

# incider

A CWC/I PUBLICATION

USA \$2.95  
Canada \$3.95  
March 1986

## SUCCESS WITH APPLEWORKS

- Making Money with Word Processing
- Less Paperwork; More Free Time
- Power Desktops: Jeeves vs. Pinpoint

**A BETTER //e?**  
The Franklin Ace 2200

**REVIEWS:**  
■ WordPerfect  
■ MicroExpert  
■ MouseWrite  
and more

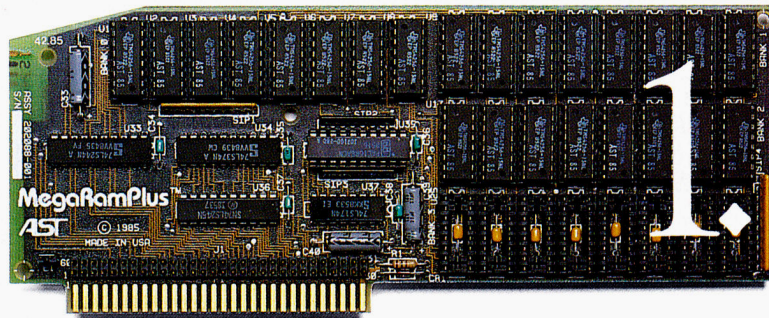
**FREE LISTING!**  
Flexigraph: Graphing Applesoft Functions

**JUDY COLLINS:**  
An Autobiography  
with AppleWorks

WWW.APPLE2ONLINE.COM  
DR KENNETH BUCHHOLZ  
KBUCH1\*\*\*\*\*I5 03 IC DEC86  
3DG 00791



# Five ways to spo



Four great enhancement products for added power, speed, storage and memory. Plus AST's Number One reputation for quality, service and support.

Spoil your Apple IIe with the performance provided by AST's reliable enhancement products. As the world's leading supplier of IBM® PC enhancement products, AST means serious business when it comes to transforming your Apple® personal computer into the powerful tool you need.

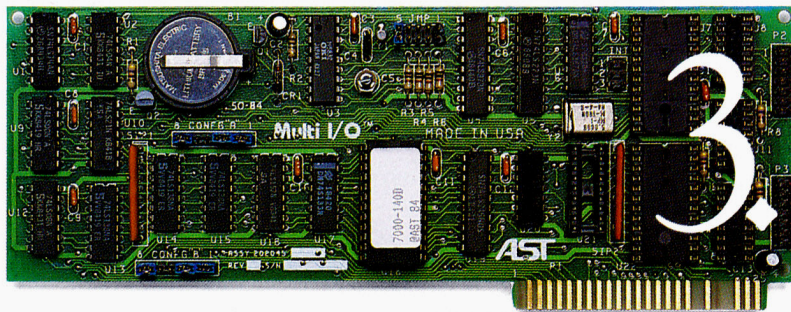
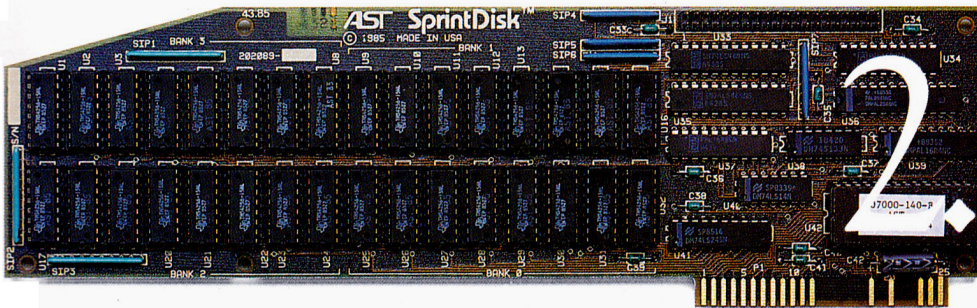
**MegaRamPlus™: Expandable memory and disk caching.** Plug this versatile RAM Expansion Card into your IIe auxiliary slot for up to 1.0 Megabyte (MB) of expansion memory on the mainboard and all the features of an extended 80-column card, including double high-res graphics and sharp 80-column text. Not to mention, our exclusive disk caching software, MegaRamCache™ for increased PC productivity.

MegaRamCache copies data from main memory to its own cache memory. This caching memory significantly reduces disk access time, provides the fastest possible data retrieval and speeds generation of larger documents.

Then there's our RAM disk software that emulates hard and floppy disk drives. And a variety of options such as even more memory, an RGB interface and other features – no one else offers more than MegaRamPlus.

It's easily upgradeable too. You can start out with up to 1.0 MB of RAM on the MegaRamPlus mainboard. Later, add our piggyback board with an RGB interface and additional memory.

We also include a special RAM diagnostic utility and AppleWorks Expansion Software that will recognize your new added memory.



# il your Apple® IIe.™

**SprintDisk™: RAM Disk card with disk caching software.** The new generation memory card is here. Designed for use as a rapid-access, mass-storage device, SprintDisk provides up to 2.0 MB of memory for larger spreadsheets, longer word processing documents and bigger databases, with no modification to the application software. And SprintDisk offers fast, user-transparent disk caching — we call it SprintCache™ — for the most advanced and rapid disk access possible.

Available in 256K, 512K, 768K and 1.0 MB mainboard configurations, our piggyback board provides another 1.0 MB of memory for up to a full 2.0 MB. And the SprintDisk board is fully socketed for easy user-upgrading.

**Multi I/O™: The versatile, upgradeable clock/calendar and input/output card.** AST's Multi I/O lets you add a clock/calendar, a serial printer port and a serial communications port — all in a single slot. If you like, you can start out with just the clock/calendar, and add the ports yourself when you need them.

Complete compatibility with ProDOS™, Appleworks™ and most other Apple IIe applications programs means Multi I/O is right for your environment. Our serial printer port lets you connect popular letter quality and dot matrix printers, including Apple's own Imagewriter™. And our serial communications port allows you to communicate via telephone modem with other personal computers and on-line services — Hayes™ compatibility included.

**MicroStor™: A total solution for data storage and retrieval.** A fast and reliable hard disk drive combined with a cartridge tape backup, MicroStor provides 10 or 20 MB of memory for the ultimate mass storage system for your Apple IIe.

Available in a variety of configurations, MicroStor can be tailored to your specific requirements. Select our 10 or 20 MB hard disk with tape backup, our 10 or 20 MB hard disk only unit, or our tape backup only unit. Whatever you choose, it's easy to upgrade later with the AST components you need to meet your storage requirements.

MicroStor's compact 3.5" Winchester hard disk gives you convenient data storage while the tape backup allows easy mirror image and file-oriented archival backup for permanent records, transferring information by mail to other locations or simply security.

Ready for your Apple IIe environment, MicroStor is compatible with a wide range of operating systems, including DOS 3.3, Apple II™ Pascal, CP/M™ and, of course, ProDOS.

**5. The quality, service and support of an industry leader.** The AST reputation is built on quality, and our Apple products are no exception. Just like our award-winning SixPakPlus® multi-function card for the IBM PC — the defacto industry standard with over 500,000 shipped — each and every feature of our Apple IIe enhancement products is designed to provide you with the reliability and performance you need. All of our products come with generous warranties too — two years on board level products and six months on disk/tape subsystems. And don't forget our world renowned service and customer support.

For more information call (714) 476-3866. AST Research, Inc. 2121 Alton Avenue, Irvine, CA 92714.

**AST  
RESEARCH INC.**



## Features:

### MegaRamPlus

- Up to 1.0 MB RAM on mainboard
- MegaRamCache for fast, user-transparent disk caching
- ProDOS™ and AppleWorks™ compatible
- 100% replacement for 80-column card in auxiliary slot
- Additional RAM and RGB interface optional
- Software Utilities Included
  - AppleWorks Expansion
  - RAM Disk (hard and floppy emulation)
  - RAM Diagnostics
- Fully socketed and user-upgradeable

### SprintDisk

- Up to 2.0 MB Total Memory
  - 256 Kb to 1.0 MB on mainboard
  - Up to 1.0 MB additional memory on piggyback card
- SprintCache for fast, user-transparent disk caching
- Fully socketed and user-upgradeable
- ProDOS, DOS 3.3 and Pascal 1.3 compatible
- Fits any I/O slot except #3, in IIe or II+

### Multi I/O

- ProDOS and AppleWorks compatible
- Time and date stamp for files
- 12/24 hour format
- Four interrupt frequencies available
- Optional serial and/or communications ports
- Reference manual and ProDOS utilities

### MicroStor

- 10/20 MB (formatted capacity) 3.5 inch Winchester disk drive/tape backup subsystem
- 10/20 MB hard disk only
- 10/20 MB tape backup only
- ProDOS, Apple II Pascal, DOS 3.3, and CP/M compatibility
- Streaming cartridge tape backup
- Backup/Restore volume or file
- Software utilities included
- Modular construction for easy expandability

SixPakPlus registered trademark and Multi I/O, MicroStor, MegaRamPlus, MegaRamCache, SprintDisk and SprintCache trademarks of AST Research, Inc. Apple registered trademark and Apple IIe, Apple II, ProDOS, AppleWorks and Imagewriter trademarks of Apple Computer, Inc. IBM registered trademark of International Business Machines Corp. Hayes trademark of Hayes Microcomputer Products. CP/M trademark of Digital Research. Copyright © 1985 AST Research, Inc. All rights reserved.

# Free software from Electronic Arts™

## It's easy!

Buy any of these 12 smash hits from your participating dealer between February 1, 1986, and May 31, 1986. Then just mail in your proof of purchase, \$5 for shipping and handling, and the official "Get One Free" coupon. So what are you waiting for?

## In case of emergency...

If you can't find a participating dealer, you can order direct from us by telephone or mail. Just call toll-free 800-227-6703. In California call 800-632-7979. Have your Visa or MasterCard number ready. Just tell us what you want to buy, and what you want for free. It's simple. And there's a 14-day "satisfaction or your money back" guarantee on all products ordered direct.

*In case your participating dealer runs out of "Get One Free" coupons, use this.*

cut here

Yes! I want free software from Electronic Arts!

No thanks. I'm using my computer as a doorstop.

(Check one)

### Apple

II, II+, //c, //e

- Dr. J. & Larry Bird  
Go One-On-One
- Archon
- Financial Cookbook
- Music Construction Set
- Pinball Construction Set
- Seven Cities of Gold
- Archon II: Adept
- Movie Maker

### Commodore

64 & 128

- Dr. J. & Larry Bird  
Go One-On-One
- Archon
- Financial Cookbook
- Music Construction Set
- Pinball Construction Set
- Seven Cities of Gold
- Archon II: Adept
- Movie Maker
- M.U.L.E.
- Realm of Impossibility
- Mail Order Monsters
- Racing Destruction Set

### Atari

400-1200 series

- Dr. J. & Larry Bird  
Go One-On-One
- Archon
- Financial Cookbook
- Music Construction Set
- Pinball Construction Set
- Seven Cities of Gold
- Archon II: Adept
- Movie Maker
- M.U.L.E.
- Realm of Impossibility

### IBM

PCjr, PC, & comp.

- Dr. J. & Larry Bird  
Go One-On-One
- Archon
- Financial Cookbook
- Music Construction Set
- Pinball Construction Set
- Seven Cities of Gold

Please send my free software to the following address. I have enclosed the required Proofs of Purchase and \$5 (check or money order payable to Electronic Arts) to cover the cost of shipping and handling (\$7 Canadian).

PLEASE PRINT

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Signature \_\_\_\_\_

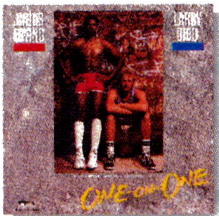
Proof of Purchase: Send us the following two items: 1) the dated cash register tape or receipt showing the product you purchased, and 2) find the Command Summary or Reference Card inside the package you purchased. Cut off the part number on the back, lower-left-hand side of the card, or the product name from the front of the card. Send these two items and \$5 for shipping and handling (\$7 Canadian), along with the coupon, to **Electronic Arts, "Buy 1, Get 1 Free," P.O. Box 7530, San Mateo, CA 94403**. This offer expires May 31, 1986. Open to residents of the U.S.A. and Canada only. Only the products listed are available for this promotion. No substitutions will be accepted.

(no dogs included...)

Let's face it. Buying home software can be a risky proposition. Good software costs a lot of money. Cheap software practically rolls over and barks. But look at this. The titles listed below are Electronic Arts' greatest hits. They've all scored on the "top twenty" best-seller charts. Between them they've won over 60 product quality awards—making them the most honored products in the home software industry.

Best of all, there's no longer any reason to swallow hard when you think about treating yourself to quality software. Because now you can:

# Buy 1, Get 1 Free.



## DR. J. & LARRY BIRD GO ONE-ON-ONE™

The best-selling computer sports simulation of all time.  
"Game of the Year"—*Electronic Games*  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.



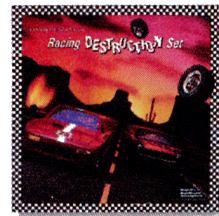
## PINBALL CONSTRUCTION SET™

Build your own video pinball games.  
"Best Game Generator"—*Infoworld*  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.



## MUSIC CONSTRUCTION SET™

Composition for anyone who can point a joystick.  
"Best Music Generator"—*Infoworld*  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.



## RACING DESTRUCTION SET™

Land mines, oil slicks, animated spin-outs, collisions and crashes.  
"...the ultimate racing game..."  
—*Computer Entertainer*  
C-64 & 128.



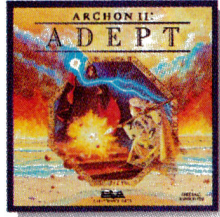
## SEVEN CITIES OF GOLD™

Play Conquistador in this educational adventure of history and geography.  
"Best Role-Playing Adventure"  
—*Family Computing*  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.



## ARCHON™

Like chess with arcade battle action.  
"Game of the Year"  
—*Creative Computing*  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.



## ARCHON II: ADEPT™

Graduate school for Archon addicts. Even more strategy and magic.  
"Best Strategy/Arcade Game"  
—*Family Computing*  
Apple // family, C-64 & 128, Atari.



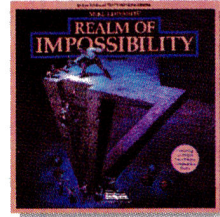
## MAIL ORDER MONSTERS™

New. Like an "Archon Construction Set."  
"Best Construction Set"  
—*Family Computing*  
C-64 & 128.



## MOVIE MAKER™

Create your own high-quality animated movies.  
"A masterpiece."  
—*Creative Computing*  
Apple // family, C-64 & 128, Atari.



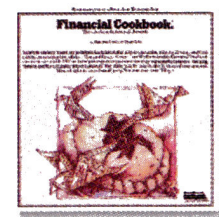
## REALM OF IMPOSSIBILITY™

Action and adventure in a world of Escher-like illusions. Includes a unique 2-player cooperative mode.  
C-64 & 128, Atari.



## M.U.L.E.™

The best multi-player computer game of all time.  
"Best Strategy Game"—*Infoworld*  
"Best Multi-Player Game"  
—*Electronic Games*  
C-64 & 128, Atari.



## FINANCIAL COOKBOOK™

Take control of your personal finances. Like a calculator, spreadsheet, and financial advisor combined.  
Apple // family, C-64 & 128, Atari, IBM PCjr, PC, and comp.

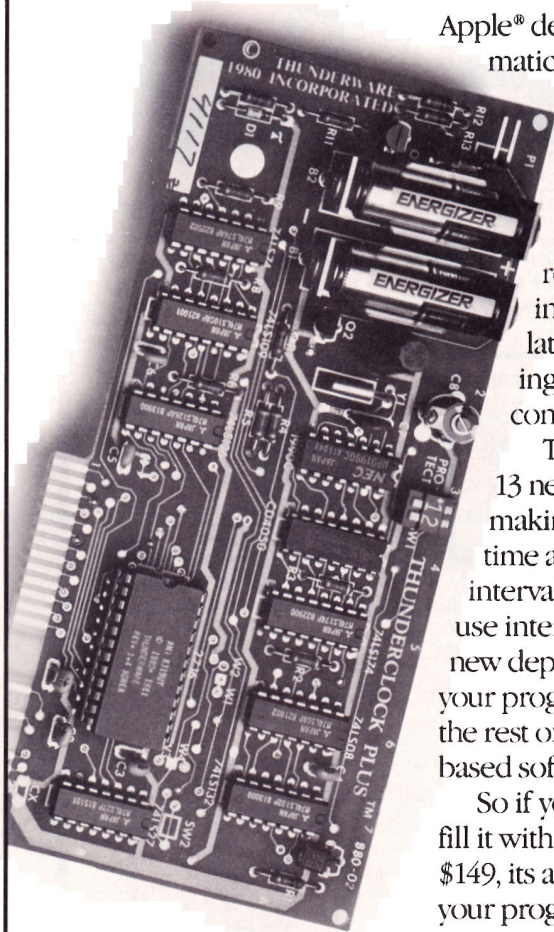
Remember—this offer is good only on these 12 products for the Apple // family, C-64 and 128, Atari, and IBM PC, PCjr, and compatible computers. No substitutions will be accepted. For details, see the accompanying coupon.

For a complete Electronic Arts Catalog, send 50¢ and a stamped, self-addressed envelope to Electronic Arts Catalog, 1820 Gateway Drive, San Mateo, CA 94404. IBM is a registered trademark of International Business Machines, Inc. Apple // is a registered trademark of Apple Computer Inc. Commodore 64 & 128 are registered trademarks of Commodore Business Machines, Inc. Atari is a registered trademark of Atari Computer Corp. Electronic Arts, Dr. J. & Larry Bird Go One-on-One, Archon, Financial Cookbook, Music Construction Set, Pinball Construction Set, Seven Cities of Gold, Archon II - Adept, Movie Maker, M.U.L.E., Realm of Impossibility, Mail Order Monsters, and Racing Destruction Set are registered trademarks of Electronic Arts.



# PRODOS PROGRAMMERS:

*Find files fast,  
add 13 new commands  
with Thunderclock.<sup>®</sup>*



*Thunderclock comes with a one-year warranty. On-board batteries keep it running accurately for up to four years before simple battery replacement.*

Apple<sup>®</sup> designed ProDOS to automatically read Thunderclock.

So Thunderclock can automatically time and date stamp your disk files. Every time you create or revise one. Now you can instantly identify your latest entry. Without slowing down or losing your concentration.

Thunderclock also adds 13 new commands to BASIC, making it easy to access the time and date, measure intervals in milliseconds and use interrupts. That can add a new depth of functionality to your programs. Not to mention the rest of the available ProDOS-based software, like AppleWorks.

So if you've got a vacant slot, fill it with Thunderclock. For \$149, it's a great way to improve your programming, and your programs. See your dealer or contact us.

## **THUNDERWARE,<sup>®</sup> INC.**

21 Orinda Way, Orinda, CA 94563  
(415) 254-6581

Apple is a registered trademark of Apple Computer, Inc. ProDOS and AppleWorks are trademarks of Apple Computer, Inc.

**Publisher** Terri Hamilton  
**Editor in Chief** Deborah de Peyster  
**Technical Editor** Perry Donham  
**Managing Editor** Dawn F. Matthews  
**Senior Editor** Eileen T. Terrill  
**Review/New Products Editor** Paul Statt  
**Copy Editor** Robin Florence  
**Assistant Editor** Lafe Low  
**Proofreader** Peter Bjornsen  
**West Coast Editor** Wendy Lea McKibbin  
(415) 328-3470  
**Contributing Editor** Robert M. Ryan  
**Field Editor** Babs Cringely

## **Advertising**

**Sales Manager/Northeast** Paul Boulé  
**Sales Representative** (800) 441-4403  
(603) 924-7138  
**Southeast and Central** Fiona Davies  
**Sales Representative** (800) 441-4403  
**West Coast** Donna Pomponi  
**Sales Representative** 1060 Marsh Road  
Menlo Park, CA 94025  
(415) 328-3470  
**Advertising Coordinator** Kim Labbe  
(800) 441-4403  
**Marketing Services Manager** Michael Duran

## **Design**

**Art Director** Donna Wohlfarth  
**Production Supervisor** Phyllis Pittet  
**Ad/Graphics Production** Rosemary Gibson

## **Graphic Services**

**Graphic Services Manager** Dennis Christensen  
**Manufacturing Manager** Susan Gross  
**Typesetting Supervisor** Linda P. Canale  
**Typesetter** Nancy Salwen

## **CW Communications/Peterborough**

**President/CEO** James S. Povec  
**Vice President/Finance** Roger Murphy  
**Assistant General Manager** Matt Smith  
**V.P. of Planning and Circulation** William P. Howard  
**Circulation Manager** Frank S. Smith  
**Direct & Newsstand** Raino Wirein  
**Sales Manager** (800) 343-0728  
**Director of Credit, Sales, and Collection** William M. Boyer  
**Executive Creative Director** Christine Destrempe  
**Founder** Wayne Green

*inCider's* BBS (bulletin-board system)  
On line 24 hours: (603) 924-9801

*inCider* (ISSN #0740-0101) is published monthly by CW Communications/Peterborough, Inc., 80 Pine Street, Peterborough, NH 03458. Phone: (603) 924-9471. Second-class postage paid at Peterborough, NH, and additional mailing offices. (Canadian second class mail registration number 9590.) Subscription rates in U.S. are \$24.97 for one year, \$38.00 for two years and \$53.00 for three years. In Canada and Mexico, \$27.97—one year only, U.S. funds drawn on a U.S. bank. Nationally distributed by International Circulation Distributors. Foreign subscriptions (surface mail), \$44.97—one year only, U.S. funds drawn on a U.S. bank. Foreign subscriptions (air mail), please inquire. **Postmaster:** Send address changes to *inCider*, Subscription Services, P.O. Box 911, Farmingdale, NY 11737. (Send Canadian changes of address to: *inCider*, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)

*Photo and illustration credits: cover, pp. 19, 20, 120, Frank Cordelle; pp. 24, 34, Richard Pagano; pp. 45, 46, 47, 49, 50, 51, Colburn Blazok Associates.*

## ON THE COVER

### 18 Judy Collins

by Paul Statt

An interview that tells how Judy is using her Apple IIc and AppleWorks to write her autobiography.



18

### 24 Success Stories

by Archie Mason

See how one couple has used their Apple and AppleWorks to start a word-processing business for the wife and handle paperwork and inventory for the husband, an independent sales rep.

### 34 Desktop Power

by Tom Sherman

A comparative review of two new desktop accessories for AppleWorks.

### 38 Franklin Clones the IIe

by Bob Ryan

An in-depth review of the new Franklin Ace 2200.

### 48 Graphs "On the Fly"

by William W. Miller

A useful program for anyone teaching or studying the graphing of functions.



34

## TUTORIALS

**AppleWorks in Action** 54  
*Customer Mailing Labels with AppleWorks*  
by Ruth K. Witkin

**Applesoft Adviser** 92  
*An Applesoft Bar Builder*  
by Dan Bishop

**Pascal Primer** 97  
*The Record: Pascal's Pack Rat*  
by Tom Swan

## DEPARTMENTS

**inCider's View** 6  
*The Fun Factor*  
by Deborah de Peyster,  
Editor in Chief

**Letters** 8

**News Line** 14

*Chatting with Your Apple; Do Mac Users Want II Software?; Apple Loyalists Losing Patience; Wrong Signals; Calendar*

**Status Report** 61

*Intelligence*  
by Paul Statt, Review Editor

**Reviews** 65

*WordPerfect; Touch Window; MouseWrite; Bataille de Mots; Snooper Troops: Sur les Traces du Deirdron; Micro-Expert; Real Estate Analyzer*

**New Products** 82

**Ask inCider** 88

*More on Memory #1; ProDOS Com; More on Memory #2; Some Like It Hot*  
by Bob Ryan

**Game Room** 105

*Ultima IV: Quest of the Avatar; Norway 1985; Battalion Commander*  
by Brian J. Murphy

**Apple Clinic** 107

*More ProDOS on Franklins; ImageWriter Dumps; Z-RAM Tough; Apple IIe Jacks*  
by Jim Sather

**Hints/Techniques** 112

*WPL Maillist Enhancements; Apple II Multiprogramming*

**Coming Attractions** 119

**Reader Services** 119

**Editors' Choice** 120

*MouseDesk, MouseWord, MouseCalc, MouseBudget*

# INCIDER'S VIEW

## The Fun Factor



by Deborah de Peyster

*"We have a theory, and it goes like this: The more fun you have doing something, the better job you do."*

**W**e have a theory, and it goes like this: The more fun you have doing something, the better job you do. It's called the fun factor, and in its simplicity is a lot of truth. You can't have success without a healthy fun-factor rating.

Let's review this principle. Mindscape Inc. has produced a series of hit software programs for the Apple II market, including The Halley Project, Bank Street Music Writer, and the Color Me: Computer Coloring Kit. For the Macintosh, its hits include Deja Vu and Balance of Power. Company president Roger M. Buoy is, quite frankly, seriously hooked on Balance of Power, and has yet to figure out the mystery in Deja Vu. And as a native Australian, he's obviously rooting for the Aussies in Mindscape's newest Apple II game, The American Challenge (with hit song *Win Back the Cup*). He and his other managers at Mindscape have a lot of fun at what they do, and the company's success last year shows it.

Infocom, in Cambridge, Massachusetts, is widely known for its top-selling adventure games. What is less widely known but equally important is its Funcom Committee—the group of people at the company in charge of scheduling hijinks. The regular Friday afternoon party is where orchestrated misadventures often show up, or in the company newsletter, where nothing is sacred. When the Infocom staff moved to new headquarters last fall, the shine of corporate culture was quickly dimmed with signs tacked to doors denoting the executive suite as "Big Cheese," the developers' offices as "Mixed Nuts," and the sales department as "Snake Oil." Sound like fun? Maybe not to you, but it's fun for the people at Infocom. And that's what counts. The company's sales prove it.

That's an interesting point about the fun factor. Fun is defined by the people at the company, not by any external force. And the definition of fun can change as corporate cultures change. Take Apple Computer Inc., for example. The definition of fun used to be friendly competition between the Apple II and Macintosh groups, beer blasts in

the late afternoon, group t-shirts, rock music, and flexi-time that reached new limits. It worked then, and Apple was roaringly successful. No longer.

Key Apple funsters, Steve Wozniak and Steve Jobs, left, and fun all but disappeared from the Apple employees' vocabulary until the beginning of 1986. Shortly before his departure, the Woz wrote in an autograph, "Here's hoping computers always get better and remain fun to use." For the Woz, computers were not getting better (the Apple IIx project had been killed) and without that 16-bit processor, computers weren't as fun to use. The fun-factor rating at that time, about March 1985, was a poor 40 percent. Apple's trouble with profits matched the poor rating—it experienced its first quarterly loss.

Now fun is beginning to return, but with a more button-down, corporate flair. Employees are beginning to feel a total company spirit, where isolated groups existed before. Friday afternoon parties remain, but now draw people from all over the company, instead of just from one particular division. The beer now appears in six-packs instead of just a keg, and the potato chips are often put into bowls. Tables are set up, and someone might occasionally call a caterer to drop off a few food trays.

And Apple leader John Sculley is finally coming into his own, having weathered the dissolution of the old corporate culture and proved to those who remain that the newly unified Apple has a lot to offer. The strength of his ideas and his determination to succeed are beginning to permeate the company. And while he may not sport the Steve Jobs blue-jeans-and-suspenders look, he gets his own lunch in the employee cafeteria and looks more comfortable in khakis than pin-stripe.

It's time to revise Apple's fun-factor rating. We give it 70 percent, and note that it's on the rise. If we're right, healthy 1986 second-quarter profits this month should prove our theory. ■



# MANAGE YOUR BUSINESS, NOT YOUR BOOKS!

## INTRODUCING BusinessWorks™



Courtesy of Apple Computer, Inc.

Apple is a registered trademark of Apple Computer, Inc.  
AppleWorks is a trademark of Apple Computer, Inc.

You've put time and energy into building your business. Now take the next step. Meet BusinessWorks, the ultimate business accounting package for people who demand high performance.

BusinessWorks offers you complete financial control over your company. Comprehensive reporting capabilities, including summary "flash" reports, help you make vital management decisions. And, BusinessWorks

allows you to analyze your financial information in AppleWorks, the best-selling integrated software package.

Designed specifically for Apple's new high-powered computers, BusinessWorks includes five full-featured accounting applications. With help messages at almost every point, and "show" windows that display needed codes or IDs, it's incredibly easy to use.

See it for yourself! Visit your dealer today for a demonstration, and get down to business — with BusinessWorks.



Developers of The Business Accountant™  
and The Advanced Business Accountant™

(916) 781-3880



BusinessWorks, Manzanita Software Systems and the Manzanita logo are trademarks of Manzanita Software Systems, Inc.  
© 1985 Manzanita Software Systems, Roseville, CA 95678.

Circle 241 on Reader Service Card.

## The Elegant Escape

"Leaving the Escape Mode Behind" (June 1985, p. 32) was one of the most useful articles I've read in quite some time. Using Apple Writer and its glossary functions to type in BASIC program listings is a godsend.

I have only one complaint. The author failed to make allowances for the recently released ProDOS-based Apple Writer, version 2.0, in writing the capture routine for translating Applesoft into Apple Writer text files. If you run the capture routine the way it's listed under ProDOS, you'll get a "File Busy" error message, followed by a "Break in 63040" and "File(s) Still Open." As I learned from reading "Using ProDOS—Part 6" (August 1985, p. 38), ProDOS will not perform an operation on an "open" file.

I got around this problem by adding the following line:

```
63035 PRINT$;"CLOSE";FS
```

I have no experience with programming, so there may be a more elegant way of getting the job done. This line does seem to work, though.

**Brad Townsend**  
P.O. Box 181  
Byron, IL 61010

## Peripheral Ponderances

I am considering adding an Applied Engineering Z-RAM card with 512K and a Quark 10-megabyte hard disk to my Apple //c. The Apple dealers in my area don't even know about the Quark product, and one of them thinks First Class Peripherals may be releasing a //c-compatible hard-disk drive within the next several months.

I would appreciate any comments you might have concerning the interfacing of these two peripherals with the //c and with each other.

**Donna B. Munger**  
78 Laurel Ridge Road  
Hershey, PA 17033

*Both the Z-RAM 512K card and the Quark QC10 hard-disk drive are compatible with the //c, and they should work with one another. We've heard of memory conflicts between Applied Engineering's RAMdrive software and another hard disk, though. If you plan to use the Z-RAM as a RAM disk in conjunction with the QC10, you should try them out before buying them. A representative at First Class Peripherals says the company has no plans at the moment for a //c-compatible Sider. —eds.*

## Satisfied Customers

As a new Apple user with a //c and all Apple peripherals, I've found your publication to be first rate and a great deal of help. I noticed that in your review of The Newsroom (August 1985, p. 64) John Barry made special mention of the courteous help he received when he talked to the Springboard Software program-development manager about a problem he had. Such help is rare and should be encouraged.

In this spirit of encouragement, I'd like to relate an experience I had with Data Transforms with regard to its excellent Fontrix graphics software. I ran into a persistent disk-I/O error that prevented me from saving any data I created. I couldn't find any solution in the user's manual, so I wrote the company a letter explaining the problem. The customer-support people called me two days later. According to my rough figuring, they had found my phone number and called me the day they received the letter. They explained the solution clearly, and it worked on the first try. Such support, I think you'll agree, deserves special mention.

**Ray Groshong**  
Contee Road  
Laurel, MD 20708

How about a little "credit where credit is due"? I recently took on the task of helping a small company convert its payroll chores to a computer-

based system on an Apple //e.

The first pass was a flop—the system crashed repeatedly, and help was nonexistent, as the software publisher chose that time to go "belly up."

A more diligent search of software catalogs led me to BPI Systems, of Austin, Texas, which produces an excellent package. It runs on many computers, including the Apple II line, with hard- or floppy-disk drives.

The real value is the support I'm receiving from BPI. Several BPI people have bent over backward to help me get the system started—not just with technical support, but in many ways too numerous to mention here. I don't know all their names, but I appreciate their help just the same.

BPI is an organization that will stand behind its products. I sincerely hope it enjoys a long and successful existence.

**David M. Hoban**  
4824 Westcreek Drive  
Fort Worth, TX 76133

## Ballooning

I found a problem with *inCider's* program Balloons (November 1985, p. 127). The dart automatically fired when the solution to a problem equaled zero.

I corrected the program by changing line 300 to line 305, and adding the following line 300:

```
300 IF SD(LR)=1 OR QS="" THEN 350
```

Other than that, it's a fine program.

**David Woods**  
495 Stanley Road  
Akron, OH 44312

*Thanks for the tip, David. There's just one problem: Now the kids will want to make the dart fire automatically all of the time!* —eds.

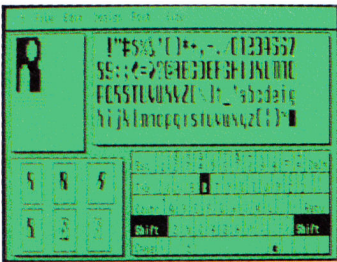
# MultiScribe™

## Creative Writing for Your Apple® IIC™/Ile™

Now your Apple IIC or Ile can offer you the type of creativity that you might have thought was available only with a Macintosh.™ MultiScribe is a full feature word processor that uses double hi-res and proportional spacing to give your Apple all the character of a Mac.

**You supply the imagination, MultiScribe does the rest.**

There are no complicated commands to learn. Easy to use pull-down menus provide you with a wide range of type styles, character sizes, and text formatting options. You can choose the typeface that's right for your text—or create your own custom fonts with MultiScribe's font editor. And MultiScribe gives your writing style—any style, from bold and underline to italic, outline and shadow—just like MacWrite.™



Pictured above: MultiScribe's font editor.



**If you're afraid of mice, don't worry.**

With MultiScribe, you have the option of using a standard keyboard or a mouse. Use your mouse to pick and click commands from the pull-down menus... or use the arrow keys for "keyboard mouse" action. Each MultiScribe option has a keyboard equivalent displayed right on the menu, giving you the best of both worlds.

**Don't upgrade your old computer, just your old files.**

MultiScribe works with any IIC or Ile equipped with extended 80 column card and most dot-matrix printers, including Imagewriter,™ Epson,® and Okidata.® You can even use MultiScribe to customize files created by other word processing programs.

**And best of all—the price.**

For a limited time, MultiScribe is available at a special introductory price of only \$39.95. Just complete and mail the coupon below or call our toll-free number, 1-800-233-4088 (in Texas call 1-713-771-4627).

**\$39.95**

+ \$3.00 shipping & handling  
Texas residents add 6 1/8% sales tax.

Outside U.S. add \$10.00.

Make check or bank order payable to:  
StyleWare, Inc.

Name

Street

City

State

Zip

MasterCard

Visa

Check/Money Order

Card#

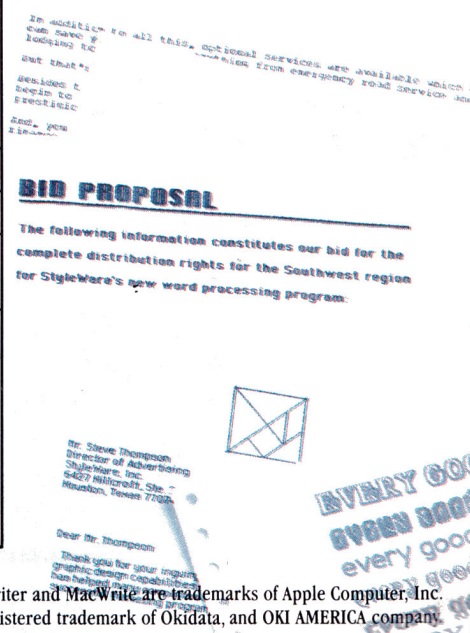
Exp. Date

**MultiScribe™**  
Creativity at your fingertips.

StyleWare, Inc.  
6427 Hillcroft, Suite 201, Houston, Texas 77081

Circle 239 on Reader Service Card.

MultiScribe is a trademark of StyleWare, Inc. Apple is a registered trademark of Apple Computer, Inc. Apple Ile, Apple IIC, Imagewriter and MacWrite are trademarks of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. Epson is a registered trademark of Epson America, Inc. Okidata is a registered trademark of Okidata, and OKI AMERICA company.



YOUR  
**APPLE**  
TODAY,  
KEEPS THE  
**DOCTOR**  
AWAY.



## HOUSECALL '86

THE COMPUTERIZED  
HOME MEDICAL ADVISOR

- Written By Physicians.
- Over 400 Diagnoses.
- Concise Information accessed directly or through branching questionnaire.
- Educational—background and treatment for each condition diagnosed.
- Closely Related Diagnoses follow computer's initial choice.
- A Ready "Second Opinion".
- Fast, Easy and Fun to use.
- Self Contained—Multiple disk data base—no modem needed.
- Always Current—yearly updates available at nominal cost.

Great For Business Offices As An Employee Benefit. Also Helps Reduce Absenteeism

HOUSECALL '86 Will Run On Apple II +, c, e and IBM PC Family. Other Versions will be available soon. Dealer inquiries invited.



**Rocky Mountain  
Medical Software, Inc.**

To Order Call Toll Free  
**(800) 233-3556**  
For More Information Call  
**(303) 773-1237**

List Price \$79.95 Dealer Inquiries Invited  
**SPECIAL LIMITED OFFER \$39.95**

Please send \_\_\_\_\_ copies of **HOUSECALL '86**  
@ \$39.95 + \$3.00 shipping (\$8.00 foreign).  
(Colorado residents add \$1.30 tax).  
20 Day Money Back Guarantee

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Check  VISA  MC Exp. Date \_\_\_\_\_

No. \_\_\_\_\_

Signature \_\_\_\_\_



**Rocky Mountain  
Medical Software, Inc.**

5680 S. Syracuse Circle, Suite 500  
Greenwood Village, CO 80111

## LETTERS

### Looking Back

I recently purchased an Apple IIe, so I hadn't seen your magazine before, yet I'm sure a number of back issues of *inCider* contain a lot of valuable information. For example, I'm considering buying a hard-disk drive and would very much like to read your review of The Sider. Is it possible to get a copy of that issue? Also, have you ever reviewed RAM expansion cards?

I'm an independent stock-market investor, and I'm trying to find a really good program for analyzing stock-market investments. Have you reviewed any of these?

**Maxa Moss**  
P.O. Box 206  
Stamford, NY 12167

*First Class Peripherals' Sider hard-disk drive was reviewed in the April 1985 issue (p. 93) and was featured as Editors' Choice in the May issue (p. 128). It also appeared in "Hard-Driving Disks" (September 1985, p. 24), a comparison review of hard-disk drives. Check the September Editors' Choice for Applied Engineering's Z-RAM card (p. 128), and the December 1985 issue for "Thanks for the Memory," a feature review of RAM expansion cards (p. 18). December also contains a review of CBS Software's Stockpak II (p. 127).*

*You might also check out a software directory, such as the PC Clearinghouse Directory, The Book of Apple Software, or the OMNI Complete Catalog of Computer Software, to name a few, for the vast number of stock packages available. There's one that's sure to suit you.*

*To order back issues, write to inCider, Back Issues Department, Route 101 and Elm Street, Peterborough, NH 03458. Enclose \$3.50 plus \$1 postage for each copy you order. You may charge it to your VISA, MasterCard, or American Express by calling (800) 258-5473.* —eds.

### The Gaming Sort

I was very surprised and disappointed when I received my November issue of *inCider* and didn't find the Game Reserve. Above all, I look forward to reading about the latest in Apple II entertainment. I hope you intend to continue this section. It has become even more important to me since my favorite game-review magazine went out of business.

I'd like to suggest that you not review bad games. There are more

than enough good games to review, and I see no reason to waste valuable space on poorer-quality games. Also, it's important to review newly released games and to avoid reviewing the same games other magazines do.

I thoroughly enjoy your magazine. It is by far my favorite. Keep up the good work.

**Donald T. Wile**  
2771 Longford Drive  
San Jose, CA 95132

*Production considerations necessitated leaving Game Room, as it is now named, out of the November issue, but we certainly plan to continue running it. We try to review a broad selection of the current entertainment offerings for the Apple, some good and some not so good. Reviewing only the "good games" would give you just one side of the story.*

*Thank you for your comments. We're pleased you enjoy inCider.* —eds.

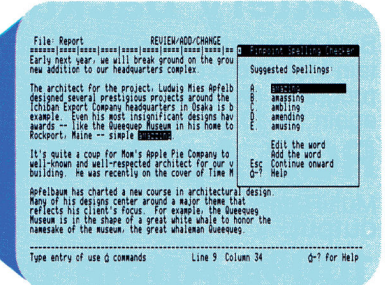
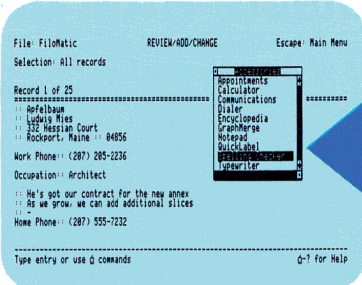
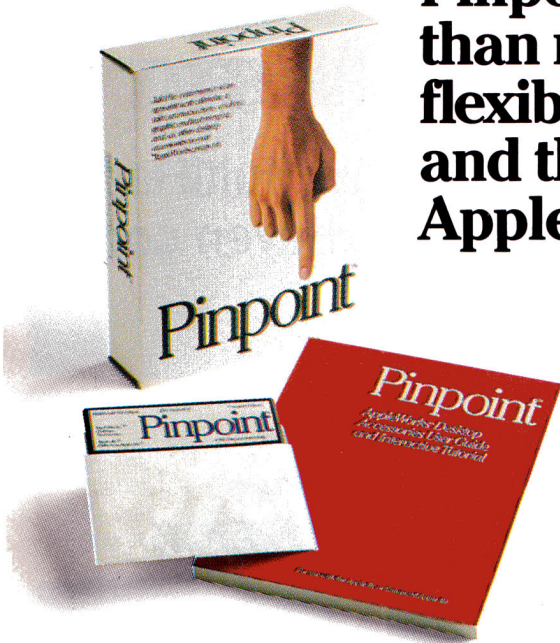
*inCider welcomes readers' comments regarding articles, letters, or other topics of interest. We reserve the right to edit letters for clarity, style, and space. Please address your correspondence to Letters, inCider, 80 Pine Street, Peterborough, NH 03458.*

### December BackTalk Response

The results of our holiday-wishes BackTalk poll (December 1985, p. 56) are in. For both giving and receiving, hardware products were at the top of most respondents' lists. Half of the readers answering our questionnaire asked for a modem as a practical gift, and half included a modem in their three-item dream lists. Printers, RAM cards, hard disks, and color monitors were other popular requests (approximately 25 percent each). Half the responses also included software, with various graphics packages and games the favorite choices.

# "Pinpoint makes AppleWorks™ better than my Macintosh. It gives me the flexibility of Mac-like desk accessories and the ability to add the features AppleWorks 'forgot'."

Michael Fischer, *Bay Area Computer Currents*.  
Author, *65816 Assembly Language Programming*.



## New AppleWorks™ Accessories. Built-in. Not added-on.

That's what you'll think of these handy desktop timesavers that "pop-up" via windows from inside AppleWorks (and other selected ProDOS™ programs.)

So, no more excuses.

Now you can address an envelope, call a friend, schedule an appointment, search online databases, send or receive electronic mail, merge pictures and text, jot down notes, calculate numbers, or pop-up an electronic typewriter. Without missing a beat. Or a byte.

**PINPOINT™ AppleWorks Desktop Accessories, \$69** including all eight powerful programs in one high-performance package. Awesome!

And now there's Pinpoint's SPELLING CHECKER. Absolutely the quickest, most convenient way to produce letter-perfect documents.

**Up to 16 Accessories.** Add to PINPOINT's 8 original accessories anytime. Like the SPELLING CHECKER, or the powerful INFORMATION ENGINE™ for desktop reference publishing on floppy disks or CD-ROM—encyclopedias, user guides, directories and courseware.

Now, quickly check individual words or paragraphs without waiting to spell-check long documents. Yet, you can check whole files when you want. Poof!

Full function: check for misspelled words from a 55,000 word dictionary plus an unlimited personal dictionary. It suggests up to 10 alternative spellings, corrects words in place and reformats your document—you can even edit words it finds on the fly.

All this power and functionality for only **\$69. Pinpoint's pop-up SPELLING CHECKER.\*** Amazing. Incredible!

No wonder thousands of copies are sold every week. †

**Order both PINPOINT and SPELLING CHECKER for only \$125, and we'll pay shipping.**

**Pop-up, auto log-on modem software.** From the latest news to the latest recipes, any information you can dial up on your modem you can plug into AppleWorks. Or send AppleWorks files without bothersome file conversions. Alone, worth PINPOINT's \$69 pricetag.

**Find misspellings, suggest, correct, edit and reformat.** Instantly check any word, paragraph or document, spreadsheet or database entry. Add other accessories (like this) at any time. The PINPOINT TOOLKIT opens up PINPOINT to every programmer.

Or add desktop accessories all your own with the **PINPOINT TOOLKIT, just \$49.**

Required: Enhanced Apple IIe with 128K or Apple IIc. Suggested: Two floppy disks, UniDisk 3.5, hard disk or RAM disk. Not copy protected.

Want more?

Then visit your local computer shop and have a look.

Or call in your order before 4/15/86, and receive the **Pinpoint RAM Enhancement** or **Pinpoint Modem Enhancement Disk, FREE.** Order PINPOINT and the SPELLING CHECKER and get both Disks, plus shipping, FREE.

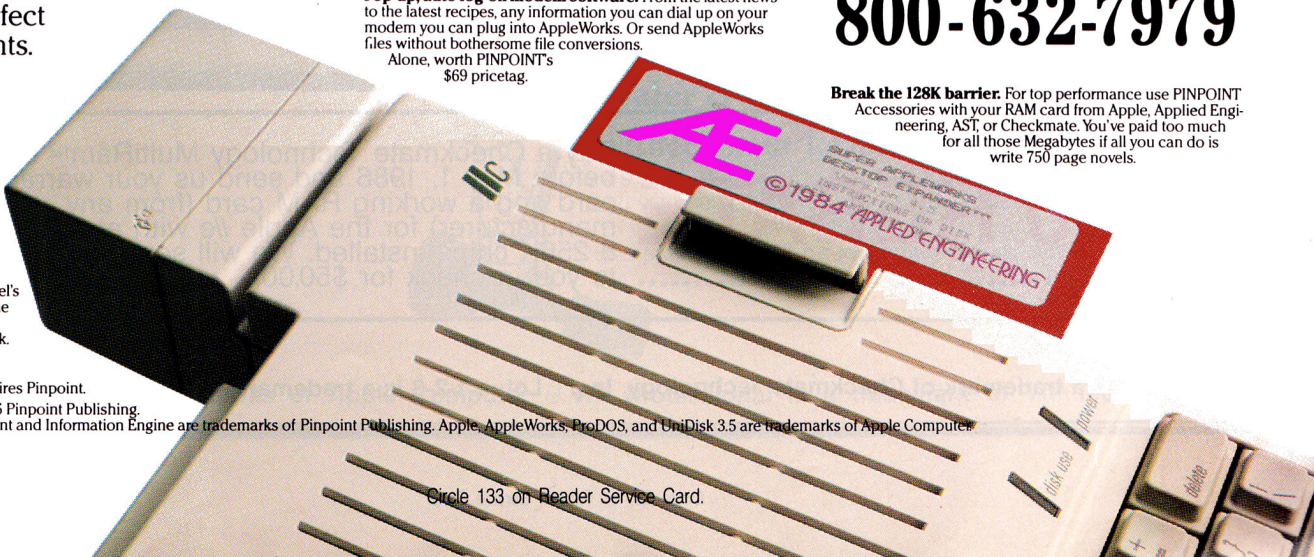
Pinpoint Publishing, Box 13323, Oakland, CA 94661, (415) 654-3050.

**800-227-6703**

IN CALIFORNIA

**800-632-7979**

**Break the 128K barrier.** For top performance use PINPOINT Accessories with your RAM card from Apple, Applied Engineering, AST, or Checkmate. You've paid too much for all those Megabytes if all you can do is write 750 page novels.



†See Softsel's Hot List, the industry benchmark.

\*Requires Pinpoint.

© 1986 Pinpoint Publishing.

Pinpoint and Information Engine are trademarks of Pinpoint Publishing. Apple, AppleWorks, ProDOS, and UniDisk 3.5 are trademarks of Apple Computer.

# Introducing the World's

An Apple //e with the Checkmate Technology MultiRam™ provide 6 Megabytes of RAM. No other card even comes

## Battery backup protects RAM data!

Built-in port allows up to 2 megabytes of battery-powered RAM to retain files and programs in memory for up to 10 years. Just load your programs (such as AppleWorks) once and you won't need the disk again for 10 years.

## RGB Apple Video Output

MultiRam™ RGB provides full-color RGB Apple video output.

## 100% Apple compatible

This card doesn't even take up an expansion slot! It takes the place of the standard 80 column card in the auxiliary slot.

## AppleWorks power!

The MultiRam™ RGB Card has a 65C816 CPU Port allowing the //e to run all existing Apple programs as well as incredibly powerful 16-bit software such as the Lotus 1-2-3 workalike, VIP Professional. This CPU can directly address up to 16 Megabytes of RAM.

## Built-in 65C816 CPU Port

Imagine a desktop measured in Megabytes allowing huge databases and spreadsheets. Load AppleWorks completely into RAM for instant response.

## ProDOS memory partitioning

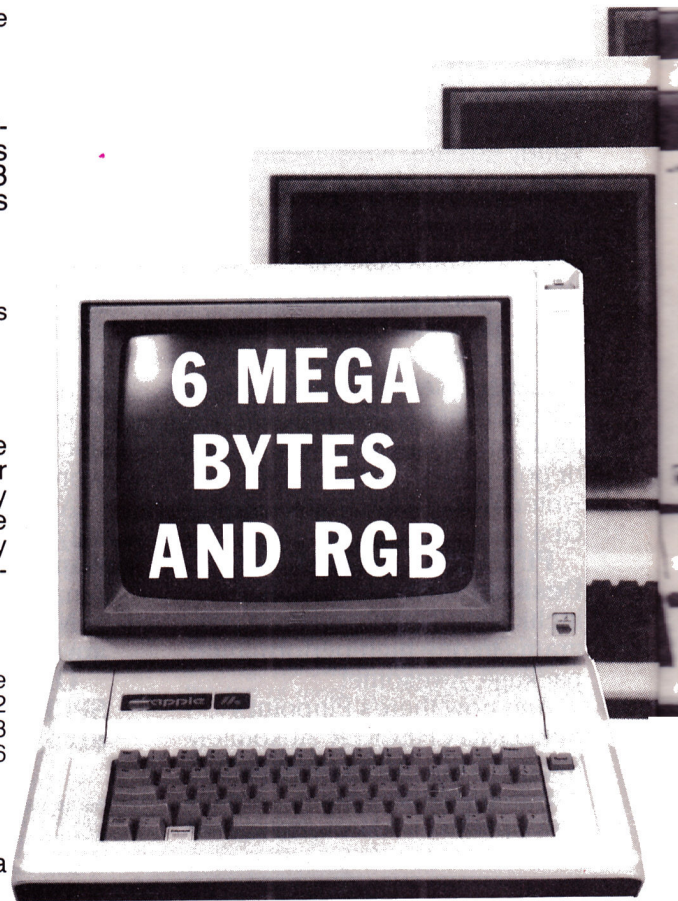
The MultiRam™ RGB's memory can be partitioned to create directories and subdirectories, thereby eliminating the need for a second disk drive for many programs. The optional battery RAM can be used as extra memory or as a super fast disk drive that is reliable even if the power is interrupted. The battery backup allows you to keep the most commonly needed programs and files in memory, ready for instant use.

## Memory Capacity

The MultiRam™ RGB Card comes with 64K of DRAM and can be expanded up to 1 megabyte. Optional Static RAM can add up to 2 megabytes. Optional MultiRam + Card can add an additional 3 megabytes. A fully expanded MultiRam RGB Card provides 6 megabytes of memory.

## 5-Year Warranty

The MultiRam™ RGB is made in the U.S.A. and backed by a 5-year warranty.



\*\*\*\*\*  
**\$50 REBATE**  
\*\*\*\*\*

Buy a Checkmate Technology MultiRam™ RGB Card before May 1, 1986 and send us your warranty card and a working RAM card (from any manufacturer) for the Apple //e with at least 8 256K chips installed. We will send, directly to you, a check for \$50.00

MultiRam is a trademark of Checkmate Technology, Inc. Lotus 1-2-3 is a trademark of Lotus Development Corp. □

# Biggest & Fastest Apple

RGB Card can be expanded to close to providing that kind of memory.



**MultiRam™ RGB with 64K RAM**

**\$199.95**

**Suggested  
Retail Price**

## **SPECIAL LIMITED OFFER ON LOTUS 1-2-3 WORKALIKE Get VIP Professional and MultiRam™ EX Card For \$319.95**

Unleash the tremendous 16-bit computing power of the 65C816 CPU with VIP Professional, a Lotus 1-2-3 workalike. VIP Professional gives the Apple //e the kind of power and speed essential in business, scientific and educational applications. For a limited time VIP Professional is available with a MultiRam™ EX card for just \$319.95 (suggested retail price). See your computer dealer today and move up to 16-bit computing. The MultiRam™ card allows you to run all existing Apple //e software as well as 16-bit programs such as VIP Professional.

**Dealer Hotline 800-325-7347**

**Checkmate Technology, Inc.**

509 South Rockford Drive • Tempe, Arizona 85281-3021  
(602) 966-5802 U.S.A. MCI Telex: 6502788652  
(800) 325-7347

IN CANADA CONTACT E.D.P. MARKETING (403) 482-3014



//e and AppleWorks are trademarks of Apple Computer □ VIP Professional is a trademark of VIP Technologies.

edited by Wendy Lea McKibbin, *inCider* staff

## Chatting with Your Apple

Suppose you're entering a list of numbers into the computer and you don't want to take your eyes off the page to search for keys. The technology now exists to let you enter data merely by reading these numbers aloud to your system—which will read them back to you and then ask, "Is this okay?"

Brad Stewart, Vice President of Research for Covox, Inc., of Eugene, Oregon, explains that the interaction of word recognition and speech synthesis makes it possible to literally talk to your computer. While his company does not market a product in the form described above, Covox does supply the requisite technology for the components with its Voice Master system and a line of tool kits for voice I/O products.

Voice recognition, Stewart says, has long had a place in factory settings and is finally becoming affordable for the microcomputer user. (See "Apples Within Earshot," July 1985, p. 14, for more information on voice-recognition technology.) He suggests a number of intriguing applications for speech technology on the Apple. For example, you could verbally move your spaceships around in a computer game; turn off lights and television with a word to an environmental controller; dial the telephone numbers of friends just by saying their names; or protect your home with voice-activated locks. A speech-activated system can also be quite a boon to a handicapped person.

One product Covox may soon bring to the Apple market is a voice-activated interface for word-processing software. Stewart explains that this will let users edit, print, and execute system commands with just a word or two to the Apple.

## Do Mac Users Want II Software?

While International Solutions, Roger Wagner Publishing, and a growing number of other firms are bringing Mac-like software to the II environment, a company in southern California is offering developers a chance to go in the opposite direction. Abaton Technology Corporation's Transform product (see New Products, January 1986, p. 86) converts Apple II application programs to software that runs on the Mac—a feat that has stirred something of a debate in the development community.

"No one denies that the concept is tremendous, but we can't figure out why anyone would want to take Apple II software to the Mac environment," says Dick Hubert, president of the Bellevue, Washington-based A.P.P.L.E. Co-op, a group whose membership consists primarily of Apple developers. "People who have tried to do manually what Abaton provides have ended up with pretty unsuccessful products," Hubert continues. "The problem is that the Mac environment is just too different—traditional Apple II software can't duplicate the user interface Mac owners expect." At best, Hubert

concludes, the Abaton Transform could get a developer to the starting point for creating a Mac product.

In defense of Transform, Abaton plans to introduce a source-code generator for converted programs, which is intended to make it easier for a developer to add Mac-interface features like pull-down menus. Andy Hertzfeld of the original Mac software-design team says this product won't help, however. He claims that in fact it will make matters worse.

"What you'd have is a program in a strange assembly language if you ran it through Abaton's source-code generator," remarks Hertzfeld, who has since left Apple to become an outside consultant. "You'd be better off just adding things yourself."

Hertzfeld predicts that a flight simulator and certain Apple games, in addition to some vertical applications, would be very attractive to Mac users. But he says he can't think of any "productivity-type" software from the II library that would interest a Mac user.

## Apple Loyalists Losing Patience

Local members of the Apple Puget Sound Program Library Exchange are threatening to jump ship if Apple doesn't come out soon with the long-awaited 16-bit system code-named the "IIx."

According to Dr. David Lingwood, who sits on the board of the Oregon-based user group, Apple has "just about used up its reservoir of good will in the user community." Lingwood claims that as many as

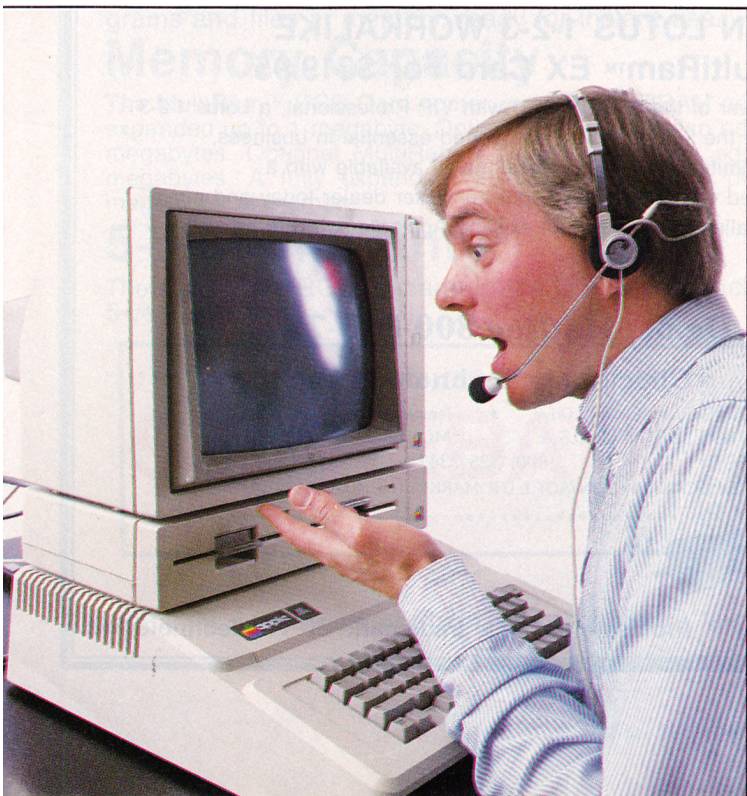


Photo courtesy of Ed Justice



two-thirds of the local members have said they will move to another brand if Apple doesn't produce an upgraded machine. Some members are unwilling to wait more than six months. "It's getting very, very late for Apple," Lingwood warns.

Developers such as MicroRain of Redmond, Washington, are also eagerly awaiting a faster, more powerful computer. MicroRain is planning to introduce a line of software for the //e and //c called "Magpie," which will duplicate the Macintosh environment on the II. Company president Joey Gurango explains that Magpie will be sold as separate software modules, but will function as an integrated package, much like AppleWorks. The success of his new Mac-like software, he notes, is contingent on having a system with enough horsepower and memory to keep the product from becoming cumbersome.

"Magpie on an expanded 128K //e with 800K drives will be operable, but slow," Gurango says. "The software has really been developed with the //x in mind."

## Wrong Signals

"Drill and practice" are not dirty words, says Leroy Finkel of the San Mateo County Office of Education in Redwood City, California, but developers are getting the wrong signals about what's hot in educational software. Consequently they're shunting their scarce development dollars in the wrong direction.

One problem is that many market-research questionnaires omit impor-

tant categories of software when querying educators. Worse still, Finkel notes, these forms are sometimes sent to the wrong people. "What really gets me going is when the principal of a school lists Rocky's Boots as a drill-and-practice package," Finkel says. "This type of misinformation confuses developers about what teachers want and need."

Rather than look to a Softsel list for ideas on what will succeed in the classroom (another misleading approach, because Softsel represents the home rather than the institutional market), Finkel suggests that more developers emulate Sunburst. "The Sunburst products are a universal favorite with teachers," Finkel says. "They promote critical-thinking and problem-solving skills, and if they incorporate drill-and-practice routines, it's done in a creative way."



Photo courtesy of Apple Computer, Inc.

The Mobile County Public School District of Mobile, Alabama, may soon come to the aid of developers who are in doubt about what works in the classroom. The district is planning a three-year experimental project with 600 students in fifth, eighth, and 11th grades. Half the group will use traditional drill-and-practice routines, while the other students will test software that promotes problem-solving skills. The district hopes

to show higher achievement-test scores in the group using the computer as a thinking tool. Test scores will be compared annually.

*We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025.*

# CALENDAR

## MICROCOMPUTER SYSTEMS IN GOVERNMENT

**March 3-6**  
Washington, DC


**March 10-13**  
New Orleans, LA

**March 17-29**  
San Diego, CA

**March 24-27**  
Orlando, FL  
contact:  
Conference Manager  
U.S. Professional  
Development Institute  
1620 Elton Road  
Silver Spring, MD 20903  
(301) 445-4400

## March 24-26 OFFICE AUTOMATION CONFERENCE

Houston, TX  
contact:  
Katherine Stormont  
American Federation of  
Information Processing  
Societies  
1899 Preston White Drive  
Reston, VA 22091  
(703) 620-8936



# SOME HISTORIC BREAKTHROUGHS DON'T TAKE AS MUCH EXPLAINING AS COMPU SERVE.

**But then, some historic breakthroughs could only take you from the cave to the tar pits and back again.**

CompuServe, on the other hand, makes a considerably more civilized contribution to your life.

It turns that marvel of the 20th century, the personal computer, into something useful.

Unlike most personal computer products you read about, CompuServe is an information service. It isn't software. It isn't hardware. And you don't even have to know a thing about programming to use it. You subscribe to CompuServe—and 24 hours a day, 7 days a week, it puts a universe of information, entertainment and communications right at your fingertips.

**A few of the hundreds of things you can do with CompuServe.**

## COMMUNICATE

**EasyPlex™** Electronic Mail lets even beginners compose, edit, send and file messages the first time they get online. It puts friends, relatives and

business associates—anywhere in the country—in constant, convenient touch.

**CB Simulator** features 72 channels for “talking” with thousands of other enthusiastic subscribers throughout the country and Canada. The chatter

is frequently hilarious, the “handles” unforgettable, and the friendships hard and fast.

**More than 100 Forums** welcome your participation in “discussions” on all sorts of topics. There are Forums for computer owners, gourmet cooks, investors, pilots, golfers, musicians, you name it! Also, Electronic Conferencing lets businesses put heads together without anyone having to leave the shop.

**Bulletin Boards** let you “post” messages where thousands will see them. You can use our National Bulletin Board or the specialized Bulletin Boards found in just about every Forum.

## HAVE FUN

**Our full range of games** includes “You Gussed It!”, the first online TV-style game show you play for real prizes; and MegaWars III, offering the

ultimate in interactive excitement. And there are board, parlor, sports and educational games to play alone or against other subscribers throughout the country.

**Movie Reviews** keep that big night at the movies from being a five star mistake.

## SHOP

**THE ELECTRONIC MALL™** gives you convenient, 24-hour-a-day, 7-day-a-week shopping for name brand goods and services at discount prices from nationally known stores and businesses.

## SAVE ON TRIPS

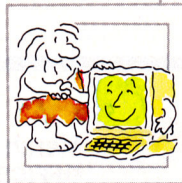


**Travelshopper™** lets you scan flight availabilities (on virtually any airline—worldwide), find airfare bargains and order

tickets right on your computer.

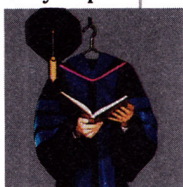
**Worldwide Exchange** sets you up with the perfect yacht, condo, villa, or whatever it takes to make your next vacation *a vacation*.

**A to Z Travel/News Service** provides the latest travel news plus complete information on over 20,000 hotels worldwide.



## MAKE PHI BETA KAPPA

**Grolier's Academic American Encyclopedia's Electronic Edition** delivers a complete set of encyclopedias right to your living room just in time for today's homework. It's continuously updated ... and doesn't take an inch of extra shelf space.



**The College Board**, operated by the College Entrance Examination Board, gives tips on preparing for the SAT, choosing a college and getting financial aid.

## KEEP HEALTHY

**Healthnet** will never replace a real, live doctor—but it is an excellent and readily available source of health and medical information for the public.

**Human Sexuality** gives the civilization that put a man on the moon an intelligent alternative to the daily "Advice to the Lovelorn" columns. Hundreds turn to it for real answers.

## BE INFORMED

**All the latest news** is at your fingertips. Sources include the AP news wire (covering all 50 states plus national news), the Washington Post, USA TODAY Update, specialized business and trade publications and more. You



can find out instantly what Congress did yesterday; who finally won the game; and what's happening back in Oskaloosa with the touch of a button. And our electronic clipping service lets you tell us what to watch for. We'll electronically find, clip and file news for you...to read whenever you'd like.

## INVEST WISELY

**Comprehensive investment help** just might tell you more about the stock you're looking at than the company's Chairman of the Board knows. (Don't know who he is? Chances are, we can fill you in on that, too.) CompuServe gives you complete statistics on over 10,000 NYSE, AMEX and OTC securities. Historic trading statistics on over 50,000



stocks, bonds, funds, issues and options. Five years of daily commodity quotes. Standard & Poor's. Value Line. And more than a dozen other investment tools.

**Site II** facilitates business decisions by providing you with demographic and sales potential information by state, county and zip code for the entire country.

**National and Canadian business wires** provide continuously updated news and press releases on hundreds of companies worldwide.

## GET SPECIALIZED INFORMATION

**Pilots** get personalized flight plans, weather briefings, weather and radar maps, newsletters, etc.

**Entrepreneurs** use CompuServe too for complete step-by-step guidelines on how to incorporate the IBMs of tomorrow.

**Lawyers, doctors, engineers, military veterans and businessmen of all types** use similar specialized CompuServe resources pertinent to their unique needs.

## And now for the pleasant surprise.

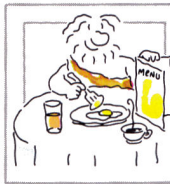
Although CompuServe makes the most of any computer, it's a remarkable value. With CompuServe, you get low start-up costs, low usage charges and local phone-call access in most major metropolitan areas.

## Here's exactly how to use CompuServe.

First, relax.

There are no advanced computer skills required.

In fact, if you know how to buy breakfast, you already have the know-how you'll need to access any subject



in our system. That's because it's "menu-driven," so beginners can simply read the menus (lists of options) that appear on their screens and then type in their selections.

Experts can skip the menus and just type in "GO" followed by the abbreviation for whatever topic they're after.

In case you ever get lost or confused, just type in "H" for help, and we'll immediately cut in with instructions that should save the day.

Besides, you can either ask questions online through our Feedback service or phone our Customer Service Department.

## How to subscribe.

To access CompuServe, you'll need a CompuServe Subscription Kit, a computer, a modem to connect your computer to your phone, and in some cases, easy-to-use communications software. (Check the information that comes with your modem.)

With your Subscription Kit, you'll receive:

- a \$25 usage credit.
- a complete hardcover Users Guide.
- your own exclusive user ID number and preliminary password.
- a subscription to CompuServe's monthly magazine, *Online Today*.

Call **800-848-8199** (in Ohio, 614-457-0802) to order your Subscription Kit or to receive more information. Or mail this coupon.

Kits are also available in computer stores, electronic equipment outlets and household catalogs. You can also subscribe with materials you'll find packed right in with many computers and modems sold today.



- Please send me additional information.
- Please send me a CompuServe Subscription Kit.
- I am enclosing my check for \$39.95, plus \$2.50 handling. (Add sales tax if delivered in Ohio.)

Please make check payable to CompuServe Information Services, Inc.

- Charge this to my VISA/MasterCard

# \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

MAIL TO:

**CompuServe®**

Customer Service Ordering Dept.  
P.O. Box L-477  
Columbus, Ohio 43260

**PRI-2803**

An H&R Block Company  
EasyPlex and ELECTRONIC MALL are trademarks of CompuServe, Incorporated. Travelshopper is a service mark of TWA.

# JUDY COLLINS

*AppleWorks has made  
her writing tasks easier.*

by Paul Statt, *inCider* staff

Judy Collins is rather shy and rather independent—like her music, her films, and her writing. Her New York City home is decorated with colorful paintings she and her friends have created, and snapshots of friends. She reads a great deal—her home is littered with books, especially memoirs, lives, and autobiographies. Perhaps they represent research into her latest project, the story of her life.

When Judy talks about her Apple //c and AppleWorks, she speaks of her “friends.” Like the friends who helped her make six gold albums and the award-winning film *Antonia*, they are companions that stand by her without standing in the way. “Just because I’m like I am—independent,” she says, “I like to do it on my own and see what happens.

“I’m a mature adult. I didn’t think that a computer would be something I would jump up and down and flip out about. I was always a bit shy—no, very shy—about computers.

