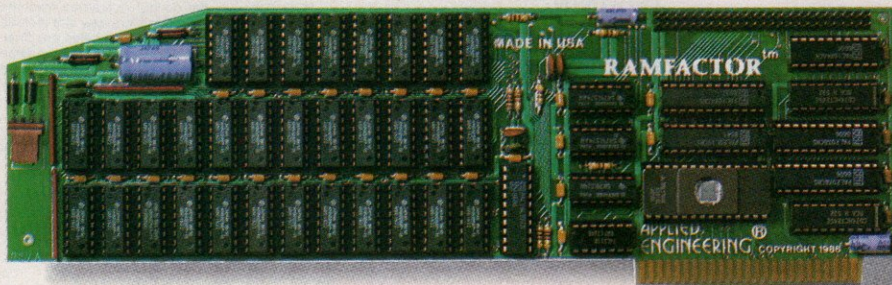


# RamFactor™

*All the Performance, Speed, and Software Compatibility of RamWorks™ in a Slot 1 through 7 Card.*

**T**hat's right! Now Applied Engineering offers you a choice. While RamWorks is the clear winner for the auxiliary slot in a IIe, RamFactor is the standard for slots 1 through 7. Now anyone with an Apple II+, Franklin, or Apple IIe preferring to use slots 1 through 7 can now enjoy the speed and performance that until now was only available with RamWorks.

With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 meg on the main board and up to 16 meg with additional piggyback card. And since virtually all software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger data bases, and expanded spreadsheets.



## 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 memory card (RamWorks excepted) 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 AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 5¼", 3½", and hard disks. All this performance is available to anyone with an Apple IIe or II+ with an 80

column card. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

## True 65C816 16 Bit Power

RamFactor has a built-in 65C816 CPU port for direct connection to our IIe 65C816 card for linearly addressing up to 16 meg for the most powerful 16 bit applications. (II+ 65C816 card under development.)

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

## Quality and Support of the Industry Leader

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

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- Compatible with Apple IIe, II+ and Franklin
- Battery back-up option allows you to turn on your Apple and run your favorite programs in less than 1 second!
- Automatically recognized by ProDos, DOS 3.3, Pascal and CP/M
- Built-in RamDrive™ software (a true RAM disk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Built-in linear addressing 16 bit co-processor port
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or later
- Allows Apple II+ and IIe to run your AppleWorks without buying additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDos clock
- Fits any I/O slot except slot 3
- Fully socketed and user upgradeable
- Much, much more

<b>RamFactor with 256K</b>	<b>\$239</b>
<b>RamFactor with 512K</b>	<b>\$289</b>
<b>RamFactor with 1 MEG</b>	<b>\$389</b>
<b>RamFactor with 2-16 MEG</b>	<b>CALL</b>
<b>Battery Back-up Option</b>	<b>\$179</b>
<b>65C816 16 Bit Card</b>	<b>\$159</b>

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*Integrated programs  
may include spreadsheet  
and database programs  
as well as word-  
processing programs.*

#### Foundation

This software includes a spreadsheet and database program, as well as a word-processing program. Although Foundation uses its own file type, it comes with a utility that allows you to convert AppleWorks and text files under ProDOS to Foundation's file type. The word-processing program has a very fast search-and-replace function. The program is compatible with most any printer, since you can customize a function-lookup table. It also provides auto-guttering and lets you box text. Documents are limited to approximately 4¾ pages, but you can link documents for continuous printing of files. The software provides simple integration from the spreadsheet and database, as well as complex integration that selectively transfers information among its programs.

#### Nine to Five

Nine to Five offers a production-oriented database manager, word-processing program, and report generator. It is well suited for applications that require heavy correspondence and processing of invoices, sales leads, and the like. You can select criteria for printing batches of letters or reports. The word-processing program features automatic word-wrap, justification, block moves, and search/replace. The 42 print commands give you features such as conditional printing (if a particular item is present in the database, a certain paragraph prints; otherwise the program skips it); calculation of totals, subtotals, averages, and dates; and the adding together of fields to create new ones. A terrific value for the price.

#### Trio

Trio also has word-processing, spreadsheet, and database programs. The straightforward word-processing program lets you set the first number for page-numbering purposes, but it assumes page 1 is a title page and never prints the number 1. It does

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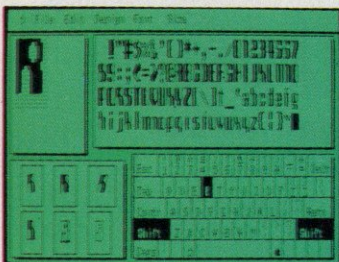
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## Creative Writing for Your Apple® IIc™ /IIe™

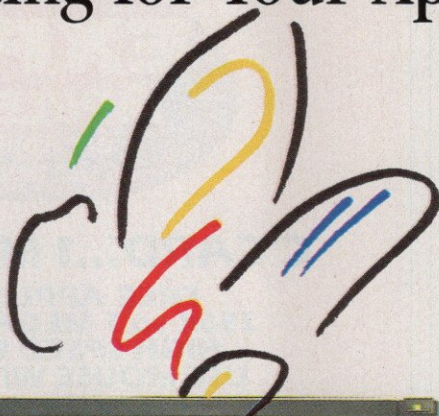
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Pictured above: MultiScribe's font editor.



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Mr. Steve Thompson  
Director of Advertising  
StyleWare, Inc.  
6427 Hillcroft, Ste. 201  
Houston, Texas 77081

Dear Mr. Thompson:

Thank you for your inquiry regarding the complete distribution rights for the Southwest region for StyleWare's new word processing program. We are pleased to hear that you are interested in our program. We have a long history of providing high quality graphic design capabilities to our clients. We are confident that our program will meet your needs. We are currently seeking qualified distributors for the Southwest region. We would like to discuss the details of our program with you. We are available to discuss our program at your convenience. We are currently seeking qualified distributors for the Southwest region. We would like to discuss the details of our program with you. We are available to discuss our program at your convenience.

conditional page breaks and reports the number of lines left for the document. It offers headers but not footers. It's not the best word-processing program, but the price of the whole package is less than that of many individual word-processing programs.

### SEMI-INTEGRATED PROGRAMS

Several word-processing programs come with bonus software that elevates them to a zone halfway between fully integrated programs and those with common adjuncts such as spelling checkers. The principal addition of the semi-integrated program is the telecommunications module.

#### The Executive Secretary

The Executive Secretary has a modest file manager for mail-list merging and a telecommunications program limited to 300 bits per second (bps). It specializes in formatting. It does indexing, with both alphabetization and rotation. It automatically provides an extra space after each sentence, allows several lines for headers, and permits two columns per page, although this format interferes with the header somewhat. It does hanging indents and outlines, numbering entries in Arabic, uppercase and lowercase Roman numerals, and uppercase and lowercase letters. It also has macros for phrases.

#### Write Away

This unusually fast software comes with a telecommunications program and mail-merge capacity. Its "transparency" feature lets it work with any printer, and it can print text up to 120 characters (columns) wide. It can also sort lists and carry out macros, and it lets you define function keys, which can be nested, to invoke the actions of other function keys.

#### Word Juggler

The least expensive of these programs is Word Juggler, which comes with the 50,000-word spelling checker Lexicheck and a telecommunications program with a transmission rate up to 9600 bps. Word Juggler also does mail-merge but not headers, footers, or macros. It comes with key-cap labels and a template to slip in just above the keyboard.

#### Magic Window IIextra

Magic Window IIextra is an acceptable word-processing program with an easy-to-move cursor and Fingertips, an interesting set of desk accessories. Fingertips has a simple telecommunications feature, note-

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when ordering direct. ■ A standard **EDD 4** version which doesn't include any hardware is available, and can be used on Apple

IIc and III (using emulations mode) and is priced at \$79.95. Add \$3.00 (\$6.00 foreign) ship/handling when ordering direct. ■ If you own an earlier version, send us your **EDD** disk and deduct \$50

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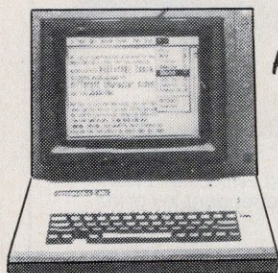
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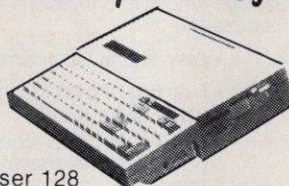
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The Laser 128:

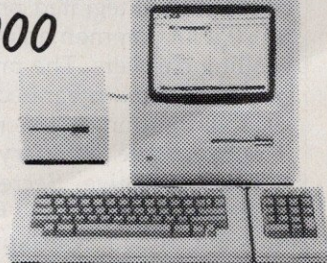
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Apple Color Monitor IIe	\$ 379	\$ 299
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Apple IIe Mouse	\$ 149	\$ 125
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### Applied Engineering

RamWorks III 256K	\$ 219	\$ 179
RamWorks III 512K	\$ 269	\$ 209
RamWorks III 1 Meg	\$ 369	\$ 269
RamFactor 256K	\$ 239	\$ 189
RamFactor 512K	\$ 289	\$ 219
RamFactor 1 Meg	\$ 389	\$ 289
RGB Option	\$ 129	\$ 109
Transwarp	\$ 279	\$ 229
Z-RAM 256K	\$ 329	\$ 269
Z-RAM 512K	\$ 389	\$ 309
Z-RAM 768K	\$ 449	\$ 349
Z-RAM 1 MEG	\$ 599	\$ 449
Z-80 Plus	\$ 139	\$ 119

### Modems

Apple Personal Modem with cable	\$ 429	\$ 319
Prometheus IIc	\$ 119	\$ 89
Prometheus 1200 A	\$ 295	\$ 195

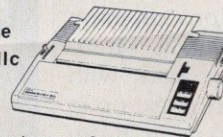
### Disk Drives

Maple 1/2 height IIe	\$ 199	\$ 99
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Gamma 1/2 height IIc	\$ 199	\$ 149

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The principal add-on of the semi-integrated program is the telecommunications module.

pad, Rolodex, calendar, scheduler, and calculator. The latter does arithmetic, square roots, trigonometry, exponents, and logarithms, and lets you use parenthetical expressions. It can also perform arithmetic in hexadecimal notation.

#### Simply Perfect

Simply Perfect contains Letter Perfect intact, as well as a 30,000-word expandable spelling checker, a database, and a calculator.

#### HOME/CHILD PROGRAMS

Word-processing programs for the home and/or for children are limited in their capacities, although they are slowly becoming more potent. In this category are two old favorites and several lesser-known programs.

#### HomeWord Plus

HomeWord Plus is the second update of HomeWord and noticeably more powerful, but its trademark remains its icons. It lets you issue commands by selecting on-screen pictures and is thus extremely easy to learn and use. If you use a mouse, it's even easier, and if you prefer the keyboard, it has fast-action shortcut commands. The new Plus offers a 30,000-word spelling checker and does instant outlining, automatically numbering blocks of type to four levels. It lets you specify the full page range for printing and turn the printer into a typewriter. It also does automatic backup, saving previous versions of same-name files so beginners don't inadvertently vaporize their documents. You can turn that feature off.

#### Bank Street Writer

Bank Street Writer is the other classic home/child program for the Apple II. It permits block movement of up to 15 lines and does searches but not automatic replacement. It can undo deletions, center lines, insert a header, force page breaks, and provide single-spaced double-indented quotes. It lets you specify the range of pages to print, allows documents up



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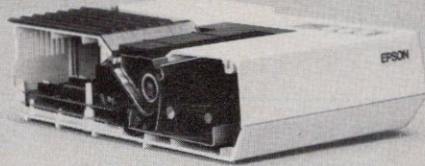
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to 3200 words long, and comes with a four-function calculator that can automatically insert the answer at the cursor. Like HomeWord Plus, it offers a mouse option.

#### Cut & Paste

Cut & Paste is a simpler, less expensive word-processing tool. It can work with a mouse and, as its name suggests, makes cutting and pasting easy. It adjusts for widows and orphans, allows indented blocks, and comes with several canned formats. It displays the amount of memory re-

maining on the disk at all times. It also has cute documentation, which may or may not appeal to you.

#### Milliken Word Processor

This program is definitely for children. Its brief documentation is rather gray, but the program compensates with on-screen pictures of a desk, writing tools, typewriter, and file cabinet. The program has no copy capacity, not much cursor mobility, no mouse support, and indeed few features of any kind. It may be most useful to you if you want to add

Milliken's Pre-Write, which teaches children writing, and Post-Write, a spelling and grammar checker.

#### CircaScript

Written in machine language and oriented to the early Apple IIs, CircaScript is more for adult home tasks. The manual is adequate but not great, and the program employs many three-letter commands such as !lj, which make it hard to learn and use. It can do global replace, conditional page breaks, and hanging indents, however. You can also use it for mail-merge if you buy CircaScript Plus. Documents are limited to 15 pages.

### BUDGET PROGRAMS

A few word-processing programs do exist for those on a shoestring. If writing matters at all to you, you should purchase a good commercial product, but if you lack the wherewithal, consider the items below.

#### SpeedScript 3.0

Given its compact nature, SpeedScript 3.0 is an impressive program. You buy it either as a book, and type in the 15-page hexadecimal code, or order it on disk for a few dollars more. The book offers a utility that greatly reduces mistakes, and the typing may instill a feeling of satisfaction. It takes several hours, though, and disk purchase may be more to your taste. The software occupies 5.5K of memory and offers headers and footers, triple-spacing, flexible cursor movement and deletions, line centering, and character transposition. It can copy prose into its 2K buffer and display the available space in number of characters.

#### FreeText

FreeText is shareware. It comes with a tutorial on the disk, on-screen help, and encouragement to pass it on to others. Unfortunately, this software provides only a 40-column window onto 80 columns of text, so you are constantly panning back and forth to read your work. You never see it whole. I appreciate the spirit behind FreeText, but I can't imagine using the program myself.

It's quite a gamut. These products differ almost as much as people themselves, and somewhere in this medley may be the program meant for you. **+**

*Dan McNeill is coauthor of the recent book Computer Sense from Bantam Books.*

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*A handy extension program  
that lets you command AppleWorks  
with two-keystroke macros*

# MACROWORKS

Since its introduction in 1983, AppleWorks has all but dominated the sales of productivity software on the Apple II and spawned a whole industry of extensions and supplements, some substantive and others fluff. The reason for its popularity is simple: AppleWorks is a well-designed combination of the three programs—word processing, database, and spreadsheet—that computer owners find most useful.

AppleWorks can perform many complex tasks with comparative ease, but the accessibility you find as a new user soon gives way to frustration. Familiarity does little to speed the issuing of commands, and some commands are lacking altogether. Now MacroWorks, Version 2.0, by Beagle Bros., Inc., with its macro-generating capabilities, makes AppleWorks fly, provides some added commands, and even lets you design a few commands of your own, all at a cost of only \$34.95.

There's more. MacroWorks lets you use a mouse to move the cursor up, down, or sideways, and through an AppleWorks-like system of menus, you can rewrite AppleWorks' help screen or even change AppleWorks' buzz (which occurs when you press an incorrect key) to the more pleasant MacroWorks beep. And more: MacroWorks offers three other programs on its program disk. They include the Galley, for multi-

column printing; the Analyst, a word-counting utility; and the Alpha-cat, a ProDOS catalog-printing utility.

## AppleWorks Enhancements

A macro is a set of preselected instructions or letters that you can invoke with a single command. MacroWorks comes with one permanent macro—Delete Forward—and a library of 35 reconfigurable macros. These take up only 541 of the 4095

*MacroWorks' macros  
operate so quickly that  
you hardly notice  
the multistrike nature  
of each command.*

bytes available for macro definitions, so you have plenty of room for additions. You define the macros in terms of command strokes and responses and then store them in a file that includes a brief description of what each macro does.

To invoke MacroWorks' macros, you press the solid-apple (SA) key together with almost any other key. You can design your own macros by combining already existing AppleWorks and MacroWorks commands. Furthermore, you can use SA-1 through -9 as temporary, redefinable macros of up to 70 keystrokes each from

AppleWorks. You can use these temporaries to define macros that you need to use only for a short time or to test new macros prior to installing them in the macro file.

MacroWorks' macros operate so quickly that you hardly notice the multistroke nature of each command. For example, instead of the five keystrokes you need to issue a command as basic to word processing as the one that produces a forced page break, MacroWorks requires only an SA-Return. Other abbreviated commands include Find Text/Clear Previous Word (SA-F), Print Current File (SA-P), and Switch to the Next File on the Desktop (SA-Q). You can also issue SA commands to print or save all files on the desktop, go to or set a marker, or sort an alphabetical or numerical column from within a spreadsheet.

Having cleverly assembled some of AppleWorks' commands, MacroWorks' authors offer several commands not previously available to AppleWorks users. For example, AppleWorks lets you delete only backwards, or in blocks by employing the Block Delete command (open-apple-D). MacroWorks gives you the new command Delete Forward, which is defined as `<del>:<right><del>|` in the macro list. The `<del>:` indicates the particular SA macro, and the notation `<right><del>` indicates that you should move the cursor to the right and press the Delete key. The `lindi-`





cates the end of the macro.

Several other new commands are available within MacroWorks. You can zip the cursor back and forth between the beginning and end of a line of text with an SA-right or -left arrow. You can also delete a word (SA-D) or a line (SA-Y) of text, or a row in the case of a spreadsheet (SA-D), moving the unwanted text onto the Clipboard. Each new deletion bumps the previous one off the Clipboard and out of existence. If you make a mistake, SA-U moves the previously de-

leted material back into the text.

To install MacroWorks, you begin by making a backup copy of both AppleWorks and MacroWorks (both are unprotected). MacroWorks can work with either Applied Engineering's or Checkmate Technology's extended 80-column card—if you use one of these "desktop expanders," you install it before installing MacroWorks. Next, you boot MacroWorks and choose the AppleWorks Enhancements option from the main menu. From there, you simply select

the Install MacroWorks option, put the AppleWorks diskette into either drive, set the pathname, and install the MacroWorks system file onto the AppleWorks startup disk.

Adding to or editing the program's macro list is a bit more involved. Using the AppleWorks word-processing module and MacroWorks as a data disk, you retrieve the file MACROS.AWP, which contains the macro list. As soon as that file appears, you rename it and edit the list as you would any other AppleWorks document. When you finish, you save the updated list on the MacroWorks disk. To complete the installation of your edited list, you install it on your AppleWorks startup disk and then boot the MacroWorks program disk, choose Compile New Macros, and reinstall your own macro file on the AppleWorks startup disk. During reinstallation, MacroWorks checks your updated file to make sure each macro definition is compiled correctly and that enough memory space is available for your additions.

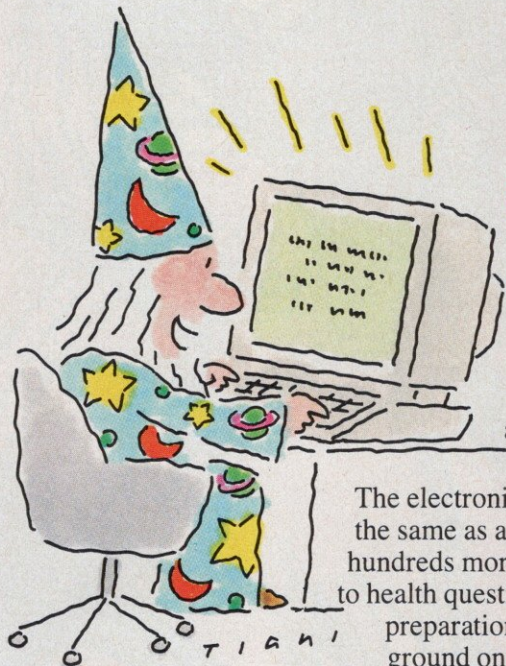
MacroWorks has a few limitations. Since it leaves AppleWorks basically unchanged, it can't address some of the more serious omissions in its program structure, such as its lack of a universal command or its inability to have escape codes entered directly into a file. It doesn't work with Pinpoint, Jeeves, or similar programs either. The only solution might be to have two AppleWorks disks, one with MacroWorks and another with Pinpoint or Jeeves. You could then alternate versions. The only problem would be that once you became accustomed to using MacroWorks' handy macros, you'd be more than annoyed when you didn't have them.

### The Galley

Many will find The Galley, MacroWorks' multicolumn printing utility, reason enough to want this package. With it you can print AppleWorks word-processing files in either two or three columns and control both the width of the left margin and the number of spaces between each pair of columns. Unlike other programs, The Galley forms its characters as text rather than as graphics, resulting in an easy-to-read printout. You can even use The Galley with letter-quality printers, an advantage to publishers of small magazines and booklets.

Unfortunately the program has

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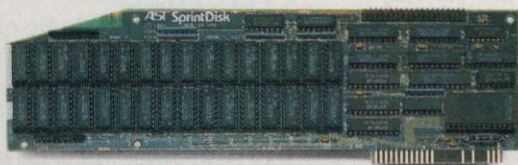
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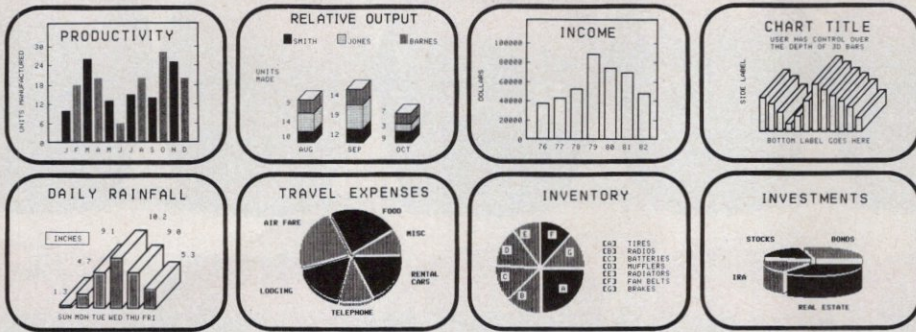


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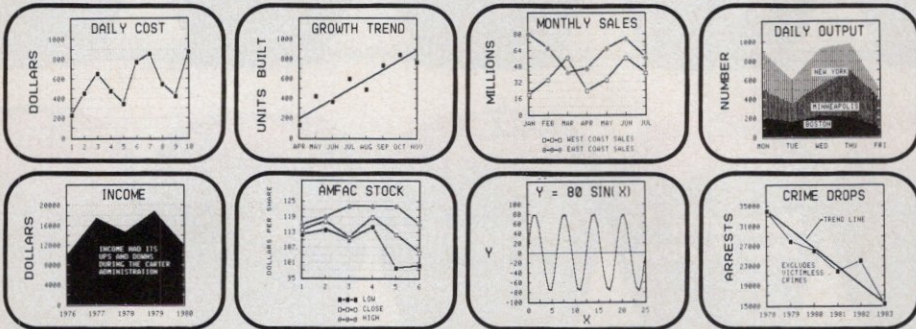


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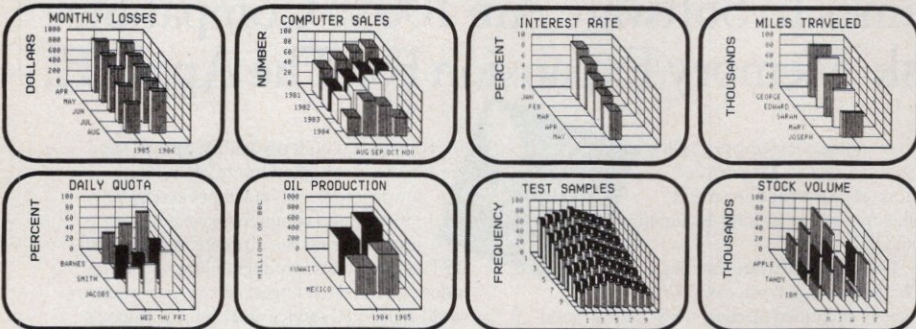
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some significant limitations. The Galley, despite its function as a printout program, has no editing capability, and you can't see the columns being formed as you type. You must determine your columns' width and column breaks (page breaks) from within AppleWorks and then go to The Galley for printing. There you can preview the file by printing it to the screen or by sending it to your printer. Unlike AppleWorks, The Galley makes no allowance for printer configuration—thus making the use of underlines, boldface, or superscripts impossible—nor does it recognize the open-apple-O formatting commands such as text centering or indenting. It also limits you to a file size of about 20K, which means you must break up large files into smaller ones for printing.

### The Rest

The Analyst and Alpha-cat are programs of limited use, but if you don't have the features they offer on another program, they may come in handy. The Analyst tabulates the occurrence of individual words, as well as giving a total word count. You can send the list to your printer or have it displayed on the screen. Alpha-cat prints out an alphabetized catalog of any ProDOS-formatted disk and gives you the option of isolating AppleWorks files from other files in the catalog or including them.

The MacroWorks macro-generating capability is ingenious. This package is, in my opinion, the best single AppleWorks add-on available today, and I believe the vast majority of AppleWorks users will be enthusiastic about the increased facility it gives AppleWorks. +

*John Heroy is a professor of photography at Virginia Commonwealth University in Richmond, Virginia, and a freelance reviewer of computer software.*

## PRODUCT INFORMATION

### MacroWorks

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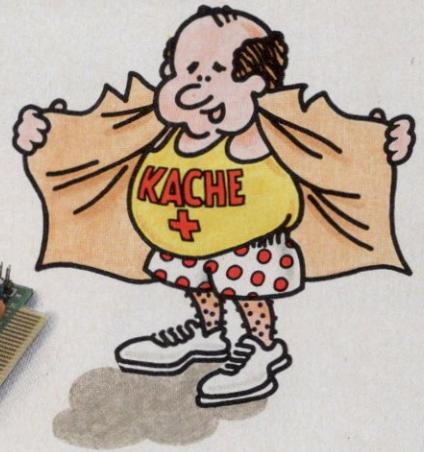
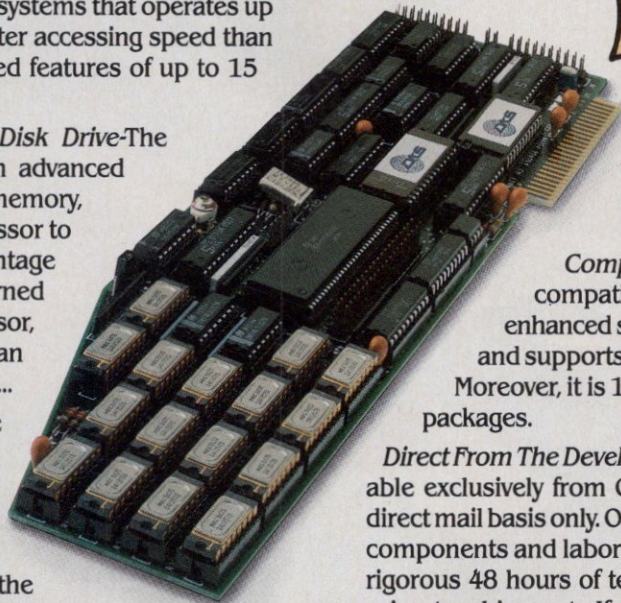
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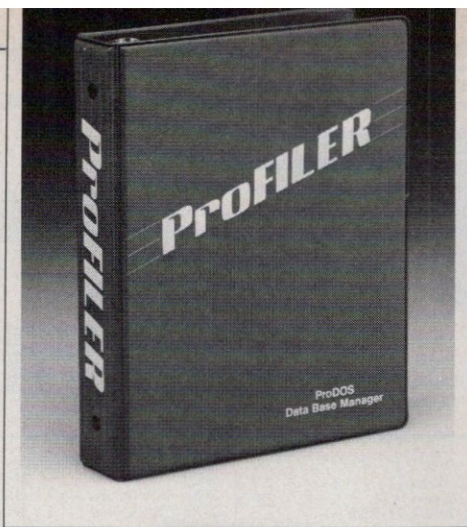
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## Quick Take

BY LEWIS A. EDGE, JR.

# ProFILER

Creating large databases consumes a lot of disk-storage space. Until the introduction of ProDOS, the sophisticated Apple database-management programs either kept large files on multiple diskettes, which required much shuffling of individual diskettes, or they were written for specific brands of hard disks.

In order to overcome these limitations, PM Software recently introduced ProFILER, one of the only database programs that works with ProDOS and therefore lets you use an Apple UniDisk 3.5 or any ProDOS hard disk.

### Getting Started

ProFILER makes database management easy even for novices. The program is relatively simple to set up because you don't have to determine the type of data you're going to store when you create the record. With ProFILER, you can enter text, positive or negative numbers, or other key-

board characters into any field.

With the program editor, you design a new form (i.e., record) by pressing arrow keys—or control commands, in the case of the Apple II Plus—to move the cursor to the desired screen position. Then you type in each field name, ending it with a colon (:). Each screen is a page of the record. For a single

record, ProFILER lets you define up to 16 40-column pages or 8 80-column pages, containing up to 250 fields. The space available on the screen to the right of and below the field name determines the maximum length of the field. The amount of disk space limits the number of records you can store in a file, the maximum being 65,000.

Once the form design is complete and you've defined a maximum of three index fields (fields indexed for fast sorting and retrieval of entries), you save it to disk and are ready to enter data. Besides using the keyboard, there are several other ways to

put information into a ProFILER record. Utilities that come with the program let you transfer data into ProFILER records from a ProDOS ASCII text file, an AppleWorks database, or another ProFILER data file. An extra-cost utility converts PFS data into ProFILER data.

After information is in the system, you can use ProFILER's built-in report generator to get it out as a free-form report, columnar report, ProDOS ASCII text file, or Apple Writer mail-merge file. You can save report formats on disk for reuse. Information from any of the fields can print on one or more lines of a free-form report. You can have the program sort and print reports in the order of one or two of the record's three index fields. If you want an alphabetical list by name, for example, the Name field must be one of the index fields. If the Name field doesn't appear on the screen before the address line, however, you can't define a free-form report that prints the name ahead of the address.

You can also save a free-form report on disk, either as a ProDOS ASCII text file or as an Apple Writer mail-merge file. The report is written to the disk as a text file in exactly the same form as a printer would print it on paper. You can manipulate such files with a word-processing program and/or you can transmit them via modem, using ProDOS communications software.

An easy but more limited way to get information from ProFILER is to create a columnar report. Such a report prints only one line from each file in a record under column headings but is quick to create. You can define horizontal totals and other calculations in formulas and have column subtotals, totals, and averages generated from numeric data.

You can choose files for inclusion in a printed report or for updating or deletion by using up to ten criteria. ProFILER allows only AND-type searches, to the exclusion of OR searches, which is one of the program's limitations. Finding an exact match for all the characters in a field is one way to find a ProFILER record, or you can find all of the records that begin with SAM, for example, by searching for SAM\*, which will find SAMUEL and SAMANTHA. The asterisk used as a wild-card character also enables you to find records with

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CIRCLE 184 ON READER SERVICE CARD

## AND SPEAKING OF GRAPHICS...

A+'s monthly section will introduce you to the different graphics packages and applications available for your Apple.

Whether you use your Apple for professional uses, personal business, educational purposes or just plain fun, you'll discover what's new, improved and compatible with your Apple.

*I've become accustomed to complexity, so ProFILER's ease of learning and use was refreshing.*

certain words in the middle or end of a line in a field. You can find numeric data by using the symbols =, >, and < alone or in combination with each other. These mathematical search symbols ignore all nonnumeric data in ProFILER fields, except that the <> expression of inequality allows you to exclude records that contain certain words.

### Simplicity over Complexity

Having mastered some of the most sophisticated database-management programs available for Apple computers, I have become accustomed to complexity instead of simplicity, so ProFILER's ease of learning and use was refreshing. The facility of moving information to and from ProDOS text files makes this program a valuable tool for use with Apple Writer II. ProFILER is a good program, but be aware that it doesn't provide restricted fields, OR searches, automatic date fields, sorts on more than two fields, or sophisticated report capabilities. +

*As a former Apple dealer, Lewis Edge has used and configured dozens of Apple database programs for himself and his customers. He has been an Apple computer user since 1980.*

### PRODUCT INFORMATION

#### ProFILER

PM Software  
17610 Beach Blvd., Suite 29  
P.O. Box 1788  
Huntington Beach, CA 92647  
(800) 628-2828 ext. 530 (orders only)  
(714) 841-7400  
(714) 963-2221

**List Price:** \$99.95 (includes database-management program, file-transfer utilities, report generator, and manual); label-printing utility, \$29.95; PFS data-conversion program, \$39.95

**Requires:** Apple II Plus, IIe, IIc, Franklin, or equivalent; 64K RAM; Apple 80-column card or Videx Videoterm card optional

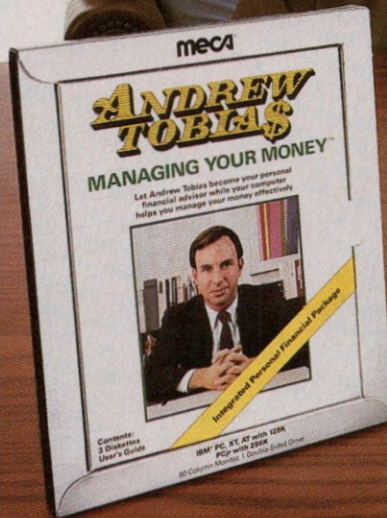
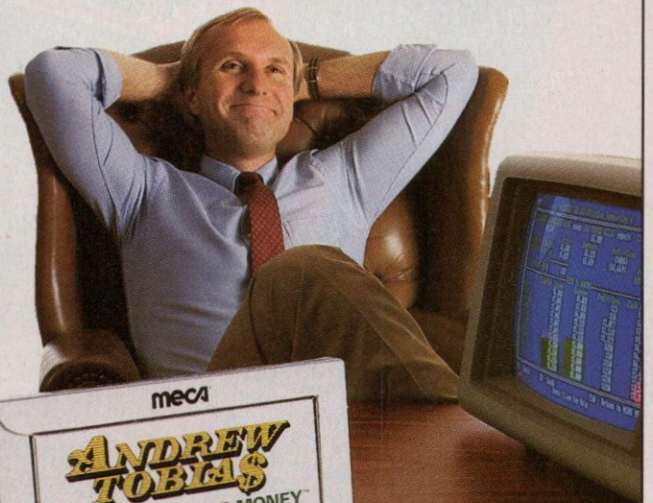
CIRCLE 435 ON READER SERVICE CARD

MANAGING YOUR CHECKBOOK?  
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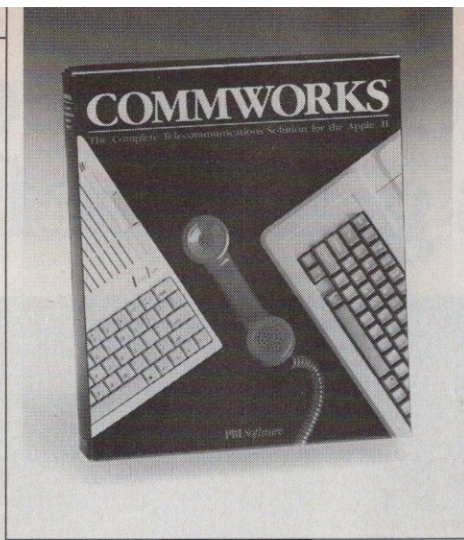
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CIRCLE 131 ON READER SERVICE



## Quick Take

BY RUSS LOCKWOOD

# CommWorks

If you are in the market for a good telecommunications program for your 128K Apple IIe or IIc, you should take a close look at CommWorks from PBI Software. CommWorks is an excellent program that treads that very fine line between ease of use, flexibility, and price/performance.