“I went to a computer class one weekend—became familiar with the keyboard, learned a few orders. . . .” When you talk with a creative person about computers, half the fun is hearing her create her own language—“orders” are programs.

Judy overcame her shyness quickly. And quickly learned to have a lot of fun with AppleWorks and the //c while increasing her personal productivity.

## **“Give Me the Apple. . .”**

Judy Collins has been an Apple enthusiast for more than a year now. What pulled her in that direction was the prospect of managing all the material for her autobiography. She wanted to make that writing task easier with word processing. “At the end of ’84 I had committed myself to this book I had been thinking about for a number of years. In December while I was getting my Christmas presents, I called my brother, who has written a lot of long academic books. He recommended the Apple because of its computer-friendly—no, I mean user-friendly—features. AppleWorks was especially friendly, and he knew I wanted to be working on a book.”



She laughs as she remembers buying her computer: "So I went to Bloomingdale's at Christmas, and I said, 'Give me the Apple and everything that goes with it, please.'" Judy throws her long hair over her shoulder and covers her eyes with her hand in mock horror—or shyness perhaps.

At Christmastime in 1984 at Bloomie's, the //c and "everything that goes with it" meant a 128K machine, monitor, ImageWriter printer, and AppleWorks.

"It was about three days before I felt fully comfortable," Judy recalls. But "AppleWorks and the //c were so friendly that I could really get along with them right away."

As she became more involved with AppleWorks, she found the software willing, but the hardware weak. "I looked around me and saw that I had 52K in my desktop. Up to now we're fine and we love AppleWorks. Now, I still love AppleWorks. But I had a desire to have more power and yet stay with AppleWorks. I didn't want to learn another program, and I didn't want to change all my disks."

Judy needed to have more of her writing available for split-screen editing functions, as well as increased speed when switching between versions. This time, instead of Bloomingdale's, she turned to magazines to research the hardware support she needed and found two hardware solutions. She added "something called a Quark," the 10-megabyte hard disk—she says the word like someone reading *Finnegans Wake*—and a Z-RAM card from Applied Engineering. True to her independent and creative nature, she added both hardware upgrades by herself, with only a moderate amount of telephone support.

### Falling in Love

Now, while Judy is very happy with her system, she doesn't recommend it to everyone. "It puts you into a very personalized and eccentric position. It's as though you have a BMW and you buy all the parts from a Rolls Royce and put them into it. But that's what happens when you fall in love with a program."

And like love, which needs constant attention,



"I hope that we can be as good as our computers. . ."

AppleWorks wouldn't work for Judy if it weren't fun. "The thing I think is the best-kept secret about computers, and the reason I agreed to talk to *inCider*, is that they're so much fun. I find myself in here talking to my computer and having a wonderful time. There's something very amusing and delicious about getting involved.

"Part of the folklore of the computer age is that you don't know much about what you really need until you get your hands on a computer—then you begin to see what you have or have not got."

That's why Judy believes it's so important for everyone to create his or her own "eccentric" system. At the outset, "I didn't know what I needed," she says. But by using an expandable Apple computer and a complete, integrated software package like AppleWorks, she was able to grow with her needs.

In the process of writing a 1200-page manuscript, a work that tells the story of Judy's life, and maybe something of the story of the '60s and '70s as well, "AppleWorks and the Apple //c have been a sort of encouraging friend." As for AppleWorks' spreadsheet and data base, "I've played with them and had fun with them," she says.

So much fun, in fact, that the Apple //c and AppleWorks are finding their way into more of Judy's life than just her autobiography. Judy's personal assistant recently received her own Apple //c and AppleWorks and has created a data base of information on each of Judy's performances. And she can transmit the data directly to Judy's system. Judy has also taken to the road with a Radio Shack Tandy Model 200 to continue working on her autobiography. She sends that material to her assistant's Apple //c and finds it translated to her AppleWorks disks when she returns home.

Judy will finish her book this year, without the aid—and maybe the confusion—a ghost writer might bring to a less independent star. But Judy has already "torn off in other directions—poetry and songs—or at least logging ideas for poetry and songs." She admits she still enjoys some creative writing with a tech no higher than a number two pencil. But she likes to edit even her journals, poems, and new songs with the computer.

### A Force for Each of Us

Like many converts, Judy has become something of a proselytizer. "It interests me when people aren't interested at all. They're afraid of computers. You don't have to be an expert—you don't even have to do anything very complicated—to have the pleasure of this kind of connection with sources of information, people, and ideas."

Judy Collins says the computer in our homes can be a powerful force in our lives—and make each of us a success. "I hope that we can be as good as our computers, that we can be up to presenting them the problems they can solve, because they can solve a lot of problems, in a worldwide sense, and give us some answers to questions that need answers—if we're willing to think about them." ■

# EPYX PRESENTS LUCASFILM GAMES™ THE EIDOLON™



© 1985 L.F.L.



© 1985 L.F.L.

You've just discovered the Eidolon—a curious 19th century machine whose inventor vanished without a trace. Only his journals and sketches remain.

They tell of an incredible magical realm—a maze of caverns populated by strange creatures noted as Greps, Biter Birds and Bottlenecks. And "intelligent" Guardian Dragons—who hurl colored fireballs of energy?

The machine itself belies its quaint Victorian charm. For the Eidolon glows with the power of enchanted energy. It awaits, pristine and gleaming—perfectly preserved for over a hundred years by the powerful forces that propelled it and its pilot to another dimension.

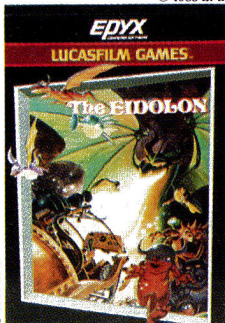
With the fascinating first-person point of view, you

can climb into the pilot's chair and fly this mysterious magical machine. And the haunting fractal graphics take you deeper and deeper into an endless maze of mystical caverns.

An adventure so real, it'll make you wonder: What ever happened to the Eidolon's mysterious inventor? Only the adventurous of spirit will know his fate. The Eidolon—scientific curiosity, or passport to a magical dimension?

C64/128      ATARI      APPLE

*The Eidolon*



© 1985 L.F.L.



**EPYX**  
COMPUTER SOFTWARE

1043 Kiel Ct., Sunnyvale, CA 94089

**Strategy Games for the Action-Game Player®**

Lucasfilm Games, The Eidolon, and all elements of the game fantasy: TM & © 1985 Lucasfilm Ltd. (L.F.L.). All Rights Reserved. Epyx, Inc., Authorized User. ©: Registered Trademarks of Epyx, Inc.

Circle 202 on Reader Service Card.

# Goodbye Floppies, Hello 20 MByte.



New from First Class Peripherals:  
The Sider II 20 MByte Winchester Hard Disk Storage  
and Tape Backup Unit for your Apple II+ or IIe



The New Sider II will bring your *Apple II+* or *Ile* to a significantly increased level of performance. You'll gain 20 MByte of storage plus the great advantage of being able to boot directly off the hard disk. Further, the Sider II disk is partitionable—you can allocate four operating systems on the same disk: Apple DOS 3.3, Pro Dos™, Apple Pascal, and CP/M®.

You require even more than 20 MByte storage? No problem. Simply daisychain with additional Sider units to increase mass storage.

### NEW. B-Sider Tape Backup.

Backup copy capability is an important part of any mass storage system. Tape backup provides great advantages over floppies for archiving, and that's why First Class Peripherals has responded to user requests and now offers the excellent B-Sider 20 MByte tape backup unit. The new B-Sider is priced at only \$695.

Features: Full image, operating system and volume backup and restore. File by file restore using wildcards. Backup to tape drive or to floppy disk. Will support Apple's Unidisk 3.5 800K floppy.

First Class Peripherals leads the industry in providing precisely the subsystems which users seek. Even more to your benefit are our prices—prices made possible solely because you buy direct.

The new Sider II, totally equipped to 'plug and play,' is only...

The new B-Sider tape backup is just...

**\$995. \$695.**

And, the popular Sider 10 MByte hard disk is \$695. By buying direct, you save—really save!

Quality? Reliability? Have no doubts First Class Peripherals subsystems are backed by Xebec, a respected computer industry leader. Further, our thousands of satisfied customers provide top evidence that we offer the finest, easiest-to-install Winchester hard disk subsystems available, and for the best price by far!

To complete this remarkable offer, Sider II, Sider, and B-Sider arrive with a money-back guarantee. Use any of the

units for 15 days. If you are not satisfied, return it for a full refund. All units have a full one-year limited warranty and are supported by a convenient toll-free service and technical hotline you can call anytime.

Order Now. Say 'goodbye' to floppies and provide your system with new speed, convenience and performance. Use the provided coupon or, for faster service, order by phone and charge to your VISA, MasterCard, or American Express. (We also welcome your questions and technical concerns.)

Call toll-free: **1-800-538-1307**

Extension 116.

*II+* owners—Revision 7 or greater is required on your motherboard.

Apple and Pro DOS are trademarks of Apple Computer, Inc. CP/M is a registered trademark of Digital Research, Inc.

Sider and Sider II units include Winchester hard disk drive, Apple adaptor board, cable, complete installation software and documentation.



### Introductory Period **BONUS!**

**SSI WordPerfect 1.0 and Stoneware DB Master programs. You receive your choice of One FREE!**

Order your Sider II, Sider, or B-Sider now and you will receive the FREE program you select along with your order. SSI's WordPerfect 1.0. is the word processor program described by *InfoWorld* '...as close to perfect as you can get.' The Stoneware DB Master is acclaimed by reviewers and users as the best accepted Apple II DBMS program for business people and professionals. Both programs are leaders, and you can receive one free through this exceptional opportunity. Offer good thru April 30, 1986.

Circle 132 on Reader Service Card.

**Yes,** I'm eager to benefit from First Class subsystems performance.

Please send the item(s) indicated:

- 20 MByte Sider II @ \$995 + \$15\*
- 10 MByte Sider @ \$695 + \$15\*
- B-Sider tape backup @ \$695 + \$15\*

Total Cost: \$ \_\_\_\_\_

Residents of CA and NV please add appropriate sales tax. Purchase order accepted. Please add \$100 per unit.

I prefer to pay as follows:

- Check or money order (payable to First Class Peripherals) enclosed
- Bill the following credit card account:
- VISA     MasterCard     American Express

CARD # \_\_\_\_\_

Shipping and Handling \_\_\_\_\_

SIGNATURE \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Telephone (& area code) \_\_\_\_\_

For my Free Bonus Program I Select:  DB Master     SSI WordPerfect  
Offer good thru April 30, 1986.

Mail to:



3579 Highway 50 East  
Carson City, NV 89701





# Success Stories

*Starting a business?  
Teaming up with AppleWorks  
may be your key  
to success.*

by Archie Mason

If you're thinking of running your own small business on your Apple II and using your home as the office, you should consider AppleWorks, the best-selling software program in the country—almost a million copies to date. You won't see it on Softsel's "Hot List" because it's distributed only by Apple Computer. But if Softsel had it, it would be the runaway top seller every week. And for good reason—AppleWorks is a very easy-to-use integrated software program that includes word processing, a data-base manager, and a spreadsheet.

Teaming AppleWorks with a memory-enhanced Apple II, a desktop-accessory program, a spelling checker, a good printer, and perhaps a hard-disk drive can lead to a successful small business. In our example, you'll see how one couple, John and Shirley, each develop a computer system with AppleWorks-compatible products to meet their particular business needs.

Using primarily AppleWorks on the Apple IIe, Shirley successfully launches a home-based professional word-processing business for less than \$4000 (without a hard disk). And by making use of Shirley's equipment and adding a few new applications such as Pinpoint and Quicken, John found he was able to do the bookkeeping for his manufacturers'-representative business in only a few hours instead of a full day (usually on the weekend). In their stories, you may spot some challenges that are similar to certain business situations you're experiencing. Their solutions will suggest solutions for you, too.

## Author, Author

Services to authors are the focus of Shirley's specialized word-processing bureau, and her customers include several writers, ranging from free-lance magazine journalists to university professors to an author of paperback novels. And she's taken on other tasks, too—she does the bookkeeping for one young free-lancer and accounting for a small mail-order company. In fact, Shirley's almost a "mini service bureau"—she does the firm's payroll, too.

Once Shirley had decided to start her own business, her first task was to develop a needs analysis to design a computing system. She drew up a description of the functions she wanted to offer her clients:

### ● Word processing

—management of long manuscripts, most of them relatively uncomplicated in format and layout

—spelling and style checking, as part of a proof-reading service

—production of draft copy at high speed coupled with production of letter-quality final text

### ● Data processing

—simple bookkeeping (such as checkbook balancing), as a service to writers

—maintenance of a reference-index data base

—Shirley's personal bookkeeping (invoicing, accounts receivable, and general ledger)



After the analysis and several consultations with computer-store personnel and other small-business owners, Shirley decided to enhance her //e with an Apple memory-expansion/80-column card, two 5¼-inch floppy-disk drives, and **AppleWorks** integrated software. She chose a **Diablo 630** letter-quality printer, as its daisy-wheel print head lets her offer her customers a variety of typefaces and, of course, attractive hard copy. For higher-speed, dot-matrix output, Shirley added an **IDS Prism. A Business-Card** multifunction I/O board from Street Electronics (see "A Card for All Reasons" in the February 1986 *inCider*, p. 38) gives Shirley a built-in clock and extensive printer-interface capabilities, including parallel or serial transmission, optional print buffer, and hi-res graphics-screen printing. Shirley was able to get rid of her individual printer cards and consolidate her printing with this one board.

Shirley also recently bought a **Sider II** 20-mega-byte hard drive from First Class Peripherals to handle the special needs presented by a university

professor who's preparing an historical treatise. When it's published, the book will be more than 1000 pages long, with a detailed, cross-referenced index. The professor delivers his text in unrelated pieces as he completes each area of research and writes the corresponding text.

Shirley quickly realized that working on a series of floppies was going to be a nuisance. She found that at any one time she had as many as ten or 12 chapters "open," either in progress or awaiting some reference material or editing by the author. The professor also relied on Shirley to note cross-references to other parts of the manuscript, so Shirley continually needed to jump around within the text, a real pain on multiple disks.

The analysis part of the problem was easy: Shirley needed a large-capacity disk that would be easy to back up, quick to move around on, and very, very reliable. After reviewing the options at several different computer stores, Shirley settled on the Sider II. Once she installed the unit, she developed a working procedure that's efficient and time saving.

Shirley keeps the book's segments on several floppies, carefully labeled and indexed. Whenever new text comes in, she reads it and finds out which segments she'll need to access. She copies the contents of the floppies onto the Sider and starts editing. When she's done, she sends the edited text back to the appropriate floppy—to ensure that the most current version of the manuscript is safely on disk.

Why keep running the text in and out of the hard disk? Simply, all the material for each of Shirley's many current projects does not have to be available all the time. The only data she uses almost every day, and therefore maintains permanently on the Sider, are John's business records and her own bookkeeping. She backs up this information on floppy disks, but never erases it from the Sider.

Shirley decided to enhance her word-processing business with proofreading, including spelling verification. Shirley needed spelling-checker software and felt that **Sensible Speller** would be a good investment. The package has 80,000 words (thanks to the *Random House Dictionary*) and lets you add any unique terms you'd like. In addition, it can check any ProDOS file of any length, regardless of the specialized nature of the contents.

Shirley's financial services are secondary to her word processing, but for some of her authors very basic financial management was an added bonus she was easily able to offer with AppleWorks and its integrated spreadsheet and data base.

One of her clients, a free-lance writer, had little business sense and couldn't manage her due dates or fee collection. Using the AppleWorks data base, Shirley tracks all of the writer's output from first agreement to payment. When she receives an assignment, the writer brings in the notes and drops them on Shirley's desk. Shirley creates a data-base record containing the details of the piece, working title (often just one word for reference), a descriptive sentence, the name of the publication, deadline, and fee. Shirley's data-base system also includes a master list of the publications for which the author works, including phone numbers, addresses, and editors' names.

# Don't Miss "Halley's Comet & The Universe"

TRAVEL THE GALAXY WITH

VOLUME 11, NO. 5

**UPTIME**<sup>TM</sup>

THE MAGAZINE ON A DISK

© 1985 Viking Technologies, Inc. • P.O. Box 299 • Newport, RI 02840 800-437-0033 • 401-849-4925

**SPECIAL  
EDITION**  
For the Apple II

## TEN PROGRAMS AND MORE!

**SOLAR SYSTEM** • What do you know about our solar system? Which of the planets is called 'Earth's twin'? Which one has the most moons? Learn the answers to these and other questions — test your knowledge with this graphic program.

**COMET QUIZ** • So you think you know all there is to know about comets, eh? Well then try this educational game that challenges you to bring your lander down by getting the answer to a question. A fun way to learn about comets!

**COMET HALLEY** • For more than 70 years people have been awaiting the return of Halley's comet. Now it has returned. Learn about its history, its path and more. Great graphics make this tutorial fun to use.

**STARCHART** • You're ready to go out and search for Halley's Comet. Well, take a start chart along with you and print out a chart that shows both the comet and the constellations it passes through.

**STAR TREK** • Attention all Starship Captains! Your orders are to protect the universe from Klingon invasion. Your graphic ships are waiting in this month's Flip Side feature!

**STRANDED** • Your lunar lander has crashed on the moon. You can carry 15 things. What will you take to help you survive and be rescued? Based on actual psychological studies!

**STARWATCH** • Where is Halley's Comet? With this program you'll learn to spot the constellations that the comet will pass through and the path it will take as it flies by us.

**STAR** • Make fascinating star patterns on your hi-res screen. Are they simple stars or brilliant supernovas? With this program, the sky's the limit.

**TREK** • Can you zap the evil forces before they destroy your ship? You will be pitted against the base ship and its attack scouts. Will you survive?

**LASER SHIELD** • You have a powerful laser. Blow up the enemy before he can destroy your shields. A fun, hi-res game!

Ask about the ALL NEW Macintosh version!!

Get UPTIME at your local software store or bookstore, or call 1-800-437-0033 to order immediately.

**I'LL BYTE!!!** I'm a computer enthusiast who wants more. Please start my subscription to UPTIME now!

<b>12</b> Disk Issues \$66.00	<b>6</b> Disk Issues \$48.00	<b>3</b> Disk Issues \$30.00	<b>1</b> Disk Issue \$11.95
-------------------------------	------------------------------	------------------------------	-----------------------------

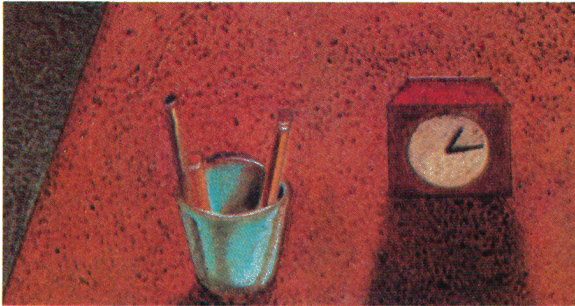
Check or money order enclosed, Payable to UPTIME  
 Please bill my  Visa  MasterCard Exp. Date \_\_\_\_\_

Account No. \_\_\_\_\_  
Signature \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_ Zip \_\_\_\_\_

For all Apple II series computers.

Circle 15 on Reader Service Card.

Shirley records the milestones of each assignment—first-draft dates, receipt of author's proofs, and so on—and finally she makes sure the writer gets paid. Since fees are often due only on publication, a long time may elapse between acceptance and payment. Shirley's system ensures that her client's fee isn't forgotten.



To help the author with her billing, Shirley uses the information from the data base to set up a simple spreadsheet. The author writes her own checks, but turns the stubs over to Shirley for entry into the system. She also handwrites invoices and similarly gives Shirley a copy of each after she mails it. Shirley just organizes the data: She allocates the various checks to accounts, so that the author knows how much she's spending on various overhead items (phone calls, supplies, messengers, and so on), and she types in invoices so the author will know who owes her money, how much she's earned, and who her best customers are.

Thus with AppleWorks and only a few other peripheral products, Shirley has created a unique word-processing service that can handle the demands of full-book typing as well as smaller manuscript jobs. Her special ability to offer simple bookkeeping plus proofreading makes her service stand out from the rest.

### **A Business on the Move**

John is a manufacturers' rep, an independent salesman who carries the lines of several different companies, all of which are interested in selling to a defined group of customers—in John's case, jewelry stores. John's territory includes his home state and three bordering states, and he spends about three days a week on the road. He represents three fashion-jewelry firms, a watch manufacturer, a brand of silver polish, and a large flatware company.

A manufacturers' rep is a unique kind of business professional. While most reps are unincorporated, their business affairs have all the characteristics of a small company. Reps have inventories to manage (in John's case, valuable samples, plus some full product lines), expenses, accounts receivable (the commission manufacturers owe him on the sales John made for them)—and, of course, they must pay income tax. When John returns from a usual three- or four-day trip he still has several hours of work to do—expenses to account for, sales orders to transcribe and send to manufacturers, commission statements to check, letters to write, and the ever-present inventory control of his own stocks of products.

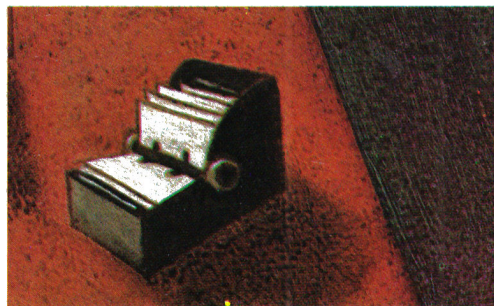
John's business activity was a natural for computerization, and realizing what Shirley was accomplishing in her business spurred him on. First, however, John drew up a conventional needs analysis before deciding if he should look into any special equipment or software. He reviewed in depth the kinds of work he was doing manually and examined what he wasn't doing at all because it was too much trouble. John's list of requirements included the following features:

- Out-of-pocket-expense management—the ability to keep track of disbursements and claim reimbursements, plus maintenance of categorized records for tax purposes
- management of two types of inventory—demonstration merchandise and samples, and the deliverable consignment merchandise for which payment will ultimately be made directly to the manufacturer
- commission records—logging orders, commissions due and received, and estimates of future income
- simple word processing, mostly form letters
- an appointment diary with follow-up calendar

Standard bookkeeping application packages, such as general ledger, accounts payable and receivable, and so on, would be overkill. John realized that nearly all his needs could be met with just one program—AppleWorks. The spreadsheet and data-base manager handle all the information he needs to run his day-to-day business and to maintain records for follow-up and preparation of tax returns. AppleWorks word processing is good for his correspondence, memo writing, and form preparation. The letter-quality and dot-matrix printers had already been identified for Shirley's needs, so John needed no additional hardware.

John's analysis did identify needs that more dedicated programs would manage more efficiently than AppleWorks—but one firm requirement was that additional programs must be completely compatible with AppleWorks, so that John could pass data back and forth.

John's task was to find a simple bookkeeping package, mostly to manage accounts payable. Its essential characteristics, in addition to AppleWorks compatibility, would have to be checkbook/bank-account management and categorization of expenditures by type.



**NEW  
LOW PRICE**

# THE X-10 POWERHOUSE DOES EVERYTHING BUT PUT OUT THE CAT.



Model CP290

## THE X-10 POWERHOUSE INTERFACES WITH YOUR APPLE TO CONTROL YOUR HOME...FOR SECURITY, COMFORT AND ENERGY SAVINGS.

This remarkable Interface lets you run your home through your Apple IIe or IIc and a mouse, keyboard or joystick.

When you're away, it makes your home look and sound lived in. When you're home, it can turn off the TV at night and wake you up to stereo and fresh brewed coffee in the morning. It can even turn on your air conditioner and control your heating.

### SPECIAL COLOR GRAPHICS MAKE PROGRAMMING A SNAP.

You simply pick a room from the display screen. Use your mouse, joystick or keyboard to position graphics of lights or appliances. Then follow on-screen instructions to program any light or appliance to go on or off whenever you choose. You can even control thermostats, light intensity and more.



**THE WAY IT WORKS.** The X-10 Powerhouse Interface is cable-connected to the Apple RS-232 port and plugged into a standard 110V outlet. After it is programmed, the Interface sends digitally encoded signals through your home wiring to special X-10 Modules. To control a lamp or appliance, you simply plug the electrical device into a Module and then plug the Module

into an outlet. The Interface can control up to 256 Modules throughout your home and won't interfere with normal use of lights and appliances.

There are plug-in Appliance Modules, Lamp Modules, Wall Switch Replacement Modules and Special 220V Modules for heavy duty appliances such as water heaters and room air conditioners. Plus

Thermostat Controllers for central heating and air conditioning, Telephone Responders to control your home from any phone, and much more.

**IT WON'T TIE UP YOUR COMPUTER.** Use your computer only for programming. When you're finished, disconnect the Interface from the RS-232 port and keep it plugged into any convenient power outlet in your home. It will operate as a stand-alone controller with battery back-up and will run your home automatically.

**NEW LOW PRICE!** A Powerhouse System including the interface, software, and connecting cables now costs less than \$70. X-10 Modules are less than \$17 each.

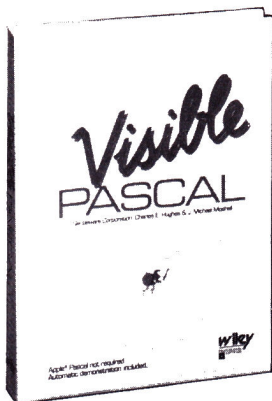
For the Dealer Nearest You Call: **1-800 526-0027**  
(in NJ: (201) 784-9700)

185A Legrand Avenue  
Northvale, NJ 07647

**X-10 POWERHOUSE**  
NUMBER ONE IN HOME CONTROL

Apple, Apple IIe, Apple IIc, and Macintosh are registered trademarks of Apple Computer, Inc.

**FREE 15-DAY TRIAL OFFER**



**“Visible Pascal is one software package that anyone**

**considering learning a computer language should look into.”**

—Erik Sandberg-Diment  
*The New York Times*  
August 6, 1985

The critics are raving about **Visible Pascal**. **Visible PASCAL**, the first interactive learning tool, has added fun to learning the PASCAL programming language.

**Take advantage of this FREE 15-day trial offer. Call Wiley Professional Software at 212-850-6788.**

**Visible PASCAL \$59.95** ISBN 0471-88820-6

**Developed by Gentleware Corporation**

**Requirements:** Apple® II, (with language card), II+, IIc or IIe, 64K RAM. Game paddles or joysticks recommended, though not required except for the Artist program.

Examine the documentation only FREE for 15 days. Either keep your **Visible PASCAL** and return the accompanying invoice with your payment (including postage and handling, plus local sales tax) or return it within 15 days without further obligation.

**Note:** Returns will not be accepted if the seal covering the program disk is broken.

**Or write: Wiley Professional Software**

Attn: Leslie Bixel  
John Wiley & Sons, Inc.  
605 Third Avenue  
New York, N.Y. 10158



**wiley**  
PROFESSIONAL SOFTWARE

Institutional discounts available.

Apple™ is a registered trademark of Apple Computer Inc.

Enter **Quicken** from Intuit. This neat program is easy to learn and provides exactly the level of book-keeping a one-person business needs. It can manage more than one bank account, and can be programmed to prepare checks for regular payees. Intuit can also supply pinfeed checks and window envelopes to further reduce the work involved in paying bills.

One of Quicken's most convenient features is its ability to create account categories "on the fly" as you build your money-management system. Many other bookkeeping programs force you to almost fully design a chart of accounts right at the beginning, and they're awkward to edit.

So John has virtually a "one-write" system—an application that lets him simulate check writing (the screen even looks like a check), then print it, and have the software take care of everything else. He can run the data he's created into AppleWorks for all kinds of useful purposes.

Since John's territory is large and he spends three or four days each week on the road, it's important to plan trips efficiently. He needs to be able to look at three- or four-day periods so that he can make effective appointments.

John found **Pinpoint**, from Pinpoint Publishing, a memory-resident background-mode program you can call at any time from within virtually any program. It can be easily installed with AppleWorks. Pinpoint's calendar-management segment is well suited to John's requirements. Whenever you ask to review in detail any single day, Pinpoint also displays a summary of the two succeeding days, together with the calendar for the month.

One bonus John got when he selected Pinpoint was the variety of extra features that come with the program. The telephone directory and auto-dialing system, for instance, inspired John to acquire a Hayes Smartmodem (which connects to the Business-Card's serial interface)—and Pinpoint contains the communications software he prefers. The Pinpoint calculator is very useful for those quick computations that are just a nuisance if you have to boot up a spreadsheet. And Pinpoint's ability to use the Apple as a memory typewriter is a boon when you're in a rush and don't want to create a document.

So John manages his business with just three programs, and has reduced his post-trip workload from a full day to just one evening. ■

Write to Archie Mason at InterCalc Spreadsheet Users' Group, P.O. Box 4289, Stamford, CT 06907.





# Want More AppleWorks™ Power?

You could put an Apple™ 1 meg memory expansion card in slot 4 and add another Apple 1 meg memory expansion card in slot 5 (Apple's card only expands to 1 meg). You'll need a separate 80 column card for the auxiliary slot. Oh, and put a printer buffer card in slot 2. If you want RGB color, you'll need an RGB board in slot 7 then buy a hard disk (if you have any slots left).

You'll have a bigger AppleWorks desktop, but you'll still be limited to a maximum of 1350 records in the data base. And you're stuck at 2250 lines in the word processor. And AppleWorks won't automatically load itself into memory, and make sure you don't create a file bigger than your disks can hold because Apple's memory card won't segment a file onto multiple disks.

## Or You could get RamWorks II®!

*You'll have a bigger desktop.*

You'll also have up to 15,200 records (not 1350) in the data base and up to 15,200 lines in the word processor (not 2250). AppleWorks will now automatically load into RAM. And if you create a file greater than your disk capacity, no problem. RamWorks II will automatically save it on multiple disks. And because of our built-in printer buffer, you can continue to use AppleWorks while your printer is printing. Nice. RamWorks II has an RGB option, 16 bit option and is expandable to 3 megabytes. And don't forget, RamWorks II is the software industry standard for memory expansion in the IIE. RamWorks II is automatically recognized by virtually all memory intensive programs (and many more are on the way) and is 100% compatible with all IIE software and hardware. So save your money and save your slots for other peripherals. Order RamWorks II today! Want more info? Just turn the page.



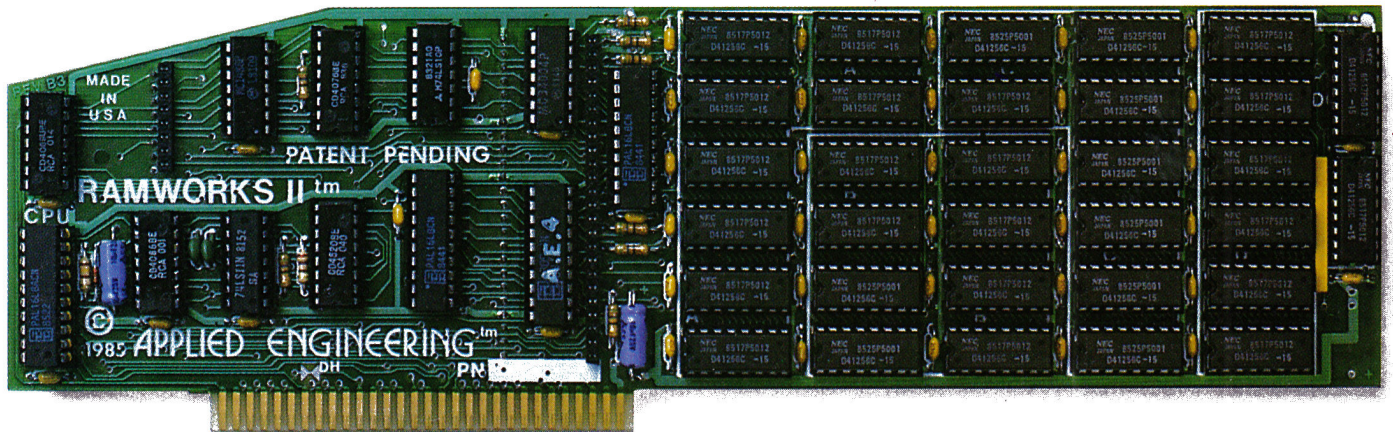
**APPLIED ENGINEERING**  
"We Set the Standard"

	<b>RamWorks II®</b>	<b>Apple's™ Card</b>
Maximum Desktop	2277K	1012K
Maximum Number of Records in Database	15,200	1350
Maximum Number of Lines in Word Processor	15,200	2250
Autoloads AppleWorks	YES	NO
Auto Segments Files	YES	NO
Built-in Printer Buffer	YES	NO
Compatible With All Versions of AppleWorks	YES	NO
Displays Time & Date on AppleWorks Screen with Clock	YES	NO
Saves Slots	YES	NO
RGB Option	YES	NO
16 Bit Co-Processor Port	YES	NO
Memory Expansion Port	YES	NO
Patent Pending Power-Saving Circuit	YES	NO
80 Columns Built-in	YES	NO
CP/M RAM Disk	YES	NO
Compatible with Franklin 2000 Software	YES	NO
Maximum Total Functions	6	1
Software Standard	YES	YES
Manufactured in	USA	Singapore
Warranty	5 years	90 days
Price with 256K	\$219	\$299

AppleWorks and Apple are trademarks of Apple Computer.

# Meet RamWorks II<sup>®</sup>

*The Recognized Industry Standard For Memory Expansion of the Apple IIe.*



*RamWorks II. A Generation Ahead. Again.*

The best selling expansion card for the Apple IIe just got even better. With RamWorks II, expand your IIe to an incredible 3 megabytes of usable RAM.

### **Turbo Charged AppleWorks.**

RamWorks II plugs into the IIe auxiliary slot and acts just like Apple's extended 80 column card, only better—because if you buy a 256K or larger card, AppleWorks will automatically load itself into RamWorks II. This dramatically increases AppleWorks' speed and power because it effectively eliminates the time required to access disk drive 1. Now, switch from word processing to spreadsheet to database management at the speed of light. AppleWorks responds the moment your fingers touch the keyboard.

But AppleWorks has certain internal limits, independent of available memory. Fear not. Only RamWorks II (and the original RamWorks of course) removes those limits. Only RamWorks II increases

the maximum number of records available from 1,350 to over 15,000. Only RamWorks II actually increases the number of lines permitted in the word processing mode. And only RamWorks II features a built-in printer buffer, so you no longer have to wait for your printer to stop before going back to AppleWorks (256K or larger RamWorks II required).

With RamWorks II, you won't have to split your data into 2 or more separate files because you'll have the necessary memory to access ALL your data ALL the time, quickly and conveniently.

<b>RamWorks II</b>	<b>AppleWorks Desktop</b>
128K	101K
256K	188K
512K	378K
1 MEG	758K
1.5 MEG	1136K
3 MEG	2277K

### **The Most Friendly, Most Expandable Card Available.**

RamWorks II is compatible with more off-the-shelf software than any other RAM card. Popular programs like Advanced VisiCalc, Magic Office System, Flashcalc, The Spread Sheet, Diversi-DOS, Supercalc 3A, Magicalc, etc. (and hardware add-ons like Profile and Sider hard disks). Fact is, only RamWorks is 100% compatible with all software written for the Apple 80 column and extended 80 column cards. In addition, RamWorks II can emulate most other RAM cards, so you can use programs written for them without modification. And any size RamWorks II can be user upgraded later to any larger size.

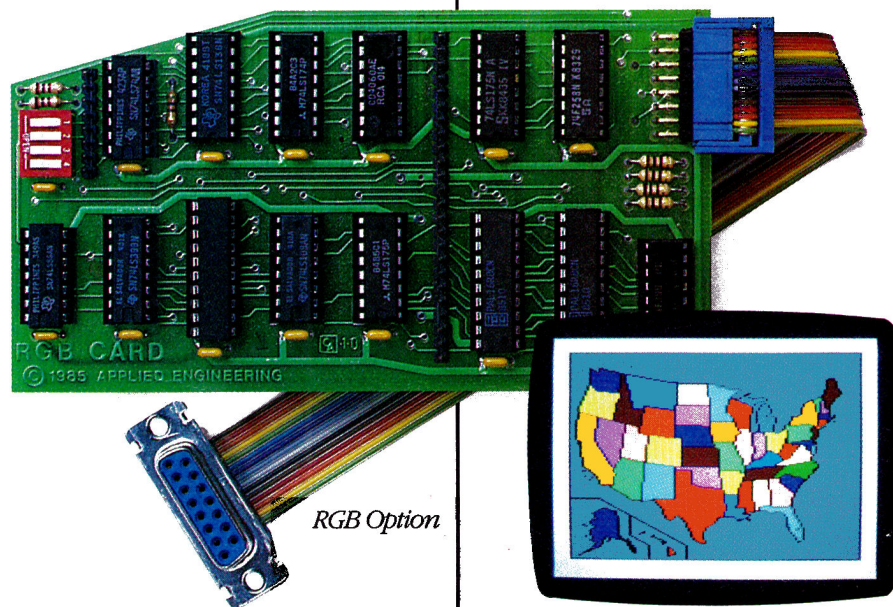
RamWorks II was designed so you could take full advantage of future developments in 16 and 32 bit microprocessors. As your needs grow, so can RamWorks II. A handy coprocessor connector allows the latest and greatest coprocessor cards to access all 3 MEG

of RamWorks II memory. And speaking of more memory, RamWorks II has a memory expansion connector on board so a low profile (no slot 1 interference) memory expansion card can add another 512K or 2 MEG of memory.

Unlike Apple's smaller, more expensive RAM card, RamWorks II plugs into the IIE auxiliary slot and therefore leaves slots 4 and 5 available for other peripheral cards.

### It's In Color

RamWorks II by itself is *fully* compatible with both the Apple monochrome and color monitors. But if you want better color graphics *plus* a more readable 80 column text (that blows away any composite color monitor) you'll appreciate our RGB color option. For only \$129, it can be added to RamWorks II, giving you a razor sharp, vivid brilliance that's unsurpassed in the industry. The RGB option does not waste another valuable slot, but rather plugs into the back of RamWorks II with no slot 1 interference (works on the original RamWorks, too) and attaches to virtually any RGB monitor. And remember. You can order

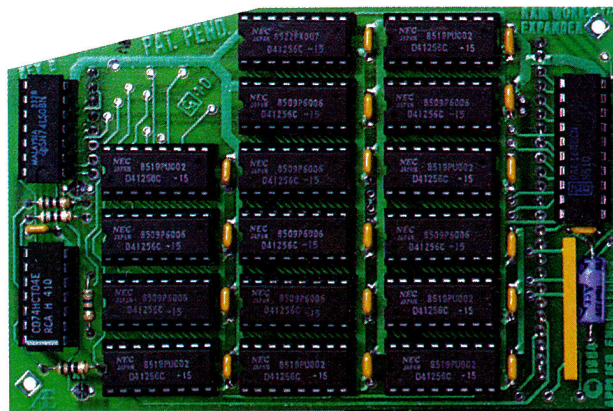


RGB Option

the RGB option with your RamWorks II. Or add it on at a later date.

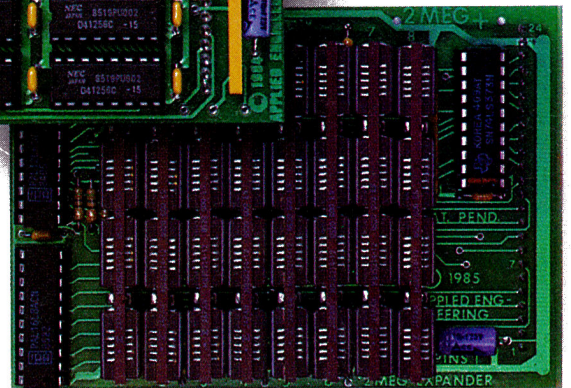
### It Corrects Mistakes.

Let's say you bought some other RAM card (and that's a mistake) and your RAM card is not being recognized by AppleWorks, Advanced Visicalc, Flashcalc, Supercalc 3A, or other programs, and you want RamWorks II.



512K Expander

No problem. The memory chips on the card that you now have, which is where most of the money is, can be unplugged and then plugged into the expansion sockets on RamWorks II.



2 MEG Expander

### It's Got It All.

- 15 Day Money Back Guarantee
- Super sharp 80 column text (patent pending) with or without RGB option
- Double high resolution graphics (with or without RGB option)
- Expandable up to 1 Meg (1024K) on main board

- RamDrive™ the ultimate disk emulation software included free
- 16 Bit option
- Compatible RGB option
- Built-in self diagnostics software
- No slot 1 interference
- Lowest power consumption (patent pending)
- Takes only one slot (auxiliary)
- 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
- 5 Year no hassle warranty

RamWorks II with 64K	\$ 179
RamWorks II with 256K	\$ 219
RamWorks II with 512K	\$ 269
RamWorks II with 1 MEG	\$ 389
RamWorks II with 1.5 MEG	\$ 549
RamWorks II with 3 MEG	\$1699
RGB Option (may add later)	\$ 129
16 Bit Option (may add later)	\$ 89

RamWorks II. The industry standard for memory expansion of the Apple IIe. ORDER YOUR RamWorks II TODAY. 9 a.m. to 11 p.m. 7 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.

- Expandable to 3 Meg (3072K) with expander (piggyback) card
- Can use 64K or 256K RAMS in any combination
- Linear addressing coprocessor port
- Automatic AppleWorks expansion up to 2277K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- The only large RAM card that's 100% compatible with all IIE software

**AE Applied Engineering**  
P.O. Box 798, Carrollton, TX 75060  
(214) 241-6060



*Which accessory package should you choose? Here's a comparison of Pinpoint and Jeeves, two of the newest.*

# Desktop POWER

by Tom Sherman

**T**here are three types of software: programs that frustrate you, programs that satisfy you, and programs that are so good you always want more. AppleWorks is the third kind. Because it does so many things so well, AppleWorks makes me wish for just a few more—like a calendar, clock, notepad, and calculator.

When the Jeeves and Pinpoint desktop accessories were announced, I placed my order, enhanced my //e in anticipation, and crossed my fingers. Will life be better with Jeeves? Will Mac and IBM users squirm when they see Pinpoint? If your calculator is always across the room, if you write notes to yourself on the inside of disk envelopes, if the sun comes up before you look at your watch, you definitely need help getting organized—but which package should you choose?

That's hard to answer. Your decisions will depend on your needs, your equipment, and your patience. Both Jeeves and Pinpoint operate with AppleWorks in memory. They have four features in common—a notepad, calculator, appointment calendar, and telephone dialer. Jeeves also has a software clock and an alarm clock. Pinpoint offers telecommunications, graphics/text merge, envelope labeling, and a "typewriter" connection to your printer. Let's examine the four functions they share, then look briefly at their unique features.

## The Basics

Pinpoint's notepad may have a slight edge over Jeeves' because it works like a mini-AppleWorks and creates larger files (2000 characters versus 600). Jeeves' notepad, though lacking word wrap, has additional commands—to clear or restore a line, for example. Jeeves gives you the same notepad every time to edit as necessary. Pinpoint saves and recalls notes under different names.

Jeeves' calculator has the upper hand, because it lets you type in and edit simple equations, and it's easier to see how you got your results. The Pinpoint calculator accepts larger numbers, though (16 characters versus ten). Unfortunately, you can't "cut" the results from either calculator to "paste" into your text.

The Jeeves appointment book provides one big benefit—it automatically arranges times of day if you type them in military-fashion. Pinpoint, on the other hand, has many smaller advantages, such as showing you four months at a glance rather than three, highlighting days with appointments, and copying or moving entries from one day to another. And Pinpoint prints only the calendar days you choose, while Jeeves prints the whole screen.

The Pinpoint dialer automatically highlights the first telephone number on the screen. Use the cursor keys to move to other phone numbers and dial the one you select with the return key. Jeeves lets you create a 1K phone book with automatically alphabetized names and numbers, then dials from that list.

## Extras

Only Jeeves includes a clock and alarm. If you don't have a clock card, type in the date and time to set the alarm and stamp your ProDOS files.

The remaining four functions mentioned above—Communications, GraphMerge, QuickLabel, and Typewriter—are exclusively Pinpoint's. Communications lets you choose 300 or 1200 baud, set other protocols, and send or receive files. Pinpoint's Communications isn't a full-featured program—it doesn't permit interactive log-on, for example—but it's an excellent value as part of the whole package.

Pinpoint's GraphMerge makes it easy to merge and print graphics files with AppleWorks files. You can convert

hi-res MousePaint images to double high resolution, you can divide the height and the width of the image in half, and print in regular or inverse format.

When you've finished your letter and printed it, you don't need to retype the name and address on the envelope. Pinpoint's QuickLabel feature can recognize a block of text as an address, let you adjust the size of the block, and position it on the image of an envelope. Press the return key and the envelope is printed.

If your typewriter is buried in the closet under the suitcases, you'll enjoy being able to type and print a line at a time directly from the keyboard. Typewriter is quicker than the E(nter) K(eyboard) option in AppleWorks, and it's easy to set the type size, lines per inch, and style (normal, bold, italic, or headline) on your Apple ImageWriter, Scribe, or DMP. (Additional printer drivers on a separate disk should be available soon.) Be careful, though—the program doesn't return your printer to its standard mode when you exit.

### Comparing Speed

Are you a patient person? If your system doesn't include a hard disk or RAM-expansion board, you'll find Jeeves significantly faster. Simultaneously pressing the open-apple and solid-apple keys instantly brings Jeeves into service. And Jeeves can retrieve data files from disk long before you can get across the room to that calculator.

I tested Pinpoint with regular Apple II disk drives, a ProFile hard-disk drive (see "Hard-Driving Disks," September 1985, p. 24), and Applied Engineering's excellent RamWorks card (see "Thanks for the Memory," December 1985, p. 18). Pinpoint's manufacturer candidly and accurately says the program is "much more useful" with a hard disk or RAM-expansion board.

Loading the Pinpoint calculator from a floppy disk takes almost 20 seconds. But fetching the calculator from a hard disk takes about seven seconds, and retrieving it from the memory-expansion board takes only one second. The larger Pinpoint accessories—telecommunications and graphics/text merge—show similar savings: 30 to 60 seconds to load from floppies, less than ten seconds from the RAM board. If you're impatient and your system is small, you'll be gnawing on your knuckles before you get to enjoy Pinpoint.

### The Bottom Line

Both programs include tutorials on disk and accompanying manuals, but the similarity ends there. Jeeves provides minimal documentation, which may be all that's required for experienced AppleWorks users. Its awkwardly organized 39-page booklet is crammed with small print and typos. Pinpoint, on the other hand, offers a well-designed book of 213 pages, many with sample screens to illustrate the text. These detailed instructions will certainly satisfy AppleWorks beginners.

Which accessory package should you choose? I like the Jeeves alarm clock, and the automatic sorting in the program's appointment calendar and phone book. If I didn't have a memory-expansion board, I'd pick Jeeves for speed. But with all its functions loaded on a RAM card, I'll take Pinpoint. And because I use my modem often, Pinpoint's communications feature confirms my choice. ■

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

# AppleWorks:

## Product Information

### AppleWorks

Apple Computer  
20525 Mariani Avenue  
Cupertino, CA 95014  
(800) 538-9696  
\$249

Reader Service Number 305

### BusinessCard

Street Electronics  
1140 Mark Avenue  
Carpinteria, CA 93013  
(805) 684-4593  
\$219.95 (serial)  
\$249.95 (parallel, with cable)

Reader Service Number 306

### Diablo 630

Diablo Systems  
901 Page Road  
Fremont, CA 94537  
(800) 556-1234  
\$2295

Reader Service Number 307

### IDS Prism

(Now called the Prism)  
Data Products  
Route 13  
Milford, NH 03055  
(603) 673-9100  
Prism 132 \$1995  
Prism 80 \$1795  
132 Basic \$1499  
80 Basic \$1299

Reader Service Number 308

### Jeeves

FBI Software  
1155B-H Chess Drive  
Foster City, CA 94404  
(415) 349-8765  
\$49.95

Reader Service Number 309

### Pinpoint

Pinpoint Publishing  
2823 Steinmetz Way  
Oakland, CA 94602  
(415) 530-1726  
\$69

Reader Service Number 310

### QC10

Quark Peripherals  
2525 West Evans  
Suite 220  
Denver, CO 80219  
(303) 934-2211  
\$1995

Reader Service Number 311

### Quicken

Intuit  
540 University Avenue  
Palo Alto, CA 94301  
(415) 322-0573  
\$79

Reader Service Number 312

### Sensible Speller

Sensible Software  
210 South Woodward  
Suite 229  
Birmingham, MI 48011  
(313) 258-5566  
\$125

Reader Service Number 313

### Slider II (20 megabytes)

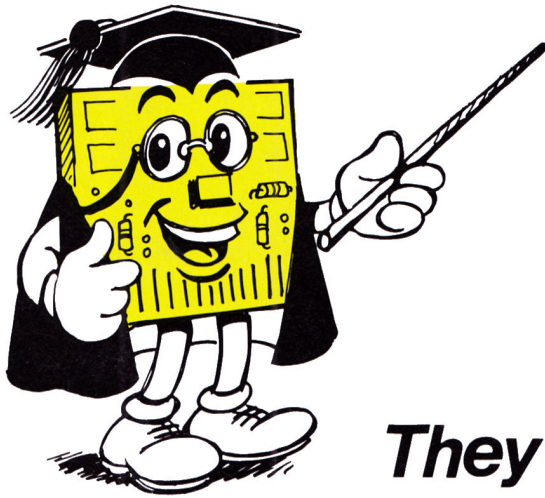
First Class Peripherals  
3579 Highway 50 East  
Carson City, NV 89701  
(800) 538-1307  
\$995

Reader Service Number 314

### 256K Z-RAM

512K Z-RAM  
Applied Engineering  
P.O. Box 798  
Carrollton, TX 75006  
(214) 241-6060  
\$359 (256K)  
\$419 (512K)

Reader Service Number 315



# Some facts about RAMCARDS...

*They're not all the same -*

FEATURE	flipster	APPLE	RAMWORKS	MULTIRAM
Designed to Apple standard	YES	YES	NO	NO
Runs on Apple //e and II+	YES	YES	NO	NO
Fits in any standard slot	YES	YES	NO	NO
Maximum memory without add-ons	1024K	256K	512K	768K
Total memory possible	6MB	6MB	3MB	1.5MB
Automatically recognised by ProDOS, CP/M+ and PASCAL 1.3	YES	YES	NO	NO
100% compatible with all standard Apple II software	YES	YES	NO	NO
Patch necessary for ProDOS (inc. APPLEWORKS), DOS 3.3 and PASCAL 1.3	NO	NO	YES	YES
ProDOS, DOS 3.3, PASCAL 1.3 and CP/M bootable direct from the RAMcard	YES	NO	NO	NO
Free support for CP/M 2.20B/2.23 and PASCAL 1.1/1.2	YES	NO	NO	NO
Program/operating system switching software included	YES	NO	NO	NO
Includes fast backup and restore software	YES	NO	NO	NO

As you can see, the CIRTECH FLIPSTER is pretty special; it represents the FIRST of a new generation of RAMcards designed to the APPLE standard, guaranteeing future compatibility as new, more powerful software is developed for your Apple II.

FLIPSTER has all the facilities of the Apple II Memory Expansion Card and MUCH MUCH MORE:

**PROGRAM MANAGER** - This utility enables you to organise FLIPSTER into convenient workareas and switch between these areas with JUST A FEW KEYSTROKES. Each workarea can contain programs and/or operating systems - imagine, you can switch from APPLEWORKS to PASCAL to dBASE to DOS faster than you can say FLIPSTER. With the facility to backup complete workareas for quick and easy restoration next time you use them, FLIPSTER is the most advanced multi-program tool available for your Apple.

WHY SETTLE FOR SECOND BEST? - ONLY \$399.00



products are available from

**GREENGATE inc**  
productions

2041 Pioneer Crt. # 15, SAN MATEO,  
CA 94403 Tel: (415) 345 3064

SOURCE Mailbox Nos.: CIRTECH - AAH555

GREENGATE - BCH101

Apple, Appleworks, DOS 3.3 and ProDOS are the registered trademarks of Apple Computer Inc. Ramworks is a registered trademark of Applied Engineering  
CP/M and CP/M Plus are registered trademarks of Digital Research Inc. Multiram is a registered trademark of Checkmate Technology  
dBASE is a registered trademark of Ashton Tate \*CIRTECH (UK) LIMITED is in no way affiliated with Sir-Tech Software Inc.





# FRANKLIN Clones the //e

*Apple compatibility, an IBM-like keyboard,  
and a lower price tag make the Franklin Ace 2200  
a serious alternative for the experienced //e user.*

by Bob Ryan

**F**ranklin, the New Jersey company that made its mark selling Apple II Plus-compatible machines, recently introduced its first line of new products in two years, the Franklin Ace 2000 series—Apple //e-compatible computers. The machines' appeal is to experienced users—people who will buy an Ace because it runs the software they need, people who already know that it doesn't run everything under the sun. The Ace computers are Applesoft-compatible and, yes, they run AppleWorks and SuperCalc3a. But, since the machines aren't 100 percent Apple-compatible, novices and casual users should steer clear of them.

Three machines comprise the Ace 2000 line: the 2000 itself, which comes without disk drives, the single-drive Ace 2100, and the twin-drive Ace 2200. I evaluated the 2200, but what I discovered applies to the 2000 and the 2100, as well.

## Features

Designed to be compatible with the Apple //e, the Ace 2200 runs much //e software and works with many //e peripherals. The 2200 uses the 65SC02 processor, a close relative of the 65C02. It has 128K bytes of RAM, BASIC in ROM, a built-in 80-column by 24-line video display, double hi-res graphics, and even mouse characters in ROM. In addition to these and other standard features, the 2200 offers a number of optional features, some of which are unavailable for the //e.

## The Keyboard

The Ace 2200 features a detachable keyboard with 90 keys, including a numeric keypad (which simplifies spreadsheet entries and BASIC editing), 12 function keys, and open-F and closed-F keys, which are analogous to the //e's open-apple and solid-apple keys (see **Photo 1**). The locations of some keys

(particularly the F keys) vary from those on the //e keyboard, but I got used to the new layout quickly.

I like the feel of this keyboard. In fact, the only thing I dislike about it is the small size of the key caps on the control, shift, and return keys. According to Franklin, these keys will be enlarged on the next version of the keyboard, which is due with the 5001st Ace 2000 machine. [Editor's note: This keyboard was scheduled to be shipped in January 1986.]

### The Video Signal

Like the //e, the Ace 2200 puts out a composite video signal. The 2200 has the same display modes as the //e—40- and 80-column text and lo-res, hi-res, and double hi-res graphics. The shape of the text characters



Photo 1. The Ace 2200 keyboard.

is slightly different from that of the characters a //e produces, but it's no better or worse. The 2200 has a 24-pin block connector on the motherboard for an optional RGB interface, which at press time was scheduled for release in January 1986.

The 80-column firmware in the Ace 2200 is a superset of the //e's Enhanced Video Firmware, and performs all the same functions. It also supports the functions of the 2200's six editing keys (see **Table 1**), which simplify the editing of BASIC programs.

### The System Unit

The system unit of the Ace 2200 houses two half-height disk drives, power supply, and motherboard. You can use the drives as 35-track drives under DOS 3.3 or ProDOS, or as 40-track drives under FDOS 2, Franklin's DOS 3.3-like operating system. The disk controller is built into the motherboard.

You can boot the Ace 2200 with DOS 3.3, ProDOS, or FDOS. When you boot the machine with FDOS, the computer automatically defines the function keys as 12 common FDOS commands (see **Table 2**), such as CATALOG,D1 and PR#1. You can also define the function keys yourself from BASIC. With the exception of function keys 7 and 8 (the COPY and TYPE com-

Key	Function
CLRS	Clears the screen and moves the cursor to the home position
HOME	Moves the cursor to the home position
CLRL	Clears the line the cursor is on
INSC	Inserts a space character at the current cursor position
DELC	Deletes a character at the current cursor position
CPES	Copies the current line into memory

Table 1. Franklin editing keys.

mands), the predefined function keys are also available if you warm-boot a DOS 3.3 disk from FDOS.

The motherboard of the 2200 is much more crowded than the //e's motherboard (see **Photo 2**). The functions performed by the MMU (memory-management unit) and IOU (input/output unit) in the //e have to be performed by numerous discrete chips in the 2200. This increases the chip count and, consequently, the heat generated by the chips on the motherboard. The Ace 2200 has a built-in fan, however, to circumvent heat problems.

The 2200 handles both D-9 and 16-pin DIP game-controller devices. The D-9 connector is on the back of the machine; the 16-pin DIP connector is next to the fan on the motherboard. The 2200's speaker has a volume-control knob, but I found it rather strange to use: It turns through about 270 degrees, but only the first quarter turn or so affects the volume. More than a quarter turn changes the speaker's pitch more than its volume. [Editor's note: Franklin claims to have developed a better volume control.]

Also on the motherboard is a built-in parallel-printer interface. You can use this intelligent interface to dump graphics to Epson, Okidata, C. Itoh, and Star Micronics printers. Since the printer interface replaces slot 1, it eliminates the need for a printer-interface card. Of course, if you want to use a serial printer with your Ace 2200, you will still need a serial-interface card.

### Expansion

The Ace 2200 has less expansion capability than the //e. As noted above, the built-in parallel interface takes up slot 1. This leaves two open expansion slots and an expansion bus in the 2200. One of the available slots is physical slot 2; you can select the

Key	Definition	Key	Definition
F1	CATALOG,D1 return	F7	COPY
F2	CATALOG,D2 return	F8	TYPE
F3	PR#3 return	F9	LOCK
F4	PR#1 return	F10	UNLOCK
F5	Escape 4	F11	DELETE
F6	Escape 8	F12	RENAME

Table 2. Function-key definitions.

# They're talking a blue streak about Value Line's New Investment Software.

"VALUE/SCREEN is a fast fundamental analysis screening package that can save you hundreds of hours in screening and analysis time . . . It is a powerful and flexible program. . ."  
*PC MAGAZINE (July 10, 1984)*

"I recommend this program to . . . anyone . . . who wants the ability to sift easily and rapidly through large amounts of monthly stock market statistical data."  
*FINANCIAL AND INVESTMENT SOFTWARE REVIEW (January/February 1984)*

" . . . saves me 2 days work per week."  
*Business Consultant, McAllen, Texas*

" . . . it makes perfect sense that Value Line should have sought to boil down its database into a package that could run on a personal computer. This is just the kind of information that makes VALUE/SCREEN particularly valuable. . ."  
*WALL STREET COMPUTER REVIEW (August/September 1984)*

"It is so user-friendly. It is almost impossible to make an error."  
*Money Manager, Carlisle, Mass.*

" . . . I found the program interesting and useful. . ."  
*COMPUTERIZED INVESTING (April, May 1984)*



**VALUE/SCREEN: The only investment software you'll ever need.**  
**Stock Selection \* Regular Data Disk Updates \* Stock Reports \***  
**Portfolio Management**

**Get VALUE/SCREEN Today!**

I want VALUE/SCREEN!

- I'd like the \$39 trial offer, which includes complete documentation, program disk, and a current data disk — PLUS the next monthly updated data disk.  
 I'd like an immediate 12-month subscription to VALUE/SCREEN with  
 12 monthly data disks for \$348 or  4 quarterly data disks for \$211.

Tax deductible if used in managing your investments. Purchase is nonassignable. NY residents add sales tax.

Personal computer equipment:

- IBM  Apple II series, 80-column display recommended.  
 My check for \$ \_\_\_\_\_ is enclosed.  Please bill my  American Express  MasterCard  Visa

Account # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Name \_\_\_\_\_ Signature \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

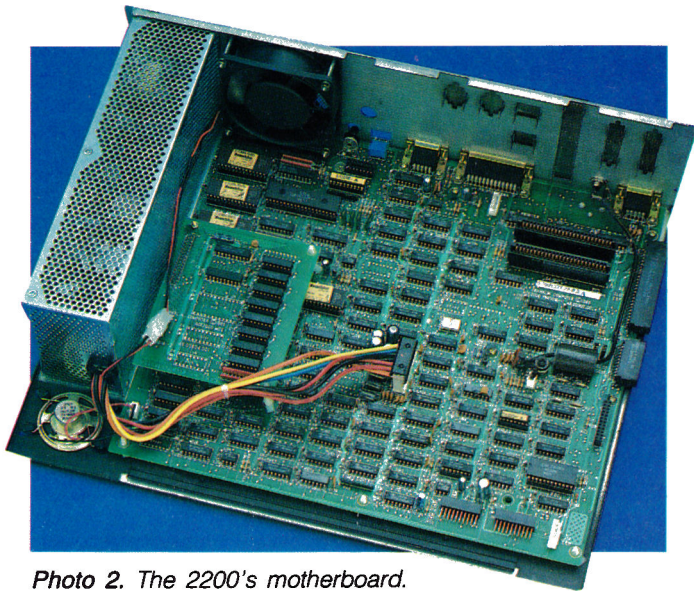


Photo 2. The 2200's motherboard.

other to be either slot 4 or slot 7. To increase the number of physical slots available to you, you can hang an expansion chassis from the expansion bus, which you access via a panel in the side of the machine. In default mode, the expansion bus occupies slot 5.

How does this stack up against the //e? The //e has eight slots—seven peripheral slots and the auxiliary slot. Logically, the auxiliary slot and slot 3 are identical (physically, they are very different), so you actually have seven slots in a //e. To perform the built-in functions on the Ace 2200, you would have to use three of the //e's seven slots (slots 1, 3, and 6), leaving four slots for further expansion. An Ace 2200 without an expansion chassis therefore has two fewer slots than a //e, cutting down on its expansion options.

One more thing to note about expansion with the Ace 2200 is that it has no auxiliary slot. Consequently, you can't plug an auxiliary-slot memory board into the 2200. Franklin has recognized this limitation and introduced a 512K memory board that piggybacks on top of the motherboard. At the time of this writing, the board was scheduled for release in December 1985. [Editor's note: At press time, Franklin offered a 320K expansion board for \$139, a 512K board for \$199, and an RGB card for \$79.]

### System Software

The Franklin Ace 2200 comes with two types of system software: disk-based and ROM-based. The ROM-based software consists of the basic input/output system of the computer (called the Monitor) and Franklin BASIC, which is functionally identical to Applesoft BASIC. Any program written in Applesoft should work on the Ace 2200.

Franklin supplies its disk-operating system, FDOS 2, with the Ace 2200, along with a number of utility programs. These programs let you copy files and disks, verify disk files, and make diagnostic checks of your

system. As I mentioned before, FDOS lets you format disks in either the Apple 35-track format or in 40-track format. Disks initialized with 40 tracks can hold about 15 percent more data than 35-track disks.

### Documentation

The 2200's *User Reference Manual* details the computer's setup and use, but it doesn't provide much technical information about the machine or Franklin BASIC programming. For details, refer to *The Ace 2000 Technical Reference Manual*, and for programming information, Franklin recommends that you use Applesoft books and manuals.

Another type of documentation—call it “real-time documentation”—is provided by indicator lights on the front panel and disk drives. In addition to a power-on indicator, lights indicate the level of CPU activity and tell you when a diagnostic routine is being run, when a disk error occurs, and when double hi-res graphics is in use. Besides the disk-use light, the disk drives have another indicator that tells you specifically when you're writing to a disk.

The Ace 2200 is warranted for 90 days, and Franklin will immediately replace any defective unit. If you don't live near a Franklin dealer, you can send a malfunctioning unit directly to Franklin for service.

### The Key to Success

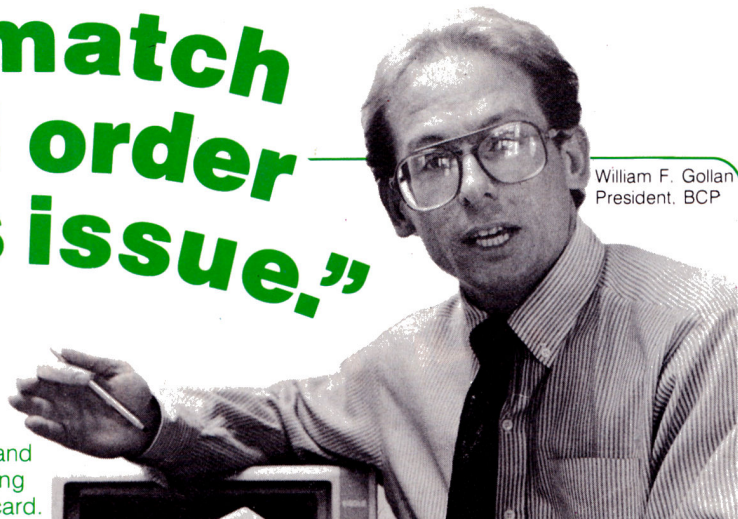
The most important question about the 2200 is this: Does it run //e software? The answer is a qualified yes. AppleWorks ran perfectly on the 2200, as did Apple Writer 2.0 (the ProDOS version). Apple Writer //e, however, didn't run at all. To my surprise, SuperCalc3a, which doesn't run on unenhanced //e's, worked fine on the 2200.

Other favorites that ran on the Ace included The Print Shop, The Newsroom, Bank Street Writer, the PFS series (Pascal-based versions), Sargon III, and even WordStar and dBase II (with a compatible CP/M card). I also got to play with Gato from Spectrum Holobyte—the first commercial program that takes advantage of the 2200's function keys. As the popularity of the Ace 2000 series grows, more software vendors will incorporate the use of function keys as an option in their Apple products.

Obviously, I was unable to run every program available for the Apple II, so I can't give you a percentage compatibility figure for the Ace 2200. Even if I could, any compatibility figure below 100 percent would be meaningless. You buy a computer that runs the software you want to use. If the Ace 2200 does everything you want a computer to do, you may not need a //e. If you *must* play F-15 Strike Eagle or write with Apple Writer //e, however, stick with an Apple machine.

How do you find out if *your* software runs on the Ace? The best thing you can do is to test your software on a friend's or a dealer's machine. The next-best thing is to check the lists Franklin supplies to its dealers. You may be leery about trusting a manu-

# "We will match any mail order price in this issue."



William F. Gollan  
President, BCP

We'll support, service and warranty everything we sell and stand behind it 100%. We won't charge you for shipping or handling, nor will we penalize you for using a credit card.

MODEMS		
<b>D.C. Hayes</b>	Transit w/128k	289.95
Smart 300 IIC w/sc & cable	<b>Prometheus</b>	
Micro Modem IIC w/sc	Pro 1200	299.95
Smart 1200	Pro 1200 A w/sc	289.95
Smart Modem 2400	Pro 300C	149.95

PERIPHERALS		
<b>Apple*</b>	Verbatim Bonus SS/DD	12.95
II E's & II C's & Macs	Verbatim Bonus DS/DD	16.95
<b>AST</b>	Verbatim Datafiles SS/DD	19.95
Multi I/O	Verbatim Datafiles DS/DD	27.95
MegaRam +	Maxell MD1 SS/DD	17.95
Sprint Disk w/mB	Maxell MD2 DS/DD	26.95
<b>Checkmate Tech</b>	Printer Stand	139.95
Multiram II E 64K + 80	System Saver	69.95
Multiram II E 256K + 80	<b>Koala Technologies</b>	
Multiram II CX w/512K	Koala Pad +	79.95
Multiram II CX w/512K	<b>Joysticks</b>	
Multiram II CX16 w/256	Kraft Quickstick	39.95
Multiram II CX16 w/512	Heyes Mach III's	54.95
<b>Curtis</b>	Accellorator	224.95
Diamond	64k Ram	159.95
Emerald	128k Ram	184.95
Ruby		
<b>Disks</b>		

GRAPHIC INTERFACES		
<b>Orange Micro</b>	Print It	134.95
Grappler +	<b>Textprint</b>	
w/64k	Thirdware	109.95
Grappler + RS-232C	Fingerprint +	109.95
Grappler C	Fingerprint + IIC	109.95
Hot Link IIC		

PRINTERS DOT MATRIX		
<b>Apple*</b>	LQ 800	569.95
ImageWriter II 10" x 15"	LQ 1000	689.95
<b>Citizen</b>	LQ 1500	909.95
MSP 120D		
MSP 10 160	<b>Okidata</b>	
MSP 15 160	ML 192	354.95
MSP 20 200	ML 192 Image	379.95
MSP 25 200	ML 193	484.95
	ML 84	559.95
<b>Epson America</b>	ML 84	649.95
LX 80	SG 10	239.95
LX 80 F/T	SD 10	349.95
FX 85		
FX 286		

BUSINESS SOFTWARE		
<b>Apple</b>	Dollars & Cents	64.95
Appleworks	Dollars & Cents IIC	74.95
	Forecast	44.95
<b>Arrays</b>		
Home Accountant	Back to Basics	114.95
<b>BPI Software</b>	Back to Basics A/R	64.95
AR, GL, PR, AP, IC (ea)	Back to Basics A/P	64.95
Prodos Versions (ea)	Back to Basics G/L	64.95
<b>Broderbund</b>		
Bank Street Writer	JEEVES	39.95
Bank Street Speller	Graphworks	59.95
Bank Street Filer		
Bank Street Mailer	<b>Quark</b>	
<b>Compuserve</b>	Catalyst	99.95
Subscription Kit	Word Juggler	119.95
<b>Dow Jones</b>		
Market Analyzer +	Mouse Write	84.95
Investors Workshop + IIC	Merlin Pro	64.95
Market Microscope		
News Retriever	<b>Sensible Software</b>	
<b>Human Edge</b>	Sensible Speller IV	74.95
Mind Prober	Graphics Dept. (New)	74.95
<b>Int'l Solutions</b>	Sensible Grammar	69.95
Mouse Desk	<b>Sierra On Line</b>	
Mouse Word	Homeword + (New)	49.95
Mouse Calc	Homeword Speller	37.95
	Home Word Filer	49.95
<b>Intuit</b>	<b>Software Publishing</b>	
Quicken	PFS:1st Success	149.95
<b>Kensington</b>	PFS:Write, Graph, Report & Plan (ea)	74.95
Format II	<b>Sorcim/IUS</b>	
Think Tank	Super IIIA	109.95
<b>Megaheus</b>		
MegaWorks	Word Perect	94.95
Report Works		
<b>Microsoft</b>	D.B. Master V 4.0 +	174.95
Multiplan	<b>United Software</b>	
	ASCII Express	84.95

UTILITIES & LANGUAGES		
<b>Activation</b>	Kitchen's Game Maker	34.95
<b>Baudville</b>	Aclors & Actions T1	20.95
Business T1	Blazing Saddles	35.95
Heroes & Villans T1		20.95
<b>Pxit</b>	Prince Color (Epson)	49.95
Prince Color (Prowriter)	Shape Lib 1,2,3 (ea)	13.95
Take 1		39.95
<b>Beagle Brothers</b>	Alpha Plot	27.95
Alpha Mechanic	DOS Boss	20.95
Basic	Graphics	25.95
D-Code	Diskquick	27.95
DOS Boss	Double-Take	17.95
Extra K	Fat Cat	25.95
Flex Text	Frame-Up	20.95
GPLE	I.O. Silver	32.95
Pro-Byter	Pronto DOS	25.95
Silicon Salad	Tip Disk # 1	17.95
Triple Dump	Typefaces	27.95
Utility City		17.95
<b>Borland International</b>	Turbo Pascal 3.0	44.95
Turbo Tool	Turbo Tutorial	37.95
		29.95

EDUCATIONAL & PERSONAL		
<b>Barrows</b>	Computer SAT	59.95
<b>CBS</b>	Goren's Bridge	66.95
Mastering SAT	Websters Word Game	20.95
Success Series		25.95
<b>Davidson Associates</b>	Classmate	34.95
Math Blaster	Speed Reader II	46.95
Data Disks A,B,C,D (ea)	Alge Blaster	34.95
Spell II	Word Attack	34.95
	Data Grade(s) (ea)	14.95
<b>Hayden</b>	SAT Math	38.95
SAT Verbal		36.95
<b>Harcourt-Brace</b>	Computer SAT	54.95
<b>Learning Company</b>	Addition Magician	26.95
Gertrudes Puzzle	Gertrudes Secrets	31.95
Juggles Rainbow	Magic Spells	25.95
Moptown Hotel	Moptown Parade	28.95
Reader Rabbit	Robot Odyssey	34.95
Rocky's Boot		34.95
<b>Dazzle Draw</b>	Print Shop	34.95
Print Shop Companion	Print Shop GL 1,2 (ea)	18.95
Print Shop Refill Paper		13.95
<b>Central Point</b>	Copy II +	24.95
<b>Data Transforms</b>	Fontrix	59.95
Font Set(s) (ea)		19.95
<b>Funk</b>	Sideways	39.95
Sideways Pro DOS		CALL
<b>Microsoft</b>	Basic Compiler	249.95
COBOL-80	Fortran-80	419.95
M-Sort 80		129.95
<b>Mindscape</b>	Mister Pixels	20.95
Cartoon Kit	Paint Set	23.95
Color Me (Main)	Rainbow Brite	9.95
Shirt Tales	Hugobunch	9.95
Trink		9.95
<b>Penguin Software</b>	Can Graphics	24.95
Complete Graphics System	Graphics Magician	54.95
Graphics Painter		39.95
<b>Pinpoint</b>	Pinpoint	49.95
Pinpoint Toolkit	Pinpoint Ram Exp.	34.95
Pinpoint Ram Exp.		13.95
<b>Terrapin</b>	LOGO	64.95
Word Spinner		25.95
<b>Meca</b>	Managing Your \$	109.95
<b>Mindscape</b>	Perfect Score	54.95
Keyboard Cadet	Lusher Profile	29.95
Bank St. Music	Bank St. Story B	29.95
<b>Pinpoint</b>	Micro Cookbook	36.95
Added Menu(s) (ea)		13.95
<b>Quality</b>	Bag of Tricks II	37.95
Beneath Apple DOS	Beneath Apple Pro DOS	17.95
<b>Random House</b>	Charlie Brown's ABC's	29.95
Snoopy Rescue		29.95
<b>Scarborough</b>	Boston Diet	54.95
Build a Book	Build Refills 1,2 (ea)	29.95
MasterType	New Improved	29.95
Figures & Formulas	Filer	21.95
Writing Wizard	Run for the \$	29.95
Songwriter	Personal Net W.	54.95

EDUCATIONAL & PERSONAL		
<b>Simon &amp; Schuster</b>	Typing Tutor III	35.95
<b>Softsync</b>	Kid Pro Quo	30.95
Model Diet	Personal Acct.	28.95
<b>Spinnaker</b>	Homework Math/Word	28.95
Homework Writing	Math Busters	21.95
Story Machine	Alphabet Zoo	27.95
Delta Drawing	Kids on Keys	24.95
Basic Compiler	Kindercamp	20.95
Snooper Trooper 1,2 (ea)		20.95
<b>Springboard</b>	Graphic Expander VI	27.95
Newsroom Clip Art	The Newsroom	22.95
<b>Xerox/Weekly Reader</b>	Sticky Bear	34.95
ABC	Basket Bounce	29.95
Math	Numbers	29.95
Opposites	Reading	29.95
Printer		29.95

GAME SOFTWARE		
<b>Access</b>	Beach-Head II	25.95
Beach-Head		25.95
<b>Activision</b>	Master Lands	29.95
Countdown to Shut.	Road Race	29.95
Alcazar	Ghostsbuster's	29.95
H.E.R.O.	Pitfall	29.95
Space Shuttle	Mindshadow	29.95
Rock N Bolt		29.95
<b>Blue Chip</b>	Barron	29.95
Millionaire	Squire	29.95
Tycoon		34.95
<b>Broderbund</b>	Championship Lode R.	25.95
Choplifter	Captain Goodnight	25.95
Karateka	Where in the World...	28.95
Fantavision		35.95
<b>CBS</b>	Murder by Doz	28.95
<b>Datasoft</b>	Bruce Lee	28.95
Conan	Dig Dug	21.95
PackMan	Zaxxon IIC	21.95
Alternate Reality	Goonies	34.95
Zoro		28.95
<b>Epyx</b>	Rogue	20.95
Koronis Rift	Summer Games	28.95
Pitstop	Baseball	28.95
Summer Games II	Winter Games	28.95
Football	Temple Aposhar	20.95
<b>Hayden</b>	Holy Grail	35.95
Sargon III		35.95
<b>Intocom</b>	Cuthroats	28.95
Deadline	Enchanter	34.95
Hitchhiker's G.	Sorcerer	28.95
Suspect	Wishbringer	30.95
Witness	Zork 1	28.95
Zork 2,3 (ea)		30.95
<b>Micro Lge. Sports</b>	Baseball	29.95
<b>Microprose</b>	F-15 Strike	25.95
NATO Commander	Silent Service	25.95
Solo Flight	Crusade in Europe	28.95
Decision Desert	Conflict Vietnam	28.95
Kennedy Approach		25.95
<b>Gunsip</b>	Acro Jet	25.95
<b>Mindscape</b>	Halley Project	30.95
Stephen King Mist	James Bond View K.	30.95
Forbidden Castle	Woodoo Island	30.95
Racter	Tink's Adventure	22.95
Tink's Adventure	Tonk in Buddy Bots	22.95
Tuk Goes Town	Tink's Mazes	22.95
Tink's Sub. Fair	Crossword Magic	22.95
<b>Origin</b>	Ultima 3 & 4 (ea)	38.95
Moebius	Autoduel	38.95
Orge		35.95
<b>Penguin</b>	Pensate	19.95
Quest	Swords Kadash	24.95
Transylvania	Crimson Crown (New)	24.95
<b>Priority</b>	Forbidden Quest	29.95
<b>Sierra On Line</b>	Frogger	25.95
King's Quest	King's Quest II	35.95
Black Calderon		28.95
<b>Sir Tech</b>	Wizardry 1	34.95
Wizardry 2	Wizardry 3	27.95
Wizardry 4	Rescue Raiders	27.95
<b>Spectrum</b>	Gato	28.95
<b>Spinnaker/Telarium</b>	Amazon	28.95
Dragon World	Fahrenheit 451	28.95
Rendezvous w/Rama	Shadowd Keep	28.95
<b>Strategic Simulations</b>	Battle 85	25.95
Battle Normandy	Carrier Force	39.95
Computer Ambush	Computer Quarterback	37.95
Computer Baseball	Germany 85	27.95
Kampfgruppe	Objective Kursk	39.95
Questron	Retorger 88	34.95
War with Russia	Gemstone Warrior	39.95
Mech Brigade	Six Gun Shootout	25.95
Battle of Antietam	Colonial Conquest	39.95
<b>Sublogic</b>	Fight Simulator II	35.95
<b>Synapse</b>	Mind Wheel	29.95
Essex	Brimstone	29.95

**BC BUSINESS COMPUTERS**  
OF PETERBOROUGH  
Gollan Co., Inc.  
766 RT 101 WEST • PO BOX 389 • PETERBOROUGH, NH 03458

**MONTHLY SPECIAL**  
**PRINTER RIBBON**  
**6 Pack Special**

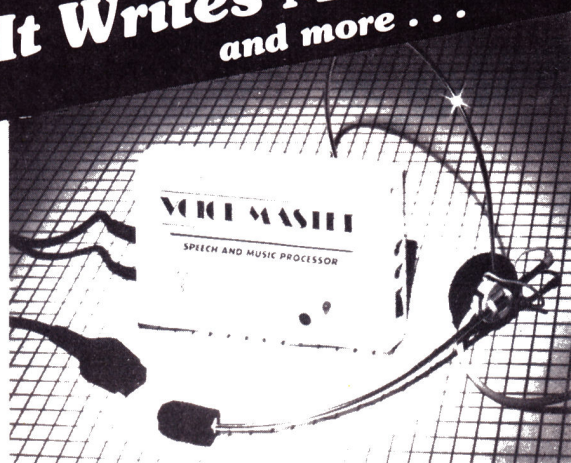
* Imagewriter	Retail	BCP
* Epson LX80	49.95	24.95
* Epson FX80/85	74.95	34.95
* Epson FX100/185	49.95	24.95
* Okidata 192 Mac	79.95	39.95
* Okidata 92 Mac	29.95	15.95
* Imagewriter Color Pac (Br, Pur, Bl, Gr, Rd, Yl)	59.95	29.95

+2.50 Shipping

**FREE SHIPPING** CONTINENTAL USA/UPS ONLY  
**CUSTOMER SERVICE/ORDER STATUS**  
APO/FPO WELCOME MC/MISA 603-924-9406

**ORDERS ONLY 800-845-3003**

**It Talks!  
It Recognizes!  
It Writes Music!**  
and more . . .



**THE AMAZING VOICE MASTER®**  
Speech and Music Processor

**Your computer can talk in your own voice.** Not a synthesizer but a true digitizer that records your natural voice quality—and in any language or accent. Words and phrases can be expanded without limit from disk.

**And it will understand what you say.** A real word recognizer for groups of 32 words or phrases with unlimited expansion from disk memory. **Now you can have a two way conversation with your computer!**

**Easy for the beginning programmer** with new BASIC commands. Machine language programs and memory locations for the more experienced software author.

**Exciting Music Bonus** lets you hum or whistle to write and perform. Notes literally scroll by **as you hum!** Your composition can be edited, saved, and printed out. You don't have to know one note from another in order to write and compose!

Based upon new technologies invented by COVOX. One low price buys you the **complete system**—even a voice controlled black-jack game! In addition, you will receive a subscription to COVOX NEWS, a periodic newsletter about speech technology, applications, new products, up-dates, and user contributions. **You will never find a better value for your computer.**

**ONLY \$89.95** includes all hardware and software.

For telephone demonstration or additional information, call (503) 342-1271. FREE audio demo tape and brochure available.

Available from your dealer or by mail. When ordering by mail add \$4.00 shipping and handling (\$10.00 for foreign, \$6.00 Canada).

The Voice Master is available for the C64, C128, all Apple II's, and Atari 800, 800XL and 130XE. Specify model when ordering.



For Faster Service on Credit Card Orders only:

**ORDER TOLL FREE 1-800-523-9230**



**COVOX INC.**

675-D Conger Street, Eugene, OR 97402  
Telex 706017 (AV ALARM UD)

(503) 342-1271

facturer on this point, but I haven't found any discrepancies between what Franklin says will run and what I've found to run. This doesn't mean that discrepancies won't occur, but Franklin seems bent on ensuring that its list is as accurate as possible.

The same reasoning applies to peripheral boards. If the 2200 can't work with the hardware you need, then save yourself a lot of headaches and buy a //e.

That the Ace 2200 runs most of the current crop of Apple II software is no guarantee the machine will adapt to any new technologies Apple incorporates into the II line. Franklin is committed to keeping pace with the technological development of the Apple II, but that's no assurance of future compatibility—that's the risk that buyers of clone computers face.

Franklin Ace 2200	Apple //e
Franklin Ace Monitor	DuoDisk with accessories
	Extended 80-column card
	Grappler + interface
	Monitor //
\$1029	\$1539

Note that although the above systems are comparable, you still get two more slots with the //e than with the Ace 2200.

*Table 3. Price comparison—Franklin Ace 2200 versus Apple //e. Rather than compare list prices (which rarely reflect reality), I obtained quotes from three Apple dealers and one Franklin dealer for comparable systems. As of November 29, 1985, this is what you would have to pay for an Ace 2200 and a //e.*

**Conclusions**

The Franklin Ace 2200 is a very good machine that runs most Apple II programs and works with the majority of Apple II peripheral boards. Many of its standard features are optional or unavailable on the //e. Most important, it's cheaper than a comparably equipped //e (see **Table 3**).

Should you buy a Franklin Ace 2200? If you're a computer novice and unsure of what you're going to do with your machine, then buy Apple. If, on the other hand, you know that the software you need will run on the 2200, you may want to save some bucks and buy Franklin. ■

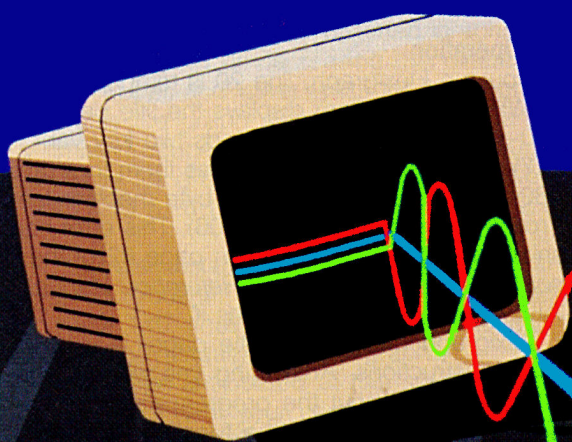
<b>Franklin Computer Corporation</b>	Computer systems
Route 73 & Haddonfield Road	Apple //e compatible
Pennsauken, NJ 08110	2200, \$999
(609) 488-0666	2100, \$849
	2000, \$699
	monitor, \$139

Ease of setup	★★★
Ease of use	★★★
Documentation	★★
Support	★★★
Overall	★★★

Write to Bob Ryan at inCider, 80 Pine Street, Peterborough, NH 03458.

# GRAPHS

## “ON THE FLY”



With Flexigraph, a self-modifying program, you can graph any built-in Applesoft function—just redefine it with the INPUT command as Flexigraph runs.

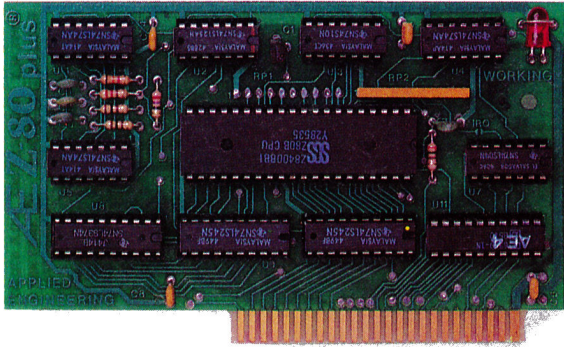
by William W. Miller

A high-school math teacher sketches a graph of a trigonometric, algebraic, or exponential function on the chalkboard. The graph is only as exact as the hand is steady. Instructors know that accurate drawings can mean true solutions to systems of equations, or at least truer understanding of the “shape” of the function. Applesoft BASIC can *evaluate functions*, but Flexigraph incorporates a quick representation of the *graph of a function* over an arbitrary domain and range. Educators can demonstrate functions, and students can play with them in constructive fiddling.

Flexigraph also lets Applesoft programmers write self-modifying code—a technique they can use in other programs, especially those that call for repeated or variable calculations.

Type in  $(X>0)*\text{SIN}(X) + (X<0)*\text{COS}(X)$ , designate the limits for  $x$  and  $y$ , then sit back and watch Flexigraph draw a full-screen graph. As the graph

# With Z-80 Plus,<sup>TM</sup> 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 4.0 software, the most advanced system ever for running CP/M programs.

The new 4.0 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 in an Apple IIe. If you have an extended 80-column card, all 128K is usable, and if you have RamWorks, up to 1088K is available.

Each Z-80 Plus comes with our CP/M Ram Drive software, enabling IIe owners to use an extended 80-column card or a RamWorks card 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.

Simply plug the Z-80 Plus into any slot in your Apple. You'll get the benefits of two computers in one — all at an unbelievably low price (only \$139!).

- Fully compatible with ALL CP/M software
- Fully compatible with most hard disks, including Corvus and the Sider
- 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, Fortran-80, Peachtree 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)
- Does EVERYTHING other Z-80 boards do, *plus* Z-80 interrupts
- Five year warranty

Call to order today, 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 5% sales tax. Add \$10.00 outside U.S.A.

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

crosses the vertical axis, it changes from COS(X) to SIN(X). Type SIN(2\*X) to superimpose this graph over the first, or erase everything and start anew. You can graph any combination or variation of Applesoft's built-in functions, and you can redefine Flexigraph as it's running.

Flexigraph actually rewrites line 20, which contains the DEF FN (define function) statement, according to your input. It calculates the horizontal and vertical scales, draws the coordinate axes, and plots the hi-res graph—and you can repeat it as often as you like.

The unusual format of line 20, and the unique routines that rewrite it, should especially interest BASIC programmers. You can apply these procedures to other situations in which self-modification would be an efficient technique.

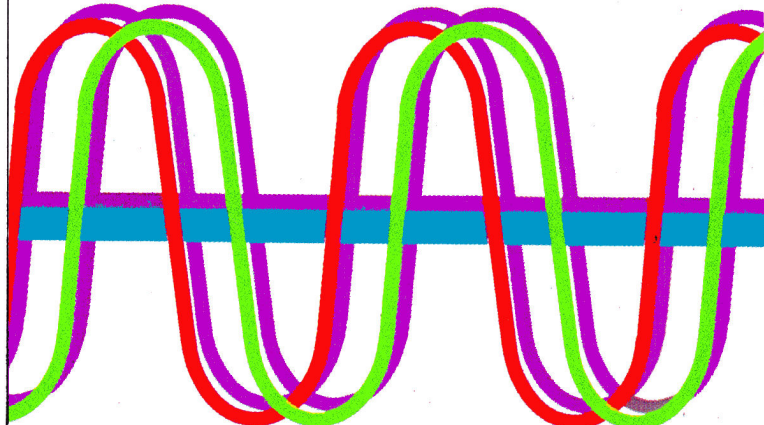
## Program Operation

When you run Flexigraph, line 20 is temporarily bypassed. While the program displays the title page (lines 420–460), your computer reads two key variables, KYWD\$( ) and TK( ), and stores them in arrays (lines 480–510). It also installs a 10-byte machine-language routine at address 768 (\$0300). This error-handling enhancement is suggested on page 82 of the *Applesoft II BASIC Programming Reference Manual*. The CALL 768 in line 940 executes it.

After Flexigraph displays the title page, it asks you if you need instructions. Answering yes will get you general information about the program (lines 1000–1110), directions for entering the function, and several examples.

The subroutine at line 910 guarantees the integrity of line 20 by POKEing the ASCII code for a colon, 58 (\$3A), into each of the 42 memory locations between 2069 and 2110 (\$0815–\$083E). The colons act as place holders, reserving memory for the actual function definition. An input function overwrites a portion of this memory and replaces some of the colons. The routine also “erases” the function upon completing the graph if the function is rejected, or when quitting the program.

The program inputs the function into DF\$ at line 630. The program processes this string in lines 650–790, and POKEs appropriate values into the memory locations reserved by the colons in line 20. (I'll explain this process in much greater detail after an excursion into the Monitor and a discussion of





the way Applesoft stores, or tokenizes, programs in memory.) Line 780 displays the function (simply by listing line 20), and you have the option of accepting or redefining it.

Returning from the subroutine, there's a perfectly legitimate DEF FN at line 20. Applesoft is unaware you've given it a fast shuffle, and the program continues.

You input lower and upper limits for the x and y coordinates in lines 50-100. Lower limits must be negative and upper limits positive—otherwise the program can't graph the axes. An error trap prevents the program from continuing until you've typed in acceptable limits.

Since line 130 uses these limits to calculate the x and y scaling factors for a full-screen display, you have to experiment to avoid distorted graphs. For example, increasing or decreasing the difference between the upper and lower limits for x compresses or elongates the graph along the x-axis. Changes in the y limits produce similar vertical results. Suggested limits for graphs of trigonometric functions are  $-6.28$  to  $6.28$  ( $-2\pi$  to  $2\pi$ ) for x and  $-2$  to  $2$  for y.

Line 130 also establishes the plotting increment for the graphing routine. Using the coordinates calculated in line 140, lines 170-180 draw the axes. Lines 210-250 actually plot the graph.

The only error anticipated at this stage is in the syntax of DEF FN. If your computer can't evaluate the function, the program will jump to the error-handling routine (lines 190 and 940). Another listing of line 20 displays the erroneous function, and you can redefine it for another try.

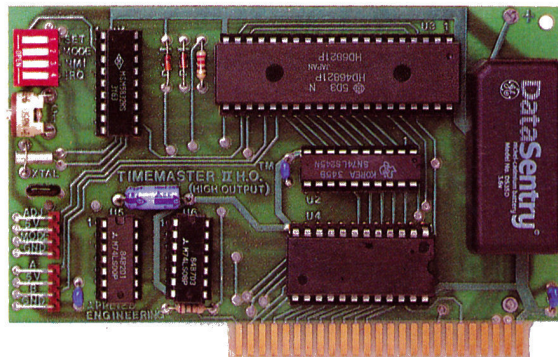
In addition to syntax errors in the function definition, Flexigraph will detect an error if the function is not defined over the subset of the X values you specified. For example, the natural logarithm function is defined only over the set of positive real numbers. But, using an alternate definition, the program can graph this function:

```
DEF FN F(X) = (X>0)*LOG(ABS(X)) or
DEF FN F(X) = NOT(X<=0)*LOG(ABS(X))
```

Note that you can use relational and logical operators (>, =, <, AND, OR, and NOT).

Lines 300-390 provide the option of quitting, graphing another function on the same axes with the same limits and scale, or defining a new func-

# Timemaster H.O.™ the only clock that displays time and date on AppleWorks™ screens and files.



*Now, get all the features of  
all the competition combined!*

It's the smart way to put the time and date on your Apple II+® or IIe®. Because only the Timemaster H.O. packs ALL the 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.

If you're using or writing software for other clock cards, you're still covered. Because the H.O. will *automatically* emulate them. And the Timemaster H.O. adds 14 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 extra for — or don't even offer.

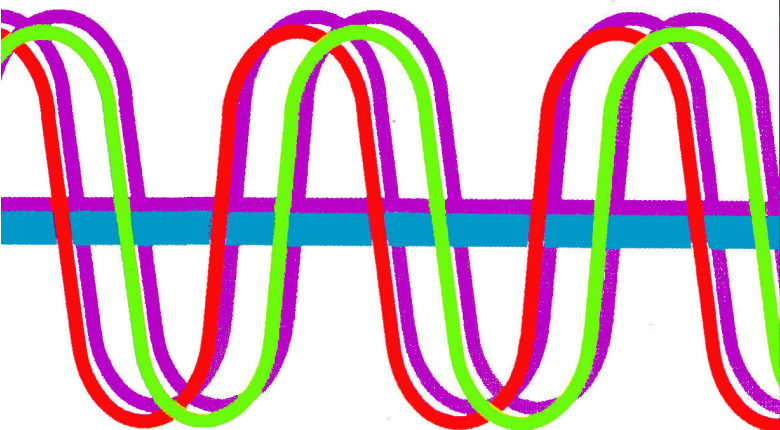
As a low-cost option, you can add true BSR remote control to the H.O., giving you remote control of up to 16 lights and appliances in your home or office.

- Fully PRO-DOS and DOS 3.3, CP/M and PASCAL compatible
- Time in hours, minutes, seconds and milliseconds (the ONLY PRO-DOS compatible card with millisecond capability); date with year, month, day of week and leap year
- 24-Hour military format or 12-hour AM/PM format
- Eight software controlled interrupts so you can run two programs at the same time (many examples included)
- Can be set to the second
- Allows AppleWorks to time and date stamp all data automatically
- The only clock card that displays time and date on the AppleWorks screen
- Five-year warranty

Clock price ..... \$129.00  
BSR option (may be added later) ..... \$ 49.00

Call to order today, 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



# Are you prepared for tomorrow?

*inCider* knows that your world of computing is as ever-changing as the lifestyles of the '80s. What's "in" today may be "out" tomorrow. And if you're an Apple II\* user, not being ready for tomorrow's changes and challenges can mean less productivity and efficiency.

That's why an *inCider* subscription can be the best investment you make for all your tomorrows. The "Apple II Journal" will keep you informed about every current event, as well as ideas that are still on the drawing board.

**Yes.** I want to be a well-informed Apple II user! Please send me 12 issues of *inCider* for \$24.97. I'll save 30% off the newsstand price:

Payment enclosed     Bill me

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Canada and Mexico \$27.97, 1 year only, US funds drawn on US bank. Foreign surface \$44.97, 1 year only, US funds drawn on US bank. Foreign airmail, please inquire. Please allow 6-8 weeks for delivery.

**inCider, P.O. Box 911, Farmingdale,  
NY 11737 363B5**

## Stay On Top Of The Trends

And to know what's hot and what's not, you need to *Ask inCider*—the popular monthly feature that answers your questions about the latest software and the newest programming ideas.

Hardware? In *Apple Clinic*, you'll learn what works best for other Apple users, plus you'll discover some very economical maintenance and repair hints.

Then, take a look at *Applesoft Adviser*. In no time, you'll become a natural with BASIC so that you can be a better and more creative programmer.

And that's just the beginning of what's in every *inCider* every month.

## The Progressive "Apple II Journal"

*inCider* is today's Apple II magazine dedicated to meeting the challenges you'll face tomorrow. Even our new look sports a cleaner, more appealing design for easier reading and reference!

Subscribe now and you'll get 12 issues of *inCider* for just \$24.97—a **30% savings** off the cover price! To order, just return the coupon, or call **1-800-258-5473**. (In NH, call 1-924-9471.)

\* Apple II is a registered trademark of Apple Computer, Inc.



# inCider

Showing you the future that's taking shape today.

tion with different limits. A series of prompts protects against accidental erasure.

Through liberal use of the GET command, most responses require only a single keystroke. The exceptions are the defined function and the limits, which you must type in.

Run the program a few times. I think you'll be impressed with the wide range of possible functions and the simplicity of operation. Try these graphs first:

```
2*SIN(X)
SIN(EXP(COS(X)))
(ABS(SIN(X)))^EXP(X) or
((X > -2) AND (X < 2))*TAN(SIN(X))
```

Complex graphs such as these are intriguing, and soon you'll be inventing even more exotic functions.

### Self-Modification

To understand how you can change a program line while the program is running, you must understand where and how the Apple II stores BASIC programs. The best way to do this is to write an Applesoft program and examine its code in the Monitor.

If you haven't already typed in Flexigraph (**Listing 1**, p. 52), type NEW and enter it now. At this time, you may prefer to type in just lines 10 and 20 (listed below), as the code for these two lines is of greatest interest in the explanation that follows. Note that line 20 contains 42 colons:

```
10 GOSUB 400
20 DEF FN F(X) = .....
```

Your computer stores some of the characters of a BASIC program in RAM as normal hexadecimal ASCII character code. But it stores keywords as 1-byte "tokens," hexadecimal numbers ranging from \$80 to \$EA. Lines 10 and 20 contain four keywords, listed in **Table 1** with their tokens.

For a complete listing of Applesoft keywords and their decimal tokens, see page 121 (Appendix F) of the *Applesoft II BASIC Programming Reference Manual*, or page 84 (Appendix H.4) of the *Applesoft BASIC Programmer's Reference Manual: Volume 2*.

With at least the first two lines of Flexigraph in memory, enter the Monitor by typing CALL - 151. The asterisk Monitor cursor will appear.

Applesoft normally stores BASIC programs starting at 2048 (\$0800). The first two lines of Flexigraph oc-

Table 1. Keywords in Flexigraph's lines 10 and 20.

Keyword	Decimal Token	Hexadecimal Token
GOSUB	176	\$B0
DEF	184	\$B8
FN	194	\$C2
=	208	\$D0

cupy 64 (\$40) bytes of RAM, from 2048 to 2111 (\$0800-\$083F).

Type 0800.083F and press the return key for the Monitor listing of these two lines. (Monitor addresses are hexadecimal, but the conventional "\$" is omitted in commands and listings.) Your screen display should be identical to **Listing 2** (p. 52).

Address \$0800 always contains a zero. Other zeros act as delimiters, separating program lines. Three consecutive zeros mark the end of the program.

The 9 bytes from \$0801 to \$0809 correspond to line 10 of the BASIC program, illustrated in **Table 2**.

The first 2 bytes of line 10, 0A and 08, designate the memory location of the next line (line 20) using least significant byte/most significant byte (LSB/MSB) notation. Since line 10 ends at \$0809, line 20 must start at \$080A (for which 0A and 08 are the LSB and MSB, respectively).

The third and fourth bytes, 0A and 00, contain the line number itself, in LSB/MSB form. A zero occurring in the first 4 bytes of a line is part of a 2-byte address or line number—not a delimiter.

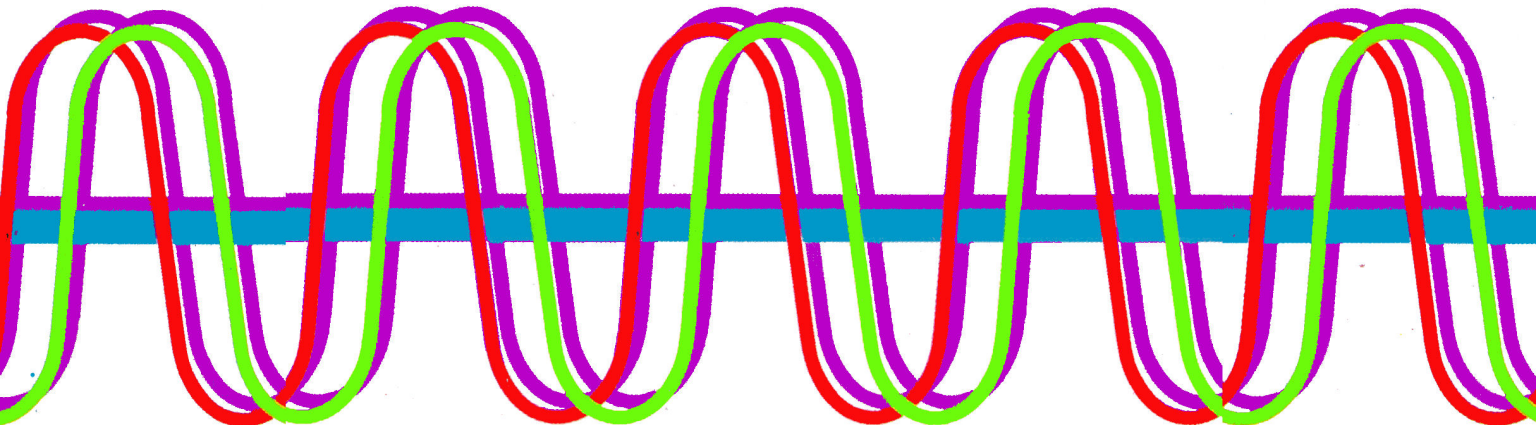
Since keyword tokens range from \$80 to \$EA, a byte less than \$80 represents an ASCII character code, but a byte equal to or greater than \$80 is a token for an Applesoft keyword.

The 3 bytes after B0 (the GOSUB token) are the ASCII codes for the characters 4, 0 (zero), and 0 (zero) in the subroutine line number. The line terminates with 00 (double zero) at \$0809.

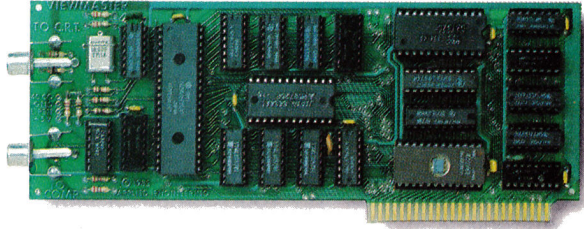
**Table 2** also compares the beginning of line 20 with the first 11 bytes of its code.

The 42 colons are obvious. Each location in the reserved memory area, 2069-2110 (\$0815-\$083E), contains an ASCII 58 (\$3A). Line 20 terminates with 00 (double zero) at \$083F.

Don't forget to type control-C or 3D0G to reenter BASIC.



# Viewmaster 80™ the sharpest 80 column card of them all.



	BUILT-IN SOFTWARE	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7×9 DOT MATRIX	LIGHT PEN INPUTS	80 COLUMN OPERAND	INVERSE CHARACTERS
<b>VIEWMASTER 80</b>	✓	✓	✓	✓	✓	✓	✓	✓
SUPRTERM		✓					✓	✓
WIZARD 80				✓			✓	✓
VISION 80	✓	✓						
OMNIVISION		✓					✓	✓
VIEWMAX 80	✓	✓		✓				✓
SMARTERM	✓	✓					✓	✓
VIDEOTERM		✓	✓			✓	✓	✓

*Now, get great resolution and total software compatibility for your Apple II® or II+®*

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.

The Viewmaster 80 works with all 80 column applications, including DOS 3.3, PRO-DOS, CP/M, Pascal, WordStar, Format II, Easywriter, Applewriter II, Supertext 80, Zardax, Apple PI, Letter Perfect, dBASE II, Visicalc, Multiplan, and *hundreds* of others.

And the Viewmaster 80 delivers a super sharp, state-of-the-art display with a 7×9 character matrix for clear, easily readable characters. 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
- Super sharp 7×9 character matrix with true descenders
- Highest compatibility with existing 80 column software
- Power and input connector for light pen
- Very low power consumption
- High speed (18 MHz) scroll rate
- Upper and lower case characters with 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 to order today, 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

Table 2. Addresses corresponding to Flexigraph's lines 10 and 20.

BASIC	Memory Location(s)	Byte(s)	Remarks
	0800	00	Beginning location of BASIC (always 00)
	0801-2	0A 08	Location of line 20
10	0803-4	0A 00	Line number 10 (hex)
GOSUB	0805	B0	Token for GOSUB
4	0806	34	ASCII "4"
0	0807	30	ASCII "0"
0	0808	30	ASCII "0"
	0809	00	End of line 10
	080A-B	40 08	Location of line 30
20	080C-D	14 00	Line number 20 (hex)
DEF	080E	B8	Token for DEF
FN	080F	C2	Token for FN
F	0810	46	ASCII "F"
(	0811	28	ASCII "("
X	0812	58	ASCII "X"
)	0813	29	ASCII ")"
=	0814	D0	Token for =

## Input to Tokens

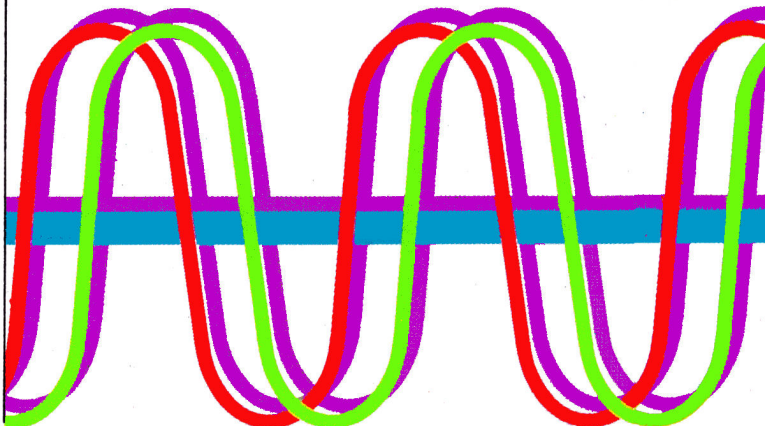
After you input the string defining the function, the subroutine starting at line 650 scans DF\$ character by character for keywords. When it finds keywords, it POKes their tokens into successive locations starting at 2069—each token replacing a \$3A (colon) in the process. If it finds no keyword, it POKes the ASCII code of the current character into memory (line 760).

Lines 700-710 check and process single-character keywords, and lines 740-750 handle three-character keywords. Line 670 specially handles the only pertinent two-character keyword, OR.

Spaces in the input string lead to an execution error, so line 680 discards them. This affects neither the function nor the listing of line 20, since Applesoft arbitrarily inserts or ignores spaces according to its own rules.

The unusual composition of line 20 is a key to the program, of course. It initially contains 42 colons. Used like this, colons are simply delimiters between multiple "empty" statements.

The number of colons isn't critical. I chose 42 simply because it gives a neat listing of line 20. If you anticipate functions with more than 42 characters, you can increase the number of colons up to a



maximum of 239 characters per line. If you do make changes in line 20, be sure to alter subroutine 910 in accordance with the instructions in line 30.

After Flexigraph has scanned and processed each character in DF\$, keyword tokens or ASCII codes of the other characters will have replaced some of the original 42 colons in locations 2069–2110. Regardless of the number of colons remaining, they won't interfere with the operation of line 20. The program executes with a properly defined function in accordance with the DEF FN syntax.

### Adapting Flexigraph

I've added several refinements in more advanced versions of Flexigraph. I suggest the following enhancements:

- Plot scale markers on the coordinate axes or overlay the screen with a coordinate grid;
- add a screen dump for your printer;
- incorporate a hi-res character generator to label the graph, origin, and axes;
- change parameters and the plotting routine to accommodate polar functions.

In one variation, you can INPUT x or y limits (or both) as optional multiples or fractions of  $\pi$ , the axes being scaled and labeled accordingly. This is especially useful for trigonometric and other periodic functions.

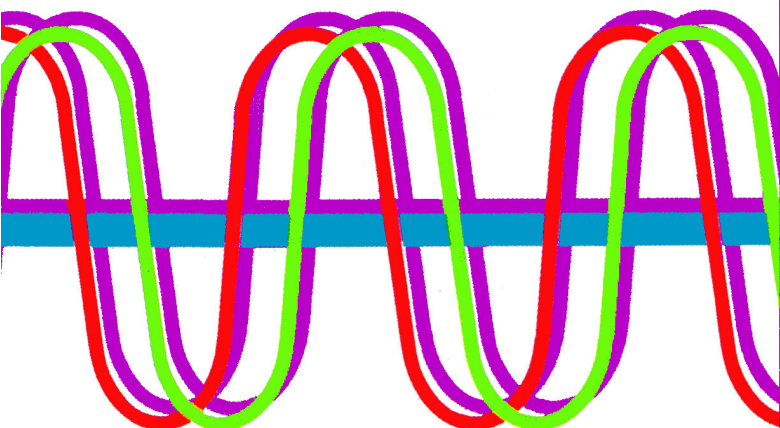
Flexigraph will be invaluable to mathematics teachers, students, or anyone interested in the vast array of functions the Apple II family can generate.

I deliberately located the memory area Flexigraph manipulates near the beginning of BASIC storage, 2048 (\$0800), for easy identification. But you can apply these techniques to any portion of a program, enabling you to make changes at will. Just locate the memory segment you want to modify and pack it with colons, then insert the desired code with the Flexigraph routines.

Developing the program was an interesting, sometimes frustrating—but always enjoyable—challenge. Flexigraph's concept is simple, and it should be easy to adapt to other situations. ■

---

Write to William Miller at R.R. 22, Box 31, Terre Haute, IN 47802.



# 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!*

**A**ppled Engineering's revolutionary IIC System Clock plugs into either your modem or printer serial port ... and displays the time and date right on the AppleWorks screen. The time feature includes hours, minutes and seconds, and the date includes year, month, date and day of week.

All your work is *automatically* time and date stamped to give you a complete record of your work history. And since it's from Applied Engineering, you'll get our famous no-hassle five year warranty and a price that will persuade you.

FOR JUST \$79, you can give your IIc the time of day, plus much more.

- Fully PRO-DOS compatible
- Automatic time and date stamping
- Easy to use from BASIC
- Date includes year, month, date and day of week
- Time includes hours, minutes, seconds
- Time and date stamps AppleWorks files
- Auto-access from AppleWorks database
- No-hassle five year warranty

Call 214-241-6060 TO ORDER TODAY 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



# 3.7 Meg 16-Bit IIe

Why pay more for a lesser card just because it's advertised a lot? You can buy Checkmate Technology's **State-Of-The-Art MULTIRAM IIe™** that works great in 8-Bit (100%), has an optional real 16-Bit 65C816 slot saver Co-Processor card, **PORT FOR OPTIONAL BATTERY BACKED-UP MEMORY, FREE RGB**, & in coming months semi-permanent STATIC RAM options that can load & save entire programs, like AppleWorks, up to 10 years!

- **MULTIRAM IIe IS A DIRECT SUBSTITUTE FOR RAMWORKS II™ or Apple Ext 80 column cards. It RUNS ALL (100%) 3rd PARTY SOFTWARE that the others do.**
- **TWO MAIN BOARDS TO PICK FROM** both with 16-Bit port, sharp 80 columns & Double Hi-Res Graphics. One with **FREE RGB & STATIC RAM PORT**-expandable to 1024k standard RAM + 2048k BATTERY BACKED-UP STATIC RAM, and one without RGB or port-expandable to 768k. Both cards can piggyback for a **TOTAL POSSIBLE MEMORY OF 3.75 MEGABYTES IN ONE SLOT. AND UNLIKE RAMWORKS II**, there is never a chance to touch cards in slot one (such as Super Serial Card).
- **OPTIONAL 16-Bit 65C816 CO-PROCESSOR CARD** that plugs into MULTIRAM using no slots! TRULY STATE-OF-THE-ART, BUT IT CAN'T RUN ON RAMWORKS™!
- **FREE APPLEWORKS TIME/DAY/DATE ON-SCREEN SOFTWARE. FREE AUTO-COPY SOFTWARE (disk to RAM). FREE ULTRA-FAST RAM DISK SOFTWARE** that can be run alone or WITH APPLEWORKS. FREE RAM TEST & optional CP/M & Pascal Ram disk!
- **FREE APPLEWORKS EXPANDER SOFTWARE** that modifies AppleWorks once-loads ALL (even printer routines) or PARTS of AppleWorks into memory, runs 30 x faster, increases the Desktop over 1125k, auto-segments large files onto multiple disks, stores over 5325 records! An increased Clipboard & Word Processor update is due soon.
- **15 DAY MONEY BACK SATISFACTION GUARANTEE, FREE SOFTWARE UPDATES, FREE 64k MEMORY WITH EACH 256k/512k CARD, & QUANTITY DISCOUNTS**

FROM COIT VALLEY COMPUTERS. EXCLUSIVE 5 YEAR WARRANTY THAT, UNLIKE RAMWORKS, INSURES COVERAGE NO MATTER WHERE YOU BOUGHT IT! **CALL FOR CURRENT PRICES, QUANTITY DISCOUNTS, NEW FEATURES OR DETAILS ON CHECKMATE'S DIRECT \$50 REBATE FOR OLDER CARDS!**

	<b>LOWER</b>	<b>No</b>
	<b>OUR LOW PRICE</b>	<b>RGB</b>
64k MULTIRAM IIe/FREE RGB .....	<b>185.</b>	155.
128k MULTIRAM IIe/FREE RGB .....	<b>203.</b>	173.
320k MULTIRAM IIe/FREE RGB .....	<b>222.</b>	189.
<b>576k MULTIRAM IIe/FREE RGB .....</b>	<b>272.</b>	242.
<b>768k MULTIRAM IIe/FREE RGB .....</b>	<b>322.</b>	292.
<b>1024k MULTIRAM IIe/FREE RGB .....</b>	<b>372.</b>	N/A
1280k MULTIRAM IIe/FREE RGB .....	<b>520.</b>	N/A
1536k MULTIRAM IIe/FREE RGB .....	<b>548.</b>	N/A
1792k MULTIRAM IIe/FREE RGB .....	<b>578.</b>	N/A
256k Memory Expander Chips (8) .....	<b>55.</b>	
<b>Apple IIe Enhancement Kit .....</b>	<b>62.</b>	
<b>Clockworks</b>		
<b>(Thunder/Time H.O.™ compatible) .....</b>	<b>89.</b>	
<b>Pico™ Slimline Drive IIc, IIe, II+ .....</b>	<b>178.</b>	
65C816 Co-Processor Card .....	<b>162.</b>	
Pinpoint Software .....	<b>49.</b>	
CP/M or Pascal Ram Disk (each) .....	<b>18.</b>	
Accelerator IIe-speedup card .....	<b>249.</b>	

**CALL FOR OTHER APPLE PERIPHERAL PRICES.**

# 640k 16-Bit IIc!

Checkmate Technology's **State-Of-The-Art IIc** cards easily expand your IIc up to 640k, are 100% compatible with all IIc software/hardware, & come with the **SAME FREE SOFTWARE** as MULTIRAM IIe. MULTIRAM C is non-upgradable & MULTIRAM CX can be upgraded with a **16-Bit 65C816 kit!** **CALL FOR CURRENT PRICING & QUANTITY DISCOUNTS!**

- **NO JUMPER WIRES, CLIPS, OR DRIVE REMOVAL REQUIRED FOR INSTALLATION. ALL CHIPS ARE SOCKETED AND REMOVABLE**-unlike the competition.
- **USES ABOUT 50% LESS POWER** than the competition-causing less power supply strain or battery pack drain!
- **15 DAY MONEY BACK SATISFACTION GUARANTEE** from Coit Valley Computers. 5 YEAR WARRANTY THAT, UNLIKE THE COMPETITION, INSURES COVERAGE NO MATTER WHERE YOU BOUGHT IT!
- **LOWER PRICES**-We sell IIc cards for much less than the competitor and our software updates are free, while they usually charge \$10 or more!

	<b>LOWER</b>
	<b>OUR LOW PRICE</b>
<b>256k MULTIRAM C .....</b>	<b>224.</b>
<b>512k MULTIRAM C .....</b>	<b>264.</b>
<b>256k MULTIRAM CX .....</b>	<b>278.</b>
<b>512k MULTIRAM CX .....</b>	<b>318.</b>
<b>16-Bit 65C816 CX Kit (\$10 less with card) .....</b>	<b>135.</b>
<b>IIc System Clock (Same as A.E.) .....</b>	<b>66.</b>
<b>IIc Battery Pack &amp; U.P.S. ....</b>	<b>174.</b>
<b>C-VUE Flat Panel Display (\$10 less with card) .....</b>	<b>439.</b>

**Terms: Add \$4-Ground or \$6-Air shipping & phone # to each U.S. order** (foreign orders extra). Add 3% for P.O.'s (3% 7 net 30) & MasterCard/Visa (include #/expir). For fast delivery send Cashier's/Certified check, Money Order. C.O.D. (add \$5) & personal checks accepted (allow 14 days). Tex res add 6 1/2% tax. **CALL FOR CURRENT PRICES & QUANTITY DISCOUNTS!**

MULTIRAM, Ramworks/Ramworks II/Timemaster II H.O., Pico respective trademarks of Checkmate Technology, Applied Engineering, WGE.

**COIT VALLEY COMPUTERS**  
14055 Waterfall Way

**(214) 234-5047**  
Dallas, Texas 75240

# APPLEWORKS IN ACTION

## Customer Mailing Labels with AppleWorks

by Ruth K. Witkin

In this new *inCider* column, we'll explore ways to use the AppleWorks data base, spreadsheet, and word processor to help run your business more productively and profitably. The operative word here is *more*—more applications, more tips, more techniques. It's quite a tall order.

Businesses and the people who run them are as diverse as the logos on their letterheads. The one thing every business has in common with all the others, though, is that it sells a commodity—whether it's the brains of a consultant, the skills of a specialist, or the products of a supplier or manufacturer. Patterns of planning, analyzing, and communicating are similar. So, this column will tread a fine line and offer a variety of broad-based practical applications you can apply directly to your business or adapt for your specific needs.

I'll present the instructions step by step—press this key, type that key, and so on. Following along will make your fingers nimble, but my goal is more ambitious. You'll be learning by doing and understanding *why* you're doing it. You don't even have to know anything about programming or any technical terms. Some start-up and set-up steps are summarized, so

Learn to use AppleWorks' data base to organize your address lists and print mailing labels.

you do need a basic familiarity with AppleWorks.

This month's tutorial, the first of a three-parter, explains how to build a data base of customers and generate mailing labels. In my next column, you'll be using the AppleWorks spreadsheet and a lookup table to prepare a quotation for one of these customers, and, in the column after that, compose a letter, then "cut and paste" the quoted information from the spreadsheet into the letter. Cut-and-paste lets you turn pieces and parts of files into a seamless whole.

### The Mailing-List Data Base

Let's pretend you own the small, but growing, Rocky Hill Hardware Supply Company, a wholesale distributor. In addition to responding to RFQs (requests for quotation), you mail letters and promotional material to customers and, at Christmas, send cards of appreciation for their business. The mailing labels generated by your customer data base are shown in **Figure 1**.

Labels come in many styles and sizes. I use the fanfold, one-across, pressure-sensitive kind in a standard 3½ inches wide by 1⅝ inch high. If you don't have label paper in your printer, you can get an idea of what they'll look like with normal printer paper.

### Data Base Definitions

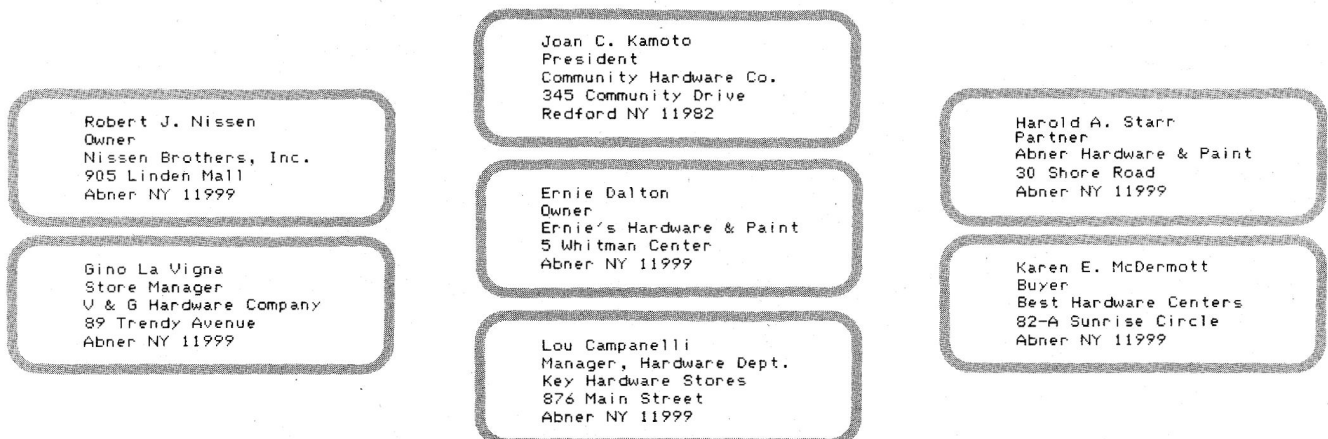
A data base is a collection of information organized into entries, categories, and records. An *entry* is a *single piece of information*, such as the name of a specific company or a zip code. A *category* is *one type of information*, such as the names of all the companies or all the zip codes in the data base. A *record* is *all the information about one company*—contact person, company name, street, city, state, zip code, and so on.

### Keystrokes and Other Matters

When you see such key combinations as OA-Y, hold down the open apple key and type Y. With repeated combinations, such as OA-right arrow (9 times), hold down the open apple key and press the right arrow key nine times. If you make a typo, hit the delete key to back up the cursor and erase the character.

At some stages of the creation process, I'll ask you to save the data

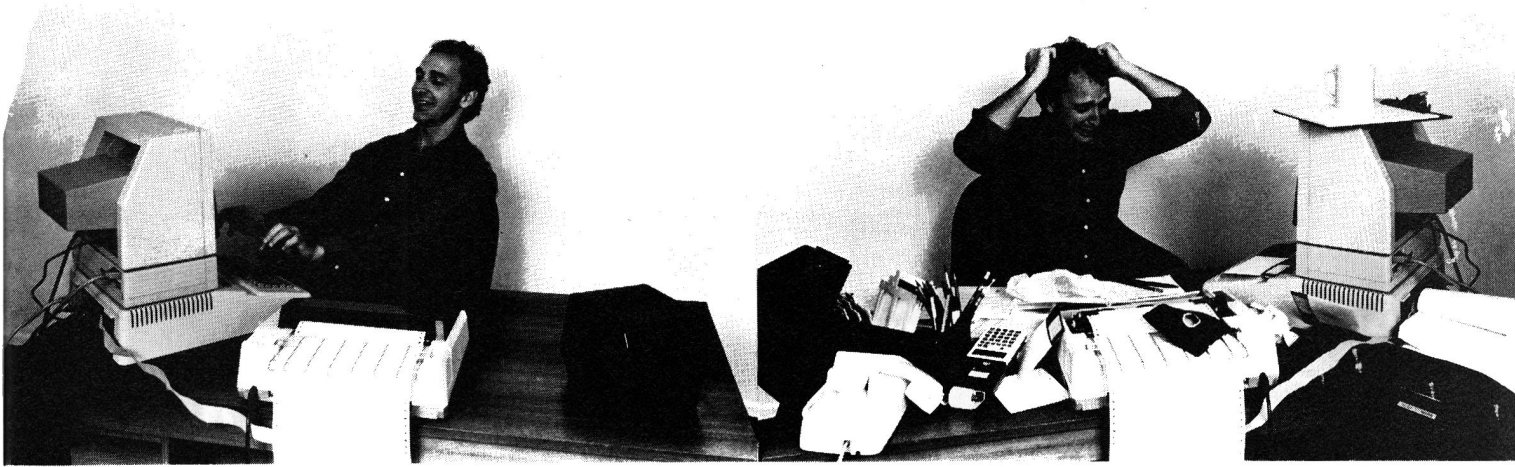
Figure 1. Mailing labels produced with an AppleWorks customer data base.





This man has the *EasyCard*...

and this man does not.  
Obviously...



# *EasyCard*... it makes your life easier.

*Featuring 6 Systems in One*

★ SideJob ★ MacroKey ★ InstaDOS ★ Screen Dumps ★ Copy Program ★ Clock

*EasyCard* is a peripheral card for Apple II+ and IIe that allows you to suspend execution of any application program. At that point you can run any of the *EasyCard* software systems; you can organize your desk with the **SideJob**, print the content of the screen with the **Screen Dump** or make a copy of the application program in memory with the **Copy Program**. And when you are done, return back to your application program with a single keystroke, as if nothing happened. The **MacroKey** system allows you to assign long character strings to a single key and play these back any time with a single keystroke. And that is not all; with our **InstaDOS** system you

can load DOS 3.3 or ProDOS without ever reaching for a diskette. On board **Clock** is of course DOS/ProDOS compatible.

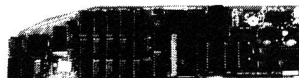
All of the *EasyCard* software systems are resident in the card; so there are no diskettes to load. Future additions to the *EasyCard* software family will be available on simple to install EPROM's. Unlike the so called "enhancers" the *EasyCard* does not steal any Apple's memory from your application programs. **The *EasyCard* hardware and software is compatible with all 6502/65C02 application programs. Absolutely no modification is needed for your software.**

- ★ **SideJob** is to Apple what SideKick is to IBM PC. Modeled after the Borland's top seller of 1985 the SideJob will clean-up your desk in minutes. With a keystroke get into the SideJob window where you can run a Calculator with numerical and logical functions, jot down notes on a Note Pad, glance at the ASCII Table or do decimal-hex-binary conversions. When you are done, single keystroke gets you back to your application program as if nothing happened.
- ★ **MacroKey** is a perfect solution to repetitive typing of lengthy character strings. Just assign strings of characters to keys of your choice and everytime you press these again while holding *EasyCard*'s secret key the strings will be typed in automatically. To all application programs this will appear as if typed by you. Now that's artificial intelligence working for you!
- ★ **InstaDOS** is like having DOS 3.3 or ProDOS built directly into your Apple. Now you can store each of these utilities in the *EasyCard* memory and download them without ever using the diskettes again. What a time saver!

- ★ **Screen Dump** will give you a hard copy of what is on the screen. Exactly as you see it and any time you want it! Prints text, HI and DOUBLE HI RES graphics or mixed displays at a push of a button. Can even blow-up graphics to twice the size! Compatible with most popular printers and interface cards. Unlike other screen dump software or cards this system works also on protected programs.
- ★ **Copy Program** is an extensive utility software package. It allows you to make backup copies of all (including protected!) memory resident programs of up to 128k at a push of a button. Copying time is less than 30 seconds. The copy produced is unprotected and subject to study or change. Special software included allows the copy to run without the *EasyCard* in the Apple. Other functions can be used to single step and trace through any program.
- ★ **Clock** is of course ProDOS compatible. But now you can also check the time/date while in the middle of any application program. That is something no other clock can do!

**Pricing Information:** *EasyCard* board without any software: \$119.99; for each software system add \$29.99. Buy packaged sets and save: Starter Set with the board, the Copy Program, Screen Dumps and SideJob: \$159.96 (save \$50); Advanced Set with all six systems: \$219.93 (save \$80). Add \$5.00 for shipping and handling. Calif. residents please add 6% (L.A. County 6.5%) Calif. Sales Tax. Please specify computer, printer and interface card when ordering.

ATL's *EasyCard* . . .



don't use your Apple without it!

APPLIED TECHNOLOGY LABORATORIES 11926 Santa Monica Boulevard, Los Angeles, California 90025 (213) 477-6815

Trademarks: Apple II+ and Apple IIe are trademarks of Apple Computer, Inc. IBM PC is a trademark of International Business Machines Corp. SideKick is a trademark of Borland International, Inc. Circle 243 on Reader Service Card.

# APPLEWORKS IN ACTION

base. If you have a one-drive system, watch for the screen prompts that tell you when to swap the program disk for the data disk. You'll be working with the insert cursor (the blinking underline) until the instructions say otherwise. Now, let's begin.

## Creating the Data Base from Scratch

Use the AppleWorks Startup and Program disks to bring up a new data-base screen. When AppleWorks asks for a file name, type **MAIL LIST** and press the return key. You should now see the Change Name/Category screen.

**Figure 2** lists the category names. To keep it simple, this data base contains only those categories needed for mailing labels. You can have up to 30 categories, including information such as phone numbers, type of company, sales representative, purchases to date, and so on.

Your cursor is on the C in **Category 1**. The first thing to do is erase

Figure 2. Category names from an AppleWorks mailing-list data base.

```
File: MAIL LIST           CHANGE NAME/CATEGORY   Escape: Review/Add/Change
-----
Category names
-----
First MI                 |
Last                     | Options:
Title                    |
Company                  | Change category name
Street                   | Up arrow Go to filename
City                     | Down arrow Go to next category
State                    | ⌘-I   Insert new category
Zip                      | ⌘-D   Delete this category
                          |
                          |
                          |
-----
Type entry or use ⌘ commands                               53K Avail.
```

these words, so press OA-Y. Now type the following category names and press the return key after each one: **First MI, Last, Title, Company, Street, City, State, and Zip.** Keeping

the first name, last name, city, state, and zip code in separate categories gives you full flexibility when you want to arrange or sort records.

This completes the category entry. Press the escape key, and AppleWorks informs you that you'll automatically go into the Insert New Records mode. Press the space bar or the return key, and Record 1 appears in the single-record layout with all your categories awaiting entries.

**Figure 3** shows the entries in the records. All your customers except Community Hardware (Record 7) are located in the city of Abner, state of New York, zip code 11999. Entries common to most or all of your records are called *standard values*. When you set a standard value, AppleWorks automatically enters the information into each record to save you time.

Press OA-V to bring up the Set Standard Values screen. Press the down arrow key (5 times), type in **Abner**, press Return, type **NY**, press Return, type **11999**, and press Return again. Now hit the escape key to return to Record 1 in the Insert New Records screen.

The next step is to type in the rest of the information in Record 1. First, press the up arrow key (7 times) to move the cursor to the **First MI** category. Type in the following words, and be sure to press the return key after each entry: **Harold A., Starr, Owner, Abner Hardware & Paint, and 30 Shore Road.** To skip past the standard entries and bring up Record 2, press OA-down arrow.

# Free Catalog!

Your 80-page guide to computer supplies and accessories—including complete new product descriptions.



- Packed with over 1600 products for microcomputers, minicomputers, and word processors — many available nowhere else.
- Big special section devoted to new supplies and accessories.
- Comprehensive product descriptions — including more than 475 full-color photos — clearly explain features and benefits.
- Easy-to-use cross reference guides to magnetic media, ribbons, and more — along with the industry's most complete cable guide.
- Helpful suggestions and tips, ranging from flexible disk care to proper ribbon selection to useful application ideas.

Phone toll-free 1-800-547-5444

**inmac**™

Phone toll-free 1-800-547-5444 or send coupon today.

Inmac Catalog Dept.  
2465 Augustine Drive  
Santa Clara, CA 95054

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_ PHONE \_\_\_\_\_

Please rush my free copy of the Inmac Catalog. I understand there is no obligation whatsoever.

497120

# SPELL CHECKER AND MAILMERGE

## FOR APPLEWORKS

### ... SPELLWORKS!

**Now... the luxury of a spelling checker and mailmerge for only \$49.95!**

Spellworks was written exclusively for Appleworks... it fits Appleworks like a glove. Typing and spelling errors are a thing of the past when you use Spellworks!

*... I am impressed by Spellworks, not only because of the errors it detects, but also for the number of errors which it does not detect. By this I mean that it has a powerful vocabulary, and it recognizes a large number of variations of words so that it does not incorrectly call errors. The program is easy to use. I didn't even have to use the manual which came with the program. Good job and keep up the good work*

*Kenneth McCuen, Manager, Electrical Engineering  
Solitec, Inc., Santa Clara, CA*

If you've got Appleworks, you need Spellworks. It's a steal — spelled s-t-e-a-l!

- Utility that merges Appleworks Data Base with Appleworks Word Processor.
- 90,000 Words
- Checks 10 words per second
- Word count 10 per second
- All on one diskette!

# ONLY \$49.95!



... now with Spellworks  
no more spelling errors!

### Purchase Spellworks At:

**ALASKA**  
Computerland  
Anchorage, 907 561 5191  
**Solutions Store**  
Anchorage, 907 277 6522  
Anchorage, 907 561 4624  
Fairbanks, 907 456 4157  
**ARIZONA**  
**Computers Plus**  
Phoenix, 602 955 1404  
**Digital Deli**  
Mesa, 602 831 6050  
**Software City**  
Phoenix, 602 264 1422  
**CALIFORNIA**  
**Computer Age**  
San Diego, 619 565 4042  
**Computer Age**  
San Mateo, 415 348 2667  
**Computer Base of CA**  
Carson City, 702 885 9000  
S. Lake Tahoe, 916 544 6502  
**Computer Ctr. of Chico**  
Chico, 916 891 1630  
**Computer Ctr. of Hayward**  
Hayward, 415 538 7368  
**Computer Kingdom**  
Riverside, 714 787 1142  
**Computer Showcase**  
Los Angeles, 213 474 6409  
**Computer Village, Inc.**  
Ventura, 805 644 5220  
**Computer Wave**  
Huntington Bch., 714 898 8330  
Newport Beach, 714 6319283  
Westminster, 213 891 2584  
**Discount Computer Ware**  
Sunnyvale, 408 737 0646  
**EBM Computer**  
Citrus Hts., 916 723 4850  
**Garden of Eden**  
In California, 800 331 0045  
Other, 800 762 3227  
**Griffon Computer, Inc.**  
Campbell, 408 370 2626  
**Merlin Computers**  
Covina, 818 967 6481  
**Mindscape Software**  
San Jose, 408 996 7727  
**Software City of Concord**  
Concord, 415 676 6662  
**Software City of S.F.**  
San Francisco, 415 543 0543  
**Software Supermarket**  
Los Angeles, 213 207 1494  
Lawndale, 213 542 3801  
South Oaks, 818 783 3233  
**The Right Byte**  
Monterey, 408 373 6850

**The Software House**  
Fresno, 209 228 0579  
**COLORADO**  
**Adam's Computer, Inc.**  
Lakewood, 303 986 9655  
**CONNECTICUT**  
**HPK Educat. Resource Ctr.**  
Hartford, 800 243 7724  
800 842 2165  
**Northeastern Software**  
Stratford, 800 382 2242  
**Programs Plus**  
Stratford, 800 832 3201  
**FLORIDA**  
**Computer Village**  
Miami, 305 255 2000  
305 448 6600  
**Educational Support Syscs.**  
Longwood, 305 331 5438  
**Sunshine Software**  
Ft. Lauderdale, 305 493 5047  
**GEORGIA**  
**Micro Computer Power**  
Statesboro, 912 489 8739  
**HAWAII**  
**Micro Computer Systems**  
Honolulu, 808 536 5288  
**Software Library**  
Honolulu, HI, 808 533 1123  
**ILLINOIS**  
**CBM Computer Center**  
Elmhurst, 312 530 1125  
**CBM Computer Center**  
Peoria, 309 685 7876  
Other, 309 452 8665  
**Farnsworth Computer**  
Aurora, 312 851 3888  
Villa Park, 312 833 7100  
**Glen Ellyn Computer**  
Glen Ellyn, 312 858 6692  
**MicroAge**  
Chicago, 312 346 4443  
312 444 1035  
**INDIANA**  
**CBM Computer**  
Greenwood IN, 317 887 0797  
**IOWA**  
**Cinarco and Elliot**  
Davenport, 319 324 0639  
In Illinois, 309 797 0137  
**US Tech**  
Iowa City, 319 338 3681  
Cedar Rapids, 319 390 3516  
Cedar Rapids, 319 393 8956  
**KANSAS**  
**Personal Computer Center**  
Kansas City, MO 816 756 2202  
Overland Park 913 649 5942  
Overland Park 913 888 4003

**Software Center**  
Independence, MO  
816 461 3838  
Leawood 913 341 6711  
**KENTUCKY**  
**Computer Emporium**  
Louisville, 502 423 7120  
**Computerland**  
Pikeville, 606 432 0086  
**Lexington Computer Store**  
Lexington, 606 268 1431  
Pittsburgh, PA 412 391 8050  
Cincinnati, OH 513 671 6440  
**MASSACHUSETTS**  
**General Computer Store**  
Framingham, 617 872 2084  
**Northeast Computer Store**  
Ludlow, 413 589 7001  
**Orchard Computer**  
Hyannas, 617 775 8541  
Plymouth, 617 477 4683  
**Personal Computer Resources**  
Norwell, 617 871 5396  
**Software City**  
Lexington, 617 861 0116  
**MICHIGAN**  
**Advanced Management of MI**  
Holland 616 396 6821  
Holland 616 956 6686  
Muskegon 616 734 3395  
**Micro Station of Michigan**  
Southfield, 313 358 5820  
Troy, 313 689 5575  
**Software City**  
Grand Rapids, 616 245 5653  
**MINNESOTA**  
**Hutch Computer Systems**  
Hutchinson, 612 587 2940  
Eden Prairie, 612 944 1356  
**MISSOURI**  
**Citizens Computer Center**  
Higginsville, 816 584 7727  
**Computer Country**  
Clayton, 314 721 0008  
St. Louis, 314 487 2033  
Florissant, 314 921 4434  
**Forsythe Computers**  
Clayton, 314 721 4300  
Downtown, 314 231 6655  
Crestwood, 314 968 2268  
**Software Center**  
Independence, 816 461 3838  
**Software To Go**  
Clayton, 314 727 3420  
Downtown, 314 241 3870  
Crestwood, 314 968 8730  
**NEBRASKA**  
**Computer Hardware**  
Kearney, 308 234 9335

**Computer Town**  
Omaha, 402 390 9600  
**NEW HAMPSHIRE**  
**Chips Micro Center**  
Hanover, 603 643 5413  
**NORTH DAKOTA**  
Neba Computer Corp.  
Plainston, 603 382 4711  
**NEW JERSEY**  
**Atlantic Computer**  
Toms River, 201 240 3101  
**CDA Computer Sales**  
W Milford, 800 526 5313  
In New Jersey, 201 728 8082  
**CIA Inc.**  
South Plainfield, 201 668 5949  
**Clancy Paul NJ Comp. Store**  
Princeton, 609 683 0060  
New Brunswick, 201 246 8585  
Redbank, 201 747 7150  
**Computer Campus**  
Turnsville, 609 582 1234  
**Computer Discount of NJ**  
Mahwa, 201 529 4026  
**Computer Pros Inc.**  
Wayne, 201 256 7070  
**Disk of the Month Club**  
National Sales, 800 345 2582  
New Jersey, 201 794-3220  
**Family Computer Centers**  
South Orange, 201 762 6661  
**Round Valley Comp. Ctr.**  
Lebanon, 201 236 9575  
**Software City**  
Hamilton, 609 890 1066  
**Transnet Computer Store**  
Union, 201 688 7800  
Ocean, 201 531 7020  
**NEW MEXICO**  
**Computer Network**  
Carlsbad, 800 621 0937  
**Page One Newstand**  
Albuquerque, 505 294 2026  
**NEW YORK**  
**Byte Shop**  
Merrick, 516 379 BYTE  
**Castle Computer**  
Latham, 518 783 9405  
**Computer Discount**  
Spring Valley, 914 356 2848  
**Computer Solutions**  
Syracuse, 315 445 0794  
Ex-el Enterprises Ltd.  
New York, 212 889 6676

**NORTH CAROLINA**  
**Computer Alternatives**  
Ashville, 704 274 5404  
Hickory, 704 342 2040  
**NORTH DAKOTA**  
**Team Electronics #32**  
Minot, 701 852 3283  
**OHIO**  
**Nat. Micro Comp. of OH**  
Sandusky, 419 626 6794  
Toledo, 419 472 9226  
**Silicon Express**  
Columbus, 800 225 0755  
800 228 0755  
**OKLAHOMA**  
**Merit Computer**  
Oklahoma City, 405 942 7768  
MicroAge Computer Store  
Bartlesville, 918 335 3744  
**PENNSYLVANIA**  
**Computer Campus**  
Havertown, 215 446 1234  
King of Prussia, 215 265 6311  
Longhorn, 215 752 2320  
**Computer Dimensions**  
Altoona, 814 944 3300  
**High Tech Computers**  
Springfield, 215 328 7300  
**OSF Computers, Inc.**  
Indiana, 412 439 8770  
**Professional Computer Ctr.**  
Allentown, 215 821 4359  
Harrisburg, 717 564 9307  
Wilkinsbarre, 717 825 9548  
**Software Hut**  
Philadelphia, 215 462 2268  
**SOUTH CAROLINA**  
**Byte Shop**  
Columbia, 803 788 2524  
**SOUTH DAKOTA**  
**Team Electronics**  
Sioux Falls, 605 361 2460  
**TENNESSEE**  
**Computerland of Memphis**  
Memphis, 901 761 4743  
**TEXAS**  
**Computer Command Corp.**  
Victoria, 512 573 4305  
Computer Craft  
Houston, 713 840 9762  
**Creative Computer**  
San Antonio, 512 344 9225  
**PC Computer Products**

Springs, 800 821 9878  
**Williams Computer**  
Springs, 713 367 1600  
**Yes Computer**  
College Station, 409 693 8080  
**UTAH**  
**Inkley's Comp. Solutions**  
Salt Lake City, 801 467 5481  
**VIRGINIA**  
**Family Computer Center**  
Fairfax, 703 385 2758  
**Jack Hartman and Co.**  
Roanoke, 703 362 1891  
**WEST VIRGINIA**  
**CBM Computer Center**  
Barboursville, 304 736 0762  
Charleston, 304 344 1001  
Beckley, 304 252 7000  
**WISCONSIN**  
**Colortron Computers**  
Racine WI, 414 637 2003  
**Communications Center**  
Green Bay, 414 435 2235  
**Computer Warehouse**  
Milwaukee, 414 321 3120  
**WYOMING**  
**US Tech**  
Rock Springs, 307 382 8225

**DISTRIBUTORS**  
**Bexley Distributing**  
Bexley OH, 614 239 1611  
**Computer Software Svcs.**  
Elk Grove Village, IL  
In Illinois, 800 331-SOFT  
Other, 800 422 4912  
**First Software**  
In Mass, 800 322 3077  
Other, 800 343 1290  
**Ingram Software**  
Buffalo NY  
New York, 800 462 8488  
Other, 800 828 7250  
**PC Micro Dealers**  
Baltimore, MD, 301 889 1000  
Other, 800 448 8892  
**Softsel**  
Inglewood, CA 800 847 6383  
**Softeam**  
Compton, CA 800 847 6383

Advanced Logic  Systems, Inc.