The program uses a menu-driven file-folder user interface similar to that of AppleWorks. Each of the program's communications file folders holds system settings, log-on procedures, macro sequences, and other information. On the screen, changing the information is as easy as picking the desired item from the menu, watching one folder overlay another, and then selecting a choice from a sub-menu. Although the program does not work with a mouse, the process is fast and smooth.

When you save a communications

file to disk, the program saves all settings as well. Thus, you can configure a file once and never have to worry about it again.

CommWorks can handle transmission rates of 110-9600 bits per second, includes a variety of data-bit transmission formats, has a 35K RAM capture buffer, and can emulate DEC VT-100 and VT-52 terminals.

### The AppleWorks Tie-In

One of the program's most interesting attributes is its ProDOS/AppleWorks file-transmission feature.

CommWorks can transfer AppleWorks files intact, without conversion. This is a boon to the hundreds of thousands of AppleWorks users. Also, the program works with the XMODEM/Christensen error-checking protocol to ensure accurate transmissions.

Each communications file provides up to 18 macros—command se-

quences you can automate, each up to 32 characters long—which should take care of most everyone's needs. If you require more than 32 characters—when creating an auto-log-on sequence, for example—you can link macros together. In fact, you can link all 18 macros together.

CommWorks also provides 20 open-apple-key command shortcuts for use while you're on-line. You can use these handy commands to perform a variety of functions, from loading another communications file to toggling between data-capture buffers (if you use an extended-memory card).

The program includes a text editor—nothing flashy, but enough to compose or edit short files. The theoretical limit for ProDOS-based text files is 35K, and the manual suggests breaking down larger files into multiple parts.

The 88-page manual does a fairly good job of explaining the intricacies of the program, although finding specific information sometimes requires flipping through pages. If you still have questions, you'll find the tech-support people at PBI knowledgeable, friendly, and fast.

I think PBI has a winner in this \$95 product. CommWorks is a competent, feature-packed telecommunications program that provides the flexibility all but the most demanding telecommunications users need. Its compatibility with AppleWorks files is a bonus, and the whole program is so intuitive that you can almost throw away the manual after opening the box. And the program is not, repeat *not*, copy-protected. CommWorks is impressive and has earned a place in my disk drive. +

*Russ Lockwood is a technical writer for AT&T and former assistant editor at Creative Computing. He is also A+'s regular telecommunications columnist.*

## PRODUCT INFORMATION

### CommWorks

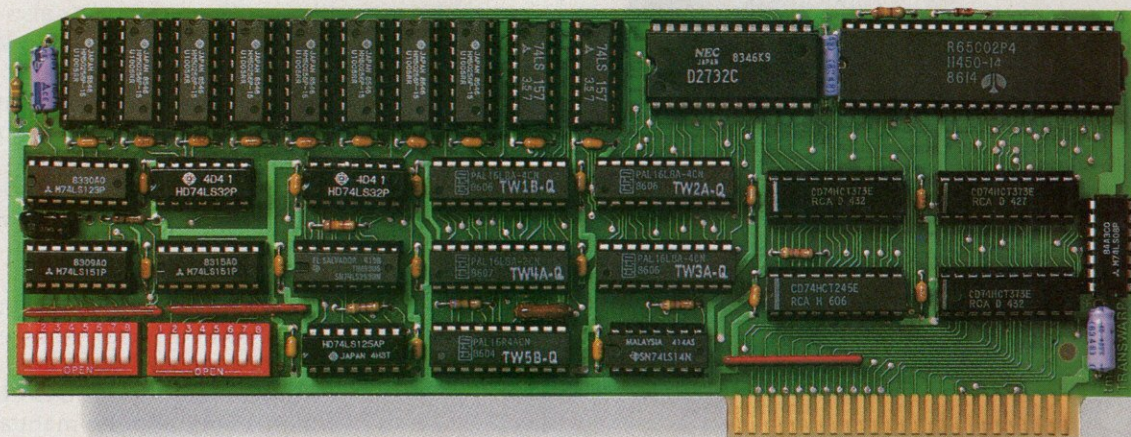
PBI Software  
1111 Triton Drive, Suite 201  
Foster City, CA 94404  
(415) 349-8765

**List Price:** \$95

**Requires:** Apple IIe with 128K RAM and Extended 80-Column Card, or IIc; one disk drive; modem

CIRCLE 412 ON READER SERVICE CARD

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TransWarp's not the only speedup card on the market. But it's the only one that accelerates your Apple's main memory, ROM *and auxiliary memory*. And with more and more programs residing in auxiliary memory, buying anyone else's accelerator makes less and less sense because TransWarp speeds up software up to 3 times faster than other cards on the market because the others can't accelerate programs in auxiliary memory. That's why TransWarp is so much faster than the rest. Nearly all of today's more powerful programs run partially or completely in auxiliary memory; programs like AppleWorks, Pinpoint, Managing Your Money, SuperCalc 3a, BPI and Pascal, just to name a few. Why settle for a card that only accelerates part of memory? Get TransWarp, it accelerates all memory. TransWarp even works with most D.M.A. devices including the Swyft™ card.

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# WRITE-PROTECT Switch FOR THE APPLE IIc

HOMEBREW HARDWARE BY JON VANWORMER

The following is a do-it-yourself project for the IIc, similar to the installation of a write-protect switch in an external disk drive described in the October 1985 issue of *A+*. The advantage you can gain by its use are the same as with the previous switch: In this case, you get complete control over the ability to write on the built-in disk drive of the IIc. At the flip of a switch, you can protect a diskette from having data written onto it, even if it does not have a write-protect tab. Additionally, you will no longer need to punch holes in floppy diskettes to write on the back of them (see figures 1 and 2).

Here's what you'll need:

- 1 visible light-emitting diode (Sylvania ECG 3021—yellow)
- 1 LED socket
- 1 double-pole/double-throw switch (push-on/push-off)—maximum size 1¼ inch by 1½ inch—or 1 double-pole/single-throw switch (push-on/push-off)
- 1 150-ohm, ¼-watt resistor
- 2 six-inch lengths of wire
- 1 four-inch length of wire
- 1 three-inch length of wire
- 1 two-inch length of wire
- soldering iron
- solder
- electrical tape
- wire clippers
- needle-nose pliers
- pliers
- Phillips-head screwdriver

Perhaps the most difficult and delicate step is the opening of the

case. Follow the instructions carefully, and do not force a part that does not seem to be coming loose. I also recommend reading through the instructions several times before beginning.

1. Strip ¼ inch of insulation from both ends of all the wires in the parts list.

#### Remove Case

2. Turn the computer over and lay it

on something soft.

3. Remove the six outside screws from the bottom of the computer. Do not remove the four screws in the center.

4. Turn the computer right side up, facing the rear.

5. Using a small-blade screwdriver, gently pry the back of the case open. The three case parts are held together by small catches. First pry the upper

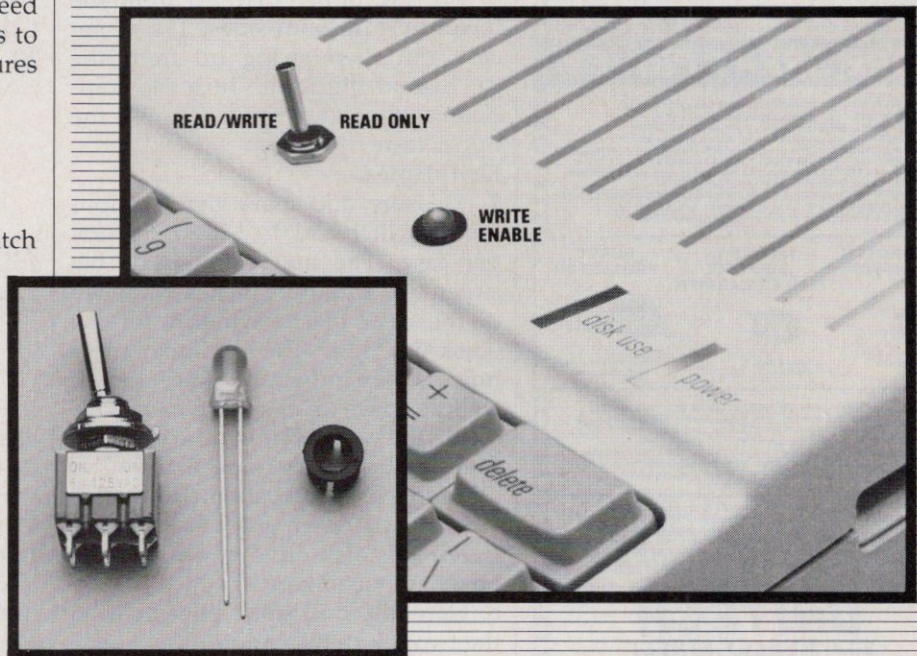


Figure 1: This project provides a new write-protect switch and LED. With the switch pushed to the right, the disk cannot write, and the LED should be off.

Figure 2 (inset): The switch, diode, and LED socket you'll need to use

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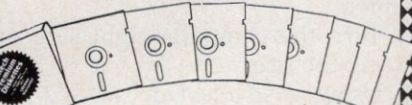
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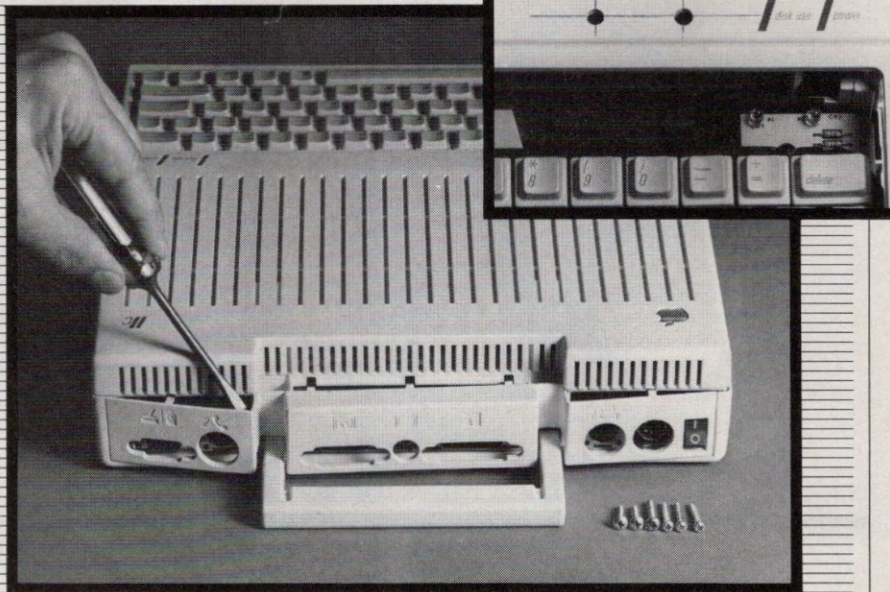


Figure 3: REMOVE CASE. After removing the six outside screws from the bottom of the computer, gently pry the upper case from the back panel and then the back panel from the sides.

Figure 4 (inset): DRILL HOLES. There is just enough space for the switch and LED between the keyboard and the disk drive, so carefully measure and mark the location for the holes. Drill small pilot holes and then larger holes to fit the size of your switch and LED.

case from the back panel and then the back panel from the sides. Do not use excessive force on these pieces. Remove the back panel and the handle (see figure 3).

6. Pry the upper case up from the lower case on both sides. The upper case can then swing up from the catches on the front. Turn the computer so that it faces you. Remove the upper case.

### Drill Holes

7. Measure and mark the locations for the switch and the LED on the upper case. The holes should be between two and three inches to the left of the clear plastic window for the "disk-use" LED. The location of these holes is very important. Since there is so little space for the switch and LED inside the case, examine the case and the switch to make sure that you've selected a proper location. The switch will extend down into the gap between the disk-drive cover and the keyboard (see figure 4).

8. Carefully drill small pilot holes at the two selected locations. If the locations still appear to be correct, drill holes of the proper sizes for the switch and LED. (Mine required drilling 5/16- and 15/64-inch holes.)

9. Insert and tighten the switch and LED in their holes. Try attaching the upper cover at this time to make sure that the switch fits down into the hole between the disk drive and the keyboard.

### Clip Wires

10. Place the upper cover on edge at

## WARNING:

*Following these procedures may void any existing warranty on the Apple IIc computer.*

the right of the lower cover, leaning it against something to prop it up. This position will allow you to attach the wires easily.

11. Unplug the keyboard-cable plug from the motherboard. Remove the keyboard from the lower case (see figure 5).

12. Remove the two screws from the front and the two screws from the rear of the disk-drive cover.

13. Unplug the 20-wire-cable plug from the rear of the disk drive. Re-



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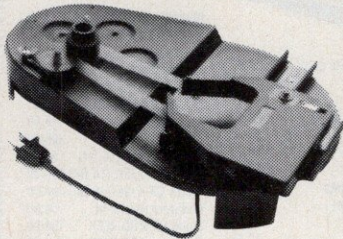
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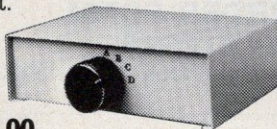
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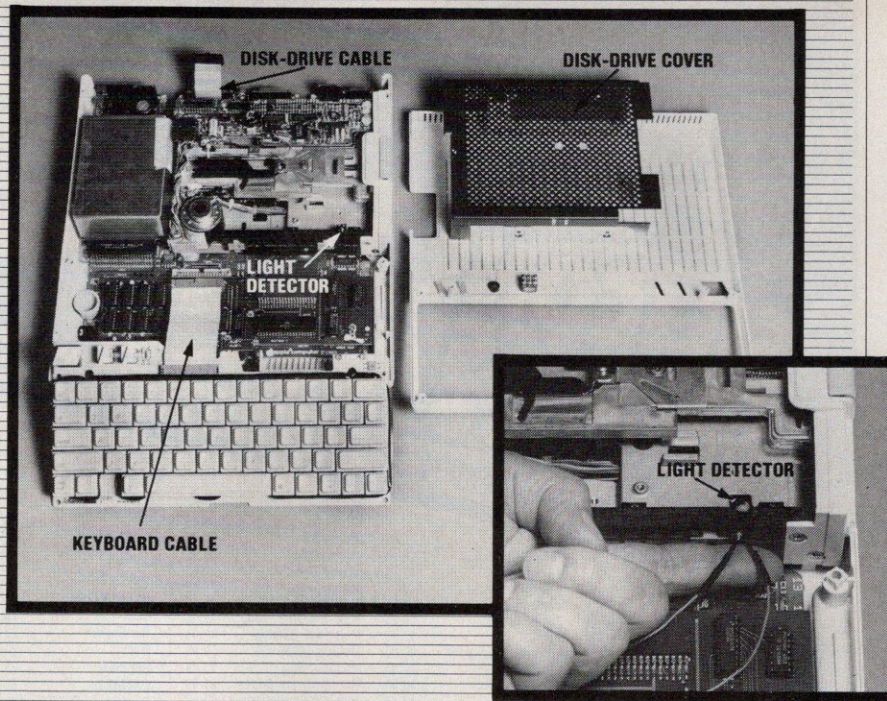


Figure 5: CLIP LIGHT-DETECTOR WIRES. To modify the disk-drive write-protect switch, you need to cut the light-detector wires. Unplug the keyboard cable and the disk-drive cable and remove the disk-drive cover to easily get at the light detector.

Figure 6 (inset): EXTEND LIGHT-DETECTOR WIRES. Connect and solder 6-inch wires to each of the wires that lead to the light detector.

move the disk-drive cover.

14. Using wire clippers, clip the two black wires leading to the small light detector on the upper, front edge of the disk drive. Clip these wires as close as possible to the detector.

15. Strip ¼ inch of insulation from these two black wires. Connect and solder one end of a 6-inch wire to each of the black wires. Wrap a small amount of electrical tape around these connections (see figure 6).

16. Replace the disk-drive cover, positioning the two (now longer) wires so that they come out of the cover at about the location of the light detector. Insert and tighten the four screws that hold the disk-drive cover. Carefully plug in the 20-wire-cable plug to the rear of the disk drive.

### Solder Wires to Switch

17. Connect and solder the two now longer wires to one pole of the switch on the upper cover (solder points A and B in figure 8). If you have chosen a double-throw switch, use the center connection and one of the outer connections (see figures 7 and 8).

18. Carefully solder the 150-ohm resistor to the left end of the green LED on the keyboard (C). I soldered mine to the underside of the board. Apply heat only briefly. Connect and solder

the 3-inch wire to the other end of the resistor. Using the needle-nose pliers, carefully bend the resistor wire so that it extends upward from the top of the keyboard. Attach and solder this wire to the other pole of the switch on the upper cover (D). If you've chosen a double-throw switch, use the center connection (see figures 7 and 8).

19. Connect and solder one end of the 2-inch wire to the other connector of the switch (E). If you have chosen a double-throw switch, use the connector next to the one you've already wired on the other pole. Connect and solder the other end of the 2-inch wire to the longer lead of the LED (F).  
20. Connect and solder one end of the 4-inch wire to the left side of the resistor marked R2 on the edge of the keyboard (G). Connect and solder the other end of the 4-inch wire to the other lead of the LED (H).

### Test Connections

21. Test the connections by turning on the computer. If the new LED is on, pressing the switch should turn it off. If the LED is off, pressing the switch will turn it on. If the light does not work this way, go back and check the steps you have completed.

22. Carefully tape the connections, switch, resistor, and LED so that no

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ProAPP 10 & 20 Meg Hard Disk Drives	Call
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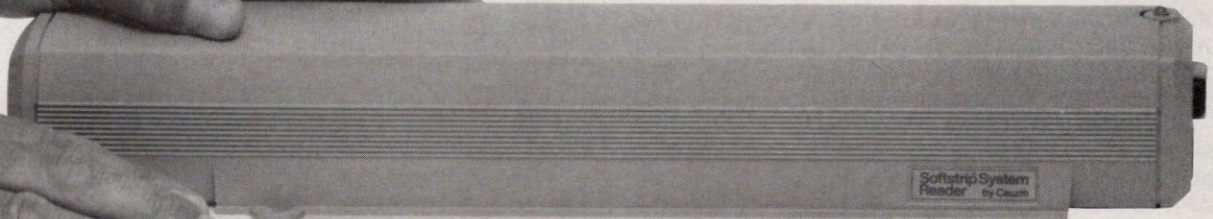
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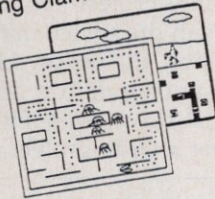
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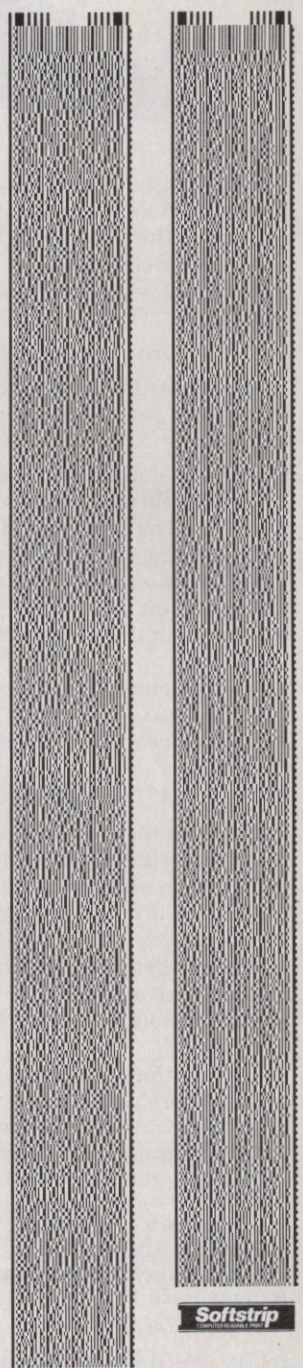
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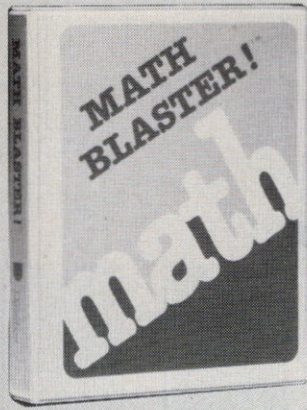
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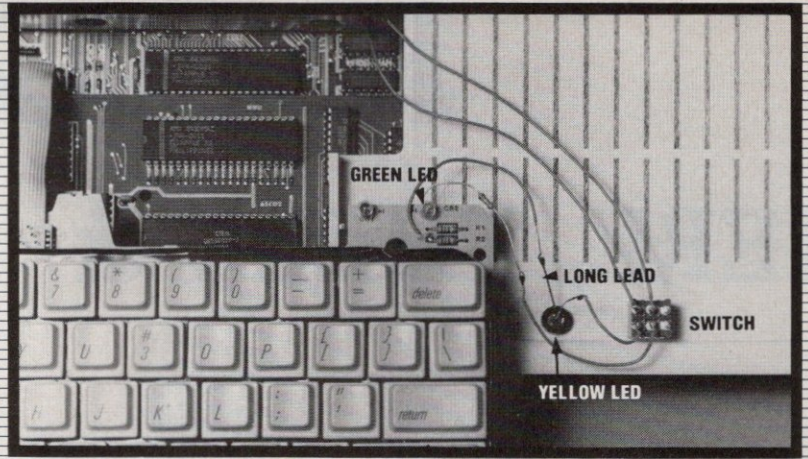


Figure 7: **SOLDER WIRES TO SWITCH.** With the upper cover on the right edge of the computer, you can easily solder the required connections. Make sure to wrap a small amount of electrical tape around the exposed wire on the resistor and the LED.

23. Plug in the keyboard-cable plug. Replace the keyboard.
24. Test the disk drive to make sure you can write when the light is on and can't write when the light is off.
25. Close the case, making certain that the excess wire is located in the gap between the keyboard and the disk drive. Check all keys to make sure none bind or are blocked.
26. Replace the case handle and the back panel. Carefully reconnect the catches on all sides until the case parts are aligned and connected.
27. Turn the case over and lay the computer down on a soft surface, being careful not to damage the newly installed switch.
28. Replace and tighten the six screws that you removed in step 3.

29. Connect all cables and retest the switch and light.

30. You may want to label your switch: READ/WRITE to the left of the switch and READ ONLY to its right. With the switch in the left-hand position, the yellow LED lights up, and you can write to any diskette in the disk drive—even if the disk has a write-protect tab or lacks a notch. With the switch in the right-hand position, the yellow LED is off, and you cannot write on any diskette in the disk drive, even if it has a notch without a write-protect tab. +

*Jon vanWormer is a free-lance writer who lives in Fountain Valley, California, and has more than 25 years' experience as a programmer and systems analyst.*

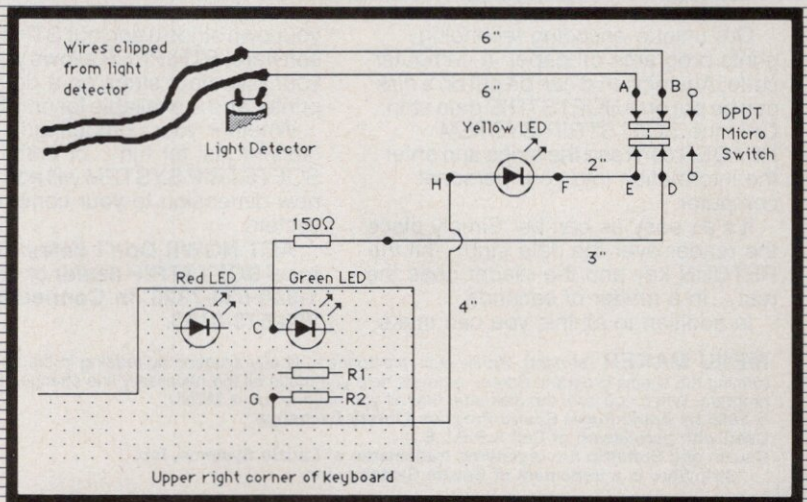
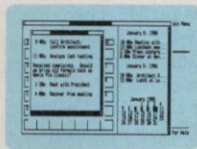


Figure 8: A schematic diagram of the write-protect-switch project. The black dots next to the letters (A, B, C, etc.) are solder points.

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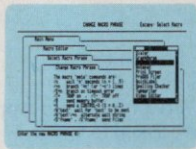
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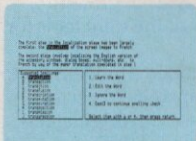
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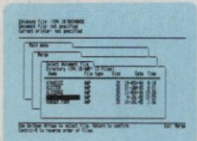
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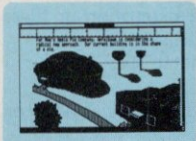
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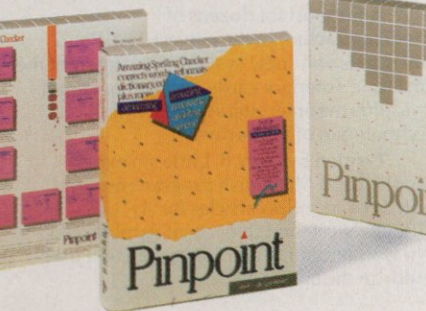
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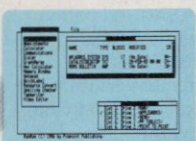
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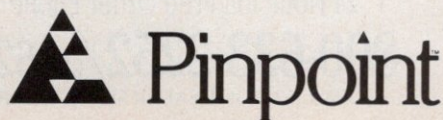
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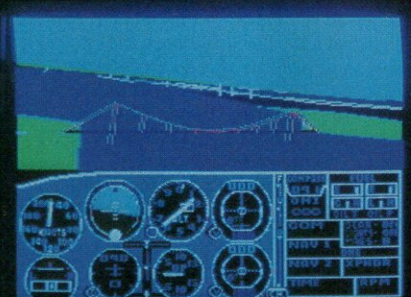
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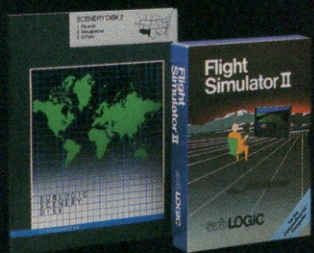
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# The Learning Curve

BY DAVID D. THORNBURG

## EUCLID'S MACINTOSH

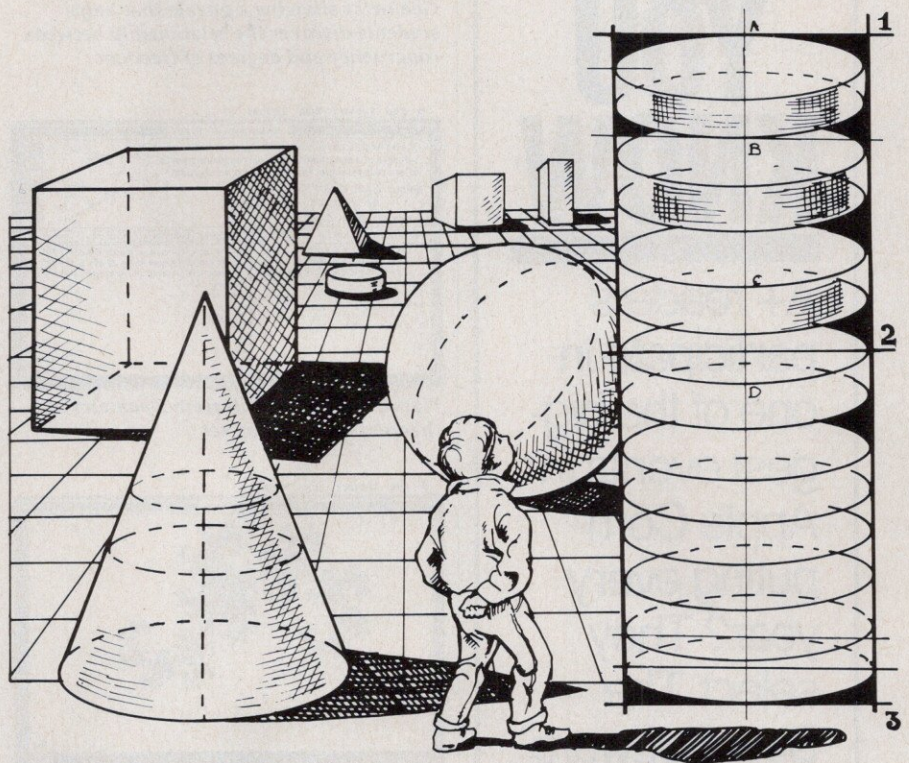
*Independence and discovery mesh with a structured approach.*

One of the best ways to learn about mathematics is to mess around with it. Math is usually considered to be one of the most precise subjects we study in school, and Euclidian geometry (as I remember it being taught) is one of the prime examples of the apparent sterility of mathematics.

The view that mathematics is rigidly fixed and that there is only one right answer to any problem has made math boring to many students. As a result, many students avoid taking math courses, especially in high school, where some of the more interesting courses are electives. The unfortunate consequence of this math avoidance is that math-poor students find themselves blocked from the college programs they need in order to receive training for high-paying professions.

If mathematics were as boring as some people think it is, I could accept some of the negative attitudes I have encountered over the years. The reality, however, is that mathematics is not a fixed, dry science. It is a science in which experimentation and discovery are everyday activities. The problem with mathematics is less with its content than with the ways it is usually taught. Unless students have room to tinker with concepts and the freedom to develop intuitions about the subject, math courses can quickly degrade into the memorization of postulates and theorems and their rote application to highly contrived problems.

When I first became involved with



Logo's turtle graphics, my interest was in using Logo to explore geometrical concepts. Logo became a "math microscope" with which I could ex-

*One of the best ways to learn about mathematics is to mess around with it.*

plore topics ranging from tiling theory to the geometry of noninteger dimensions.

The only problem with Logo's geometry was that it didn't connect cleanly to the existing high-school curriculum. As a result, Logo appears to have been relegated to the status of a supplemental activity, rather than forming the core of a course in "experimental mathematics."

Fortunately, one group of software developers realized that some measure of independence and discovery

could be incorporated into even the most rigidly defined geometry courses. Geometry by Sensei Software (published by Brøderbund) turns any two-drive Macintosh 512 or Mac Plus into an interactive learning laboratory.

The Geometry software is a fascinating integration of challenges. At one extreme, it addresses the needs of classroom teachers through its connection to material presented in traditional geometry textbooks. The program even covers two different branches of postulates and theorems regarding parallel lines, thus allowing teachers to tailor it exactly to the approach in any standard text.

At the other extreme, Geometry provides numerous opportunities for students to experiment with various geometrical concepts through interaction with animated activities that reinforce the topics in any section of the program. This freedom to play is one of the best ways to ensure that students will come to truly understand

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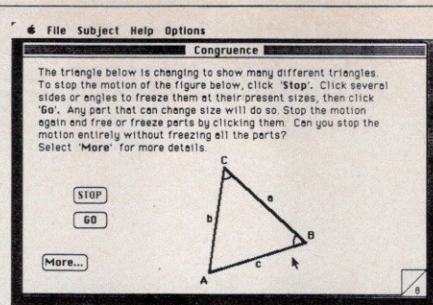


Figure 1: An interactive problem page from Geometry showing a puzzle that helps students discover the relationship between congruency and degrees of freedom

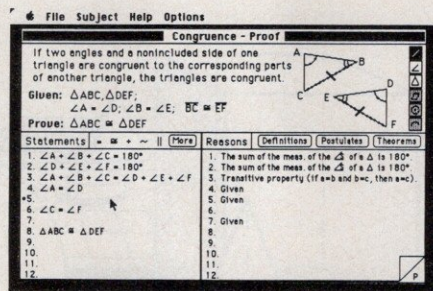


Figure 2: A proof built from Geometry's theorem construction set

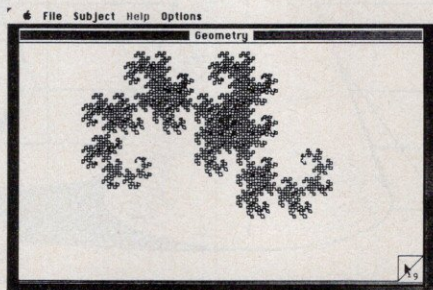


Figure 3: View of a dragon curve—a typical "extracurricular" activity found on a "negative" page

the concepts, rather than just memorizing them for a test. In between, Geometry provides interactive puzzles to solve and theorems to prove.

The program builds theorem proofs from a construction set of terms, and they appear in two columns containing statements and the reasons for each statement. The student can either see proofs in their entirety or proofs from which several statements are missing. The challenge in the latter case is to complete the proof.

### A Random Walk through Geometry

Geometry contains enough material for a one-year course. Users can jump to any topic of interest and can use a "bookmark" when a session needs to be interrupted.

The bookmark is indicative of the central metaphor of this product: It is designed to look like a book. You can pull down a subject menu to reveal

selections, including a table of contents and an index. Activities are presented as pages that you "turn" by clicking on dog ears with the mouse (as you do with the Note Pad desk accessory). Page numbers appear at the bottom right corner of each page, with each chapter numbered separately, beginning with the number 1. Truly adventurous students who are on page 1 will turn the pages backwards to see what happens. Geometry obliges by providing negative page numbers containing several geometric surprises, including some pretty kaleidoscopes and a recursive fractal pattern. These additional parts of the program reflect the developers' desire to encourage experimentation in the learning process.

### A Feeling for Math

The ability of this program to meet the needs of a rigidly defined curriculum while allowing tremendous freedom of choice and self-paced discovery by students proves that curriculum-based software does not need to be boring or limited. Rather than restrict users to tutorials that are adequately covered in books, Geometry takes advantage of the computer's features by providing meaningful animation and allows a blend of drill and discovery that can be tailored to the needs and learning style of each student.

Admittedly, users of this program do not have the same freedom to explore geometrical concepts that a Logo user has, but if Geometry sparks an interest in mathematics in just one student, it will have been worth the effort. +

David Thornburg is a frequent contributor to this magazine and is the designer of Calliope, a nonlinear idea processor for the Macintosh and Apple II lines of computers. You can reach him in care of this magazine.

## PRODUCT INFORMATION

### Geometry

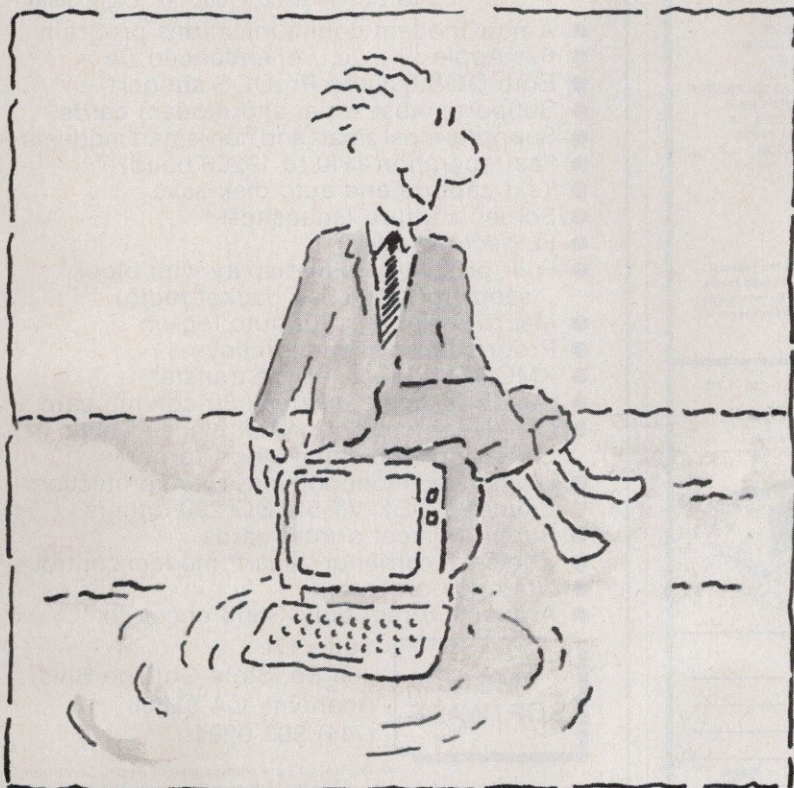
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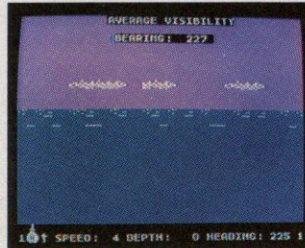
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cidence of dud torpedoes, and manual or automatic calculation of the angle on bow for torpedo shots.