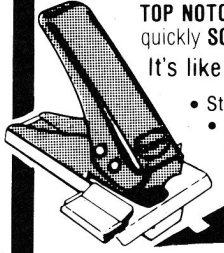
1195 E. Arques Avenue • Sunnyvale, CA 94086 • 408/730-0307

Circle 26 on Reader Service Card.

# FREE?DISKETTES

**SAVE MONEY!** Apple II series users can use the diskette flip side, if another "write enable" notch is correctly made.

**TOP NOTCH** by QUORUM quickly **SOLVES** that **PROBLEM**. It's like **FREE DISKETTES!**



- Stainless Steel Guide
- Easy Leverage Handle
- Clippings Catcher
- Square Notch Cut
- Black Finish

*Lifetime Warranty*

Awarded the only **A+ GRADE** in a comparison test published by the **INTERNATIONAL APPLE CORE**.

"The best I've found..."

IAC Reviewer

## Certifix™

**BE SAFE!** The flipside of a single sided disk may have flaws. Any disk is **CERTIFIED 100% ERROR FREE** with **CERTIFIX**. IT **"LOCKS OUT" BOTH DOS 3.3 & ProDOS DISK FLAWS.**

- LOCKS OUT ProDOS & DOS 3.3 FLAWS
- SAVES STATUS REPORT ONTO DISK
- AUTOMATIC ProDOS 3.3 FORMATTING
- CREATE 40 trk DISKS & SYSTEM MASTER
- RECORDS TEST DATE onto disk
- NOT COPYPROTECTED

### FREE CERTIFIX BONUS PROGRAMS

- Undelete DOS 3.3 files
- Test and Adjust Disk Drive Speed

**Prevent Data Loss!**

**CERTIFY & FIX every disk with CERTIFIX!**

### Get THE BEST!

**Ask our Customers:**

U.S. National Bureau of Standard  
TRW • IBM • Digital Research • AT&T  
U.S. Naval Weapons Research Center  
Alcoa • Rockwell International  
General Electric Corporation

### FREE!

64 Write Protect Tabs  
32 Diskette Labels  
If you get the  
**DISKETTE FLIP-KIT**  
which contains  
**TOP NOTCH** and **CERTIFIX**

*100% Money Back  
Satisfaction Guarantee!*

**DISKETTE FLIP-KIT only \$29.95**  
TOP NOTCH is \$14.95  
CERTIFIX is just \$24.95  
Add \$2 s/h • CA add 6.5% tax

For your nearest dealer  
or to order direct

**CALL TOLL FREE**  
**1-800-222-2824**  
**In CA: 1-800-222-2812**  
From 8 am - 5 pm PST

**Dealers Invited**

**QUORUM INTERNATIONAL** Unltd.  
INDUSTRIAL STATION P O BOX 2134 1C  
OAKLAND, CA 94614

# APPLEWORKS IN ACTION

Figure 3. Record entries from an AppleWorks mailing-list data base.

CATEGORY	RECORD 1	RECORD 2
=====	=====	=====
First MI:	Harold A.	Lou
Last:	Starr	Campanelli
Title:	Owner	Manager, Hardware Dept.
Company:	Abner Hardware & Paint	Key Hardware Stores
Street:	30 Shore Road	876 Main Street
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999
CATEGORY	RECORD 3	RECORD 4
=====	=====	=====
First MI:	Robert J.	Karen E.
Last:	Nissen	McDermott
Title:	Owner	Buyer
Company:	Nissen Brothers, Inc.	Best Hardware Centers
Street:	905 Linden Mall	82-A Sunrise Circle
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999
CATEGORY	RECORD 5	RECORD 6
=====	=====	=====
First MI:	Gino	Ernie
Last:	La Vigna	Dalton
Title:	Store Manager	Owner
Company:	V & G Hardware Company	Ernie's Hardware & Paint
Street:	89 Trendy Avenue	5 Whitman Center
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999
CATEGORY	RECORD 7	
=====	=====	
First MI:	Joan C.	
Last:	Kamoto	
Title:	President	
Company:	Community Hardware Co.	
Street:	345 Community Drive	
City:	Redford	
State:	NY	
Zip:	11982	

Figure 4. Mailing-list report format from an AppleWorks data base.

File: MAIL LIST                      REPORT FORMAT                      Escape: Report Menu  
Report: CUSTOMER LABELS  
Selection: All records

=====

First MI <Last  
Title  
Company  
Street  
City <State <Zip

-----Each record will print 6 lines-----

-----

Use options shown on Help Screen

-----

?? for Help

Refer to **Figure 3** and follow the same procedure to fill Records 2 through 6 *only*. Be sure to press Return after typing each entry, then OA-down arrow to get to the next record. When you're done, your cursor should be in the **First MI** category in Record 7.

Now type in the information in the first five categories of Record 7, from **First MI** to **Street**. Your cursor should now be in the **City** category.

In the next few steps, you'll switch to the overtype cursor (a blinking right-angle), replace the standard **Abner** entry with **Redford**, and the zip code **11999** with **11982**. To do this, press OA-E, type **Redford**, press Return (2 times), press the right arrow key (3 times), type **82**, and press Return.

Store the data base on disk by pressing the OA-S key combination. AppleWorks saves the file and brings up the records in the multiple-record version of the Review/Add/Change screen. A few of the records are "hiding" under the dashed line. Press OA-1 to bring them into view.

The next step is to create a format to print the mailing labels. Press OA-P to bring up the Report Menu screen. Now tell AppleWorks you want to create a new label format and name the report CUSTOMER LABELS: Type 3, press Return, type CUSTOMER LABELS, and hit the return key again. **Figure 4** shows the mailing-label format.

#### Positioning the Categories

Keeping categories separate is a plus when you arrange records. On a mailing label, though, the first and last names belong together on one line, as do the city, state, and zip code.

Let's start by combining the first- and last-name categories. First, press the down arrow key to move the cursor to the **Last** category. Now, move the **Last** category to the right of the **First MI** category: Press OA-right arrow (9 times), then press OA-up arrow.

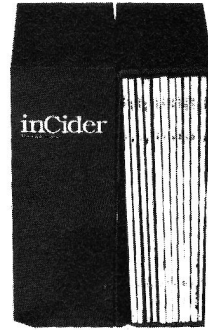
Left-justifying the last-name category prevents gaps between the first and last names or truncated first names. Your cursor is on the L in **Last**, so press OA-J.

A less-than sign appears, indicating that any entry in the **Last** category will be printed starting at the proper place after the entry in the **First MI** category, regardless of the length of the **First MI** entry. For example, *Campanelli* will begin five characters after the L in *Lou*, and *Nissen* will begin 11 characters after the R in *Robert J.*

## THE SMART WAY TO SAVE YOUR *inCider*

You'll find all your favorite issues of **inCider** in minutes—and in great condition—with smart-looking binders or file cases from Jesse Jones.

Sturdy, protective file cases make for easy access to each issue, while rugged binders allow magazines to lay flat for easy reference. Both hold 12 issues, are custom-designed in green with gold spine lettering, and are **unconditionally guaranteed**.



#### Order today!

**File Cases:** \$6.95 ea.; 3/\$20; 6/\$36.

**Binders:** \$8.50 ea.; 3/\$24.75; 6/\$48.

**YES!** Please send me protection for my **inCider**:

\_\_\_\_\_ File Cases \_\_\_\_\_ Binders

I enclose my check or money order for \$ \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

US currency only. Outside US, add \$2.50 per item for postage and handling. Please allow 4-6 weeks for delivery.

#### MAIL TO:

Jesse Jones Box Corp.  
PO Box 5120—Dept. INCID  
Philadelphia, PA 19141

# DIAMOND<sup>TM</sup> BY CONSISTENT SOFTWARE

## Your Baseball/Softball Statistics Tracking & Scoring System

Now you can consistently ...

#### track player stats

- ★ players names, addresses
- ★ 28 offensive stats
- ★ 7 defensive stats
- ★ 26 pitching stats

#### manage team info

- ★ coaches names, addresses
- ★ schedules
- ★ equipment lists
- ★ car pool assignments

#### score a game

- ★ create lineups
- ★ assign positions
- ★ score play by play
- ★ automatically updates statistics

Best of all, it's easy to use ... forms fill in ... on-line help.

For Apple\* IIc & IIe with 64K, 1 disk drive (printer optional)

Suggested Retail Price **\$69<sup>95</sup>** each **Volume Discounts Available**

Terms: U.S. Dollars. All orders shipped UPS ground. \$3.00 for C.O.D. Air extra. California residents add 6% or 6½% sales tax. Cash or cashiers check only on C.O.D. Allow 10 days for personal check to clear.

**Order now! Toll free 1-800-345-3353** Outside California

Specify 64K or 128K version when ordering.



Consistent Software Incorporated

**Send check or money order to:**

**1050 Duncan Avenue** For details, call  
**Suite G, Department IC (213) 374-2304**  
**Manhattan Beach, CA 90266**

Prices and functions subject to change without notice.  
\*Apple is a registered trademark of Apple Computer, Inc.

Now move the cursor to the blank line and delete it by pressing Return, then OA-D.

The city, state, and zip code are combined in the same way. The next few steps move the cursor to the **State** category, position the categories, left-justify the state and zip code so that they're printed properly after the name of the city, and delete a blank line. Press the down arrow key (4 times), OA-right arrow (5

times), OA-up arrow, OA-J, Return, OA-D, OA-right arrow (12 times), OA-up arrow, and OA-J.

The screen should now display the sentence: **Each record will print 6 lines.** The blank line below **City** <State <Zip separates the printing on one label from that on the next.

### Preparing for Printing

Suppose you have a large number of customers. It's easiest to scan a long list arranged by company name.

To move your cursor to the C in **Company** and arrange the records in alphabetical order, press up arrow (2 times), left arrow (12 times), OA-A, and then Return.

You don't need a report header at the top of each page of labels, so the next step is to press OA-O to bring up the Printer Options screen. Now toggle the header setting from **Yes** to **No** by typing PH and hitting the return key.

The left-margin setting controls where the information is placed horizontally on the label. With the left sprocket on my ImageWriter as far left as it could go and the right sprocket shifted toward the center, a .4-inch left margin produced a well-balanced look. You're still in the Printer Options screen, so type **LM**, press Return, type **.4**, and press Return again.

The next setting tells AppleWorks the paper length. Think of each label as a complete page and all the labels as a whole collection of pages. The paper length, therefore, is one inch ( $\frac{1}{16}$  inch high plus  $\frac{1}{16}$  inch between labels). To make this setting, type **PL**, press the return key, type **1**, and hit Return. Now press the escape key to return to the Report Format screen.

You're now set to print the labels. If you have label paper, this is the time to load it. Turn on your printer and follow these steps to start the Print command, select the printer, and confirm one copy: Press OA-P, press Return (or type a printer number, then press Return). Press Return once more and your printer starts working on the customer mailing labels.

Now store the data base and the report format on disk by pressing OA-S. AppleWorks returns to the multiple-record layout in the Review/Add/Change screen. Arranging has a universal effect, so the records on screen are now in alphabetical order by company name, just as they are on the labels. ■

*Ruth K. Witkin is a consultant in computer applications for business. She is the author of Managing Your Business With Multiplan (Microsoft Press), Managing With AppleWorks (Howard W. Sams & Co.), and Personal Money Management With Multiplan (Hayden Books). Ruth is currently at work on an AppleWorks personal money management book to be published by Hayden Books. Write to her at 5 Patricia Street, Plainview, NY 11803.*

## Is Your Apple Making You Money?

Across the country a growing number of Apple computer users are participating in the most exciting phase of the telecommunications explosion.

They are creating their own highly sophisticated yet easy-to-use electronic databases that are both interactive and profitable.

Any //e or //c can now be turned into a sophisticated on-line Databoard and money making Information Center with the addition of a modem and the inexpensive Databoard program called **Let's Talk:™**

The Big Information Utilities are not the only ones who will profit by providing information on-line. They can't compete on the local level with local Information Centers (who wants to call CompuServe to find out what's happening across town when a local call will bring you more).

Every community has a need for an on-line Information Center and Databoard offering Restaurant Guides, Movie Listings, Classified Ads, Calendars of Events, Business Information, and an Electronic Mail.

This is your chance to join the growing number of Apple owners who profit from operating Local Databoards and Information Centers.

METRONET ATLANTA NEWSKOM SAN ANTONIO CLM  
BAYLORNET DALLAS AUDIOPHILE VAN NUYS HORTON  
SOFTWARE EMPORIUM COMPUTER ROOM THOUSAND OAK  
GOLDEN DISK STUDIO CITY TANEYCOMO PRODUCTIONS  
VIDEO HOTLINE HOLLYWOOD APPCOMNET SAN JOSE  
TELEPORT JACKSONVILLE ASHBURROUGH ACCESS

## Let's Talk:™ It works while you're away

Available at your local dealer or from RUSS Systems for \$175.00  
Contains the finest Text Editor and Disk Utilities available today.  
Non copy-protected, hard-disk compatible, PROdos™ //c //e-128K  
Use your computer to call for more information and a demonstration.



RUSS Systems  
320 Dufour St.  
Santa Cruz, CA 95060



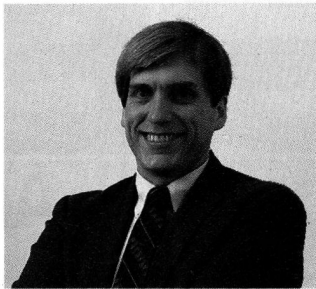
408/  
427-  
1540



408/  
427-  
0310

Circle 46 on Reader Service Card.

# STATUS REPORT



## Intelligence

**“Can you reduce the world to size 128K and still fit reality?”**

by Paul Statt, *inCider* staff

**A**rtificial intelligence is no longer the stuff of science fiction. “Star Wars” may need more brains than either you or I have, but software you can buy for the Apple II today makes it at least as intelligent as the biggest computer of World War II. The Japanese have AI, the Defense Department wants it—it’s something you need to know about.

We see intelligence in computers today in the form of expert systems. An expert system is a large data base, called a *knowledge base*, coupled with an *inference engine*. The inference engine is a program that makes logical sense of the information in the data base.

Someone called a *domain expert*, who knows all about a particular subject through experience and training, works with a *knowledge engineer*, who fits that expertise into a form the inference engine can read.

Knowledge engineering reduces complex judgments to simple calculations. We thought of that when we read Jim McKelvey’s review of **MicroExpert** (p. 74). On the whole he didn’t find MicroExpert complex enough to mirror the world without distortion. MicroExpert isn’t a good skeleton for writing expert systems—it supports only one kind of decision structure, the *if...then conditional*, which constrains you to certain sorts of questions in your expert system.

“The distinction between an [if-then] *inference engine*, which performs list-processing, and a simple, hard-coded *Pascal* ‘if...then’ construct seems lost on Mr. McKelvey,” counters Steve Guty, Senior Editor for Computer Projects at McGraw-Hill. “Aside from the flexibility of having to change only the rule file rather than a program, you see the chain of logic and examine future outcomes.”

Steve says an expert-system generator flexible enough to intrigue all kinds of people and transparent enough to convince a skeptical domain expert can’t be complex enough for Jim’s idea of a real-world application. To make MicroExpert transparent and flexible, Steve is willing to “reduce” the expert system a little more than Jim, who is a Pascal programmer, wants to simplify it.

Jim suggests, “You’d certainly learn more by reading a good magazine article on AI—or even by watching reruns of *Star*

*Trek*.” Jim’s being facetious, but we do recommend **The Hitch-Hiker’s Guide to Artificial Intelligence** (\$17.95, Methuen, New York), by Richard Forsyth and Chris Taylor. The authors will introduce you to expert systems, natural-language processing, computer vision, machine learning, knowledge representation, problem-solving methods, and computer game-playing strategies.

Each topic includes a manageable (if not short) program in Applesoft BASIC. You could certainly learn more about a range of artificial-intelligence processes from the book than you can from a single expert-system generator. And AI is accessible to you if you have a 64K Apple II and BASIC—you don’t need LISP or PROLOG or a supercomputer.

The paradox of knowledge-based expert systems—can you reduce the world to size 128K and still fit reality?—is not limited to artificial intelligence. You may recall similar difficulties in high school when you tried to squeeze all the numbers from a “word problem” into an equation.

Spinnaker Software sells a package called **Homework Helper: Math Word Problems**, which talks you through those deadly traps of Algebra I. It’s an expert system of sorts. Randy Davis, of MIT’s Artificial Intelligence Lab, calls an expert system “the closest we can get to cloning,” and Homework Helper is the best clone of an endlessly patient teacher we’ve yet seen. It asks questions, it’s flexible enough to handle word problems—motion, coins, mixtures, and so on—and it’s transparent enough to report to the student all the steps that went into the solution.

The Defense Advanced Research Projects Agency spends more money studying artificial intelligence than does any private interest in the United States. Why?

Battle management, autonomous vehicles, expert co-pilots, and more. Expert systems may be applicable to a ballistic-missile defense system, according to DARPA. The computer watches incoming missiles—no mere mortal could keep track of them. In the December 1985 *Scientific American*, Herbert Lin comments on the Star Wars expert system: “No one has expert knowledge of massive nuclear-missile attacks based on experience.” Not only is there no domain expert, the knowledge engineer who writes the Star Wars software is going to have a hard time debugging it—the first run may be the last. ■

CALL TOLL FREE 1-800-382-2242

# NEAR THE SOFTWARE WE WILL BEAT

88 Ryders Lane, Stratford, Connecticut 06497 (See Below)

1. Tap our unmatched selection and inventory of software/hardware for the Apple, Mac (as well as the IBM PC, and Commodore Amiga).
2. School and corporate purchase orders are welcomed. CALL 1-800-874-1108.
3. Special/rush orders. If something you need is not listed, hard to find, or needed in a hurry, CALL 1-800-874-1108.
4. Order Status. CALL (203) 375-3860.
5. FREQUENT PURCHASER PROGRAM. Effective 10/14/85, any repeat customer who has placed an order after 9/4/85 will automatically receive \$1 off any order he or she places with us. Please mention to your operator that you are a repeat customer. We value your continuing business. Send in \$1,000 worth of invoices (representing previous purchases) and you will receive a coupon worth 1% off any future purchase. With \$5,000 worth of invoices, receive a coupon worth 5% off any future purchase.
6. SOFTWARE RENTAL LIBRARY. For 25% of our price, rent any program for two weeks. Apply your rental fee toward purchase if you choose.
7. No additional charges for credit card orders.
8. Convenient hours. 7 days/week: 9 AM-11 PM EST.
9. Technical experts on duty.
10. FREE AIR EXPRESS SHIPPING. Purchase \$150 or more of software and for no additional charge we will ship your products by air courier. Mention this to your operator as you place your order.
11. FURTHER DISCOUNTS BY MAIL. Circle the items in our ad you want, send the ad in with the coupon below and receive \$.50 off each item! Cut out a competitor's ad with a lower price and we will give you \$1 off his price (subject to the conditions below).

**DISCOUNT BY MAIL DEPARTMENT**

Send coupon and list of items desired to:  
Northeastern Software, 88 Ryders Lane, Stratford, CT 06497

To be eligible for the \$.50 per item discount you must:  
1. Fill out all items. 2. Send in our ad with the items you desire circled.

Name \_\_\_\_\_  
Address \_\_\_\_\_ (Include Company Name)  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone No. at above address \_\_\_\_\_

Check form of payment  
 Visa  MasterCard  C.O.D.  Personal Check  
 Certified Check  Money Order

Card No. \_\_\_\_\_ Exp. Date \_\_\_\_\_ 85

Personal and company checks allow 3 weeks to clear. For faster delivery, send cashier's check, certified check, or money order. Shipping—Software (\$3.00 minimum). Shipping—Hardware (please call 203-375-3860). COD—Add an additional \$2.00. Alaska, Hawaii, Canada, PD, APD, and IPO \$3.00 minimum. Foreign orders—\$15.00 minimum and 15% of all orders over \$100. Mastercard and Visa (please include card no. and expiration date). Connecticut residents add 1.5% sales tax. Prices subject to change without notice. All returns must have a return authorization number. Call 203-375-3860 to obtain one before returning goods for replacement. Defective merchandise replaced with same item only. We do not guarantee compatibility. All sales are final. "Comparable advertised price" does not include typographical errors on the part of other vendors or prices that do not reflect higher shipping costs, credit card charges, or membership fees. The \$1 off offer only applies to items where Northeastern's price is not already the lowest. Final judgement remains with the manager on duty.

## SPECIALS

Ultima 4	33.00
Silent Service	19.50
Appleworks	174.00
Spellworks	37.00
Jeeves	35.00
Maebius	35.00
R. Wagner Mouse Write	72.00
Super Serial Card	104.00
Pinpoint	CALL
Reportworks	CALL

## COPY PROGRAMS AND BOARDS

Back It Up III	42.00
CIA Files	46.75
Copy II+	19.00
Copy Master II 128k w/gr. Dump	93.00
EDD III	43.50
Locksmith 6.0	64.00
Nibbles Away III	58.00
Wildcard II	70.00

## ENTERTAINMENT

ACCOLADE	
Beachhead	20.00
Beachhead II	19.00
Dem Busters	20.25
Fight Night	18.25
Horriball	20.50
Law of the West	19.50
PSI #5 Trading Post	19.50
Sundog	22.50
ACTIVISION	
Borrowed Time	22.50
Countdown to Shutdown	22.50
Ghostbusters or Zeni	23.00
Mind Shadow or Space Shuttle	23.00
The Incer Sanction or H.E.R.O.	23.50
AYALON HILL	
Under Fire	32.00
AVANT GUARD	
Dave Winfields Batter Up	22.50
BLUE CHIP	
Millionaire, Baron or Tycoon	23.25
Squire	25.00
BRODERBUND	
Captain Goodnight	20.00
Championship Lode Runner	19.85
Chapflifer	19.85
Lode Runner or Karateka	19.85
Mask of the Sun	22.75
Where Is Carmen San Diego?	23.00
CBS SOFTWARE	
Murder by the Dozen or Felony	21.75
DATASOFT	
Alternate Reality	25.00
Bruce Lee or Conan	22.25
Zaxxon	18.50
ELECTRONIC ARTS	
Adventure Construction Set	30.50
Archon	22.00
Archon II or Skyfox	24.25
Bard's Tale or Reach for the Stars	27.50
Carriers At War	30.50
Europe Ablaze	30.50
Musik Construction Set	24.50
One-On-One	24.00
Pinball Construction Set	21.25
Seven Cities of Gold	24.25
EPYX	
Summer Games I or II	23.00
Temple of Apshai Trilogy	23.00
Winter Games	21.50
World's Greatest Baseball Game	20.00
World's Greatest Football Game	20.00
HAYDEN	
Sarcoph III	27.25
Infocom	
Cuthberts or Zork I	21.75
Deadline, Suspended or Starcross	27.75
Forbidden Quest	23.50
Hitchhiker's Guide to the Galaxy	21.75

Planetfall or Enchanter	21.75
Sorcerer, Suspect or Inlidel	24.75
Witness or Seastalker	21.75
Zork II or Zork III	24.75
MICROPROSE	
Crusade in Europe	23.75
Decision In The Desert	20.00
F-15 Strike Eagle or Solo Flight	20.00
NATO Commander	19.75
MICRO LEAGUE SPORTS	
Micro League Baseball	23.00
Micro League Managers Disk	23.00
MINDSCAPE	
Crossword Magic	28.50
Holley Project	26.00
Color Me	CALL
James Bond View To A Kill	22.50
Rambo	22.50
Stephen King's The Mist	22.50
Voodoo Island	22.50
MUSE	
Beyond Castle Wolfenstein	18.25
Castle Wolfenstein	18.25
ODESTA	
How About a Nice Game of Chess?	20.50
ORIGIN SYSTEMS	
Ultima III	33.25
PENGUIN	
Coveted Mirror	20.50
Crimson Crown	20.50
Expedition Amazon	19.75
The Quest or Ring Quest	20.00
Xyphus or Transylvania	20.25
SEGA	
Frogger 3-Deep or Super Zaxxon	19.50
Spy Hunter or Buck Rogers	25.75
Topper or Star Trek	25.75
SIERRA ON LINE	
King's Quest I or II	28.00
SIR TECH	
Wizardry I	26.75
Wizardry II	20.50
Wizardry III or Wizardry IV	23.50
Wizard	14.25
SPECTRUM HOLOBYTE	
Gato	21.00
STRATEGIC SIMULATIONS	
50 Mission Crush or Rails West	23.00
Rotic 85 or Gemstone Warrior	19.75
Battalion Commander	23.00
Battle for Normandy	23.50
Geopolitique 1990	22.75
Germany 1985 or Carrier Force	34.75
Imperium Galacticum or Broadside	22.75
North Atlantic 86	34.75
Objective Kursk or Phantasia	23.00
Buffered Market Garden	29.50
Question	29.50
Refector 88 or Kampfgruppe	34.75
USAAF	32.00
War in Russia	46.50
SUB LOGIC	
Flight Simulator II	30.50
Night Mission Pinball	20.75
TELARIUM	
Dragonworld or Shadowkeep	22.75
Fahrenheit 451 or Amazon	22.75
Rendezvous with Roma	22.75

FX-85	21.75
FX-185	24.75
IQ-800	21.75
IQ-1500	24.75
DX-10	20.00
DX-20	23.75
AP-80 Imogewriter	20.00
JUKI	
Juki 5500 Color	19.75
Juki 6100***	19.75
Juki 6300	23.00
MANNIESMAN TALLY	
MI-85	340.00
MI-86	410.00
NEC INFORMATION SYSTEMS	
CALL 2030	615.00
22.50 3530	975.00
22.50 P2	490.00
22.50 P3	690.00
EH 360	380.00
OKIDATA	
182P	210.00
192P	330.00
192 Imogewriter	360.00
193P	470.00
193 Imogewriter	540.00
Okimate 20 Color	210.00
PANASONIC	
KXP 1091***	225.00
KXP 1092	345.00
KXP 1093	395.00
KXP 3131	375.00
KXP 3151	375.00
QUME	
Letter Pro 20	395.00
SILVER REED	
EXP 400P	200.00
EXP 500P	235.00
EXP 550P	365.00
EXP 770P	669.00
STAR MICRONICS	
SG 10	215.00
SG 15	369.00
SD 10	329.00
SD 15	439.00
SR 10	479.00
SR 15	579.00
TOSHIBA	
Compuz Read	1025.00
Compuz Math	395.00
SAT or PSAT Word Attack Skills	885.00
Spelling Bee & Reading Primer	21.50
Algebra 1, 2, 3, 4, or 5	30.50
Writing Skills 1, 2, 3, 4, 5	25.00
Hands on BASIC	25.00
Introduction to Counting	19.00
Fractions or Decimals	19.00
FISHER PRICE	
Alpha Build	15.50
Peter Rabbit Reading	17.50
HARCOURT BRACE JOVANOVIH	
Harcourt SAT	45.00
Harcourt GRE or ACT	52.00
GROLIER	
Science Island or Treasure Hunter	23.25
Easy Graph or Friendly Filer	23.25
Educate	29.50
HAYDEN	
Word Challenge	12.00
LEARNING COMPANY	
Rocky's Boots or Robot Odyssey	27.75
Number Stumper or Rabbit	22.75
Magic Spells or Bumble Spinner	20.50
Bumble Games or Bumble Plot	23.25
Gertrude's Puzzle or Secrets	24.75
MAGNUM	
Super Speed Reading	30.00
MCC	
Elementary Series (EACH)	29.00
Math or Health Series (EACH)	29.00
MICROSOFT	
Jyving Tutor II	14.75
MILLIKEN	
Math Sequences (EACH)	20.25
Number Chase or Pop R' Spell	23.50
Milikan Word Processor	41.50
MINDSCAPE	
Perfect Score SAT	41.50

## PRINTERS

APPLE	
Imogewriter II W/Acc. Kit	445.00
Imogewriter 15" W/Acc. Kit	470.00
lazerwriter	CALL
Hoyes Moch II	26.25
Hoyes Moch III	32.25
INNOVATIVE TECHNOLOGIES	
Flop N File 50	18.00
KEYTRONICS	
KB 200	185.00
KOALA TECHNOLOGIES	
Koala Pad	70.50
Gibson Light Pen	CALL
Muppet Learning Keys	41.50
KRAFT	
Kraft Joystick	26.00
CALL MCT	
CALL MCT Speed Demon	157.50

## PRINTER INTERFACES

ORANGE MICRO	
Buffered Groppler	131.50
Groppler Plus	72.00
SPIES LABS	
Nice Print	104.75
TEXTPRINT	
Print It (Parallel or Serial)	123.50
THIRDWARE	
Fingerprint Plus	87.50

## ACCESSORIES/TURBO BOARDS

APPLE COMPUTER	
Apple Mouse IIc	73.00
Apple Mouse IIe	103.00
Appleworks Modifier 64K	37.50
Appleworks Modifier 128K	47.50
CH HAYES	
Hoyes Moch II	26.25
Hoyes Moch III	32.25
INNOVATIVE TECHNOLOGIES	
Flop N File 50	18.00
KEYTRONICS	
KB 200	185.00
KOALA TECHNOLOGIES	
Koala Pad	70.50
Gibson Light Pen	CALL
Muppet Learning Keys	41.50
KRAFT	
Kraft Joystick	26.00
CALL MCT	
CALL MCT Speed Demon	157.50

## EDUCATIONAL

APPLE	
Iogo II	75.00
BARRONS	
Barrons SAT	51.50
Barrons GMAT	CALL
BRAINPOWER	
Chipwits	22.75
Thinkfast	22.75
BRODERBUND	
Science Toolkit	33.00
CBS	
Adventure Master	25.00
Mastering the SAT	55.50
America Coast to Coast	23.50
Goren's Learning Bridge	48.50
Success With Algebra	20.50
Success With Math	14.50
Forecast or I-Rex	27.00
CALL DAVIDSON AND ASSOCIATES	
Algebra Blaster	27.00
Speed Reader II	37.50
Word Attack, Mathblaster or Spellit	26.50
All Davidson Data Disks	11.75
DESIGNWARE	
Spellcorder or Spellakazoom	23.50
Sates & Traits or European Nations	24.50
Body Transpant or Mission Algebra	24.50
Grammar Examiner	24.50
Remember	43.50
DLM	
Alien Addition or Alligator Mix	18.50
Meteor Mult. or Minus Mission	18.50
Demolition Division or Dragon Mix	18.50
Spelling Wiz or Word Invasion	18.50
EDU-WARE/PEACHTREE	
Compuz Read	15.50
Compuz Math	26.00
SAT or PSAT Word Attack Skills	15.50
Spelling Bee & Reading Primer	21.50
Algebra 1, 2, 3, 4, or 5	30.50
Writing Skills 1, 2, 3, 4, 5	25.00
Hands on BASIC	25.00
Introduction to Counting	19.00
Fractions or Decimals	19.00
FISHER PRICE	
Alpha Build	15.50
Peter Rabbit Reading	17.50
HARCOURT BRACE JOVANOVIH	
Harcourt SAT	45.00
Harcourt GRE or ACT	52.00
GROLIER	
Science Island or Treasure Hunter	23.25
Easy Graph or Friendly Filer	23.25
Educate	29.50
HAYDEN	
Word Challenge	12.00
LEARNING COMPANY	
Rocky's Boots or Robot Odyssey	27.75
Number Stumper or Rabbit	22.75
Magic Spells or Bumble Spinner	20.50
Bumble Games or Bumble Plot	23.25
Gertrude's Puzzle or Secrets	24.75
MAGNUM	
Super Speed Reading	30.00
MCC	
Elementary Series (EACH)	29.00
Math or Health Series (EACH)	29.00
MICROSOFT	
Jyving Tutor II	14.75
MILLIKEN	
Math Sequences (EACH)	20.25
Number Chase or Pop R' Spell	23.50
Milikan Word Processor	41.50
MINDSCAPE	
Perfect Score SAT	41.50

\*\*\* Top rated in a leading consumer magazine



# ASTERN

## ANY COMPARABLE ADVERTISED PRICE BY \$1

### SCARBOROUGH SYSTEMS

Build A Book About You	23.25
Boston Computer Diet	45.75
MasterType's Writing Wizard	45.75
MasterType's Filer	23.50
MasterType's New and Improved	23.25
Run for the Money or Songwriter	23.50
<b>SCHOLASTIC WIZWARE</b>	
Fact and Fiction Toolkit IIc	22.50
Microzine 1-8 (EACH)	22.50
Story Tree or Story Maker	22.50
Turtle Tracks or Agent USA	23.00
Operation Frog or Logic Builders	23.00
Logo Robot or Kids At Work	14.25
<b>SIMON AND SCHUSTER</b>	
Chem Lab	23.50
Lovejays Preparation For The SAT	41.50
Typing Tutor III	28.50
<b>SPINMAKER SOFTWARE</b>	
Fraction Fever or Face Maker	14.50
File and Report or Spreadsheet	33.50
Snooper Traps 1 or 2	19.50
Story Machine or Grandma's House	14.75
Kindercomp or Kids on Keys	14.50
Spinner Word Processor	33.50
Alphabet Zoo or Kidwriter	16.75
In Search Of	19.50

### SPRINGBOARD

Early Games or Piece of Cake	16.00
Make A Match or Fraction Factory	16.00
Mask Parade	23.50
Easy As ABC	23.50
Mathbusters	17.50
<b>TERRAPIN</b>	
Terrapin Logo	54.50
Terrapin Logo 10 Pack	177.00
<b>TIMEWORKS</b>	
Everym Wood Dynamic Reader	38.75
<b>WEEKLY READER</b>	
Exploring Tables And Graphs 1 Or 2	20.50
Sticky Bear Series (EACH)	23.75

### BUSINESS

<b>ADVANCED LOGIC SYSTEMS</b>	
The Handlers Package	94.75
List or Word Handler	44.00
Spelworks	31.50
<b>APPLE</b>	
Apple Writer II	111.00
Apple Access	54.00
Quickfile	67.00
<b>APPLIED SOFTWARE TECHNOLOGY</b>	
Versiform	43.50
<b>ARTSCI</b>	
Magix Office Systems	122.00
Magix Calc 3.3	55.00
Magix Window	76.00
<b>ASHTON TATE</b>	
DBase II	245.00
<b>BPI</b>	
Gen. Acctg. AR, AP, GL, PAY	194.00
Gen. Acctg. AR, AP, GL, PAY Pro Dos	209.00
<b>ORGANIZATIONAL SOFTWARE</b>	
Omnis III	227.00
<b>BRODERBUND</b>	
Bank Street Filer	39.50
Bank Street Speller	39.50
Bank Street Writer 64K or 128K	39.50
<b>CONTINENTAL SOFTWARE</b>	
FCM/FL	57.00
Home Accountant or Tax Advantage	37.50
<b>DOW JONES SOFTWARE</b>	
Investor's Workshop	86.00
Market Analyzer or Microscope	198.00
Mkt. Mgt. or Spreadsheet Link	147.00
Membership Kit	18.00
<b>ELECTRONIC ARTS</b>	
Financial Cookbook	30.00
Cut & Paste	21.25
D-Code	21.00
<b>FUNK</b>	
Sideways	32.00
<b>HAYDEN SOFTWARE</b>	
The Writer	26.50
<b>HOWARD SOFTWARE SERVICES</b>	
Real Estate Analyzer III	185.00

### INTERNATIONAL SOLUTIONS

Mouse Budget	41.00
Mouse Calc	91.00
Mouse Desk	23.00
Mouse Word	78.00
Mouse File	CALL
<b>KENSINGTON</b>	
Format II Enhanced	86.00
<b>LIVING VIDEOTEXT</b>	
Think Tank II/IIIe	77.00
<b>MEGAHAUS</b>	
Megafinder	89.00
Megaworks	66.50
<b>MANZANITA</b>	
Business Works Master Module	67.00
Manzanita GLAR/AP/INV	255.00
Manzanita Payroll	290.00
<b>MECA</b>	
Managing Your Money	102.00
<b>MICROPRO</b>	
Wordstar	168.00
<b>MICROSOFT</b>	
<b>MONOGRAM</b>	
Dollars & Sense	56.50
Dollars & Sense IIc	66.50
Forecast	35.00
<b>NOLD PRESS</b>	
Will Writer	28.50
<b>PBI SOFTWARE</b>	
Graphworks	58.00
Jeeves	35.00
<b>PEACHTREE</b>	
Back to Basics	98.00
<b>PINPOINT PUBLISHING</b>	
Pinpoint	35.00
<b>PRACTICORP</b>	
Practical	26.00
<b>PRECISION SOFTWARE</b>	
Superbase	53.00
<b>QUARK</b>	
Word Juggler w/Lockcheck	58.75
Catalyst IIc	93.00
<b>ROGER WAGNER PUBLISHING</b>	
Mouse Write	72.00
The Write Choice	26.50
<b>ROLODEX</b>	
Rolodex Compucard	33.75
Rolodex Label Express	33.75
<b>SATELLITE SOFTWARE</b>	
Word Perfect	77.00
<b>SCARBOROUGH</b>	
Net Worth	46.50
<b>SENSIBLE SOFTWARE</b>	
Bookends or Sensible Speller	67.00
The Graphics Department	65.80
Report Card	33.00
<b>SIERRA-ON-LINE</b>	
The General Manager II	127.00
Homeward	41.00
Homeward Speller	30.00
Screenwriter IIc	73.00
Homeward Writer and Speller Bundle	CALL
<b>SORCIM</b>	
Supercalc 3A	100.50
<b>SOFTWARE PUBLISHING</b>	
PFS: First Success	126.00
PFS: Access or Profl	43.50
PFS: File or Graph	68.25
PFS: Report or Write	68.25
<b>STATE OF THE ART</b>	
Electric Checkbook	58.00
GLAR/AP/INV or PAYROLL	285.00
<b>STONEWARE</b>	
DB Master 4 Plus	167.00
DB Master Hard Disk	235.00
DB Master Business Writer	87.00
DB Bus, Pack or Master Bus, Team	187.00
<b>TIMEWORKS</b>	
Silvia Parter's Financial Planner	67.00
<b>TURNING POINT</b>	
Time Is Money	57.50
<b>VIRTUAL COMBINATICS</b>	
Micro Cookbook II/IIIe	21.50
<b>VISICORP</b>	
Flashcalc	57.00

### MONITORS

<b>APPLE</b>	
Color Monitor I/IIe or IIc	275.00
<b>AMDEK</b>	
Color 300***	206.50
Color 600	373.50
Video 300A Amber***	116.50
Video 300G Green***	110.50
<b>DUM II</b>	
<b>PRINCETON</b>	
HX-9	389.00
HX-12	409.00
RGB Interface	140.00
<b>TAXAN</b>	
115 Green	105.00
116 Amber	110.00
610	300.00
620	350.00
630	405.00
640	460.00

### MULTIFUNCTION BOARDS

<b>APPLIED ENGINEERING</b>	
Applied Eng. Trans Warp Accelerator	CALL
Applied Eng. Roomworks II	CALL
Applied Eng. Rgb Option	100.00
Applied Eng. Z Ram IIc	CALL
Applied Eng. System Clock	62.00
Applied Eng. Viewmaster	102.00
Applied Eng. Timemaster H.O.	105.00
Applied Eng. BSR Option	37.00
Applied Eng. Z-80 Plus	103.00
<b>APRICORN</b>	
Apricorn 16K RAM Card	64.00
Apricorn 64K Extend II	84.00
<b>AST RESEARCH</b>	
AST Mega Ram Plus	CALL
AST Sprint Disk	CALL
AST Micro Star (10mg hd, 3.5")	1249.00
AST Micro Star (10mg B.U.)	589.00
AST Micro Star (10mg hd w/B.U.)	1799.00
AST Multi I/O	152.00
<b>CARRABIAN</b>	
Extend 80	77.00
<b>CHECKMATE TECHNOLOGIES</b>	
Checkmate ZEE-80A Card	64.50
Checkmate IIe-80 Ram Card	56.50
Checkmate Multiram C (256K)	245.00
Checkmate Multiram C (512K)	310.00
Checkmate Multiram IIc	129.00
Checkmate Multiview 80/160	205.00
<b>INFORMATION APPLIANCE, INC.</b>	
Swyftcard	69.00
<b>OHIO CACHE SYSTEMS CORPORATION</b>	
Cache Board (256K)	CALL
DISC Optional Power Supply	CALL
<b>PRACTICAL PERIPHERALS</b>	
Serial Interface Card	90.75
Prolock IIe or IIc	116.50
Printerface	47.50
Graphiccard	57.50
<b>QUADRAM</b>	
Quadram Pro Dos Clock/Calendar	59.00
Quadram Extended Multifunction Card	155.00
Quadram Buffered Serial Int. (64K)	95.00
Quadram Parallel Interface	65.00
Quadram Parallel Card w/Graphics	70.00
Quadram 80 Column 64K Card	97.00
Quadram Multi-Core Board w/256K	175.00
Quadram E-Ram 80	96.00
<b>STREET ELECTRONICS</b>	
Alphabits II	CALL
Livewire W/Clock	70.50
Business Card Serial	131.00
Business Card Parallel	154.00
<b>THUNDERWARE</b>	
Thunderclock Plus	103.00
<b>CREATIVE PERIPHERALS</b>	
Time Trax IIe or IIc	77.50

### MODEMS

<b>ANCHOR AUTOMATION</b>	
Volsmodem 1200	177.50
Volsmodem IIc, IIe or Mac Cable	11.00
<b>NOVATION</b>	
Apple Cat II	187.00
212 upgrade kit	218.00
212 Applecat	353.00
<b>APPLE COMPUTER</b>	
Apple IIe, IIc or Mac Connector Kit	23.00
Apple Personal Modem	260.00
<b>HAYES</b>	
Hayes Smartmodem 300	132.00
Hayes Smartmodem 300 IIc	152.00
Hayes Micromodem IIe w/SC I	128.00
Hayes Smartmodem 1200	360.00
Hayes Smartmodem 2400	577.00
<b>PRENTICE</b>	
Popcap X-100 Modem	244.00
<b>PROMETHEUS</b>	
Prometheus 1200 External	285.00
Prometheus Internal IIe/II+	255.00
<b>ZOOM TELEPHONICS</b>	
Zoom Modem IIc	114.00
Zoom Modem IIc Plus	120.00

### ANIMATION/GRAPHICS SOFTWARE

<b>BAUDVILLE</b>	
Actors and Actions	16.25
Blazing Paddles	25.75
Heroes and Villains	16.25
Pix It	28.50
Shape Library 1, 2 or 3	10.75
Take 1	31.50
<b>BEAGLE BROTHERS</b>	
Beagle Graphics	30.50
Frame Up	15.00
<b>BRODERBUND</b>	
Dazzle Draw	34.50
Fantovision	27.00
Print Shop	26.75
Print Shop Companion	22.50
Graphics Library 1	14.25
Graphics Library 2	14.25
Graphics Library 3	14.25
Refill Paper Pack	12.25
<b>DATA TRANSFORMS</b>	
Fontrix	53.25
Font Packs 1-13	11.00
<b>PENGUIN</b>	
New Complete Graphics System	44.75
Graphics Magician	33.75
<b>SENSIBLE SOFTWARE</b>	
Graphics Department	64.75
<b>SOFTWARE PUBLISHING</b>	
PFS: Graph Dos or Pro Dos	68.00
<b>SPINNAKER</b>	
Delta Drawing	22.75
<b>SPRINGBOARD</b>	
Clip Art Effects for Newsroom	16.25
Graphics Expander I	22.25
Newsroom	30.50
<b>WEEKLY READER</b>	
Picbuilder	21.75
Zoom Graphics	29.50
<b>DISK DRIVES</b>	
<b>APPLE</b>	
UNIDISK w/catalyst	255.00
Duo Disk w/acc. Kit	425.00
IIc Add On	219.00
<b>MICRO SCI</b>	
A2 143K	152.00
Slimline IIc	152.00
Slimline IIc	159.00
Controller Card	47.00
<b>QUARK</b>	
QC-10 Hard Disk, UNDER	999.00
QC-20 Hard Disk, UNDER	1375.00

### UTILITY SOFTWARE/LANGUAGES

<b>BEAGLE BROTHERS</b>	
Apple Mechanic	15.75
Beagle Basic	18.50
Disk Quick	15.50
Dos Boss	12.25
Double Take	18.00
Extra K	21.00
Fat Cat	18.50
Flex Text	15.50
GPLE	25.50
I/O Silver	15.00
Mini Pix	14.75
Mechanic	20.00
Font Mechanic	15.00
Big U	17.00
Pro Byter	18.50
Prauto Dos	15.00
Silicon Salad	12.75
Triple Dump	20.00
Type Faces	10.75
Utility City	15.25
<b>BORLAND</b>	
Turbo Pascal	35.00
Turbo Toolbox	28.00
Turbo Tutor	20.50
<b>KENSINGTON MICROWARE</b>	
System Saver	57.50
<b>LAZERWARE</b>	
Lisa U2.6	52.50
<b>MICROSOFT</b>	
AppleSoft Compiler	102.00
Premium Softcard IIc	247.00
<b>PERFECT DATA</b>	
Perfect Data Head Cleaning Kit	18.00
<b>QUALITY</b>	
Bag of Tricks	23.50
Bag of Tricks II	28.00
<b>ROGER WAGNER</b>	
Merlin	33.75
Merlin Combo	64.75
Merlin Pro	55.75
Visible 6502	28.50
<b>VIDEX</b>	
Ultraterm w/SS inv.	175.00
Video 7 RGB Interface IIc	93.00
Video 7 RGB Interface IIc	84.00

### TELECOMMUNICATION SOFTWARE

<b>APPLE COMPUTER</b>	
Apple Access II	54.00
<b>COMPUSERVE</b>	
Compuserve Starter Kit	14.00
<b>DOW JONES</b>	
Spreadsheet Link	00.00
Dow Jones Starter Kit	00.00
<b>HAYES</b>	
Smartcom I	69.00
Hayes Terminal Program	54.00
<b>MICROSTUF</b>	
CrossTalk	95.00
<b>QUARK</b>	
Terminus	53.75
<b>SOFTONICS</b>	
Softem II	122.00
<b>SOFTWARE PUBLISHING</b>	
PFS: Access	42.00
<b>SOURCE TELECOMPUTING</b>	
Source Subscription Kit	25.00
<b>UNITED SOFTWARE INDUSTRIES</b>	
Ascii Express Pro (Dos or Pro Dos)	74.00

### BLANK MEDIA

Elephant SS/DD	12.00
Elephant DS/DD	15.50
Verbatim SS/DD	14.50
Verbatim DS/DD	18.50
Memorex SS/DD	14.00
BASF SS/DD	11.00
Maxell SS/DD	14.00



# Hints and Techniques~ inCider's Best

**Creative Apple II Utilities On One Disk!**

Expand your productivity and bolster your Apple II\* power with over two dozen top-notch utilities from **inCider** Magazine's "Hints and Techniques" column.

In just minutes, you and your Apple II will accomplish more tasks than ever before—productivity that until now you've only dreamed of! And you'll do it all with one high-quality disk!

### inCider Favorites That Give You The Edge!

The **hotCider** March edition helps you do everything from setting the control codes on your printer to keeping track of all the files on all your ProDOS disks.

"Hints and Techniques—inCider's Best" features such great favorites as:

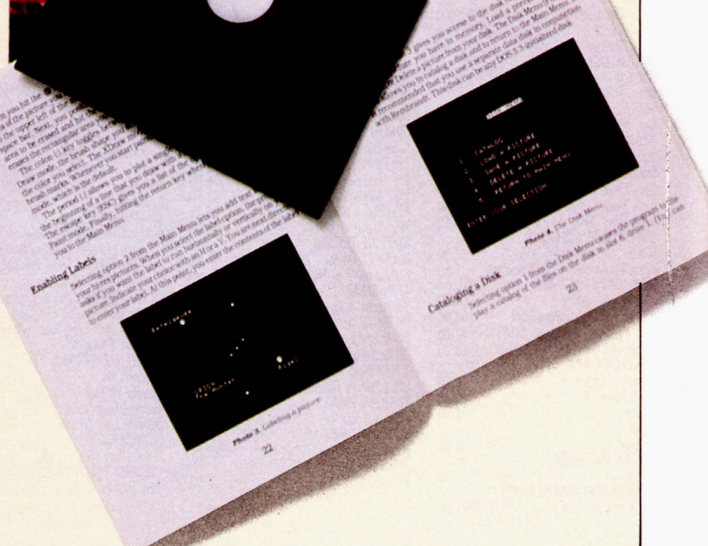
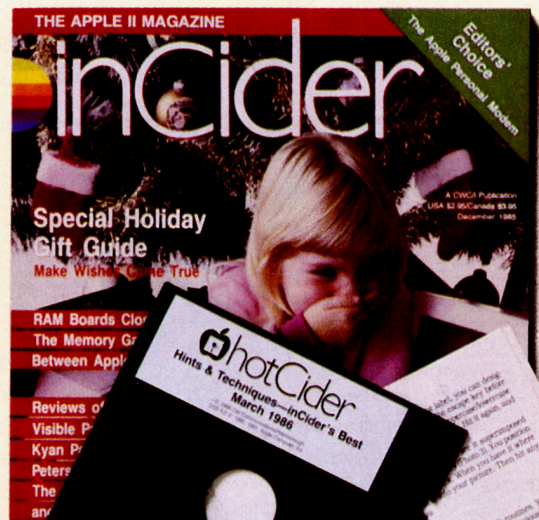
- **Peek to Poke**—convert machine language subroutines and shape tables into Applesoft BASIC.
- **Ditto**—Apple Writer word processing language that lets you **automatically** print multiple copies of your documents.
- **Multiprogrammer**—now you can have three BASIC programs in memory at the same time... ideal for program development and subroutine testing.
- **Ampersand Number Converter**—you've never used a more convenient DEC-HEX converter than this one!

### Greater Productivity is Easy!

And that's just for starters—you'll get nearly two dozen **more** great **inCider** utilities! And with **hotCider's** ready-to-run format and easy-to-read documentation booklet, creative productivity has never been easier. No more time-consuming references to back-issues, and no more painstaking do-it-yourself keyboarding and debugging.

Expand your productivity and your Apple II by expanding your software library today. Simply return the coupon or attached order card, or call **TOLL FREE, 1-800-258-5473**. (In NH, dial 1-924-9471).

\* Apple II is a registered trademark of Apple Computer Inc.



**YES!** I want more productivity!  
Please send me **hotCider's** special new edition\*\* at \$29.97 ea.

Payment Enclosed    VISA    AE    MC

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

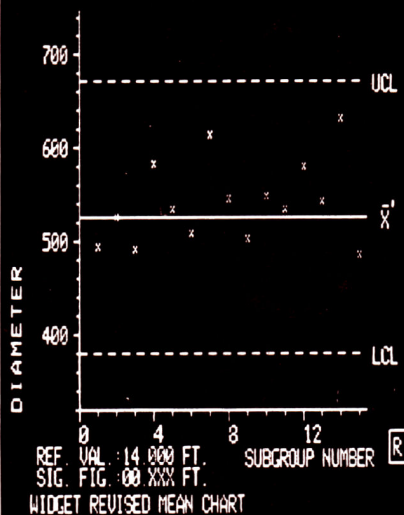
\*\* Available in March 1986

hotCider • 80 Pine Street • Peterborough, NH 03458

3-86



## Would you like to produce quality control charts automatically?



Your charts can look like this with very little effort. Just use **Q.C. PLOT** on any Apple II computer.

You can enter your data by keyboard or use data files stored by a measuring device. Once you have entered the data, simply choose any charts from the screen menu.

### Variable Control Charts:

Mean, Range, Standard Deviation, Individual Values, Subgroup Sums, or Trend.

### Attribute Control Charts:

p, %p, np, c, or u charts.

### Distribution Curve Overlays:

Binomial, Exponential, Hypergeometric, Normal, Poisson Probability Curves.

**Q.C. Plot** also gives you parameter tables, frequency graphs, percentile ranks, data transformations.

Call today between 9 A.M. and 5 P.M. Pacific Time to discuss how to work more efficiently with **Q.C. Plot**.

1-800-451-3030

1-818-993-8536 in CA



**HUMAN SYSTEMS DYNAMICS**

9010 Reseda Blvd., Suite 222  
Northridge, CA 91324



## REVIEWS

controls or characters that can be invoked in WordPerfect, including carriage returns, recursion, and links to other macros. Since a macro with a search command can specify conditional links, WordPerfect is really a programmable word processor. You can execute one macro automatically by booting, so you can reset parameters, download a font to your printer, load a work file, and so on, just by turning on your computer.

### The Power of WordPerfect

If you're considering a word processor, the information you need most—and the information most difficult to obtain—is a list of what the program does not do. For WordPerfect, that list is very short. Except for the multiple-column editing, multiple-file editing, and math capabilities of its IBM counterpart, there is little to ask for. Mouse lovers will be disappointed, but this program has convinced me that a mouse is unnecessary, perhaps even ultimately inhibitive.

The documentation is excellent, as far as it goes. The 330-page ring binder is logically organized and indexed. The reference section devotes at least a page to every command family, to provide a thorough explanation of how each command is invoked and how it functions. I spotted one error: The actual block-move or -copy procedure does not quite correspond to the description in the documentation. Also, more information on handling obscure printer- and interface-configuration procedures would be helpful. The tutorial section is comprehensive, and accessible to a computer novice.

WordPerfect is easy to use, despite its power. Most commands consist of pressing the open-apple or closed-apple key with a numeric key, to produce a short menu, followed by a selection number. A help screen and a template that fits over the top row of the keyboard list all the initial command sequences. You have both the speed of commands and the ease of menus. Dastardly mistakes, like accidentally deleting a page or erasing a file, are difficult, since WordPerfect's commands ask for confirmation.

Speed is WordPerfect's biggest drawback with ordinary Apple floppy-disk drives. It's rather slow on anything larger than three or four pages. Block operations on a large file can take a fairly long time. Even ordinary editing occasionally involves waiting for the disk drive.

With higher-speed memory storage—a RAM disk or a hard disk—speed is no problem. (WordPerfect's program disks are not copy-protected, to facilitate hard-disk installation and backup.) The new UniDisk 3.5, which is faster than a 5¼-inch drive and has a much larger capacity, may well be the ideal solution for many WordPerfect users.

Customer assistance is available by phone during Utah business hours, and by modem at night. In the course of evaluating WordPerfect, I wrote to SSI twice and received helpful, immediate responses from competent representatives. A 50,000-word spelling checker is available directly from SSI for \$30—a real bargain. You can also update the program with future releases for \$25. It's clear that SSI Software is committed to supporting its customers.

It's remarkable how much Apple WordPerfect manages to do within its hardware limitations. Until a faster chip, the 3½-inch drive, and 256K become the new "standard" configuration for Apple IIs, we probably won't do better than this program. Considering the reasonable price of the product, I'd urge any writer who's felt hampered by an inefficient word processor to consider this one. ■

*Dan G. McCartney*  
Roslyn, PA

## Touch Window

### Personal Touch Corporation

4320-290 Stevens Creek Boulevard  
San Jose, CA 95129

Touch-screen monitor add-on

\$199.95 Apple IIe, IIc

\$208.95 Apple II, II Plus

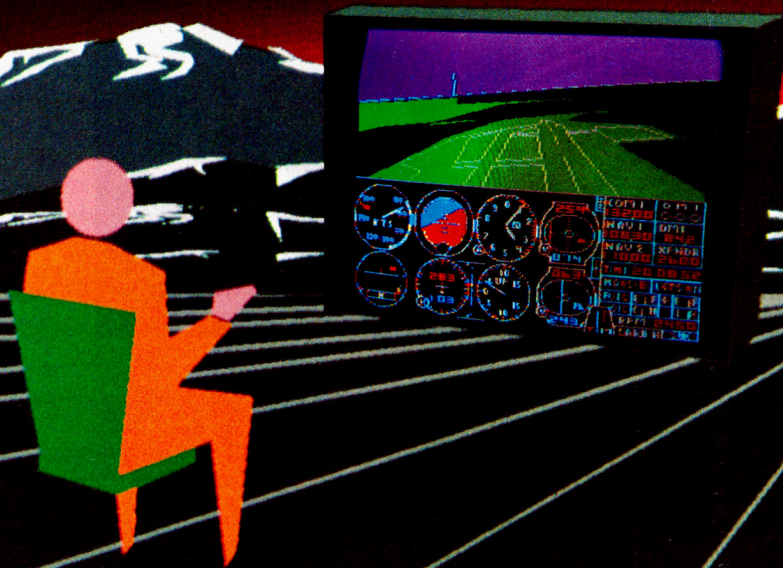
(includes adapter cable)

Ease of setup	★★★★
Ease of use	★★★
Documentation	★★
Support	★★★★
Overall	★★★

Touch Window is a remarkable product in search of software. Velcro® strips mount this transparent touch-sensitive tablet onto an ordinary monitor, converting the Apple II and monitor to a touch-screen system. The software included with the package lacks the hardware's quality, so you probably wouldn't buy the tablet just for the software. Instead, it's useful as demonstration software, best suited to introduce you to the tablet's capabilities. (Check this month's Product Up-

# Flight Simulator II

For Apple II+,  
Apple IIe, & Apple IIc



Put yourself in the pilot's seat of a Piper 181 Cherokee Archer for an awe-inspiring flight over realistic scenery from New York to Los Angeles. High speed color-filled 3D graphics will give you a beautiful panoramic view as you practice takeoffs, landings, and aerobatics. Complete documentation will get you airborne quickly even if you've never flown before. When you think you're ready, you can play the World War I Ace aerial battle game. Flight Simulator II features include ■ animated color 3D graphics ■ day, dusk, and night flying modes ■ over 80 airports in four scenery areas: New York, Chicago, Los Angeles, Seattle, with additional scenery areas available ■ user-variable weather, from clear blue skies to grey cloudy conditions ■ complete flight instrumentation ■ VOR, ILS, ADF, and DME radio equipped ■ navigation facilities and course plotting ■ World War I Ace aerial battle game ■ complete information manual and flight handbook.

**See your dealer . . .**

or write or call for more information. For direct orders enclose \$49.95 plus \$2.00 for shipping and specify UPS or first class mail delivery. American Express, Diner's Club, MasterCard, and Visa accepted.

**Order Line: 800 / 637-4983**

**subLOGIC**  
Corporation  
713 Edgebrook Drive  
Champaign IL 61820  
(217) 359-8482 Telex: 206995

Circle 156 on Reader Service Card.

dates, p. 85, for the latest software for Touch Window.)

Measuring 8½ by 11 inches, this well-crafted product fits on any 10- to 15-inch diagonal monitor or TV. Its pressure-sensitive surface responds to either the touch of your finger or the stylus provided. The tablet plugs into the Apple's game port, and its two buttons correspond to the joystick's fire buttons or the open- and closed-apple keys.

Touch Window employs several modes. With appropriate software, you can use it as an input device for all kinds of data entry—a menu pad or an Interactive Book pad, for instance. Most people, however, will use it as a graphics pad. Again, with the right software you can sketch colorful pictures and designs. Though the vendor suggested removing the tablet from the monitor for drawing, I preferred to leave it on.

You'd think that tracing printed items onto the screen would be easy with a transparent touch screen. Not so. There isn't enough resolution to



*A child practicing letter formation on Touch Window, using Touch 'N' Write by Sunburst.*

do it satisfactorily. It's like using a fat crayon to trace a detailed drawing—the result is hardly recognizable.

You can also use Touch Window with interactive children's games and educational products. An "Interactive Book" that comes with the tablet contains eight screen overlays. The company will no doubt publish others, and you can develop your own as well.

The tablet serves fairly well for some programs requiring a joystick or paddle, but not for others. Joysticks operate in either a "position" or a "rate" mode; Touch Window works with programs using the former, though it doesn't offer any significant advantages.

### The Software

Touch Window's software comes on a "flippy" disk. One side contains TouchWriter I, a word-processing program; TouchGraphics I, a drawing program; Expense Account Manager, a program that tracks employee expenses by letting you use the touch screen to scroll through a spread-

## Finally, an end to the wait for low-cost memory

What You Get	Price	Product	Compatibility
256K plus 80 columns	<b>\$199</b>	ADD-RAM 80/256™	Apple IIe®
64K plus 80 columns*	<b>\$ 99</b>	ADD-RAM 80/64™	Apple IIe
16K	<b>\$ 99</b>	ADD-RAM™	Apple II, II Plus®
80 column screen	<b>\$179</b>	SMARTERM II™	Apple II, II Plus, IIe®

\*can be upgraded to 256K

### ► ADD-RAM 80/256 and ADD-RAM 80/64 Advanced Memory Boards

Until now if you wanted more speed and memory you had to buy another disk drive. Or another computer. Or you could just wait patiently as the disk drive hummed and the red light glowed.

Now, you can get speed and 64K or 256K additional memory by just slipping an ADD-RAM memory board from Advanced Logic Systems into your Apple IIe. Simply back-up your programs onto the ADD-RAM board for faster access to files and applications. And still retain 80 column screen width.

### ► ADD-RAM and SMARTERM II: Rounding Out the Family

To upgrade your Apple II or Apple II Plus from 48K to 64K, take advantage of the original ADD-RAM. Or if memory is adequate, upgrade to 80 columns with SMARTERM II for your Apple II, II Plus or IIe.

Visit your Apple Dealer today to see ADD-RAM and SMARTERM II in action. Or contact us directly.

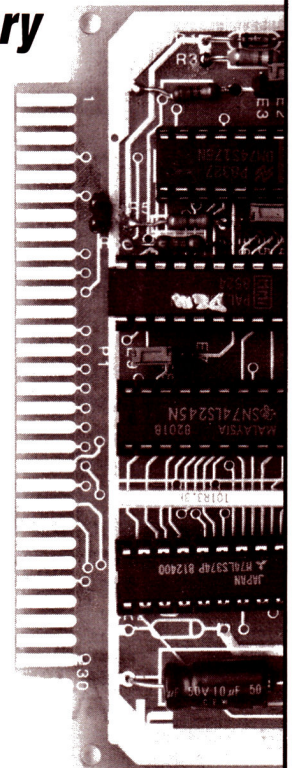
If you knew what we know about our products, you'd be our next customer.

Apple, Apple IIe, Apple II, Apple II Plus are registered trademarks of Apple Computer, Inc.

ADD-RAM 80/256, ADD-RAM 80/64, ADD-RAM and SMARTERM II are trademarks of Advanced Logic Systems, Inc.



Advanced Logic Systems, Inc. 1195 E. Arques Ave., Sunnyvale, CA 94086. (408) 730-0307



sheet or identify cells; a checker game; and The Bishop's Square, a game that moves tiles into sequence. On the flip side is the Interactive Book software.

Most of the programs on the main disk are not especially notable. The most useful and interesting is the TouchGraphics I software, which is so similar to Koala Technologies' Micro Illustrator that comparisons are unavoidable. Each lets you draw freehand or straight lines, create boxes and circles, and fill sections of the screen with a variety of colors. But the Koala product gives you several additional functions, including more pen sizes, magnification, and creation of points, rays, solid boxes, and solid circles. The latter two items are possible with TouchGraphics, though they take two steps each.

Micro Illustrator will work on Touch Window; in fact, I not only preferred Micro Illustrator to TouchGraphics, but I liked it better on Touch Window than on KoalaPad! With Micro Illustrator, you can draw directly on the

screen, and the screen's larger drawing surface helps you draw more freely; drawing on the pad is somewhat artificial—you must use the cursor's position on the monitor as a guide.

The Interactive Book programs are an eclectic lot, featuring something for preschoolers through adults. The most interesting for a group of preteen testers was a map-reading game—appealing because it uses a real map to help you calculate the mileage for a planned trip.

### Complaints

Sold separately (and not evaluated) is the \$49.95 Touch Window Tool Kit, which you can use with your own applications. Although more advanced users can program with the kit's modular assembly-language subroutines, less experienced programmers must rely on the Applesoft PDL function. This could have been one of the kit's most appealing aspects, but the package provides no instructions or examples of using this function.

Touch Window supports only Apple Parallel and Super Serial cards, and four printers—ImageWriter, Scribe, Epson FX-80, and Okidata 92—a significant weak point. Printing didn't work with my Okidata 92 printer/Grappler+ printer/interface-card combination (a common configuration), even though each applications program let me specify my printer type. (None asked about interface cards.) The word-processing program randomly placed blank spaces between characters, and attempts to print graphics with this software hung the system.