Silent Service features several fine graphics screens. The map screen shows the entire Pacific theater from Midway to Australia, and once you have located an enemy convoy, you can zoom in closer and closer as you make your approach. Other



er screens show sub damage, gauges, the conning tower, the bridge view, or the periscope view from which you aim and fire torpedoes and deck guns using the sub's Torpedo Data Computer.

Silent Service is an absorbing game that, despite its complexity, quickly becomes second nature. Al-

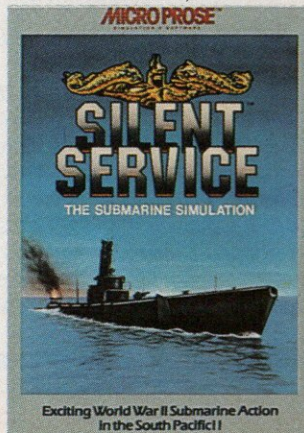
though you may find yourself intimidated at first by the many commands and instructions in the manual, a few successful runs at the beginner level should give you the



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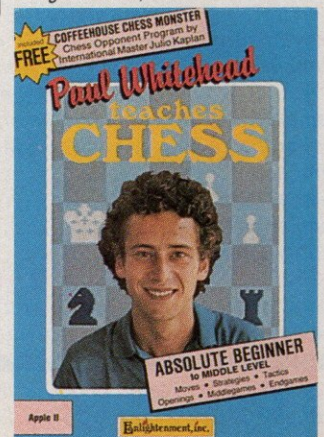
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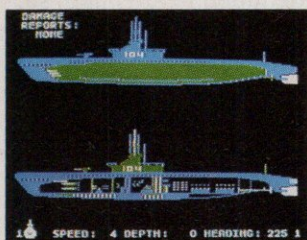
**PAUL WHITEHEAD TEACHES CHESS**  
Enlightenment, Inc.





# AMUSEMENT

around Japan. Whenever you intercept a convoy, you switch to the Battle mode. You attempt to sneak up on the convoy and sink as many tankers, cargo ships, and troop ships as you can while avoiding (or eliminating if you can) the enemy destroyers, called kaibokan.



The simulation is accurate in several ways. For instance, you can pick from among five historical subs, each equipped as it was during the war. Early subs carried steam torpedoes. Although these were faster and had a longer range than that of the later electric torpedoes, they were less reliable and much more dangerous to use, because of the telltale

wake they left behind them. Earlier subs also had weaker hulls and could not dive as deep as later ones could.

Other details include a 24-hour clock, which helps you plan night or twilight attacks; limited but rechargeable battery power for underwater running; four speeds in forward and reverse; complete rudder controls; and even special adjustments for ranging your deck guns.

Silent Service is a fine blend of colorful graphics, strategy, and action. To be successful you must be patient, wary, and very sneaky. Set up your prey, attack, and blow the scene (so to speak) as fast as possible. When in trouble, you must think fast, maneuver quickly, or run silent and deep hoping to avoid detection. In an emergency, you can re-

lease debris from the sub to fool the enemy into thinking their depth charges have blown you up. And remember always to present the smallest profile to the enemy to avoid detection.

Silent Service invites comparisons to GATO, a submarine-simulation game from Spectrum HoloByte. Both are excellent games. I don't have space in this review to detail their differences, but suffice it to say that their similarities outweigh their differences. If you like one, you will probably like the other. If you're really nuts about either program, you should probably have both.

My only major disappointment with Silent Service is that you can't take a sub back to port, restock it, and return to the action. When you enter an Allied base, the patrol ends. There's no way to man the same sub in multiple missions, accumulating a per-

formance record as the real subs did. Otherwise, it is a thoroughly enjoyable game for those who like to mix strategy with action.

*Rusel DeMaria*

## SILENT SERVICE

MicroProse Software, Inc.  
120 Lakefront Drive  
Hunt Valley, MD 21030  
(301) 667-1151

**LIST PRICE:** \$34.95; shipping and handling, \$2.50

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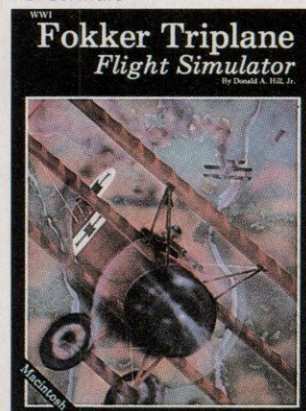
CIRCLE READER SERVICE NO. 350

## PLAYING "WHAT IF?"

How many times in your life have you played "What If?" You know the game—you speculate on how different your life would be if only you had done this or that, said this or that, or traveled down some path other than the road you chose. If you're like me, you probably don't spend much time

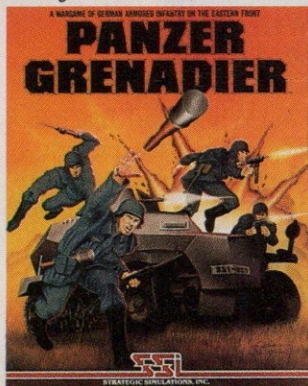
## FOKKER TRIPLANE FLIGHT SIMULATOR

PBI Software



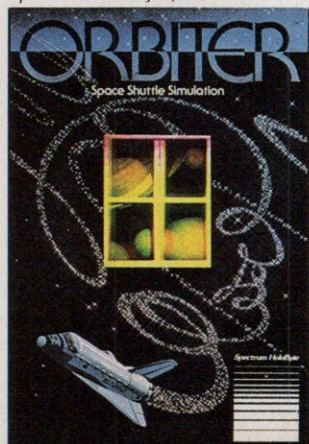
## PANZER GRENADIER

Strategic Simulations, Inc.



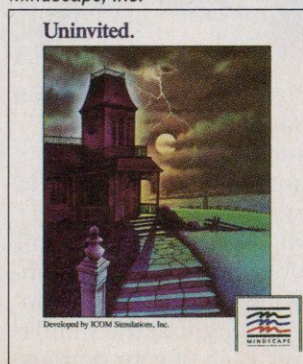
## ORBITER

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Mindscape, Inc.



# ENTERTAINMENT

dwelling on the what-ifs, but in the back of your mind, you still wonder . . .

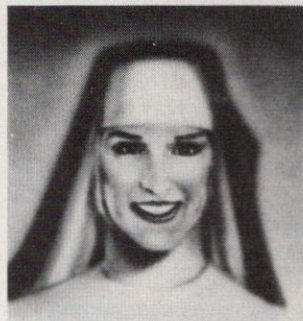
Alter Ego, a real-life fantasy/role-playing game, allows you to indulge your what-ifs in an entertaining, thought-provoking manner. Before you can do so, you must first create a character—your “alter ego”—who will be able to advance chronologically through a simulated lifetime in seven life stages, from birth and infancy to old age. You generate your alter ego’s character by answering some questions in a personality profile on the disk. If you don’t want to take the time to do this step, however, the computer can randomly and quickly do it for you.

Then, using your alter ego, you will “live through” a long stream of true-to-life experiences, called “episodes.” The situation in each episode requires a response from you, which you convey by choosing an action from the options the program presents after fully describing each episode. Since this is a game, your choices are somehow magically converted to numerical values. Each choice you make updates your “score” in 12 separate personality characteristics: calmness, confidence, expressiveness, familial, gentleness, happiness, intellectual, physical, social, thoughtfulness, trustworthiness, and vocational. Far from being just meaningless

numbers, your score in these areas always has an effect on your “life.” For example, if your trustworthiness level isn’t high enough, you might have a difficult time getting a job or even lining up a date!

The episodes are all typical of and consistent with their corresponding life stages. One such episode during the Birth and Infancy stage places you in your crib and asks you to choose between investigating the strange objects you see around you or just lying there and crying.

If you decide to be inquisitive, your intellectual development starts off nicely, but if you decide to have a good cry, your mother will come rushing in to comfort you. Now, when she picks you up, you have more choices: Do you stop crying or do you continue bawling?



Obviously, if you stop, you are establishing strong emotional ties with your mother. If you continue to cry, though, your mother will feel guilty, which will subtly affect your relationship in the future. And so on throughout the simulation, each of your options

having its ramifications and consequences.

In succeeding stages, depending on your earlier responses, you might be confronted with such decisions as whether or not to take drugs, what to major in while attending college, what kind of job to have, or where to go on your honeymoon. Choosing between the options is often difficult; each path offers its enticements and its justifications. You can either take the game seriously and do what you think is correct, or you can go wild, picking all the risky moves that you would never consider away from your computer. (Because the experiences the game describes are so specific, Alter Ego has both male and female versions, each sold separately, which in no way precludes men from playing the female version, and vice versa.)

Conceived and created by Peter J. Favaro, Ph.D., Alter Ego comes with a statement warning that it is only a game and is not to be used for self-analysis. Fair enough, but despite the bromidic sayings and armchair psychology liberally sprinkled throughout the game, many people can gain helpful insights from playing it—even though the issues behind the episodes are serious, the game’s prose is written in a light, non-threatening, often tongue-in-cheek style. For me, Alter Ego’s most appealing feature is the way it lets us see how to step back from an experience and look at it objectively, perhaps even finding humor in it.



To keep the game really true to life, Alter Ego contains several episodes of a sexual nature. They are identified beforehand, so, if you wish, you can avoid them entirely before they are even described. Or, in the “to each his own” department, you can savor them fully; the choice, once again, is yours. Think of the fun you can have fantasizing—after all, it isn’t really you having an affair with your best friend’s sexy spouse; it’s your alter ego, indulging a what-if, right?

Donald Oliver

## ALTER EGO

Activision, Inc.  
2350 Bayshore Frontage Road  
Mountain View, CA 94043  
(415) 940-6044

LIST PRICE: \$49.95

REQUIRES: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive

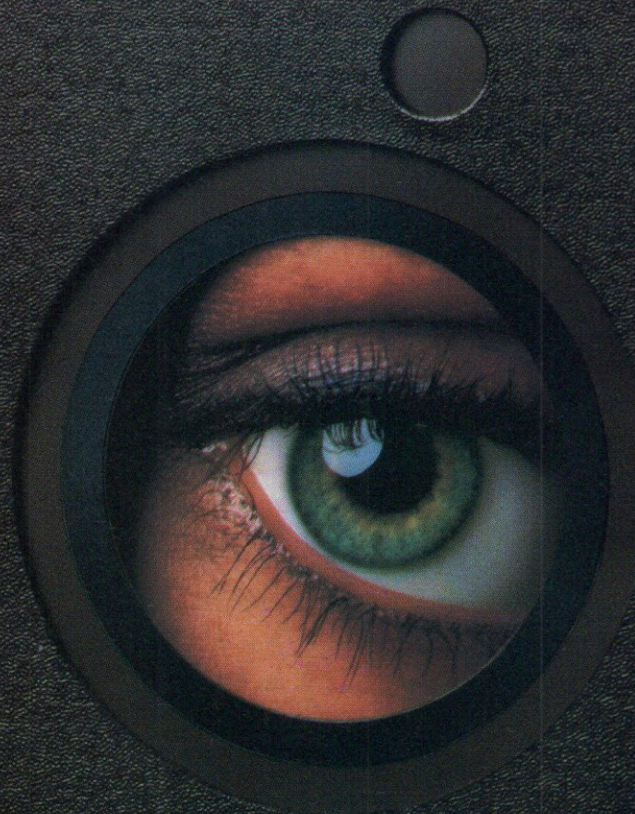
CIRCLE READER SERVICE NO. 351

## WHITEHEAD SHARES HIS CHESS GENIUS

Paul Whitehead Teaches Chess is hardly the first chess program for the Apple II. It may not even be the smartest.

For several years, programmers and chess buffs have been creating computer programs that can challenge serious players,

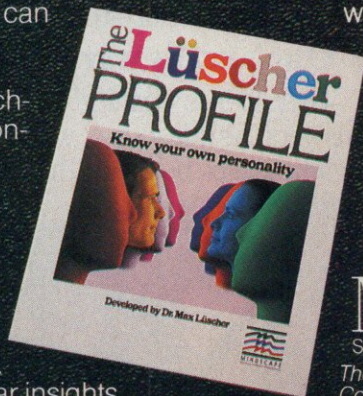
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# ENTERTAINMENT

and if you aren't a chess master, then some of the smarter chess games will easily defeat and perhaps frustrate you. Paul Whitehead Teaches Chess offers a different and quite appealing approach. The purpose of this software isn't to intimidate you with its play-making capacity. Its aim is didactic. If you are a beginning- or in-

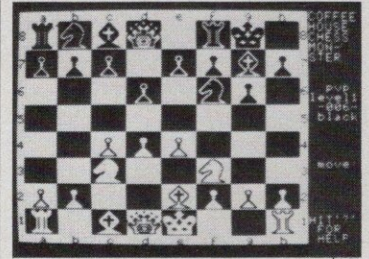
intermediate-level player, it will improve your game.

Not that Paul Whitehead couldn't have aimed for a more macho program. He was a chess master at age 15, and two years later he became the U.S. Junior Champion, the American Open Champion, and the American Class Champion. Last year, he won the Northern California Championship for the third time. Fortunately, with this program he decided to share his knowledge, rather than use it to make us crawl under the table.

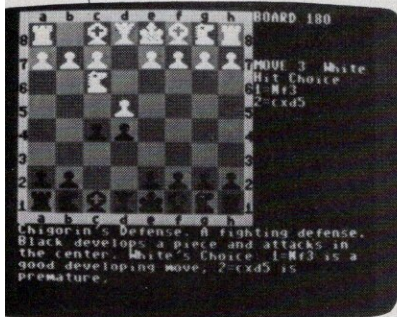
The program is menu-oriented and as easy to follow as any chess book I've seen. To illustrate the rules, it exploits the com-

puter's graphics. For example, it presents the bishop's movement by having it slide diagonally across the screen.

Raw beginners can start with the rules, which are clearly explained in an organized fashion, but the menu-oriented approach may confuse novices who are completely unfamiliar with the choices. If you don't know which of the ten explanations to select, then start with the first and proceed in order, just as you would with a book. In general, the tutorials are delightfully clear and will add to your understanding of many facets of the game, from valuing the pieces to an En Passant move.



As you gain an understanding of the game, the program presents short quizzes to check that you are following the basics, and then it proceeds to explain such vital details as the pawn majority, the active rook, and the end-game. A pleasant feature is the ability to flip the board on the screen at any time and see the pieces from your opponent's point of view.



## Infocom introduces four new games

Infocom,™ the crazy people who brought you "Zork"® and "The Hitchhiker's Guide to the Galaxy,"™ has a habit of coming up with games that add a new dimension to interactive fiction. And the best keeps getting better. Case in point: "Leather Goddesses of Phobos."™ It has a scratch n' sniff card and a 3-d comic book to excite all your senses. Once your interest is

piqued, you'll embark on a rowdy romp through the solar system. This hilarious spoof of 1930's pulp science fiction has 3 "naughtiness levels," for the prude to the lewd. "Leather Goddesses" is sure to amuse members of either sex.

### One's really warped.

Then there's "Trinity."™ It answers the question of whether a game can be both light-hearted

and profound. You journey through a time warp into a mischievous fantasy world where all atomic explosions are mysteriously connected. "Trinity" takes you back to the dawn of the atomic age and puts the course of history in your hands.

### One's a real circus.

It has been said that the circus is the only really mysterious thing left in civilization.

One thing's for sure, there is plenty of mystery in "Ballyhoo."™ While trying to locate the circus owner's kidnapped daughter, you are somersaulted into a three-ring world of deception and crime. To solve the crime



Once you've mastered the basics, Paul Whitehead Teaches Chess doesn't force you to search for a chess partner. It comes with a built-in "Coffeehouse Chess Monster," which you can challenge at any time.

You play the monster by typing in moves and watching the pieces move accordingly on the screen. You can change places with the computer during the middle of a game or have the program make a move for you.

Better still, when you see the sorry consequences of a move, you can "un-do" it or you can move backwards through a game to understand what you did wrong.

The Coffeehouse Chess Monster includes eight levels of play, so you can continue to play as you improve. The program lets you save games, which means you can monitor your progress by reviewing them.

Paul Whitehead Teaches Chess may not turn you into a Bobby Fischer, but it will certainly improve your chess game.

*Paul Freiberger*

**PAUL WHITEHEAD TEACHES CHESS**

*Enlightenment, Inc.  
1240 Sanchez Street  
San Francisco, CA 94114  
(415) 641-9131*

**LIST PRICE: \$49.95**

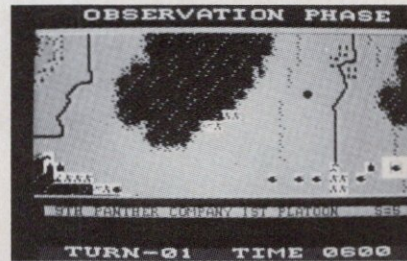
**REQUIRES: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive**

**CIRCLE READER SERVICE NO. 352**

**INTRODUCTORY WAR**

Strategic Simulations, Inc., the reigning king of the computer-war-game market, has built its reputation on a product line bursting with meticulous detail, complexity, and accuracy. Only hard-core war-gamers dare load a SSI war game, for only diehard commanders will sit for a 60-hour game.

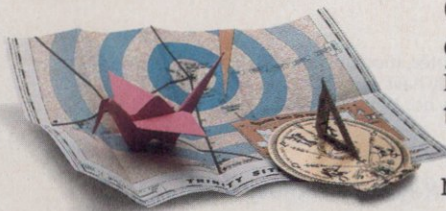
SSI does also offer simpler games to attract people into war-gaming. Panzer Grenadier, a game of German armored infantry on the Eastern Front during World War II, is an introductory-level war game. It is also an excellent starting point for



those who may be interested in war-gaming but don't want to be swamped with minutiae.

Panzer Grenadier gives you elements of the Grossdeutschland Division to command against the computer-controlled Soviets. Your units include tanks, artillery batteries, mortars, truck- and half-track-mounted infantry companies, and machine-gun companies, each of which have a different rate

**es. One really smells.**



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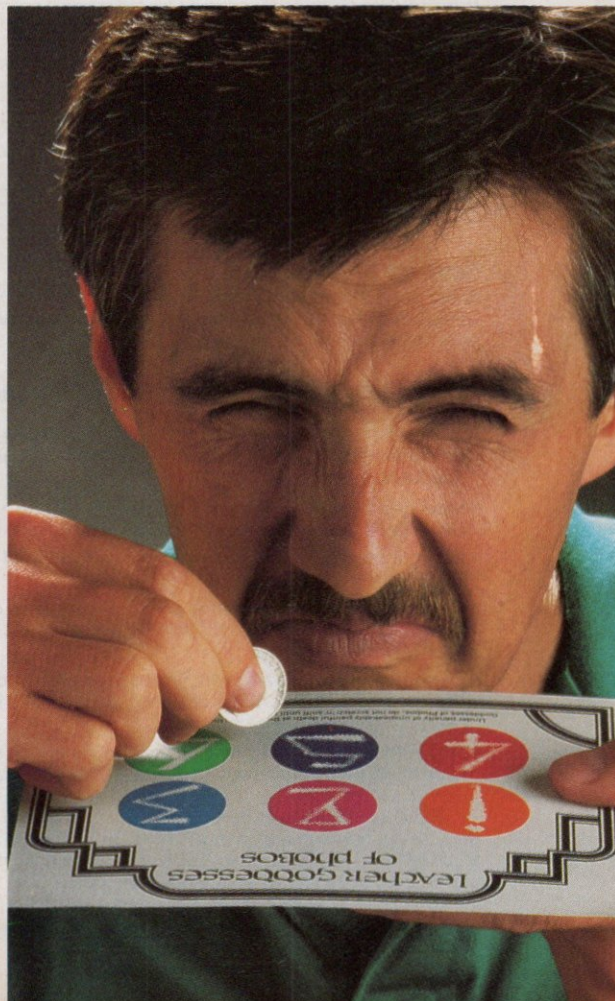
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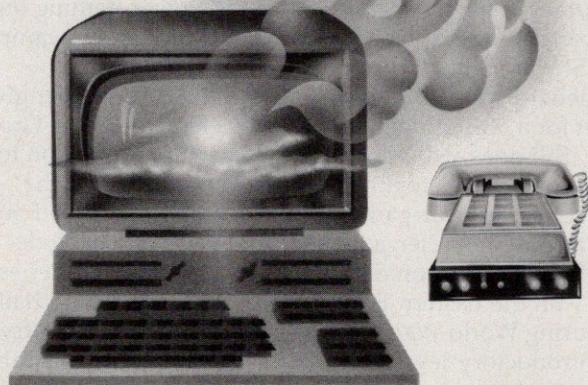
For more information, call 1-800-262-6868, x. 17A. Or write to us at 125 CambridgePark Drive, Cambridge, MA 02140.

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of fire and movement.

The action sequence consists of eight phases: observation, friendly fire, friendly movement, enemy fire, a second friendly fire, enemy movement, a second enemy fire, and victory. You can use either the keyboard or a joystick to fire and move. The process is smooth and easy and allows you to concentrate on the tactical situation at hand.

The game provides five scenarios, from capturing bridges in 1942 to retaking



a city in 1945. Although I never commanded panzer grenadier divisions on the Russian front, the game captures what I imagine to be the "feel" of infantry attacks and counterattacks. No sooner do you shell and overrun dug-in enemy infantry to grab an objective when a horde of Russian tanks storms over the steppes in a furious counterattack. Terrain effects, line of sight, mine fields, flamethrowers, antitank guns—they are all in the game.

Each scenario has three levels of difficulty to make the game both challenging and playable. Indeed, at the easiest setting, the game seems to compensate for tactical ineptitude. After all, how often can you forget to fire your weapons, get ambushed in open terrain, line up and charge the enemy, and still win? Designer and pro-

grammer Roger Damon should be congratulated on creating balanced games while retaining historical accuracy.

Of course, war games are not for everyone. They demand patience and strategy rather than fast wrists and instinctive reflexes. Yet for those who find the lure of history appealing, Panzer Grenadier is a good way to break into computer war-gaming. It is an introductory-level simulation, the controls are fast and easy to master, variable difficulty levels keep pace with your proficiency, and the game plays in less than two hours. With features such as these, Panzer Grenadier receives a five-star-general recommendation.

*Russ Lockwood*

**PANZER GRENADIER**  
Strategic Simulations, Inc.  
1046 N. Rengstorff Avenue  
Mountain View, CA 94043  
(415) 964-1353

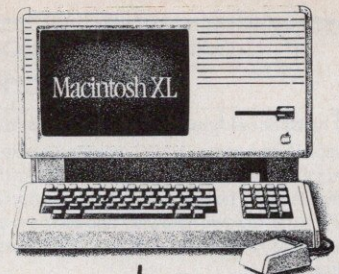
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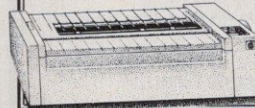
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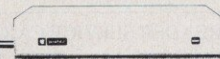
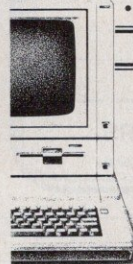
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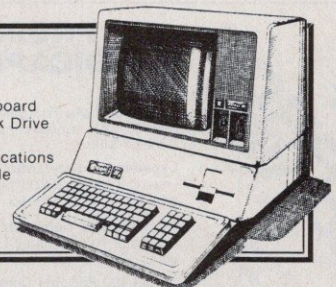
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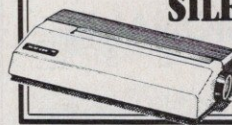


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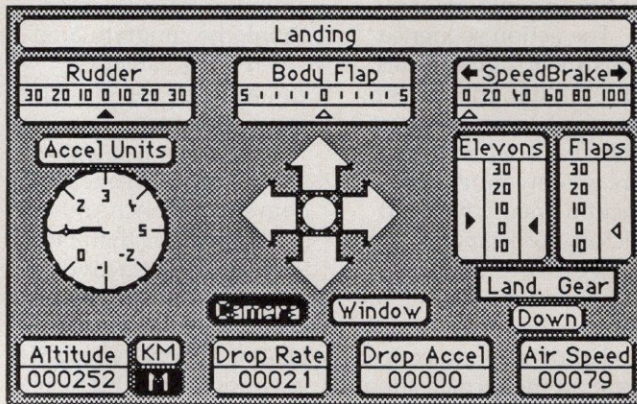
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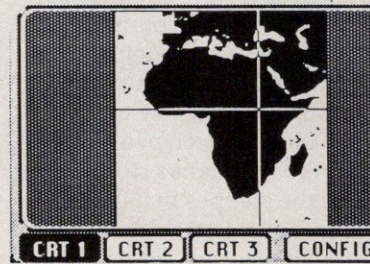
IGNITION!!! The roar shakes the room as your Mac threatens to lift off on its own accord. You can feel your skin stretching against your skeleton as you sink further into your seat. As the G forces mount, you watch the gauges carefully. T + 2 minutes and 12 seconds later—event time (after launch)—the SRBs (solid rocket boosters) are automatically jettisoned. Six minutes, forty seconds later, the external tank drops off. You are on your own. Shortly you will be in Earth orbit.

Time to get to work. From here your mission truly starts. You may be required to launch an orbiting telescope, repair a satellite, or help construct a space station. You can volunteer for a specific mission or have one randomly assigned to you. Only your wit, experience, and innate ability will keep you successful and alive. In addition to having full control over the orbiter from launch to landing, you have at your disposal all its gear—the RMS (Remote Manipulator System, or arm), the MMU (Manned Maneuvering Unit, the jet pack for untethered extravehi-

cular activities), and something unexpected but regrettably not unlikely: laser weapons and guided missiles.

All controls of the orbiter are remarkably complete and accurate representations of the actual Space Shuttle controls. There are an awful lot of them, all scrupulously documented in the manual.

As you are the sole occupant of the orbiter, you must comprehend and act



on a seemingly endless stream of authentic (but counterintuitive) acronyms and numbers that relate to all functions of the craft. To keep you from dogeering your documentation to death, Spectrum HoloByte supplies a separate reference card, which is useful, but only after several long encounters with Orbiter.

Fortunately, Orbiter comes equipped with a few more features than the

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actual shuttle does. You can suspend time indefinitely (handy when you need to thumb through the manual to decipher some alphabet soup), compress time (even at the speed you're traveling, space is a very big place—Orbiter can run in real time, but if you do it that way, you'd better pack a lunch), and save your position to return to later. Doctor Who would approve.

Orbiter is a big program. It uses two disks and 512K of RAM, and the designers would obviously love to have a large enough user base to justify a 1024K version with an expanded mission capability. They could probably put it to good use. Orbiter goes beyond being a game or even an exhaustively accurate flight simulator. Spectrum HoloByte, in its modesty, refers to Orbiter as Space Shuttle simulation, but I have a problem thinking of Orbiter in those terms—the program is in a new class, one without a name.

Working with Orbiter is fun, challenging, educational, and enlightening. It also shows some of the shuttle's flaws—a tease to future engineers, an invitation to invention and improvement in a technology that (forgive me) has nowhere else to go but up. A brilliant piece of research and design.

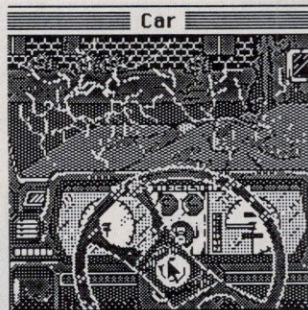
Ken Goehner

#### ORBITER

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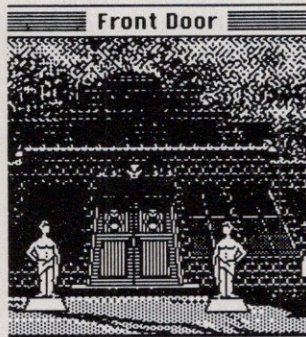
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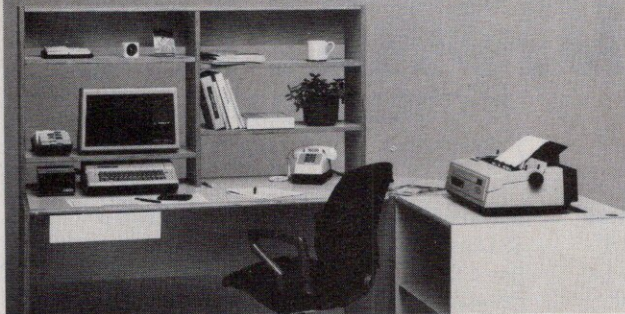
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thinly-veiled threats of the fey creatures who populate the game.

Like its predecessor, *Deja Vu* from Mindscape, *Uninvited* uses the Mac interface to perfection. The screen is divided into windows. The main window contains the picture of your present location, another represents all currently available exits, and others display your inventory of items or the contents of any item (box, desk, cage?) that you have opened. The bottom of the screen is for display of textual information.

You almost never have to type a thing—simply point the mouse at an object and then at one of the commands. You can examine, open, close, hit, or consume an object. You can also use the *Go* command to go somewhere, but double-clicking on any entryway (on the graphics screen or the exits screen) is a more effective method. Double-clicking on most other objects automatically examines them. The *Speak* command allows you to say whatever you wish to any character or object in the story. The *Operate* command is an all-purpose command that allows you to use an object, either alone or to affect another

object. You can operate a key in a lock, for instance, or a match on a candle.

*Uninvited* is truly a graphic adventure. The drawings in the game are among the best I've seen in any game, and it also has some limited, but effective, animation. Almost all objects on the screen are treated as individual pictures that you can examine, pick up, move, and manipulate as separate Macintosh pictures (although many objects, such as heavy furniture that's too heavy to move, won't move).

If there are people who find *Deja Vu* too easy, *Uninvited* is for them. It is a superbly drawn, creepy adventure full of magic, supernatural events, tension, and difficult puzzles. Don't expect to play this one to completion on a lazy afternoon. You'll need a lot of ingenuity and patience to solve the mystery. And, by the way, you'd better do it quickly, because your brother is missing (and feared to be a captive of evil forces), and your mind is being constantly attacked by a powerful entity whose intentions are more fiendly than friendly.

A hint sheet is available from *Mindscape*. Many puzzles are easier than

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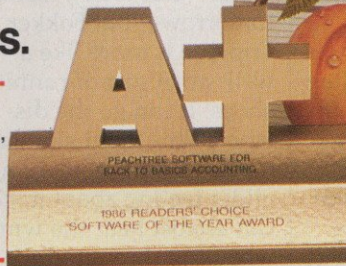
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# ENTERTAINMENT

they seem; others require patience—and remember, not every action yields immediate results. Pay attention to all clues, and try everything. Don't forget to save the game, though. You'll die more than once, I can practically guarantee it. And be sure to open up the About Uninvited desktop accessory under the apple logo—it's a scream! So come on in. You may not have been invited, but they're waiting for you.

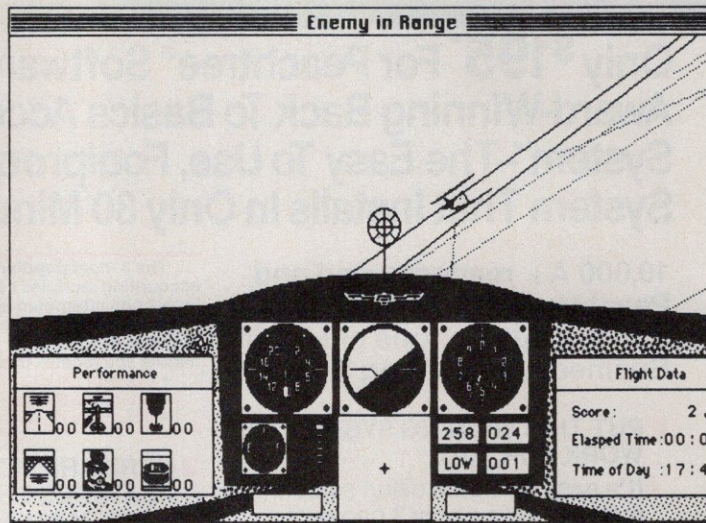
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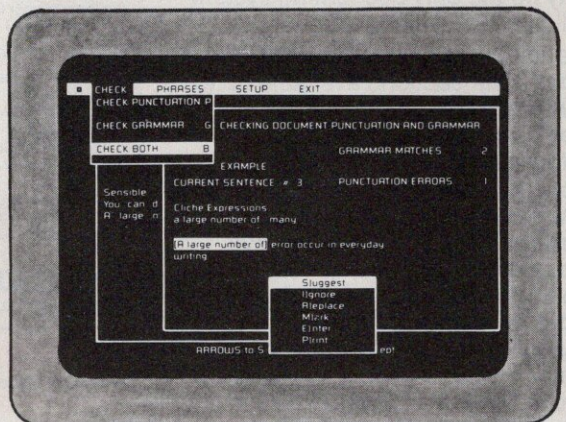
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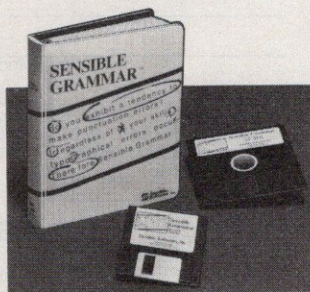


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# ENTERTAINMENT

With the help of the excellent manual, you can get up into the air to practice Immelmann, Lufbery, and Whifferdill turns, learning as much about aeronautics as you choose. With a little more practice, you may even get back onto the runway in one piece. Your mouse controls the stick, seen as a circle with a cross within the central box on the dashboard. Pulling it up and down makes the aircraft climb and dive; moving it to the side banks it into turns. The fuel gauge, airspeed, and altimeter dials are close to what the Baron saw through his goggles, but the program's creator, Donald Hill, has updated his crate with a

couple of new twists.

The artificial horizon is like a graphic gyrocompass, showing you the lilt of your tilt and which way is up and down. The automatic direction finder provides compass headings in degrees and can post map destinations drawn from the ADF menu. Until you can fit your Mac with foot controls, a variable pneumatic chair cushion, and a fan to blow wind in your face, these instruments will help recreate that "seat of the pants" touch.

The throaty, rattling purr of the motor's sound responds instantly to every move you make, enhancing the program's sense of realism. Keyboard controls give you

commands to pause flight; control throttle and rudder; and remove or replace the cowl, wings, and tail from the four cockpit "look" views. You'll need to rubberneck constantly, ready to meet that insolent Sopwith Camel sneaking up on your tail, and keep your thumbs limber at the space bar to fire your machine gun back at the Brit.

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hostile air bases. But what a loss that they are named simply East Base and South Enemy Base instead of Passchendaele or Chateau-Thierry. Except for missing this opportunity to recreate an authentic piece of the Great War, Fokker Triplane wins a magnum of champagne in a riding boot for one of the most elevating games on the Macintosh.

*Tony Reveaux*

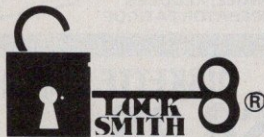
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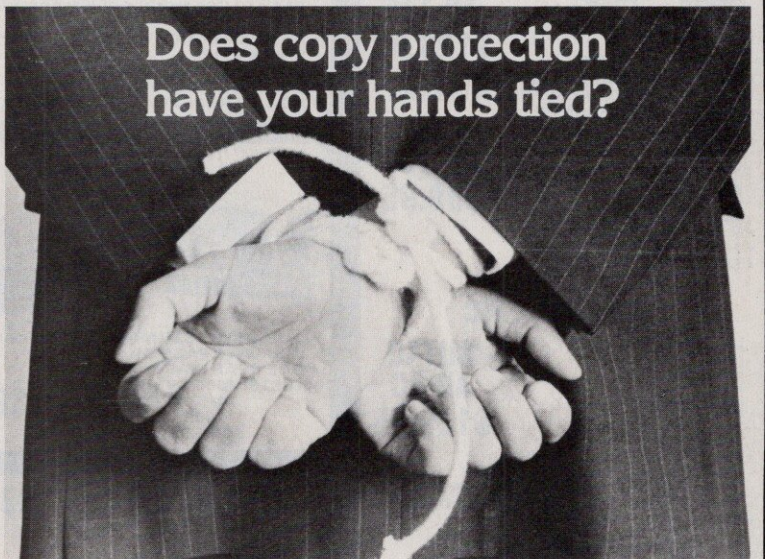


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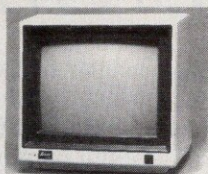


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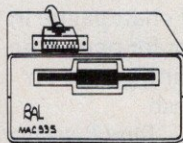
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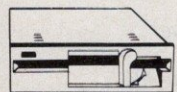
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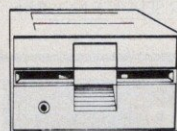
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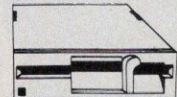
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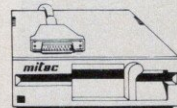
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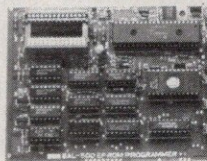
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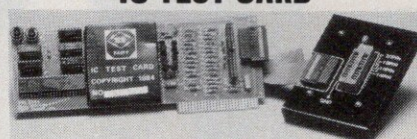
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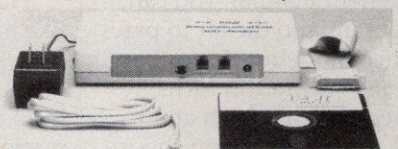
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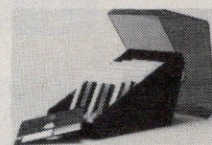
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## PROGRAMS TO SOLVE A THIRD-GRADE PUZZLE

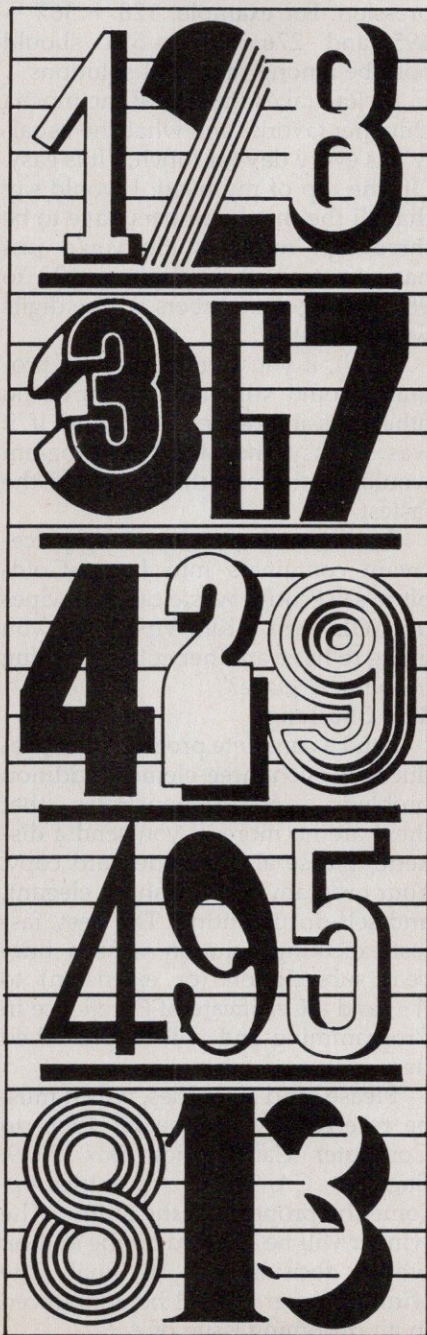
*Producing three-element  
addition problems with  
elegance and speed*

**CUBIE COOLING PARTY!** The multicolored sign produced on an IQ98765A plotter hangs at the entrance of the cubicle jointly occupied for the last six months by Maria Lopez-Goldblum and Sally McRae, members of the FORTRAN team at I-Q Industries in the heart of Silicon Valley.

Boxes are piled everywhere, each filled with the work-related belongings of the occupants of this soon-to-be-vacated cubicle and neatly labeled with the number of a building on the other side of the site and the number of the cubicle into which the rent-a-movers will transport it over the weekend.

When the group arrived last April, all except managers had to double up in cubicles about 50% larger than the single-person cubicles they had occupied in their previous area. Nothing is permanent at I-Q, however, and upper-level managers constantly try to carve out empires for themselves, sometimes forcing the relocation of entire groups they consider to be of lesser importance than their own, sometimes miscalculating, as was evidenced by the half year of overcrowding. When the FORTRAN group arrived at its current location, Lopez-Goldblum and McRae initialized their space with a "cubie warming"; now they are shutting down with a "cubie cooling." In the new building, they will again be one person to a cubicle.

Grey Scrivener, technical-writing



specialist, helps himself to Gelato Classico mocha chip ice cream, from one of the several containers McRae has brought for the occasion. "What are the odds the systems will be up Monday morning?"

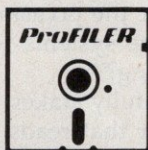
McRae carefully takes down a framed sampler that reads "Cubicle, sweet cubicle." "Is that our puzzle for this time? I probably won't have access to a computer to solve it, because ours likely won't be up for a week."

Scrivener laughs. "That's what I mean. The operators promised us the system would be up first thing Monday, but if everything is running, then it'll be the first time I've seen it, and I've been through five moves in my five years here."

Marian Smith, one of the system operators in question, puts out her cigarette before entering the cubicle. A new city ordinance permits her to smoke in aisles between permanent partitions, but not in confined corridors, restrooms, meeting rooms, or even her own cubicle if neighbors complain. "Bert and Ernie are moving tomorrow morning. Kermit goes in the afternoon. I've already powered both systems down, and they're ready to go. The laser printers also get moved in the afternoon. I'll be here all day supervising the move and watching electronic maintenance do the cabling. I'll come in Sunday if I have to to make sure everything is hooked up right, but I'm not anticipating any problems."

R&D engineer Spotswood Gilbert's Southern courtesy is set into motion by any hint of dissension among his friends. His best weapon is change of subject. "Speaking of puzzles, I've got a wonderful one for us to work on. My friend Warren Michel-

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sen, from Page, Arizona, said his wife, who teaches third grade, gave her class this puzzle. Apparently it was originally a contest sponsored by a math-book publisher, but, of course, all they were looking for was *answers*. We would want a program to produce the answers."

Bob Levin, young systems-programming whiz, scoops one of each of the six flavors onto his paper plate. "Right, we'll spend days doing what those kids probably were able to do during an hour of arithmetic."

"This shouldn't be hard. You find valid three-item addition problems that use all of the digits 1 to 9 once each. Each is of the form  $a + b = c$  and must form a true mathematical expression. For example,  $128 + 367 = 495$  and  $276 + 318 = 594$  should both be among the set of solutions."

McRae takes the last of the mocha chip, her favorite and what she usually has every day for lunch. "It is easy. Off the top of my head, I would say that all the three numbers have to be three-digit numbers. So you'd just have to cycle through from 123 to 987, testing all numbers whose digits were different."

"Well, if you were sure, your program would still have to prove no other possibilities existed. And if it was so easy, then the best program would be the one that executed the fastest."

Scrivener dumps the empty ice-cream containers into Lopez-Goldblum's executive waste can and wipes up spills with a KimWipe. "Are you going to have another cubie warming in the new place?"

### The Challenge

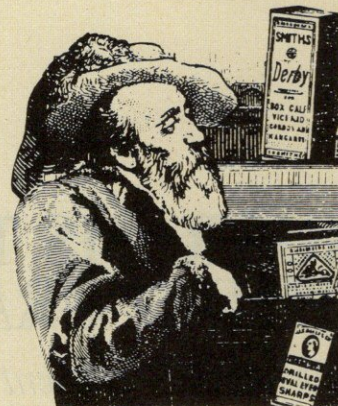
Send a complete program that produces all such three-element addition problems and demonstrates that there are no more. If you send a diskette, please also include hard copy. Your program must be short, elegant, and self-documenting. The best, fastest-executing solution wins a one-year subscription (or extension) to *A+* and a Certificate of Excellence in Programming and will be published here.

Please send all entries, which must be received by October 9, 1986, to Computer Calisthenics, Box 2329, Stanford, CA 94305. All entries become the property of the author. The winner will be selected by the author, whose decision will be final. The winning program will be announced in an upcoming issue of *A+*.

## COMPUTER CALISTHENICS

A P R I L 'S

# WINNER



Richard Heider

Many of you were clever enough to figure out that the April puzzle had no unique solution. There were actually 16 solutions (see below).

Richard Heider, of Moline, Illinois, our April winner, found this set programmatically—examining *all* possibilities—with an Applesoft BASIC program that executes as reproduced here in less than 14 minutes. He also supplied a compressed version of the program (no REMs, substituting variables for all constants, etc.) that runs in less than 10 minutes. Each program finds two or three permutations of each solution.

R.H. Windschitl, of St. Cloud, Minnesota, gets an honorable mention for his BASIC program, which yields only one iteration of each of the puzzle's solutions. +

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SUMTIMES2 -- Applesoft BASIC program by Richard Heider  
(reformatted to enhance readability)

```
100 FOR DOLLARS = 100 TO 1000 STEP 100
    : PRINT "DOLLARS=";DOLLARS
101     REM "AMOUNT TENDERED IN CENTS"
102     P1 = DOLLARS / 2
103     REM "THE SUBTRACTION CLUE SHOWS THAT THE FIRST & LARGEST
        PRICE IS HALF THE AMOUNT TENDERED."
104     FOR CHANGE = 0 TO 99
        : PRINT "CHANGE=";CHANGE
105         REM "THE CHANGE CAN BE ANY AMOUNT OF CENTS UNDER A
            DOLLAR."
106         TL = DOLLARS - CHANGE
107         : REM TOTAL OF 4 PRICES.  TL = TOTAL
110         S1 = TL - P1
        : X1 = TL * 1E6 / P1
111         REM SUM AND PRODUCT OF REMAINING PRICES.
115         IF S1 < 3 THEN GOTO 250
116         REM "SUM OF REMAINING PRICES MUST BE AT LEAST 3."
117         IF X1 < > INT (X1) THEN GOTO 250
118         REM "PRODUCT MUST BE AN INTEGER"
120         PRINT "TRY P1=";P1;" & P2=5 THRU ";S1 - 2
130         FOR P2 = 5 TO S1 - 2 STEP 5
131             REM "SINCE THE 6 FACTORS OF 5 IN 1E6 TOTAL
                15625, NOT ALL OF THEM CAN BE IN THE
                FIRST PRICE. WE CHOOSE THE SECOND
                PRICE TO BE A MULTIPLE OF 5."
140             S2 = S1 - P2;X2 = X1 / P2
141             REM "SUM & PRODUCT OF REMAINING PRICES."
150             IF X2 < > INT (X2) THEN GOTO 240
151             REM "PRODUCT MUST BE AN INTEGER."
161             REM "HAVING HYPOTHESIZED THE FIRST 2 PRICES,
                THE LAST TWO MAY BE SOLVED IN CLOSED
                FORM USING THE EQUATIONS:
                (1) P3+P4=S2;
                (2) P3*P4=X2."
171             REM "THE SOLUTION PAIR IS (S2+/- SQR(S2^2 - 4*X2))/2."
180             D2 = S2 * S2 - 4 * X2
181             REM "THE DISCRIMINANT"
190             IF D2 < 0 THEN GOTO 240
191             : REM "IT MUST BE NON-NEGATIVE ..."
200             D1 = INT ( SQR (D2 + .01))
        : IF D1 * D1 < > D2 THEN GOTO 240
201         REM "AND IT MUST BE A PERFECT SQUARE. (.01
            OFFSET ADDED BECAUSE THE SQR FUNCTION
            IS INEXACT.)"
210         P3 = (S2 + D1) / 2
        : IF P3 < > INT (P3) THEN GOTO 240
211         REM "FINALLY, P3 MUST BE AN INTEGER. (THE
            ALTERNATIVE IS THAT IT MIGHT BE A HALF.)"
220         P4 = S2 - P3
230         PRINT "SOLUTION: ";P1;" ";P2;" ";P3;" ";P4
240     NEXT P2
250 NEXT CHANGE
255 NEXT DOLLARS
260 PRINT CHR$ (7);"DONE!"
: END
```

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# TELECOMMUNICATIONS AND THE SMALL WORLD

*International E-mail, a bevy of bulletin boards, and The Movie*

Telecommunications speeds data across the United States faster than an express-mail service, is more powerful than the Post Office, and leaps from office building to office building with a single keystroke. Now the connection of the electronic-mail services of CompuServe and MCI Mail signals the beginning of an integrated, national, electronic version of the U.S. Postal Service. With 275,000 CompuServe subscribers and 150,000 MCI Mail subscribers, the deal can only work to the benefit of the companies and the subscribers.

Thinking of this linkage as an American phenomenon is shortsighted. Some European E-mail services, concentrating on making the X.400 protocol the telecommunications standard on their side of the Atlantic, recently met with U.S. services and formed the European branch of the Electronic Mail Association. If the initial cooperation continues, you can look forward to an integrated, international E-mail network.

Meanwhile, Western Union is leading the way. It has signed agreements to interconnect its EasyLink system with a public electronic-mail service called Missive run by France Cables et Radio, a subsidiary of the French Post and Telecommunications Administration. The world is truly getting smaller all the time.

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several days to several hours. A one-page document can be translated into or from English, French, German, Spanish, Italian, Portuguese, and Japanese (Romaji) in four hours. Longer documents and translation into or

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from Arabic and Russian take 24 hours.

Up to now, its customers include import/export companies, law firms, and advertising and public-relations agencies. GlobaLink charges \$4, plus 3¢ per character.

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Bruce Walker, a doctoral student in clinical psychology at Virginia Polytechnic Institute in Blacksburg, runs The Stress Management Bulletin Board. The BBS, part of a study Walker is conducting, offers advice on handling stress and ensures confidentiality.

Meanwhile, across the country at Foothill Community College in Los Altos Hills, California, the Vocational Education Program Center is an Apple IIe-based BBS that provides information about vocational programs the college offers.

AST, well-known manufacturer of expansion boards, has started its own BBS in an effort to forge a link between the company and its customers, dealers, and distributors. The AST Apple Products Technical Support BBS offers new-product information and technical support.

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A+ Super Index on Cauzin Softstrips<sup>®</sup> contains comprehensive summaries of the articles, programs, tips *and* letters—with cross-references to updates and corrections—in A+ Magazine.

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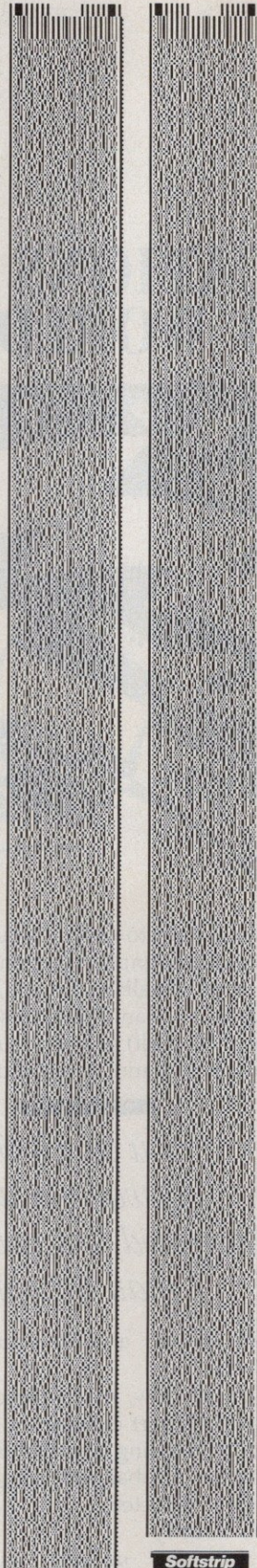
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Softstrip

## *SnAPP Systems is offering a test drive of its Electronic Messaging System.*

SnAPP Systems wants people to know about its Electronic Messaging System software and figures the best way to get the word out is to offer a test drive. Give a call to take a trip around a system that offers three levels of security, electronic mail, and room for up to 1500 messages and 99 text files.

Want to set up your own local telecommunications service? Diversified Software Research has just the program: Diversi-DIAL. Run on an Apple IIe, the \$475 program allows connection of up to seven modems at once, bringing multiuser capacity to the BBS world. Furthermore, individual Diversi-DIALs can link to others around the country.

### **TELETIPS**

This section deals with news, views, and breakthroughs in the telecommunications world.

### **MacSoftware**

Hayes Microcomputer Products has released Smartcom II 2.2, an upgraded version of its popular telecommunications program that now works with the Macintosh Plus and the Hierarchical File System. The program costs \$149 and provides Option Key Autopilot sequences, Auto Start-up sequences, and Received File naming capabilities.

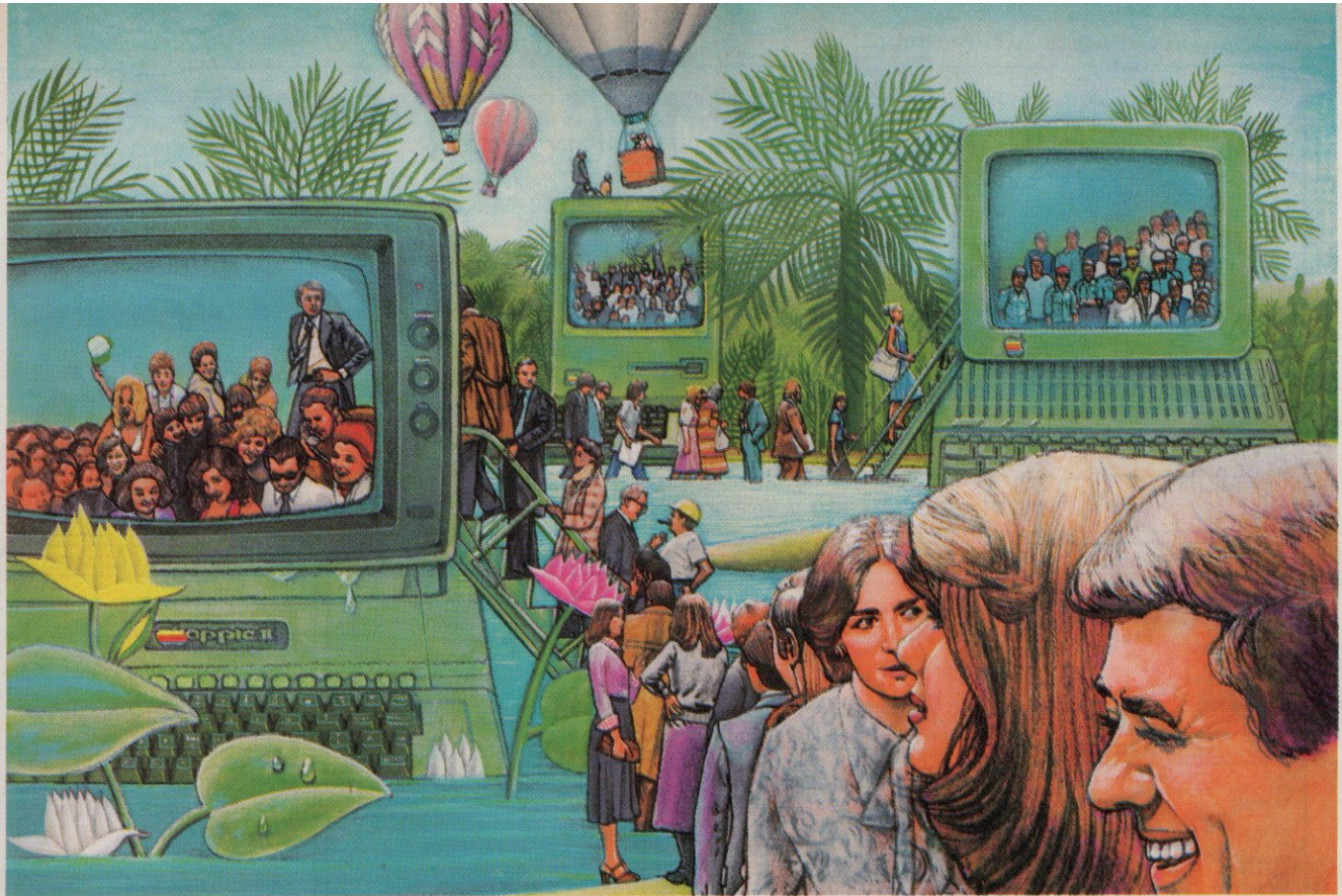
ProPlus Software has put out Market Pro, a \$395 stock-management system consisting of three modules: Portfolio Manager, Technical Analysis, and Fundamental Analysis. The program requires 512K and includes built-in communications features to tap into Dow Jones' on-line service.

### **Telecommunications: The Movie**

Learned Information has produced a video called *Going Online: An Introduction to the World of Online Information*. As the title indicates, the video introduces the concepts and equipment of telecommunications and shows how to conduct an on-line search. It sells for \$85 or rents for \$15 for ten days. LI does not, as yet, offer a video club.

### **Nuke 'Em Till They Glow III**

Yes, folks, you've waited a year, and here they are—the results of the third annual Flying Buffalo The Day



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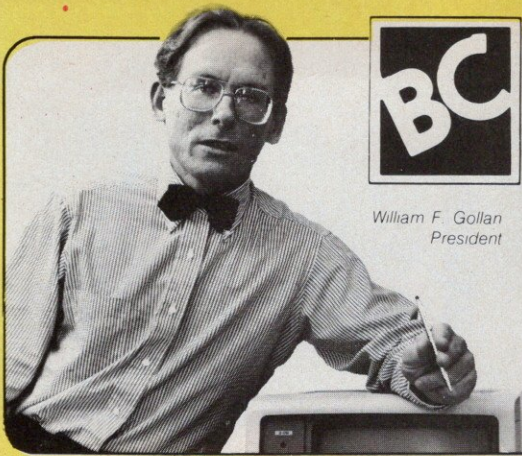
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The crafty mutants, er, winners dropped their reserve 100-megaton bomb on the only other city left in the game: Enid, Oklahoma. This achievement may not equal the Bears' Super Bowl win in the eyes of most people, but it gives the five members of the Chicago team the thrill of victory and radioactive bragging rights until the fourth annual tournament convenes on the CompuServe network on April 11, 1987.

In addition, Flying Buffalo is forming a war-games special-interest group on The Source.

### Pricebusters

International Computer Component Exchange (ICE) has started an on-line service to track prices of microcomputers and peripherals. Pric-

ing information comes from ads in 30 computer publications and several hundred dealers across the nation. ICE charges 99¢ per minute.

### Logging Off

Before I close, let me put in a plug for the A+ roundtable on GENie. I reviewed GENie in the June 1986 issue and find its \$5 per hour price at either 300 or 1200 bits per second very appealing. You can find on-line articles, a (well-read) suggestion box, and a direct line to Maggie and all the other editors at A+. If you already own an account, type M455 as fast as you can. If you don't, we're waiting for you.

We are also available on MCI Mail—the mailbox is Aplus—and we run our own 300-bps BBS at (415) 474-8608. If you prefer to send a message to me directly, my MCI mailbox is Rlockwood, and my CompuServe PPN is 73537,1075.

Electronic mail is the best way of providing immediate feedback. If you have something to say, let's hear from you. +

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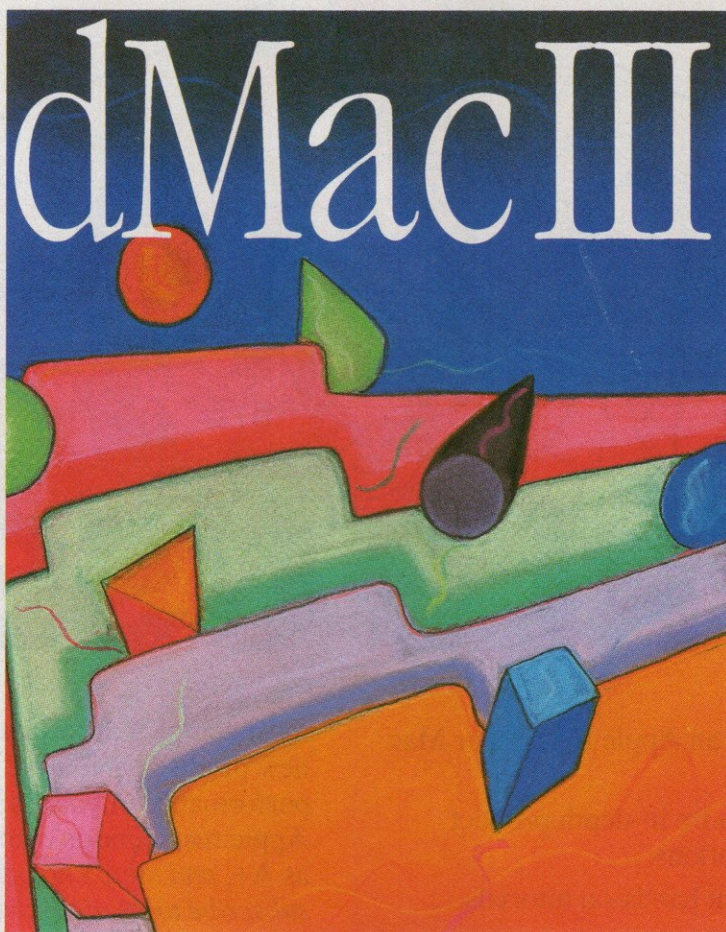
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THE INDEPENDENT GUIDE TO APPLE COMPUTING

# The Macintosh Section

*The Mac joins the dBASE clan with an impressive performer from Format Software.*



Few programs dominate their category like Ashton-Tate's dBASE database manager does. First available on 8-bit CP/M systems and then on the IBM PC and compatibles, dBASE II, dBASE III, and the newest incarnation, dBASE III Plus, are powerful relational-database programs that are popular with both users and software developers.

Last year, a German software house, Format Software GmbH, created a dBASE III clone for the Macintosh called dMac III. The company contracted with an American distribution firm, Datalogica, to cover the American market; you may have seen the lovely four-color ads that appeared last fall. Unfortunately, various legal problems arose, and the product was never actually sold. Now Format has established its own American marketing wing, and you can finally obtain dMac III easily.

#### **A Real Breakthrough**

Was all the fuss worth the wait? As we'll see, the answer is an unequivocal yes. dMac III is impressive in many ways and represents a real

#### **SOFTWARE BY GLENN A. HART**

breakthrough in Macintosh database management.

dMac III's user interface mirrors the standard dBASE text-oriented approach, with dBASE's notorious period prompt replaced by a greater-than symbol. Fortunately, the program also uses a standard Mac menu bar to simplify many commands, and Mac-style dialog boxes serve for error mes-

sages and other interaction with users.

The Command menu assigns ten common functions to ⌘-1 through 0; these ⌘ key combinations work like a PC's function keys do, providing the standard dBASE function-key commands. Overall, the availability of some aspects of the Mac interface is helpful, although inveterate dBASE users will probably not use them much.

Creating a database, manually adding records, editing, browsing, listing, and other basic operations are essentially identical to those of dBASE III. The data types the program accepts (character, numeric, date, logical [true/false], and memo) are the same; the ten-character restriction on field names is the same; and so forth. The Mac's mouse and scroll bars make moving through databases easier than it is with dBASE on a PC.

You can create programs within dMac III with the traditional Modify command, which invokes a simple text editor, or with a copy of Apple's stand-alone MDS EDIT program pro-

vided with the package. EDIT adds Search and Find, variable tab settings, auto indent and a few other niceties, and it works well outside the dMAC environment too.

### Power and Flexibility

All the powerful features that make dBASE a data-management heavyweight are provided by dMac III too. Ten databases are accessible at once; the limitations on field, record, and file size are extremely generous (even more so in dMac III than in dBASE itself); and subroutines with parameter passing, memory variables, and a multitude of other useful functions are available. The wealth of existing dBASE software is testimony to the flexibility of the language, although programming expertise is almost essential for accomplishing many tasks.

dBASE III is a highly complex program, and the degree to which Format Software has been able to clone it is remarkable. Format claims that it had to make only a half-dozen simple changes in the more than a megabyte of code in Small Business Technology's popular PC dBASE accounting software to use it with dMac III, and I believe it. The primary differences are in the internal structure of the data and index files, some added functions in the Report and Label formats, a few minor command differences, and the lack of the dBASE Run command. I have reviewed all the current dBASE clones and compilers available on the PC for *PC Magazine*, and dMac III is a much closer replication than any of them.

dMac III worked well on my Mac Plus with a five-megabyte serial Bernoulli Box and Switcher. I defined a Switcher set with dMac III, EDIT, and Microsoft Word (for writing this review), which proved to be a convenient working environment.

dMac III's documentation is detailed and complete. It has a few awkward translations from the German original, and a few more programming examples wouldn't hurt, but overall I'd rate it as being very good. A few appendix sections were missing in my early copy, but Format says they'll be available by the time this review appears.

### Revealing Benchmarks

I tested dMac execution speeds by using the *PC Magazine* "Project Database" benchmarks from a PC. ("Project Database" is a comprehensive

benchmark test of database programs on the IBM PC XT, which appeared in the June 24, 1986 issue of the magazine.) These benchmarks involve a personnel-management system that uses three data files with up to 500 records each. The benchmarks time sorting, indexing, and the generation of two reasonably complex reports, both written in standard dBASE III Plus programming code. The first report ran with no changes whatever, and the second needed only one minor modification.

Compared to the Project Database results with the standard IBM XT (640K RAM), the dMAC III results were astounding (see figure 1).

*All the powerful features that make dBASE a data-management heavyweight are provided by dMac III.*

In almost every benchmark, dMac III was many times faster than dBASE III Plus and its clones, even including the fast compilers PC dBASE fans use to increase execution speed! It is impossible to judge how much of this tremendous advantage is due to the Mac Plus compared to an XT, the fast Bernoulli Box compared to the XT's sluggish hard disk (the SCSI Bernoulli Boxes I hope to test soon presumably will be even faster), or dMac III's intrinsic processing speed. Whatever the reasons, we have a new dBASE-code speed champion.

dMac III must compete with a slew

of excellent database managers that have already established a strong following on the Mac. Many Mac fanatics will complain that dMac III doesn't allow any access to the Mac Toolkit, so you can forget programming dialog boxes, button menus, graphics, windows, and the other flourishes that contribute to making the Mac what it is. If you work with dBASE on a PC, however, you can now move your applications to the Mac painlessly. dBASE is far from the most convenient database around, but there are many reasons why it enjoys its dominant position on the PC. It's powerful and flexible, and tons of books, tapes, and other training aids are available for it.

dMac III lets Mac users enjoy these benefits too, with execution speed that will leave PC users drooling. The program is highly compatible and reasonably priced for the performance it delivers. +

*Glenn Hart is a computer consultant whose firm specializes in office automation, CAD, and database management. A contributing editor of PC Magazine, he has written several hundred articles for a variety of computer and audio publications.*

## PRODUCT INFORMATION

### dMac III

Format Software, Inc.  
11770 Bernardo Plaza Court  
Suite 208  
San Diego, CA 92128  
(619) 487-6946

**List Price:** \$495

**Requires:** Macintosh, 512K RAM

CIRCLE 400 ON READER SERVICE CARD

PRODUCT	SORT	INDEX	REPORT 1	REPORT 2
dMac III	:30	:11	1:57	4:25
dBASE III Plus	:14	:11	8:08	18:51
Clipper Compiler	1:47	:12	4:48	10:43
dBASE II	1:29	1:02	10:12	13:58
dBMAN	:47	:39	9:00	18:04
dB/Compiler	1:12	:29	6:43	11:14
dBIII/Compiler	1:15	:34	6:01	9:11
FoxBASE	:33	:22	5:45	12:09

Figure 1: Benchmark results comparing dMac III's performance with that of several IBM PC programs. Numbers represent minutes and seconds required to complete the task.

Microsoft's new integrated  
something for

# The Whole

SOFTWARE BY SHARON ZARDETTO AKER

**A**ppleWorks is a phenomenally successful integrated program for the Apple II. Jazz is a disappointing integrated program for the phenomenal Macintosh. Isn't it about time someone put the two phenomena together? Someone has. After a long wait, Microsoft Works has arrived.

Works' modules include a word-processing program with some special features, a good database program, a terrific spreadsheet program with built-in graphics, and an adequate communications program. According to Microsoft, Works has "breadth, not depth," meaning that you're not supposed to criticize it for not having macros, multicolumn word processing, or other "power" features. Works is meant for entry-level users or experienced users who need a little of everything when it comes to applications.

Despite Microsoft's disclaimer, there's enough depth in Works to satisfy many users; you shouldn't regard it solely as a stepping-stone to more powerful programs.

## The Works Environment

Works has three permanent menus: File, Edit, and Window; the rest of the menu bar alters when you switch from one module to another. The File menu contains the usual commands as well as Delete (an option to delete files on a disk, which was missing in all early Mac products). The contents of the Edit menu change, depending on the module in which you're working. The Window menu lists all the open windows on your Works desktop so you can select the one you want and bring it to the top of the pile (see figure 1).

Switching from one module to another is as simple as activating a window that contains a document from another module or opening a new one; you can have up to ten windows open at a time. This ten-window allowance has some constraints. Only one communications window can be open at a time, for instance. Also, the limit is the number of windows, not the number of documents; so a database document with three open reports counts as four windows.

Still, ten windows should be enough for anyone. Since all open documents are held in RAM, the amount of memory in your Mac and the size of the open documents also help determine the number of windows you can have open at once.

## The Word-Processing Module

Not surprisingly, the word-processing program falls somewhere between MacWrite and Word in its basic capabilities. It also has some special features that even Word users haven't seen yet.

**L**ike MacWrite, Works has separate Font and Style menus for character formatting, and the page number appears in the scroll box. Also like MacWrite, it has "active" page breaks on the screen—the dotted line that indicates a page break moves as you work with the document, so there's no need to repaginate, as in Word.