### Potential Users

Touch Window might be useful for handicapped users, though it doesn't eliminate all keyboard entry. Compatible products include The Print Shop, The Newsroom, Blazing Paddles, Dazzle Draw, Graphics Magician, Complete Graphics System, Magic Paintbrush, The Factory, and all Koala products, including the Koala Programmer's Tool Kit. If you plan to use one of these packages extensively,

## System Features:

- 24 Line by 80 Character LCD Display
- 8 Hour rechargeable power supply
- 21 lb. total system weight including //c
- Durable Cordura carrying case with handle and shoulder strap



## Check These Low Component Prices:

	LIST	OUR PRICE
• C-VUE Flat Panel Display	\$525.00	<b>\$399.00</b>
• PRAIRIE POWER Battery Pack and Case	\$249.00	<b>\$170.00</b>
• Checkmate 512K Multiram™ CX Board	\$429.00	<b>\$285.00</b>
• Apple //c Computer (only available with any combination order)	\$940.00	<b>\$750.00</b>
• Apple //c Computer and //c Monitor and stand (only available with any combination order)	\$995.00	<b>\$850.00</b>
• 256K DRAM Chip (150 NS)(1 each)	\$ 6.25	<b>\$ 3.55</b>

## Save Even More

### By Ordering These Combinations:


Combo #	SAVE	OUR PRICE
<b>Combo #1</b> • C-VUE Display and PRAIRIE POWER Battery Pack with Carrying Case	\$219.00	<b>\$555.00</b>
<b>Combo #2</b> • C-VUE Display and PRAIRIE POWER Battery Pack with Carrying Case and Checkmate 512K Multiram™ CX Board	\$369.00	<b>\$835.00</b>

## Ordering Information:

**1-800-GET-CVUE** (outside California)  
**(619) 274-1253** (within California & outside U.S.)  
 MasterCard and VISA accepted.

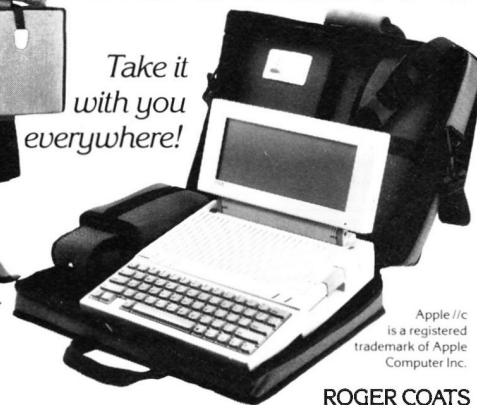


Prices subject to change without notice.

**PUT THE BYTE  
 BACK  
 IN  
 YOUR**  **FIRST  
 TOTALLY  
 PORTABLE  
 APPLE //c**



*Take it  
 with you  
 everywhere!*



Apple //c is a registered trademark of Apple Computer Inc.



Checkmate Technology, Inc.

ROGER COATS  
 P.O. BOX 171466  
 SAN DIEGO, CA 92117

you should consider Touch Window.

Also, if you feel constrained by the KoalaPad's size, Touch Window may be better for you. Touch Window offers some notable advantages over KoalaPad, though its \$200 price compared to the \$125 KoalaPad may hurt sales. The price approaches those of products capable of tracing and drawing at a higher resolution.

If you can afford to pay a little more, though, Touch Window is almost luxuriously larger and far more flexible than the KoalaPad, and it offers the advantage of letting you draw right on the screen. The software isn't much, but most users would purchase Touch Window with other software in mind anyway. ■

**Daniel W. Umberger**  
Reynoldsburg, OH

*Editor's note: Personal Touch says it does not intend the software bundled with Touch Window to be state-of-the-art—it's demonstration software at best.*

## MouseWrite

**Roger Wagner Publishing**  
10761 Woodside Avenue, Suite E  
Santee, CA 92071

Word processor  
Any 128K Apple II,  
mouse recommended  
\$125

Ease of setup ★ ★ ★  
Ease of use ★ ★  
Documentation ★ ★  
Support ★ ★ ★ ★  
Overall ★ ★

MouseWrite makes you wonder if a mouse really adds any convenience to a word-processing program. Nothing is more distracting for a touch typist than having to remove a hand from the keyboard to grab a mouse. It breaks your rhythm and slows down your work.

Suppose you want to use the mouse to delete a word. You move the text pointer to the beginning of the word and click the mouse. Then

you move the pointer to the menu line at the top of the screen, find the Edit selection, and click the mouse again to pull the Edit menu down. Now, move the indicator to the Delete Next Word command in the submenu and click the mouse again. The word finally disappears.

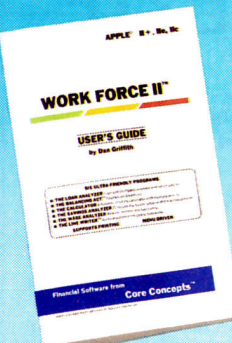
To delete a word with MouseWrite's keyboard commands, you use the arrow keys to move the cursor to the end of the word and hold down the delete key. You can also place the cursor at the beginning of the word and hit the control-D key combination to make the word vanish. Isn't that much easier than using the mouse?

Another problem with mouse-dragged menus is that the proliferation of menu choices can be a little confusing for a first-time user. It takes a while to get used to the system. Since the menu functions can be duplicated by keyboard commands, the long process of using the mouse seems cumbersome when pressing two keys simultaneously does the same job.

There's nothing MouseWrite does with a mouse that it can't do with keyboard commands. In fact, the mouse is only a recommended piece of equipment. Once you've memorized the basic set of keyboard commands, you can work quite rapidly without recourse to the mouse.

Obviously, the purpose of the mouse is to make memorization of commands unnecessary. But you can make the mouse itself unnecessary by creating a "cheat sheet" of the commands you use often, and keeping it in that half-foot square of your desk-top where you'd otherwise be pushing your mouse. After you've used the system for a while, you won't even need the cheat sheet.

The mouse aspect aside, MouseWrite is an adequate word processor with more features than you'd expect for \$125. It has all the text-handling, printing, and formatting functions you need for professional or educational applications. Revisions, reorganization, and rewrites are easy. And since you use keyboard (or mouse) commands rather than embedded codes to arrange your document (tab setting, paragraph indentation, and centering, for example), text entry is smooth and rapid. MouseWrite also anticipates the idiosyncracies of many different types of printers—the program is especially versatile in this respect.



## WORK FORCE II™

"A Valuable, Indispensable Tool..."

Business Section, The San Francisco Independent

Six Financial & Productivity Programs on one disk. Menu driven, ultra friendly, powerful. Compatible with the IBM PC, XT, AT, jr, true Compatibles, and the Apple IIc, IIe, II+, II.

THE LOAN ANALYZER:

Display or print loan amortizations starting or stopping at any period. Begin loans in mid-year. Work Force II is used by banks, CPA's, and real estate professionals across America. Work Force II will find:

• Balloon Payments	• Yearly Total Interest	• Unknown term
• Payment Amount	• Negative Amortization	• Total Interest & Payments
• Amount which can be Financed	• Present Value of Capital Leases	

THE LINE WRITER™:

Line-at-a-time correctable typewriter. Makes envelopes, forms, memos, and labels a snap. Faster and easier to use than your word processor.

THE BALANCING ACT™:

Unique checkbook balancing system. No need to enter every check & deposit. Change entries, add entries, or print entries. A few minutes each month does it all.

Full Function Printing Calculator — Wage & Income Analysis

Future Value of Savings, Investments, IRA's

Greg Glau, InCider "Borrowing money is no problem with the loan analysis section to guide you. Work Force II is easy to understand and operate. It's an honest value..."

Les Schmeltz, MICRO-TIMES: "WORK FORCE II may be one of the best bargains around."

Call Toll Free

ORDERS ONLY

1-800-525-CORE

30 DAY

MONEY-BACK

GUARANTEE

Apple is registered trademark of Apple Computer. IBM is a registered trademark of International Business Machine

Rush me WORK FORCE II for the Apple at \$39.95

Rush me WORK FORCE II for the IBM at \$47.95 (prices include shipping)

check or money order    VISA    MC    AE    COD (add \$4.00 for COD)

Arizona residents add 6.5% Sales Tax. Overseas add \$5.00

Card # \_\_\_\_\_

Signature \_\_\_\_\_ Valid From \_\_\_\_\_ to \_\_\_\_\_

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

**Core Concepts**

P.O. Box 24157 Tempe, AZ 85282

AZ residents & inquiries call (602) 968-3756



# APPLIED ENGINEERING INTRODUCES THE TRANSWARP™ ACCELERATOR

## The Fastest Apple Accelerator Available

TransWarp is the new accelerator card from Applied Engineering. With a TransWarp card in your Apple II, II+, or IIe all software will run up to 3.6 times faster (3.1 times faster is average). TransWarp works with all Apple software including AppleWorks, SuperCalc 3a, Visicalc, and all educational software, graphics and games. TransWarp is compatible with all standard peripheral cards such as Ramworks II and Apple memory cards, Profile and Sider hard disks, 3½" UniDisks, 80 column cards, modems, clock cards, mice and more. You name it, TransWarp accelerates it! Should 16 bit software become available for the Apple, you can get a low cost 16 bit upgrade chip at any time.

## Why TransWarp Is Best

The other speedup cards only speedup your Apple's main memory, but TransWarp has 256K of ultra-fast RAM that accelerates your Apple's main memory, ROM memory and auxiliary memory. And since more and more programs are residing in auxiliary memory, TransWarp can run these programs 3 times faster than the competition. TransWarp doesn't use memory caching, which means TransWarp accelerates all software.

## It Couldn't Be Easier

Just plug TransWarp into any slot in your Apple II, II+, or IIe, including slot 3 in the IIe. Just turn on your Apple and zoom... off it runs 3½ times faster. Should you ever want to run at normal speed, just press the ESC key while turning on your Apple. No pre-boot disks are needed. In fact, no software comes with TransWarp because none is needed as the TransWarp acceleration is completely transparent.

**All for only \$279.**

- 3.6 MHz 65C02
- 256K of ultra-fast on board RAM
- Accelerates main and auxiliary memory
- Low power design for cool operation
- Totally transparent operation with all software
- Plugs into any slot including slot 3 of an Apple IIe
- Accelerated 16 bit option available

TransWarp will make you more productive (3½ times more productive, in fact) because your spreadsheets will recalculate faster, and your word processor will move text in the blink of an eye. Accounting, engineering, educational, tax analysis, and even games will all have warp speed.

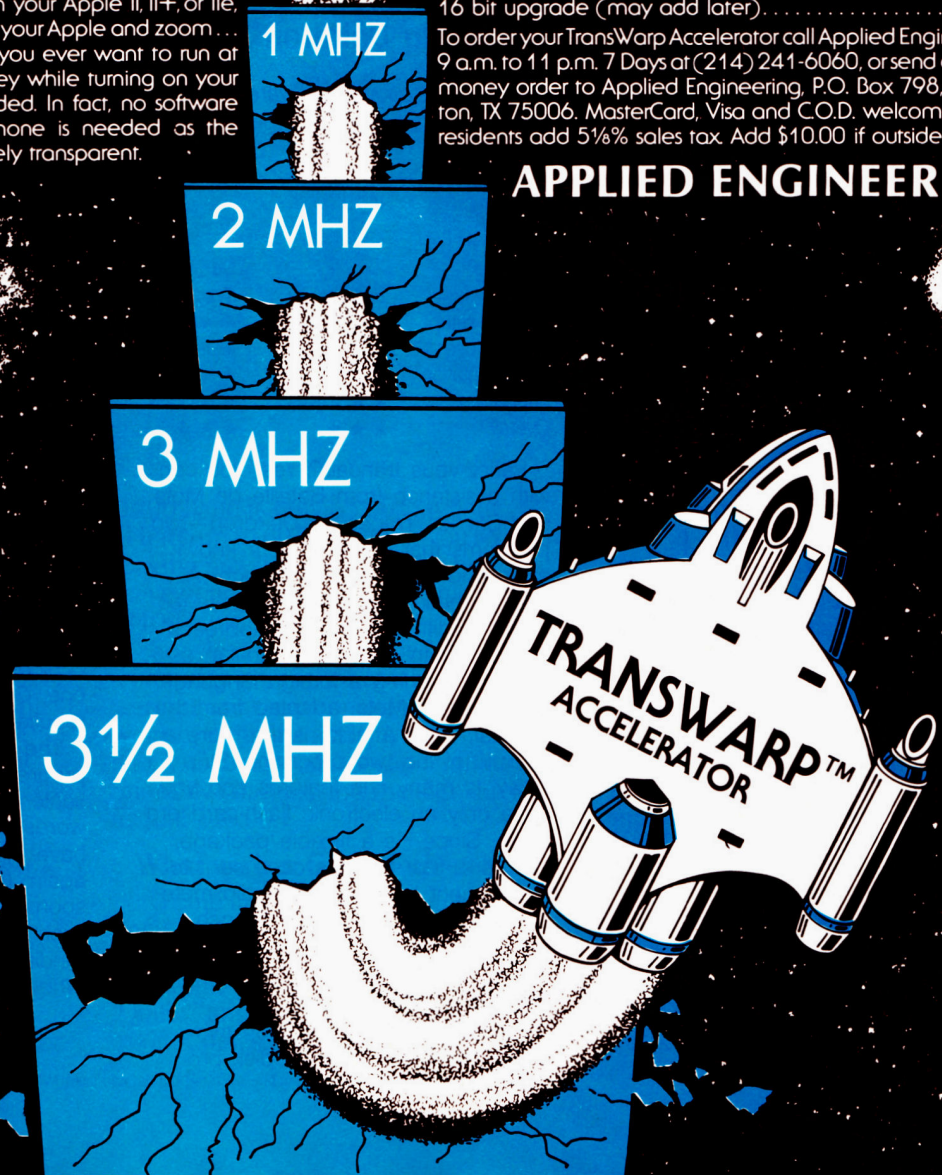
With a TransWarp card in your Apple, you'll easily pass by others using IBM PC's and AT's. In fact, you'll have one of the fastest computers in the galaxy and although TransWarp leaves the competition in the dust, it's still priced far lower, at only \$279.

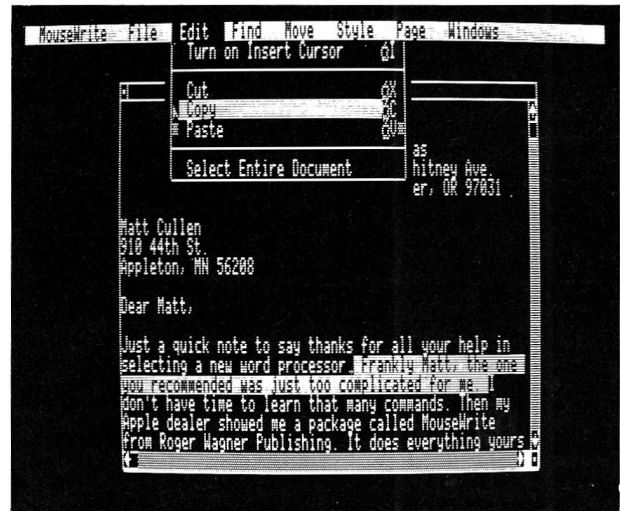
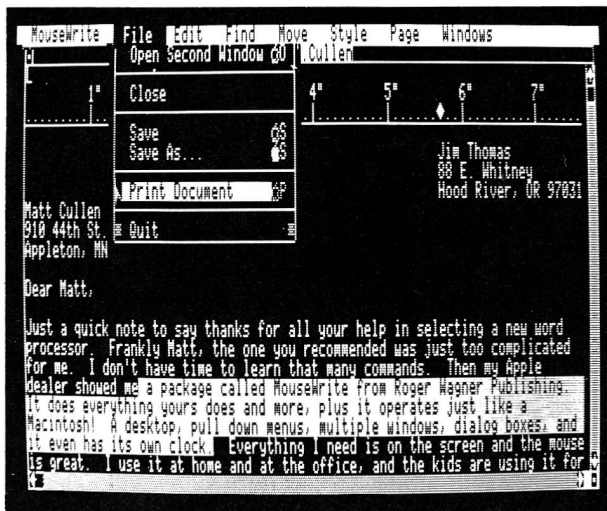
So the next time you're waiting for your computer to finish, give Applied Engineering a call and we'll beam you a TransWarp accelerator card. With our risk free 15 day money back guarantee, you have nothing to lose, except a lot of wasted time.

TransWarp™ Accelerator ..... \$279  
16 bit upgrade (may add later) ..... \$89

To order your TransWarp Accelerator call Applied Engineering, 9 a.m. to 11 p.m. 7 Days at (214) 241-6060, or send check or money order to Applied Engineering, P.O. Box 798, Carrollton, TX 75006. MasterCard, Visa and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 if outside U.S.A.

## APPLIED ENGINEERING





MouseWrite features Mac-like pull-down menus for editing and formatting.

MouseWrite's most likable quality is the way it operates like a typewriter. There's a scale (called the ruler) at the top of the 80-column workspace that makes it easy to set margins. The ruler and the text window below it have the friendly and familiar look of a page of paper in a typewriter. You can easily get a feel for what the finished document will look like.

The documentation is divided between tutorial and reference sections. Experienced word-processor users would probably be more comfortable learning the system from the reference material and index rather than the tutorial, which is directed toward the needs of first-time users.

The real problem with MouseWrite is the mouse. Let's hope MouseWrite makes a reappearance someday as a straight word processor without any gimmicks. ■

**Brian J. Murphy**  
Fairfield, CT

*Editor's note: We liked MouseWrite more than Brian Murphy did—it was our Editors' Choice in July 1985 (p. 112). The Macintosh-style interface, as implemented in MouseWrite and other new Apple II software, means more than merely moving the cursor with a mouse. For example, the Mac interface requires that every command be available at all times on the screen display. Look for a detailed review of Mac-style software in April's inCider.*

## Bataille de Mots and Snooper Troops: Sur les Traces du Deirdron

*Gessler Educational Software*

900 Broadway  
New York, NY 10003

Educational game  
Any Apple II  
\$49.95 each

	Bataille	Sur les Traces
Ease of setup	★★★★	★★★
Ease of use	★★★★	★★★
Documentation	★★	★★
Support	★★	★★
Overall	★★★	★★★

Parlez-vous francais? Yes, you can with assistance from Bataille de Mots and Sur les Traces du Deirdron—two programs that enhance your knowledge and enjoyment of French. Although these two software packages entertain different learning approaches, they both emphasize the fun aspects of learning a foreign language.

Bataille de Mots, adapted from the popular Word Attack!, is the more academic of the two programs. Strip away its many fine features and you have only an electronic flash-card program. Since it's a flexible package, teachers and students can use it to supplement the text and audio materials associated with most French courses.

### The French Connection

Bataille de Mots comes on two disks. The main program disk pro-

vides an introduction and a built-in editor that lets you create your own vocabulary lists for tailor-made games. Somewhat crude and outdated, the editor uses dot commands (such as .s for save) and control codes for capitalizing letters. Apple //e and //c users may find this method unwieldy.

The data disk contains 18 preprogrammed word lists. It also contains three lists (nouns, adjectives, and verbs) in six topics: dining, sports, trips, school, jobs, and daily life.

Each topic contains four learning activities. The conventional flash-card-type word display shows you up to 25 words—each used in a French sentence and provided with its English translation. A multiple-choice quiz helps you pick out the French/English equivalents.

The sentence-completion activity is the real challenge. Based on the context of the sentence, you must fill in the blank with the correct noun, verb, or adjective. Press the H key for help. The program offers you four choices; you type in the appropriate one. Control codes let you insert the required accents.

The program times and rates your progress in the multiple-choice and sentence-completion sections. Missed words are listed at the end, and you have the opportunity to try the lesson again. For reinforcement, correct responses elicit ego-boosting accolades such as "superbe" and computer renditions of various French songs. When was the last time your teacher

# GE introduces GENie. Your low cost way to get on-line, and stay there.\*



Imagine having access to quality personal computing SIGs, software, CB simulation, E-Mail and games at 1200 baud. But paying only a 300 baud rate.

## Here's GENie™!

GENie stands for the General Electric Network for Information Exchange. It's a part of General Electric Information Services — the world's largest commercial tele-processing network. And now the power of GENie is available to the home computer user.

## Now! Up to 2400 baud.

GENie can take you to new highs in speed and keep you there. Because our non-prime time rate for 300 or

1200 baud is only \$5.00\* an hour. That's up to 60% less than you're paying now. Or, you can go where few have gone before — with GENie's new 2400 baud service.\*\*

So when you're wrapped up in a computer group, or heavily into serious conversation, you can keep your eyes on the screen, not on the clock. (More good news: no minimum monthly charges, and the sign-up fee is just \$18.00.)

## What wishes Can GENie grant?

GENie has most everything. Including LiveWire™ CB simulator, RoundTable™ SIGs, bulletin boards, GE Mail™ classic games like Castle-Quest™ and BlackDragon™ conference rooms, newsletters and more.

## Sign up from your keyboard: 1-800-638-8369.

Just have your VISA, MasterCard or checking account number ready. Set your modem for half duplex, 300 or 1200 baud. Upon connection enter HHH then press RETURN. At the U#= prompt enter 5JM11960, GENIE and press RETURN. (For additional information or assistance call 1-800-638-9636, ext. 21.)

Then get on-line with GENie. And stay longer, for less.



## INFORMATION SERVICES

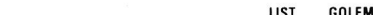
General Electric Information Services Company, U.S.A.

\*Rate applies to 300 or 1200 baud, Mon.-Fri., 6PM to 8AM, local time, all day Sat., Sun. and nat'l holidays. Subject to service availability. \*\*Additional hourly surcharge applies to 2400 baud service.

# GOLEM COMPUTERS

\*\*\*\*\*  
**APPLE**  
**SOFTWARE/HARDWARE**  
**AT SUPER SAVINGS**  
 \*\*\*\*\*

PLACE ORDERS TOLL FREE  
 1-800-345-8112  
 PA 1-800-662-2444



	LIST PRICE	GOLEM PRICE
<b>HARDWARE SPECIALS</b>		
212 APPLE CAT II SYSTEM (NOVATION)	365.00	
MICROMODEM IIE/SMARTCOM I (HAYES)	135.00	
SMARTMODEM 300/SMARTCOM IIC (HAYES)	155.00	
SMARTMODEM 1200 RS-232 (HAYES)	374.00	
PROMODEM 1200A W/SOFT (PROMETHEUS)	284.00	
PROMODEM 300C IIC (PROMETHEUS)	135.00	
MACH III JOYSTICK W/FIRE BUTTON (CH PROD)	32.00	
BUFFERED GRAPLER + (ORANGE MICRO)	136.00	
PRINTER KX-1091 (PANASONIC)	242.00	
PRINTER MSP-10 (CITIZEN)	250.00	
DISK DRIVE SLIM IIC (MICROSCI)	165.00	
MONITOR VIDEO 300A AMBER (AMDEK)	127.00	
BLANK MEDIA SS/DD 10 (GOLEM)	11.00	

<b>EDUCATION</b>		
TYPING TUTOR III	49.95	29.70
MATH BLASTER!	49.95	29.70
TURBO TUTOR	34.95	23.10
MASTER TYPE	39.95	23.60
MIND PROBE	49.95	29.70
WORD ATTACK!	49.95	29.70
WHERE IS CARMEN SAN DIEGO	39.95	23.65

<b>HOME</b>		
DOLLARS AND SENSE II-/Ile 64K	100.00	59.00
DOLLARS AND SENSE Ile/Ile 128K	119.95	66.00
CROSSWORD MAGIC	49.95	30.10
NEWSROOM	49.95	29.70
CLIP ART VOL. 1 FOR NEWSROOM	29.95	18.20
MICROCOOK BOOK	40.00	23.60

<b>UTILITIES</b>		
THE PRINT SHOP	49.95	29.60
THE PRINT SHOP GRAPHICS I, II	ea. 24.95	14.25
SIDEWAYS	60.00	33.00
TURBO PASCAL	69.95	41.35
TURBO TOOLBOX	54.95	35.20
CROSSTALK	195.00	138.70

<b>WORD PROCESSING</b>		
SENSIBLE SPELLER IV	125.00	66.00
HOMEWORD	125.00	70.00
PFS: WRITE Ile	125.00	70.00
BANK STREET WRITER	69.95	41.30
BANK STREET SPELLER	69.95	41.30
WORDSTAR	350.00	197.90

<b>BUSINESS</b>		
PFS: REPORT, FILE, GRAPH	ea. 125.00	70.00
BACK TO BASICS ACCT. SYS. IIC	195.00	97.90
THINK TANK	150.00	80.00
BPI GA. AP. AR PAYROLL (PRO DOS)	ea. 425.00	250.00

<b>RECREATION</b>		
GATO	39.95	23.35
SARGON III	49.95	29.70
FLIGHT SIMULATOR II	49.95	31.90
WISHBRINGER	39.95	23.35
SPY HUNTER	44.95	26.65
KARATEKA	39.95	21.00
F-15 STRIKE EAGLE	34.95	21.00
ZORK I	39.95	23.35
ZORK II, III	ea. 44.95	26.65
LODE RUNNER	34.95	21.00
ULTIMA II, III	ea. 59.95	35.50
WIZARDRY	44.95	29.70
HITCHHIKERS GUIDE	39.95	23.60
LEGACY OF LLYLGAMYN	39.95	23.60
KNIGHT OF DIAMONDS	34.95	20.90
KING'S QUEST	49.95	29.60
DRAGON WORLD	39.95	23.60

PLACE ORDERS TOLL FREE  
 1-800-345-8112 • PA 1-800-662-2444

ALL ITEMS SUBJECT TO AVAILABILITY  
 PRICES SUBJECT TO CHANGE WITHOUT NOTICE  
 \*\*\*\*\*

To order call toll free or send check or money order VISA/MC/C.O.D. orders welcome. Personal and company checks allow 10 working days to clear. Specify if to backorder or to send refund. California residents add 6% sales tax. Include phone number with order. Shipping and handling: All shipments U.P.S. if possible. Continental U.S. add \$2.50 for 1 to 3 items. 4 to 6 items add \$5.00. APO, FPO Alaska, Hawaii and Canada add \$3.00 per item. 2nd day air add \$3.00. All hardware purchases are prepaid or VISA/MC shipped U.P.S. - include 5% for shipping & handling. C.O.D. orders all \$1.90. Mail orders to:

**GOLEM COMPUTERS**  
 P.O. BOX 6698 • WESTLAKE VILLAGE, CA 91359  
 Apple is a trademark of Apple Computers, Inc.

# REVIEWS



Sur les Traces du Deirdron promotes the development of learning skills along with French vocabulary.

hummed a refrain from *La Marseillaise* when you answered a question correctly?

The fourth learning activity, *Bataille de Mots*, is a self-paced arcade game. A carefree French sprite flips his beret in the air and zaps the French word that most closely matches its English counterpart at the bottom of the screen. You can use the keyboard or joystick for this activity.

The documentation—both written and on screen—is in English. This isn't the case when you open the *Sur les Traces du Deirdron* package—the user's manual and disk material are in French.

### Interpretations

Some things are lost in translation, they say. But in this version of *In Search of the Most Amazing Thing*, only the names have been changed to reflect French *savoir faire*. Uncle Smoke Bailey, your mentor, is now Uncle Archibald Aquin. The B-liner, the vehicle you maneuver in search of the Secret of the Universe, is now *l'Astrovelle*.

As in the English version, the monetary system is based on colored chips. You must use your chips wisely to purchase the equipment, supplies, and software you need to bargain with the people of the Darksome Mire. Once you locate *le Deirdron*, its location changes so that you can play the game again.

Like its English precursor, *Sur les Traces du Deirdron* encourages the development of problem-solving, decision-making, and mapping skills. The *pièce de résistance* for American explorers is the foreign-language reading comprehension and vocabulary development this French version nurtures. ■

Cynthia E. Field  
 Wakefield, RI

## MicroExpert

McGraw-Hill Book Company  
 Professional and Reference Division  
 1221 Avenue of the Americas  
 New York, NY 10020

Expert-system generator  
 Any 64K Apple II, 80 columns,  
 disk drive  
 \$49.95

- Ease of setup ★★
- Ease of use ★
- Documentation ★★
- Support ★
- Overall ★

Those of you who fear losing your jobs to expert systems may find some comfort in the knowledge that although this may still happen, it won't happen because of *MicroExpert*.

Despite first appearances, *MicroExpert* is not an expert system itself—it's a tool for developing expert systems. That is, the product is designed to help you build a knowledge data base and a series of questions and logical deductions that will let someone else access this knowledge. The license agreement prohibits the distribution of any expert system developed with *MicroExpert* without written permission from McGraw-Hill, and perhaps a fee. This severe limitation may be a blessing in disguise, however, for any expert system you create with this product will almost certainly be awkward and unrefined.

*MicroExpert* supports only one decision structure—the if...then conditional. In other words, to reach any conclusion with the system, you must answer a series of biconditional questions. Although this works for the four demonstration problems, most real-world applications require more complex decisions. Even a simple question like "What color is the traffic light (red, green, or yellow)?" is beyond the capability of this system without writing a complex chain of IF...THEN statements.

You can modify *MicroExpert* to include your own routines. To do this you must first obtain a copy of the Apple Pascal compiler (it's not supplied with the package, and it costs an extra \$250), then write your own utilities. Programmers this adept at working with Pascal, however, should be able to construct their own expert systems with no help from *MicroExpert*.

# Wouldn't you like your Apple® II to work as simply as your appliances do?

*SwyftWare™ gives you an amazingly easy, blindingly fast way to write, file, communicate, and calculate. For \$89.95.*

You've never seen an Apple IIe do word processing, filing, communicating and calculating the way it does with a SwyftCard.

Steve Wozniak calls it revolutionary, adding "If I had thought of the SwyftCard while creating the Apple II, I would have built it in." Fomenting revolutions comes naturally to SwyftCard inventor Jef Raskin, whose previous efforts to make computers simple and useful include creating the Macintosh™ project at Apple.



SwyftCard creator Jef Raskin and Apple II creator Steve Wozniak

## SwyftCard transforms the Apple IIe into the computer it ought to be.

The SwyftCard creates a 40K-byte working space, or "universe," capable of holding about 20 pages of single-spaced text. The universe accepts whatever you put in — text, numbers and data, in any form you choose, without you having to switch programs or modes.

Throughout your workday, you can enter information into the universe in free form: a report, names and addresses, daily to-do list, new telephone numbers, client list — anything you're working on.

A universe resides in memory while you are using it, and when you are done you save it to a disk. An unlimited number of universes can be created, each kept on a separate disk.

The secret to working in a SwyftCard universe is the patent-pending cursor. It works faster than control keys or a mouse, and doesn't make you take your hands off the keyboard.

SwyftCard is a better solution to your day in, day out word processing and data management needs. It is faster, easier and more useful.

## How much faster is SwyftCard?

From a power-off start, SwyftCard loads a universe and displays exactly where you were last working in just six seconds, automatically, with no commands.

SwyftCard finds and displays any piece of information in your universe in less than 300 milliseconds.

SwyftCard saves an entire universe to a disk in just eight seconds, including automatic formatting if necessary.

## How much easier is SwyftCard?

For all it does, SwyftCard uses only seven commands. And each is available immediately by pressing a single key once.

To start using SwyftCard, simply plug the card into Slot 3 (which most other cards can't use), turn the Apple IIe power on, wait six seconds and begin typing.

To use an Apple program, just load it in; SwyftCard turns itself off and won't interfere.

## How much more does SwyftCard do?

SwyftCard communicates with data services without you having to learn their editors, and lets you directly edit information you bring in without special commands or file transfers.

SwyftCard is great with numbers, performing calculations — including scientific work — anywhere in your universe.

Using the SwyftCard-ProDos utility disk, which is included, you can transfer information developed in SwyftCard to other programs, and vice versa.

SwyftCard is not a spreadsheet, nor will it do everything for everybody. But no other system delivers the common sense utility of SwyftCard.

Of course, SwyftCard comes with a complete manual and an on-screen tutorial.

## Try SwyftCard for 30 days.

Everyone we've shown this ad to has said SwyftCard sounds too good to be true. Maybe you feel that way too. But everyone we've then shown the SwyftCard to says it's better than the ad claims. So we want you to try it at our risk.

If we sent you product literature or tried to answer your questions by phone,

we would just repeat this ad. The only practical way to find out if SwyftCard will help you is to accept the 30-day, no questions asked, money-back trial offer. If you don't like your SwyftCard, return it within 30 days and we'll send you your money back.

To order, call us at:

**800-982-5600 in the U.S.  
800-562-7400 in Calif.**

### Computer system requirements

Apple IIe, regular or extended 80-column card, 80-column monitor, one disk drive with controller. For communications: 300 or 1200 baud modems and Super Serial card. To transfer data between SwyftCard and Apple programs with ProDos utility: extended 80-column card or two drives. To print: any Apple, Brother, C.Itoh, Centronics, Epson, HP, NEC, Okidata, Panasonic, Qume, Star, Toshiba and most other printers.

Apple is a registered trademark of and Macintosh is a trademark licensed to Apple Computer Inc.

**Order SwyftCard on a 30-day money-back trial offer. Call toll-free:  
800-982-5600 in the U.S.,  
800-562-7400 in California. Or use this coupon.**

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_\_) \_\_\_\_\_

Send \_\_\_\_\_ SwyftCards at \$89.95\* plus \$3.50 U.S. or \$10.00 foreign shipping and handling each, totalling \$ \_\_\_\_\_ I prefer to pay as follows:

My check or money order is enclosed (payable to Information Appliance Inc.)

Please bill my credit card account:  
 Visa  MasterCard

Card # \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

\*California residents please add \$6.30 for sales tax.

Mail to: Information Appliance Inc.,  
1014 Hamilton Ct., Menlo Park, CA 94025

**Information  
Appliance Inc.**

**Now available for the Apple IIc**

One of the most maddening things about MicroExpert is the package hype, which loudly proclaims that you've supposedly purchased a program that can "organize your knowledge, solve your problems, test your new ideas, answer your ifs, whys, and hows." Instead, you get a poorly printed 81-page manual and two disks of digitized snake oil—a simplistic Pascal program and a stripped-down version of the UCSD p-System. And to add to your despair, the documentation doesn't list a telephone number for technical support. You might expect this sort of thing from some home-brew software operation, but not from a publisher the size of McGraw-Hill.

Systems like MicroExpert are potentially effective learning tools for students of artificial intelligence, but this particular product is not geared for AI novices. You'd certainly learn more by reading a good magazine article on AI—or even by watching reruns of *Star Trek*. MicroExpert is unsophisticated and of no practical value—its

single redeeming feature is that the disks aren't write-protected, so you can use them to store back-up copies of Missile Command. ■

*James McKelvey*  
London, England

## Real Estate Analyzer

**HowardSoft**  
1224 Prospect Street  
Suite 150  
La Jolla, CA 92037  
Investment software  
Any 64K Apple II  
\$295

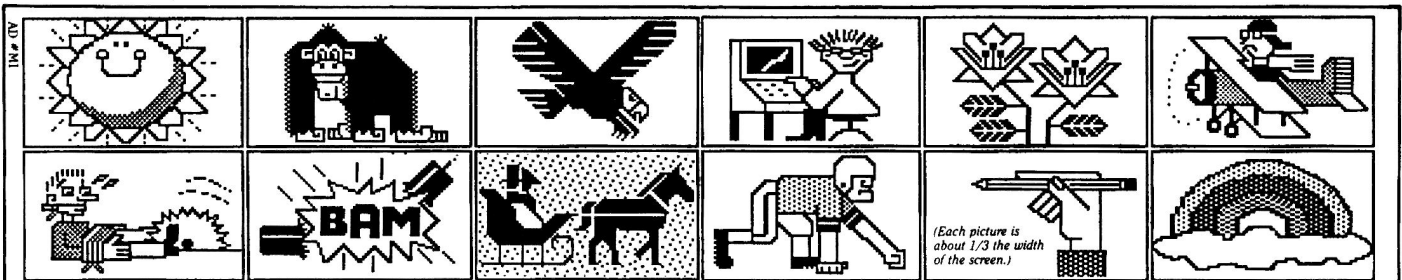
Ease of setup	★★★
Ease of use	★★★
Documentation	★★★
Support	★★★
Overall	★★★

Real Estate Analyzer can't infect you with a love of the land, nor can this newly updated software point you toward successful investment properties. But Real Estate Analyzer can

perform the tedious computations essential to the preliminary process of screening property. In less than 15 minutes, you can see the results of various cash-flow and return-on-investment (ROI) analyses for any piece of real estate.

Like title attorneys and mortgage lenders, HowardSoft commands an apparently steep price for its services. Yet, if you're an investor who considers hundreds of properties a year, it will cost you less than the price of a candy bar to analyze each lot, condo, or hotel. When even just applying for a mortgage sets you back more than \$200, Real Estate Analyzer is a bargain.

The 16-chapter manual is a primer on the financial aspects of investing in real estate. Studying this manual will help you use Real Estate Analyzer to its full potential. The book includes tutorial and reference sections, and chapters dealing with real-estate tax law, creative financing, partnerships, and new construction projects. Chapter 7 contains worksheets you can reproduce on a copier or ditto machine.



# MINIPIX!™ 200 Pictures on Disk Compatible with anything that's Apple®

**The Print Shop™** Minipix has 200 pictures for all occasions, ready to be used on your printed greeting cards, banners and signs.

**Shape Mechanic and Apple Mechanic™** Use Minipix as shape tables, and jazz up scenes and screens created with Beagle's animation programs.

**ProDOS drawing programs like MousePaint™** Pictures may be loaded from disk as normal unprotected hi-res files. Use them "as is" or make changes.

**DOS 3.3 drawing programs like Alpha Plot™** Add our pictures to yours! Our *Beagle Graphics* disk will even convert Minipix pictures into double hi-res.

The Print Shop is a trademark of Broderbund Software, Inc.



3990 Old Town Avenue, San Diego, California 92110  
Minipix works on any Apple II+, IIe or IIc; DOS 3.3 and ProDOS.  
AVAILABLE AT MOST SOFTWARE STORES or by mail:  
Visa, MasterCard or COD orders, phone toll free  
1-800-227-3800 ext. 1607

Get creative with Minipix's picture editor. It even lets you make Print Shop compatible graphics from your own hi-res pictures!



MAKE INSTANT MIRROR IMAGES AND NEGATIVES



MAKE S-T-R-E-T-C-H-E-D PICTURES AND BLOWUPS

**\$29.95 Friendly and unprotected** Minipix is "unlocked" and compatible with all Apple II's. Like all Beagle disks, you can make backups without hassle or special software.

Apple, ProDOS and MousePaint are trademarks of Apple Computer, Inc.

These forms parallel the ones you see on screen when you use Real Estate Analyzer.

Before starting the program, you must gather information about each property (purchase price, market value, original equity), loans (amount, interest rate, type), capital expenses and depreciation (starting date, basis, method), monthly income, and scheduled expenses (taxes, utilities, condo fees, and so on). That's the easy part.

The grit-your-teeth-and-hope-for-the-best worksheet is the Assumptions for Analysis form. This is the true test of your prowess as an investor. You have to be pretty astute to predict future inflation rates and property-value appreciation.

Real Estate Analyzer prints reports in any number of formats, depending on your needs or your lender's or partner's needs. The program can professionally package all reports with an impressive title page.

#### The Bottom Line

With reports in hand, you can readily compare two or more properties or

perform "what if" analyses on the same property. For instance, Real Estate Analyzer will show you the short- or long-term effects of choosing one type of mortgage over another.

The Cash Flow Analysis section looks at operating income, expenses, and debt service. From here, Real Estate Analyzer moves a giant step further. The program takes pretax cash flow, calculates depreciation, investment tax credits, and income-tax payments, and presents you with the bottom line—the after-tax cash flow.

Such tax avoidance (not evasion) is what the real-estate game is all about for some folks. And because Uncle Sam frequently changes his mind about things like the useful life of a property and methods of depreciation, HowardSoft offers reduced-price updates of Real Estate Analyzer.

The ROI Analysis section takes a longer-term view. It looks at your pretax and after-tax profits on selling the property, and calculates investment attributes like capitalization rate, cash on cash, and net present value. After-tax rates on return include the classic

return on original equity, the internal rate of return, and the financial-management rate of return.

Depending on your system's working memory, you can project both cash flow and ROI analyses for up to 30 years into the future.

Real Estate Analyzer gives each property a file name, under which it conveniently stores the data and analyses for each property for later editing or printing. Two drives aren't necessary, but they make the program more convenient.

Real Estate Analyzer is written under a modified DOS 3.3 called Diversi-DOS. Although you can copy the program, you can't install it on an exclusively ProDOS hard-disk drive.

You could reproduce most Real Estate Analyzer features with a spreadsheet program and word processor, but only after considerable effort. If your love of the land surpasses your love of computing, Real Estate Analyzer may be the silent partner you've been looking for. ■

Cynthia E. Field  
Wakefield, RI

# kyan

## SOFTWARE for the Apple II Family...

**kyan pascal (Version 2.0) for the Apple . . . . . \$69.95**

**kyan pascal** is a ProDOS-based compiler for the Apple II. It's a full Jensen-Wirth/ISO implementation, designed for both beginning and advanced programmers. It's easy to use, lightning fast, and loaded with features like:

- Optimized 6502 machine code compiler/assembler ■ Full screen 40/80 column text editor
- String handling and hi-res graphics, ■ Support for source code linking, chaining, and random files, and inline or included assembly source code, and ■ 13 digit arithmetic precision ■ kyan's unique UNIX-like operating environment. ■ **kyan pascal** requires only 64K of memory and single disk drive. A CP/M card is not required.

**Programming Utility Toolkit . . . . . \$49.95**

Makes program development faster and easier. This toolkit includes utilities to generate random numbers, load binary files, sort lists, plus utilities for disk directories, catalogues, and other file management functions.

**MouseText Toolkit . . . . . \$49.95**

Adds Macintosh-like graphics to your programs! This toolkit includes routines to add windows, pull-down menus, and mouse-controlled cursor movements to your programs.

**Advanced Graphics Toolkit . . . . . \$49.95**

Adds stunning hi-res and double hi-res graphics programs! The graphics primitives let you develop your own custom graphics. Or, you can use the library routines with windows and clipping, shading, curves, and 2 and 3 dimensional transformations and more.

**kyan Macro Assembler and Linker . . . . . \$69.95**

kyan's new assembler includes a full-screen text editor, 65C02 assembler, and object module linker. Coupled with kyan's new UNIX-like operating environment, this package offers programmers unsurpassed speed and programming efficiency.

#### 15 DAY TRIAL

#### We Guarantee Your Satisfaction!

Try any **kyan product** for 15 days. If not completely satisfied, return it for a refund.

**Send Check/Money Order:** kyan software, Dept. Y  
**Or Call: (415) 626-2080** 1850 Union Street, #183  
Visa/MC Accepted San Francisco, CA 94123

Please include \$4.50/order for shipping/handling; \$12 outside North America. CA residents add 6.5% sales tax. Purchase orders accepted. Sorry, no COD's.

BackUp Utilities/Boards	Entertainment	Source Telecomputing	Educational Software
<b>Alpha Logic Locksmith 5.0</b> 65.00 <b>Applied Technology Laboratory</b> Copy Master II 128K w/Gr. Dump 94.00 Central Point Software Copy II Plus 20.00 Wildcard II 75.00 <b>Computer Applications</b> Nibbles Away III 59.00 <b>Golden Delicious—CIA Files</b> 47.00 <b>Sensible Software—Back-IT-UP III</b> 45.00 <b>Utilico Software—E.D.D. III</b> 44.00	<b>Accolade Hard Ball</b> 22.00 Laws of the West 22.00 Psi 5 Trading Co. 22.00 Sundog V2.0 24.00 <b>Activision</b> Alcazar or Master of the Lamps 24.00 Borrowed Time 24.00 Countdown to Shutdown 24.00 Ghost Busters or Pittfall II 24.00 Great American Road Race 24.00 Hacker or Space Shuttle 24.00 Little Computer People Discovery Kit 24.00 Mindshadow or Tracer Scanction 24.00 Star League Baseball 19.00 Avalon Hill Under Fire 36.00 <b>Avant-Garde</b> Dave Winfield's Batter Up 24.00 <b>Bantam Publishing</b> Cave of Time or Escape 22.00 Fourth Protocol 24.00 IDamiano the Wizard of Parostrada 24.00 Sherlock Holmes: "Another Bow" 24.00 <b>Blue Chip Software</b> Millionaire, Tycoon, Barron or Squire 24.00 <b>Broderbund</b> Ancient Art of War 24.00 Captain Goodnight & the Islands of Fear 21.00 Championship Lode Runner 21.00 Choplifer! or Karateka 21.00 Mask of the Sun or Serpent's Star 24.00 Where in the World is Carmen, San Diego? 24.00 <b>DataSoft</b> Alternate Reality 29.00 Bruce Lee, Conan, or Mr. Do 23.00 The Goonies or Zorro 23.00 Zaxxon / Ic or Dallas Quest 19.00 <b>Electronic Arts</b> Adventure Construction Set 32.00 Archon II or One-On-One 25.00 Carriers At War or Wilderness 32.00 Europe Ablaze 32.00 Murder on the Zindernauf 14.00 Music Construction Set 25.00 Pinball Construction Set 22.00 Reach for the Stars or Bard's Tale 29.00 7 Cities of Gold or Skyfox 25.00 Software Golden Oldies 22.00 <b>EPYX</b> Ballblazer or Rescue on Fractus 24.00 Summer Games II or Winter Games 24.00 Temple of Apsahi Trilogy 24.00 World's Greatest Baseball 21.00 World's Greatest Football 24.00 <b>Firebird Elite</b> 42.00 <b>Hayden Software</b> Computer Novel Construction Set 30.00 Sargon III 30.00 Holy Grail or Inca 30.00 Infocom A Mind Forever Voyaging 26.50 Cuthroats or Seastalker 23.50 Deadline or Starcross or SpellBreaker 28.50 Hitchhiker's Guide to The Galaxy 23.50 Infidel or Sorcerer 28.50 Witness, Planetfall, or Enchanter 23.50 Zork I, Zork II, or Zork III, or Suspect 28.50 <b>Micro League Sports</b> Micro League Baseball 24.00 General Manager/Owner Disk 24.00 <b>Microprose</b> Solo Flight or Nato Commander 21.00 F-15 Strike Eagle or Acrojet 21.00 Gunship or Silent Service 21.00 Crusade in Europe or Conflict in Vietnam 25.00 <b>Mindscape</b> Deja Vu: "A Nightmare Comes True" 34.00 James Bond: "A View To Kill" 24.00 Racter 27.00 Rambo: "First Blood Part II" 24.00 Stephen King's "The Mist" 24.00 The Halley Project 27.00 Muse Beyond Castle Wolfenstein 19.00 One Step Golf Best 30.00 <b>Origin Systems</b> Mobius or Autoduel 32.00 Ultima III: Exodus or Ultima IV 36.00 Penguin The Quest or Ring Quest 20.75 Expedition Amazon or Xyphus 20.75 Sword of Kadesh or The Crimson Crown 20.75 <b>Random House</b> Alpine Encounter 24.00 <b>Sierra-On-Line</b> Kings Quest or King's Quest II 30.00 The Black Cauldron 24.00 <b>Simon &amp; Schuster</b> Super Zaxxon or Frogger 3 Deep 21.00 Spy Hunter or Tapper 27.00 Sir-Tech Wizardry 29.00 Knight of Diamonds 21.00	Legacy of Lylgamyn 24.00 Rescue Raiders 21.00 Wisprint 15.00 <b>Spectrum Holobyte</b> Gato 22.00 <b>Synapse Software</b> Brimstone 27.00 Mindwheel 27.00 Essex 27.00 <b>Strategic Simulations</b> Baltic 85 or Gemstone Warrior 20.50 Battalion Commander 24.00 Battle For Normandy 24.00 50 Mission Crush or Broadsides 23.50 Geopolitique 1990 or Rails West 23.50 Germany 1985 or Carrier Force 35.50 Imperium Galactum 23.50 Kampfgruppe or Reforger 88 35.50 North Atlantic '85 35.50 Operation Market Garden 30.00 Objective Kursk or Phantasia 23.50 War in Russia 47.50 <b>Sublogic</b> Flight Simulator II 31.00 <b>Tellurium</b> Amazon or Dragon World 24.00 Fahrenheit 451 or Shawdog Keep 24.00 Nine Princes in Amber 24.00 Perry Mason: Mandarin in Murders 24.00 Rendezvous with Rama 24.00 <b>Windham Classics</b> Below the Root 19.00 Swiss Family Robinson 19.00 Treasure Island 19.00 Wizard of Oz 19.00	<b>Addison Wesley</b> Smart Eyes 36.00 <b>Apple</b> Apple Logo II 128K (I/II, I/II only) 79.00 <b>Bantam Books</b> Fantastic Animals or Road Rally USA 24.00 The Complete Scarsdale Medical Diet 24.00 <b>Baron's Computer SAT</b> 53.00 <b>Brainpower</b> Chipwits 24.00 Think Fast 24.00 <b>Broderbund</b> Science Tool Kit Master Module 36.00 <b>CBS Software</b> Adventure Master 26.00 America Coast to Coast 24.00 Body in Focus 24.00 Dinosaur Dig 24.00 Forecast! or T-Rex 29.00 Goren's Bridge 49.00 Mastering The SAT 59.00 Success w/Algebra (ea.) 21.00 Success w/Math (ea.) 15.00 <b>Davidson &amp; Associates</b> Alge-Blaster 28.50 Classmate or Math Blaster 28.50 Speed Reader II 40.50 Speed Reader Data A, B, C, or D 11.95 Spell-It or Word Attack! 28.50 <b>Designware</b> European Nations & Locations 26.00 Grammer Examiner 26.00 Remember 45.00 Spellcopter or Spellakazam 24.00 States & Traits or Mission Algebra 26.00 The Body Transparent 26.00 <b>DLM</b> Alligator: Mix or Demolition Division 20.00 Create with Garfield or Fraction Fun Up 19.00 Freddie's Puzzles or Number Farm 19.00 Spelling Wiz or Word Invasion 20.00 <b>Fisher Price</b> Alpha Build or Logic Levels 16.00 First Man on the Moon 18.00 Peter Rabbit Reading 18.00 <b>Golfer Publishing</b> EduCalc 30.00 Friendly Filer or Easy Graph 24.00 Science Island or Treasure Hunter 24.00 <b>Harcourt Brace</b> Computer SAT 46.00 <b>Learning Company</b> Addition Magician 21.00 Bumble Plot or Reader Rabbit 24.00 Gertrude's Puzzles or Secrets 26.00 Juggle's Rainbow 18.00 Magic Spell or Word Spinner 21.00 Moptown Hotel or Number Stumper 24.00 Robot Odyssey or Rocky's Boots 29.00 <b>MECC</b> All Titles in Stock! Call <b>Milliken</b> Addition or Division Sequences 21.00 The Milliken Word Processor 42.00 <b>Mindscape</b> Crossword Magic 30.00 Keyboard Cadet or Luscher Profile 24.00 Perfect Score SAT 42.00 Tink's Adventure, Mazes or Sub. Fair 18.00 <b>Peachtree/Eduware</b> Algebra 1, 2, 3, or 4 21.00 Algebra 5 or 6 26.00 Compu-Read 16.00 Compu-Math: Arithmetic Skills 29.00 Introduction to Counting 23.00 PSAT or SAT Word Attack Skills 16.00 PSAT/SAT Analogy 18.00 Spelling Bee w/Reading Primer 22.00 Writing Skills 1, 2, 3, 4 or 5 23.00 PinPoint Micro Cookbook (II +, I/II) 27.00 Appetizers, Desserts, Soups & Salads 11.95 <b>Random House</b> Garfield Brown Typing is a Ball 24.00 Garfield Double Daring 24.00 Garfield Eat Your Words 24.00 Mr. & Mrs. Potato Head 24.00 Peanuts Math Matcher 24.00 Snoopy Writer 24.00 <b>Sensible Software</b> Report Card 33.00 <b>Scarborough Systems</b> Build A Book About You 24.00 MasterType New & Improved 24.00 MasterType's Writing Wizard 48.00 Original Boston Computer Diet 48.00 Picture Writer or Songwriter 24.00 <b>Scholastic</b> Wizware 24.00 Agent U.S.A. or Turtle Tracks 24.00 Fact & Fiction Tool Kit / Ic 23.00 Logo Robot or Kids at Work 15.00 Math Assistant I or II 62.00 Microzine 1,2,3,4,5,6,7, or 8 23.00 Operation: Frog or Logic Builders 24.00 Story Tree or Story Maker 23.00 <b>Simon &amp; Schuster</b> Chem Lab 24.00 Loveloy's Preparation for SAT 42.00 Typing Tutor III 30.00 <b>Spinnaker</b> Adventure Creator or Trains 18.00 Counting Parade or Sum Ducks 19.00 Delta Drawing 24.00 File & Report or Spreadsheet 35.00 Fraction Fever 15.00 Grandma's House 15.00 Homework Helpers: Math Word Problems 24.00 Homework Helpers: Writing 24.00 In Search Of... 20.00 Kidwriter or Alphabet Zoo 18.00 Kindercomp or Kids on Keys 15.00 Mathbusters 18.00
<b>Apple Computer</b> Apple II Instant Pascal 105.00 Apple Pascal 1.2 199.00 <b>Borland</b> Turbo Pascal 3.0 37.00 Turbo Database Tool Box 29.00 Turbo Tutor 21.00 <b>Beagle Brothers</b> Beagle Basic 19.00 Beagle G.P.L.E. 27.00 Big U 19.00 D-Code or Extra K 22.00 Disk Quick or I.O. Silver 16.00 Dos Bos or Silicon Salad 13.00 Double Take or Pro-Byter 19.00 Fat Cat 19.00 Pro-Byter 16.00 Pronto Dos or Utility City 16.00 Triple Dump 21.00 <b>Funk Software</b> Sideways Prodos & Dos 3.3 32.00 Lazarware Lisa V2.6 53.00 <b>Microsoft</b> Applesoft Compiler 105.00 Basic Compiler 239.00 <b>Quality Software</b> Bag of Tricks II 29.00 <b>Roger Wagner</b> Merlin Pro 57.00 Merlin Assembler 35.00 Merlin Combo Pack 64.00 <b>Software Masters</b> Visible Computer: 6502 29.00 <b>The Byte Works</b> ORCA/M Macro Assembler 59.00 Vindex AppleWorks Modify Plus 64K 39.00 AppleWorks Modify Plus 128K 49.00 Vindex Brothers DMP Utilities 42.00	<b>Graphics Packages</b> <b>Activision</b> Game Maker 30.00 <b>Baudville</b> Actors & Actions or Heros & Villians 18.00 Blazing Paddles 27.00 Prince (C. Itoh or Epton) 22.00 Pix-It 29.00 Shape Library 1, 2, or 3 12.95 Take 1 34.00 <b>Beagle Brothers</b> Beagle Graphics 32.00 Flex Text or Frame Up 16.00 Font Mechanic 16.00 Minipix Disk #1 12.00 Shape Mechanic 22.00 <b>Broderbund</b> Dazzle Draw 36.00 Fantavision 29.00 Print Shop 29.00 Print Shop Companion 24.00 Print Shop Graphics Library I, II, or III 14.95 Print Shop Paper Refill 12.95 <b>Data Transforms</b> Fontrix 1.5 54.00 Font Paks 1-13 ea. 11.25 <b>Electronic Arts</b> Movie Maker 26.00 <b>Penguin Software</b> New Complete Graphics System 47.00 The Graphics Magician 35.00 <b>Simon &amp; Schuster</b> Great INTL. Paper Airplane Const. Kit 22.00 Springboard Newsroom 32.00 Newsroom Clip Art Collection Vol. 1 17.00 Graphics Expander Vol. 1 24.00	<b>Source Telecomputing</b> The Source On-Line Information Network 30.00 <b>United Software Industries</b> ASCII: Express Professional Prodos 76.00	<b>Business Software</b> <b>Advanced Logic Systems</b> SpellWorks 32.00 The Handlers (II +, I/II, Ic) 97.00 <b>Apple</b> Apple Works (I/II, Ic) 189.00 Apple Writer I / 2.0 ProDos (I/II, Ic) 115.00 Quickfile (I/II only) 75.00 <b>Applied Software Technology</b> Versaform I/II, Ic 48.00 <b>Arrays/Continental Software</b> Home Accountant I/II 39.00 Home Accountant I Ic 42.00 G/LA/RAP Payroll ea. 133.00 Tax Advantage 41.00 <b>Artac</b> MagiCalc ProDos 79.00 Magic Office System 125.00 Magic Window II 79.00 <b>BPI Systems</b> General Accounting Dos 3.3 199.00 AR/AP/PPR or Inv. Dos 3.3 (ea.) 199.00 BPI General Accounting ProDos 219.00 BPI AR/AP/PPR or Inv. ProDos (ea.) 219.00 <b>Broderbund</b> Bank Street Writer or Speller 41.00 Bank Street Filer or Mailer 41.00 <b>CBS Software</b> Stockpak II 89.00 <b>Dow Jones Software</b> Membership Kit 19.00 Investor's Workshop 89.00 The Market Analyzer or Microscope 199.00 The Market Manager 149.00 <b>Electronic Arts</b> Cut and Paste 22.00 Financial Cookbook 32.00 <b>First Star</b> The Works 30.00 <b>Hayden Software</b> The Writer 27.00 <b>Human Edge Software</b> Communications or Management Edge 88.00 Mind Prober 27.00 Mind Over Minors 35.00 Sales or Negotiation Edge 88.00 <b>Howardsoft</b> Real Estate Analyzer III w/Tax Preparer 189.00 <b>International Solutions</b> MouseBudget 42.00 MouseCalc 92.00 MouseDesk 24.00 MouseWord 79.00 Intuit Quicken 49.00 <b>Kensington</b> Microwave 88.00 Format II Enhanced 88.00 <b>Living Videotext</b> Think Tank II + or I/II 79.00 <b>Manzanita</b> BusinessWorks Master Module 69.00 GL/AR/AP/ or Inventory Module 259.00 Payroll Module 295.00 <b>MECA</b> Managing Your Money 105.00 <b>MegaHaus</b> MegaWorks 69.00 ReportWorks 69.00 <b>Monogram</b> Dollars and Sense (II +, I/II) 58.00 Dollars and Sense (I/II) 68.00 Forecast (64K or 128K) 36.00 No! Press Will! Writer 29.00 <b>Organizational Software</b> Omnis 3 229.00 <b>Paladin</b> Flashcalc 59.00 <b>PBI Software</b> Graphworks 1.2C 59.00 Jeeves 38.00 <b>Peachtree</b> Back To Basics: GL/AR/AP 105.00 Pinpoint Publishing Pinpoint 37.00 Practicoorp Practicaic II 27.00 <b>Precision Software</b> SuperBase 59.00 Quark Catalyst / Ic V3.0 95.00 Word Juggler & Lexicheck / Ic 65.00 <b>Roger Wagner Publishing</b> Mouse Write 75.00 The Write Choice 27.00 <b>Satellite Software</b> Word-perfect 79.00 <b>Sensible Software</b> Bookends—ProDos 79.00 Graphics Department 69.00 Sensible Grammar 55.00 Sensible Speller—Dos or ProDos 69.00 <b>Sierra On-Line</b> General Manager II 129.00 Homeword or Homeword Filer 42.00 Homeword Speller 30.00 Screenwriter Professional 77.00 <b>Simon &amp; Schuster</b> JK Lasser's Money Manager 49.00 <b>Software Publishing</b> PFS: First Success 128.00 PFS:File, Graph, Report 69.00 PFS:Write or Plan (I/II, Ic) 69.00 Sorcim/IUS SuperCalc 3a 105.00 <b>State of the Art</b> Electric Checkbook 59.00 GL/AR/AP/Inventory/Payroll 289.00 <b>Stoneware</b> DB Master Business Team 189.00 DB Master Business Writer 89.00 DB Master Version Four Plus 169.00 <b>TimeWorks</b> Silvia Porter's Financial Planner 68.00 Swiftcalc with Sideways 105.00
<b>Communications</b> <b>Apple Computer</b> Access I / (I/II, Ic only) 59.00 <b>Compuserve</b> Compuserve Starter Kit 15.00 <b>Dow Jones</b> Spreadsheet Link 145.00 <b>Microstuff</b> Crosstalk 102.00 <b>Quark</b> Terminusus / Ic 55.00 <b>Softronics</b> Softform II 124.00 <b>Software Publishing</b> PFS: Access 44.00			



# In Connecticut Call 378-3662 or 378-8293

Snooper Troops Case I or II	20.00
Word Processor	34.00
<b>Springboard</b>	
Early Games or Music Maestro	21.00
Fraction Factory or Make a Match	18.00
Mask Parade or Easy as ABC	24.00
Rainbow Painter or Puzzle Master	21.00
Terrapin Terrapin Logo	57.00
<b>TimeWorks</b>	
Evelyn Wood Dynamic Reader	41.00
Weekly Reader Chivalry	29.00
Exploring Tables & Graphs 1 or 2	21.00
Pic.Builder	24.00
Stickybear Series (ea.)	24.00

## Modems

<b>Anchor Automation</b>	
Anchor Signalman Express 1200	239.00
Anchor Signalman Lightning 2400	349.00
Volksmodem 12	179.00
<b>Apple Computer</b>	
Apple Personal Modem	289.00
Apple / IIe / IIc, or Mac Cable	25.00
<b>Hayes</b>	
Hayes Micromodem / IIe	135.00
Hayes 300 Baud Smartmodem / IIc	159.00
Hayes 300 Baud Smartmodem	135.00
Hayes 1200 Baud Smartmodem	368.00
Hayes 2400 Baud Smartmodem	579.00
<b>Novation</b>	
Novation Apple Cat II	199.00
Novation 212 Apple Cat II	359.00
Novation 212 Upgrade	219.00
Novation 2400 Baud Standalone Modem	479.00
<b>Prentice</b>	
Popcom X-100 (1200 Baud)	259.00
<b>Prometheus</b>	
Pro Modem 1200 (External)	289.00
Pro Modem 1200A (Internal)	259.00
Pro Modem 300C	129.00
<b>U.S. Robotics</b>	
U.S. Robotics Password 1200	199.00
U.S. Robotics Courier 2400	369.00
<b>Zoom Telephonics</b>	
Zoom/Modem / IIe	115.00
Zoom/Modem / IIe Plus	125.00

## Ramcards/Z80/80 Col.

<b>Advanced Logic Systems</b>	
Add-Ram 16	65.00
Add-Ram 80/64	52.00
Add-Ram 80/256	145.00
Z-Engine 2.2	125.00
CF/M Card	225.00
<b>Apple Computer</b>	
Apple II Memory Expansion Card	225.00
Apple / IIe Extended 80 Col. Card	115.00
<b>Applied Engineering</b>	
RamWorks II (64K to 3MB)	Call
Z-Ram / IIc (256 or 512K)	Call
Ramworks RGB Option & 16 Bit Option	Call
Apricorn Apricorn 64K Extend-It	89.00
Apricorn 16K Ramcard II+	68.00
<b>Caribbean Computer</b>	
Extend 80	78.00
<b>Checkmate Technology</b>	
Multiview 80/160	219.00
Multiram CX Cards	Call
65C816 CX Kit	Call
Multiram / IIe Cards	Call
Multiram / I/EX 65C816 Card	Call
<b>Legend Industries</b>	
Legend E' Card (64K to 1 MB)	Call
Legend S' Card (64K to 1 MB)	Call
Micro Sci Micro Sci 80/64e	69.00
Micro Sci 80/256e	149.00
<b>Microsoft</b>	
Microsoft Premium Softcard / IIe	259.00
Microsoft Softcard II	265.00
MTC MTC Speed Demon	159.00
Titan Industries Saturn 126K Ram	175.00
Neptune 80 Col. w/64K	185.00
Accelerator / IIe	225.00
Videx Videx Videoterm w/55 Inv.	178.00
Videx Ultraterm	189.00

## Multifunction Cards

<b>AST Research</b> Multi I/O Card	155.00
<b>Checkmate Technology</b> Gambit	Call
<b>Prometheus</b> Versacard	135.00
<b>Quadram</b> Multicore w/256K	295.00
Extended Multifunction Board	179.00
<b>Street Electronics</b>	
Business Card Parallel	159.00
Business Card Serial	139.00
<b>Videx</b> PS10 Dual Function Interface	135.00

## Printer Interface Cards

<b>Apple</b>	
Apple Super Serial Card	109.00
<b>Apricorn</b> Apricorn / IIc Super Serial Card	49.00
<b>Interactive Structures</b>	
Pkaso/U Interface	115.00
<b>Orange Micro</b>	
Serial Grapppler Plus	75.00
Grapppler +	74.00
Buffered Grapppler +	135.00
Grapppler / IIc	78.00

Hot Link	49.00
<b>Practical Peripherals</b>	
Graphicard	59.00
PrinterFace	49.00
Serial Interface Card	99.00
<b>Spies Labs</b>	
Nice Print	109.00
<b>TextPrint</b>	
Print-It! (Parallel or Serial)	125.00
<b>Thirdware</b>	
Finger Print Plus II+ / IIe / IIc	89.00

## Clock/Calendar Peripherals

<b>Applied Engineering</b>	
TimeMaster H.O.	109.00
BSR Interface	39.00
<b>Practical Peripherals</b>	
Proclock / IIe or / IIc	119.00
<b>Pro Dos Clock/Calendar Card</b>	65.00
<b>Creative Peripherals</b>	
Seiko Datagraph 2001 w/Time Trax	149.00
Time Trax / IIe or / IIc	79.00
/ IIc System Clock	55.00
<b>Street Electronics</b> Livewire w/clock	72.00
<b>Thunderware</b> Thunderclock	105.00

## Video Cards

<b>Video 7</b>	
Color Enhancer / IIe w/Dazzle Draw	119.00
Color Enhancer / IIc	89.00
Screen Enhancer / IIe	89.00
Screen Enhancer / IIc	49.00
Mapper Interface	35.00

## Accessories

<b>Kensington System Saver</b>	
Cool + Time	60.00
Curtis Diamond	69.00
Curtis Emerald	30.00
Curtis Ruby	36.00
Curtis Sapphire	47.00
Apple Mouse / IIe	115.00
Apple Mouse / IIc	79.00
Hayes Mach II Joystick	27.00
Hayes Mach III Joystick	33.00
Kraft Quickstick / IIc	49.00
Kraft Joystick	31.00
Gibson Light Pen	149.00
Digital Paintbrush System	175.00
Muppet Learning Keys	42.00
Koala Pad Plus	72.00
KeyTronic Keyboard KB-200	225.00
Trackhouse Keypad	79.00
Mockingboard A Board	70.00
Mockingboard C Board	120.00
Mockingboard D Board (/ IIc)	130.00
Echo II Plus	94.00
The Cricket / IIc	115.00
Hanzon Universal Data Buffer	289.00
Rainbow Paper Pak (300 sheets)	12.00

## Blank Media

Elephant SS/DD (10)	11.95
Maxell SS/DD (10)	13.95
Verbatim SS/DD (10)	13.95
BASF SS/DD (10)	10.50
Memorex SS/DD (10)	13.50
3M SS/DD (10)	16.95
Dysan SS/DD (10)	22.95

## Printers

<b>Apple</b>	
ImageWriter II Color Printer	459.00
ImageWriter II 32K Buffer	79.00
ImageWriter II Cut Sheet Feeder	175.00
ImageWriter (Wide Carriage)	475.00
<b>Brother</b> HR-15XL	339.00
HR-25	459.00
HR-35	679.00
<b>Fortis/Dynax</b>	
DH45 Dual Head Printer	859.00
Citizen MSP-10 (160 cps)	249.00
MSP-15 (160 cps)	369.00
MSP-20 (200 cps)	339.00
MSP-25 (200 cps)	509.00
<b>C. Itoh</b> ProWriter 8510 SP Plus	329.00
ProWriter 1500 SP Plus	469.00
<b>Epson</b>	
AP-80 (Imagewriter Compatible)	269.00
LX-80/90	Call
FX-85/185	Call
DX-10/20	Most
JX-80	Recent
LQ-800-1500	Low/Low!
SQ-2000	Prices
<b>Hewlett-Packard</b>	
ThinkJet, LaserJet, LaserJet Plus	Call
Juki 6000 Par. or Ser.	179.00
6100 Par.	345.00
6200 Par.	509.00
6300 Par. or Ser.	655.00
<b>Mannessman Tally</b>	
MT-85 Apple	345.00
MT-86 Apple	415.00
<b>NEC</b> SpinWriter e.l.f. 360	385.00
SpinWriter 2030P (20 cps)	625.00
SpinWriter 3530P (35 cps)	989.00
PinWriter P-2-P (160 cps)	495.00

PinWriter P3-3P (180 cps)	695.00
<b>Okidata</b> Okimate 20 Color Printer	120.00
Microline 182P	215.00
Microline 183P	379.00
Microline 192P	339.00
Microline 193P	475.00
Microline 192 Apple	369.00
Microline 193 Apple	545.00
<b>Panasonic</b> KXP-1091	239.00
KXP-1092	349.00
KXP-1093	409.00
KXP-3151	379.00
<b>Silver Reed</b> EXP-400P	209.00
EXP-500P	239.00
EXP-550P	369.00
EXP-770P	679.00
<b>Star Micronics</b> SG-10 (120 cps)	219.00
SG-15 (120 cps)	379.00
SD-10 (160 cps)	339.00
SD-15 (160 cps)	449.00
SR-10 (200 cps)	489.00
SR-15 (200 cps)	585.00
<b>Toshiba</b> P-1340 Parallel	399.00
P-341 Parallel Only	899.00
P-1351 Parallel & Serial	939.00
P-351 Parallel	1079.00

## Disk Drives

<b>Apple</b>	
ProFile (10 Meg) w/Access. Kit	1139.00
Apple / IIc External Drive	229.00
Apple DuoDisk w/Accessory Kit	449.00
Apple UniDisk 3.5 w/Apple // Utilities	359.00
Apple UniDisk 3.5 w/Catalyst	385.00
Apple UniDisk 3.5 Accessory Kit (II+ / IIe)	59.00
<b>Corvus Systems</b> OmniDrive Hard Disks	Call
<b>Micro Sci</b> A2 Full Height	159.00
A5 Slimline / IIe	159.00
A5 Slimline / IIc	165.00
Micro Sci C2 Controller	49.00
<b>Mitac</b> AD-1 Full Height / IIe	139.00
AD-3C Slimline / IIe or / IIc	129.00
<b>Pico Products</b>	
Apple Half-Height II+, / IIe, / IIc	139.00
<b>Quark</b>	
QC-10 Hard Disk / IIe, / IIc or Mac	1029.00
QC-20 Hard Disk / IIe, / IIc or Mac	1379.00

## Monitors

<b>Amdek</b>	
Video 300G 12" Green Monitor	115.00
Video 300A 12" Amber Monitor	119.00
Color Monitor 300 (Composite)	219.00
Color Monitor 500 (RGB)	255.00
Color Monitor 600 (RGB)	385.00
DVM III RGB Interface	119.00
<b>Apple</b>	
Color Monitor / IIe	289.00
Color Monitor / IIc	289.00

<b>Panasonic</b>	
TR120M1 Hi-Res Green	110.00
TR120MD Hi-Res Amber	110.00
DT5101 Dual Mode Color 10"	165.00
DTH103 10" Super Hi-Res RGB	369.00
DTM140 14" Super Hi-Res RGB	319.00
<b>Princeton Graphics</b>	
HX-9 9" RGB Color	399.00
HX-12 RGB 12" RGB Color	419.00
RGB-50 Interface	145.00
<b>Sakata</b>	
SG-1000 Green	105.00
SG-1000 Amber	115.00
SC-100 Composite Color	149.00
SC-200 RGB Color	379.00
<b>SWI International Systems</b>	
CVUE Flat-Panel Display / IIc	Call
<b>Taxan</b>	
115 12" Hi-Res Green	109.00
116 12" Hi-Res Amber	115.00
220 14" Composite Color	215.00
610 12" Hi-Res RGB Color (510x200)	345.00
620 12" Hi-Res RGB Color (640x200)	385.00
410-80/64 RGB-II Interface	169.00
<b>Teknika</b>	
MJ-22 RGB Color Monitor	289.00

## Ordering Instructions

VISA AND MASTERCARD ACCEPTED

To order, call us anytime Monday thru Friday 9:00 to 9:00, Saturday 10:00 to 6:00. For fast delivery if ordering by mail, send cashier's check, certified check or money order.