Like Word, Works has paragraph-based formatting. The settings on the single ruler at the top of the window affect only the current paragraph or selected paragraphs. Works also ad-

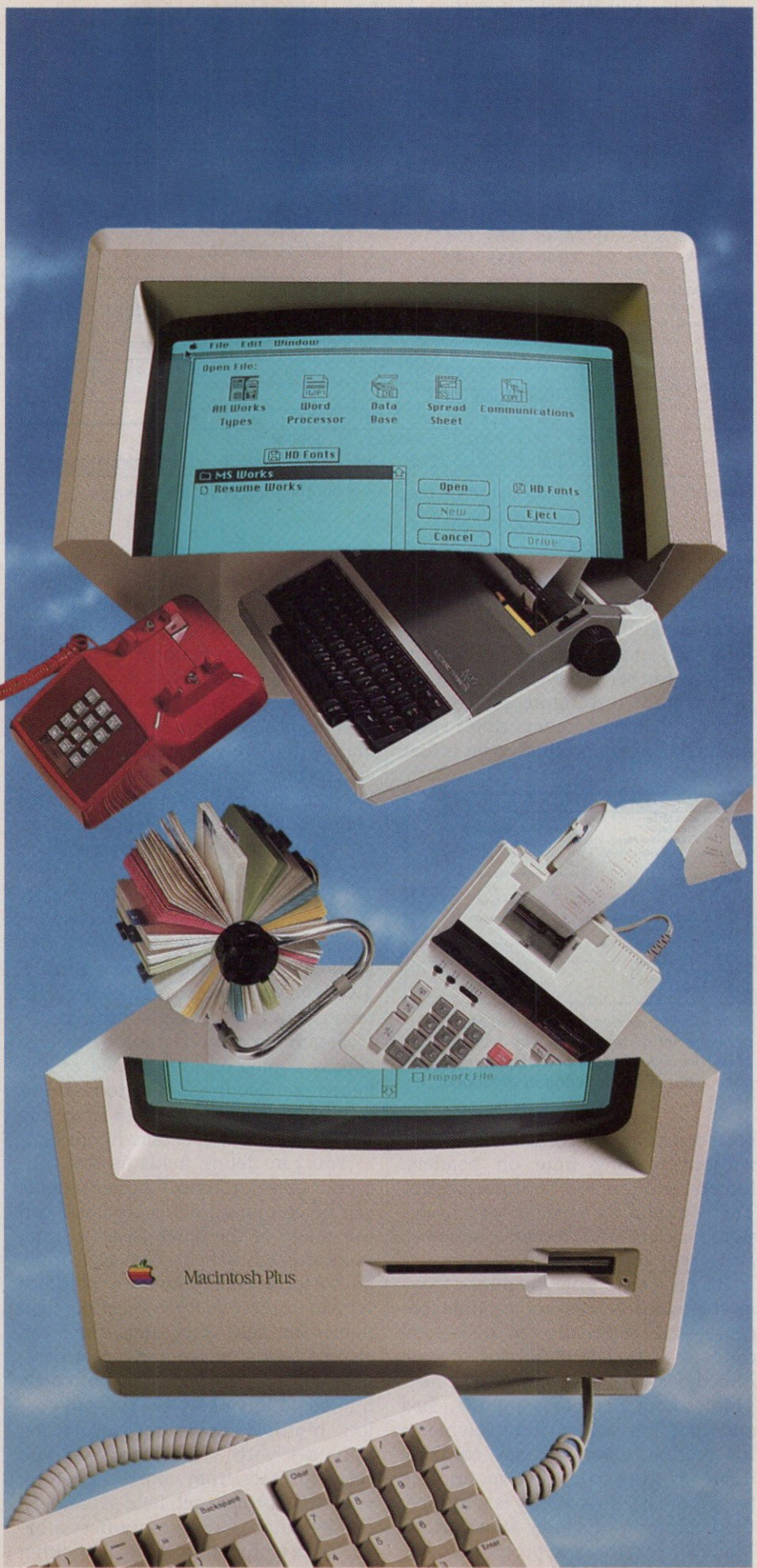
*package has  
everyone.*



dresses MacWrite's other major limitation: It has horizontal scrolling, with a ruler that goes out to 15 inches, and you can set the left and right page margins. You can also copy paragraph formats from one place to another, although through menu or keyboard commands instead of with Word's point-and-click method.

The word-processing program is missing a few features that belong even in an entry-level program, however. You cannot automatically select an entire sentence, and decimal-point tab alignments are missing. Setting line spacing is an annoying two-step operation. First, you select Line Spacing from the menu, and then you click on the appropriate button in the dialog box. The program's designers could have avoided this time-wasting procedure, since the menu has plenty of room to show the available spacing options.

In the word-processing module, as in all Works modules, you create headers and footers in the Page Setup dialog box, where the Macintosh phi-



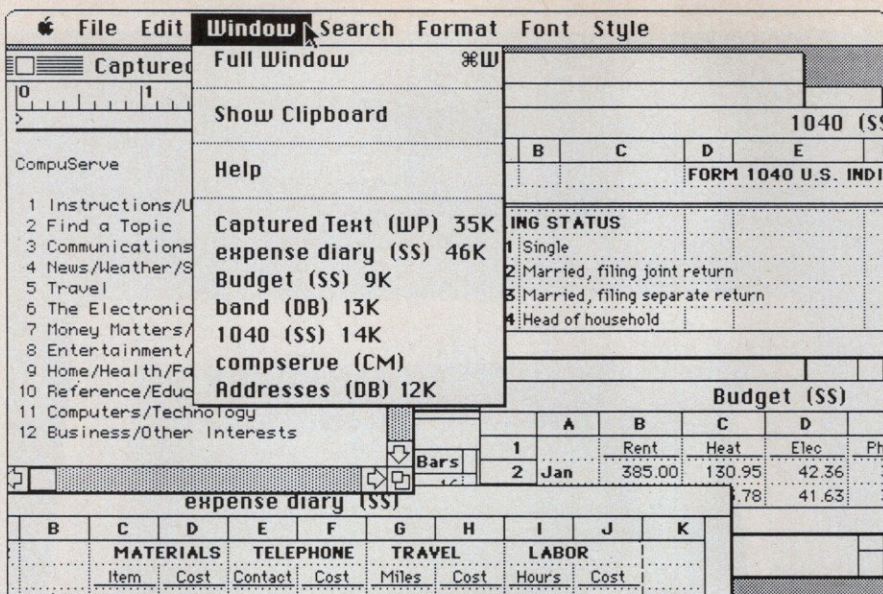


Figure 1: The Window menu lets you manage even the sloppiest of Works desktops.

losophy mysteriously disappears. You have to use formatting commands such as &C for center alignment, and although you can set the font, size, and style of the header, you never get to see what it looks like until you print (see figure 2). The fact that headers and footers don't show in the document on the screen is fine;

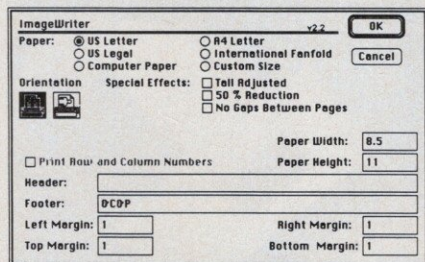


Figure 2: You design headers and footers in the Page Setup dialog box. The decidedly un-Mac-like codes in the footer box here put the page number in the center of the footer.

I prefer scrolling through a document without wasting time on headers, footers, and top and bottom margins. There should be a better way to design headers and footers, however, and a way to preview them.

It's easy to forgive the minor flaws in the word-processing module because—are you ready for this?—you can type to the left of, right of, or even directly over pasted-in graphics. Think about that for a minute. Text and graphics are separate elements for editing, but you can combine them on the screen and in printing (see figure 3). This ability is definitely the beginning of a new standard for Mac word-processing programs.

Works also has a Draw option. You can draw lines, circles, rectangles, and rounded rectangles in any of three thicknesses. Once a Draw item is in the document, the program treats it like other graphic elements, which means you can move it or change its size after selecting it. What makes the Draw elements extra special is that, unlike pasted MacPaint bit-mapped graphics, they print in as high a quality as possible, depending on the output device (see figure 3).

### The Database Program

The Works database program is exceptionally easy to use and, because everything is in RAM, operations such as sorting happen very quickly. Two "views" are available: a single record at a time and a list format.

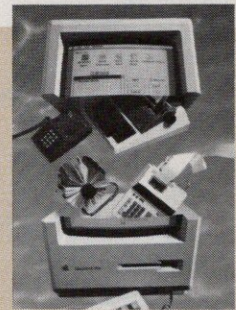
Beginning a new database involves simply typing in the names of the fields; you use the mouse to resize or reposition the boxes that hold the field names and data (see figure 4).

You can define fields as text, numeric, date, or time. Numeric fields can be computed fields, and you can use many of the spreadsheet's functions in such a field. You can apply global formats of frames and boldface type to or remove them from the field names or field data; field data can also be formatted separately for justification, number presentation, and a limited variety of styles. You can't select multiple fields for formatting purposes with Works, nor can you copy formats from one to another; you must format each field separately.

The database program offers a basic search function that is neither

case-sensitive, field-sensitive, nor whole-word-sensitive. So, if you search for the name Nat, you'll find Nat, Nathaniel, Abernathy, and gnat. This free-form searching seems awkward at first, but its flexibility can turn out to be useful. If, for instance, you create a database appointment calendar whose fields are time slots during the day, you can search for Mr. Smith's appointment without knowing the time slot (field) in which it was entered. The program has a Match option that does the same "insensitive" searching, showing a collection of all the records containing the search data.

The sophisticated selection function (much more flexible than that of File) lets you use any of 14 search criteria (*equals*, *begins with*, *is blank*, and so on), stringing up to six "rules" to-



## How much of a good thing?

Works keeps all open documents in RAM, so just how large a document can the program handle?

On a 512K Mac, a word-processing document can be about 70 pages; with 1024K, that limit increases to about 210 pages. Those limits apply to formatted documents without graphics.

The database program can hold 2000 small records of about 100 characters, such as name/address records, in 512K, or 6000 in 1024K. Internal database limits are 60 fields per record and 248 characters per field.

You can use about 7500 cells in the spreadsheet program with a Macintosh 512K; this limit increases to about 22,500 cells on the Mac Plus. Internal spreadsheet limits are 248 characters per cell, with 200 characters for a formula; you can include up to 100 columns from a spreadsheet in a series chart.

—SZA



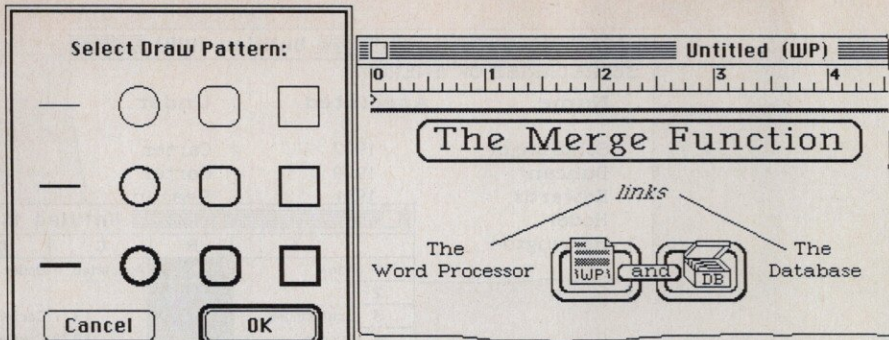


Figure 3: Text can go anywhere around, or on, a pasted graphic. Notice the and on the center link of the picture. The Draw command lets you add lines, boxes, and circles to the document. Drawn elements print in high quality when the text prints in high quality.

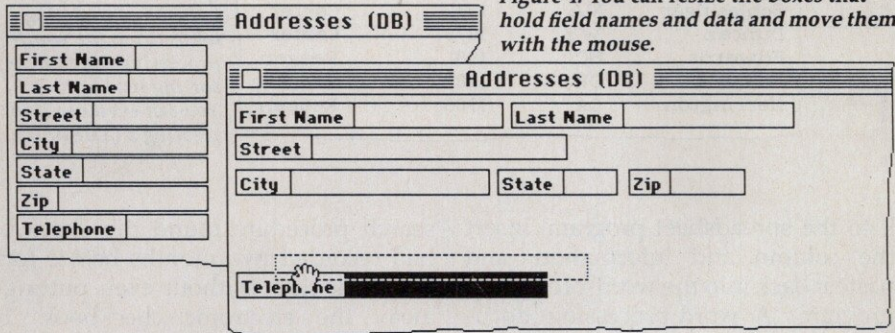


Figure 4: You can resize the boxes that hold field names and data and move them with the mouse.

gether with *and* and/or (see figure 5). So, you can create such selection rules as "Find customers in North Dakota who have owed more than \$1000 for more than 60 days or more than \$1500 for more than 90 days."

The report function in the Works database program is limited, but it is adequate in that you can transfer the data to the spreadsheet module for more complex number manipulation. A report lists the information in selected records, totaling the numeric fields that you set to Sum; the program calculates subtotals for groups when you use the Total on Field Change command.

Working in the report window is awkward. You cannot move the left and right margin markers directly, although the margins you set in Page Setup affect them. If you want only five fields in the report, you have to adjust the width of those fields to span the area between the margin markers, pushing the unwanted fields outside of the markers. When you design a report, you have no preview option, although you can copy the totals to the Clipboard so you can paste them into another database, a spreadsheet, or a word-processing document.

Reporting is the only way you can print records from the database, except for printing the window with the special Print Window command

available in all modules. For any other printing, you have to set up a merge document in the word-processing module.

The Merge command creates a special link between the word-processing program and the database program, letting you insert information from any field in the database into a word-processing document (see figure 6). Because you can set custom paper sizes in Page Setup,

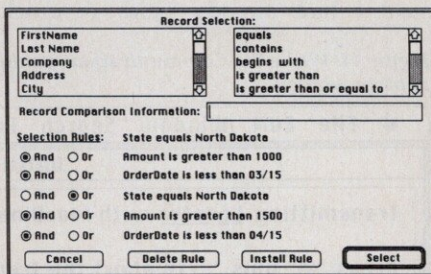


Figure 5: The linked selection rules will pick out all customers in North Dakota who have owed more than \$1000 for more than 60 days or more than \$1500 for more than 90 days.

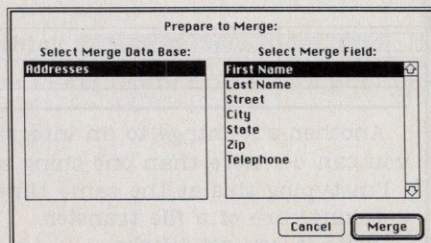


Figure 6: Selecting a field from a specific database in the Merge box places database information in a word-processing document.



## Microsoft's Lineup

Where does Works fit in with Microsoft's other products for the Macintosh? Officially, and practically, Works gives you a little of everything; when you need a lot of something, you get one of Microsoft's other products. So, you might use Works and Word if you need more sophisticated word processing, or Works and Excel if you're into crunching numbers. (I'm not in the prediction business, but Multiplan has to fade away by the end of the year; there's just no room for it, or need for it, in the Microsoft lineup.) The crux of this marketing strategy is that the files the different programs create are compatible.

Through the SYLK file option, Works can read Multiplan and Excel files (although you have to make allowances for the differing functions in each product). This communication works both ways, since you can also export SYLK files from Works.

Works reads formatted Word files directly. The current version of Word cannot read formatted Works documents, but in order for Microsoft's strategy to work, the next version of Word will have that capability. Now, complete this statement: Multiplan is to Excel as Word is to ??

Just imagine what power and versatility is likely to be in the next Word release. And, if the overall strategy of compatible Macintosh programs is going to play a part in the marketing of Works, then the release of the new Word can't be too far away. —SZA

you can design anything from form letters to mailing labels to Rolodex cards when you use Merge. And, since you can paste in graphics and use the Draw option in the merge document, the output can be anything from cute to professional. (The Merge function is unconditional, un-



# The Integration Advantage

The first benefit of buying an integrated package such as Works is that you get a bargain: five programs, if you count the spreadsheet charting separately, for the price of one.

Then, there's the serendipitous discovery of how many ways you can use a module you never thought you needed. You may buy Works for its word-processing and database programs. Maybe you've never wanted to touch a spreadsheet with a ten-foot mouse, but, as long as you have a spreadsheet program, you try it out and see how easy and useful it is.

But the real joy of integration is having everything at your fingertips, with easy transfer of information from one module to another.

The shortcomings of some modules are addressed by the others. You can't design fancy database forms, but you can merge the information into a fancy word-processing document. You can't do anything but sum the columns in a database report, but you can transfer the information to the spreadsheet for sophisticated number manipulation. You can't print database reports or spreadsheets in any but the default font, but you can transfer either to the word-processing program and format to your heart's content.

You'll discover that a spreadsheet can be an indispensable word-processing tool (see figure 13). If you have created a table in the word-processing program and need to insert a column of numbers, you can transfer

it to the spreadsheet program, insert the column and information, and paste it back into the word-processing program. A word-processing document with a few figures that need to be summed or a list that needs to be alphabetized also benefits from the easy link with the package's spreadsheet program.

Integration can increase your productivity because you're less likely to put something off until later if the tool you need is immediately available. A personal example that might have parallels on a business level: While posting checkbook entries recently, I ran into an item that I was sure I had already paid. A quick

search procedure found the check I had recorded two months before for the book club; without even putting away the electronic checkbook, I typed a brief letter to the club, printed it out, and went right back to the checkbook.

You can even do two things at once in Works. While you wait for an expected modem call, you can work in any of the other modules; the communications program will still answer the phone (see figure 14). And, while files are transferring by modem, you can work in other modules—the transfer slows down somewhat, but you're not sitting idly by, waiting for the transfer to finish. —SZA

Figure 14: While the Communications module takes care of a file transfer, you can work in another window.

**Figure 13: The spreadsheet program helps in rearranging tables from the word-processing program or sorting lists from it. You can even use it for creating a table or list.**

SECRETARIES OF ENERGY			
Name	Appointed	Under...	
Schlesinger	1977	Carter	
Duncan	1979	Carter	
Edwards	1981	Reagan	
Hodel			
Herrington			

SECRETARIES OF ENERGY			
Name	From	Appointed	Under...
Schlesinger	VA	1977	Carter
Duncan	WY	1979	Carter
Edwards	SC	1981	Reagan
Hodel	OR	1982	Reagan
Herrington	CA	1985	Reagan

**Figure 14: While the Communications module takes care of a file transfer, you can work in another window.**

**File Transfer Window:**

Transmitting Locater with MacBinary Protocol

Press "%" plus "." to abort the transfer.

Total Blocks: 281

Blocks Completed: 12      Retransmissions: 0

**Word Processing Window:**

Another advantage to an integrated package is that sometimes you can do more than one thing at a time. I'm typing this at the same time the communications module is taking care of a file transfer. Write if you get Works.



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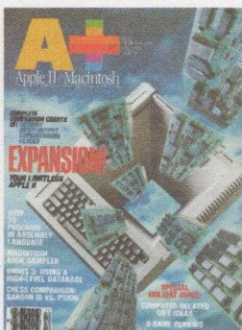
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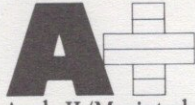


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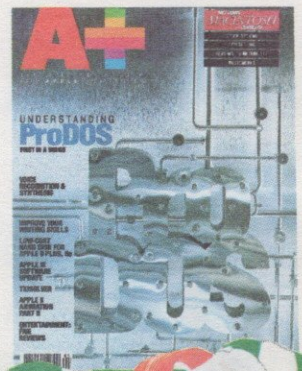


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like the merge capability in Word, which lets you insert information only if certain criteria are met.)

You can select the name of any opened database from the Merge dialog box; selecting a field from that database puts an identifying box in the word-processing document.

Once the boxes are in the document, you can treat them much like any other text. You can cut and paste them or format them for font, size, and style. You move them the same way you would move any other text; you can't just drag them around, as you can in the database window.

For a preview of the printed merge document, you can select the Show

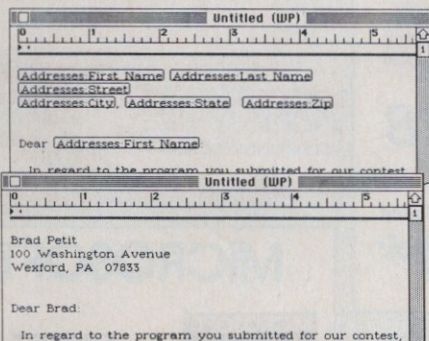


Figure 7: A merge document has boxes in it that show the database and field from which information comes; you can use the Show Field Data option for a preview of the printed document.

Field Data option, and the boxes are replaced with information from the database (see figure 7).

### The Spreadsheet

The Works spreadsheet program is so good that it would do well as a stand-alone product. It's no Excel, but

Figure 8: Formatting separate cells in a spreadsheet for bold or underline is especially effective in the absence of the grid.

expense diary (\$\$)										
	A	B	C	D	E	F	G	H	I	J
1	<b>CUSTOMER</b>		<b>MATERIALS</b>		<b>TELEPHONE</b>		<b>TRAVEL</b>		<b>LABOR</b>	
2			Item	Cost	Contact	Cost	Miles	Cost	Hours	Cost
3	Egreczky	01/15	Disks	25.00			12	3.00	2.00	24.00
4	Kabbash	01/28			Tom	1.27			7.50	90.00
5	Messineo	02/15	Paper	30.00			37	9.25	4.00	48.00
6	Wilson	02/28			Jason	4.76			3.00	36.00
7	Frey	03/15	Disks	25.00			49	12.25	4.25	51.00
8	Wilson	03/29			Wendy	3.29			8.00	96.00

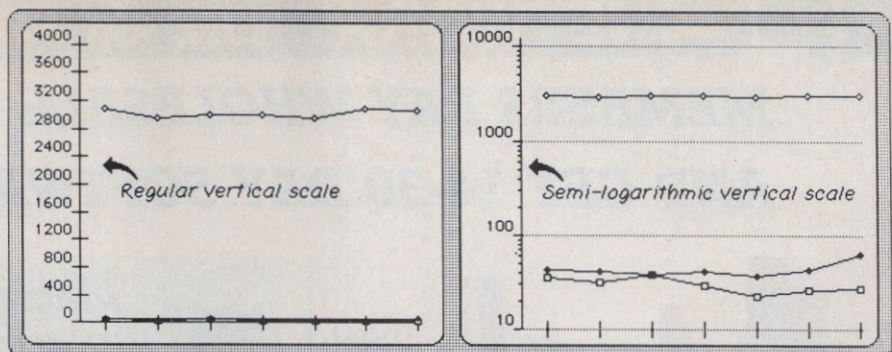


Figure 9: Using semilogarithmic vertical scaling lets you graph widely disparate values on the same chart. These charts display the same values.

it's not supposed to be, and, although it has a few shortcomings—even considering its "breadth, not depth" status—it's still better overall than Multiplan.

First, it has 9999 rows by 256 columns (more than 2.5 million cells). In addition to using the usual numeric and justification formats, you can format cells or groups of cells for plain, underline, or boldface text, while the font stays at 9-point Geneva (see figure 8). Rows are identified by number, columns by letter; so, cell references are A1 and B2, for instance, rather than Multiplan's R1C1 and R2C1.

You can sort on up to three levels at once, in contrast to Multiplan's single-row sort; in addition, sorting affects only the selected area. A search function (sorely lacking in Multiplan) can find any number or text you put into the dialog box.

The program has 54 functions, including the ability to make financial calculations such as present and fu-

ture value, rate, number of periods, and payments.

You can't link sheets, as you can in Multiplan, but you don't really miss that capability in a spreadsheet this size. I did this past year's federal income taxes in one Works spreadsheet; all nine (yes, nine!) forms I had to fill out neatly referred to each other for necessary figures. In addition, there was plenty of room for all the raw data, including a year's checkbook transferred in from Multiplan.

The spreadsheet program's main flaw is that it can't handle text inside formulas. You can't, for instance, arrange for a cell to be blank instead of showing a zero by using a construct such as

IF (A1=10,1, ''')

The program considers the empty quotes a string, and you can't enter the formula. Works calculations totally ignore strings; using a formula such as IsBlank(A1) will tell you that cell A1 is blank, even if it is holding text.


It is also disappointing that the spreadsheet program can't handle dates. You might not expect this ability of an "introductory" spreadsheet, but the database program does handle dates, and its list format is very similar to the spreadsheet's. Without date handling, you have to enter dates in MM/DD/YY format in order for them to sort correctly.

### Charts

Each spreadsheet can have eight associated charts. Pie charts are available only in unexploded views. Series charts are available in four types: line, bar, stacked bar, and a combination line/bar. You can chart any area of the sheet, setting minimum and maximum values for the vertical scaling; semilogarithmic scaling is an available option (see figure 9). You can add titles and labels to the chart

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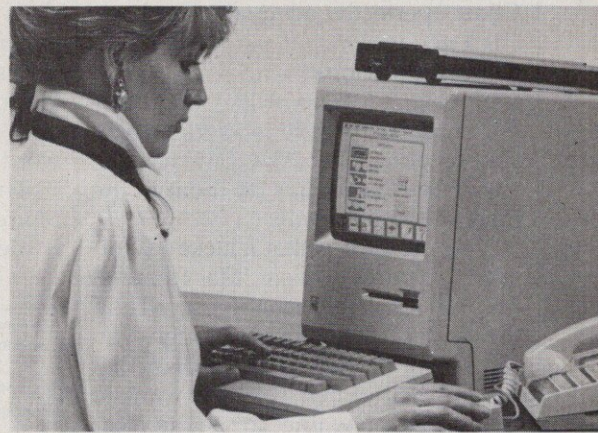
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and turn a background grid on and off. All in all, it's a no-frills version of Chart, perfectly adequate for basic chart generation.

### Communications

Speaking of no frills—the communications module is Works' weak spot. It does the basics, but that's it, and it doesn't always do them in the most convenient way.

One problem is that it lacks a scrollable window—even MacTerminal has that! Once information scrolls off the screen, it's gone; although you can save information to the disk, that doesn't help when you just want to scroll back a few lines to see the command structure a BBS just listed. An auto-redial command is disappointingly absent.

You can set the basic communications parameters, choosing transmission rates of up to 19200 bits per second (see figure 10). You cannot adjust line feeds, but the program makes internal adjustments as necessary to deal with them.

A communications document consists only of the settings you choose and an eight-number "Phone Book";

clicking on the Dial button in the Phone Book starts the communications session (see figure 11). Information received and transmitted during a session is not part of the document. You can, however, capture the text of any session, which is saved as a word-processing document.

The most important thing for a Mac communications module to have is the ability to do MacBinary trans-

fers; i.e., send a Mac file with all its special Macintosh features, such as its desktop icon, intact. MacBinary lets you transfer such things as fonts, desk accessories, and even applications without using special utility programs to alter the file at one end and reconstruct it at the other.

Works lets you transfer MacBinary files, as well as use the XMODEM protocol to transfer text or data files.

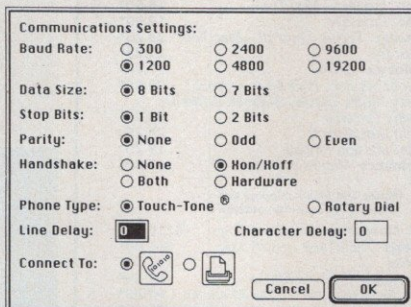


Figure 10: You set parameters for communications from an initial dialog box. Echo is controlled by menu choice, and the program automatically handles line feeds.

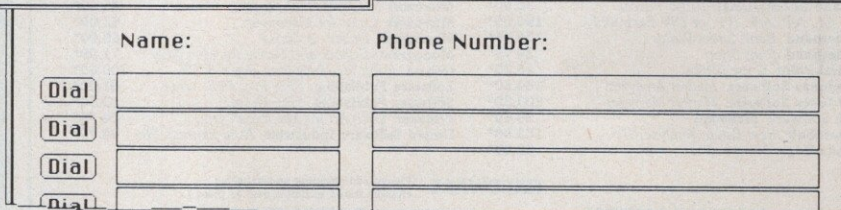
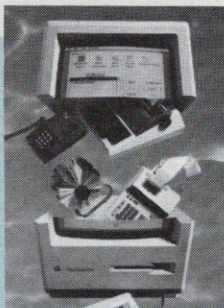


Figure 11 (below): A Works communications document stores your settings and up to eight phone numbers; clicking on the Dial button dials the number next to it.



## Is Microsoft Works the new AppleWorks?

As Microsoft's first all-in-one product, Works is an unabashed attempt to repeat the phenomenal retail success of AppleWorks. Let's see how Works stacks up as the Macintosh rendition of one of the best-selling software products of all time.

AppleWorks has six basic attractions that have made it such a hit:

- It's extremely simple to learn and

use, thanks to its menu-driven operation, common commands across all three applications, and an excellent computer-based tutorial.

- It's a simple, logical buying decision for first-time Apple II buyers, because it combines all of the three major personal-computer applications (word processing, database, and spreadsheet) in one program.
- It has a relatively low price, compared with the cost of three stand-alone applications.
- Its integration allows users to switch quickly from one application to another and to transfer data among application files.
- It's a safe buy for new users, because it's an Apple product.
- It's an easy sell for retailers, because the computer-based tutorial lets customers sell themselves on the product.

Works offers many of these same benefits and adds some touches of its own through the Mac environment:

- Works is fairly simple to learn and use. Many commands are the same in all four applications; it has on-line, context-sensitive Help files; and the Mac's pull-down menus

and mouse operation simplify things for new users. The on-line help is much more extensive than are the simple command lists AppleWorks offers.

- Works combines four major applications in one program (word processing, database, spreadsheet, and telecommunications, plus graphics in the spreadsheet), so it, too, reduces as many as five separate buying decisions to one for apprehensive new users.
- It also has a low price. At less than \$300, Works is considerably less expensive than a collection of stand-alone applications and is about half the price of Lotus Jazz.
- Works is highly integrated. As with AppleWorks, users can have up to ten files open at once, but it is much easier to move data among applications—you just select data and copy it to the Clipboard without having to worry about translations of data among applications.

Beyond these main concerns, Works is unquestionably a more functional product than AppleWorks. It offers integrated communications and business graphics on top of the

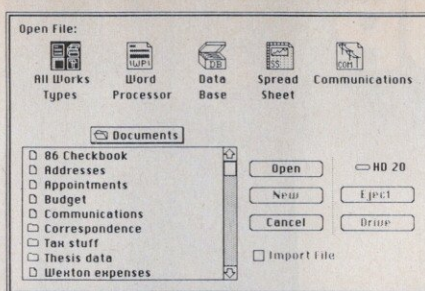


During the transfer, a dialog box keeps you informed of the number of blocks transferred and the number of retransmissions.

In addition to using the XMODEM protocol for file transfer, you can also send just the text of any word-processing document—a convenient option, since you don't have to save the word-processing file as text-only in order to send it.

A potentially serious flaw in the Communications module is that you must use the Option key instead of the ⌘ key when you need control characters; the ⌘ key invokes menu selections. If you type ⌘-Q instead of Option-Q to continue a suspended flow of information, the program interprets the command as Quit. (The combination is easy to type out of habit if you've used other communications software, or just by mistake, since the keys are next to each other.) Fortunately, a confirmation dialog box appears ("Are you sure you want to quit?") if you are working with a previously saved communications document.

The word-processing, database,



**Figure 12:** The Works Open box lets you view all Works files or, if you click on an icon, only the documents that belong to the selected module. When you select a module, the Import File button becomes active so you can open a non-Works document.

and spreadsheet programs in Works perform well separately, but they work even better together.

Works offers two ways of transferring information from one module to another. The first is the Clipboard, which is an especially effective way to transfer small blocks of information. The second way involves the Export/Import option. When you save a document, you can save it in an "export" format. For the word-processing and database programs, you save your documents as text-only files; for

the spreadsheet, you have the additional options of saving values and formulas, just the values, or using the SYLK format for easy exchange of information with Multiplan or Excel.

To import a file, you click on the Import button in the Open box, along with the icon of the module you want to import to; only importable files are then available for selection (see figure 12). These include exported files from the other modules, text files from any application, SYLK files from Multiplan and Excel, and formatted Word and MacWrite documents.

### Gestalt

All right, those are the facts concerning Works, but how does it feel? Gestalt—"the whole is greater than the sum of its parts"—applies to any good computer program, but it is especially appropriate to an integrated package.

It feels great. I've used Word for a long time, but I can work comfortably in the Works word-processing program; I can't say the same for MacWrite. The database program is fast, easy, and powerful enough for any personal use, as well as for many

Big Three applications AppleWorks offers, and each of the Works applications goes well beyond AppleWorks in power, without sacrificing much in the way of operating ease:

- The word-processing program features a form-letter capability and a Draw mode that lets you draw lines, circles, and boxes on top of or around text.
- The spreadsheet program gives you a spreadsheet that is ten times the size of the AppleWorks spreadsheet. Many of the spreadsheet program's features (copying formulas and putting functions into formulas, for example) are borrowed from Excel and are far easier to use than the corresponding features in the AppleWorks spreadsheet program. As for power, the Works spreadsheet program offers four times as many built-in functions as AppleWorks' does. It also features built-in charting that lets you create pie, bar, or line charts from spreadsheet data and display them on the screen at the same time as the data.
- The database program offers twice as many fields per record as AppleWorks' does (60 vs. 30), and it

lets you select records with up to six (as opposed to three) logical criteria or record-selection rules. Unlike with AppleWorks, however, you can't produce database reports that print all the fields in one record at a time (as you can with the Labels reports in AppleWorks), and you can't print a database report to the screen to preview it.

- The communications module is missing entirely in AppleWorks, and it adds considerable function to Works. It allows transfer of both text and binary files, so you can send text, numbers, or graphics from any other Works application.

Microsoft has done nearly all the right things with Works, but some other issues may keep the product from being a smash hit. Although Microsoft has a good reputation in the marketplace, its reputation isn't as good as Apple's, particularly among the first-time users for whom the product is intended. Microsoft's sales force will have its work cut out for it to train dealers on Works and get them to recommend the program as naturally as they have traditionally recommended Apple-

Works. What makes this job even more difficult is that Microsoft's other Mac applications will be seen as competition for Works by dealers and customers alike, and there may be some confusion about how the various products relate to each other.

Beyond these considerations are the realities of Macintosh sales volume. At AppleWorks' peak, two copies of AppleWorks were selling for every three Apple II systems sold. The Apple II's overwhelming appeal to first-time users helped in this regard. With the Mac, many first-time buyers may have a broader range of needs—many may want the machine for desktop-publishing applications, for example, and may bypass Works in favor of Word, PageMaker, and other programs. And, finally, the Mac has a long way to go before it is selling as well as the II was during the days when AppleWorks topped the personal-computer software-sales charts. Microsoft has done its homework with Works, however, and if any product now on the market has a chance of repeating AppleWorks' success, Microsoft Works is that product.

—Charles Rubin

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business purposes. The spreadsheet program is impressive, and the communications module is—well, I can live with its shortcomings.

Then, of course, besides the merits of the individual modules, you have to consider the extra convenience of the integration. With multiple windows available, the transition from one module to another is painless. The overall feeling, in fact, is not one of working with distinct modules but of using a single versatile program.

## The Plus Generation

Works is the first of a new generation of Mac software, the Plus generation. It requires a minimum of 512K and comes on double-sided diskette.