Fortune 1000 & Government checks honored immediately—Personal and other company checks allow 2 weeks to clear. Mastercard & Visa include card # & expiration date.

Connecticut residents add 7.5% sales tax.

**Shipping Charges:** Software—\$3.00. Minimum charge U.S. Mainland. With C.O.D. shipments add an additional \$2.00 U.S. postal, APO, and FPO add 3% (\$5.00 Min.). Alaska or Hawaii add 6% (\$10.00 Min.). Canadian orders add 10% (\$15.00 Min.). Foreign Orders except Canada—Add 18% (\$25.00 Min.). Hardware—Please call for shipping charges.

**Our Policy:** We do not guarantee machine compatibility. All products are new and include factory warranty, therefore ALL sales are final. Defective software will be replaced by the same item only. Defective hardware will be replaced or repaired at our discretion. Prices & availability subject to change without notice. Products purchased in error, subject to 15% restocking fee. All returns must have an authorization number. Call (203) 378-3662 to obtain one before returning defective products for replacement.

# PROGRAMS

# PLUS

Visit Our New Showroom: Exit 32 Off I-95  
 Station House Square  
 2505 Main Street  
 Stratford, Conn. 06497  
 Hours: Monday-Friday, 9-9; Saturday 10-9.

Orders Only TOLL FREE **1-800-832-3201**

MACINTOSH 512K SYSTEMS ..... CALL  
 APPLE II E PROFESSIONAL SYSTEMS ..... CALL  
 APPLE II C SYSTEMS ..... CALL

Up to 60% Off Retail

# The Sequel to an Exciting Software Premiere...

# hotCider VOLUME II

More Of The Very Best Ready-to-run Apple II\* Programs From inCider

Available now... a second incredible collection of *inCider* magazine's best programs. **hotCider Vol. II!**

Get a dozen ready-to-run programs for the Apple II on a high-quality, menu driven floppy disk. Programs for business, home management, education, entertainment, and graphics! No tedious typing or debugging to worry about! And it comes complete with its own documentation booklet.

### What A Menu!

Just like the exciting Vol. I, *hotCider Vol. II* is loaded with all-time *inCider* favorites:

"Should I Trade?"—Tells you the Real cost of buying a new car.

"Low-Res to Hi-Res"—Shows you how to easily convert your lo-res pictures to hi-res.

"Modem Battleship"—Dial up a friend and use your modem to play this latest version of Battleship.

Plus, more utilities, games, and educational programs!

### Vol. I— Still Available!

If you haven't ordered your *Volume I* yet, the premiere issue of *hotCider* is still available in limited quantities!

Enjoy such standouts as;

"VisiData"—A list handler that works like a spreadsheet.

"Poster Printer"—Say anything in a BIG way with your printer.

"Doing Windows"—Learn how to create Macintosh-style windows on your Apple II.

*hotCider Vol. I* also gives you three previously unpublished *bonus programs*, including "Cider Zap" (a full-fledged editing utility)!

### Easy To Use, Easy To Order

There's no easier way to build a versatile software library than with *hotCider Vol. I and Vol. II*. To order your copies, return the coupon or attached card, or call **1-800-258-5473**. In NH, dial 1-924-9471.

**YES!** I want the very best ready-to-run programs from inCider.

Send me hotCider on disk for \$21.47\*\*.

- hotCider Vol. II     hotCider Vol. I  
 Payment enclosed     AE     Visa     MC

Card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

\* Apple and the Apple logo are registered trademarks of Apple Computer, Inc.  
 \*\* Prices include postage and handling. Foreign airmail please add \$1.50 per item.  
 US funds drawn on US banks only.

3-86BI

hotCider • 80 Pine Street • Peterborough, NH • 03458



**AVOID THE CROWDS  
AND THE LAST MINUTE RUSH  
AND PLACE YOUR ORDER**

**SPRING IS JUST AROUND  
THE CORNER!**

**NOW!!**

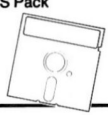
**FREE SOFTWARE—For  
A Limited Time Only!!!**  
Yes, that's right. We will give you a "KNOW YOUR APPLE"  
program absolutely free with any size purchase. This offer is  
good until quantities run out, so order now and get your free  
software program today . . . . .

**WE KNOW OF NO BETTER DRIVE AT ANY  
PRICE!!!!!!**  
. . . . . **Another Incredible PICO Product . . . . .**  
Look at this great half-height 100% APPLE compatible disk  
drive. Suggested List Price \$269.95. Instant Software priced at  
only **\$189.95**.

The benefits of owning this drive to  
you are:  
•Faster, more precise tracking and  
larger capacity than standard Apple  
drives.  
•Quieter and smoother running.  
•100% Apple compatibility for II+,  
Ile, and IIc external drives.  
•Half-Height, compact design . . . saves you space.  
•ONE YEAR WARRANTY.  
•30 day moneyback guarantee.



Disks 5 1/4"	List	Sale
Sentinel DS/DD COLOR 10/box	39.95	<b>19.95</b> ☐
Ultra Magnetics BONUS Pack DS/DD 12/box	39.95	<b>22.90</b> ☐
CDC SS/DD 10/box	31.95	<b>9.95</b> ☐
CDC DS/DD 10/box	39.95	<b>10.95</b> ☐
Data Matrix 10/box	44.91	<b>11.95</b> ☐
Dysan DS/DD 10/box	49.95	<b>33.95</b> ☐



*Monitors	List	Sale
Sanyo DMC 5500 Color Composite	359.00	<b>229.95</b> ☐
Sanyo DM2112 Green	118.00	<b>79.95</b> ☐
Sanyo DM2212 Amber	118.00	<b>79.95</b> ☐

**Software  
SUCH A DEAL  
BARGAINS**

All Titles only **\$9.99**

Adventureland	Electronic Breadboard
Apple Clinic	Mortons Fork
World Scrambler	Mystery Fun House
Caverns of Callisto	Savage Island
Skybombers 11	The Russian Disk
Capitalization	Algebra II
Santa Paravia	Acey Ducey
Voodoo Castle	Merlin
Ghost Town	Routine Machine
Oil Tycoon	

**MORE items at fantastic SAVINGS . . .**

	List	Our Price
Cut Throat	39.95	<b>24.95</b> ☐
Enchanter	39.95	<b>24.95</b> ☐
Bank Street Writer	69.96	<b>39.95</b> ☐
All Keyfax Products	12.95	<b>5.95</b> ☐

Prodos Multiplan Applewriter Iie Visicalc		
Keyboard cover	9.95	<b>4.95</b> ☐
Bank Street Storybook	39.95	<b>24.95</b> ☐
Microzine for Apple Iie	39.95	<b>13.95</b> ☐
Archon	40.00	<b>24.95</b> ☐
Cut & Paste	35.00	<b>14.95</b> ☐
Financial Cookbook	35.00	<b>29.95</b> ☐
Desecration	37.95	<b>9.95</b> ☐

The Last Gladiator	35.00	<b>9.95</b> ☐
Basic Tricks for the Apple	24.95	<b>13.95</b> ☐
Learn Apple Logo	19.95	<b>14.95</b> ☐
Night Flight	24.95	<b>19.95</b> ☐
HARD HAT MACK	35.00	<b>12.95</b> ☐
Sky Fox	40.00	<b>24.95</b> ☐
Murder on Zinderneuf	40.00	<b>24.95</b> ☐
Seven Cities of Gold	40.00	<b>24.95</b> ☐
Routine Machine	29.95	<b>9.95</b> ☐
Merlin Apple IIE	30.95	<b>9.95</b> ☐
Copycat Apple IIE	29.95	<b>10.95</b> ☐
Sampler 1	29.95	<b>11.95</b> ☐
Array	29.95	<b>11.95</b> ☐

Pico Products Joysticks for ALL Apples	39.95	<b>21.95</b> ☐
---	-------	----------------

*Modems	List	Our Price
Anchor Mark x	159.95	<b>99.95</b> ☐
Anchor Volksmodem	72.68	<b>49.95</b> ☐
Black Jack	49.95	<b>25.95</b> ☐

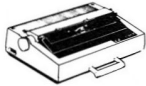
	List	Sale
Datarack Head Cleaning Kit	15.95	<b>12.95</b> ☐
Head Cleaning Kit (c2017)	16.99	<b>7.95</b> ☐
Datamatrix Head Cleaner	6.99	<b>4.95</b> ☐
Anti-Static Spray Textwipe	5.95	<b>4.95</b> ☐
Checkmate Anti Static	3.88	<b>2.95</b> ☐
Disk Pac 3 1/2" Blue and Black	14.95	<b>7.95</b> ☐
Disk Pac 5 1/4" Blue and Black	13.95	<b>6.99</b> ☐
Disk File (6)	2.95	<b>.99</b> ☐
Teak Rolltop Disk Storage (5 1/4" holds 50)	32.95	<b>18.95</b> ☐
Teak Rolltop Disk Storage (3.5 holds 45)	23.95	<b>14.95</b> ☐
Data Defender 70 (5 1/4" holds 70)	26.95	<b>14.95</b> ☐
Data Defender 15 (5 1/4" holds 15)	4.49	<b>2.99</b> ☐
Flip n' File 50 (5 1/4" holds 50)	19.95	<b>9.99</b> ☐
Cassette Storage (6) Black and Blue	4.99	<b>.99</b> ☐

**We know of no better disks at any price.  
DOLLAR DISKS!!!**  
•Quality Sentinel brand 5 1/4" disks  
•Reliable, lifetime warranty  
•SS/DD only \$1.00 each  
•DS/DD only \$1.15 each  
•Any quantity



**Brother HR-10 Daisy Wheel Printer  
FINALLY!** A Letter Quality Printer at a PRICE you can AFFORD . . . . .

List price 349.00 **YOUR LOW PRICE ONLY \$299.00\***



The HR-10 is designed to keep pace with modern computing needs by producing sharp, beautiful letter quality text. Thanks to a 2k bytes buffer and bidirectional printing, HR-10 gets everything onto the page quickly and accurately. The sprocket wheel feeder TF-10, which keeps fanfold paper flowing smoothly and efficiently, is standard equipment. And a shadow print feature lets you highlight words or phrases so they stand out from the rest of the text. Other features such as superscript and subscript, auto-underline and carriage skip movement provide versatility usually found on more expensive models.

	List	OUR LOW PRICE*
Brother HR-15 Letter Quality	599.00	<b>349.00</b> ☐
Olympia-RO Letter Quality	429.00	<b>289.95</b> ☐
Epson Homewriter Dot Matrix	269.00	<b>219.95</b> ☐
Epson LX-80 NLQ Dot Matrix-NLQ	299.00	<b>249.95</b> ☐
Epson FX100 Dot Matrix	849.00	<b>549.95</b> ☐

**GLARE GUARDS  
FOR YOUR CRT**  
These screens are available for color or mono (please specify).  
•Fine nylon mesh•Easy attachment with velcro strips  
•Reversible black or cream color•prevents dust accumulation  
Only 19.95 for 12" and 24.95 for 14"

**Universal Joystick from PICO PRODUCTS**

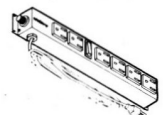
This great joystick will work with an Apple II, II+, Iie or IIc and comes complete with:  
•2 operating modes to give you "Auto-Centering" or "FreeFloating."  
•2 pairs of fire buttons for the left or right-hand user.  
•New quick fire button!  
•ONE YEAR WARRANTY, 30-day money back guarantee.  
•Easy to use and extremely durable. List 39.95 Sale **21.95**

**Protect Your Software  
FLIP 'N' FILE /15**  
Protect Software from dust, debris and moisture. Stores up to 15 5 1/4 diskettes.  
List Price \$9.95 Sale **\$7.95**

Also Available	LIST	SALE
Flip 'n' File /50	\$19.95	<b>\$14.95</b> ☐
Data Defender /35	\$ 9.95	<b>\$ 7.95</b> ☐
Data Defender /70	\$26.95	<b>\$19.95</b> ☐
Roll Top /100	\$49.95	<b>\$39.95</b> ☐



**Kill Spikes, Fight Surge!  
MAXI Strip**  
Protect Valuable electronic equipment and data files from damage. Surge and spike suppressor and noise combination converts one outlet into six.  
List \$34.95 **WOW!!!** only **\$19.95**



**Also save on surge suppressors by CURTIS...**

	List	SALE
Diamond	\$49.95	<b>\$39.95</b> ☐
Emerald	\$59.95	<b>\$49.95</b> ☐
Sapphire	\$79.95	<b>\$69.96</b> ☐
Ruby	\$89.95	<b>\$79.95</b> ☐

**FAN FOLD  
COMPUTER PAPER**

	List	SALE
15# 1000 Sheets	\$14.96	<b>\$ 9.95</b> ☐
20# 1000 Sheets	\$19.95	<b>\$14.95</b> ☐
20# 1000 Sheets micro-perfed	\$19.95	<b>\$14.95</b> ☐
20# 2500 Sheets	\$32.95	<b>\$26.95</b> ☐



**instant Software**  
computer centers

**CALL  
TOLL FREE  
800-843-6700**

**or call our BBS  
603-357-4306  
operator 1105  
(N.H.—603-352-3736)**

or clip and mail coupon to Instant Software, WGE Center/70 Rte 202N, Peterborough, NH 03458  
MC, VISA, M.O. or check accepted. Add \$3.00 for shipping and handling. \*call for shipping charges

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**Some quantities limited.  
Selection may vary.**

# NEW PRODUCTS

edited by Paul Statt

## Software

### Take Stock

Vestor software **evaluates securities** and actually generates buy/sell signals—you don't need to spend hours juggling the numbers your modem feeds you. Vestor includes 21 evaluative and 12 information-retrieval programs. You get all kinds of data: earnings per share, projected highs and lows, projected profits, timing signals, and more. A life-time subscription sets you back \$295, and monthly fees average \$24, depending on the number of stocks you watch. You can give Vestor a try by dialing (516) 754-0296, and using "RS" as your General Password. For details contact Investment Technologies, Metropark, 510 Thornall Street, Edison, NJ 08837, (201) 494-1200, or for more information circle number 366 on the Reader Service card.

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



### Documentary

The Documax **text-management system** lets Apple II users search the full contents of their ProDOS text files and compress text by as much as half of its original bulk. Text management and retrieval facilitates the organization of text files, allows quick inspection with forward and backward scrolling, automatically collects passages on a given subject from existing files into a new file, cuts and pastes across files, and provides simple text editing. Text compression doubles disk capacity and cuts data-transmission costs in half. Documax works with AppleWorks' word processor and Apple Writer, too. The utility costs only \$99.95, from Signum Microsystems, 120 Mountain Avenue, Bloomfield, CT 06002, (203) 726-1911. For more information circle number 357 on the Reader Service card.

### Mac or Mouse?

The Kyan MouseText Toolkit lets you add a **Macintosh-like user interface** to your Kyan Pascal programs. Pull-down menus, windows, and mouse-controlled cursor movements can be integrated into your own Apple II programs. The MouseText Toolkit is a series of software routines that utilize mouse menus and text windows, as well as the MouseText icons stored in ROM on the Apple IIc and updated IIe. Even novice Pascal programmers can use the desktop environment the Mac made famous. You must have programs written in Kyan Pascal to use MouseText Toolkit—\$49.95, from Kyan Pascal, 1850 Union Street, San Francisco, CA 94123, (415) 775-2923. For more information circle number 360 on the Reader Service card.

### New Bottles

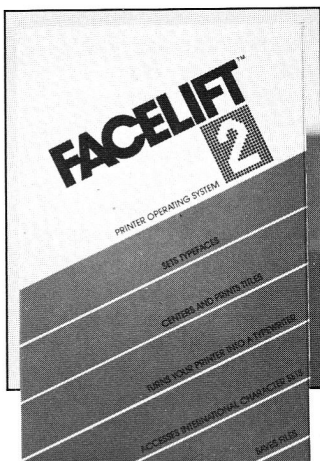
It in a Mac software **emulates Apple II software on a Macintosh**. The 512K-Mac user can now run thousands of Apple DOS 3.3 and ProDOS programs currently available for the Apple II—public-domain as well as commercial software runs without modification. The package includes communications software for both Mac and II, simplifying the transfer. The emulator includes four disk drives, a RAM disk, joystick, language card, clock, hi-res graphics, and 68000 system calls. Programs run at 35 to 40 percent of speed, for \$69.95, from COMPUTER:applications, 12813 Lindley Drive, Raleigh, NC 27614, (919) 846-1411. For more information circle number 355 on the Reader Service card.

### Designer Aid

Logicware CADCD offers **computer-aided digital-circuit design**. The software converts Boolean functions into minimum sum of products or minimum product of sums. Logicware CADCD handles up to eight input variables or output functions. You enter Boolean functions as a truth table, which you edit, save to disk, load from disk, or print. CADCD also facilitates machine design, for \$59, from Logicware, 2346 West Estrella Drive, Chandler, AZ 85224, (602) 821-2465. For more information circle number 361 on the Reader Service card.

## Save Face

The Facelift 2 Printer Operating System for Epson printers is a **complete printer-utility package**. Facelift 2 is an easy way to get more from your Epson FX, LQ, or SX dot-matrix printer without programming. Faces and Custom Faces functions provide access to all the printer's built-in font sizes, pitches, and patterns. The Keyboard function lets you type from the Apple keyboard directly into the printer. You can center headings and titles without creating special files with the Title function. Document is the Facelift 2's built-in word processor—it saves files for later printing. Facelift 2 costs \$49.95, from Companion Software, 7400 West Beverly Boulevard, Suite 270, Los Angeles, CA 90036, (213) 936-6379. For more information circle number 362 on the Reader Service card.



## Space Traders

PSI 5 Trading Company is an **interactive animated space adventure** starring five crew members on board a space freighter out to save the Parvin Frontier from alien invaders. The crew members are portrayed pictorially—with photos of their faces and in their conversations with you and each other. You're the captain and must get everyone to work together—pick your men carefully. The PSI 5 Trading Company (\$34.95) is the third in a series of movie-like home-entertainment programs from Accolade, 20863 Stevens Creek Boulevard, Cupertino, CA 95014, (408) 446-5757. For more information circle number 359 on the Reader Service card.

## Discovery

World Book Discovery Software provides preschoolers and schoolchildren with a **complete set of learning tools** designed to meet their needs for excitement and challenge in education. The Discovery Preschool Package teaches readiness skills—number and pattern recognition, counting, and classification—with the help of Pockets the Kangaroo and Mayflower the Duck. The Primary Package trains in arithmetic and spelling, problem solving and map reading, visual memory and vocabulary building. World Book's Intermediate Package challenges older



Recruit a crew for the PSI 5 Trading Company.

youngsters to think about geography, survive in a simulated wilderness in early America, and practice arithmetic and grammar. Each series sells for \$249.95 (seven programs), individual programs for \$39.95, always including a workbook of activities projects and suggestions for parents. From World Book Discovery, 5700 Lombardo Centre, Seven Hills, OH 44131, (216) 642-3901. For more information circle number 358 on the Reader Service card.

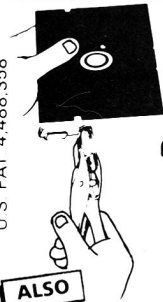
## Utility Extra

Beagle Bros' Big U improves Apple's Filer and //c System Utilities with a great big **ProDOS Utility Disk**.

For 128K machines with 80 columns, Big U supplies a File Master with one-half the bulk of Apple's Filer, a CRT Writer that lets you write without booting up a word processor, instant catalogs, and a RAM-disk loader. Users with 64K and any Apple II can enjoy 18 new ProDOS commands—like COPY, or SEE and SHOW for hi-res graphics. Beagle Bros always gives you more programs, commands, and utilities than you can use or we can tell you about, for \$34.95, from Beagle Bros, 3990 Old Town Avenue, Suite 102C, San Diego, CA 92110, (800) 227-3800. For more information circle number 356 on the Reader Service card.

# IT'S LIKE FREE DISKETTES

U.S. PAT. 4,488,358



Your 5 1/4" single side disks are usable on the other side. You paid for one side, why not use the other... **IT'S FREE!**

Nibble Notch will **open** your new disk. It's easy... won't harm existing data. Try it!

**nibble notch I**  
For Apple, Franklin, Commodore & Atari (w/Atari Drives); square notch.

**nibble notch II**  
For all other computers; square notch & index hole.

only **\$14.95\***  
PLUS P&H

only **\$21.90\***  
PLUS P&H

## DISK OPTIMIZER II

Apple II Series Software  
**Pro DOS • DOS 3.3 • Pascal**  
Examines your new disk, locks out bad sectors and **certifies it 100% ERROR-FREE** in 30 seconds or less! Also checks drive speed...and more!

**SUPER SAVER PACKAGE**  
Nibble Notch I and Disk Optimizer Combo (Optimizer alone reg. \$24.95)  
**\$29.95\* FOR BOTH!**

**QUALITY DISKETTES**  
low as **99¢**

\*add \$2 (\$5 frgn) for P & H. Fl. Res. add 5% Sales Tax



Toll Free 1-800-642-2536  
1-215-527-1553

OR SEND CHECK OR MONEY ORDER TO:



707 Matson Ford Road, Villanova, PA 19085

Circle 100 on Reader Service Card.

## APPLE(II+)WORKS™

### PLUS-WORKS™

**It really works!!**

PLUS-WORKS not only allows you to have all features of AppleWorks™ on an Apple II™, II+ or compatible, but our extended memory versions give you capabilities far beyond the standard IIe/c versions. Its great for expansion on the Apple IIe as well.

Compare these features with other AppleWorks patch programs

- Copyable - make backups, transfer to hard disk
- Up to 1 megabyte of **desktop** space available
- Database expansion to more than 4,200 records
- All control codes available to printer
- Supports Franklin computers and all ASCII keyboards
- Supports all major 80 column cards
- Permanent and dynamic ram disk features
- All versions of AppleWorks supported
- Expand AppleWorks desktop into CP/M ram cards
- Optional patch to help with printer problems

**\*SPECIAL OFFER\*** Thru March 1, 1986, send us our competitor's II+ modifier for AppleWorks (original disk or proof of purchase required) for a **\$20.00** credit towards the purchase of our **XM** or **XMP** programs.

• **PLUS-WORKS** - \$19.95 plus \$3.00 ship/hand. Requires AppleWorks, 64K Apple II+ or compat, 80 col card and shift key mod. Maximum desktop 10K. You may upgrade to XM or XMP for \$30.00 at any time.

• **PLUS-WORKS-XM & XMP** - \$49.95 plus \$3.00 Ship/hand. XM requires same as above with legend, saturn, or compatible ram card (A.P.P.L.E. Big board, know Drive, prometheus, etc) or Apple IIe with ramcard. XMP requires CP/M card with 64K ram (PCPI or Micropro).

MC/Visa add 4%  
Information & New Jersey residents call 516-922-9584  
or send check or money order to:

Norwich Data Services Ltd.  
P.O. Box 356 • East Norwich, NY 11732-0356  
NYS residents add appropriate sales tax

Dealer inquiries invited  
Apple & AppleWorks are trademarks of Apple Computer Inc.  
PLUS-WORKS is a trademark of Norwich Data Services Ltd.

## NEW PRODUCTS

### Hardware

#### Cache Dash

SprintDisk is a **solid-state memory-expansion card** for the Apple IIe and II Plus that supports up to 1 megabyte of main-board RAM and includes SprintCache—software that lets programs run at RAM speed without modification. With the addition of an optional piggyback board, it's easy to expand the SprintDisk memory to 2 megabytes. The SprintDisk uses only one slot for 2 megabytes, an important consideration if you want to continue to modify your II. SprintDisk sells for \$299 with 256K of RAM, from AST Research, 2121 Alton Avenue, Irvine, CA 92714, (714) 476-3866. For more information circle number 350 on the Reader Service card.

### Text and Pictures

Concept Publishing Systems offers **hardware and software to typeset text, display advertisements, and graphics** on the Apple LaserWriter plain-paper printer. Concept equips the Mac with an internal hard disk, graphics tablet, and pen to enhance the power of its graphics. Driving the LaserWriter at 216 lines per minute, your Apple IIe, either alone or in a network, can typeset fully hyphenated, justified text. A five-terminal NewsSet system sells for \$43,878, to set you up in publishing. From Concept Publishing Systems, 126 Monroe Street, Beaver Dam, WI 53916, (414) 887-3731. For more information circle number 354 on the Reader Service card.

### Resources

#### Deep Data

The *Directory of Online Databases* is a **comprehensive, current guide to every kind of on-line data base**. This information is available to any user with a modem. The directory includes both bibliographic and nonbibliographic data bases, offers expert introductory tutorials in using data bases, and identifies the addresses of data-base producers and on-line service organizations. The book is issued every six months, each volume containing 400 pages and supplemented by updated information once. Indexes make it easy to locate a data base with the material you want and find out how to access it. A one-year subscription sells for \$95, from Cuadra/Elsevier, P.O. Box 1672, Grand Central Station, New York, NY 10163, (212) 244-6320. For more information circle number 364 on the Reader Service card.

#### Rambo

AST's MegaRamPlus lets you add as much as **1 megabyte of main-board RAM** and offers RAM-disk and memory-addressing expansion software as well. The innovative MegaRamCache software package will boost the speed of existing applications, also. MegaRamCache caching builds a buffer the size of the memory installed in the MegaRamPlus card to hold portions of the currently active application and eliminate the need to modify software. MegaRamCache is transparent to applications programs: Off-the-shelf software will run at RAM speed. The board sells for \$199, from AST Research, 2121 Alton Avenue, Irvine, CA 92714, (714) 476-3866. For more information circle number 351 on the Reader Service card.

## Product Updates

● How hot is Broderbund's Print Shop? Beagle Bros' latest catalog offers **Minipix Disk #1**—200 hi-res clip-art pictures for The Print Shop—for \$29.95. And Springboard, makers of the competing Newsroom, offers the **Graphics Expander Volume I** (\$39.95), 300 new pictures with editing and drawing tools to use with The Print Shop.

● Broderbund isn't letting "fourth-party" developers do all the work. The **Print Shop Graphics Library Disk 39** is here, with 120 new designs, symbols, and pictures. Rocky, Rambo, and The Print Shop: They never stop.

● **Touch Window** from Personal Touch works with The Print Shop now. Also with Broderbund's Dazzle Draw and Fantavision, Mindscape's Color Me, Baudville's Blazing Paddles, Penguin's Graphics Magician, and Koala's Graphics Exhibitor. Not to mention The Newsroom (Springboard), Bank Street Storybook (Mindscape), and Sargon III (Hayden).

● Cauzin Systems has **StripWare** for the Cauzin Softstrip System—John Wiley's **Art and Graphics** on the Apple II and //e and **Basic Apple //c**, for example. Also a volume each for home education and arcade games, a "disk doctor," some computer puzzles, and a balance sheet. Remember—you need the reader to read them.

● **MouseDesk**, from International Solutions, rounds out the MouseCalc-Mouse-Word-MouseBudget line with a desktop organizer and program selector to rival Quark's Catalyst 3.0. What will International Solutions find next in France? MouseDraw? MouseType? Mouse 1-2-3?

● The latest version of **Apple II Pascal, number 1.3**, is significantly different from earlier editions. Apple says fresh disks and manual paste-ins won't make the upgrade—you need the whole kit—disks and 1000-page manual. Before May 16, 1986, owners of Apple II Pascal can send the original disk, labeled PASCAL1, and \$125 (half the suggested retail) to Apple Computer Pascal 1.3 Upgrade, P.O. Box 306, Half Moon Bay, CA 94019, to receive the latest version.

● If you have a modem and CompuServe, there's an easy way to get up-to-the-minute info from **Peterson's College Guides**. Just key into Peterson's file on CompuServe (file name PSG) and choose your dream school with the on-screen menu.

● If you use Andrew Tobias' **Managing Your Money** software from MECA, the Chase Manhattan Bank wants to talk to you. Chase's **Spec-trum** home-banking service now interfaces telephonically with Managing Your Money. Its features are many, but automatic account reconciliation really stands out.

● **Sun Data** in Logan, Utah (801-752-7631), has agreed with Apple Computer to sell refurbished **Apple III** computers, software, and accessories, as well as provide support and service to Apple III owners. Does Sun have any plans for forgotten Lisa owners?

● Activision's **Hacker** challenge—the game begins with nothing more than "LOGON PLEASE"—has moved from the Mac to the Apple II, for \$39.95.

# THE SOFTWARE STATION

P.O. BOX 65885  
WEST DES MOINES, IA 50265

## "APPLE II SOFTWARE FOR LESS"

	RETAIL COST	YOUR COST
GATO	40.00	22.25
JEEVES	50.00	33.90
THE HANDLERS	170.00	87.50
NEWSROOM	60.00	35.50



Circle Number Below for our Price List  
CREDIT CARDS ARE ACCEPTED

Checks must clear. No extra charge for credit cards. \$2.50 min. shipping/handling.

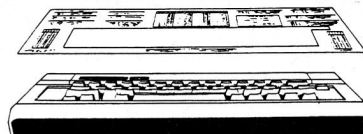
APPLE IS A REGISTERED TRADEMARK OF APPLE COMPUTER

Circle 238 on Reader Service Card.

## HAVING TROUBLE REMEMBERING ALL THE COMMANDS FOR YOUR PROGRAMS??

YOU NEED

# LEROY'S CHEATSHEET®



KEYBOARD OVERLAYS FOR THE

**Apple® IIe & IIc**

THE QUICK AND EASY SOFTWARE DOCUMENTATION

Forget about constantly referring back to the manual for operating commands. Discover all the "special" commands buried in the manuals. LEROY'S CHEATSHEETS are sturdy plastic laminated help sheets designed for use with popular software, hardware and languages for APPLE IIe & IIc computers. Commands are grouped together for logical use. You learn and use your programs faster and easier

IIe Cheatsheets are DIE CUT overlays designed to fit over the keyboard

only  
**\$5.95**  
each

IIc Cheatsheets are 7 x 10% reversible plastic laminated reference cards

With LEROY'S CHEATSHEETS® you will never have to hunt for a command again.

### WORD PROCESSORS

APPLE WRITER II ProDOS  
SCREENWRITER II  
SPEEDSCRIPT (COMPUTE!)

### PRINTERS

EPSON RX & FX 80 & 100  
GEMINI 10X & 15X  
IMAGEWRITER  
OKIDATA MICROLINE 92 & 93

### MISCELLANEOUS

BLANKS (SET OF 3)  
FLIGHT SIMULATOR II  
FOR THE BEGINNER (DOS 3.3)  
GRAPPLER + / PRINT WORKSHOP

### BUSINESS

APPLEWORKS  
MULTIPLAN  
PRACTICALC II  
SUPERBASE  
VISICALC

### LANGUAGES

BASIC (Dos 3.3)  
LOGO (APPLE)  
LOGO (TERRAPIN)  
BASIC (PRODOS)

MORE DESIGNS ON THE WAY  
CIRCLE YOUR CHOICES

IIe (overlay)  IIc (card)

QTY. \_\_\_\_\_ X \$ 5.95 = \$ \_\_\_\_\_

\* SHIPPING \$ 1.00\*

U.S. & CANADA \$1.00 6% TAX (PA. ONLY)

FOREIGN ORDERS \$3.00

CHECK, M.O., MC/VISA

U.S. FUNDS NO C.O.D. TOTAL \$ \_\_\_\_\_

MC/VISA # \_\_\_\_\_

EXPIRATION DATE \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

CHEATSHEET PRODUCTS INC.  
P.O. Box 111368 Pgh., PA 15238  
(412) 781-1551 cidr 2

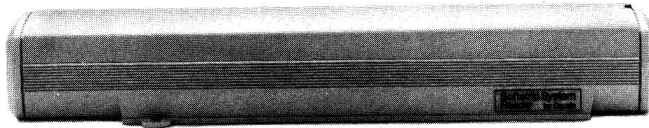


# It's amazing what you can reveal when you strip.

Introducing a shape that's about to turn on an entire industry.

The Softstrip™ data strip. From Cauzin.

This new technology allows text, graphics, and data to be encoded on a strip of paper, then easily entered into



The Cauzin Softstrip System Reader replaces tedious typing by scanning the strip and reading it into your computer.

your computer using a scanning device called the Cauzin Softstrip™ System Reader.

Creating a simple, reliable and cost efficient way to distribute and retrieve information.

Softstrip data strips, like those you see here, can contain anything that can be put on magnetic disks.

Facts. Figures. Software programs.

Video games. Product demonstrations.

Sheet music.



The Cauzin Softstrip System Reader is now compatible with the IBM PC, Apple II and Macintosh.

A single strip can hold up to 5500 bytes of encoded data.

It can stand up to wrinkles, scratches, ink marks, even coffee stains.

And it can be entered into your computer with a higher degree of reliability than most magnetic media.

Simply by plugging the Cauzin Reader into your serial or cassette port and placing it over the strip.

The reader scans the strip, converts it to computer code, and feeds it into any standard communication interface.

Because strips are so easy to generate, most of your favorite magazines and books will soon be using them in addition to long lists of program code.

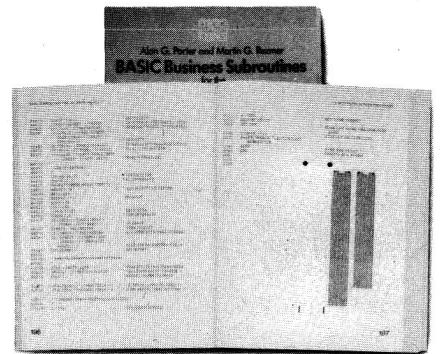
And you'll be able to enter programs without typing a single line.

There is also software for you to generate your own strips.

Letting you send everything from correspondence to business information using our new technology.

Find out how much you can reveal by stripping. Just take this ad to your computer dealer for a demonstration of the Cauzin Softstrip System Reader.

Or for more information and the name of the dealer nearest you, call Cauzin at 1-800-533-7323. In Connecticut, call 573-0150.



Soon everyone will be stripping as data strips appear in popular magazines, computer books and text books.



Cauzin Systems, Inc.  
835 South Main St., Waterbury, CT 06706



# MAN YOUR BATTLE STATIONS!

An unidentified fleet is on the horizon, heading your way. So, prepare to engage the enemy—via your modem. Here is the hi-tech version of Battleship, an old pencil-and-paper game. It is a game of strategy where you try to find and destroy your opponent's navy before yours is sunk.

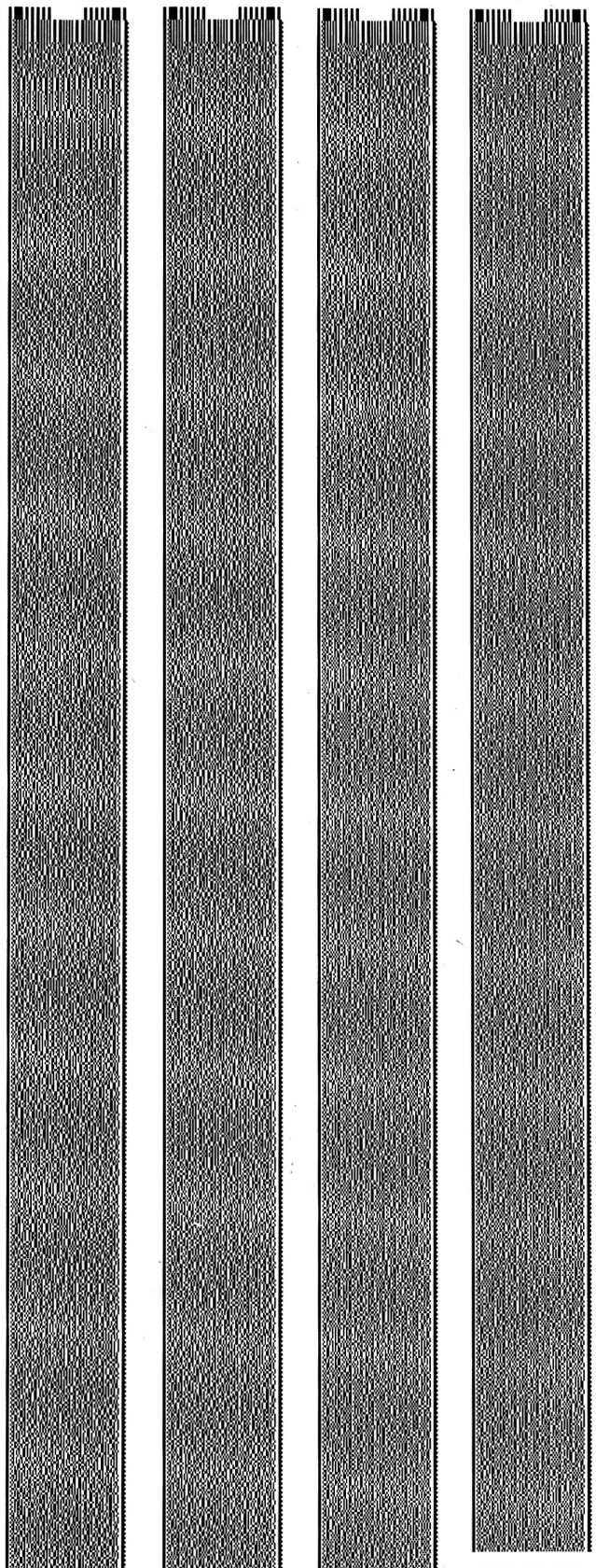
These data strips contain MODEM BATTLESHIP, by Kerry Lanz and Bob Ryan, for any Apple II computer and the Hayes Micromodem, Micromodem //e, and Hayes-compatible modems. It is reprinted from *inCider Magazine*, May, 1985.

Read the strips into any Apple II computer following the directions that come with your Cauzin Softstrip™ System reader.

There are three files on these strips. M.BATTLESHIP is the main program written in BASIC. It is compatible with DOS 3.3 and ProDOS. SOUND is a short binary file that provides sound effects for the game. It is loaded automatically when you run M.BATTLESHIP.

MODEM.TEXT is a text file created by Apple Writer that contains the complete original article. It has full documentation for using the program. Most popular word processors (including Apple Writer and AppleWorks) can use it.

*inCider* is a trademark of CW Communications, Inc./Peterborough, NH. Micromodem and Micromodem //e are trademarks of Hayes Microcomputer products.



1|

2|

3|

4|

Softstrip

# ASK INCIDER

by Bob Ryan

*If you have a question, Bob Ryan has the answer. Send your queries about Apple computing to Ask inCider, 80 Pine Street, Peterborough, NH 03458.*

## More on Memory #1

Dear *inCider*:

I'm on the brink of ordering a RamWorks II memory-expansion card for my Apple IIe to use with AppleWorks, but I need some specific information.

I need room for about 8000 records in an AppleWorks data base as an index for a magazine I publish. Entries are very short—Reagan, Ronald 45 67 89, for example. In your article on memory-expansion boards ("Thanks for the Memory," December 1985, p. 18), you said RamWorks II can handle 5100 records, but you didn't mention the size of the RamWorks board to which this refers.

What size do I need? If my file exceeds the capacity of my 140K floppies, how do I save the file? You also mentioned in your article that the entire AppleWorks program can be loaded into memory. What's the advantage of this? Does it leave a disk drive free so I can use it for something else? Finally, what do I do with my Apple Extended 80-Column Card after I install a RamWorks II?

**Donna Valley Russell**  
709 East Main Street  
Middletown, MD 21769

Dear *Donna*:

*The 5100-record capacity I mentioned for RamWorks does not depend on the amount of memory in your computer—it's a limitation of AppleWorks. (Actually, AppleWorks can handle only 1250 records in one file; the AppleWorks desktop-expansion software that comes with RamWorks II is responsible for the thousands of extra records.) You'll be happy to learn that Applied Engineer-*

*ing has once again (I can't keep up with these guys!) improved its desktop-expansion software, so you can easily fit your 8000 records into a single data-base file (which can now handle more than 13,000 records). Now you have to buy enough memory to ensure that 8000 records of the size you use will fit on your desktop.*

*Your sample record has 23 characters (bytes). I don't know how you've laid out your records or whether any of the fields are numeric, so let's err on the side of caution and say every record will take up about 40 bytes of memory. Multiplying 40 by 8000 gives you 320,000 bytes, or about 312K. In order to get a 312K desktop, you need a 512K RamWorks II board. (Memory-management overhead and AppleWorks itself take up the rest of the available memory.) If you find you need a larger desktop in the future, you can easily expand your RamWorks II board.*

*You don't need to worry about your data-base file exceeding the capacity of your floppies. AppleWorks, as modified by the desktop-expansion software, prompts you to insert a new disk whenever the current one is filled. All you have to do is make sure all the disks on which you save a particular file have the same volume name. In other words, if you're about to save a 312K data-base file, be certain you have three data disks available with the same name (such as /DATABASE). Your file will be segmented on the three disks. The individual files will be called FILENAME, FILENAME.1, and so on. When you want to load a multi-disk file, insert the first disk to which you saved. AppleWorks prompts you when it's time to insert the other disks.*

*Speed is the advantage of loading the entire AppleWorks program into memory. As you know, AppleWorks often has to access the program disk when performing certain functions, like printing or initializing a data disk. If you'd like to eliminate these disk ac-*

*cesses, you have the option, when you install the desktop-expansion software, of having the entire AppleWorks program load into memory whenever you boot the program. Of course, this increases the program start-up time to about two minutes.*

*Loading the entire AppleWorks program into memory also makes it very easy to run it on one-drive systems, though I doubt many people with 256K or larger memory-expansion cards have only one drive. In two-drive systems, the free drive could be used as another data disk or a place to put an AppleWorks accessory program.*

*By the way, if the file on which you're working needs the desktop space used when you load AppleWorks into memory, the parts of AppleWorks that aren't needed in memory will be overwritten. In this case, you'll have to put the AppleWorks program disk back on line.*

*Since RamWorks II does everything your Extended 80-Column Card does (and more), you don't need to hang onto it any longer. If the memory chips on your Extended 80-Column Card ride in sockets, you can remove them and add them to your RamWorks II, to give yourself an extra 64K. If the memory chips are soldered to the Extended 80-Column Card, you might try selling the card.*

## ProDOS COM

Dear *inCider*:

Could you please explain how I can convert a program name to a command under ProDOS? In other words, when I run a program, I want to be able to type "filename" instead of "run filename."

**Zi-chun Lin**  
39-43 59th Street  
Woodside, NY 11377

Dear *Lin*:

*I'm afraid ProDOS doesn't support a COM file type, unlike other operating systems such as CP/M and MS-DOS. Without modifying the operating*

system itself, there's no way to incorporate a file name into the ProDOS command structure.

If you just want to save some typing and not bother with file types, you can use the dash (-) command in ProDOS to load and run any executable file.

## More on Memory #2

Dear *inCider*:

The November 1985 *inCider* carried an announcement of the Apple II RAM Expansion Card (p. 12). I have an Apple II Plus with 48K, which has been adequate for my spreadsheet work. Now I'd like to use a particular income-tax package on my computer, but I don't have enough memory to run it. Will the II RAM Expansion Card increase my computer's memory to 248K? Is the II RAM Expansion Card available? Do you know where I can buy it?

Hobart P. O'Brien  
5521 Frederick Drive  
Cheyenne, WY 82001

Dear Hobart:

The Apple II Memory Expansion Card (Apple finally settled on this name) is not available at press time (December 1985), and may not be available when this issue hits the newsstand (mid-February 1986). When it's shipped, you'll be able to buy it at any Apple II dealership. The card will come in four sizes (256K, 512K, 768K, and 1 megabyte), so you can choose the amount of memory you want to add.

There are two important points you must consider before you buy an Apple II Memory Expansion Card. First, does the software you want to run support the card? That is, is the software designed to recognize the extra memory in your machine and utilize the extra memory it finds? If the software doesn't recognize the card, your investment in the Memory Expansion Card is wasted.

Second, the technology behind the Apple II Memory Expansion Card has not been proved. I have yet to see a production model, so you'd better take what I have to say with a grain of salt, but it seems the Memory Expansion Card is best suited as a RAM disk, not a true main-memory expander. Consequently, not only do you have to find out if your software recognizes the Apple II Memory Expansion Card, but also how your software uses the card. Will your soft-

ware use the card simply as a RAM disk to increase disk-access time, or will it use the card to actually expand the size of your spreadsheets and word-processed documents?

Obviously, a number of questions concerning the Apple II Memory Expansion Card can't be answered until production versions are made available to the press and public. Frankly, I grow more skeptical every day about the usefulness of this card, but I'll withhold judgment until all the facts are in.

## Some Like It Hot

Dear *inCider*:

I recently purchased a //c with an external drive and a Hayes Smartmodem 300. The space I have available for my computer system is limited, so I'm forced to put the modem under the external drive.

I've noticed that when I use the modem, it generates some heat. Is this apt to create any hazards for the

drive? Will the modem create any RF interference that might harm the drive's operation?

Mark Frank  
110 Highland Avenue  
Staten Island, NY 10301

Dear Mark:

It's unlikely that the heat your Smartmodem generates will harm your //c external drive. The amount of heat a Smartmodem gives off isn't enough to affect the electronics of the drive. Also, since it's an electronic device, the Smartmodem produces very little RF interference. Most RF problems come from electromechanical devices, like disk drives.

This brings up one possibility you didn't mention. The external drive is more likely to interfere with your modem, rather than your modem interfering with your drive. You may possibly lose some data when they're operating at the same time, but unless you actually notice a problem, don't bother changing your current setup. ■

# KINDERGARTEN

...JUST GOT EASIER!

## KINDER KONCEPTS—30 ACTION—PACKED PROGRAMS FOR PRE-SCHOOL TO REMEDIAL FIRST GRADE

- ★ SOFTWARE REPORTS GAVE THEM AN ALL "A" RATING
- ★ ELECTRONIC LEARNING LOVED THEM
- ★ YOUR KIDS WILL LOVE THEM TOO
- ★ MATH SERIES COVERS COUNTING, MORE, LESS, LONGEST, SHORTEST, MATCHING, SUBTRACTION, ONE-HALF, AND MORE...
- ★ READING SERIES COVERS SHAPES, MATCHING, ORDER, SEQUENCES, DISCRIMINATION, AND MORE..

FOR APPLE II FAMILY, COMMODORE 64, PET

NO RISK—TRY THEM ON APPROVAL IN YOUR SCHOOL FOR 30 DAYS

Complete set with Backups (30 Programs) **\$99.00**  
Reading Disk only with Backup (15 Programs) **\$55.00**  
Math Disk Only with Backup (15 Programs) **\$55.00**



**MIDWEST SOFTWARE**  
Box 214 Farmington, MI 48024  
VISA / MASTERCARD

ORDER LINE 9:00 A.M. - 5:00 P.M. **1-800-422-0095**

Michigan, and orders after 5:00 P.M. - (313) 477-0897

# 240K Apple® Compatible Computer System

**NEW**

**SALE**

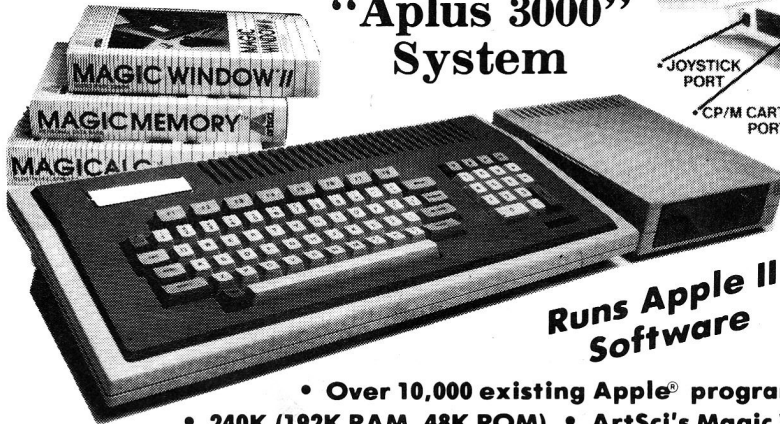
**Aplus 3000 computer system includes 192K RAM, 48K ROM (32K Microsoft Basic plus 16K ROM Emulator), 160K Laser 5¼" Disk Drive (Runs Apple II Software), Magic Window Wordprocessor, MagiCalc spreadsheet, Magic Memory Database. All for only \$399.00**

**Complete System**

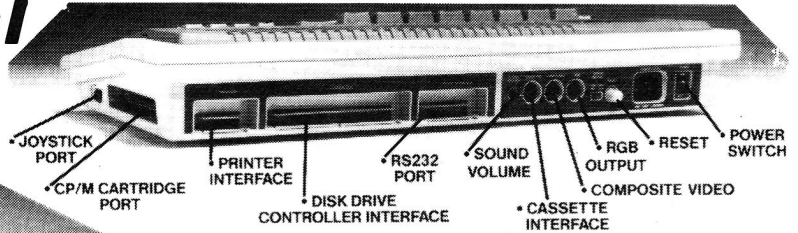
**\$399<sup>00</sup>**

**• 15 Day Free Trial**

**"Aplus 3000" System**



**Runs Apple II Software**



**Double Immediate Replacement Warranty**

If any of the Aplus 3000 computer system equipment fails due to faulty workmanship or material within 180 days of purchase we will REPLACE it immediately with no service charge!!

- Over 10,000 existing Apple® programs
- Centronics printer interface included
- 240K (192K RAM, 48K ROM)
- ArtSci's Magic Window II, Magic Memory, and MagiCalc included
- 160K Laser 5¼" Disk Drive (Runs Apple II software)
- RGB (80 columns in color) and composite included

**SPECIFICATIONS**

A plus 3000 is a complete, self-contained computer based on the popular 6502A microprocessor and can tap into the tremendous software library of Apple II. Features include 192K Bytes RAM, 32KB Enhanced Microsoft BASIC, 80 column text, 560H X 192V color graphic display, 81 key sculptured keyboard and high efficiency switching power supply. Also included as standard are Centronics bus printer interface, Cassette interface, 4 channel sound generator, and 5¼" Apple Compatible Disk Drive.

- **TEXT**
  - 40 columns X 24 rows or 80 columns X 24 rows software selectable.
  - 5 X 7 characters in 7 X 8 matrix.
  - Upper and lower case characters.
  - One of Eight colors for characters/graphics and background, Red, Green, Blue, Cyan, Magenta, Yellow, Black and White.
  - Character set with normal, inverse and flashing capabilities.

- **GRAPHICS**
  - 280H X 192V 6 colors — Black, White, Violet, Green, Blue, Orange.
  - 280H X 192V 8 colors bit image — Black, White, Red, Green, Blue, Cyan, Magenta, Yellow.
  - 560H X 192V 6 colors — Black, White, Violet, Green, Blue, Orange. (High resolution color monitor required)

**More Features than Apple® for less than Commodore®**

Features	Aplus 3000	Apple IIe	Commodore C-128
RAM	<b>192K</b>	64K	128K
Runs Apple II Software	<b>Yes</b>	Yes	No
Function Keys	<b>24</b>	None	16
4 Voice, 6 Octave Sound	<b>Yes</b>	No	Yes
Composite Video	<b>Yes</b>	Yes	Yes
Disk Drive	<b>Included</b>	Extra Cost	Extra Cost
Numeric Keypad	<b>Included</b>	Extra Cost	Included
Video Cable	<b>Included</b>	Extra Cost	Extra Cost
RGB Color Card	<b>Included</b>	Extra Cost	Included
80 Column Card	<b>Included</b>	Extra Cost	Included
Centronics Printer Interface	<b>Included</b>	Extra Cost	Extra Cost
Drive Controller	<b>Included</b>	Extra Cost	Included
\$150 Wordprocessor (Magic Window)	<b>Included</b>	Extra Cost	Extra Cost
\$150 Spreadsheet (MagiCalc)	<b>Included</b>	Extra Cost	Extra Cost
\$60 Database prg. (Magic Memory)	<b>Included</b>	Extra Cost	Extra Cost
<b>Your Cost</b>	<b>\$399.00</b>	\$1745.00	\$1117.90

**ACCESSORIES**

	LIST	SALE
2nd Disk Drive	\$299.95	\$149.95
2 professional analog joysticks	\$ 39.95	\$ 24.95
Z-80 cart. allows CP/M use	\$ 99.95	\$ 59.95
RS232 adapter	\$ 99.95	\$ 59.95
R/F Modulator (TV hookup)	\$ 29.95	\$ 19.95
RGB cable (RGB Monitor hookup)	\$ 24.95	\$ 19.95
Centronics cable (for Centronics printer)	\$ 34.95	\$ 24.95
Technical reference manual	\$ 29.95	\$ 19.95
Comstar 10x 120-140 CPS dot matrix printer	\$399.00	\$179.00
80 columns Hi-Res Amber Monitor	\$199.00	\$ 89.95
80 column Hi-Res RGB Monitor	\$399.00	\$259.00

**Super Apple Compatible Disk Drive Sale \$149.95.** Quieter, Cooler, Better Disk Drives for your Apple II plus, IIe, IIc (specify when ordering). List \$299.95. Sale \$149.95.

**15 Day Free Trial — If it doesn't meet your expectations within 15 days of receipt, just send it back to us UPS prepaid and we will refund your purchase price!!**

**Add \$25.00 for shipping and handling!!**

Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days for delivery. 2 to 7 days for phone orders. 1 day express mail! We accept Visa and MasterCard. We ship C.O.D. to continental U.S. addresses only. Add \$10 more if C.O.D.

**COMPUTER DIRECT**

*We Love Our Customers*

22292 N. Pepper Rd., Barrington, Ill. 60010

**312/382-5050 to order**

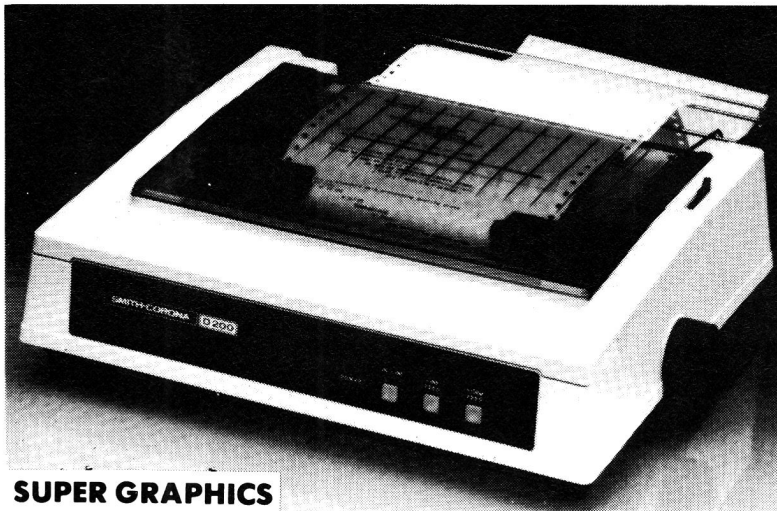
APPLE and COMMODORE are registered trademarks of Apple Computer Inc. and Commodore Business Machines, Inc., respectively

**Famous Smith Corona National Brand**

# 10" PRINTER SALE

**Below Wholesale Cost Prices!!!**

- **ONE YEAR IMMEDIATE REPLACEMENT WARRANTY**
- **Speed: 120 or 160 characters per second** • **Friction Feed/Tractor Feed — Standard**
- **80 character print line at 10 CPI** • **1 Line Buffer, 2K Buffer on 120/160 CPS Plus LQM**
- **Six pitches** • **Graphics capability** • **Centronics compatible parallel interface**
- **Features Bidirectional Print, Shortline Seek, Vertical And Horizontal Tabs**



**SUPER GRAPHICS**

This is a sample of our **emphasized** near-letter-quality print. *italic print.* There is standard data processing quality print

*Check these features & prices*

**120 CPS 10" Printer**  
 List \$429.00 **SALE \$159**

**120 CPS + Letter Quality Mode 10" Printer**  
 List \$449.00 **SALE \$179**

**160 CPS + Letter Quality Mode 10" Printer**  
 List \$499.00 **SALE \$199**

(IBM — Commodore )

## SPECIFICATIONS

(Apple — Atari — Etc.)

**Size/Weight**  
 Height 5.04" Width 16.7"  
 Depth 13.4" Weight 18.7 lbs.  
**Internal Char. Coding**  
 ASCII Plus ISO  
**Print Buffer Size**  
 120 CPS: 132 Bytes (1 line)  
 120/160 CPS Plus LQM: 2K  
**No. of Char. in Char. Set**  
 96 ASCII Plus International  
**Graphics Capability**  
 Standard 60, 72, 120 DPI  
 Horizontal 72 DPI Vertical  
**Pitch**  
 10, 12, 16.7, 5, 6, 8.3, Proportional Spacing  
**Printing Method**  
 Impact Dot Matrix

**Char. Matrix Size**  
 9H x 9V (Standard) to 10H x 9V  
 (Emphasized & Elongate)  
**Printing Features**  
 Bi-directional, Short line seeking, Vertical  
 Tabs, Horizontal Tabs  
**Forms Type**  
 Fanfold, Cut Sheet, Roll (optional)  
**Max Paper Width**  
 11"  
**Feeding Method**  
 Friction Feed Std.; Tractor Feed Std.  
**Ribbon**  
 Cassette — Fabric inked ribbon  
**Ribbon Life**  
 4 million characters

**Interfaces**  
 Parallel 8 bit Centronics compatible  
 120/160 CPS Plus NLQ: RS232 Serial inc.  
**Character Mode**  
 10 x 8 Emphasized; 9 x 8 Standard; 10 x 8  
 Elongated; 9 x 8 Super/Sub Script (1 pass)  
**Character Set**  
 96 ASCII  
 11 x 7 International Char.  
**Line Spacing**  
 6/8/12/72/144 LPI  
**Character Spacing**  
 10 cpi normal; 5 cpi elongated normal; 12 cpi  
 compressed; 6 cpi elongated compressed;  
 16.7 cpi condensed; 8.3 cpi elongated  
 condensed; 5.12.5 cpi elongated proportional

**Cartridge Ribbon — List \$19.95. Sale \$12.95.**

### Interfaces

**IBM \$89.00**

**Apple \$59.00**

**Atari \$59.00**

**Commodore \$39.00**

Add \$14.50 for shipping, handling and insurance. Illinois residents please add 6% tax. Add \$29.00 for CANADA, PUERTO RICO, HAWAII, ALASKA. APO-FPO orders. Canadian orders must be in U.S. dollars. WE DO NOT EXPORT TO OTHER COUNTRIES, EXCEPT CANADA. Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days delivery. 2 to 7 days for phone orders. 1 day express mail! VISA — MASTERCARD — C.O.D. No C.O.D. to Canada or APO-FPO

**COMPUTER DIRECT**  
*We Love Our Customers*  
 22292 N. Pepper Rd., Barrington, Ill. 60010  
**312/382-5050 to order**

# APPLESOFT ADVISER

## An Applesoft Bar Builder

by Dan Bishop

The array is one of the most versatile tools available to the BASIC programmer. In February's column (p. 94), I presented an amortization-schedule program that uses three arrays to store each payment's principal, interest, and remaining balance. This month I'll show you how you can use arrays to display data graphically. In most of these cases, you type in the data as a "batch" of values. Bar Builder (see the accompanying **Program listing**) then manipulates these values into graphics parameters, which it uses to define the resulting display. Since the program stores all of the values in an array as you type them in, you can alter individual data elements or the graph parameters after viewing the display, without having to reenter the entire data set.

### Drawing Bars

Using low-resolution graphics mode to draw horizontal and vertical bars in Applesoft is easy. First issue the GR command, which tells your computer to enter lo-res. Then specify the color you want to use for the line you're drawing. Low-resolution graphics gives you 16 colors from which to choose, numbered zero (black) to 15 (white). For example, type the command `COLOR = 2` if you want a dark-blue (2) line.

Now imagine your video screen divided into 40 columns (numbered zero to 39) and 40 rows (also numbered zero to 39). To draw a vertical line in (or "AT") column 20 and extending from row 12 through row 35, use the command `VLIN 12,35 AT 20`. That's all there is to it!

Applesoft handles horizontal lines the same way. With the AT clause, specify the row in which you want the horizontal line to appear, and specify the starting and ending column num-

Using Applesoft arrays, you can construct multicolored bar graphs on the low-resolution graphics screen.

bers immediately following the HLIN. For example, a horizontal line extending across the bottom of the graphics-display screen appears following the command `HLIN 0,39 AT 39`.

The GR command turns the low-resolution graphics mode on. This display does not fill the entire screen, however. A four-row text window at the bottom of the screen leaves room for typing in titles or labels for your graphics display.

The **Program listing** uses one other graphics command. `CALL -1994` clears the low-resolution graphics screen. It works like the HOME command in text mode. And, finally, the command that returns the display to text mode (the opposite of the GR command) is simply the word TEXT.

### The Bar Builder Program

Bar Builder is a short program that displays up to 38 data values as a vertical bar graph, or histogram. The graphics display consists of a dark-blue frame along the edges of the graphics screen. The histogram is centered within this frame. Two colors alternate as the bars forming the histogram. The colors the **Program listing** displays also provide a visual contrast on the Apple's monochrome monitor. You can change them by altering lines 110 and 120.

The program automatically adjusts the width of the individual bars to take advantage of the full 40-column width of the screen. If you type in fewer than 13 values, the bars are three columns wide. Thirteen to 19 values result in bars that are two columns wide, while for 20-38 values,

each bar occupies only a single column. Once it determines the width, the program calculates the size of the left- and right-hand margins needed to center the graph. The variables for width (W) and margin (MG) are calculated in lines 3180 through 3230.

You may type in up to three lines of text when you run the program; these three lines appear in the text window below the graphics display. You must type in each line separately when the appropriate prompt appears. If you want to type in a line of text that begins with several blank spaces (for example, to center a title), type a quotation mark as the first character, then enter the spaces. Without the quotation mark, Applesoft will ignore the spaces and left-justify the text.

You can also subtract a "base" amount from each entry. You may need such an option for cases in which the data values are very large and the differences between them are small. The program must reduce each value to a "zero to 37" scale to fit on the graph, while maintaining the closest possible relation to the other values. Suppose you have five data elements: 898, 895, 900, 899, and 905. The program presented here would plot these as five bars of nearly equal height. If you instruct the program to remove 890 from each element, though, the data values it plots will be 8, 5, 10, 9, and 15. The effect is to zoom in on the upper portion of the graph. Just don't forget that you'll be looking at only the "tip of the iceberg."

You can also return to the program after viewing a graph and change one or more of the values you entered—so you can correct entry errors without having to type in the entire data set. One note of caution, though: If you subtracted a value from all data elements as described above, you must add that value back in

# SCRG

# SOUTHERN CALIFORNIA RESEARCH GROUP

# INSTANT APPLEWORKS™

Now, you can have **APPLEWORKS™** built-in your APPLE //e™. With our programming service, your copy of **APPLEWORKS**, and the **quikLoader™**, your computer can be ready within 2 seconds after applying power.

After receiving your order, we will immediately send you a kit containing everything you'll need. (Units purchased through dealers will contain the kit). Copy your original **APPLEWORKS** program onto the disks included in the kit. Configure the program the way you want it used, and return it to us in the envelope provided. We will program the

necessary "chips", install them in the **quikLoader**, verify proper operation, and rush it to you. When you receive it, just plug it into *any* peripheral slot. No more searching for your disks, waiting for the startup disk to load, swapping to the program disk, and waiting even longer. The **quikLoader** is faster and more reliable than even a hard disk drive. Updates should be no problem, as the "chips" are re-programmable.

**quikLoader**— \$179.50  
programming service— 89.50  
Total— \$269.00

APPLEWORKS and APPLE //e are trademarks of APPLE COMPUTER INC.  
quikLoader (designed by Jim Sather) is a trademark of S.C.R.G.

**SEE A DEMO AT YOUR DEALER**

## SWITCH-A-SLOT



\$179.50

Designed by Joy George

The **SWITCH-A-SLOT** is an expansion chassis, which allows the user to plug in up to four peripheral cards in one slot. One of these cards is selected for use, and *only* that card draws power.

This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers.

**SWITCH-A-SLOT** and **EXTEND-A-SLOT** work well with most slow to medium speed cards, such as modems, printers, clock, music, etc. They are not recommended for high speed data transfer devices such as disk drive controllers, alternate processor, and memory cards.

Due to the nature of these products, and unit-to-unit variations of computers and peripherals, we are unable to guarantee that these products will work with any particular system. However, as with all our products, we offer a ten-day trial period. If our product does not operate to your satisfaction, return it for a prompt refund.

## EXTEND-A-SLOT

The **EXTEND-A-SLOT** brings a slot outside your APPLE™, allowing an easy change of cards. The 18" (45cm) cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability.

\$34.95

## SLOT 3 CLOCK™

Designed by Chuck Shaffer

The **SLOT 3 CLOCK** will plug into any slot of the APPLE ][, ][+, or //e. The main feature is that, unlike most cards, it can plug into slot 3 of the //e *without interfering* with the operation of the Extended 80-column card. **PRODOS™** is fully supported, and the card is **APPLESOFT™** compatible. Installation software and a long-life **DURACELL™** lithium battery are included.

\$79.50

## PROMGRAMER™

Hardware design by Bob Brice

Software by Bob Sander-Cederhof

The **PROMGRAMER** is an inexpensive **EPROM** (Erasable Programmable Read Only Memory) programmer for the **APPLE ][, ][+, and //e** computers. The unit plugs into any slot of the computer, and allows the user to program any standard 5 volt, 27 series **EPROM**. Although not intended as a production tool, the ease of use allows rapid programming, copying, duplication, or modification of **EPROMs**.

\$149.50

## Paddle-Adapple

The **PADDLE-ADAPPLE** is a game plug expansion adapter that plugs into the interior game I/O socket, and is designed to operate in one of two modes. In the first, it allows you select between one of two devices, such as Koala Pad™ and joystick. The device is selected by the flip of a switch. In the second mode, the **PADDLE-ADAPPLE**, with appropriate software, allows the use of two joysticks simultaneously to allow use with games such as **ONE-ON-ONE™** and **ARCHON™**.

There are three versions to adapt to any combination of the newer type APPLE connector (the 9-pin 'D' sub-miniature), or the older 16-pin plug.

- The **PADDLE-ADAPPLE** has two 16-pin sockets.
- The **PADDLE-ADAPPLE COMBO** has one 'D' subminiature and one 16-pin connector.
- The **PADDLE-ADAPPLE 'D'** has two subminiature 'D' (9-pin) connectors.

\$29.95

## 9-16 Adapter for APPLE //e & //c

The 9-16 adapter permits the use of most 16-pin I/O devices with the **APPLE //e or //c**. Plugging this adapter into the subminiature 'D' connector allows the use of 16-pin device, such as the **PADDLE-ADAPPLE**, paddles, joystick, 16 pin Koala Pad™, etc. The only limitations are those devices that use the annunciators or the \$C040 strobe. **NOTE**—the //c does not support two joysticks.

\$14.95

## 16-9 Adapter for APPLE ][ and ][+

With this adapter, owners of early **APPLEs** can take advantage of the newer 9-pin game products, such as paddles, joysticks, **MUPPET LEARNING KEYS™**, etc. **NOTE** — If you have more than one game I/O device, consider purchasing our **PADDLE-ADAPPLE COMBO** or **PADDLE-ADAPPLE 'D'** instead.

\$14.95

at your local dealer or direct from:  
**SOUTHERN CALIFORNIA  
RESEARCH GROUP**

Post Office Box 593-R  
Moorpark, CA 93020

Telephone (805) 529-2082

Telex: 658340 - SCRG (Intertel SNC)

Shipping charges: U.S. & Canada \$2.50

Other: Switch-A-Slot; \$10.00 surface; \$25.00 air. Other products \$5.00 surface; \$10.00 air.

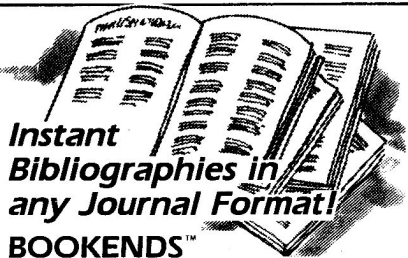
**SIX MONTH WARRANTY  
TEN DAY RETURN PRIVILEGE  
TOLL-FREE ORDER LINES**

NAT'L (800) 635-8310

CALIF. (800) 821-0774

Information (805) 529-2082

**VISA & MASTERCARD ACCEPTED**



## Instant Bibliographies in any Journal Format!

### BOOKENDS™

allows you to quickly put your finger on any journal, any paper, any book, any specific information contained in your voluminous files.

**As the New England Journal of Medicine** states in its issue of January 12, 1984, it "addresses two widespread problems: first, the challenge of cataloging all the information we read; second... the need to convert bibliographic information into the...format demanded by each medical journal. Both problems are solved here in an excellent way."

**Bookends** has extraordinary versatility and edits with the ease of a word processor. There is no quicker or more efficient means of saving, retrieving and formatting reference information.

**Bookends Extended** is available with above features plus 80-column display, more memory, and ability to handle unlimited references.

**BOOKENDS™**, the reference management software system is available for Apple computers for \$124.95. Bookends Extended \$149.95.

Apple is a trademark of Apple Computer, Inc.

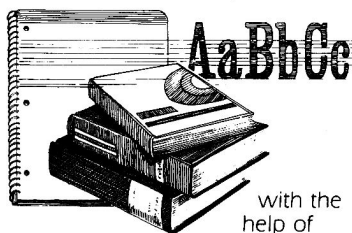


**Sensible Software, Inc.™**

210 S. Woodward, Suite 229,  
Birmingham, MI 48011 (313) 258-5566

Circle 85 on Reader Service Card.

## Preparing Grades is as easy as



with the help of

### Report Card,™

the software program which saves you time and helps you avoid mistakes, even if you are a computer novice.

**Report Card** tracks up to 300 students on one diskette, holds up to 40 students per class and 50 activities per student. It correctly handles "incompletes," calculates student and class averages, and ranks students with various printing and sorting options. And it has a built-in editor which makes it easy to make corrections and remove incompletes.

## REPORT CARD™

including software, manual and tutorial is available for Apple and IBM PC computers for \$59.95.

Apple and IBM PC are trademarks of Apple Computer, Inc. and International Business Machines Corporation, respectively.



**Sensible Software, Inc.™**

210 S. Woodward, Suite 229,  
Birmingham, MI 48011 (313) 258-5566

### Program listing. Bar Builder.

```

5 REM
6 REM *****
7 REM BAR BUILDER
8 REM MAIN PROGRAM
9 REM *****
10 TEXT : HOME : GOSUB 100
20 GOSUB 1000: GOSUB 1200
30 GOSUB 3100: GOSUB 3000: GOSUB 3500
40 INPUT "CONTINUE <C> OR END <E>...";X$
50 IF X$ < > "C" AND X$ < > "E" THEN 40
60 IF X$ = "E" THEN 90
70 TEXT : HOME : GOSUB 1300
80 GOTO 30
90 TEXT : HOME : END
95 REM
96 REM *****
97 REM VARIABLE INITIALIZATION
98 REM *****
99 REM
100 DIM D(40),ND(40),T$(3)
110 C1 = 5
120 C2 = 12
130 FOR I = 0 TO 40
140 D(I) = 0
150 NEXT I
160 RETURN
195 REM
196 REM *****
197 REM INVALID ENTRY RESPONSE
198 REM *****
199 REM
200 PRINT : PRINT "INVALID ENTRY. "
210 INPUT "PRESS <RETURN> TO CONTINUE...";X$
220 RETURN
995 REM
996 REM *****
997 REM GET GRAPH PARAMETERS
998 REM *****
999 REM
1000 HOME : PRINT
1010 PRINT "*****"
1020 PRINT " SINGLE DATA SET BAR GRAPH BUILDER"
1030 PRINT "*****"
1040 PRINT
1050 PRINT "HOW MANY DATA POINTS (1-38)"
1060 PRINT "DO YOU WISH TO ENTER (0 TO END)...";
1070 INPUT N
1080 IF N < 0 OR N > 38 THEN GOSUB 200: GOTO 1000
1090 PRINT
1100 FOR T = 1 TO 3
1110 PRINT "ENTER TEXT LINE #\"T\": "
1120 INPUT " ";T$(T)
1130 PRINT
1140 NEXT T
1150 RETURN
1195 REM
1196 REM *****
1197 REM GET DATA ELEMENTS
1198 REM *****
1199 REM
1200 PRINT
1210 FOR I = 1 TO N
1220 PRINT "DATA POINT #\"I\": ";
1230 INPUT " ";D(I)
1240 NEXT I
1250 PRINT : PRINT "WHAT COMMON VALUE DO YOU WANT"
1260 PRINT "SUBTRACTED FROM EACH ELEMENT (OR 0)";
1270 INPUT SF
1280 PRINT "THIS VALUE WILL BE STORED IN ELEMENT 0."
    
```

Listing continued.



again (by changing element zero by the negative of the amount you subtracted). Using the example in the previous paragraph, you would elect to change only element zero, make it -890, then cycle back to the graph display. It's now safe to go back and correct any of the other elements, and to change element zero from -890 to 890 again and display the corrected graph.

Since the program automatically alternates colors as it draws the histogram, you can display two sets of related data to illustrate the differences between them. To do this, simply alternate entries. Type in values from the first set for all odd entries, and the corresponding values from the second set for all even entries.

### Normalization of Data

The values you type in for your data may be any positive numbers, ranging from minute decimal fractions (such as 0.0000123) to astronomical figures. To manipulate these entries into values it can display on screen, your computer must convert each value to an integer ranging from zero through 37, and maintain the relative differences between them. This process is called *normalization*, and involves the calculation of some *normalization factor* (NF in the **Program listing**) by which every data element is multiplied.

In this program, the D array contains the original entries, while the ND array contains the normalized values for the histogram display. Lines 3100-3140 calculate the normalization factor, and lines 3150-3170 multiply each value in D by this factor.

The first step in the normalization process is finding the largest value contained in the data set. When the program finds this value, it stores it in D(40). The maximum length of any bar in the histogram is 37, so the program divides 37 by D(40) to arrive at NF. It then multiplies all elements by NF. Thus the program maintains the relative "intensities" of the elements.

Finally, line 3560 actually draws the bar:

```
VLIN 39 - ND(H), 38 AT MG + W *
      (H - 1) + (LW - 1)
```

This line instructs your computer to subtract the normalized value for the element it's currently plotting (element H) from 39 to determine the high point for this particular bar. For example, if ND(H) is 37 (the maximum normalized value), then  $39 - 37 = 2$ . The top of this bar will be at row 2,

inCider

**"Bar Builder  
generates some  
rather striking  
histograms, and is  
fun to play with."**

and it will extend down to row 38, the base line for the graph. On the other hand, if ND(H) is 2, then  $39 - 2 = 37$ . The top of this bar will be at row 37, and the bar will extend down to row 38.

In calculating the column for this particular bar, the program adds the value of MG, the left margin, to the number of columns already filled in:  $H - 1$  is the number of elements already covered, and W is the width of each bar.  $W * (H - 1)$  represents the number of columns taken up by

previous elements. Finally, if the bar width is greater than 1, the program adds the number of columns already drawn for this particular element to  $MG + W * (H - 1)$ . This accounts for the  $LW - 1$  term in line 3560.

### Conclusion

Bar Builder generates some rather striking histograms, and is fun to play with as well. Although it's designed for a single data set, you can use it with two data sets, since the program alternates between two colors when drawing the graph. For three or four data sets, though, the best form for the histogram consists of overlapping bars with blank columns between groups of bars. Multiple-dimensional arrays are ideal for handling this type of information. Next month I'll deal with just such a situation; in the meantime, try modifying Bar Builder so that it can handle four sets of data in an overlapping-histogram display. ■

Write to Dan Bishop at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

## COPY II PLUS

### Version 6!

#### BRINGS YOU THESE PRODOS AND DOS 3.3 UTILITIES:

- Copy files, disks, even entire subdirectories.
- Alphabetize catalog.
- Undelete ProDOS and DOS files.
- Convert DOS to ProDOS & vice versa
- Fast 2-pass disk copy on Apple //e, //c or Laser 128.
- Tree display for selecting subdirectories - no need to type lengthy "prefixes"!

#### BACKUP YOUR PROTECTED SOFTWARE!!

With COPY II PLUS' fully automatic\* bit copier, simply type in the name of the program you want to backup and COPY II PLUS does the rest! Parameters for hundreds of programs are right on disk! Also includes a track editor, sector editor and HI-RES disk display.

Supplied on a standard ProDOS diskette. Runs on Apple //, //+, //e, //c and Laser 128. Requires at least 64K and one or two disk drives.

**For the Security of Backups and All the Disk Utilities You'll Ever Need...**

### COPY II PLUS, Version 6!!

**CENTRAL POINT**  
Software, Inc.

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

**503/244-5782**

M-F, 8-5:30, W. Coast Time



CHECK, COD WELCOME  
(Prepayment Required)

**\$39.95**

plus \$3 s/h (\$8 overseas)

\*We update COPY II PLUS as often as needed to handle new protections; you as a registered owner may update at any time for \$15 plus \$3 s/h.

*This product is provided for the purpose of enabling you to make archival copies only.*

# NEW!

## The Diversified Accountant™ Job Cost System

**The Best By Far** - The Diversified Accountant is by far the fastest, most powerful, and easiest to use Job Cost System on the market.

**High Capacity** - Handles 1,000 active jobs, 200 work codes, and 845 vendors or employees. Holds 380,000 data entries on a 10-meg hard disk, or 3,000 entries on a floppy disk.

**Optimized Data Entry** - Accepts data as fast as you can type. Skilled operators can enter a complete transaction in less than 10 seconds.

**Highly Flexible Reports** - Unique data selection/computation process lets you find virtually anything you want to know about your actual and estimated costs.

**Incredibly Fast** - Using Pascal and optimized Machine Language, The Diversified Accountant can usually compute a report faster than your printer can print it.

**Programmer Supported** - Mail and telephone support is available from Bill Basham. We will notify you of all major updates, which you can buy for \$5.

**Try it First** - Our \$5 demo disk is an actual working copy of the program. We believe that the best way to sell a program this good, is to put it in your hands. Check it out!

### BUY THE BEST BY FAR BUY DSR

- Diversi-DOS™** ..... \$30  
DOS 3.3 enhancement
- Diversi-COPY™** ..... \$30  
Hi-speed disk back-up/format
- Diversified Accountant™** ..... \$475  
Job Cost System
- Demonstration Disk ..... \$5
- Diversi-DIAL™** ..... \$475  
7-line C.B.-simulator
- Demonstration Disk ..... \$5

#### 24-Hour Toll-Free Ordering

800 835-2246 ext. 127 (orders only)

For information call 313 553-9460

300-Baud Modem call 313 553-4466

**FREE:** Dogfight II arcade game included with Diversi-DOS and Diversi-COPY

All programs work on Apple //e, //c or 64K Apple II+ compatible computers.

Sold by Mail-Order Only. Price includes 1st class or foreign airmail.

C.O.D., Visa/Mastercard (Include Exp. Date)

Personal Check, Purchase Orders accepted

Diversified Software Research, Inc.  
34880 Bunker Hill  
Farmington, MI 48018-2728 

# APPLESOFT ADVISER

Listing continued.

```

1290 D(0) = SF: RETURN
1295 REM
1296 REM *****
1297 REM DATA ENTRY CORRECTION
1298 REM *****
1300 PRINT "-----"
1310 PRINT "DO YOU WISH TO CHANGE ANY DATA ENTRIES?"
1320 INPUT "(Y/N)...";X$
1330 IF X$ < > "Y" AND X$ < > "N" THEN GOSUB 200: GOTO 1300
1340 IF X$ = "N" THEN 1390
1350 INPUT "WHICH ENTRY NUMBER...";EN
1360 PRINT "ENTRY "EN" IS "D(EN)".
1370 INPUT "WHAT VALUE SHOULD IT HAVE? ";NV
1380 D(EN) = NV: GOTO 1300
1390 SF = D(0): RETURN
2995 REM
2996 REM *****
2997 REM BLUE GRAPH BORDER
2998 REM *****
2999 REM
3000 GR : CALL - 1994
3010 COLOR= 2
3020 VLIN 0,39 AT 0
3030 VLIN 0,39 AT 39
3040 HLIN 0,39 AT 0
3050 HLIN 0,39 AT 39
3060 RETURN
3095 REM
3096 REM *****
3097 REM NORMALIZE DATA INTO ND
3098 REM *****
3099 REM
3100 D(1) = D(1) - D(0):D(40) = D(1)
3110 FOR I = 2 TO 38:D(I) = D(I) - D(0)
3120 IF D(I) > D(40) THEN D(40) = D(I)
3130 NEXT I
3140 NF = 37 / D(40)
3150 FOR I = 1 TO 38
3160 ND(I) = INT (D(I) * NF)
3170 NEXT I
3180 W = 1
3190 IF N < 20 THEN W = 2
3200 IF N < 13 THEN W = 3
3210 MG = INT ((38 - N * W) / 2)
3220 IF MG < 1 THEN MG = 1
3230 RETURN
3495 REM
3496 REM *****
3497 REM DISPLAY GRAPH
3498 REM *****
3499 REM
3500 HOME
3510 C0 = C1
3520 GOSUB 3000
3530 FOR H = 1 TO N: COLOR= C0
3540 FOR LW = 1 TO W
3550 IF ND(H) = 0 THEN LW = W: GOTO 3570
3560 VLIN 39 - ND(H),38 AT MG + W * (H - 1) + (LW - 1)
3570 NEXT LW
3580 IF C0 = C1 THEN C0 = C2: GOTO 3600
3590 C0 = C1
3600 NEXT H
3610 HOME
3620 PRINT T$(1)
3630 PRINT T$(2)
3640 PRINT T$(3)
3650 RETURN

```

End of listing.

# PASCAL PRIMER

## The Record: Pascal's Pack Rat

by Tom Swan

The record is the pack rat of data types. One of Pascal's most versatile features, it collects and stores just about anything you give it. In this month's column, I'll explain records and show you how to use them to write your own data-base programs (and other types, too).

### Creating Record Variables

To create a record variable, surround a list of field names and data types with the keywords RECORD and END. If you want to write a program to organize a video-tape collection, for example, you could declare each entry a Pascal record as below:

```
VAR
  Entry : RECORD
    TapeNumber : string[4];
    Title       : string[30];
    Counter     : integer;
    Minutes     : real;
  END;
```

Entry is a record with four *fields*: TapeNumber, Title, Counter, and Minutes. Each field is simply a variable stored within Entry. In this example, two fields are strings, one is an integer, and one is a real number. To tell Pascal to do something with one of these fields, use the record name, a period, and the field name you want. To display the title, for example, you could use the following statement:

```
writeln( Entry.Title );
```

The period, record, and field names form a path to the field in the record. Because fields are variables, you use them as you do any other Pascal variables. As demonstrated below, use readln to let operators directly type values into fields:

```
write( 'Counter value? ' );
readln( Entry.Counter );
```

### WITH Statements

To avoid typing record names over and over, use a WITH statement. An example demonstrates how this

Need a safe place  
that holds lots of data?  
Store them  
in a Pascal record.

works. In your video-tape program, you could use a writeln statement to design a procedure that writes a report of the individual fields in Entry records:

```
writeln( Entry.TapeNumber, ' ',
         Entry.Title,
         Entry.Counter:10,
         Entry.Minutes:10:0 );
```

To avoid typing Entry four times, just put a WITH. . .DO statement before the writeln:

```
WITH Entry DO
  writeln( TapeNumber, ' ', Title,
          Counter:10, Minutes:10:0 );
```

The WITH tells Pascal that TapeNumber and the other fields are part of Entry. You can use WITH in single statements as shown above, or in compound constructions. To initialize a new Entry record, you could write:

```
WITH Entry DO
BEGIN
  TapeNumber := '';
  Title := '';
  Counter := 0;
  Minutes := 0;
END;
```

When using this type of WITH statement, be careful to avoid conflicts

with other variables that have the same names as record fields. **Listing 1** demonstrates this problem. Variable rec is a record with one integer field, i. The program also declares i as a plain integer variable. Although the field and the variable have the same name, they are two different entities.

Line 7 initializes both the field and variable to zero. Because of the WITH statement, however, it's unclear whether line 9 assigns the value 255 to the field or to the variable. But when you run the program, line 10 displays:

```
I=0 REC.I=255
```

proving that, inside WITH statements, record fields take precedence over variables of the same name. Although Apple Pascal works this way, there is no general rule that guarantees similar results in other Pascals. To be completely safe, try to use field names that differ from other program variables.

### Mixing Data Types

Pascal lets you mix data types to create complex variables. You can have records with array fields, arrays of records, or even records of arrays of records—just about anything you can imagine.

One common construction is an array of records. In a data-base program, you can store many records in an array; read and write the array to disk; and search, edit, and list record fields. Having all your records in one

Listing 1. FieldTest.

```
0: PROGRAM FieldTest;
1: VAR
2:   rec : RECORD
3:     i : integer
4:   END;
5:   i : integer;
6: BEGIN
7:   rec.i := 0; i := 0;
8:   WITH rec DO
9:     i := 255;
10:  writeln( 'I=', i, ' REC.I=', rec.i )
11: END.
```

## Listing 2. WithTest.

```

0: PROGRAM WithTest;
1: TYPE
2:   rec = RECORD
3:     a,b,c,d : string[4];
4:   END;
5: VAR
6:   a : ARRAY[ 1 .. 100 ] OF rec;
7:   i, j : integer;
8: BEGIN
9:   page( output );
10:  writeln( 'WITH Statement Benchmark' );
11:  writeln;
12:  write( 'Without WITH.  Press return...' );
13:  readln;
14:  write( chr(7) );
15:  FOR i := 1 TO 100 DO
16:    FOR j := 1 TO 100 DO
17:      BEGIN
18:        a[j].a := 'aaaa';
19:        a[j].b := 'bbbb';
20:        a[j].c := 'cccc';
21:        a[j].d := 'dddd';
22:      END;
23:    write( chr(7) );
24:    writeln( 'Done' );
25:    writeln;
26:    write( 'With WITH.  Press return...' );
27:    readln;
28:    write( chr(7) );
29:    FOR i := 1 TO 100 DO
30:      FOR j := 1 TO 100 DO

```

*Listing continued.*

array—rather than in separate arrays for each field as you would probably do in BASIC—makes data-base programming much easier. Also, in such a program, a WITH statement not only saves typing, but also improves program speed.

**Listing 2** proves this claim with a simple test. The idea is to run a time-test on two nested FOR loops—one that uses a WITH statement and one that doesn't. In this program, rec has four string fields—a, b, c, and d. Line 6 declares an array of 100 of these records, and the FOR loops at lines 15–22 and 29–37 assign strings to record fields, performing a total of 40,000 assignments (100 by 100 by 4).

When I ran the test on an Apple II Plus, I expected a small improvement in the second loop at lines 29–37. The results surpassed my hopes. Without WITH, the assignments took one minute, 15 seconds. Adding WITH reduced that time to 41 seconds, a 45 percent reduction—almost twice as fast!

To see why this works, compare lines 17–22 and 31–37. Apparently,

# RAMWORKS®

## ACCEPT NO SUBSTITUTES. BECAUSE THERE AREN'T ANY.

**T**here's only one card like RamWorks. Others may say they're RamWorks compatible but they're not! We've got the best hardware design. We supply the best software and we've got the best support from software companies.

If someone tempts you with an imitation, please get both sides of the story. You'll discover why RamWorks offers the best enhancements to AppleWorks and other programs, and at the lowest price.

### GUARANTEED!

214-241-6060  
9 AM - 11 PM  
7 Days a Week



"We Set the Standard"  
APPLIED ENGINEERING

reducing the four array indexes to a single-index operation in a WITH statement lets Pascal operate more efficiently. If you use arrays of records, this is a speed-up trick worth remembering.

### Records and the Data Base

In a previous column, you learned how to use Get and Put to read and write data in disk files. With a file of records, you can do the same thing to write simple data-base programs.

**Listing 3**, Articles, keeps track of magazine titles and then searches for specific topics. You can store titles in separate disk files or together in one big file.

When the program starts, it asks you for a file name. If you type an existing name, line 134 resets the file. If it can't find the name you type, it creates a new file in line 139.

Lines 9-16 define record fields. These are my choices, but if you want to add other fields, go ahead. Notice that all fields are strings. I think this makes data-base program-

*Listing continued.*

```

31:           WITH a[j] DO
32:             BEGIN
33:               a := 'aaaa';
34:               b := 'bbbb';
35:               c := 'cccc';
36:               d := 'dddd'
37:             END;
38:           write( chr(7) );
39:           writeln( 'Done' )
40: END.
```

*End of listing.*

### Listing 3. Articles.

```

0: PROGRAM Articles;
1: (* Magazine title index program *)
2: (* (C) 1985 by Tom Swan *)
3: CONST
4:   Version = '1.00';
5:   ClrEol = 29;          (* Clear to end of line *)
6:   ClrEos = 11;        (* Clear to end of screen *)
7:
8: TYPE
9:   IndexRec = RECORD
10:    Title : string[ 40 ];
11:    Author : string[ 30 ];
12:    Month : string[ 2 ];
13:    Year : string[ 2 ];
14:    Page : string[ 3 ];
15:    Subjects : string[ 64 ]
16:   END;
17:
18: VAR
```

*Listing continued.*

**BACKUP YOUR DISKS**

**EDD Version 4** is the most powerful copy program available for backing up "uncopyable" or "copy-protected" disks. ■ In addition to backing up disks, **EDD 4** also features a hi-resolution graphic DISK SCAN option to help you locate information on a disk, a CERTIFY DISK option for certifying blank disks, and since it's very important that your disk drives are running properly (especially when copying disks), we have also included an EXAMINE DISK DRIVE option. ■ Even though **EDD 4** has been preset to copy the broadest range of copy-protections possible, **EDD 4** can be "modified" to back up almost any disk that runs on your Apple! ■ For the dedicated user, in addition to **EDD 4**, we are offering an **EDD 4 PLUS** version that includes a specially designed hardware card which allows **EDD** to copy EVERY bit of information from each track accurately! You can bet that if **EDD 4 PLUS** can't copy it, nothing will! ■ **EDD 4** runs on an Apple II, II Plus (including most compatibles, IIe, IIc, and III (using emulation mode), and is priced at **\$79.95**. ■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at **\$129.95** (duodisk/unidisk 5.25 owners must add \$15 for a special cable adapter). Ask for **EDD** at your local dealer, or to order direct, include \$3 (\$6 foreign) shipping/handling for **EDD 4**, or include \$5 (\$8 foreign) for **EDD 4 PLUS**. ■ Mastercard and Visa accepted. All orders must be prepaid. ■ If you have an earlier version of **EDD**, you can update to **EDD 4** or **EDD 4 PLUS** at a reduced price. Send your **EDD** disk to us, and deduct \$50 from your order.

**UTILICO MICROWARE**

3777 SOLANO AVENUE / SUITE 352 / NAPA, CA 94558 / 707-257-2420

**ESSENTIAL DATA DUPLICATOR 4**

EDD is sold for the sole purpose of making archival copies **ONLY!**

Listing continued.

```

19: Choice : char;
20: IndexFile : FILE OF IndexRec;
21: IndexName : string[23];
22: ChangesMade : Boolean;
23:
24: PROCEDURE Prompt( message : string );
25: BEGIN
26:   gotoxy( 0, 0 );
27:   write( message, chr( ClrEol ) )
28: END; (* Prompt *)
29:
30: PROCEDURE GetChoice( VAR ch : char; message : string );
31: (* Prompt for and return uppercase choice A to Z in ch *)
32: BEGIN
33:   Prompt( message );
34:   REPEAT
35:     read( keyboard, ch );
36:     IF ( ch >= chr(97) ) AND ( ch <= chr(122) )
37:       THEN ch := chr( ord(ch) - 32 );
38:     UNTIL ch in [ 'A' .. 'Z' ];
39:     writeln( ch )
40: END; (* GetChoice *)
41:
42: PROCEDURE ShowRec( VAR OneRec : IndexRec );
43: BEGIN
44:   writeln;
45:   WITH OneRec DO
46:     BEGIN
47:       writeln( 'TITLE   : ', Title );
48:       writeln( 'AUTHOR  : ', Author );
49:       writeln( 'DATE    : ', Month, '/', Year,
50:             ' PAGE: ', Page );

```

Listing continued.

ming easier, but it wastes space. If you declare field Page as an integer, for example, it takes 2 bytes. But, as a string of three characters, it takes 4 bytes, including 1 extra byte for the string length that Pascal adds at the beginning of all strings.

Notice the WITH statement in line 62. The caret after IndexFile tells Pascal to access the file's buffer. The buffer is a variable of the file type, in this case, an IndexRec record. In other words, because of the WITH, in lines 63-70 you enter data directly into the file buffer instead of following the all-too-common, wasteful practice of editing a separate variable and then assigning it to the file buffer.

Articles demonstrates another useful trick that answers a question I often hear. To locate a specific record, line 78 uses Seek, which takes the following form:

```
Seek( f, rn );
```

where f is any typed file and rn is the integer record number. The next Get or Put following Seek reads or writes that record. (The first record in all files

## SENSIBLE GRAMMAR™

Yes, just like your old English teacher, your Apple Computer can now check your papers for grammatical and many other writing errors. Don't be embarrassed or lose credibility because of simple typos and mistakes. And it's so easy and fast to do with Sensible Grammar.

### SENSIBLE GRAMMAR

checks your grammar, capitalization, punctuation and abbreviations. It searches out phrases that are inconcise, vague, wordy or repetitive, as well as faulty, informal, pompous or sexist. It calls your attention to cliches and slang. It even allows you to enter your own personal trite and pet expressions and then lets you know every time you use them.



### AppleWorks Compatible!

\*Sensible Grammar and Sensible Speller ProDOS work with the following word processors, AppleWorks, AppleWriter ProDOS version (Apple Computer, Inc.); Format II Enhanced ProDOS (Kensington Microware), Mouse Write (Roger Wagner Publishing), Word Juggler (Quark, Inc.), Zardax ProDOS (Computer Solutions) and others. Sensible Speller ProDOS also works with PFS:WRITE ProDOS (Software Publishing, Inc.); Mouse Word (International Solutions); Word-Talk (Computer Aids) and WordPerfect (SSI Software). Sensible Speller IV works with DOS 3.2 and DOS 3.3, AppleWriter (Apple Computers, Inc.); Bank Street Writer (Brodeur); Format II (Kensington Microware); Home-Word & Screen Writer (Sierra On-Line, Inc.); PFS:WRITE-DOS (Software Publishing, Inc.); FORTH-Wordstar (Digital Research Corp.; Micropro International); and others. Owners of trademarks indicated in parentheses. Black's Law Dictionary (West Publishing, Inc.); Stedman's Medical Dictionary (Waverly Press, Inc.).

†Note: CP/M, Pascal and PFS:WRITE-DOS versions do not suggest correct spelling of words or allow immediate correction of misspellings.

<sup>Do</sup> you exhibit a tendency to  
make punctuation errors?  
<sup>Regardless</sup> of ~~of~~ your skills,  
typographical errors occur.  
<sup>Therefore</sup> Sensible Grammar

### It Never Overrides Your Judgment

Sensible Grammar singles out possible mistakes or improper usage and then suggests a correct replacement word or phrase, but it always leaves you the option to accept or reject the suggestion.

### A Perfect Complement

**SENSIBLE SPELLER™** catches your spelling mistakes, utilizing its huge 80,000 word vocabulary derived from the official Random House Dictionary®. Like Sensible Grammar, it works with tireless efficiency. It displays misspelled words in context, suggests the correct spelling and allows immediate replacement of misspelled words with correct ones.

**Black's Law Dictionary™**, **Sensible Technical Dictionary™** and **Stedman's Medical Dictionary™** are also available separately on diskette for use with the Sensible Speller.

**Sensible Software, Inc.**

210 S. Woodward, Suite 229, Birmingham, MI 48011 • (313) 258-5566

Sensible Grammar™ is available for \$99.95; Sensible Speller™ for \$125.00 in either the 'IV' or ProDOS version; Sensible Technical Dictionary™ for \$99.95; Stedman's Medical Dictionary™ for \$99.95. The three specialized dictionaries require the Sensible Speller. All programs are available separately and run on Apple® computers.

is numbered zero.) As used in the example, however, Seek tries to locate record Maxint, a predeclared constant equal to 32,767. No such record actually exists, of course, so the effect is to find the end of the file and let the Put in line 80 append a new record to those already there.

### Pascal News

There are plenty of goings-on in the world of Apple Pascal. I just returned from the national USUS meeting in Baltimore where I gave a talk on my book, *Pascal Programs for Data Base Management*. USUS, the UCSD Pascal System User's Society, announced that portions of the previously members-only CompuServe MUSUS data base will be open to the public on a trial basis. Type GO MUSUS for details, or write to the Secretary at P.O. Box 1148, La Jolla, CA 92038. You can also leave messages for my ID 70320,260.

Most exciting is the news that Eli Willner and Pecan Software Systems have purchased all assets of SofTech

Listing continued.

```

51:          writeln( 'SUBJECTS: ', Subjects )
52:      END
53: END; (* ShowRec *)
54:
55: PROCEDURE AddRec;
56: VAR
57:     Answer : char;
58:     error  : integer;
59: BEGIN
60:     prompt( 'Add new records'
61:           gotoxy( 0, 10 );
62:           WITH IndexFile^ DO
63:           BEGIN
64:               write( 'Title ..... ' ); readln( Title );
65:               write( 'Author ..... ' ); readln( Author );
66:               write( 'Month ..... ' ); readln( Month );
67:               write( 'Year ..... ' ); readln( Year );
68:               write( 'Page ..... ' ); readln( Page );
69:               write( 'Subjects .... ' ); readln( Subjects )
70:           END;
71:     REPEAT
72:         GetChoice( Answer, 'Save new record?' )
73:     UNTIL ( Answer = 'Y' ) OR ( Answer = 'N' );
74:     IF Answer = 'Y' THEN
75:         BEGIN
76:             (*$I-*)
77:             ChangesMade := true;
78:             seek( IndexFile, maxint ); (* Find end of file *)
79:             error := ioresult;        (* Ignore errors *)
80:             put( IndexFile );         (* Save record *)
81:             error := ioresult;        (* Check result *)
82:             IF error <> 0
83:             THEN writeln( 'I/O Error #', error )

```

Listing continued.

## TWO NEW TWO NEW TWO NEW TWO

### FontWorks™

BY  
Mark Simonsen

- Print your **AppleWorks™** letters, reports and presentations in a variety of superior quality fonts (FontWorks also enhances output from most other word processors, spreadsheets, etc.)
- Quick and Easy Printouts (FontWorks prints **SIDEWAYS** too for those wide spreadsheets)
- Choose from **various type sizes** and print densities
- Includes many fonts and . . .
- Comes with its own Font Editor, allowing you to customize our fonts or create your own
- Works with all popular dot matrix printers
- Works on any Apple II
- Compatible with ProDOS and DOS 3.3
- Not Copy-Protected

**\$4995**

★ **BONUS PROGRAM** ★  
Exciting New Graphics Package

### Program Writer™

BY  
Alan Bird

#### Full-Screen Basic Program Editor

- Make program changes quickly and easily
- Works like **AppleWorks™** word processor
- Scroll quickly through program in either direction
- Optionally use **mouse** for faster cursor control
- Fast search and replace
- Insert, delete, change, renumber, auto-line numbers, etc.
- Define keyboard macros
- Load/Save macros on disk
- Works on any Apple II
- Compatible with ProDOS and DOS 3.3
- Not Copy-Protected

**\$4995**

★ **BONUS PROGRAM** ★  
Powerful New Programming Language

★ **BONUS PACKAGE** ★  
Order NOW and receive  
A Valuable Software Package  
at no additional cost!

### THE SOFTWARE TOUCH™

9842 Hibert St., #192 • San Diego, CA 92131 (619) 549-3091  
**(800) 423-5660** IN CALIF. CALL: **(800) 367-0012**  
 EXTENSION 01 EXTENSION 01

### ORDER FORM

PLEASE PRINT CLEARLY • CA RES. ADD 6% SALES TAX

**FontWorks \$4995**  **Program Writer \$4995**

My check or money order is enclosed.

Charge my:  MasterCard  VISA  COD

Acct. No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_  
 Signature \_\_\_\_\_



# P-tral: BASIC to Pascal Translation Software

P-tral is the user-friendly translation software that converts Applesoft BASIC programs to Apple Pascal.

- Translates any business, scientific, graphics and game software from source.
- Translation results approach 100%.
- Translates any sized program—Large or Small.
- Essential compile directives generated.
- Version 1.0 \$179.00.

REQUIREMENTS: 64 / 128K RAM, Dos 3.3  
80-column card / Apple II, Iie, Iic  
Apple Pascal 1.1 or 1.2

To order or request more information  
contact: **WOODCHUCK INDUSTRIES**  
340 West 17th Street, New York, NY 10011  
(212) 924-0576 / (212) 206-6490

Circle 174 on Reader Service Card.

## BULK DISKETTES BY NASHUA



5 1/4" DS/DD with hub ring and Tyvek sleeve, bulk packaged, no labels, factory warranted. Shipping extra. For quantity 50, add 10¢ each.

Get the same low price our high-volume duplication customers get!

CALL TOLL FREE

**1-800-321-4668**

in Colorado, 303-234-0871

VISA, MASTERCARD, OR COD ACCEPTED

**ALF**

1315-F Nelson St.  
Denver, CO 80215

**This Publication  
is available in Microform.**

**University Microfilms  
International**

Please send additional information

for \_\_\_\_\_

Name \_\_\_\_\_

Institution \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road, Dept. P.R., Ann Arbor, Mi. 48106

# PASCAL PRIMER

Listing continued.

```

84:         ELSE writeln( 'Record saved' )
85:         (*$I+*)
86:         END
87: END; (* AddRec *)
88:
89: PROCEDURE ListRec;
90: BEGIN
91:   prompt( 'List records' );
92:   writeln;
93:   reset( IndexFile );
94:   WHILE NOT eof( IndexFile ) DO
95:     BEGIN
96:       ShowRec( IndexFile^ );
97:       get( IndexFile )
98:     END
99:   END; (* ListRec *)
100:
101: PROCEDURE SearchRec;
102: VAR
103:   Pattern : string;
104: BEGIN
105:   prompt( 'Search records' );
106:   writeln;
107:   write( 'Subject? ' );
108:   readln( Pattern );
109:   IF length( Pattern ) > 0 THEN
110:     BEGIN
111:       reset( IndexFile );
112:       WHILE NOT eof( IndexFile ) DO
113:         BEGIN
114:           IF ( pos( Pattern, IndexFile^.Subjects ) > 0 ) OR
115:              ( pos( Pattern, IndexFile^.Title ) > 0 )
116:             THEN ShowRec( IndexFile^ );
117:           get( IndexFile )
118:         END
119:       END
120:     END; (* SearchRec *)
121:
122: PROCEDURE Initialize;
123: BEGIN
124:   page( output );
125:   gotoxy( 0, 10 );
126:   writeln( 'Magazine Index ', version );
127:   writeln;
128:   writeln( '(C) 1985 by Tom Swan' );
129:   prompt( 'Index file name? ' );
130:   readln( IndexName );
131:   IF Length( IndexName ) = 0
132:     THEN exit( program );
133:   (*$I-*)
134:   reset( IndexFile, IndexName );
135:   (*$I+*)
136:   IF ioresult <> 0 THEN
137:     BEGIN
138:       writeln( 'NEW FILE' );
139:       rewrite( IndexFile, IndexName )
140:     END;
141:   ChangesMade := false
142: END; (* Initialize *)
143:
144: BEGIN
145:   Initialize;
146:   REPEAT
147:     GetChoice( Choice, 'ARTICLES: A(dd L(ist S(earch Q(uit ' );
148:     write( chr( ClrEos ) );
149:     CASE Choice OF
150:       'A' : AddRec;
151:       'L' : ListRec;
152:       'S' : SearchRec
153:     END;
154:   UNTIL Choice = 'Q';
155:   IF ChangesMade
156:     THEN close( IndexFile, lock )
157: END.

```

End of listing.



Microsystems, owners of UCSD Pascal (Apple Pascal's ancestor). Rumors are also floating that Pecan is trying to acquire the ASE editor, an improved SYSTEM.EDITOR sold by the now bankrupt Volition Systems. Also rumored are plans to come out with a competing version of UCSD Pascal for the Apple. Look for drastic price reductions.

All this isn't preventing Apple from releasing version 1.3 of Apple Pascal, however. The new version should be available by the time you read this. According to Apple, it includes support for "a variety of block-structured devices, such as Apple's new 3 1/2-inch disk drive, 5 1/4-inch disk drives, rigid disk drives, and any other device that follows the ProDOS block device protocol."

Also, the new version boots from slot 4, 5, or 6, and has new data types BYTESTREAM and WORD-STREAM for declaring dynamic arrays, as well as an OTHERWISE clause at the end of CASE statements. The new editor will have "numerous improvements" and will handle files as large as 63 blocks long.

In other notes, an interesting graphics library is available from Giles Asselin, 5734 De Laroche, Montreal, Quebec, Canada H2S 2C6. You need Apple Pascal 1.2 and 128K to use it. Unfortunately, I'm using a 64K Apple II Plus and, therefore, couldn't try it out. The package comes with a disk and a 30-page manual. One small problem is that at times M. Asselin has a little trouble with English. But that's understandable—so do I.

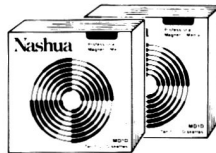
#### And Finally. . .

I'm awaiting my upgrade to Apple Pascal 1.3. Expect a full report soon. Coming up next: sets. ■

*Tom Swan is the author of the Apple Pascal series, Pascal Programs for Business, Pascal Programs for Games and Graphics, and Pascal Programs for Data Base Management, published by Hayden Book Company. Address correspondence to Tom at P.O. Box 206, Lititz, PA 17543. Please enclose a self-addressed, stamped envelope if you want a personal reply.*

# Nashua™

Boxed in tens, with envelopes, labels, write protect tabs and Limited Lifetime Warranty.



	30+	50+	100+
3 1/2" SS	1.75	1.69	1.59
5 1/4" SS/DD	.89	.84	.79
5 1/4" DS/DD	.94	.89	.84



Poly-bagged in quantities of 50, sold in quantities of 150.

	250+	500+
5 1/4" SS/DD	.54¢	.53¢
5 1/4" DS/DD	.68¢	.64¢

## RIBBONS

Sold in sixes, price each.

Epson MX-70/80 . . .	2.59
Epson MX-100 . . . .	3.99
Epson LQ 1500 . . . .	4.99
NEW	
Epson LX80 . . . . .	4.99
Okidata Micro 801/82A/83A/92/92 . . .	1.29
NEW	
Okidata 192/182 . . .	5.99
Okidata Micro 84/94 . . . . .	2.90
Diablo Hytype 11 . . .	3.19
NEC Spinwriter . . . .	5.29
C. Itoh Prowriter . . .	3.69
APPLE IMAGEWRITER, Black . . . . .	3.45
Color 6-Pack . . . . .	4.75

## ROLLTOP FILES



3 1/2" model holds 55 . . . . .	17.49
(Retail Value \$24.95)	
5 1/4" model holds 120 . . . . .	24.99
(Retail Value \$36.00)	

## CALL TOLL FREE 1 800 USA-FLEX

In Illinois 1 800-FOR-FLEX 7 to 7 Central Time  
or 1 (312) 351-9700 10 to 3 Saturdays

# USA★FLEX

135 N. Brandon Drive Glendale Heights, IL 60139

Shipping/handling additional. Minimum order \$50.00. Visa, MasterCard and Prepaid orders accepted. Corporations rated 3A2 or better and government accounts are accepted on a net 30 basis. C.O.D. orders add an additional \$5.00 special handling charge. APO, FPO, AK, HI & PR orders add an additional 5% to the total order amount to cover PAL and insurance. No sales tax outside of Illinois.

Circle 203 on Reader Service Card.

## PROFESSIONAL HANDICAPPING SYSTEMS

• PRESENTED BY PROFESSOR JONES •

**GLD. Thoroughbred "Gold" Edition™**  
A "Full" featured thoroughbred analysis designed for the professional and the serious novice.  
**\$159.95** complete

**EGLD. Enhanced "Gold" Edition™**  
"Gold" Edition with complete Master Bettor™ system integrated onto the same disk. This powerful program will transfer all horses and scores to the bet analysis with a "single keystroke."  
(Master Bettor™ included) **\$199.95** complete

**GLTD. Limited "Gold"™**  
Enables Professional Handicappers to assign specific values to the racing variables they feel are important. Create program weight based on a particular track and fine tune it for maximum win percentage. This program is designed for "ease of use". The user needs no programming experience.  
(contains Integrated Bettor™) **\$299.95** complete

**GD. Gold Dog Analysis™** **\$149.95**  
The ONLY professional greyhound analysis available that evaluates ALL variables. w/integrated Bettor **\$199.95** Limited Version **\$299.95**

**MHH. Master Harness Handicapper™**  
Professional software designed to provide a thorough analysis of all trotter and pacer races in the United States and Canada. complete **\$159.95** w/integrated Bettor **\$199.95** Limited **\$299.95**

**Professor Pix Football™**  
Complete STATISTICAL ANALYSIS on Data Base allowing "Designated" previous games to be evaluated. Statistical Series **\$99.95** w/Win-Loss Power Ratings **\$149.95**

**NBA. Basketball™** NBA **\$99.95** w/college **\$129.95** w/power ratings **\$149.95**

**LOT. Lottery Analysis™**  
Statistical comparison program designed to detect subtle patterns in winning numbers and digits. Lottery (3-4 digit) **\$79.95** w/Lotto (Max. 99 Digit) **\$99.95**

**PC-3 Portable Computer (4k)** w/choice of Thoroughbred, Greyhound or Trotter™ **\$249.95** (Includes portable computer & program.)

**M-100 Portable (32k)** w/choice of Thoroughbred, Greyhound, or Trotter and Master Bettor. **\$649.95** (Includes portable computer and program.)

★ ★ ★ ★ ★

**"Your BEST BET in handicapping software..."**

Reviewed by: Whole Earth Software Guide  
Corona Data Systems

**Prof. Jones**  
1940 W. State  
Boise, ID 83702

**AMEX**

**48 HR. FREE SHIPPING**

**CALL**  
**(208) 342-6939**

TERMS: Free shipping all software. Add \$6.00 hardware/\$6.00 C.O.D. / UPS Blue \$6.00/Out of Country \$9.00/ID Residents 4w/3 weeks personal checks/Cash price only. add 2% Visa, MC, AMEX. Prices subject to change

### FREE CATALOG!

# INDEX TO ADVERTISERS

Reader Service	Page	Reader Service	Page	Reader Service	Page
61	Advanced Logic . . . . .	68	184	Digital Vision . . . . .	106
26	Advanced Logic . . . . .	57	108	Diversified Software . . . . .	96
23	Advanced Logic . . . . .	108	148	Electronic Arts . . . . .	2, 3
*	Alf Products . . . . .	102	201	Epyx Computer Software . . . . .	CIV
*	Applied Engineering . . . . .	31, 32, 33, 46, 47, 50, 51, 71, 98, 118, CIII	202	Epyx Computer Software . . . . .	21
243	Applied Technology Labs . . . . .	55	132	First Class Peripherals . . . . .	22, 23
216	AST Research . . . . .	CII, 1	*	G E Information . . . . .	73
220	AST Research . . . . .	CII, 1	146	Golem Computers . . . . .	74
222	AST Research . . . . .	CII, 1	*	Human Systems Dynamics . . . . .	66
224	AST Research . . . . .	CII, 1		inCider Magazine Subscriptions . . . . .	48
229	Beagle Bros. . . . .	76		Foreign Dealers . . . . .	119
179	Beagle Bros. . . . .	109		hotCider . . . . .	64
*	Business Computers of Peterborough . . . . .	43		hotCider Back Issues . . . . .	80
233	Cauzin Systems . . . . .	86, 87		Jesse Jones Box Corp . . . . .	59
60	Central Point Software . . . . .	95		Moving? . . . . .	119
*	Cheatsheet Products . . . . .	85		University Microfilm . . . . .	102
227	Checkmate Technology . . . . .	12, 13	*	Information Appliance . . . . .	75
256	Cirtech . . . . .	37	33	Inmac . . . . .	56
	Classified Ads . . . . .	111	114	Instant Software . . . . .	81
78	Coit Valley Computers . . . . .	53	123	Jameco Electronics . . . . .	113
124	CompuServe Information Services . . . . .	16, 17	91	Kyan Software . . . . .	77
76	COMPUTIST . . . . .	114	28	Legend Industries . . . . .	106
166	Computer Direct . . . . .	90, 91	241	Manzanita Software Systems . . . . .	7
76	COMPUTIST . . . . .	114	180	Midwest Software . . . . .	89
89	Consistent Software . . . . .	59	100	Nibble Notch . . . . .	84
163	Core Concepts . . . . .	70	110	Northeastern Software . . . . .	62, 63
*	Covox . . . . .	44	192	Norwich Data Services . . . . .	84
			133	Pinpoint Publishing . . . . .	11
			49	Professor Jones . . . . .	103
			128	Programs Plus . . . . .	78, 79
			16	Quinsept . . . . .	117
			41	Quorum Int'l Unltd. . . . .	58
			214	Rocky Mountain Medical . . . . .	10
			165	Roger Coats . . . . .	69
			46	Russ Systems . . . . .	60
			223	Sav-Soft Products . . . . .	119
			84	Sensible Software . . . . .	100
			85	Sensible Software . . . . .	94
			242	Sensible Software . . . . .	94
			143	Silicon Express . . . . .	115
			238	Software Station, The . . . . .	85
			217	Software Touch . . . . .	101
			*	Southern California Research Group . . . . .	93
			239	Styleware, Inc . . . . .	9
			156	Sublogic . . . . .	67
			129	Thunderware . . . . .	4
			15	Uptime . . . . .	27
			203	USA-FLEX . . . . .	103
			264	Utilico Microware . . . . .	99
			197	Value Line . . . . .	41
			135	Vilberg Bros Computing . . . . .	117
			116	Wayne Green Int'l Ltd. . . . .	110
			72	Wiley Professional Software . . . . .	30
			174	Woodchuck Industries . . . . .	102
			169	X10-USA . . . . .	29

For further information from our advertisers, please use the Reader Service card.

\*This advertiser prefers to be contacted directly.

Advertising Sales: (603) 924-7138, (800) 441-4403

Paul Boule, Sales Manager; Fiona Davies

# GAME ROOM

by Brian J. Murphy

In *Game Room*, Brian Murphy tells us what's new in the world of Apple games. Look here for inCider's scoop on the latest fun.

## inCider's Ratings

- ★★★★ Excellent
- ★★★ Above average
- ★★ Good enough
- ★ Not up to standards
- ☆ The empty set



## Ultima IV: Quest of the Avatar

★★★★

### Origin Systems

340 Harvey Road  
Manchester, NH 03103  
Fantasy/role-playing adventure  
Any 64K Apple II, one disk  
drive, DOS 3.3, second drive  
optional  
\$59.95

The new Ultima is here—and it's the ultimate Ultima! Don't think I'm exaggerating. **Ultima IV: Quest of the Avatar** is better than all three of its predecessors. It's been a long time since any game compelled me to play seven hours at a time, as *Ultima IV* has. It's like a time machine, making the hours slip by at two or three times normal speed.

Before you begin playing, the game poses several ethical dilemmas involving such virtues as compassion, spirituality, honor, valor, and justice. None of

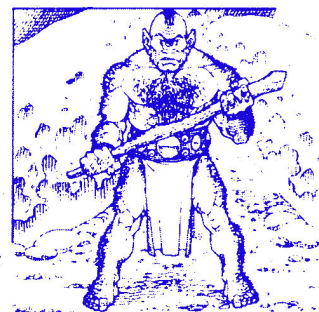
the problems has an entirely satisfactory answer—each requires difficult moral choices that determine the attributes of the playing character. At the end of the test, a complete adventurer (a true embodiment of the player) emerges into the *Ultima* universe.

Dungeon fighting and monster killing are incidental to the real object of the game. Rather than the defeat of a wicked arch-wizard, the goal of *Ultima IV* seems to be the elimination of evil from human hearts and minds, and the cultivation of perfect virtue.

First you must learn how to survive in the *Ultima* world—find out how to get enough food, learn what areas to avoid for fear of poisoning, and discover which weapons do the most damage to the enemy with the least risk to yourself. Most importantly, you must learn *Ultima's* delightful system of magic.

In villages, castles, and towns, you'll meet a staggering number of characters, almost all of whom hold the secrets you need to pursue your quest. A few of these folks possess unique information that is absolutely necessary if you expect to make any progress. That's why it's vital to talk with *everyone* you see and to explore *every* nook and cranny of *every* settlement.

I haven't even begun to scratch the surface of this complex game (which is, by the way, 16 times larger than *Ultima III*). Let me just say that what I like most about *Ultima IV* is that it de-emphasizes the darker, occult aspects of fantasy games and focuses on spiritual enlightenment and the development of virtue. *Ultima IV* is a wholesome answer to those uninformed opponents of fantasy games who claim that role



Cyclops



Ettin

# SUPER RAM POWER LEGEND S'CARD™

**ENJOY APPLEWORKS ON II AND II+**

by upgrading with Legend S' Card

**EXPAND APPLEWORKS DESKTOP**

up to 1024K

**FASTER LOADING OF PROGRAMS**

with High Speed Disk Emulation compatible with ProDOS, DOS, CP/M, Pascal and SOS

**APPLE II, II+, IIe, III COMPATIBLE**

for use in virtually any expansion slot

Get a Truckload of Software, Service,  
Support and a Three-Year Warranty with  
Legend S'Card

## LEGEND INDUSTRIES, LTD.

2220 Scott Lake Road, Pontiac, MI 48054  
(313) 674-0953

Turning Apples into Legends™ since 1981

Legend and S'Card are trademarks of Legend Industries, Ltd.  
Apple and AppleWorks are trademarks of Apple Computer, Inc.

Circle 28 on Reader Service Card.

## DIGITAL VISION

# COMPUTEREYES™

### VIDEO IMAGES ON YOUR COMPUTER!

Finally—an inexpensive way to capture real-world images on your computer's graphics display! COMPUTEREYES™ is an innovative slow-scan device that connects between any standard video source (video tape recorder, video camera, videodisk, etc.) and your computer. Under simple software control, a b/w image is acquired in less than six seconds. Unique multi-scan modes also provide realistic grey-scale images. Hundreds of applications!

Package includes interface module, complete easy-to-use software support on disk, owner's manual, and one year warranty all for \$129.95 plus \$4.00 S&H (USA).

Also available as a complete package including:

- COMPUTEREYES™
- Quality b/w video camera
- Connecting cable

for only \$399.95 plus \$9.00 S&H.

Demo disk available for \$10.00 postpaid (refundable).

See your dealer or order direct. Mass. residents add 5% sales tax. Mastercard, Visa accepted. To order, or for more information, write or call:



**ONLY \$129.95**

Available for:

- Apple II series
- Commodore 64/128
- Atari 800/800XL/165XE/130XE

**DIGITAL VISION, INC.**

14 Oak Street — Suite 2  
Needham, MA 02192  
(617) 444-9040, 449-7160

## GAME ROOM

playing has a destructive effect on the mental health of younger players.

### Short Takes

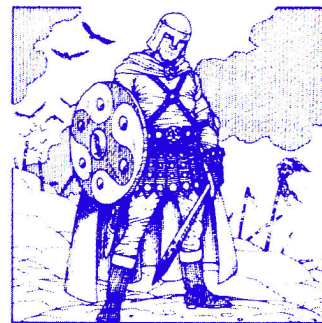
SSI has published two new war games, **Norway 1985** and **Battalion Commander**. I wanted to give Battalion a full trial, but the control system for the joystick is so messed up—at least on my disk—that it's almost impossible to move the cursor in the direction you want. There's no point in wasting any more time on a game that defeats you before you even start to play.

Norway 1985 is the last of the SSI series When Superpowers Collide. It's basically the same old game system, but the action takes place on skis in frozen arctic climes. Although it's a very entertaining game, don't bother with it if you have the other games in the series. The differences in types of terrain and troops aren't compelling enough to complete the set.

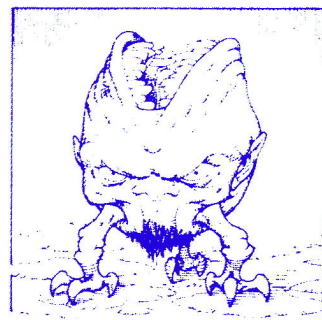
### Shooting from the Lip

Have you noticed how many new games are rip-offs of older hits? I won't name names, but a number of games in the last year or two have borrowed heavily from Wizardry, the Ultima series, and Archon. Wouldn't it be better to spend the necessary time and effort on imaginative new ideas? On that thought, aloha. ■

*Brian Murphy is anxious to learn what you think of the current state of computer games. Write him at in-Cider, 80 Pine Street, Peterborough, NH 03458, and let him know your opinion.*



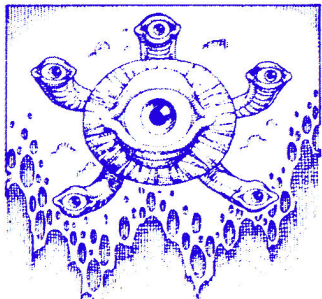
**Fighter**



**Zorn**



**Troll**



**Gazer**

by Jim Sather

*The Apple Clinic is a forum for discussing Apple II hardware and related subjects. If you have questions or answers, or want to make a statement, write to Jim Sather, Apple Clinic, inCider, 80 Pine Street, Peterborough, NH 03458.*

## More ProDOS on Franklins

I read with great interest your comment in the September 1985 Apple Clinic ("ProDOS on Franklins," p. 66) about patching ProDOS to make it work on a Franklin computer. The bad news is that I used both Apple Mechanic and Locksmith 5.0 to search my entire ProDOS disk for the code you referred to and couldn't find it.

My disk starts to boot and then hangs with the title "ProDOS Version 1.1.1" on the screen. Since mine is a newer version than the one you described, I assume the code I need to change is slightly different. I'd certainly appreciate any advice you could give since I've been unable to find anything helpful in a year's worth of back issues of *inCider*, *Nibble*, and *Byte*.

**George A. Tate**  
Horseheads, NY

*The patch code in that Apple Clinic response is hard to understand. The changes I was attempting to recommend are \$AE \$B3 \$FB to \$A2 \$EA \$EA \$EA and \$69 \$0B \$D0 \$03 to \$69 \$0B \$EA \$EA. This code is present in the third and fourth blocks of ProDOS 1.1.1. If ProDOS on your disk is located at blocks \$7, \$9, \$A, \$B, and so on, then the code is at track/sector-bytes \$1/\$B-\$6 and \$1/\$9-\$9C, respectively.*

*Unfortunately, I overlooked the fact that an additional instance of \$AE \$B3 \$FB occurs in ProDOS version 1.1.1. You can bypass the unwanted occurrence if you search for \$AE \$B3 \$FB \$E0 \$38 instead of just \$AE \$B3*

*\$FB. That is, use your disk-scanning utility to search for and change \$AE \$B3 \$FB \$E0 \$38 to \$A2 \$EA \$EA \$E0 \$38 and change \$69 \$0B \$D0 \$03 to \$69 \$0B \$EA \$EA. I hope this will work for past and future versions of ProDOS.*

## ImageWriter Dumps

I bought some public-domain graphics and art disks but don't know how to print the graphics on my ImageWriter. I have an Apple IIe. Can you help me?

**Alma T. Lubbers**  
Grinnell, KS

*You didn't say what kind of printer interface card you have, Alma, and that is important. Some cards (Grappler, Pkaso, Fingerprint, to name a few) have graphics-dumping firmware built in. If your interface card has such drivers, its reference manual will say so and give instructions for generating graphics dumps.*

*Other cards, including the Apple Super Serial card, don't have built-in graphics drivers; you have to load graphics drivers from disk to RAM. With these RAM-based drivers, it's usually best to save the graphics image on disk before running the driver. More specifically, with the image intact in display memory, type BSAVE NAME,A\$2000,L\$2000 to save a page-1 image, or BSAVE NAME,A\$4000,L\$2000 to save a page-2 image.*

*The ImageWriter comes with RAM-based graphics drivers on the ImageWriter Tool Kit disk. If you own a Super Serial or compatible card, you can use these drivers to get dumps. Follow the instructions on pages 22-25 of part II of your ImageWriter user's manual. If the Tool Kit drivers don't work with your interface card, general-purpose graphics drivers like Printographer, Graftrix, and Zoom Graphics probably will (see "Visi-Trend/Plot Revisited" in the October 1985 Apple Clinic, p. 60).*

## Z-RAM Tough

I have a question about Z-RAM, the 512K memory-expansion board for the Apple IIc. Can you tell me if the heat this board generates poses any risks to the IIc? If so, should I restrict the time I operate the computer?

**Ross Fear**  
Baulkham Hills, NSW, Australia

*Fantastic question, Ross! Unfortunately, I can't give you a simple yes or no answer, but my opinion is that Z-RAM probably won't hurt your IIc. This opinion is based on discussions had with engineers from Apple, Applied Engineering (manufacturer of Z-RAM), and Checkmate Technology (manufacturer of the similar, but Z80-less, MultiRam C).*

*Apple's position is that the IIc is a closed-lid computer. The company designed it that way and, therefore, doesn't endorse or support any internal additions or modifications. Applied Engineering, however, claims that Apple was very cooperative and of great assistance during Z-RAM development, and my contact at Apple was willing to give me the specifications of the IIc power supply (see **Table 1**). The people from Applied Engineering told me that Apple had also given them the power-supply specifications, and that Z-RAM draws only 180 milliamperes on the 5-volt line and doesn't overload the power supply.*

*Rather than power-supply loading, Apple engineers' primary concern is*

**Table 1.** Apple IIc power-supply performance.

Voltage	Design Capacity	Actual Load
+ 5 volts	1.5 amp	1.1 amp
+ 12 volts	.9 amp	.6 amp
- 12 volts	.2 amp	.11 amp

the effect internal additions to the //c have on ambient air temperature inside the cabinet. The problem is that floppy-disk jackets can withstand temperatures only up to 52°C, as opposed to the 70°C of commercial ICs. Above 52°C, the jackets begin to soften and deform. The air in an unmodified //c propped up on its handle is about 15°C above room temperature, so the computer becomes a marginally safe environment

for floppy disks when room temperature is about 37°C (98.6°F).

The information the folks at Applied Engineering sent me stated that they operated a Z-RAM-equipped //c in a 110°F test chamber for two weeks with no heat-related failures. They didn't say whether they used a floppy disk, or, if they did, if it was undamaged. Nor did they state the effect the installation of Z-RAM has on the //c's internal temperature.

The designer of Checkmate Tech-

nology's MultiRam C told me that MultiRam C caused a temperature rise of no more than 1°C in the //c. Z-RAM may perform similarly, but I wasn't specifically informed that it does. Since I haven't measured the temperatures and current loads myself, I can only report what I've been able to find out from discussions with the manufacturers concerned.

I interpret all this information to mean that it isn't safe to leave a floppy disk in a //c operating at a very high room temperature. Addition of internal-expansion RAM and micro-processors cannot help but increase the internal temperature, but I doubt that the additions pose any danger when room temperature is normal. Both Applied Engineering and Checkmate Technology claim tens of thousands of units shipped without any reported bugs, and I believe them. Operate your //c with the handle down, and be wary of hot rooms—Z-RAM or no Z-RAM.

## Apple //e Jacks

One day when my //e was on the fritz, I examined the motherboard very closely. I found several male jacks labeled J8 to J19, but couldn't find J14. What are J12, J19, and J14 (if it exists) used for, and what are their addresses? Will they help me determine if the reset key is being pressed without the control key, or can I hook J19 up to a burglar alarm and check to see if someone has tripped it?

Rohan Mahy  
Oberlin, OH

J14 is there, Rohan—it's the power-supply connector. J12 is the video post. You can connect the Apple video signal to a peripheral by attaching a jumper from the peripheral to the video post.

J19 is the ENVID/character-set-switch jack. You can connect an open/close mechanical switch to J19 and manually switch functions related to video and keyboard. In the PAL (European) Apple, the switch at J19 selects the standard- or alternate-screen text-character set and keyboard layout. In the NTSC (American) Apple, the switch at J19 selects the standard- or alternate-keyboard layout, but turns off the Apple video signal when you select the alternate-keyboard layout. You can then inject alternate negative-polarity video to the motherboard through auxiliary-slot pin 27.

Disabling video while switching be-

# THE HANDLERS

VALUE • POWER • SOPHISTICATION • SIMPLICITY

- The Handlers is a software package of three programs; word processing, file management and a spell checker for the Apple II, II+, IIe and IIC.
- The Handlers is *the* answer to programs that cost a lot, take a lifetime to learn and then don't deliver!
- The Handlers delivers the power and sophistication of large scale mainframe systems.
- The Handlers makes immediate sense to the beginner and the experienced computer user.
- More and more people are selecting the Handlers over Appleworks. *Why?* Because the Handlers beats Appleworks for power, ease of use and price! We took the difficulty out of the program when we engineered it so you get what you want out of the Handlers without wasting time.

### WORD HANDLER

This best selling WP is surprisingly powerful and yet easy to use.

- Global search & replace
- Block moves
- 40, 66 & 80 column
- Form generator
- Easy to remember mnemonic commands
- Unlimited tabs
- Bold, underline, superscript, justification
- What you see on screen is what you get

### LIST HANDLER

A truly fast & efficient file management program.

- Over 3,000 records per disk
- Up to 200 characters per field and 255 fields per record
- Unlimited sorting fields
- Sorts alpha, numeric and date sorts
- Merges with word processors, create form letters
- Sorts 3,000 records in under 45 seconds

### SPELL HANDLER

The spell checker that works hand in glove with the Word Handler.

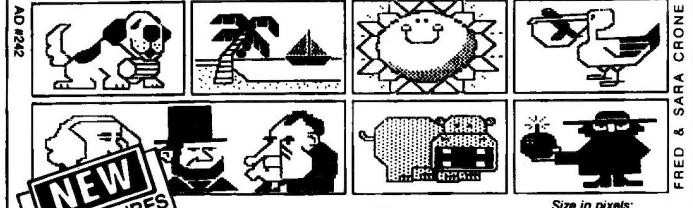
- 90,000 words on one diskette
- Add up to 2,000 of your own words
- No disk swapping
- Scans 10 words per second
- Word count
- If you knew what we know about our products, you'd be our next customer!

Circle 23 on Reader Service Card.

Advanced Logic  Systems, Inc.

1195 E. Arques Avenue • Sunnyvale, CA 94086 • 408/730-0307

\$99.95



**MINIPIX™ Disk #1**  
 \$29.95 (compatible with any Apple II—DOS 3.3 and ProDOS)

**200 PICTURES ON DISK—FOR SHAPE MECHANIC, PRINT SHOP™, APPLE MECHANIC, ALPHA PLOT, BEAGLE GRAPHICS, and most other Apple-compatible hi-res graphics programs—**  
 Use pictures "as is", or create instant **MIRROR IMAGES & BLOWUPS**. Plus, convert part of any normal hi-res picture to **PRINT SHOP™** format. **PRINT SHOP™** owners: Use Minipix pictures directly on your greeting cards, banners and signs. **SHAPE MECHANIC** and **APPLE MECHANIC** fans: Use Minipix in shape table format for hi-res screen displays. **ALPHA PLOT** and **BEAGLE GRAPHICS** users: "Clip" Minipix images off the screen and "paste" them onto your own hi-res pictures.

**NEW SHAPE MECHANIC™** by BERT KERSEY & MARK SIMONSEN  
**NEW FONT MECHANIC™** by MARK & JON SIMONSEN

**SHAPE MECHANIC** is a lightning-fast remake of our *Apple Mechanic* and *Typefaces* disks, combined & rewritten to support ProDOS as well as DOS 3.3.

**30 all-new hi-res fonts for SHAPE MECHANIC and APPLE MECHANIC!**

**HI-RES SHAPE MAKER**  
 Shape Mechanic converts your hi-res drawings into "shape tables" so you can create title screens, charts and animation with Apple's built-in *Draw* & *Xdraw* commands. "List & Learn" demos on the disk teach you how to create your own hi-res programs. **NO FEE** to use Mechanic's routines in programs that you sell. Just give us credit.

**SHAPE CAPTURE:** Convert all or part of any hi-res picture into a shape table.

**HI-RES TYPE**  
 30 proportionally spaced hi-res screen display fonts (both large & small) are included on the Shape Mechanic disk. Every character may be edited to become any symbol.

**SWOON OUTLINEKROMP**  
**MDS COMPUTE SKINNY**  
**FATSO L.E.D. EMBOSSED**  
**SQUARE**

SAMPLE TYPE: Most of these fonts were on our old "Typefaces" disk—in DOS 3.3 only.

**NEW BIG U™**  
**ProDOS™ UTILITY** by RANDY BRANDT  
 \$34.95 (Apple IIc, IIe or 64K II+; ProDOS)

**FILE MOVER:** (80-columns) Replaces Apple's *Filer* for ProDOS file transfer (not 3.3). Fast and friendly—no need to re-boot.

**CRT WRITER:** (80-col's, IIe or IIc only) Create fancy 80-column title screens. Or write & print short notes without booting up your word processor. Save screens on disk.

**KEY-CAT 80:** (80-col's) Hit ctrl-Reset to instantly see a disk's catalog in 80-columns. One keystroke runs or loads any program.

**RAM LOAD:** (IIc or 128K IIe) Auto-load files to and from RAM. Load all of your favorite programs into memory at once.

**18 ALL-NEW ProDOS COMMANDS:** (64K min., any Apple) **COPY** files from disk-to-disk. **XLIST** programs in better format. **ANYCAT** catalogs any DOS. **MON** monitors ProDOS. **SHOW** loads and shows pix. **SEE** lists disk programs without loading.

**ERROR EDITOR:** Rewrite ProDOS's error messages ("Path Not Found", etc.).

**INPUTTER:** Accepts commas & colons, rejects control-characters. Esc to abort, etc. You pre-determine maximum string length.

**REM-ZAPPER:** Work with 2 versions of the same Applesoft program—one with Rem's and one without. Switch instantly.

**MUCH MORE** including ProDOS versions of many Beagle UTILITY CITY programs.

**PRO-BYTER™**  
 by BERT KERSEY & JACK CASSIDY  
 \$34.95 (Apple IIe/IIc or 64K II+; ProDOS)

**BYTEZAP PRO:** All NEW—Inspect ProDOS & 3.3 disks at the byte level. Make normally-impossible changes and repairs. Find any word in a disk or file. Repair zapped disk bytes and customize disks. Easy instructions show how to do it.

**MACHINE-LANGUAGE SORT:** One Call in your Applesoft program alphabetizes words—fast! Sorts string-arrays—A\$(7) etc.

**MORE:** Save time & date in your catalogs. Catalog all directories on ProDOS disks. Swap Applesoft commands. TYPE text files without booting your word processor...

**MACHINE LANGUAGE EDITOR:** Type in programs from mags, and insert and delete.

**ALL-NEW APPLE TIPS!** Use memory like an extra disk drive. Disable LIST so it says "File Locked". Disable/swap ANY command: Rename "Startup"; Personalize catalogs...