The package contains two master diskettes, so you don't have to pay, or wait for, a backup diskette. The usual key-disk protection scheme is present; the diskette has a hard-disk drive installer that lets you run Works on a hard-disk drive without having to insert the master diskette.

If you haven't upgraded to the double-sided drive, you can request two single-sided disks when you register your purchase; two disks are necessary because Works can't fit on the same disk as the System and the Finder. You don't have to turn in your double-sided disks; Microsoft lets you keep them for when you do upgrade to the 800K drive. Admittedly, it will be frustrating to buy a product and not be able to use it right away, but it will be worth the wait.

At \$295 for a smorgasbord of applications and a related line of Microsoft "power" programs to which you can graduate when you want (Word, Excel, and File), you can't miss with Works—and, I suspect, neither can Microsoft. +

Sharon Aker is the author of a book about Microsoft Works (COMPUTE! Books).

## PRODUCT INFORMATION

### Microsoft Works

Microsoft Corporation  
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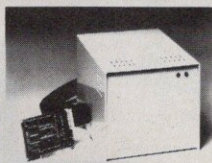
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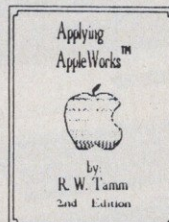
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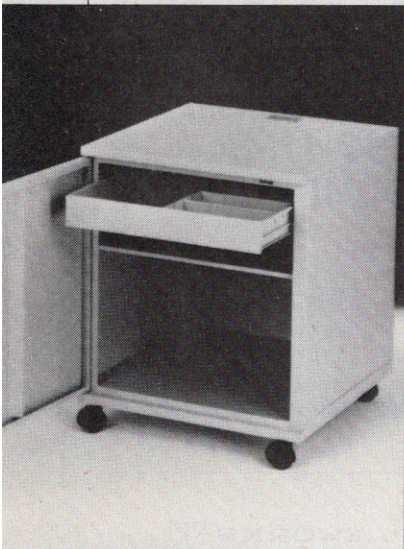
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## EVERYBODY'S PLANNER

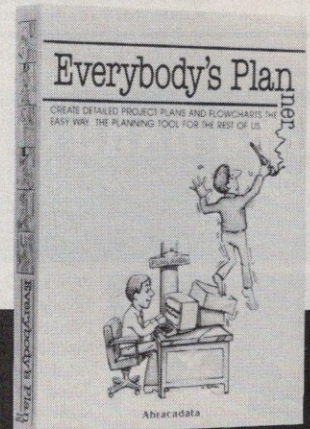
The project-management tool Everybody's Planner is a low-cost, easy-to-use software package designed for people who are not necessarily professional project managers. Users enter the tasks involved in a project and the time necessary for each task, and the software helps them plan schedules and set deadlines. The package consists of two parts. Schedules features charts

that tell users which goals they must meet to complete a project on time, outlines duties and deadlines, and estimates project costs. Flowchart depicts the flow path of any project, allowing users to map and analyze the processes and critical decisions involved. (List Price: \$99.95)

**Requires:** Apple II, II Plus, IIe, or IIc; 64K RAM  
Abracadata  
P.O. Box 2352  
Eugene, OR 97402  
(503) 342-3030

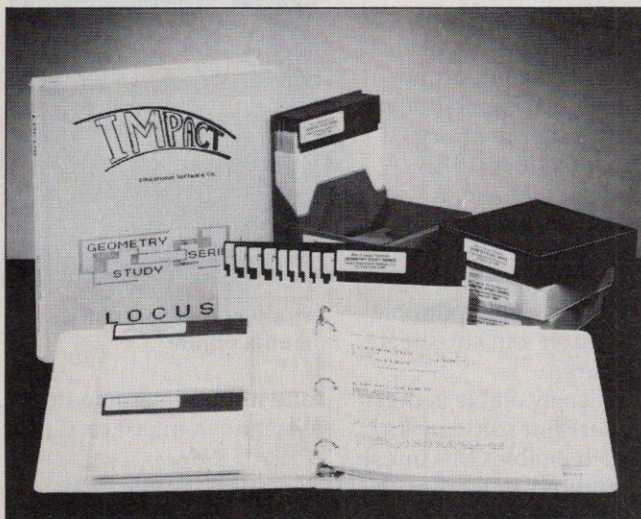
CIRCLE READER SERVICE NO. 502

**Everybody's Planner, an easy-to-use project-management tool**



ProAPP's line of hard-disk subsystems can work with Apple II and Macintosh computers interchangeably.





**Locus, a self-paced high-school geometry tutorial**



## LOCUS GEOMETRY

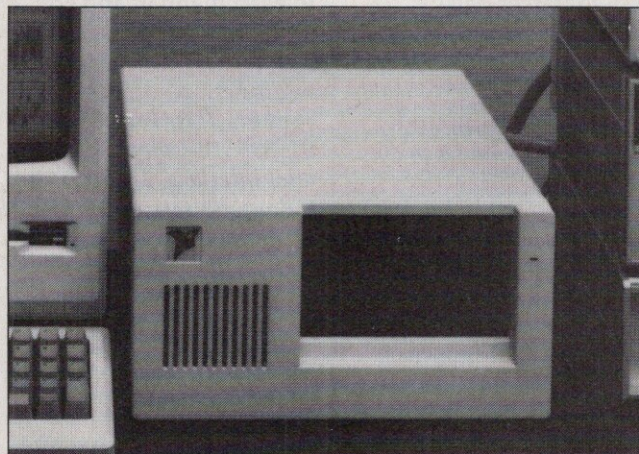
Impact Educational Software has released Locus, a self-paced, high-school mathematics tutorial in its Geometry Study Series.

The program covers locus, locus theorems, compound locus, and the construction of loci. It uses animation and graphics to give detailed explanations of concepts, provides drill exercises with specific remediation for incorrect answers and positive reinforcement for correct ones, and generates tests randomly. The drill exercises also offer glossary and hint features. The program comprises a set of four disks and is available as a single set or in a classroom package that contains ten copies of each disk. (List Price: \$150; classroom package, \$550)

**Requires:** Apple II Plus, IIe, or IIc

Impact Educational Software Company  
P.O. Box 9536  
O'Fallon, MO 63366-1332  
(314) 281-4811

CIRCLE READER SERVICE NO. 503



**MacBus provides a programmable I/O processor and PC/AT-style expansion for the Macintosh.**



## MACBUS

National Instruments has released a new hardware product called MacBus and supporting software that together provide a programmable I/O processor and a means of using IBM PC/AT-style expansion cards on Macintosh Plus computers.

MacBus is a microcomputer-based data-acquisition and instrument-control platform that contains five PC/AT-style card slots. Two slots contain the GPIB-V50 micro-

computer card and a SCSI interface to the Macintosh Plus. The three remaining slots can accommodate any cards compatible with the IBM PC or PC/AT bus. The GPIC-V50 card contains a high-performance, 8-MHz, 16-bit microprocessor; circuits to control the PC/AT-compatible bus; and a full-featured IEEE-488 interface. It can also hold an optional 8-MHz numeric coprocessor for floating-point calculations. The card contains a version of National Instru-

ments' IBCL (Instrument Bus Control Language) in EPROM.

The software package provides support for the MacBus hardware unit, the IBCL operating system, and the interactive IBCL programming language. It includes the IEEE-488 Bus Interactive Control utility, an IEEE-488 instrumentation configuration utility, and a software driver for communication with MacBus. Extensive language interface libraries provide access to the IEEE-488 driver and MacBus from programs users develop in C and BASIC. (List Price: hardware, \$1495; software, \$200)

**Requires:** Macintosh Plus  
National Instruments  
12109 Technology Blvd.  
Austin, TX 78727-6204  
(800) 531-4742

In TX (800) IEEE-488

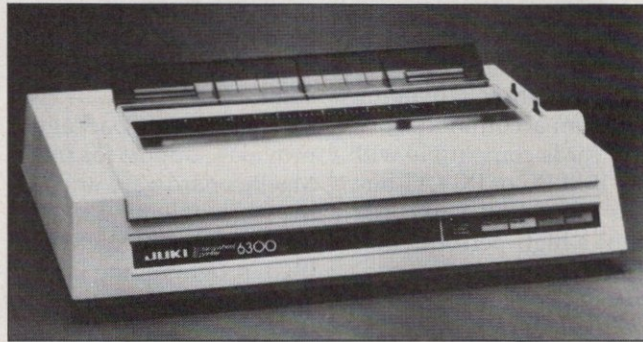
CIRCLE READER SERVICE NO. 504

## JUKI PRINTERS

Juki Office Machine Corporation has introduced two new lines of printers—the Juki 5510 dot-



**The Juki 5510-Color printer has a seven-color printing option installed.**



The Juki 6300 daisy-wheel printer

matrix printers and the Juki 6000 series of daisy-wheel printers.

The Juki 5510 offers a maximum speed of 180 cps in draft mode and 30 cps in near-letter-quality mode. It provides 96 ASCII characters, 96 italic characters, and 11 international character sets; has a user-definable matrix of  $9 \times 9$ ,  $21 \times 27$ , or  $11 \times 9$ ; features several printing modes; and weighs 20 pounds. Its 9-inch platen can handle assorted printing widths and fanfold, cut-sheet, and roll paper. The 5510 also has a built-in tractor feed and a 3K buffer memory, expandable to 15K, and uses fabric ribbons. It comes with a Centronics interface; an RS-232C interface is available as an option.

An optional color kit lets users produce seven-color printing from a four-color ribbon. Also available is the Juki 5510-Color, a Juki 5510 with the color kit already installed.

The Juki 6000 series of daisy-wheel printers all offer 10-, 12-, or 15-pitch, letter-quality printing; a bidirectional carriage motion; friction paper feed; and special print features, such as superscript, subscript, underlining, boldface, shadow printing, and

graphics abilities.

Designed for home use, the 6000 is the smallest in the line, weighing 13 pounds. It has a maximum print speed of 10 cps, a 100-character daisy-wheel, a 12-inch platen, and parallel and serial interfaces.

Weighing 31 pounds, the Juki 6100 has a print speed of 18 cps; a 100-character daisy-wheel; a 13-inch platen; proportional-spacing ability; and a 2K buffer memory, expandable to 8K. It comes with a parallel interface; an RS-232C serial interface is available.

For medium-size businesses, the Juki 6200 and 6300 weigh 32 pounds, have 96-character daisy-wheels, 16-inch platens, proportional-spacing ability, and 3K buffer memories that are expandable to 15K. Bidirectional tractor feed and a single-bin, cut-sheet feeder are available as optional accessories for both printers. The Juki 6200 has a maximum print speed of 30 cps and comes with a parallel interface; an optional RS-232C serial interface is available. The 6300 has a print speed of 40 cps and comes with both a parallel and a serial interface.

Finally, for heavy-duty

use, the Juki 6500 has a print speed of 60 cps; a 96-character daisy-wheel; a 16-inch platen; proportional-spacing ability; a 3K buffer memory, expandable to 15K; and parallel and serial interfaces.

Optional accessories include bidirectional tractor feed and single-, double-, and triple-bin cut-sheet feeders.

Also available is the LetterPrint software kit, which enables Macintosh computers to work with Juki 6000-series printers. The kit includes an easy-to-read manual and software that can drive MacWrite word-processing functions on Juki printers. (List Price: 5510, \$499; 5510-Color with parallel interface, \$648; 5510-Color with serial interface, \$731; color kit, \$149; 6000, \$295; 6100, \$599; 6200, \$745; 6300, \$995; 6500, \$1395; LetterPrint, \$75, \$95 with cable)

Juki Office Machine Corporation  
20437 S. Western Avenue  
Torrance, CA 90501  
(800) 325-6134  
In CA (800) 435-6315

CIRCLE READER SERVICE NO. 505



The Seiksha SP-1000 dot-matrix printer

and a built-in Apple IIc or Macintosh interface. (List Price: \$299)

**Requires:** Apple IIc or Macintosh  
Hatoori Seiko Computer Peripherals  
1111 Macarthur Blvd.  
Mahwah, NJ 07430  
(201) 529-4655

CIRCLE READER SERVICE NO. 506

## BROTHER M-1109 PRINTER

Brother International has released the M-1109, a 9-pin bidirectional dot-matrix printer. By pressing the NLQ button, users can switch from draft-quality printing at 100 cps to near-letter-quality printing at 25 cps. The 80-column printer also offers condensed, enlarged, emphasized, superscript, subscript, auto-underlining, and 10- and 12-pitch printing; 96 ASCII characters; and graphics, international, and mathematical character sets. Quiet and compact, the M-1109 provides both Centronics parallel and RS-232C serial interfaces and tractor and friction-feed paper feeders. (List Price: \$269)

Brother International Corporation  
8 Corporate Place  
Piscataway, NJ 08854  
(201) 981-0300

CIRCLE READER SERVICE NO. 507

## HARDWARE



### SEIKOSHA SP-1000AP PRINTER

Quiet and compact, the Seiksha SP-1000AP dot-matrix printer features automatic single-sheet loading and a near-letter-quality switch on its front panel. Users can access word-processing functions through escape-code sequences, and the printer comes with a printer cable

# EXPAND Your Laser 128

16 bit processor, 1 meg RAM boards, 3½ inch drives...

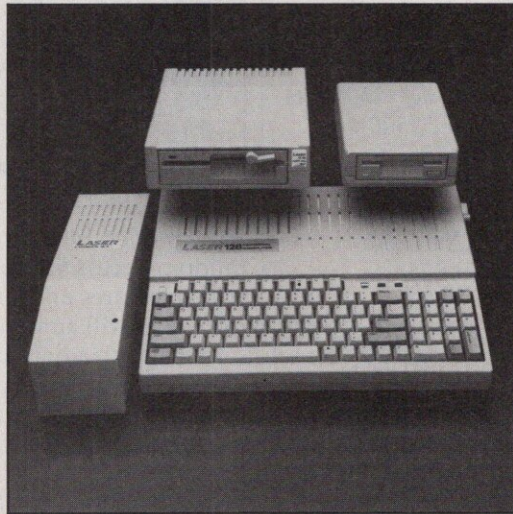
**One** of the reasons you bought your Laser 128 personal computer is its expansion capability. You knew that a computer without expansion slots is a dead-end that stays behind as technology advances. Now you're ready to expand your Laser 128 to take advantage of extra memory, second disk drives, 3½ inch 800K drives, 16 bit processors, and more...

## Expansion Box

The optimum way to take advantage of the Laser 128's expansion slot. The Laser 128 Expansion Box gives your Laser two fully protected, shielded, standard Apple compatible expansion slots (slots 5 and 7). It even includes its own power supply for power-hungry cards and a safety interlock switch that disconnects the 12 volt power supply if the cover is opened. Its solid metal construction insures that even a fully-expanded Laser 128 won't interfere with radio or television equipment. Best of all, its two full-length slots will accept virtually any Apple-compatible expansion card at a price that won't break your budget. (Available soon.) **\$79.95**

## 800K, 3½" Drives

Add 800K of Apple Unidisk 3.5™ compatible storage to your Laser 128 and pocket over \$180 in savings! Our Universal Disk Controller™ accepts two drives and you can even mix and match 5¼" and 3½" drives. And disks made with the Universal Disk Controller are fully interchangeable with Apple's Unidisk 3.5. Price includes controller card (plugs into Laser 128 Expansion Box) and one 3½" 800K drive (see our other advertisement in this issue). **\$285.00**



## 5¼" Second Disk Drive

Add a second disk drive designed specifically for your Laser 128. It plugs right into the external disk drive port on the Laser 128 and is one of the quietest drives available. **\$150.00**

## Memory/16 bit Expansion

The Laser 128 Expansion Box works well with the latest Appleworks compatible memory boards from APPLIED

ENGINEERING (RAMFACTOR), AST (SPRINT DISK) and several others. We now stock Applied Engineering's RAMFACTOR board with 256K memory installed. For a limited time, buy a RAMFACTOR, and we'll give you the Laser 128 Expansion Box, free! We also stock the Applied Engineering Transwarp Accelerator card with the 16 bit option to run your Laser 128 3½ times faster. See Applied Engineering's ads in this issue for more information.

## Laser 128

The Apple //e compatible computer that brings you the best of all worlds: Transportable like the //c, expandable like the //e, but priced like a Commodore 128! No wonder **A+ magazine calls the Laser 128 the "clear winner" of Apple compatibles! \$395.00**

*Central Point  
Software*  
INCORPORATED

**Yes, I'm ready to expand my Laser 128!** Please send me these items:

- Universal Disk Controller and 800K 3½" Disk Drive**—\$285 & 12 s/h
- Laser 128 5¼" Disk Drive**—\$150 & 10 s/h
- RAMFACTOR™ with 256K Memory**—\$239 & 10 s/h
- Transwarp™ Accelerator Card with 16 Bit Processor Option**—\$249 & 6 s/h
- Laser 128 Computer**—\$395 & 20 s/h

And ship them to me at this street address ASAP:

Name \_\_\_\_\_

Address \_\_\_\_\_



Daytime phone # (\_\_\_\_) \_\_\_\_\_

### To Order By Mail:

Simply send in this order form with a check or provide your Visa/MC

# \_\_\_\_\_  
and expiration date \_\_\_\_\_

**To Order By Phone:** Just call us!  
**503/244-5782**

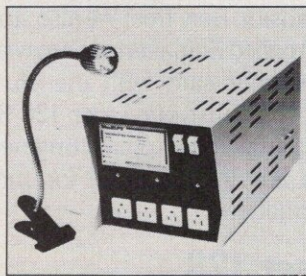
8-5 (West Coast time), M-F, with your  
  in hand!

*Central Point  
Software*  
INCORPORATED

9700 SW Capitol Hwy., #100  
Portland, OR 97219

## UNINTERRUPTIBLE POWER SUPPLY

Electronics Specialists has introduced an on-line Uninterruptible Power Supply that can supply power for up to 20 minutes during extended power outages. The unit operates without disruptive switching transients and incorporates an automatic, internal battery recharge.



The on-line Uninterruptible Power Supply can supply power for up to 20 minutes.

Wide-band EMI/RFI filtering and high-speed, high-current spike suppression provide extended protection. The unit also protects your system from

overloads and short circuits and features a front-panel test switch, line phase lock, automatic blackout illumination, and automatic shutdown and external battery options. The unit is available in 250- and 500-watt versions. (List Price: 250-watt version, \$1095; 500-watt version, \$1495)

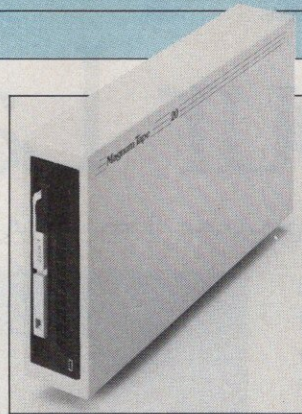
Electronic Specialists, Inc.  
171 South Main Street  
Natick, MA 01760  
(800) 225-4876  
(617) 655-1532

CIRCLE READER SERVICE NO. 508



## MAGNUM TAPE 20

A tape-backup device, the Magnum Tape 20 provides Macintosh users with removable streaming or random-access tape backup. Tape cartridges can hold 25 megabytes of data and are small enough to fit in a hip pocket. The Magnum Tape 20 offers mirror-image, file-by-file, and incremental backup read/



Magnum Tape 20, a tape-backup device for Mac users

write modes, including random-access file update. It also features an alarm clock that will automatically back up a hard drive at a user-specified time, rugged construction, and its own power supply. (List Price: Magnum Tape 20, \$1195; tape cartridge, \$29; Fast Port, \$199)

Requires: Macintosh, SCSI port or Fast Port  
Mirror Technologies  
2209 Phelps Road  
P.O. Box 304  
Hugo, MN 55038  
(612) 426-3276

CIRCLE READER SERVICE NO. 509



## THE PHASOR

Applied Engineering has introduced The Phasor, a music, sound, and speed-synthesizer card that is fully compatible with the Mockingboard, the ALF music card, Synphonix, and the Super Music Synthesizer. The Phasor has 12 simultaneous sound channels and 4 white-noise generators. The ProDOS-based card also includes software for Music Editor, Sound Effects Editor, Text to Speech, and more than 30 songs and sound effects. Its RAM-based software works with any standard RAM card, and a 4-watt stereo amplifier connects to any size of speakers. (List Price: \$179)

Requires: Apple II Plus or IIe  
Applied Engineering  
P.O. Box 798  
Carrollton, TX 75006  
(214) 241-6060

CIRCLE READER SERVICE NO. 510

## ZIMCO INTERNATIONAL, INC.

### APPLE ACCESSORIES

A+ MOUSE (IIC, Mac)	.....\$65
Applied Engineering RamworksII 256k/1M	.....\$168/269
Applied Engineering RGB Option	.....\$99
Applied Engineering Time- or View-master	.....\$95
Applied Engineering ZRAM 512K	.....\$289
AST Multi I/O (Ile)	.....\$149
CH Mach III Joystick	.....\$33
Cooling Fan	.....\$24
80 Column Card (II+)	.....\$60
Ext. 80 Col. Card 64K(Ile)	.....\$59
Graphics Printer Card	.....\$55
Pico Joystick	.....\$25
Kensington System Saver	.....\$59
KOALA Pad Plus	.....\$78
Kraft Joystick apple II series	.....\$26
MOCKINGBOARDS A/B/C/D	.....\$Call
OM GRAPPLER+ /Buffered	.....\$72/129
OM Grappler +, Serial/IIC	.....\$72/78
Printer Interface Parallel	.....\$40
16K Ram Card	.....\$35
Super Serial Card	.....\$69
VIDEO 7 SLOT 7	.....\$100
COLOR ENHANCER Ile w/Dazzle Draw	.....\$119

### SOFTWARE

SPRINGBOARD Certificate Maker	.....\$31
FONTRIX	.....\$59
GRAPHICS DEPARTMENT	.....\$65
NEWSROOM	.....\$33
Newsroom Clip Art vol.1/vol.2	.....\$16/23
PRINT SHOP	.....\$28
Print Shop Companion	.....\$23
Print Shop Graphics Libraries 1/2/3	.....\$15
SENSIBLE GRAMMAR /SPELLER	.....\$53/64
Sensible Speller Pro-DOS	.....\$65
PINPOINT	.....\$46

### MONTHLY SPECIAL

Laser 128 w / monitor \$465  
Applied Eng. Ramfactor  
512K...\$212 256K...\$175  
Ramworks 512k...\$199

### PRINTERS

BROTHER HR15-XL	.....\$339
CITIZEN 120D/MSP-10	.....\$179/239
EPSON AP-80/FX-85	.....\$255/339
Epson FX-286	.....\$499
Epson LX-90 w/picl	.....\$235
NEC Pinwriter P2*	.....\$425
OKIMATE 20 w/Interface	.....\$190
OKIDATA 192P/193	.....\$330/455
QUME LetterPro20/Sprint1400*	.....\$430/899
PANASONIC KXP-1091/1092	.....\$249/330
Panasonic KXP-1592	.....\$419
SILVER-REED EXP-800	.....\$649
STAR NX-10 Parallel	.....\$239

## ZIMCO INTERNATIONAL, INC.

### DRIVES

CORVUS Hard Drive	.....\$Call
PICO Apple II Disk Drive w/1yr.warranty	.....\$139
Disk Drive Controller - Apple II	.....\$30
TYMAC 3.5" Drive Ile	.....\$279
Disk Drive - Apple II Series	.....\$99

### MONITORS

AMDEK 300 Green	.....\$115
Amdek 600(RGB)	.....\$375
Amdek 722 Color	.....\$489
PANASONIC DTH-103	.....\$389
PRINCETON HX-12 (RGB)	.....\$399
SAKATA SC-100 Color	.....\$130

### MODEMS

HAYES Smart Modem 300 (IIC)	.....\$152
Hayes 1200/2400	.....\$339/559
Hayes Micromodem IIe	.....\$128
NOVATION Applenet II	.....\$187
Appletac 212 system/upgrade	.....\$253/214
PROMETHEUS PRO-MODEM	.....\$269
Prometheus 1200A	.....\$239
1200 Baud Hayes Compatible	.....\$165
US ROBOTICS Courier 2400	.....\$399



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Call 718-479-7888  
D&B# 130151913

If it computes, we sell it — Macintosh, Apple, IBM, printer supplies, cables, disks, hardware, software, and complete systems — Please call toll-free for current prices and our full catalog with rebate and coupon offers! All prices for cash or check. \*Needs interface.

CIRCLE 126 ON READER SERVICE CARD



# 800K for Apple //, Laser 128 Only \$285

Now you can add 800K of Apple Unidisk 3.5 compatible storage to your Apple // at an affordable price. Our Universal Disk Controller™ allows you to directly connect virtually any drive made for any Apple (even Macintosh) to your Apple // Plus, //e or Laser 128.

## Universal Disk Controller

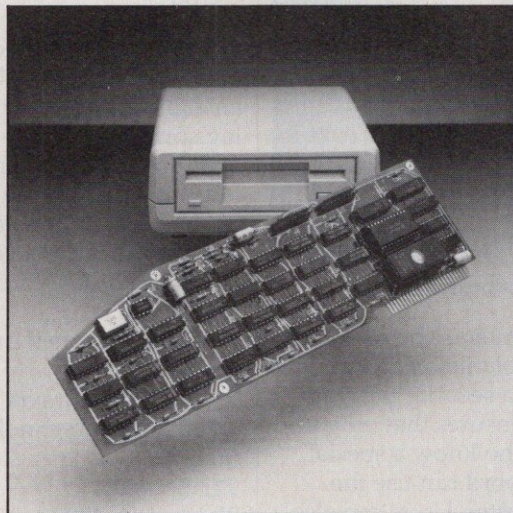
This new controller card combines the functions of 3½ and 5¼ inch drive controllers into one card. Plug in any 5¼ inch disk drive (it supports both old-style 20 pin connectors and //c style DB-19 plugs). Or directly connect an Apple Unidisk 3.5. But most remarkable, the Universal Disk Controller directly accepts Macintosh compatible 800K and 400K external drives.

## Unidisk 3.5 Compatible

When used with a Mac compatible drive, you still get the identical 800K format used by Apple's Unidisk 3.5—at a considerable price savings. Disks created in Apple's Unidisk 3.5 will work with a Mac drive connected to the Universal Disk Controller and vice-versa. Data Transfer rate is up to par, too. The Universal Disk Controller talks to any drive at full speed.

## Mix and Match

You pick what two drives to connect. Plug in two 5¼ inch drives and use it as a standard floppy disk controller. Or connect two Mac drives for a total of 1.6 megabytes of storage. Of course, you can combine drives of different types, too. Connect a 5¼ inch drive and a Mac



800K drive, or an Apple Unidisk 3.5 and a Mac drive, or . . .

## COPY II PLUS, Free!

Copy II Plus is included free with every Universal Disk Controller. This package of DOS/ProDOS utilities works with 5¼ and 3½ inch drives and was voted the utilities winner of the A+ Readers' Choice Awards.

## Everything is Included

No matter what type of Apple compatible drive you have or plan to buy, everything needed to connect it to the Universal Disk Controller is included. Even older Apple // Plus drives plug in directly without adapter cables.

## Available NOW!

Call today and order your Universal Disk Controller. Find out just how inexpensive it can be to add an 800K disk to your Apple!

*Central Point  
Software*  
INCORPORATED

9700 SW Capitol Highway, #100  
Portland, OR 97219  
(503) 244-5782

Yes, please send me the Universal Disk Controller Card and drives indicated below.  
And include Copy II Plus—free!

**Universal Disk Controller—\$150**  
For Apple //+, //e, and Laser 128.

**800K 3.5 inch drive—\$195**  
(Works great with Macintosh, too!)  
*Or save on these combos:*

**Universal Disk Controller & 1 drive—\$285**

**Universal Disk Controller & 2 drives—\$475**

And ship them to me at this street address ASAP:

Name \_\_\_\_\_

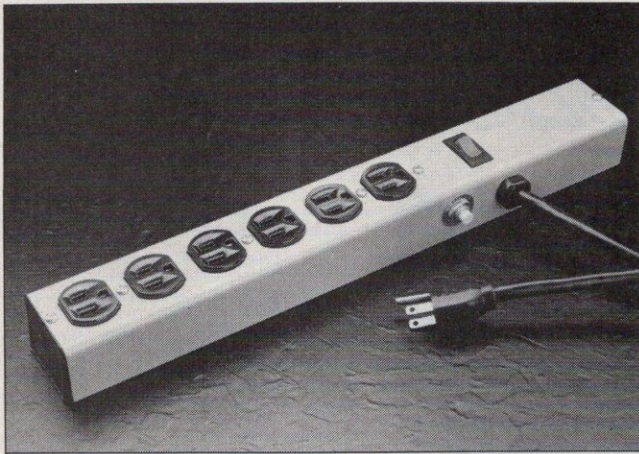
Address \_\_\_\_\_

Daytime phone # (\_\_\_\_) \_\_\_\_\_

**To Order By Mail:**  
Simply send in this order form with a check (add \$15 s/h, \$30 overseas), or provide your Visa/MC  
# \_\_\_\_\_  
and expiration date \_\_\_\_\_

**To Order By Phone:**  
Just call us at **503/244-5782**  
8-5 (West Coast time), M-F, with  
your in hand!

*Central Point  
Software*  
INCORPORATED  
9700 SW Capitol Hwy., #100  
Portland, OR 97219



**Electra Guard 20, a six-outlet surge-suppressor strip**

## ELECTRA GUARD 20

A six-outlet surge-suppressor strip, the Electra Guard 20 (EG 20), is now available from CPS Electronics. The EG 20 protects microprocessor-based equipment from voltage surges, responding in less than 3 ns and offering multistage protection on all three lines (hot, neutral, and ground). An indicator light shows that the protective circuit is operating. The suppressor exceeds IEEE specifications, parts A and B, for surge voltage and is U.L. listed. Enclosed in a rugged metal case, the EG 20 features NEMA receptacles, a safety on/off switch, and a 14 AWG, 6-foot cord. (List Price: \$99.95)

CPS Electronics, Inc.  
4151 112th Terrace N.  
P.O. Box 2460  
Pinellas Park, FL 34290-2460  
(800) 237-1600  
In FL (813) 578-1600

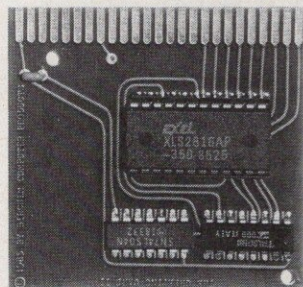
CIRCLE READER SERVICE NO. 569



## THE GREETING CARD II

The Greeting Card II is designed to deter unauthorized use of Apple II

computers. The card's 2K nonvolatile memory contains a security program that ensures that only users who know a special password can use the computer. Users can also



**The Greeting Card II is designed to prevent unauthorized computer use.**

use the card to leave short messages for other computer operators. The card comes with a disk containing software for access security and leaving messages. Users can also program the card for such purposes as peripheral emulation and data storage. (List Price: \$89.95)

**Requires:** Apple II, II Plus, or IIe  
Birchem Computer Products  
4813 Cameron Ranch Drive  
Sacramento, CA 95841  
(916) 489-7181

CIRCLE READER SERVICE NO. 570



## GRAVIS MK VI JOYSTICK

The Gravis MK VI analog joystick controller features a rugged construction and a full-size, pistol-grip handle with an integrated fire button. The joystick has an eight-position, centering spring-tension system and three independent fire buttons—one on the handle and two on the base—with switching to select fire buttons. (List Price: \$49.95)

**Requires:** Apple II or II Plus  
International Gravis  
Computer Technology, Inc.  
943 Boblett  
Blaine, WA 98230  
(604) 434-7274

CIRCLE READER SERVICE NO. 511

## HARD/SOFTWARE



## SHAREWORKS

ShareWorks, a hard-disk-sharing system from CMC Computer Systems, allows several Apple II computers in a daisy chain to access a CMC Hard Disk under the ProDOS or DOS 3.3 operating system. ShareWorks locks out all other computers while one computer is using the hard disk and arbitrates rights for the next computer that requests use. The system is limited to a maximum of 30 feet of cable and thus is suitable for home, small-office, or school use.

It comes with power supply, fan, cables, and smart host cards for each computer and features fast auto-boot. (List Price: ShareWorks, \$349 for first two stations, \$195 for each

additional station; CMC Hard Disk, \$795)  
**Requires:** Apple II Plus or IIe, ProDOS or DOS 3.3, CMC Hard Disk  
CMC Computer Systems  
1514 East Edinger  
Suite H  
Santa Ana, CA 92705  
(714) 835-2462

CIRCLE READER SERVICE NO. 512

## SOFTWARE



## SNAPP EMS SOFTWARE

The SnAPP Electronic Messaging System (EMS) is a full-scale bulletin-board and electronic-mail system that users can customize, creating almost all prompts, commands, menus, and messages. The Messaging Section can contain up to 15 private or general-access message sections, allowing almost 1500 messages to be online simultaneously. A separate but integrated E-mail facility provides options for registered and private mail and allows users to save mail for later viewing and move mail into standard text files. The Library Section can hold up to 99 text files. The system offers three levels of access—Public, Special, and Sysop. Other features include an easy-to-use editor and detailed user logging. (List Price: \$49.95; EMS with utilities, \$54.95; utilities separately, \$19.95)

**Requires:** Apple II, II Plus, IIe, or IIc; 64K RAM; clock, modem  
SnAPP Systems  
1588-1 North Batavia  
Orange, CA 92667  
(714) 532-6800

CIRCLE READER SERVICE NO. 513

MAC

## dBASE MAC

Ashton-Tate, maker of dBASE II, dBASE III, and dBASE III Plus, now offers dBASE Mac for the Macintosh. An extended relational database that makes full use of the Macintosh environment, dBASE Mac is also a development tool with a programming language for developing applications that include custom menus and dialog boxes. The product's graphic representation of database structures and their interrelationships simplifies the manipulation of databases. dBASE Mac lets you create multi-file reports without programming, and its report

formatting is flexible, with draw-like capabilities, graphic-image storage, and a variety of typestyles and sizes. The program can handle very large files and complex data-management tasks because its record and field capacity is limited only by the operating system. (List Price: \$495)

**Requires:** Macintosh, 512K RAM; two 800K disk drives, one 800K and one 400K drive, one 800K drive and a hard-disk drive, or one 400K drive and a hard-disk drive (works with the following hard-disk drives: Apple Hard Disk 20, Corvus Omnidrive, and General Computer Hyperdrive 10 or 20 MB)

Ashton-Tate  
20101 Hamilton Avenue  
Torrance, CA 90502-1319  
(213) 538-7783

CIRCLE READER SERVICE NO. 514

MAC

## MORE

Living Videotext, developer of the ThinkTank idea processor, has released More, an integrated, graphics-based idea processor for the Macintosh. The software transforms outline structures into bullet or tree charts and includes graphic formatting commands. More expands ThinkTank 512's outline-processing options by letting users obtain a more detailed look at a section of an outline; create linked cross-references; and use

Search, Mark, and Gather commands for reorganizing material. Users can also include both text and graphics windows within outlines, display multiple lines concurrently, and select several header and footer options. The software includes 32 installable outline templates for creating personalized address files, business forms, and expense reports; time/date stamping; an automatic calendar; a phone dialer; and a math function. (List Price: \$295)

**Requires:** Macintosh, 512K RAM  
Living Videotext  
2432 Charleston Road  
Mountain View, CA 94043  
(415) 964-6300

CIRCLE READER SERVICE NO. 515

# POWER PRINT™ lets your printer do what it was designed to do.

## Custom Printer Typefaces!

POWER PRINT software lets you "download" a second typestyle into your printer's memory. Now you can alternate between your printer's standard font and a custom font with special characters and symbols:

COUNT: ABCDabcd6789\*6?  
BYTE: ABCDE12345++→□●  
OUTLINE: XYZ OLD ENGISH

♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥  
**BORDER FONTS TOO!**  
□□□□□□□□□□□□□□□□□□

## Our Fonts or Yours

Many custom printer-fonts are included on the Power Print disk. An easy-to-use Font Editor lets you quickly redraw any of the characters in our fonts. Or you can design your own fonts and characters from scratch.

Your printer's special effects (condensed type, expanded, bold, etc.) will work with both your standard and custom fonts.

## Mix Graphics and Text

Power Print turns your printer into a creative tool. For example, you may design up to 96 custom printer-characters that combine to print a small illustration like a logo or your signature. You may then include this illustration as part of your regular word processor printouts.



PANDA INC.

Dear Sam,

The images shown here were typed with AppleWorks (along with regular text) and printed on an ImageWriter printer. Other software and printers work equally well.

Honestly,

*A. Lincoln*

Uncle Abe

## AppleWorks Compatible

In fact, Power Print is *everything*-compatible. After loading a custom font into your printer (in under 2 seconds), just boot AppleWorks, AppleWriter, ProDOS, DOS 3.3—or absolutely any Apple program or software that you want—and custom printing is yours.

## Full Speed Ahead!

Unlike other printer-font software you may have used, Power Print won't slow your printer down—not even a microsecond.

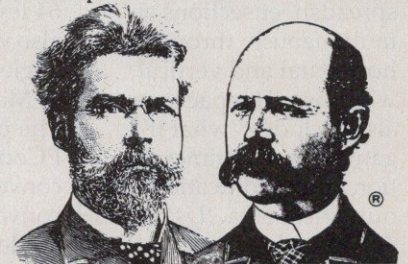
## These Printers and More

Power Print works on most printers with full-font downloading capabilities, including—

IMAGEWRITER (I & II), APPLE (DMP), EPSON (FX, JX, EX), OKIDATA (92, 93, 192, 193), PANASONIC (1092, 1093), STAR (Delta, Gemini, Radix, SD, SG, SR), BROTHER (M-1509), CITIZEN (MSP-20, MSP-25), and many others

## \$39<sup>95</sup> Friendly and Unprotected

Power Print works with any Apple IIe, IIc or 64K II+. Like all Beagle software since 1980, disk backups can be made without hassle.



3990 Old Town Ave., San Diego, California 92110

AVAILABLE AT MOST SOFTWARE STORES or by mail:  
Order Toll Free, Mon.-Fri., 9am-4pm Pacific time  
1-800-345-1750 (National) or 1-800-992-4022 (Calif.)  
Add \$1.50 shipping. All orders shipped immediately.

## PERSONAL CHOICE SOFTWARE

Activision has released the first three products in a new line of productivity software for home, school, and small-business use. Designed to work together, Writer's Choice, Filer's Choice, and Planner's Choice are available either individually or together in the Personal Choice Collection.

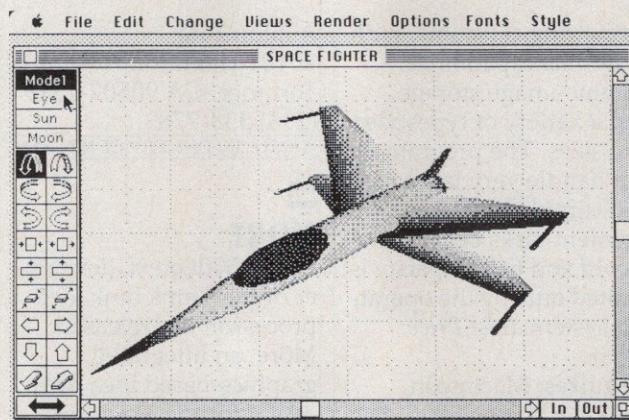
Writer's Choice, a word-processing and writing aid, provides extensive writing and editing features and includes a 50,000-word spelling checker, help screens, and a full layout-preview option.

Filer's Choice lets users tailor computer index cards and sort records either alphabetically or numerically. A report writer lets users combine information from multiple fields into one file for generating reports and preparing documents.

Planner's Choice is a personal planning and spreadsheet system that lets users select column widths and view different spreadsheet sections simultaneously through horizontal and vertical windows. The package also includes "what if" games for experimentation and modification of numerical data. (List Price: \$49.95 each, \$119.95 together)

**Requires:** Apple II Plus, IIe, or IIc  
Activision, Inc.  
2350 Bayshore Frontage Road  
Mountain View, CA 94043  
(415) 960-0410

CIRCLE READER SERVICE NO. 555



## PHOENIX 3D LEVEL 1

A 3-D model-creation and -viewing system for Macintosh computers, Phoenix 3D Level 1 contains a comprehensive set of modeling tools, including polygons with up to 22 sides, spheres, cones, prisms, and surfaces of revolution. Models can contain up to 1200 polygons, and users can attach up to 20 fully fonted 3-D text labels to each model. The system offers 55 methods for producing wireframe, hidden-line, flat-shaded, or smooth-shaded images, and users can shade models with light from any direction in 64 levels of gray. They can also view models from any angle and can save images as MacPaint documents. The package includes PConv, a public-domain conversion program for converting Phoenix 3D models into common text files or vice versa. (List Price: \$39.95)

**Requires:** Macintosh, 512K RAM  
Dreams of the Phoenix  
P.O. Box 10273  
Jacksonville, FL 32247  
(904) 396-6952

CIRCLE READER SERVICE NO. 556

## SHANGHAI

Activision has released Shanghai, a computer puzzle game derived from the ancient oriental game of mah-jongg. The 144 tiles in Shanghai consist of seven visually different suits that are stacked in a five-level, dragon-shaped pyramid. Players remove tiles in pairs from the left and right edges of the pyramid until they have either removed them all or cannot move. Players can choose different game options, such as solitaire, head-to-head matches against the clock, or multi-player tournaments. (List Price: Apple II version, \$39.95; Macintosh version, \$44.95)

**Requires:** Apple II Plus, IIe, IIc, or Macintosh  
Activision, Inc.  
2350 Bayshore Frontage Road  
Mountain View, CA 94043  
(415) 960-0410

CIRCLE READER SERVICE NO. 557

## MACFILL-IN

MacFill-In lets users create forms that can be filled in quickly from the keyboard. The program can convert any MacPaint file into an on-line form, its

Smart Scan feature automatically recognizing blanks and fill-in boxes. Users can press the Tab key or use the mouse for moving from blank to blank when filling in forms. The program can also fill in selected blanks automatically and can compute blanks from other blanks. Users can save completed forms on disk or print them. (List Price: \$39)

**Requires:** Macintosh; 512K RAM; Finder, Version 4.1 or later  
Cognitive Concepts  
1219 Phelps Avenue  
San Jose, CA 95117  
(408) 243-6886

CIRCLE READER SERVICE NO. 558

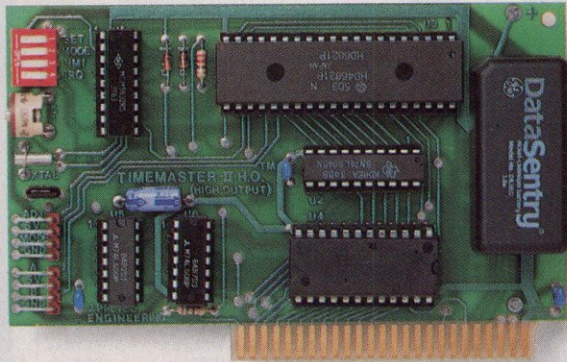
## COLOSSUS CHESS IV

A program in Firebird Licensees' Gold Disk series, Colossus Chess IV is a chess program with multiple difficulty levels. The program can deal with all rules of chess, including under promotions, the 50-move rule, and all draws by repetition. The program supports 2-D and 3-D video displays, has provisions for saving games in progress or re-creating previous board settings, and lets users print histories of game moves on a line printer. The game comes with an instruction manual and extensive classic-game libraries on disk. (List Price: \$34.95)

**Requires:** Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive; joystick optional  
Firebird Licensees, Inc.  
74 N. Central Avenue  
Ramsey, NJ 07446  
(201) 934-7373

CIRCLE READER SERVICE NO. 559

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



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

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

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

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

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- Eight software controlled interrupts so you can run two programs at the same time (many examples included)
- Can be set to the second
- Allows AppleWorks to time and date stamp all data automatically
- Displays time and date on AppleWorks screens and files
- Five-year warranty

Timemaster H.O. .... \$129.00  
BSR option (may be added later) ..... \$ 39.00

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering, Master-Card, VISA and C.O.D. welcome. Texas residents add 5% sales tax. Add \$10.00 outside U.S.A.

**AE Applied Engineering**  
*The Apple enhancement experts.*

P. O. Box 798, Carrollton, TX 75006 (214) 241-6060

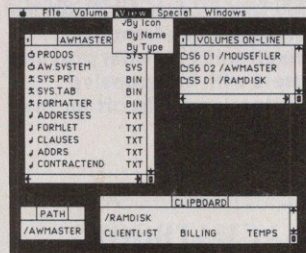
**APPLEWORKS/MI**  
AppleWorks/MI is an interface that lets you use the mouse during all phases of work with AppleWorks, although you can still use the arrow keys if you wish. In one mode the mouse replicates the four arrow keys, moving the cursor up, down, left, or right. In another mode, the mouse replicates use of the four arrow keys with the open-apple key depressed. In addition, a single click of the mouse is equivalent to pressing Return, and a double click is equivalent to pressing Escape. (List Price: \$25)

**Requires:** Apple IIe or IIc, 128K RAM, AppleWorks 1.2, mouse  
Econotron Software  
4164 Henri-Julien  
Montreal PQ H2W 2K3  
Canada  
(514) 288-8843  
CIRCLE READER SERVICE NO. 516

**CLIPCATURE**  
Clipcapture is a menu-driven graphics utility that enables owners of The Newsroom to create their own clip-art disks, users of The Print Shop to produce new graphics, and owners of both to interchange graphics and art. Users can also convert their high-resolution artwork to either Print Shop graphics or to clip art for The Newsroom. Users assemble each clip-art disk using up to 70 clip-art pages, each page containing art gathered from a variety of sources. Each disk can contain more than 250 pieces of clip art. (List Price: \$24.95)

**Requires:** Apple II, II Plus, IIe, or IIc; 48K RAM  
Clipcapture  
477 Windridge Drive  
Racine, WI 53402  
(800) 628-2828, ext. 863  
CIRCLE READER SERVICE NO. 517

**MOUSEFILER**  
Designed for Apple IIe and IIc computers, MouseFiler provides users with Macintosh-like functions, such as a desktop, windows, pull-down menus,



**A screen from MouseFiler from Harbor Software**

and a mouse with which to manage disks, directories, programs, and files. File operations let users create and display directories and copy and paste, rename, delete, sort, compare, and view files. Users can select files in several different ways. They can also format, copy, compare, rename, and diagnose disk volumes for bad blocks. The software supports all types of ProDOS disks, and an application switcher lets users select a system program from the Directory window and then run it. (List Price: \$39.95)

**Requires:** Apple IIe or IIc, 128K RAM  
Harbor Software, Inc.  
403 Great Road, #8  
P.O. Box 872  
Acton, MA 01720  
(617) 263-1870  
CIRCLE READER SERVICE NO. 518

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Quality replacements for most popular printers

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Apple Scribe . . . . . \$2.95 ea.	Toshiba 1350 . . . . . \$4.89 ea.
Epson LX 80/90 . . . . . \$2.95 ea.	Minimum: 6 ribbons

Minimum order: \$25.00. Shipping and Handling: \$4.00 per 100 diskettes or fewer. Continental U.S.A. APO/FPO, add \$8.00 per 100 diskettes. Reduced shipping charge for larger quantities. Government, Educational and Institutional P.O.'s accepted. MI residents add 4% sales tax. Prices subject to change without notice. HOURS: 8:30 AM - 6:00 PM Eastern Time.



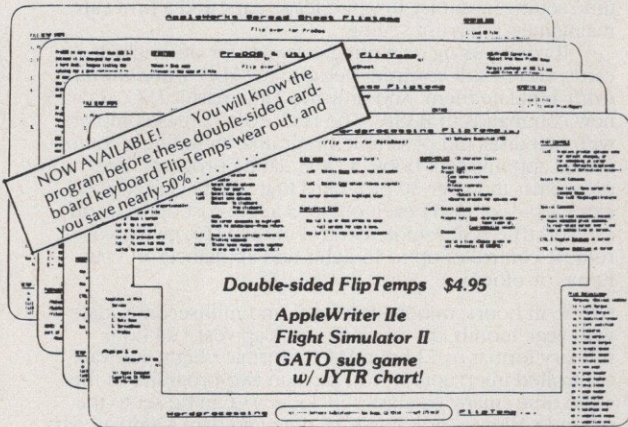
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 P.O. Box 8367, Grand Rapids, MI 49518  
 (616) 452-3457 • Michigan 1-800-632-2468  
 Outside Michigan 1-800-258-0028



C.O.D.

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**AppleWorks (TM) all for \$9.95**  
**Keyboard FlipTemps (TM) plus \$1.00 postage & handling**



**Software Simplified**  
 1765 Knoxville Street  
 San Diego, CA 92110

\*Set has Wordprocessor  
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 ProDOS utilities

Please send the following FlipTemps:

AppleWorks Set*	@	\$9.95	_____
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Flight Simulator II	@	\$4.95	_____
GATO (Sub Game)			_____
w/JYTR chart!	@	\$4.95	_____
Postage/Handling: AppleWorks		\$1.00	
(Per Unit) Others		.55	
TOTAL ENCLOSED			\$ _____

CIRCLE 265 ON READER SERVICE CARD

*Pipeline*



**MacMatbook from The Electronic Publisher provides users with inexpensive professional clip art for the Macintosh.**

**MAC**  
**MACMATBOOK**

The first three-volume set of MacMatbook disks is now available. Designed to provide users with inexpensive, professional graphic images, MacMatbook is a disk-storage system of clip art for Macintosh computers. The first set of disks includes graphics featuring people, transportation, animals, hardware items, nature, arts-related illustrations, food, and more. Users can produce images in different sizes, place them in other Macintosh programs, and reproduce them on dot-matrix or laser printers. For ease of use, the images are indexed into libraries. (List Price: \$99.95)

**Requires: Macintosh**  
 The Electronic Publisher  
 208 S. Marietta Street  
 P.O. Box 38  
 Excelsior Springs, MO 64024  
 (816) 637-7233  
 CIRCLE READER SERVICE NO. 521

**APPLEWORKS TEMPLATES**

Applied Scientific has released Accounts Receivable and Accounts Payable, two new products in its series of business templates that work with AppleWorks.

Accounts Receivable allows users to process complete orders from transactions and invoices to payments. Users can record buyer, purchase-order number, order and shipping dates, item, salesperson, charges, payments, current balances, and more. For tracking inventory and analyzing markets, users can produce reports showing current accounts receivable, overdue accounts, and shipping and mailing labels. The template also lets users print invoices and bills on standard forms.

Accounts Payable tracks cash, checks, and credit-card transactions, allowing users to enter transaction number, date, source, deposit/disbursement amount, memo, income/expense category, and more.

The template allows split transactions and can report checkbook/credit-card reconciliation; monthly, year-to-date, and annual budget; income and deductions by category; and specific transactions. (List Price: \$29.95 each)

**Requires: Apple IIe or IIc,**  
 128K RAM, AppleWorks  
 Applied Scientific  
 416 Arnold  
 Bozeman, MT 59715  
 (406) 586-1157  
 CIRCLE READER SERVICE NO. 522

MAC

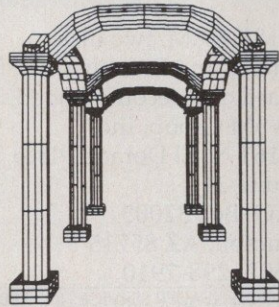
### M.C.A.D. SOFTWARE

Visual Information has released M.C.A.D.-Color and M.C.A.D.-Solids, two enhanced versions of its M.C.A.D. Dimensions 3-D computer-aided-design and -drafting systems for the Macintosh. M.C.A.D. lets users create wireframe designs using geometric tools or surface designs using spheres and patches. Users can enter information in front, side, and top plan view or from template libraries and view designs from a variety of positions. The system can maintain up to 16 simultaneous multiple views, and users can rotate 3-D models on-screen.

M.C.A.D.-Color provides the same design tools as does M.C.A.D. but has the additional option for element and group color assignment. Other capabilities include hidden-surface removal, surface fill, and options to save and load color images.

M.C.A.D.-Solids converts all surface-designed models into solid models, creating solid, shaded, and ray-traced images with both reflective and refractive properties. Users can manipulate movable, ambient, and background light sources to create professional object simulations.

Both packages use Vermont Microsystems' VM8860 and VM8861 color systems, which have 13-inch and 19-inch screens, respectively. These provide a 38.4-kilobaud serial interface to the Macintosh. The packages offer 256 colors, a 262,144-color lookup ta-



M.C.A.D. software provides 3-D CAD systems for the Mac

ble, a noninterlaced screen, and a draw rate of 1400 vectors per second and are IBM PGA-compatible. (List Price: M.C.A.D. Dimensions, \$750, \$95 for demo; M.C.A.D.-Color, \$1250; M.C.A.D.-Solids, \$995)

**Requires:** Macintosh, 512K RAM  
Visual Information, Inc.  
16309 Doublegrove  
La Puente, CA 91744  
(818) 918-8834

CIRCLE READER SERVICE NO. 519

MAC

### WORDPLAY

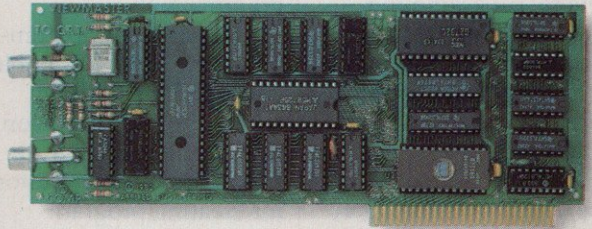
WordPlay, and educational product in crossword-puzzle style, is now available from Palantir Software. Designed for the Macintosh, WordPlay challenges the vocabulary skill of children ages 10 and up. Teachers can create their own puzzles and print them out with their own customized clues. Puzzles come in sizes from 4 x 4 up to 23 x 23; the program can also produce diagramless puzzles. (List Price: \$49.95)

**Requires:** Macintosh  
Palantir Software  
12777 Jones Road  
Suite 100  
Houston, TX 77070  
(800) 368-3797  
in TX (713) 955-8880

CIRCLE READER SERVICE NO. 520

Viewmaster 80

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



	BUILT-IN SOFTWARE	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7, 9 DOT MATRIX	LIGHT PEN INPUT	40 COLUMN OVERBITE	INVERSE CHARACTERS
<b>VIEWMASTER 80</b>	✓	✓	✓	✓	✓	✓	✓	✓
SUPRTERM		✓					✓	✓
WIZARD 80					✓			✓
VISION 80	✓	✓			✓			✓
OMNIVISION		✓					✓	✓
VIEWMAX 80	✓	✓			✓			✓
SMARTERM	✓	✓					✓	✓
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.

Each Viewmaster 80 includes our powerful AppleWorks expand software, allowing AppleWorks to run on the II+ with only 64K (or more) memory. (We recommend the RamFactor memory card, but any compatible Apple memory card will work.) The software provides our full range of AppleWorks enhancements, including expanded records, word processor, multi-disk saving, time and date display on screen with any PRO-DOS clock, and more!

The Viewmaster 80 works with all 80 column applications, including DOS 3.3, PRO-DOS, CP/M, Pascal, WordStar, Format II, Applewriter II, dBase II, Visicalc, Multiplan, and *hundreds* of others—including AppleWorks.

Here are just a few of the powerful features the Viewmaster 80 delivers for a great price (\$139):

- 80 Characters by 24 lines • Fully compatible with all Apple languages and software • Highest compatibility with existing 80 column software • Very low power consumption • High speed (18 MHz) scroll rate • Upper and lower case characters and true descenders, both inverse and normal; all on-screen editing functions are supported • User-definable cursor shape • Compatible with Apple II, II+ and IIe • Five-year warranty

Call today to order or for more information, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 outside U.S.A.

**AE Applied Engineering**  
P.O. Box 798, Carrollton, TX 75006  
(214) 241-6060

MAC

## WSM GROUP SOFTWARE

Several programming tools and Hyper C for the Macintosh are now available from WSM Group. All products come with full source code.

Hyper C is an easy-to-use, full implementation of Kernighan and Ritchie C with numerous extensions. It includes a compiler, 68000 assembler, intelligent linker librarian, and technical documentation and features efficient, optimized native 68000 code. The software supports all ROM calls, floating point via the SANE (Standard Apple Numeric Environment) package, in-

line assembly and Pascal, and basic data types.

Suitable for both beginners and advanced programmers, the programming tools comprise the 68000 Assembler and Intelligent Linker, which produces position-independent code; a multiwindow Text Editor for creating program source text; the Assembler Macro Preprocessor; the TRITON Object C-Preprocessor for object-oriented C programming; and the Toolbox Database, a Microsoft File database with Macintosh toolbox routines. (List Price: *Hyper C*, \$199.95; *68000 Assembler and Intelligent Linker*, \$65; *other tools*, \$50 each)

**Requires:** Macintosh,

512K RAM, two disk drives and RAMdisk or hard disk recommended  
WSM Group, Inc.  
1161 N. El Dorado Place  
Suite 241  
P.O. Box 32005  
Tucson, AZ 85715  
(602) 298-7910

CIRCLE READER SERVICE NO. 528

MAC

## GLUE

Designed to enhance the use of existing desktop-publishing products such as ReadySetGo and PageMaker, Glue lets users incorporate graphics from almost any Macintosh application into a newsletter. The software lets users save graphics on-disk and then copy images from each page into a document

they are preparing with another Macintosh product. Image size is not limited by the size of the computer's screen, and the software saves all Quick-Draw commands used by the creating application so that copied images can be scaled and printed. Because Glue lets users "print" entire newsletters on disk, users can also route newsletters through a network or an electronic-mail system with a communications package. (List Price: \$49)

**Requires:** Macintosh, 128K RAM  
Solutions, Inc.  
P.O. Box 989  
Montpelier, VT 05602  
(802) 229-0368

CIRCLE READER SERVICE NO. 539

# PRINT-IT!

THE NEW APPLE\* COMPATIBLE SERIAL AND PARALLEL PRINTER INTERFACE

## Go From Screen to Paper and Disk\* at the Touch of a Button.

The ONLY way to get fast, easy printouts of ANY screen, at ANY time, with ANY program.

Push the red button that comes with PRINT-IT! - Your program pauses instantly; touch RETURN and whatever is on your screen - text, graphics or both - is printed in color or black & white.

Whether your Apple II, II+, IIe<sup>®</sup> or "look-alike" is for business or pleasure, you'll want the ability to pause and take snapshots of your screen displays and then continue from exactly where you paused, all at the touch of a button - games, business data, menus, educational instructions, graphics - even CP/M<sup>®</sup>. PRINT-IT! will print your screen at any time no matter what program you're running, as well as perform every function you expect of an intelligent printer card.

PRINT-IT! supports:

- Graphics - Low, high, double low, and double high resolution • Text - 40 column as well as Apple IIe and Videx<sup>®</sup> 80 column cards including the new Apple 80 column RGB card
- Software - Prints from ALL software, even allows any printer to be used directly from Apple MousePaint
- Printers - All of the most popular printers,<sup>③</sup> including color, are easily selected with a dip switch.

PRINT-IT!, complete with cable (serial or parallel), is available at your local computer store now! If they don't have it in stock, ask them to get it for you.

Can't find a local dealer? PRINT-IT! is available for \$199 directly from Texprint.<sup>①</sup>

Qualified educational and dealer discounts available.

<sup>①</sup> Visa/MC/AMX accepted. Add \$4 shipping and handling within USA. Mass res. add 5% tax. "Save It!" Disk for only \$29.95.  
<sup>②</sup> Apple II, II+, IIe, and MousePaint are registered trademarks of Apple Computer, Inc.  
<sup>③</sup> CP/M is a registered trademark of Digital Research  
<sup>④</sup> Videx is a registered trademark of Videx, Inc.  
<sup>⑤</sup> Apple DMP/IMAGEWRITER/SCRIBE, BMC, C. Itoh, Canon, Epson, Dataproducts, IDS, Tally, NEC, Okidata, Quadram, Panasonic, Radio Shack, Star Gemini, Transtar, Diablo plus many others.

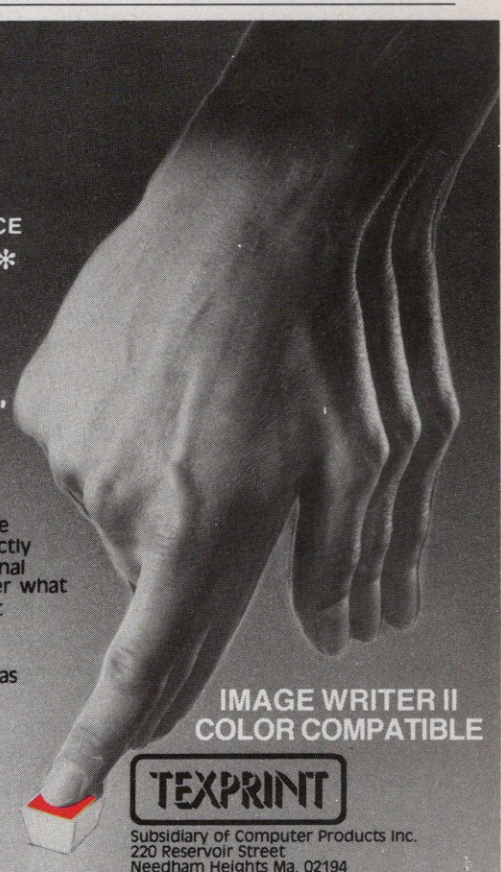


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MAC

## SALES CONSULTANT

The second program in ODS' Consultant Expert Systems series, Sales Consultant is designed to help salespeople plan and improve their sales performance. The program uses Procedures functions that help users to articulate their job mission, goals, objectives, and sales quotas; plan their schedule; keep track of results; learn about products, services, territory, and accounts; plan specific call strategies and presentations; and evaluate their performance. Icons on the screen offer several Idea Generation Aids that enhance creative thinking and Decision Making Aids that enhance critical thinking. Several varieties of help are also available. (*List Price: \$300; demo disk, \$15*)

**Requires:** Macintosh

ODS (Organization Development Software)  
1011 East Touhy Avenue  
Suite 535  
Des Plaines, IL 60018  
(312) 699-4156

MAC

## MACLABELER 2.2

Version 2.2 of MacLabeler, a disk-labeling system and directory maker for 3.5-inch disks, can also determine whether a disk is formatted according to HFS or MFS and can display that information automatically on the back of the label. The program reads the document, application, and folder names from disks; lets users edit the names or add comments; and then prints a label. It also prints the space used, space re-

maining, and the date the label was made on the back.

The program comes with 60 nonsmear, removable, wraparound Quick-Labels. (*List Price: MacLabeler, \$49.95; 201 QuickLabels, \$19*)

**Requires:** Macintosh  
ImageWriter I or II  
Ideaform, Inc.  
908 East Briggs  
P.O. Box 1540  
Fairfield, IA 52556  
(515) 472-7256

CIRCLE READER SERVICE NO. 526

MAC

## MICROSETTER

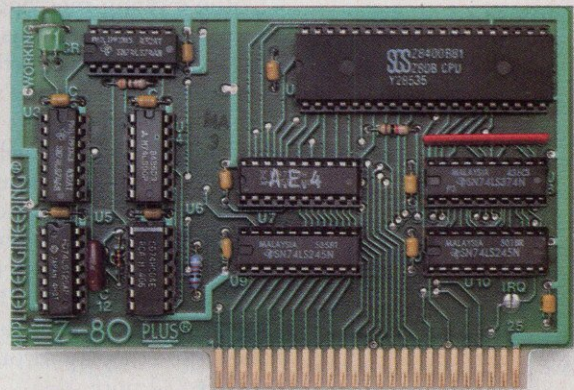
MicroSetter for the Macintosh lets users format documents for direct phototypesetting, displaying text on the screen as it will appear when typeset. The program can interpret all Microsoft Word and MacWrite commands, such as those for variable leading, size and style changes, and formatting, thus eliminating the need to embed codes in text. It can also kern pairs of letters so that users can control kerning on-screen.

The product is designed to work with the Comp/Edit series of typesetting machines, including nondigital models; MicroSetter software is also available for typesetting machines such as the Compugraphic IV, the Editwriter, and the Linotype CRTronic. (*List Price: MicroSetter software, \$495; package of software and hardware interface to Comp/Edit, \$1495*)

**Requires:** Macintosh  
TeleTypesetting Company  
224 Nickels Arcade  
Ann Arbor, MI 48104  
(313) 761-9154

CIRCLE READER SERVICE NO. 527

# With Z-80 Plus, run CP/M—the largest body of software in existence.



*Now, get two computers  
in one, and all the  
advantages of both.*

Enter the CP/M world with the new Z-80 Plus card from Applied Engineering, and introduce your Apple IIe® or II+® to the thousands of CP/M programs. Only the Z-80 Plus comes standard with the new 5.0 software, the most advanced system ever for running CP/M programs.

The new 5.0 boasts advanced features like built-in disk emulation for popular memory expansion boards, boosting both system speed and storage capacity. And menu-driven utilities that let you get to work faster. The Z-80 Plus also lets you run older CP/M programs—all the way down to Version 1.6 (2.2 is the most popular).

The Z-80 Plus is the only card on the market capable of accessing more than 64K. If you have an extended 80-column card, all 128K is usable. And if you have RamWorks, RamFactor, or an Apple memory card, up to 1088K is available.

Each Z-80 Plus comes with our CP/M Ram Drive software, enabling an extended 80-column card, RamWorks card or other standard memory card to work as a high-speed Ram disk which runs CP/M software up to *twenty times faster*. So packages like WordStar and dBASE II run at blinding speed.

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- Fully compatible with Microsoft disks (no pre-boot required)
- Specifically designed for high speed operation in the Apple IIe (runs just as fast in the Apple II+ and Franklin)
- Runs WordStar, dBASE II, Turbo Pascal, and ALL other CP/M software with *no pre-boot*
- Semi-custom I.C. and low parts count allows Z-80 Plus to fly through CP/M programs with extremely low power consumption (we use the Z-80B)
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- Five-year warranty

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**AE Applied Engineering**  
P.O. Box 798, Carrollton, TX 75006  
(214) 241-6060

CPM is a registered trademark of Digital Research.



## RUNE SOFTWARE

Rune Software has introduced two products for Macintosh computers. MacAnalyst enables users to create computer-aided diagnostic and equipment-maintenance programs for their products. Users can digitize schematics and notes from technical manuals into MacPaint images and can add symbols representing instrument probes to show technicians where to make tests, checks, and adjustments on equipment. Users can produce interactive programs with questions and multiple-choice answers and can connect answers to other images.

Users can also prepare images that simulate instrument responses and can connect series of images to other series.

Opti-File is an audio-visual, database-management system that integrates speech and graphics with a hierarchical database. The system manages, stores, prints, and lets users work with MacPaint pictures and data pasted from other applications with the Scrapbook and Clipboard. Opti-File has direct text-to-speech synthesis built-in, with both male and female voices, volume and pitch control, an automatic exception dictionary, and access to phonetic symbols. (List Price: \$149 each)

**Requires:** Macintosh, 512K RAM  
Rune Software  
1502 Kirkham  
San Francisco, CA 94122  
(415) 681-1763

CIRCLE READER SERVICE NO. 530



## SIGN WRITER II

Sign Writer II allows users to create messages for Dottie moving-message displays and then transfer the message files directly into the Dottie display's memory. The program also lets users invoke all Dottie display functions, such as scrolling up and down, blink, pause, jump, variable speed and pitch, and simple graphics. The host computer connects to the Dottie display through an RS-232 port.

Dottie displays are available in four models, and each comes with its own keyboard for entering messages. Other standard features are a 1.8K message memory, an internal time-of-day clock, and battery backup for the internal memory; optional features include a larger internal memory, an RS-232 interface, and a password feature. (List Price: Sign Writer II, \$45; Dottie display, \$495-\$1995)

**Requires:** Apple II Plus, IIe, or IIc; DOS 3.3 or ProDOS  
Computer Resources  
4171 North Mesa Drive  
Building D  
Suite 130  
El Paso, TX 79902  
(915) 821-9205

CIRCLE READER SERVICE NO. 531



## MACDEWEY!

Designed for home, school, and small-community libraries, MacDewey! is a full-function library catalog and circulation system. The software can search for books based on title, author, subject, or fiction type and suggests

where books should be shelved. Users can define fields to contain such information as book acquisition date, cost, and grade suitability and can personalize the system by selecting book loan periods and headers for screens and printed output. The system also produces listings of overdue books loaned to individuals. Two versions of the program are provided, one with full capabilities and one with search-only capability. (List Price: \$79.95)

**Requires:** Macintosh  
Mousetrap Software  
336 Coleman Drive  
Monroeville, PA 15146  
(412) 372-9004

CIRCLE READER SERVICE NO. 524



## THE FILING SYSTEM FOR APPLE WRITER

A text-oriented filing system, The Filing System for Apple Writer lets users store information using Apple Writer to enter and edit data. The software's menu selections let users create new forms, fill in forms, search-display/edit, print reports, print mailing labels, and manage files. The system uses Apple Writer's WPL word-processing language, and the package contains the *Minute Manual for WPL*, an easy users' guide to learning to program in WPL. (List Price: \$99.95)

**Requires:** Apple IIe or IIc, DOS 3.3 or ProDOS,  
Apple Writer  
MinuteWare Publishing  
245 Wilde Lake Village  
Green  
P.O. Box 2392  
Columbia, MD 21044  
(301) 995-1166

CIRCLE READER SERVICE NO. 536



## NUTRITIONAL SOFTWARE

Nutritional Data Resources has introduced a line of nutrition, health, and fitness software.

Nutrient Goal Graph evaluates diets or menus for calories, sodium, cholesterol, vitamins, and minerals. The programs contain calorie and nutrient values of more than 800 foods.

Nutrient Calculator calculates the nutrient content of menus, recipes, and meals. The software is ideal for cookbook developers or individuals who need to plan meals with special restrictions on sodium, cholesterol, fat, calories, carbohydrates, and sugar.

Nutrient Tracker contains a database with calorie and nutrient information on more than 800 foods, including fast foods and prepared dishes. The software analyzes food on the basis of 15 nutrients, including calories, protein, fat, cholesterol, sodium, and sugar, and can generate reports that evaluate favorite foods.

Finally, Dietwise is a comprehensive package that includes Nutrient Goal Graph, Calculator, and Tracker. (List Price: Nutrient Goal Graph, \$60; Nutrient Calculator and Tracker, \$40 each; Dietwise, \$120)

**Requires:** Apple IIe with 80-column card, or IIc; 64K RAM; two disk drives  
Nutritional Data Resources  
P.O. Box 540  
Willoughby, OH 44094  
(216) 951-6593

CIRCLE READER SERVICE NO. 523



## GETTYSBURG: THE TURNING POINT

The tactical civil-war game Gettysburg: The Turning Point lets one or two players choose to take part either in the three-day battle from July 1-3, 1863, or on any one of the three days. In the game, players can keep track of individual artillery, men, and ammunition for each brigade unit. They can also determine actual distances between leaders and the units they command and can merge small units into one unit. The realistic simulation features a scrolling landscape, historical accuracy of map and battle settings, and three levels of play. (List Price: \$59.95)

**Requires:** Apple II, II Plus, IIe, or IIc  
Strategic Simulations, Inc.  
1046 N. Rengstorff  
Avenue  
Mountain View, CA 94043  
(415) 964-1353

CIRCLE READER SERVICE NO. 546



## ACTA

An outline processor and desk accessory for the Macintosh, Acta lets users create outlines while using other applications such as word processors. Instead of grouping ideas into topics and subtopics, the program uses families, which can be of any length. Users can mix typestyles in outlines, paste pictures into them, and save outlines in MacWrite format or in text-only format for use with word-processing programs. The desk accessory also includes searching and sorting abilities. (List Price: \$59.95)

**Requires:** Macintosh,  
512K RAM  
Symmetry Corporation  
761 E. University Drive  
Mesa, AZ 85203  
(800) 624-2485  
In AZ (602) 844-2199  
CIRCLE READER SERVICE NO. 547



## DGI SOFTWARE

Decision Graphics, Inc. (DGI), has released four easy-to-use, menu-driven programs for Apple computers. The DGI Type Shop and The DGI Signmaker let users create text signs, overhead transparencies, and more. The DGI Type Shop works with Hewlett-Packard plotters and includes several fonts; optional fonts, including Greek/Scientific, are also available on separate disks. The DGI Signmaker works with most popular plotters. It offers normal and italic fonts and allows users to use their plotters' special character sets.

The DGI Organization works with HP plotters and lets users create, modify, store, or retrieve organization charts for up to 58 individuals. Finally, the DGI Word Search Puzzle lets users create and print word-search or number-search puzzles. Puzzles can have 20 x 20 or 20 x 40 characters, and each puzzle can have up to 40 word or number strings. (List Price: Type Shop, Organization, \$175; Signmaker, \$75; Word Search Puzzle, \$25)

**Requires:** Apple II Plus, IIe, or IIc; plotter or printer  
Decision Graphics, Inc.  
P.O. Box 2776  
Littleton, CO 80161  
(303) 796-0341  
CIRCLE READER SERVICE NO. 548

# Your Apple IIc deserves the time of day.



*Our IIC System Clock offers automatic time and date stamping, puts time, year, month, date and day of week right on your screen!*

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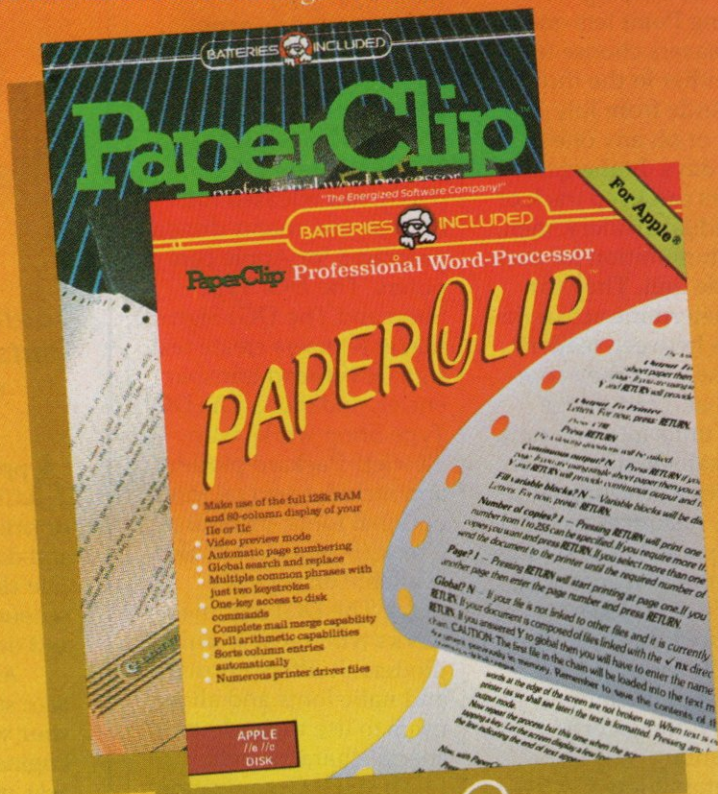
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- supports most special printing functions from bold-face to underlining



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CIRCLE 186 ON READER SERVICE CARD

## SLOGGING THROUGH THE PRINTER MORASS

*The pitfalls of hooking up printers—and some solutions*

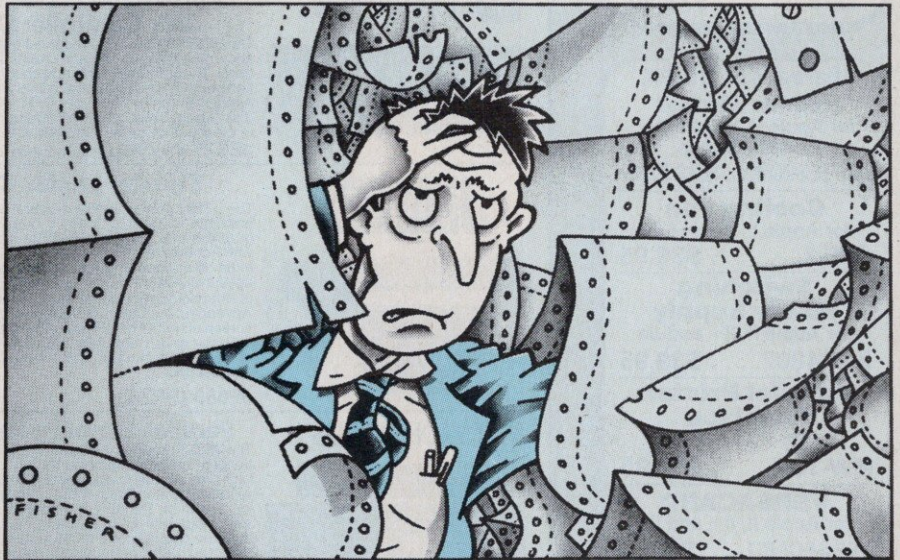
If printers were either a bit smarter or a bit dumber, they'd be a lot easier to hook up to an Apple or other personal computer. As it is now, most printers are smart enough to give us trouble but not bright enough to give us any help.

The main problem is that every brand and type of printer seems to have its own set of functions and control codes and every program its own set of printer requirements. A further complication is that every program seems to have its own set of codes for extra character attributes such as italic, underline, or size changes. And all that is on top of several combinations and permutations in how the printer hooks up to the computer electrically.

When you get to graphics, the situation reaches another level of complexity. Although both screen graphics and printer graphics comprise arrays of tiny dots, the dot patterns, their coding, and the ways of sending them vary with the program, hardware, and printer.

In the short run, you can cross this swamp by sticking to the well-trodden standard paths, but they don't always traverse the route you might need. You can look for an accurate map; you can strike out bravely on your own; or you can wait for some long-run solutions that, although they might not drain all the boggy areas, at least will pave over the worst of the alligator dens.

The most secure path, naturally, is the all-Apple solution, with a dealer as a guide. If you stick to Apple hard-



ware, run Apple-brand software, and are willing to forgo any special printer effects that you can't get by that route, you should be able to skip right through without even noticing any of the quagmire.

Even going this route may require some advance work by someone else

*Most printers  
are smart enough  
to give us trouble  
but not bright enough  
to give us any help.*

if you have an Apple II, however. For example, AppleWorks, like most other programs, needs someone to set up exactly which printer you're using and how it is connected (unless you're using the default shipping configuration of an Apple DMP connected via slot 1). Although picking

another printer from the Other Activities Printer Information menu may not seem difficult to some people, many of us can find it rough going the first time out (which is one reason Apple insists on no sales by mail order).

Most other types of software can generally be tricky too. Aside from a few simple programs and plain text-only languages, programs that talk to a printer usually have to know whether they can go ahead with their initial assumption of just which printer they're talking to. Not all programs (not even all of Apple's programs) assume the same printer.

On the Macintosh, the situation is somewhat better, because the default is almost always the ImageWriter. Consequently, you'll have no problems if that's your configuration. A few programs need to know whether you'll be using a LaserWriter for final output, but usually you make that choice outside of the program with a desk accessory.

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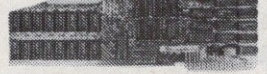
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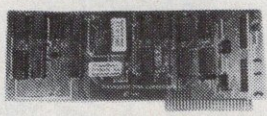
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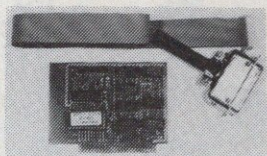


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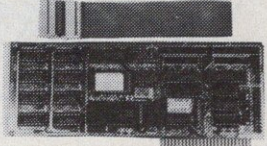


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The JE880 Printer Interface board is an intelligent interface to most of today's popular dot-matrix graphics printers. The JE880 is fully compatible with Apple CP/M, Apple Pascal (or FORTRAN), and most other operating systems and software packages available for Apple II, II+ and IIe\*. The JE880 is shipped configured for the Centronics standard. Advanced text printing features include: video screen echo ON or OFF, auto/disable linefeed after carriage return, set/clear the 8th bit of the output data, set left margin, and more! Complete with instructions.

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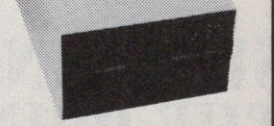
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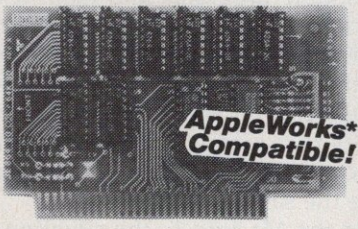
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**1MByte RAM Card**  
for Apple II, II+ and IIe\*



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- Recommended Display: 40-column
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- Composite video output
- Res.: 800 lines @ center
- Recommended Display: 40-/80-column
- Weight: 19 lbs.

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\*\*When using CP/M, the JE860 and JE868 will only function with Version 2.20 or earlier; PASCAL (JE868) Version 1.1 or earlier.

Taking the standard route does have its limitations. If you're using an ImageWriter with AppleWorks, for example, you'll find that only seven special printer commands (bold, superscript, subscript, underline, six or eight lines per inch, proportional characters, and characters per inch) are built in. Yet, if you turn to the ImageWriter manual, you'll see that not only can this printer produce graphics, but it also has commands to download special character sets, advance the paper in units of 1/144 inch, move the paper backwards (reverse line feed), and dozens more. If you have an ImageWriter II, AppleWorks doesn't know about how to send it color.

If you're using a non-Apple printer, the mismatch can be even greater. Many inexpensive dot-matrix printers have built-in italics, double-width or double-height characters, multiple character fonts, and various other options. Non-Apple laser printers have their own special fonts and options.

If your software doesn't let you take advantage of these features, you probably won't make much use of any special printer abilities unless you write your own software. Getting a program that doesn't know about your printer's special attributes to make effective use of them is usually quite a struggle. If you buy your printer from a different source than the one that provided your system and software, you may not get much help from any of the individual vendors.

### Using a Map

Fortunately, some printer manufacturers realize that their products would be more attractive to Apple users with a well-marked path. You'll find that some makes include, in their documentation, settings for popular Apple programs (most notably AppleWorks and Apple Writer) or supply an emulation mode that makes their printer respond as if it were an Apple ImageWriter.

Some software vendors do the same. For example, when The Print Shop program came out, Brøderbund listed several possible printers and said it would try to add any others that users requested.

These approaches usually cover most common types of printing, including ordinary word processing, and in some cases even take care of graphics. Emulations aren't always perfect, though, and some of the more subtle functions may not work

exactly the same way on different printers. Thus, you may get output that varies slightly with programs that use these functions.

If you do decide to strike out on an even less-traveled path, you'll need good set of maps—a printer manual and some basic information about your software, at minimum.

Every printer has a listing of exactly what control codes it accepts and what it does in response to them. Most often, you'll find a complete listing in an appendix to the manual,

which for the better printers serves as a supplement to easier-to-understand tutorial or narrative explanations.

Unfortunately, not every software package has a similar description of its requirements and what codes it supplies. Those that do, again using AppleWorks as the example, generally request that you fill in a table of codes with the appropriate values for your printer. Some programs, however, want hexadecimal (base 16) codes, some want decimal, and some want you to enter an example of the code it-

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self. If you're a scrounger, you may even find some printers that use octal (base 8).

You may also be able to find some help in various books, such as *Printer Connections Bible* by Kim G. House and Jeff Marble (Howard W. Sams & Co.); *Programmers' Handbook of Computer Printer Commands* by Mary Lou and Fred B. East (Cardinal Point, Inc.)—for printer models through 1984; and *The Apple Interface Manual* from Apple Computer, Inc. *A+* has also run several articles on the sub-

ject, most recently "Flip a DIP Switch," in the May 1986 issue, and "You Can Make the Right Connections," in the June 1986 issue.

On the Macintosh, on the other hand, the output coding goes through the operating system, so you'll have to look at *Inside Macintosh*, especially the sections on printer drivers and the QuickDraw routines, if you want to add your own printer. Unless you're an experienced tinkerer, though, you're likely to find it heavy going.

On the other hand, that same com-

bination of a standard output format plus a significant level of complexity makes this same project attractive as a commercial proposition. Consequently, you can buy several printer-driver programs off the shelf that interface the Mac to a variety of popular non-Apple printers. You'll find many of them advertised in *A+* and other magazines, often listed under "Utilities" or "Printer Utilities."

### The Standard Highway

It seems clear that the Macintosh solution—having applications write to a standard "virtual page" provided in the operating system and then using a single driver program for each printer, regardless of the program—will be the most-used route in the future. As processing power and memory continue to decline in relative cost, the added costs of this indirect approach become smaller, and the advantage of uniform solutions becomes more significant.

Apple itself is ideologically committed to finding general solutions that work across the whole company line (and just because you support your dealers doesn't mean you don't want a solution that just plugs in and runs). In the external world as well as at Apple, you see increasing interest in PostScript and other similar page-description languages because they do provide this kind of device independence.

The trend will accelerate as printers too get smarter. To make PostScript work on the LaserWriter, Apple had to build a computer more powerful than the Mac, but within a year or two, that same level of processing power will be affordable in more-moderately-priced output devices.

As the prevalence of just a few operating systems shows, standards become more economically necessary as devices get more complex. Companies that have to write complex drivers for every permutation of printer and software package will find themselves sinking into a quagmire of coding and maintenance.

I don't think that you'll necessarily see a PostScript ImageWriter on the market for less than \$500 this year, nor will a literal duplication of QuickDraw appear quite yet on the Apple II. But I wouldn't be surprised if a year or two from now we could look back and say, "Gee, I'm glad we finally got out of that printer-interfacing swamp." Until then, watch out for those alligators. **+**

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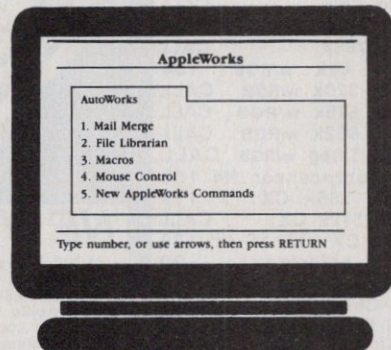
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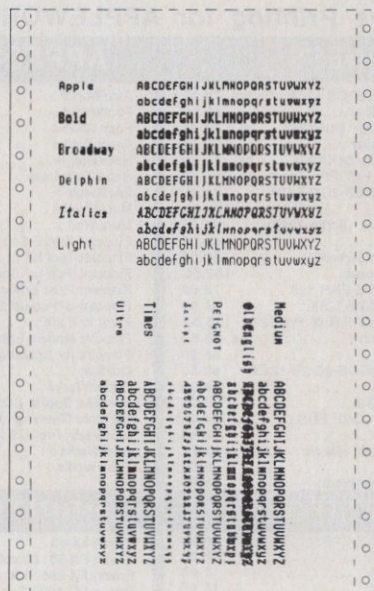
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BY CRAIG CROSSMAN AND GARY B. LITTLE

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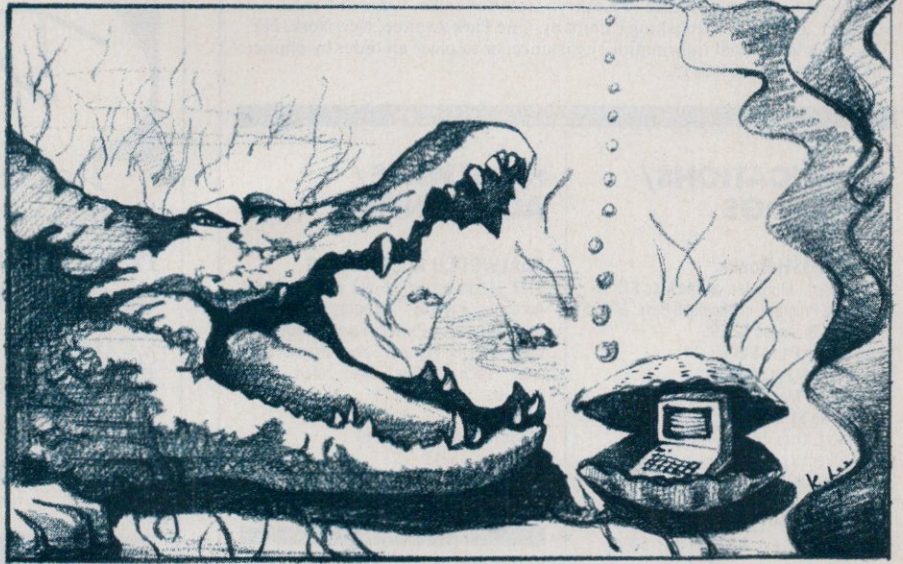
**Q.** *I plan to take my Apple overseas. What do I need in order to do so? Can I use a TV or monitor over there? Can I buy a printer and modem over there and use it with my U.S. Apple? What are some pitfalls I should look out for?*

**A.** U.S. Apples are designed to use a line-voltage range of 107–137 volts at 50 or 60 hertz. Most countries use 220v at 50 Hz. You will need a grounded step-down isolation transformer to convert 220v to 110v. A 500-watt unit should be sufficient for a complete Apple system (CPU, monitor, and printer), but make sure the wattage is at least 50% over the total wattage of your entire system. This conversion works for all Apple computers, but on Macintoshes you may notice some screen flicker at 50 Hz.

As far as video monitors and TV sets are concerned, three major broadcast standards are currently in use. They are NTSC (U.S.), SECAM (France), and PAL (the rest of Europe). They are completely incompatible with each other, and no conversion device can help you achieve compatibility, so you will need to take your monitor with you.

As far as buying any peripherals such as hard-disk drives, modems, printers, and plotters overseas is concerned, you need to make sure they are frequency-independent devices (they must work at 50 or 60 Hz). All Apple peripherals are frequency-independent *except* the color plotter, the Scribe printer, the U.S. ImageWriter II, and the LaserWriter. Failure to comply with these restrictions can result in severe damage to your Apple and peripherals, so be careful!

Modems overseas use different protocols, so check to see if your modem is protocol-compatible. For example, Bell 103 is not compatible with the European CCITT protocol. Check with your dealer or modem manufacturer for details. —CC



## CRASH PROTECTION

**Q.** *How can I prevent someone from crashing my Applesoft programs by pressing Control-Reset?*

**A.** A user can always interrupt a program by pressing Control-Reset because a program can't tell the 6502 microprocessor to ignore a reset. On the IIe and IIc, however, control passes to the subroutine whose address is stored at \$3F2 and \$3F3 when a reset occurs, as long as performing an exclusive-OR on the number at \$3F3 with the constant \$A5 yields the number stored at \$3F4. (If it doesn't, the system reboots.) By placing the address of your own routine at \$3F2/\$3F3 and adjusting the value stored at \$3F4, you can get your program to deal with resets in an intelligent way.

Since resets can occur at any time, important data areas in a program can be rendered unusable after a reset (perhaps it's interfered with the initialization of a pointer to a data area, for example.) Thus, it is not safe to install a reset-handling subroutine that simply forces the computer to reenter a program other than at its beginning. If you want to trap reset, I suggest you

simply rerun the program or, if you are using ProDOS, run the ProDOS Quit code. (This code asks for the name of the next system program to run.) Here is a short program you can use to install a reset handler that calls the ProDOS Quit code:

```
LDA #GOTRESET
STA $3F2
LDA #GOTRESET
STA $3F3
EOR #$A5
STA $3F4
RTS
GOTRESET JSR $BFOO
DFB $65
DA Q_PRMS
Q_PRMS DFB 4
DFB 0
DW 0
DFB 0
DW 0
```

For a more detailed discussion of how to trap reset, see either of my two books *Inside the Apple IIe* or *Inside the Apple IIc*. —GBL +

Please send your questions and problems to Rescue Squad, A+, 11 Davis Drive, Belmont, CA 94002.

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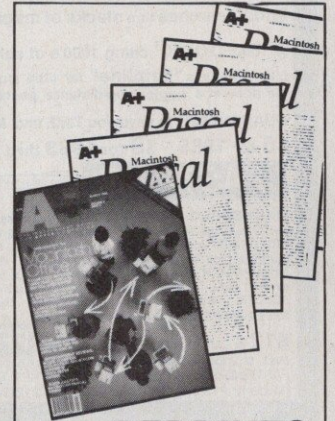
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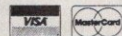
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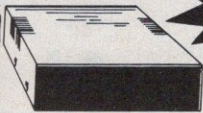
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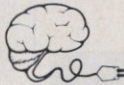
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# AD INDEX

## BY PRODUCT CATEGORY

### ACCESSORIES

PAGE

#### DISKS

Echo Data Services, Inc. .... 113

PAGE

#### MISCELLANEOUS

Cheatsheet Products, Inc. .... 70

Computer Cover Co. .... 112

E2 Corporation ..... 81

Pacific Technology Systems ..... 141

### BOOKS

PAGE

#### BOOKS

Bristen Press ..... 113

### HARDWARE

PAGE

#### DISK DRIVES/STORAGE DEVICES

Central Point Software ..... 117

CMC Computer System .... 113

ProAPP ..... 23

#### INTERFACE CARDS

Applied Engineering. 2,3,10,30  
54,123,125,127,129

AST Research, Inc. .... 41

Beagle Brothers ..... 121

Legend Industries Ltd. .... 31

Ohio Kache Systems Corp. . 43

SMT, Inc. .... 146

#### MISCELLANEOUS

Cauzin Systems ..... 60,61

Central Point Software ..... 119

	PAGE
Computer Friends .....	58
Covox, Inc. ....	18
Creative Peripherals Unlimited, Inc. ....	19
Digital Vision .....	81
Innovative Micro .....	143
Kensington Microware Cover 4 Quorum International Unlimited .....	98
Roger Coats .....	134
Sun Systems Remarketing .....	79

### PRINTERS/PRINTER ACCESSORIES

Dresselhaus .....	35
Funk Software, Inc. ....	13
Texprint .....	126

### MAIL ORDER

PAGE

Business Computers of Peterborough .....	96,97
CDA World of Computers .....	34
Coit Valley Computers .....	59
Computer Network .....	136
Jameco Electronics .....	132
JDR Microdevices .....	88
Northeastern Software .....	46,47
PC Network .....	108,109
Precision Data Products ...	124
Preferred Computing .....	71
Programs Plus .....	28,29
Ribbon Land .....	133
Silicon Express .....	57
Unitech .....	56
VF Associates .....	82
Zimco .....	118

### SOFTWARE

PAGE

#### BUSINESS

BPI Systems .....	14
H & E Computronics .. Cover 2	
Peachtree Software .....	83
Pinpoint Publishing .. 63,64,65	
SoftCore .....	12

#### COMMUNICATIONS

MGR Software .....	70
PBI Software .....	92

	PAGE
<b>DATA MANAGEMENT</b>	
Pinpoint Publishing .....	90

#### EDUCATIONAL

Davidson & Associates .....	62
Grolier Electronic Publishing, Inc. ....	40
Springboard Software .....	1

#### ENTERTAINMENT/STRATEGY

Activision .....	5,86
Electronic Arts .....	8
Infocom .....	76,77
Interlude .....	85
Microprose .....	44
Mindscape .....	75
Professor Jones .....	80
Strategic Simulations, Inc. .	52
Sublogic Corporation .....	4,66

#### GRAPHICS

Spectral Graphics Software ..	42
T & W Systems .....	33

#### MISCELLANEOUS

Big Red Apple Club .....	143
National AppleWorks Users Group .....	80
Norwich Data Services ....	113
Plume Software .....	141
Software Simplified .....	124
Software Touch .....	135
StatSoft .....	82
UPTIME .....	36

#### ON-LINE SERVICES

CompuServe .....	95
Dow Jones News/Retrieval ..	69
General Electric Information Services .....	78

#### PERSONAL BUSINESS-HOME

HowardSoft .....	Cover 3
MECA .....	49-51

#### UTILITIES

Alpha Logic Business Systems .....	87
Central Point Software .....	48
Funk Software, Inc. ....	13
Thirdwave Technology, Inc. .	31
Utilico Microware .....	33

#### WORD PROCESSING/SPELLING CHECKERS

Batteries Included .....	130
Sensible Software .....	35,84
StyleWare, Inc. ....	32

# ALPHABETICAL AD INDEX

READER SERVICE NO. PAGE

## A

- 174 Activision, Inc. .... 5  
 176 Activision, Inc. .... 86  
 259 Alpha Logic Business Systems ..... 87  
 \* Applied Engineering .... 10  
 \* Applied Engineering .... 30  
 \* Applied Engineering .. 2,3  
 \* Applied Engineering.. 123  
 \* Applied Engineering.. 125  
 \* Applied Engineering.. 127  
 \* Applied Engineering.. 129  
 \* Applied Engineering.... 54  
 323 AST Research, Inc. .... 41

## B

- 186 Batteries Included ..... 130  
 148 Beagle Brothers ..... 121  
 113 Big Red Apple Club .. 143  
 290 BPI Systems ..... 14  
 166 Bristen Press ..... 113  
 \* Business Computers of Peterborough .. 96,97

## C

- 235 CDA World of Computers ..... 34  
 120 Cauzin Systems ..... 60,61  
 184 Central Point Software . 48  
 187 Central Point Software 119  
 194 Central Point Software 117  
 \* Cheatsheet Products, Inc. .... 70  
 215 CMC Computer System ..... 113  
 105 Coit Valley Computers . 59  
 271 CompuServe ..... 95  
 136 Computer Cover Co .. 112  
 195 Computer Friends ..... 58  
 137 Computer Network ... 136  
 \* Covox, Inc. .... 18  
 159 Creative Peripherals Unlimited, Inc. .... 19

## D

- 337 Davidson & Assoc. Inc. .... 62

READER SERVICE NO. PAGE

- 170 Digital Vision, Inc. .... 81  
 277 Dow Jones News/Retrieval ..... 69  
 339 Dresselhaus Computer Products ..... 35

## E

- 266 E2 Corporation ..... 81  
 \* Echo Data Services, Inc. .... 113  
 168 Electronic Arts ..... 8

## F

- 154 Funk Software, Inc. .... 13

## G

- \* General Electric Information Service ..... 78  
 169 Grolier Electronic Publishing, Inc. .... 40

## H

- 335 H&E Computronics Inc. .... Cover 2  
 \* HowardSoft ..... Cover 3

## I

- 225 InfoCom ..... 76,77  
 153 Innovative Micro ..... 143  
 177 Interlude ..... 85

## J

- 279 Jameco Electronics ... 132  
 167 JDR Microdevices ..... 88

## K

- 134 Kensington Microware .. Cover 4

## L

- 287 Legend Industries, Ltd. .... 31

READER SERVICE NO. PAGE

## M

- 325 MECA ..... 49-51  
 250 MGR Software ..... 70  
 111 Microprose ..... 44  
 \* Mindscape ..... 75

## N

- 180 National AppleWorks Users Group ..... 80  
 304 Northeastern Software ..... 46,47  
 101 Norwich Data Services ... 113

## O

- 178 Ohio Kache Systems Corp. .... 43

## P

- 199 Pacific Technology Systems ..... 141  
 241 PBI Software ..... 92  
 315 PC Network ..... 108,109  
 318 Peachtree Software .... 83  
 239 Pinpoint Publishing .... 63  
 239 Pinpoint Publishing . 64,65  
 163 Pinpoint Publishing ..... 90  
 320 Plume Software ..... 141  
 228 Precision Data Products ..... 124  
 \* Preferred Computing ... 71  
 175 ProAPP, Inc. .... 23  
 132 Professor Jones ..... 80  
 299 Programs Plus ..... 28,29

## Q

- 223 Quorum International... 98

## R

- 202 Ribbon Land ..... 133  
 109 Roger Coats ..... 134

## S

- 227 Sensible Software, Inc. 84

READER SERVICE NO. PAGE

- 156 Sensible Software, Inc. 35  
 231 Silicon Express ..... 57  
 280 SMT, Inc. .... 146  
 256 SoftCore ..... 12  
 265 Software Simplified ..... 124  
 173 Software Touch ..... 135  
 139 Spectral Graphics Software ..... 42  
 261 Springboard Software ... 1  
 207 StatSoft ..... 82  
 131 Strategic Simulations, Inc. ... 52  
 155 StyleWare, Inc. .... 32  
 110 SubLOGIC Corp. .... 4  
 268 SubLOGIC Corp. .... 66  
 103 Sun Systems Remarketing ..... 79

## T

- 343 Texpriint ..... 126  
 146 Third Wave Technology, Inc. ... 31  
 102 T&W Systems ..... 33

## U

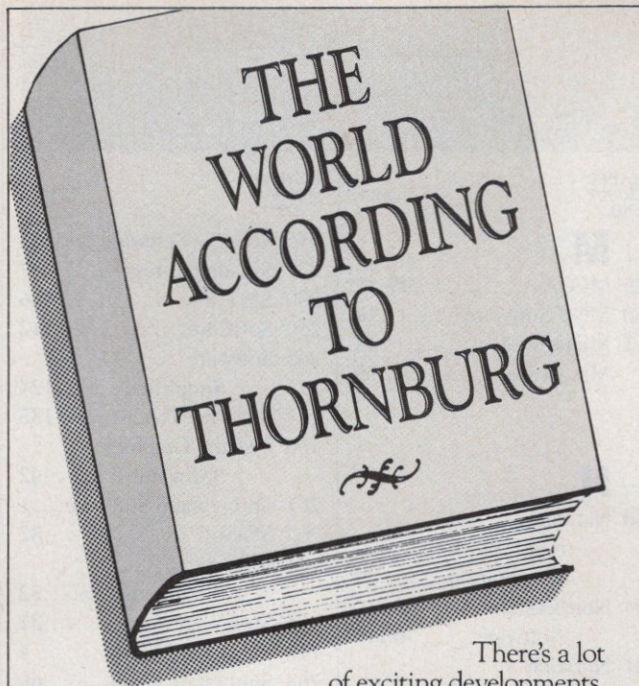
- 160 Unitech ..... 56  
 219 UPTIME, Inc. .... 36  
 190 Utilico, Microware .... 33

## V

- 138 VF Associates ..... 82

## Z

- 126 Zimco ..... 118

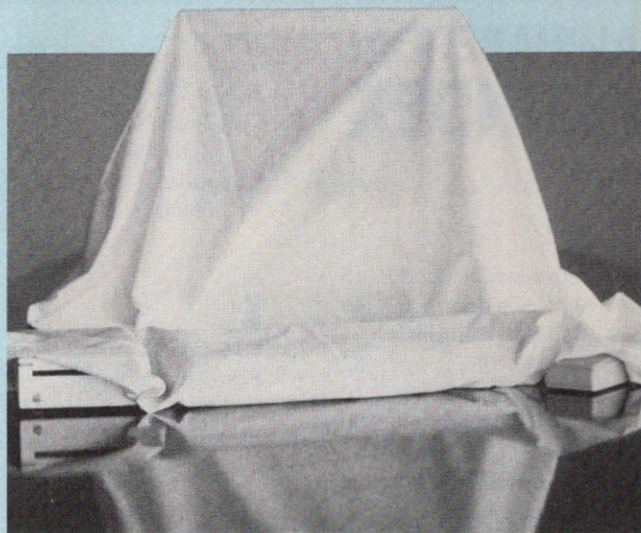


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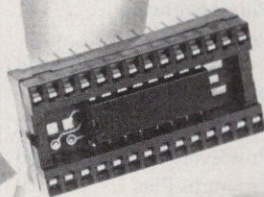
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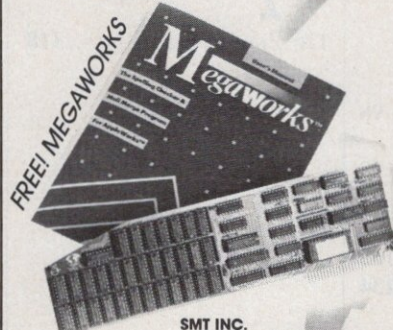
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 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190  
 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220  
 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250  
 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280  
 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310  
 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340  
 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370  
 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400  
 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430  
 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460  
 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490  
 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520  
 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550  
 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580  
 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610  
 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640

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 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190  
 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220  
 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250  
 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280  
 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310  
 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340  
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 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430  
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 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490  
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Please indicate which of the following microcomputers you currently own and/or plan to buy in the next 6 months.

	(1.) Own	(2.) Plan to Buy
Apple II	A	H
Apple II+	B	I
Apple IIe	C	J
Apple IIc	D	K
Macintosh	E	L
Other (specify)	F	M
None	G	N

Please indicate which of the following types of software you plan to buy in the next 6 months.

	(3.) Plan to Buy 1-3 Months	(4.) Plan to Buy 4-6 Months
Business Software for Office	T	Y
Business Software for Home	U	Z
Educational Software	V	I
Entertainment Software	W	2
Programming Software	X	3

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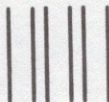
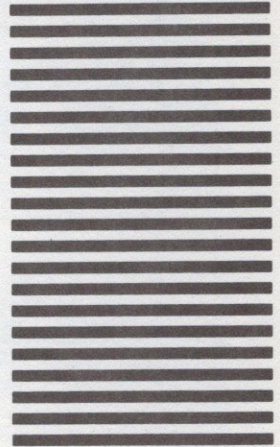
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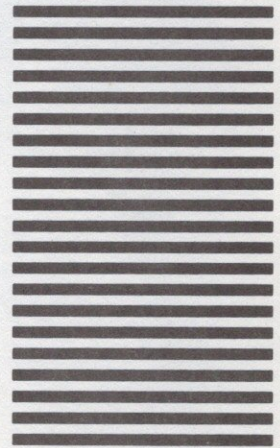
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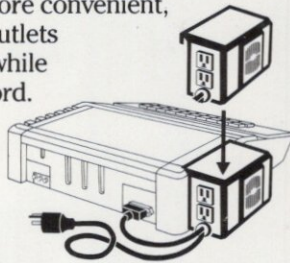
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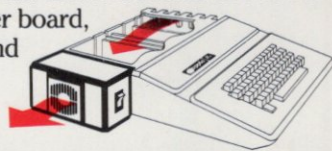
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