**TRIPLE-DUMP™**  
 by MARK SIMONSEN & ROB RENSTROM  
 \$39.95 (any Apple II: DOS 3.3 & ProDOS)

**PRINT ANY APPLE IMAGE:** Use your dot matrix graphics-capable printer to print:  
 1. Hi-Res and Double Hi-Res graphics  
 2. Lo-Res and Double Lo-Res graphics  
 3. 40- and 80-Column text-screen text.

Print all kinds of images with absolutely no programming knowledge. OR call T-Dump routines from your Applesoft programs.

**SPECIAL EFFECTS:** Crop, rotate, magnify, compress, distort, adjust print density, etc.

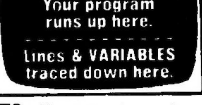
**GIANT BANNERS too:** Print big signs and messages (8 1/2" high letters) on any printer.

**D CODE™**  
 by ALAN BIRD  
 \$39.95 (any Apple II: DOS 3.3 & ProDOS)

**PROGRAM PACKER:** Compress Applesoft programs to increase efficiency. Combine program lines, shorten variables or remove Rem's. Find lines that won't execute.

**AUTO-PROOFREADER:** Errors are caught as you type, before a program is run.

**SUPER-TRACE:** When a program stops or crashes, type "DUMP" to look at the last 10-10,000 statements executed, in order.



**BREAKPOINTS:** Your program stops when you want. For example, when X gets set to 99, or the 3rd time a Gosub occurs.

**LIGHTNING-FAST FIND:** Find strings & variables fast—search big programs in apx. 2 seconds—very useful! D Code is fully-transparent to your programs, and compatible with GPLE, Double-Take, etc.

**EXTRA K™**  
 by MARK SIMONSEN & ALAN BIRD  
 \$39.95 (IIc or 128K IIe: DOS 3.3 & ProDOS)

**EXTRA VARIABLES:** Applesoft programs run undisturbed in main memory while variables strings, etc., reside in the other 64K.

**EXTRA APPLE:** Have two 64K Apples & programs in memory (ProDOS & DOS 3.3 at the same time if you want). Switch at will.

**EXTRA-FAST COPIES:** "Nibble copy" and verify your unprotected disks in 35 seconds!

**EXTRA FEATURES:** Create combo 3.3/ProDOS disks. MANY MORE 128K utilities.

**EXTRA SCREENS:** Store all kinds of images in memory. Display any one instantly.



**SHOW SEVERAL HI-RES PIX PER SECOND!**

**GPLE™**  
 by NEIL KONZEN  
 \$49.95 (any Apple II: DOS 3.3 & ProDOS)

**GLOBAL PROGRAM LINE EDITOR:** The best, most popular Applesoft editor. Works like a word processor for Basic program lines.

**INSERT AND DELETE:** Quickly make changes to programs. No more awkward "escape-editing". No more hassles with extra spaces in quote statements. No more slow "cursor-tracing" to the end of a line.

**SEARCH AND REPLACE:** Find every occurrence of a string or variable in a program. Replace any word or variable too.

**FUNCTION KEYS:** Define your own—For example, ESC-1 can Catalog drive 1, ESC-N can clear the screen and type your name or anything... Customize your Apple!

**Phone now for a free Beagle Bros Catalog.**

24 Apple II software products under \$60.

If you don't have your copy of our Winter/Spring 1986 catalog, phone toll free 1-800-227-3800 ext. 1607.

**Beagle Bros MICRO SOFTWARE**

3990 OLD TOWN AVE., SAN DIEGO, CA 92110 (PHONE 619-296-6400)

**GOTO YOUR SOFTWARE STORE.**  
 Or buy directly from Beagle Bros. WE SHIP FAST via First Class Mail.

Alpha Plot ..... \$39.50  
 Beagle Bag ..... 29.50  
 Beagle Basic ..... 34.95  
 Beagle Graphics ..... 59.95  
 Big U ..... 34.95  
 D Code ..... 39.95  
 Disk Quik ..... 29.50  
 DOS Boss ..... 24.00  
 Double-Take ..... 34.95  
 Extra K ..... 39.95  
 Fatcat ..... 34.95  
 Flex Type ..... 29.50  
 Font Mechanic ..... 29.95  
 Frame-Up ..... 29.50  
 GPLE ..... 49.95  
 I. O. Silver ..... 29.95  
 Minipix Disk #1 ..... 29.95  
 Pro-Byter ..... 34.95  
 ProntoDOS ..... 29.50  
 Shape Mechanic ..... 39.95  
 Silicon Salad ..... 24.95  
 Trip Disk #1 ..... 20.00  
 Triple-Dump ..... 39.95  
 Utility City ..... 29.50

Visa/MasterCard or COD, order Toll Free  
 All 50 states, 24 hrs. every day (orders only)  
**1-800-227-3800 ext.1607**

OR MAIL US A CHECK, MONEY ORDER OR VISA/MASTERCARD NO.

NAME \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY, STATE \_\_\_\_\_ ZIP \_\_\_\_\_

VISA  MasterCard CARD NO. \_\_\_\_\_  
 EXPIRATION DATE \_\_\_\_\_

Add \$1.50 First Class Shipping, any size order  
 Overseas add \$5.50—COD add \$3.00—Cash add 6%

Mail to **BEAGLE BROS, DEPT. A**  
 3990 OLD TOWN AVENUE, SUITE 102C  
 SAN DIEGO, CALIFORNIA 92110

**ALL ORDERS SHIPPED IMMEDIATELY.**

tween standard- and alternate-keyboard layouts with a mechanical switch is not particularly useful, so NTSC Apples with switches connected to J19 are rare. On the other hand, switching between alternate-keyboard layouts and video sets is a highly desirable feature, and virtually all PAL motherboards have a switch connected to J19.

The only jacks in the Apple with addressable functions are the peripheral slots, the cassette I/O jacks, the 16-pin game I/O socket, and the 9-

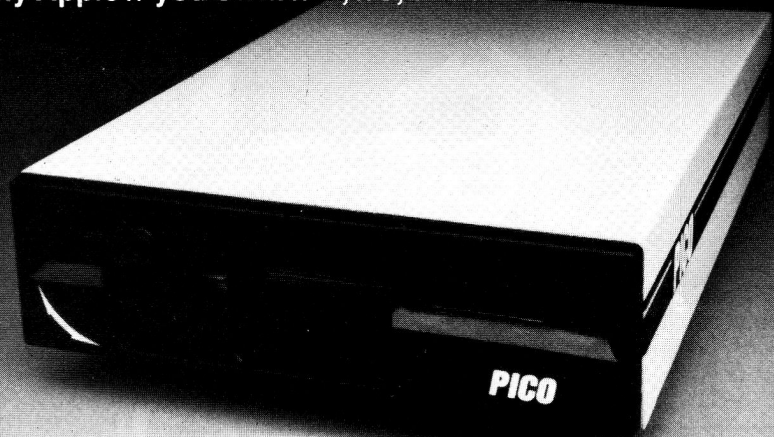
pin game-socket extension port. (Table 2 shows all the //e connectors and their functions.) Functions such as monitoring burglar alarms would probably be performed via the switch or timer (paddle) inputs to the game I/O socket or via a peripheral card. The reset key cannot be monitored, as such, by a program. Pressing control-reset brings the RESET' line low and triggers the reset functions of the 6502 and other motherboard and peripheral-card circuits.

**Table 2.** Apple //e connector functions.

Connector	Function
J1-J7	Peripheral slots
J8	9-pin game I/O extension
J9	Cassette in jack
J10	Cassette out jack
J11	Video out jack
J12	Video out post
J13	4-pin video connector
J14	Power-supply connector
J15	16-pin game I/O socket
J16	Numeric keypad connector
J17	Keyboard connector
J18	Speaker
J19	ENVID/character-set switch
J20	Power-supply solder pads

## APPLE // OWNERS YOU'VE WAITED LONG ENOUGH

... for a half-height Apple® compatible disk drive that fits any Apple // you own: //+, //e, and //c.



- Faster, more precise tracking and larger capacity than standard Apple® drives.
- 100% Apple® compatible for //+, //e, and //c external drives.
- Quieter and smoother running.

- Half-height, compact design... saves you space.
- //c adaptor plug included free!
- Works with Apple's new Unidrive
- One year warranty, 30 day money back guarantee.
- Suggested retail price: **\$269.95**

### //c AND UNIDRIVE POWER

**New! Apple //c Disk Drive Adaptor Plug. Also Works With Apple's New Unidrive.**

- Turns your Apple //+ or //e compatible disk drive into an Apple //c drive.
- Allows you to use your Apple compatible disk drive with Apple's new Unidrive
- Attaches in seconds—absolutely no soldering!
- 5-year warranty, 30-day money-back guarantee.

**FAST•SIMPLE•INEXPENSIVE  
ONLY \$19.95**

## PICO products

Quality peripherals for IBM®, Apple®, and other leading microcomputers. Watch for more PICO Products at your local computer store—exceptional value and quality in computer accessories.

**For Dealer and Distributor information please call or write:**



**WGE International Ltd.**  
WGE Center, Rte. 202N  
Peterborough, NH 03458  
1 (800) 227-1560  
1 (603) 924-9261 in NH

IBM is a registered trademark of International Business Machines, Inc. Apple is a registered trademark of Apple Computer.

Incidentally, it is possible to configure your //e keyboard so you don't have to press the control key along with the reset key. I recommend doing this since the location and shape of the //e reset key make accidental resets unlikely. To reconfigure the keyboard, unplug the //e, remove the motherboard from the white case, and remove the keyboard from the motherboard. On the bottom of the keyboard, you'll see a normally closed jumper pad and a normally open jumper pad. Solder the normally open jumper and cut the normally closed one to make the control key unnecessary for a reset. ■

## Product Information

**256K MultiRam C**  
**512K MultiRam C**  
Checkmate Technology  
509 South Rockford Drive  
Tempe, AZ 85281-3021  
(602) 966-5802  
\$329.95 (256K)  
\$429.95 (512K)

**Reader Service Number 301**

**256K Z-RAM**  
**512K Z-RAM**  
Applied Engineering  
P.O. Box 798  
Carrollton, TX 75006  
(214) 241-6060  
\$359 (256K)  
\$419 (512K)

**Reader Service Number 302**



# CLASSIFIEDS

## Digitizers



### COMPUTER EYES

- Make custom T-Shirts
  - Print computer portraits
  - Join "free" public domain ART GALLERIES
  - Capture real world images
  - Digitize video signals from: Video Tape Recorders (VCR's), Video Cameras, etc.
  - Hundreds of practical applications
- YES, I want my computer to "see" YES, Send me ComputerEyes as follows:

Apple ComputerEyes ..... 109.00  
Software interface to:  
Print Shop ..... 12.00  
Double HIRES (Ile), (Ilc) ..... 12.00  
Newsroom ..... 12.00  
Panasonic/Ikegami Commercial grade B/W video cameras .... 159.00  
Special Hookup cabling with instructions ..... 19.00  
UNDERWARE ribbons to make custom heat iron-on transfers for T-shirts, scarves, etc ..... 12.00  
Color Pens ..... 12.00  
For VISA/MASTER CHARGE ORDERS, Call Toll FREE: 1-(800) 523-2445, x48) (PA Residents call 800-346-7511, x48) or Send Check/Money Order and all inquiries to:

**HAL SYSTEMS**  
PO Box 293  
Scotch Plains, NJ 07076

Please Note:  
Prices include shipping & handling, (continental USA).  
One year parts & labor warranty.  
For COD orders, add \$5.00  
NJ residents add 6%

AVAILABLE for APPLE, ATARI, C-64, AND IBM.

\*\*\*\*Dealer Inquiries Invited\*\*\*\*

## Publications

### MICROCOMPUTER BOOKS

Selected Apple II titles include:  
Mastering Appleworks (\$13.95), Basic Apple BASIC (\$15.95), Apple Logo for Kids (\$8.95), Visicalc Models for Business (\$15.95), Apples for Teachers—101 Programs for the Classroom (\$12.95), Inside the Apple II (\$17.95), Applesoft BASIC Subroutines & Secrets (\$15.95). Ship. & Handlg. extra. MC/VISA/AE. Send for free directory.

**MICRO BOOKS**  
P.O. Box 60203

Grand Junction, CO 81506  
(800) 874-5280 Ext. 115 (US)  
(800) 874-3426 Ext. 115 (CO)

## Tax Software

### DO TAXES WITH APPLEWORKS

If you own Appleworks, you can easily calculate and print out 1986 personal income tax forms (1985 tax year) without costly tax software. TAXWORKS converts Appleworks' spreadsheet to a comprehensive tax preparation package that computes Form 1040; prints IRS-accepted schedules A, B, C, D, E, G, SE, W; calculates child-care expense, exchange of residence, alternative tax, more. Also estimates your taxes under tax reform. Tutorial included. For Apple IIc or 128K IIe, printer optional. Prompt shipment. Introductory price \$19.95 plus \$2 postage/handling. In NY add state/local sales tax.

### PERSONAL FINANCIAL SERVICES

P.O. Box 1401, Dept. I  
Melville, NY 11747  
(516) 261-8652

### AFFORDABLE TAX PROGRAMS

IRS-approved 1985 federal income tax programs for Apple II+, IIc, IIe, 1-2 drives. Printer-display-recall-save options. Values carried from form/schedule to another. Home Pkg. (1040, A, B, D, G, SE, W, 2441)—\$25.95. Office Pkg. (Home + C, E, F, 2210, more)—\$41.95. MO res.—add 5.725% sales tax.

**CROWELL SOFTWARE CO.**  
5820 Bristlecone Ct.  
St. Louis, MO 63129

## Software

### HYPER C COMPILER

For the Apple IIe, IIc. Macro Assembler, Overlay Linker, Debugging tools, Text Editor, Library w/source, Dual-Mode out-put, Native or Interpreted Code. K&R compatible. 188 page Users manual. We give you MORE C, ONLY \$43.95, \$6.00 shipping.

**WSM GROUP, INC.**  
1161 N. EL Dorado #241  
Tucson, Arizona 85715  
(602) 298-7910

### SPEED-UP HOME ACCOUNTANT

Speed up file processing 4-60 times, search 100 times faster, load report program in 40 vs 240 seconds, go directly from program to program, prompts you when splitting transactions, change check-books with a single keystroke, PLUS MORE. The 64K version supports hard disks, ramdisks, 120 categories, prints reports on 80 column card, etc. VISA/MC Accepted. Satisfaction Guaranteed. DOS 3.3 Only. \$19(48K)/\$24(64K) Plus \$2.50 Shipping/Handling

**SOFTWARE SOLUTIONS**  
5516 Merritt Circle  
Edina, MN 55436  
For Orders Only 1-800-835-2246  
Ext. 131

### DESIGN YOUR OWN LABELS

For disks, name badges, video cassettes, photos, personal property, slides, parts, home canning, advertising, and more. Set height, width & lines-per-inch, then use our unique on-screen edit system to design a label. Edit lines and set formats until it's just right, then print 1 or 1000 copies. Add special "fill-in" fields and PRO LABEL will prompt for new data each time the label's printed. Do serial numbers. Use our prestored designs or make new ones. Requires 128K IIe/IIc & 1 drive. Program, user guide, and 100 free labels: \$19.95 + \$1 shpg. CHK/MC/VISA

**PRO LABEL/AP**  
16 E. Main/P.O. Box 631  
Marshalltown, IA 50158  
1-800-634-5463

## Supplies

### DISK SALE

SS/DD 35-trk for the Apple w/sleeve & label-10/\$5.80, bulk-100/\$45. Standard SS/DD w/sleeve & label-10/\$7.50, bulk-100/\$59. DS/DD w/sleeve & label-10/\$8.50, bulk-100/\$67. PREMIUM QUALITY, LIFETIME WARRANTY! Money back satisfaction guarantee. Min order \$20. Send check or pay by MC/VISA/AE. \$3, shipping, + \$2 if COD.

**UNITECH**  
201 Hurlley St.  
Cambridge, MA 02141  
(800) 343-0472  
In Mass. (617) 864-8324

# HINTS/TECHNIQUES

Apple users know that there's always an easier way to get the job done. A shortcut here, an elegant twist there. That's what Hints/Techniques is all about. It's an information swap for readers who want to share their programming pointers, DOS tips, hardware secrets, AppleWorks applications, WPL enhancements, and all those other insights that make you go "Aha!" in the night. So read on and see if you don't find just the solution you've been looking for.

## WPL Maillist Enhancements

by John Uzzolino

Using your computer for multiple mailings is a terrific convenience. Apple Writer //e WPL (Word Processing Language) lets you merge text and address files to create any type of correspondence. I've used the program many times and have found that it lacks a number of features, though. Some simple modifications can improve its performance.

Let's look at the original Maillist program. To merge files, first press the control and P keys. Following the [P]rint/Program prompt, type in "do maillist." Press the return key, and the screen displays "Name and location of Formletter." Type in your text-file name and press the return key. After the "Name and location of Address File" prompt, type in your address-file name, press the return key, and insert your data disk. If you misspell any file name while running this program, you have to repeat the entire procedure.

If you include a number of alterations, the Maillist program will display the following prompts (after you type in "do maillist"):

```
Name and location of Formletter
(? CATALOG):
Name and location of Address File
(? CATALOG):
Formletter File:
Address File:
CORRECT? (Y/N):
Do you want a file copy? (Y/N)
```

Listing 1. Enhanced Apple Writer //e WPL Maillist program, with modifications highlighted.

```
START PND
PSX 1
PPR
PPR
PPR
PPR
PPR
MAIL LIST FORM LETTERS
NAME PPR
PPR Name and location of Formletter (?=CATALOG)
PIN (example: mlmletter,d2): :=$B
PCS /$B//
PGO NAME
PCS /$B?/
OA
P
P
P
PCS /$B?/
PGO NAME
PPR
ADDR PPR
PPR Name and location of Address File (?=CATALOG)
PIN (example: new customers,d2): :=$D
PCS /$D//
PGO ADDR
PCS /$D?/
OA
P
P
P
PCS /$D?/
PGO ADDR
PPR
PPR
PPR
PPR
PPR Formletter File: $B
PPR Address File: $D
PPR
PPR Correct? (Y/N) :=$C
PCS /$C/N/
PGO START
PCS /$C/n/
PGO START
PCS /$C/y/
PGO FILECOPY
PCS /$C/y/
PGO FILECOPY
PGO START
FILECOPY PPR
PIN Do you want a file copy? (Y/N) :=$C
PCS /$C//
PGO FILECOPY
PPR
PPR Insert your data disks.
PPR
PPR To continue, press RETURN.
L1 NY
L $B
f<<>.EP0><
Y?
E
L $D*(X)>*<*
```

Listing continued.

**JE520 Voice Synthesizer**  
for Apple II, II+ and IIe  
JE520AP... \$119.95  
JE523TS (Software) \$ 9.95

**JE614 Numeric Auxiliary Keypad**  
JE614..... \$49.95

**12" Monochrome Monitor**  
for Apple II, II+ IIe and IIc  
AMON..... \$99.95

**Joystick for Apple IIe**  
AJS-1..... \$19.95

**Joystick for Apple II, IIe and IBM**  
UJS-1..... \$29.95

**Add'l. Apple Compatible Products**

**Cooling Fan for Apple II, II+ and IIe**  
APF-1..... \$39.95

**Switching Power Supply for Apple II, II+ and IIe**  
KHP4007... \$39.95

**Parallel Printer Interface for Apple IIc**  
MW-100... \$69.95

**VERSACARD for Apple II, II+ and IIe**  
VERSACARD... \$169.95  
(Serial, Parallel, Clock/Calendar and BSR)  
PM-SC (Serial Cable)... \$24.95  
PM-PC (Parallel Cable)... \$24.95

**80-Col. plus 64K RAM for your APPLE IIe\***



Now you can double the memory capacity and get an 80-column display format for your APPLE IIe\* computer at an affordable price. Just plug the JE864 card into your APPLE\* and expand your display to 80 characters per line. Perfect for word processing. The JE864 also features 64K bytes of additional memory to allow programming not possible with standard APPLE IIe\* computers. Complete documentation included.

JE864..... \$69.95

**16K RAM Card\*\* (Language Card)**

The JE860 RAM Card allows the Apple\* II and II+ computers to expand from 48K to 64K. Complete with instructions.

JE860\*\*..... \$39.95

Mail Order Electronics - Worldwide  
**Jameco ELECTRONICS**  
Serving the Computer Enthusiast Since 1974

**QUALITY COMPUTER PRODUCTS FOR APPLE II, II+, IIe, IIc and Macintosh\***

**APPLE\* Compatible Cards FOR APPLE II, II+ AND IIe\***



Five Key Software Programs!



**128K RAM Card\*\* RAM Disk!**

The JE868 is functionally compatible with the Apple II language card and can be utilized with all software that can be used with a standard 16K card. The JE868 requires no modifications to your Apple computer. Five key software programs are included: Memory Management System, utilities, diagnostics, demos, and RAM disk emulators for DOS 3.3, CP/M and Apple Pascal. Also features DOS relocater. Complete with instructions.

JE868\*\* (Expand-A-RAM)... \$119.95



**Applesurance Diagnostic Disk Controller Card**

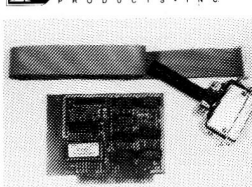


The JE877 serves as a diagnostic tool, an assurance/maintenance tool and a dual disk drive controller. The JE877 will verify and check the operating hardware of your system each time you turn on your Apple II, II+ or IIe.\* Test your RAM, ROM, CPU, and disk drives. Diagnostic routines may be cancelled at the touch of a key. Complete with instructions.

JE877 (DRV-1/Applesurance II)... \$69.95



**Parallel Printer Card**

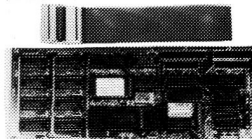


The JE880 Printer Interface board is an intelligent interface to most of today's popular dot-matrix graphics printers. The JE880 is fully compatible with Apple CP/M, Apple Pascal (or FORTRAN), and most other operating systems and software packages available for Apple II, II+ and IIe.\* The JE880 is shipped configured for the Centronics standard and can be re-configured for other standards if necessary. 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.

JE880 (PRT-1)... \$59.95



**Parallel/Serial Buffer Card**

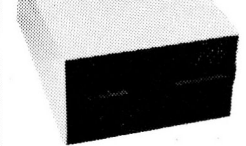


The JE883 provides the user with up to 64K of additional or buffered memory (18 pgs. of information). Using the parallel jumper cable supplied, the JE883 will attach to the JE880 (above). Parallel Card needed for operation. The JE883 includes a standard parallel input with both parallel and serial (RS232) buffered outputs. With these features you may access and buffer information to two types of printers (one serial, one parallel) simultaneously. Complete with instructions.

JE883 (P/S Buffer)... \$79.95

\*APPLE, APPLE II, II+ and IIe are registered trademarks of Apple Computers.

**APPLE™ Compatible 5¼" Disk Drive and Controller Card**

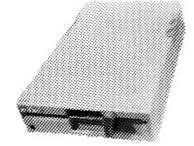


- Belt-driven • 143K formatted storage
- Color matches Apple Computer
- Works with Apple Controller or other Apple-compatible controllers (JE875)
- Complete with connector — just plug into your disk controller card
- 35 tracks • Size: 6"W x 3½"H x 8-9/16"D • Weight: 4½ lbs.

ADD-514 (Disk Drive) \$139.95

JE875 (Controller Card) \$49.95

**APPLE™ Compatible 5¼" Half-Ht. Disk Drive**



- Direct drive • 143K formatted • 35 tracks • Super quiet • Works with Apple Controllers or other compatibles (JE875) above
- Complete with connector—just plug into your controller • Size: 5¾"W x 1½"H x 8"D • Weight: 4 lbs.

ADD-12... \$129.95

**APPLE™ IIc Compatible 5¼" Half-Ht. Disk Drive**

- Same specs as ADD-12 (above) except no controller necessary.

ADD-IIc... \$129.95

**APPLE Keyboard and Case for Apple II and II+**



**KEYBOARD (KB-A68):**

- 68 Keys • 15-Key Keypad • Direct connection with 16-pin ribbon connector
- Special features include automatic-key repeat, cursor control/numeric keypad, 46 predefined function keys (Applesoft™, DOS commands and CP/M™), 10 user-definable keys and more!
- Color (keys): white/grey • Size: 14½"L x 5½"W x 1½"H

**CASE (EAEC-1):**

- Accommodates KB-A68 • Pop-up lid for easy access • Fits power supply and motherboard • Size: 15½"L x 18"D x 4¼"H

Part No.	Description	Price
KB-EA1	Apple Keyboard and Case.....	\$99.95
KB-A68	68-Key Apple Keyboard only.....	\$69.95
EAEC-1	Expanded Apple Enclosure Case only.....	\$34.95

\$20.00 Min. Order - U.S. Funds Only  
Calif. Residents Add 6% or 6½% Sales Tax  
Shipping - Add 5% plus \$1.50 Insurance  
Send S.A.S.E. for Quarterly Sales Flyer!

Send \$1.00 Postage for your  
FREE 1986 Jameco Catalog  
Prices Subject to Change



1355 SHOREWAY ROAD  
BELMONT, CALIFORNIA 94002  
Phone Orders Welcome (415) 592-8097  
Telex No. 176043

3/86 \*APPLE, APPLE II, II+, IIe, IIc and Macintosh are registered trademarks of APPLE Computers

**APPLE\* Modems and Options**

**ProModem 1200**  
for any RS232 Computer  
PM1200 (Stand-Alone) \$299.95

**MAC PAC for your Macintosh**  
Includes: ProModem 1200 external modem, cable and ProCom-M software.  
PM1200M... \$349.95

**OPTIONS for PM1200/MAC PAC**  
PM-Special #2 Includes Comm. Buffer, 512K Memory and Display. \$249.95

**1200/300 Baud 212A**  
Telephone Modem for your Apple II, II+ & IIe. Just plug in — Hayes compatible!  
PM1200A... \$299.95

**300 Baud for IIc**  
Attaches to the rear of Apple IIc. Built-in speaker.  
PM300c... \$149.95

\*\*When using CP/M, the JE860 and JE868 will only function with Version 2.20 or earlier; PASCAL (JE868) Version 1.1 or earlier.

Listing continued.

```

PGO L2
NY
PIN Form Letters completed.
Press RETURN.
PQT
L2 B
PLS##@1@*,*N=$A
B
F/(category1)/$A/A
P
PLS##@2@*,*N=$A
B
F/(category2)/$A/A
P
PLS##@3@*,*N=$A
B
F/(category3)/$A/A
P
PLS##@4@*,*N=$A
B
F/(category4)/$A/A
P
PLS##@5@*,*N=$A
B
F/(category5)/$A/A
P
PLS##@6@*,*N=$A
B
F/(category6)/$A/A
P
PLS##@7@*,*N=$A
B
F/(category7)/$A/A
P
PLS##@8@*,*N=$A
B
F/(category8)/$A/A
P
PLS##@9@*,*N=$A
B
    
```

```

F/(category9)/$A/A
P
PLS##@10@*,*N=$A
B
F/(category10)/$A/A
P
PLS##@11@*,*N=$A
B
F/(category11)/$A/A
P
PLS##@12@*,*N=$A
B
F/(category12)/$A/A
P
PLS##@13@*,*N=$A
B
F/(category13)/$A/A
P
PLS##@14@*,*N=$A
B
F/(category14)/$A/A
P
PLS##@15@*,*N=$A
B
F/(category15)/$A/A
P
L8 E
F<.EP0<.EP0<
Y?
D
F?<<A
P
PNP
PCS /$C/Y/
PNP
PCS /$C/Y/
PNP
PSX +1
PGO L1
    
```

End of listing.

If you answer no to the file-copy prompt, the next instruction will be "Insert your data disk." Do this, then press the return key to continue.

This procedure enhances Apple Writer //e WPL Maillist in three ways. The prompt ? CATALOG lets you review your disk directory to select the correct form-letter name, then returns to your location in the program. You don't have to type "do maillist" again. The same holds true for your address file.

Another plus is your ability to review both file names before continuing. If you make a mistake, type N to return to the beginning of the program and start over. You don't have to retype "do maillist" here, either.

The third modification is the option to obtain a printout for your files—just answer yes to the prompt "Do you want a file copy?"

**Listing 1** shows the enhanced WPL Maillist program. Save it to drive 2 with whatever file name you choose. (Make sure you don't save it to drive 1, because you'll erase the original Maillist program.) A little tinkering can make mass mailings with Apple Writer WPL easier than ever. ■

Write to John Uzzolino at 2237 New York Avenue, Scotch Plains, NJ 07090.

# WE ARE NOT PIRATES!

**but we're not fools, either.**

We're serious programmers and software users who just want to have backup copies of any software we own. COMPUTIST magazine shows us how to make backups of commercial software regardless of the maker's attempt to stop us from having legal copies. Don't let them stop you from protecting your own rights.

## Remove copy-protection

from your valuable library of expensive software. The publisher of COMPUTIST has been showing subscribers how to unlock and modify commercial software for the past 4 years. Don't be one of the users abused by user-FRIENDLY locked-up software. Subscribe.

SUBSCRIPTION RATES FOR 6 ISSUES: U.S.: \$20, U.S. first class: \$24, Canada, Mexico: \$34, Foreign: \$60. Sample copy: US: \$4.75, other: \$5.75. US funds drawn on U.S. bank. In Washington add 7.8% tax. Send funds to:

COMPUTIST, PO Box 110846-I, Tacoma, WA 98411

<input type="checkbox"/> NEW subscriber	<input type="checkbox"/> Renew my subscription
Name _____	13
Address _____	
City _____ State _____ Zip _____	
Country _____ Phone _____	
VISA/MC _____ Exp. _____	
Signature _____	

Circle 76 on Reader Service Card.

**SILICON EXPRESS DISKS**  
SS/DD 9.95  
DS/DD 10.95

**VERBATIM OR MAXELL**  
SS/DD 14.95  
DS/DD 20.95

**ELEPHANT**  
SS/DD 13.49  
DS/DD 16.95

**DATA CASE**  
8.99

**INSIDE OHIO**  
1-800-225-0755  
**YOUR TOLL FREE ACCESS OUTSIDE OHIO**  
**1-800-228-0755**  
CALL...FOR THE BEST PRICES...  
**BEST DELIVERY...**  
We have hundreds of other programs in stock at Fantastic savings.

**SILICON EXPRESS**

**ALL NEW STORE WITH EXPANDED WAREHOUSE**

Adventure Const.	30.75	Essential Data Dup	43.50
Algeblaster	34.95	Essex	30.95
Algebra I thru IV	ea. 26.95	Europe Ablaze	21.89
Algebra V & VI	34.95	Expedition Amazon	22.00
Alphabet Zoo	18.95	Extra K	22.00
Alpha Plot	24.89	F-15 Strike Eagle	20.75
A Mind Forever Voy.	30.95	Facemaker	17.95
Apple Mechanic	16.00	Fantavision	31.95
Archon I or II	22.45	Fahrenheit 451	27.49
ASC II Express	75.00	Fat Cat	19.00
Assembly Lines Bk.	16.95	Fat City	23.99
Back-it-up III	42.00	Fighter Command	41.95
Bag of Tricks #2	34.95	Financial Cookbook	31.00
Ball Blazer	27.95	Flex Type	16.00
Bank Street Filer	39.95	Flight Sim. II	33.89
Bank Street Mailer	39.95	Fontrix	54.00
Bank Street Writer	39.95	Fntpkps 1 thru 13	ea. 13.00
Bank Street Speller	39.95	Forecast	36.00
Bard's Tale	28.50	Font Mechanic	19.95
Baron	23.75	Fraction Factory	18.99
Beagle Bag	18.49	Fraction Fever	17.95
Beagle Basis	19.00	Frame-Up	16.50
Beagle Graphics	31.00	Game Maker	34.95
Beneath Apple DOS	13.95	Gato	22.75
Bnth. Apl. Pro DOS	13.95	Geopolitique 1990	25.89
Big U	22.95	Germany 1985	38.89
Black's Law Dict.	69.95	Gertrude's Puzzles	27.95
Blazing paddles	27.00	Gertrude's Secrets	27.95
Bookends	67.00	Ghostbusters	23.50
Bookends Extended	104.95	GI Joe	21.95
Borrowed Time	27.95	Goren Bridge	51.95
Breakthru Ardennes	41.95	Graphics Department	62.00
Carmen Sandiego	23.75	Graphics Expander	27.95
Carrier Force	41.95	Graphworks	63.95
Carriers at War	30.75	GPL	26.69
Captain Goodnight	24.95	Guadalcanal	41.95
Cat Graphics	20.95	Hacker	27.95
Chshp. Load Runner	20.00	Hey Diddle Diddle	17.95
Chart 'n Graph Tlxb.	23.95	Hitchhiker's Guide	22.00
Chop Lifter	20.00	Home Accountant	47.95
Clip Art Vol. 1	19.99	Homework	46.95
Complete Graphics	47.89	Homework Filer	46.95
Computer Ambush	41.95	Homework Speller	32.95
Computer Baseball	25.89	Image Printer II	34.95
Computer Bismark	41.95	Impossible Mission	24.95
Computer Qtrtbck.	27.95	Infidel	26.00
Copy II+	19.00	I.O. Silver	16.75
Coveted Mirror	20.89	Jeeves	33.95
Crossword Magic	30.00	Juggle's Rainbow	18.95
Crypt of Medea	21.95	Kamfgrupe	41.95
Cut & Paste	23.00	Karateka	20.00
Cutthroats	23.69	Kids on Keys	17.95
Database Toolbox	23.95	Kid Writer	18.89
Dazzle Draw	35.00	Kinder Comp	17.95
D-Code	22.00	Knight of Diamonds	20.75
Deadline	28.00	Knights of the Desert	27.95
Delta Drawing	27.95	King's Quest I or II	29.95
Disk Arranger	20.95	Koronin Rift	27.95
DiskQuick	16.00	Legacy of Llylgamyn	23.75
Disk Repair Kit	20.95	Lisa 2.6 Assembler	53.00
Dollars & Sense	57.00	List Handler	55.95
Dollars & Sense IIC	67.00	Little Comp. People	27.95
DOS Boss	13.00	Locksmith	64.00
Double-Take	19.00	Lode Runner 20.00	
Dragonworld	23.00	Magic Paint Brush	24.95
Eagles	27.95	Magic Spells	22.95
Early Games	19.95	Magic Window II	93.89
Eidolon	27.95	Magic Window IIE	93.89
Enchanter	22.00	Make a Match	20.95
		Man. Your Money	129.95
		Map Pack	13.95
		Mask of the Sun	27.95
		Mask Parade	27.95
		Mastering the GRE	69.95
		Mastering the SAT	69.95
		Master Type	24.89
		Math Blaster	28.89
		Math Maze	27.95
		Medical Dictionary	69.95
		Medaworks	84.95
		Merlin	34.00
		Merlin Pro	56.00
		Merlin Combo	63.95
		Micro Cookbook	22.25
		Mickey's Space Adv.	27.95
		Micro Lg. Baseball	23.75
		Millionaire	23.75
		Minipix #1	13.89
		Mouse Budget	48.95
		Mouse Calc	104.95
		Mouse Desk	27.95
		Mouse Word	90.95
		MouseWrite	72.00
		Most Amazing Thing	22.95
		Multi Disk Catalog	17.95
		Multiplan DOS 3.3	65.95
		Munch-A-Bug	23.95
		Murder by the Dozen	21.99
		Music Construction	24.75
		NATO Commander	21.75
		Net Worth	48.89
		Newsroom	34.95
		North Atlantic 86	38.89
		One-On-One	24.50
		Paper Graphics	30.89
		PFS: Access	40.95
		PFS: Write	69.95
		PFS: File	69.95
		PFS: Plan	69.95
		PFS: Report	69.95
		PFS: Graph	69.95
		PFS: First Success	159.95
		Phantasia	27.95
		Piece of Cake Math	21.95
		Pie Writer	98.95
		Pinbiter Builder	23.99
		Pinball Construction	21.50
		Pinpoint	41.95
		Pitstop II	27.95
		Pixit	31.89
		Planetfall	22.00
		Practical II	48.95
		Prince	48.95
		Printographer	23.95
		Print Shop	27.00
		Pr. Shp. Gr. #1.2 or 3	14.50
		Print Shp. Companion	24.95
		Print Shop Refill	13.95
		Probyter	19.25
		Prof. tour golf	25.89
		Pronto DOS	16.25
		Quest	21.89
		RDF	24.95
		Reach for the Stars	28.50
		Reader Rabbit	25.95
		Reforger '88	41.95
		Rendezvous w/Rama	23.00
		Report Card	33.00
		Report Works	84.95
		Rescue on Fractalus	27.95
		Rescue Raiders	24.95
		Rhymes & Riddles	17.95
		Robot Odyssey I	34.95
		Robot War	27.95
		Rocky's Boots	31.95
		Sargon III	30.99
		Sat (Harcort Brace)	46.99

Science Tool Kit	41.95	Trains	20.95
Seastalker	22.00	Transitions	34.95
Sensible Grammar	69.95	Transylvania	21.89
Sensible Speller	64.95	Triple-Dump	21.50
Serpent's Star	27.95	Turbo Pascal 3.0	35.95
7 Cities of Gold	24.50	Turbo Database Tlxb	29.95
Shadowkeep	23.00	Turbo Tutor	20.95
Shape Mechanic	26.95	Tycoon	23.75
Sideways	33.00	Typefaces	10.95
Silicon Salad	13.50	Ultima II	29.95
Skyfox	24.50	Ultima III	41.95
Snooper Trp I or 2	22.95	Ultima IV	33.69
Solo Flight	20.75	Understanding IIE	17.95
Songwriter	23.89	Understanding II+	15.95
Sorcerer	26.00	Universal file conv	24.95
Speed Reader II	40.69	Utility City	16.25
Spell Breaker	34.95	Versaform	54.99
Spellcopier	23.99	Video Toolbox	23.95
Spell It	28.69	Visible 6502	31.75
Spellworks	34.95	War in Russia	51.89
Spliffire Simulator	24.75	Wilderness	38.95
Spy Hunter	26.00	Will Writer	34.95
Spy vs. Spy	24.95	Winter Games	27.95
Squire	23.75	Winnie the Pooh	26.00
Starcross	28.00	Wisbringer	27.95
Star Lg. Baseball	20.95	Witness	20.00
Star Trek	31.95	Wizardry	29.00
Sticky Bear ABC	23.75	Wizard's Toolbox	23.95
Basket Bounce	23.75	Wizprint	15.99
BOP	23.99	Word Attack	28.69
Car Builder	23.75	Word Handler	55.95
Math	23.75	Word Perfect	12.95
Numbers	23.75	Word Spinner	23.95
Opposites	23.75	World's Great. Bball	24.95
Reading	23.75	World's Great. Fball	27.95
Shapes	23.75	Write Choice	26.95
Spellgrabber	23.75	Xyphus	21.89
Town Builder	23.75	Zaxxon	24.89
Typing	23.75	Zork I	22.00
Story Machine	17.95	Zork II or III	25.00
Story Maker	24.95		
Sum. Games I or II	23.75	<b>HARDWARE</b>	
SuperCalc 3A	119.95	80 Col. 64K Card	64.95
Super Disk Copy	24.95	Apple Cat II	187.00
Suspect	26.00	Compuserve Starter	21.95
Suspended	28.00	Datasec	8.99
Sword of Kadash	24.95	Disk Notcher	8.95
Take 1	38.89	Echo	10.95
Technical Dictionary	41.95	Flip-n-File	14.95
Temple of Apshai Tri.	27.95	Grappler Buffered	133.00
Terrapin Logo	59.95	Grappler	73.00
Think Tank	88.89	Grappler (serial)	73.95
Time is Money	59.99	Grappler C	73.95
Tip Disk #1	13.89	Hotlink	54.99
		Amdek Color 300	199.95
		Amdek Color 500	339.99
		Amdek Color 600	414.99
		Amdek Video 300G	127.99
		Amdek Video 300A	137.99

Keytronics Keybd.	199.95
Koala Pad +	71.00
Lemon	31.95
Lime	48.95
Mach II II+ Joystick	26.50
Mach II IIE Joystick	26.50
Mach III II+ Joystick	32.50
Mach III IIE Joystick	32.50
Micromodem IIE	139.95
Microsci A2 Drive	149.95
Microsci IIC Drive	154.95
Mockingboard A	67.00
Mockingboard B	67.00
Mockingboard C	119.00
Mockingboard D	129.00
Mockingboard A-MAX	39.95
Multiram CX (16 bit)	CALL
Multiram IIX (16 bit)	154.95
Multiram IIC 256K	319.95
Multiram IIE 80/64K	129.95
Multiram IIE 80/256K	169.54
Multiram IIE 80/152	209.95
Multiram IIE 80/768	249.95
Multiview II+ 80/160	215.00
Muppet Pad	43.99
Paddlesticks	26.50
Parallel Printer Card	54.95
Peach	41.95
Prometheus 1200A	288.99
System Saver Fan	59.95
Ultraterm	244.89
Ultraterm	177.95
Wildcard 2	74.95
ZEE 80A Checkmate	69.95
Zoom IIE	114.00

<b>PRINTERS</b>	
Star SG-10	219.00
Star SG-15	394.99
Star SD-10	344.99
Star SD-15	474.99
Star SR-10	494.99
Star SR-15	594.99
Star Powertype	344.95
Okidata 192P	399.95
Okidata 193P	559.95
Daisywriter 2000	884.95
Juki 6100	424.95
Colored Printer Rbns	CALL
Color Paper Pack	13.95

<b>MONITORS</b>	
Amdek Color 300	199.95
Amdek Color 500	339.99
Amdek Color 600	414.99
Amdek Video 300G	127.99
Amdek Video 300A	137.99

**YOUR ORDER FORM**  
**SILICON EXPRESS**

5955 E. Main Street Columbus, Ohio 43213

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

CHARGE CARD # \_\_\_\_\_ Exp. Date \_\_\_\_\_

QTY.	DESCRIPTION	PRICE

Computer Type \_\_\_\_\_ SHIPPING \_\_\_\_\_  
Phone No. \_\_\_\_\_ TOTAL \_\_\_\_\_

No additional surcharge on Mastercard, Visa, or School purchase orders. Personal checks allow 2 weeks. Shipping charges are \$3.00 minimum. Ohio residents add 5 1/2% state sales tax. Prices subject to change without notice.

**SILICON EXPRESS**

5955 E. Main St. Columbus, Ohio 43213  
1-614-868-6868

## Apple II Multiprogramming

by Virgelio V. Carpio

Three BASIC programs in your Apple's memory at the same time—what do you do with them? Why would you need them all?

The term coined by mainframe gurus for running several programs in memory is multiprogramming. The utility presented here (see **Listing 2**) divides your Apple's memory into areas called partitions, where separate programs can reside.

When you work with multiprogramming, you can run each program without affecting the others and their variables. Or you can copy lines from one program to another. A third way to use multiprogramming is to load the program you're editing, write another program to try out a sequence of code, then append the second program to the first when you've ironed out all the bugs. As in the mainframe environment, where you can use one partition for development and another for production, Multiprogrammer offers you the flexibility to test programming techniques before actually incorporating them into your code. You can also use the third partition as a common data area shared by the first two partitions.

Although copying and appending lines are not particularly straightforward programming procedures, Multiprogrammer lets you do away with writing EXECed files, a rather unfriendly method.

### Multiprogrammer in Operation

When you first BRUN Multiprogrammer, it initializes your Apple's memory and sets up three partitions, numbered 1, 2, and 3, while retaining whatever BASIC program you have in memory (if any). To switch from one partition to another, type &n, where n is the partition number. You must type the command NEW in partitions 2 and 3 before actually using them. I suggest that you type &2, NEW, &3, and NEW immediately after you BRUN the program. (To save precious memory, issuing the NEW command in partitions 2 and 3 is not automated.) You can then write, load, run, and save in any of the available partitions.

To copy program lines from one partition to another, list them, then enter the partition in which you want them repeated. The listed lines are still on screen, and you can "retype" them by running the cursor over them.

Listing 2. Multiprogrammer.

```

0800      1      TTL "MULTIPROGRAMMER V1.0"
0300      2      MAIN      EQU $300
0800      3      OBJECT    EQU $800
9000      4      ACTUAL    EQU $9000
9000      5      ORG      ACTUAL
9000      6      OBJ      OBJECT
0019      7      ACTIVE    EPZ $19      ;ACTIVE PARTITION NUMBER
001A      8      SAVEPTR   EPZ $1A      ;SAVE AREA POINTER
0024      9      CH        EPZ $24      ;HORIZONTAL TAB
0025     10      CV        EPZ $25      ;VERTICAL TAB
003C     11      ALL       EPZ $3C      ;MONITOR WORK FOR "MOVE"
003E     12      A2L      EPZ $3E
0042     13      A4L      EPZ $42
0031     14      N1       EQU $31      ;C'1'
0032     15      N2       EQU $32      ;C'2'
0033     16      N3       EQU $33      ;C'3'
0067     17      BASIC    EPZ $67      ;BASIC POINTERS
00AF     18      PROGEND   EPZ $AF      ;BASIC PROGRAM END POINTER
0200     19      KEYBUFF   EQU $200     ;KEYBOARD BUFFER
0800     20      PADDR1    EQU $800     ;PARTITION 1 ADDRESS
3800     21      PADDR2    EQU $3800    ;PARTITION 2 ADDRESS
6800     22      PADDR3    EQU $6800    ;PARTITION 3 ADDRESS
9000     23      *****
9000     24      *          MONITOR SUBROUTINES      *
9000     25      *****
E003     26      WARM      EQU $E003     ;WARM START
03D9     27      RWTS      EQU $3D9
03F5     28      AMPER     EQU $3F5     ;& VECTOR ADDRESS
FD8E     29      COUT      EQU $FD8E    ;OUTPUT A CHAR
FF3A     30      CROUT     EQU $FF3A    ;GENERATE A RETURN
FD6A     31      BELL      EQU $FD6A    ;BELL
FF2D     32      GETLN     EQU $FD6A    ;GET INPUT LINE W/ PROMPT
FF4A     33      PRERR     EQU $FF2D    ;PRINT "ERR"
FF3F     34      IOSAVE    EQU $FF4A    ;SAVE ALL REGISTERS
FE2C     35      IOREST    EQU $FF3F    ;RESTORE ALL REGISTERS
9000     36      MOVE      EQU $FE2C    ;LONG MOVE
9000     37      *****
9000     38      *
9000     39      *          MULTIPROGRAMMER          *
9000     40      *
9000     41      *          WRITTEN BY V. CARPIO      *
9000     42      *          COPYRIGHT 1986 BY INCIDER MAGAZINE  *
9000     43      *
9000     44      *****
9000     45      ;
9000     46      START:
9000     47      *
9000     48      *----- INITIALIZE ACTIVE PARTITION POINTER
9000     49      *
9000     50      INIT:
9000 A9 31      LDA #N1
9000 85 19      STA ACTIVE
9000 A9 FF      LDA #$FF
9000 85 6F      STA BASIC+8
9000 85 73      STA BASIC+12
9000 A9 37      LDA #$37
9000 85 70      STA BASIC+9
9000 85 74      STA BASIC+13
9010 A9 00      LDA #SAVE1      ;SET & VECTOR
9012 8D F6 03   STA AMPER+1      ;TO START OF
9015 A9 03      LDA /SAVE1      ;THIS PROGRAM
9017 8D F7 03   STA AMPER+2
901A A9 4C      LDA #$4C      ;PUT A JUMP INSTRUCTION
901C 8D F5 03   STA AMPER
65 *
901F 66 *----- RELOCATE MAIN LOGIC TO $300
901F 67 *
901F A9 3F      LDA #RELOC      ;POINT TO START OF DATA
9021 85 3C      STA ALL          ;TO BE RELOCATED
9023 A9 90      LDA /RELOC
9025 85 3D      STA ALL+1
9027 A9 0E      LDA #END          ;POINT TO END OF DATA
9029 85 3E      STA A2L          ;TO BE RELOCATED
902B A9 91      LDA /END
902D 85 3F      STA A2L+1
902F A9 00      LDA #MAIN          ;POINT TO RELOCATION AREA
9031 85 42      STA A4L
9033 A9 03      LDA /MAIN
9035 85 43      STA A4L+1
9037 A0 00      LDY #0
9039 20 2C FE   JSR MOVE          ;CALL MOVE ROUTINE TO RELOCATE
903C 4C 03 E0   JMP WARM          ;EXIT TO BASIC
83 RELOC:
84      ORG MAIN
85      OBJ OBJECT+RELOC-ACTUAL
86 SAVE1:
87      LDA ACTIVE
88      CMP #N1      ;PARTITION 1?
89      BNE SAVE2    ;NO, SEE IF P2
90      LDA /P1      ;POINT TO PARTITION 1 SAVE AREA
91      STA SAVEPTR+1

```

Listing continued.

```

030A A9 9C      92      LDA #P1
030C 85 1A      93      STA SAVEPTR
030E 4C 28 03   94      JMP SAVEPART      ;GO SAVE PARTITION
0311           95  SAVE2:
0311 C9 32      96      CMP #N2           ;PARTITION 2?
0313 D0 0B      97      BNE SAVE3       ;NO, CHECK IF P3
0315 A9 03      98      LDA /P2         ;POINT TO PARTITION 2 SAVE AREA
0317 85 1B      99      STA SAVEPTR+1
0319 A9 AC      100     LDA #P2
031B 85 1A      101     STA SAVEPTR
031D 4C 28 03   102     JMP SAVEPART      ;GO SAVE PARTITION
0320           103  SAVE3:
0320           104     *
0320           105     *----- THE FOLLOWING 4 LINES ARE DELETED TO FIT THE
0320           106     *----- PROGRAM IN $300-$3D0 RANGE
0320           107     *
0320           108     *      CMP #N3
0320           109     *      BEQ OKAY
0320           110     *      JMP PRERR
0320           111     *  OKAY:
0320 A9 03      112     LDA /P3         ;POINT TO PARTITION 3
0322 85 1B      113     STA SAVEPTR+1
0324 A9 BC      114     LDA #P3
0326 85 1A      115     STA SAVEPTR
0328           116     *
0328           117     * ----- SAVE ACTIVE PARTITION'S POINTERS
0328           118     *
0328           119  SAVEPART:
0328 A0 00      120     LDY #0
032A           121  SAVLOOP:
032A B9 67 00    122     LDA BASIC,Y
032D 91 1A      123     STA (SAVEPTR),Y ;SAVE
032F C8         124     INY
0330 C0 0E      125     CPY #14
0332 D0 F6      126     BNE SAVLOOP
0334 A5 AF      127     LDA PROGEND   ;ALSO SAVE PROGRAM END POINTER
0336 91 1A      128     STA (SAVEPTR),Y
0338 C8         129     INY
0339 A5 B0      130     LDA PROGEND+1
033B 91 1A      131     STA (SAVEPTR),Y
033D           132     *
033D           133     * ----- GET NEW PARTITION NUMBER
033D           134     *
033D           135  READ:
033D AD 01 02    136     LDA KEYBUFF+1 ;GET REQUESTED PARTITION NO.
0340 C9 31      137     CMP #N1       ;PARTITION 1?
0342 D0 12      138     BNE PART2   ;NO, SEE IF P2
0344 85 19      139     STA ACTIVE
0346 A9 00      140     LDA #0
0348 8D 00 08    141     STA PADDR1
034A A9 03      142     LDA /P1     ;POINT TO PARTITION 1 SAVE AREA
034D 85 1B      143     STA SAVEPTR+1
034F A9 9C      144     LDA #P1
0351 85 1A      145     STA SAVEPTR
0353 4C 82 03   146     JMP SETPART   ;GO INVOKE NEW PARTITION
0356           147  PART2:
0356 C9 32      148     CMP #N2       ;PARTITION 2?
0358 D0 12      149     BNE PART3   ;NO, SEE IF P3
035A 85 19      150     STA ACTIVE
035C A9 00      151     LDA #0
035E 8D 00 38   152     STA PADDR2
0361 A9 03      153     LDA /P2     ;YES, POINT TO PARTITION 2
0363 85 1B      154     STA SAVEPTR+1 ;SAVE AREA
0365 A9 AC      155     LDA #P2
0367 85 1A      156     STA SAVEPTR
0369 4C 82 03   157     JMP SETPART   ;GO INVOKE NEW PARTITION
036C           158  PART3:
036C C9 33      159     CMP #N3       ;PARTITION 3?
036E F0 03      160     BEQ GLOOK    ;YES, CONTINUE
0370 4C 2D FF    161     JMP PRERR     ;NO, SOUND ALARM
0373           162  GLOOK:
0373 85 19      163     STA ACTIVE
0375 A9 00      164     LDA #0
0377 8D 00 68    165     STA PADDR3
037A A9 03      166     LDA /P3     ;POINT TO PARTITION 3 SAVE AREA
037C 85 1B      167     STA SAVEPTR+1
037E A9 BC      168     LDA #P3
0380 85 1A      169     STA SAVEPTR
0382           170  SETPART:
0382 A0 00      171     LDY #0
0384           172  SETLOOP:
0384 B1 1A      173     LDA (SAVEPTR),Y ;RESTORE PARTITION POINTERS
0386 99 67 00    174     STA BASIC,Y
0389 C8         175     INY
038A C0 0E      176     CPY #14
038C D0 F6      177     BNE SETLOOP
038E B1 1A      178     LDA (SAVEPTR),Y
0390 85 AF      179     STA PROGEND
0392 C8         180     INY
0393 B1 1A      181     LDA (SAVEPTR),Y
0395 85 B0      182     STA PROGEND+1
0397           183  RETURN:
0397 68         184     PLA

```

Listing continued.

## Enhance AppleWorks™

DMP Utilities lets you use new character typefaces with AppleWorks. Now you can get Italics, Greek, Symbols, the highest quality typeface we've ever seen, and many other fonts, all from within AppleWorks!!!

## 24 Imagewriter Fonts 20 Epson FX/JX Fonts

DMP Utilities includes menu-driven software to download the character sets, and to eliminate printer control problems forever. You also get a character editor (full descender, proportional ability) and a program to convert some of the many hi-res character sets for printer use.

DMP Utilities is supplied on DOS 3.3, unlocked, and includes a 67 page User's Manual. Because the fonts are downloaded, they work with any program, not just AppleWorks. Our no-risk warranty provides you a full refund if you're not happy with the programs. The Utilities costs \$50 (+\$2 p/h). MC/Visa gladly accepted

DMP Utilities works ONLY with Apple DMP, Imagewriter I or II, and Epson FX or JX printers.

Apple Imagewriter Trademark of Apple Computer, Inc.  
Epson is a Trademark of the Epson Corp.

**Vilberg Brothers Comp. Inc.**  
4201 Hegg Avenue  
Madison, WI 53716  
(608) 221-0842

Circle 135 on Reader Service Card.

And your Earls and Viscounts. If you've got royal ancestors, we have the noble software that can help you trace them down.

Family Roots and your Apple, IBM, Commodore, Kaypro\* and many others, offer individual and group sheets, charts, name indices, general search and text

# Put up your dukes!

capabilities. Adapts to most disk drives, printers, and screens. You get more utility programs, plus lots of personal control. A comprehensive (new) manual is included.

All for just \$185.

Write or call today for more information and a free brochure.

**Quinsept, Inc.**

P.O. Box 216  
Lexington, MA 02173  
(617) 641-2930

American Express, Visa, and MasterCard gladly accepted.

\*Trademarks for Apple Computer Inc., International Business Machines, CBM, Inc. and Digital Research.



Circle 16 on Reader Service Card.

Each partition is approximately 12K in size. Partition 1 begins at \$800, partition 2 at \$3800, and partition 3 at \$6800. High-resolution graphics reside in the \$2000 to \$6000 range, so Multiprogrammer does not allow for running graphics programs.

If you're involved in program development, flexibility in testing new routines is important. So who needs a mainframe? Try Multiprogrammer—you'll get the power of an IBM series 360/370 in an Apple-sized package. ■

Write to Virgelio Carpio at AIG Data Center Manila, Philamlife Building, United Nations Avenue, Manila, Philippines 2801.

Got a hint of your own? inCider would like to see it. If we can use it in Hints/Techniques, we'll buy it from you. Send your tip to: inCider, 80 Pine Street, Peterborough, NH 03458.

Listing continued.

0398 68	185	PLA	
0399 4C 03 E0	186	JMP WARM	;EXIT
039C	187 *		
039C	188 *	-----	PARTITION 1
039C	189 *		
039C	190 P1:		
039C 01 08	191 BEG1	ADR PADDR1+1	
039E 04 08	192 LOMEM1	ADR PADDR1+4	
03A0 04 08	193 NUM1	ADR PADDR1+4	
03A2 04 08	194 ARR1	ADR PADDR1+4	
03A4 FF 37	195 STR1	ADR PADDR2-1	
03A6 01 02	196	HEX 0102	
03AB FF 37	197 HIMEM1	ADR PADDR2-1	
03AA 00 00	198 PROGEND1	ADR \$0000	
03AC	199 *		
03AC	200 *	-----	PARTITION 2
03AC	201 *		
03AC	202 P2:		
03AC 01 38	203 BEG2	ADR PADDR2+1	
03AE 04 38	204 LOMEM2	ADR PADDR2+4	
03B0 04 38	205 NUM2	ADR PADDR2+4	
03B2 04 38	206 ARR2	ADR PADDR2+4	
03B4 FF 67	207 STR2	ADR PADDR3-1	
03B6 01 02	208	HEX 0102	
03BB FF 67	209 HIMEM2	ADR PADDR3-1	
03BA 00 00	210 PROGEND2	ADR \$0000	
03BC	211 *		
03BC	212 *	-----	PARTITION 3
03BC	213 *		
03BC	214 P3:		
03BC 01 68	215 BEG3	ADR PADDR3+1	
03BE 04 68	216 LOMEM3	ADR PADDR3+4	
03C0 04 68	217 NUM3	ADR PADDR3+4	
03C2 04 68	218 ARR3	ADR PADDR3+4	
03C4 FF 94	219 STR3	ADR \$94FF	
03C6 01 02	220	HEX 0102	
03C8 FF 94	221 HIMEM3	ADR \$94FF	
03CA 00 00	222 PROGEND3	ADR \$0000	
910B	223 END	EQU *+RELOC-MAIN	
03CC	224	END	

End of listing.

## We Make Measurement And Control Easy!

### 12 BIT, 16 CHANNEL, PROGRAMMABLE GAIN A/D

- All new 1984 design incorporates the latest in state-of-art I.C. technologies.
- Complete 12 bit A/D converter, with an accuracy of 0.02%!
- 16 single ended channels (single ended means that your signals are measured against the Apple's GND.) or 8 differential channels. Most all the signals you will measure are single ended.
- 9 software programmable full scale ranges, any of the 16 channels can have any range at any time. Under program control, you can select any of the following ranges: ±10 volts, ±5V, ±2.5V, ±1.0V, ±500mV, ±250mV, ±100mV, ±50mV, or ±25mV.
- Very fast conversion (25 micro seconds).
- Analog input resistance greater than 1,000,000 ohms.
- Laser-trimmed scaling resistors.
- Low power consumption through the use of CMOS devices.
- The user connector has +12 and -12 volts on it so you can power your sensors.
- Only elementary programming is required to use the A/D.
- The entire system is on one standard size plug in card that fits neatly inside the Apple.
- System includes sample programs on disk.

**PRICE \$319**

A few applications may include the monitoring of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● soil moisture and many more.

### A/D & D/A

#### A/D & D/A Features:

- Single PC card
- 8 channels A/D
- 8 channels D/A
- Superfast conversion time
- Very easy programming
- Many analog ranges
- Manual contains sample applications

#### A/D SPECIFICATIONS

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

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

#### D/A SPECIFICATIONS

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

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

**PRICE \$199**

### SIGNAL CONDITIONER

Our 8 channel signal conditioner is designed for use with both our A/D converters. This board incorporates 8 F.E.T. op-amps, which allow almost any gain or offset. For example, an input signal that varies from 2.00 to 2.15 volts or a signal that varies from 0 to 50 mV can easily be converted to 0-10V output for the A/D.

The signal conditioner's outputs are on a high quality 16 pin gold I.C. socket that matches the one on the A/D's so a simple ribbon cable connects the two. The signal conditioner can be powered by your Apple or from an external supply.

#### FEATURES

- 4.5" square for standard card cage and 4 mounting holes for standard mounting. The signal conditioner does not plug into the Apple, it can be located up to ½ mile away from the A/D.
- 22 pin .156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
- Large bread board area.
- Full detailed schematic included.

**PRICE \$79**

### I/O 32

- Provides 4, 8-Bit programmable I/O Ports
- Any of the 4 ports can be programmed as an input or an output port
- All I/O lines are TTL (0-5 volt) compatible
- Your inputs can be anything from high speed logic to simple switches
- Programming is made very easy by powerful on-board firmware
- The I/O 32 is your best choice for any control application

The I/O manual includes many programs for inputs and outputs.

**Some applications include:**  
Burglar alarm, direction sensing, use with relays to turn on lights, sound buzzers, start motors, control tape recorders and printers, use with digital joystick.

**PRICE \$89**

Please see our other full page ad in this magazine for information on Applied Engineering's Timemaster Clock Card and other products for the Apple. Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products compatible with Apple II and //e.

Applied Engineering's products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle three year warranty.

Texas Residents Add 5% Sales Tax  
Add \$10.00 If Outside U.S.A.

Send Check or Money Order to:  
**APPLIED ENGINEERING**  
P.O. Box 798  
Carrollton, TX 75006

Call (214)241-6060  
9 a.m. to 11 p.m. 7 days a week  
MasterCard, Visa & C.O.D. Welcome  
No extra charge for credit cards





# EDITORS' CHOICE

## MouseDesk, MouseWord, MouseCalc, MouseBudget

Every month, hardware and software manufacturers release dozens of new products into the Apple II market. Editors' Choice singles out one product each month that the inCider editors feel is a significant addition to the Apple II family of products. Products evaluated in Editors' Choice are among the most recent releases and may not be available yet for retail distribution.

Are you one of the thousands of Apple users who dream of mice and icons and pull-down menus filling the screen of your II? It's no dream: Version Soft's Mouse-series software will transform your IIc or enhanced IIe into what looks and feels very much like a Macintosh.

The four programs—MouseDesk, MouseWord, MouseCalc, and MouseBudget—are designed to use the increasingly popular Mac interface; you select actions by using a mouse-driven cursor to point to desired options. Menus, "pulled down" from broader topics like Edit or File, display every choice available to you.

### Desk

MouseDesk is a file manager. It's set up as a desktop, with icons for files and options laid out neatly in rows. You can run programs, copy files, and format disks without ever touching the keyboard. An example: To delete a file, scoot the mouse until it points to the file's icon. Press the mouse button and "drag" the icon to a trash-can icon, then release the mouse button. It takes less than two seconds. Copying a file is just as easy and almost as quick.

### Word

MouseWord is a full-featured word processor—not only does it format text, it also includes a mini-calculator, a communications interface, and a mail/merge facility. You can store commonly used words or phrases in MouseWord's glossary; a few clicks of the mouse will retrieve the text and paste it neatly into your document.

What sets MouseWord apart from the dozens of word processors on the market is its use of pull-down menus. While some programs sprinkle memory-jogging graphics around the screen or supply a fold-out command summary, MouseWord puts every command right at your fingertips.

### Calc

MouseCalc is a showcase for the power of the Mac interface. Going from cell to cell in the 254-row-by-63-column spreadsheet is as easy as sliding the mouse to a cell and clicking a button. A built-in graphics package takes information from your grid and produces charts and graphs in any of three formats: bar charts, three-dimensional bar charts, and line graphs.

### Budget

For those who don't need the full power of MouseCalc, or who wish simply to manage household financial affairs, Version Soft has created MouseBudget. With it you can track monthly cash flow, keep a running total of tax-exempt expenses, calculate your net worth, or list your balance sheet. Anything you want to do is only a click of the mouse away.

### A Future Trend

Software publishers are finally realizing that most computerists want to spend their time *using* their software, not reading a manual. Version Soft's Mouse packages are certainly complex, but the pull-down menus put every feature at your fingertips.

"Version Soft has made the Apple II the machine the Mac might have been," according to Review Editor Paul Statt. "The Macintosh interface, created to work the way the human mind works, is a radical way of dealing with information. But the Macintosh is not necessarily the best hardware to use that innovative interface. Programs in the Mouse series are intuitive and easy to run."

"The Version Soft programs are characteristic of where the best of Apple II software is heading," says Editor in Chief Deborah de Peyster. And this software is not just for the novice. Even long-time Apple II users will find its simplified utilities a bonus and reason enough to use this type of program. The rumor mills say that enhanced word-processing and spreadsheet packages are in the works at Version Soft—and that they'll make Mac users jealous. We can't wait.

MouseDesk (\$39.95), MouseWord (\$129.95), MouseCalc (\$149.95), and MouseBudget (\$69.95) are marketed in the U.S. by International Solutions, 910 West Maude Avenue, Sunnyvale, CA 94086. ■



# Let's compare Apples<sup>TM</sup> to Apples<sup>TM</sup>.



An Apple IIc



An Apple IIc with Z-RAM

The Apple IIc on the right works exactly the same as the Apple IIc on the left. Almost. The Apple on the right has a powerful memory expansion coprocessing card called Z-RAM. From Applied Engineering. Which means the Apple on the right can completely load AppleWorks into RAM—and then run it up to thirty times faster than the Apple on the left.

Z-RAM also acts as a solid-state disk drive. Which means the Apple on the right will load and store programs up to 30 times faster. And, our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

## Turbo Charged AppleWorks.

Even a 256K Z-RAM can completely load AppleWorks into RAM. With Z-RAM, the moment your fingers touch the keyboard AppleWorks responds. A 256K Z-RAM lets your IIc run AppleWorks up to 30 times faster, increases available desktop to 235K and maximum number of records from 1,350 to over 15,000, quadruples the number of lines allowed in the word processor, provides a print spooler, and auto-segments large files so they can be saved on two or more disks. A 512K Z-RAM boosts AppleWorks desktop to an incredible 425K.

## Take a closer look.

There's more. Z-RAM has a built-in high speed Z-80B microprocessor that allows you to run CP/M programs. Which means you now have access to the single largest body of software in existence, including popular packages like WordStar, dBase II, Turbo PASCAL and Microsoft BASIC. A 16 bit option is also available.

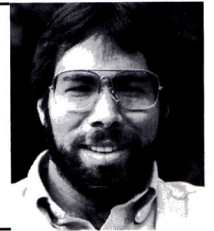
And still more. Z-RAM is compatible with all IIc software and hardware, installs easily in just ten minutes with a screwdriver (slightly longer without), is available with 256K or 512K of additional memory (a 256K Z-RAM can be upgraded to 512K at

any time). Z-RAM is easily handled by the IIc power supply with our patent pending power saving design.

The only thing better than that would be a recommendation from Steve Wozniak.

*"I recommend Applied Engineering products wholeheartedly." (Of course, Steve's IIc has a Z-RAM installed.)*

*Steve Wozniak, the creator of Apple Computer*



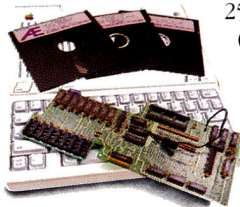
## For fast response.

Z-RAM comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual. And a five year "hassle free" warranty. Make a good Apple great. With 256K Z-RAM "384K total" (\$329); with 512K "640K total" (\$389); 16 bit option may be added later (\$89).

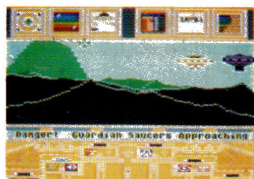
If you want to run CP/M software, but don't need more memory, we suggest our Z-80c card. The Z-80c has no memory expansion ports and is priced at only \$159.

Call 214-241-6060 TO ORDER TODAY. 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



# EPYX PRESENTS LUCASFILM GAMES™ KORONIS RIFT™



It takes all kinds to make a galaxy interesting. Like you, a *techno-scavenger*. Your kind are out to get rich scavenging Ancient technology. And now you've found the fabled

Koronis Rift—the weapons testing grounds of the Ancients. The chance of a lifetime awaits you.

Abandoned war hulks litter the Rift—crammed with exotic weapons and technology. The lifelike fractal graphics take you to this mythical land of the Ancients. The mind's-eye point of view puts you right in the driver's seat of a Surface Rover. A hulk looms before you—your mind races, feverishly planning a strategy. What weapons do you need to survive? What technology will fetch the highest price? If you can pack your battered Rover full—you'll be rich beyond your wildest dreams.

But it won't be easy. The Guardians—genetically

engineered mutants—stand watch over their creators' technology. And they deal swiftly and ruthlessly with characters like techno-scavengers.

But you've got a plan. If you and your trusty Science Droid can scavenge the right combination of weapons and technology—and get off the planet alive—you'll make it big. Destroy the Guardian base and you'll even be a hero! The treasures of the Ancients are yours . . . if you've got what it takes.

	C64/128	ATARI	APPLE
<i>Koronis Rift</i>	✓	✓	✓

 **EPYX**  
COMPUTER SOFTWARE  
1043 Kiel Ct., Sunnyvale, CA 94089

**Strategy Games for the Action-Game Player®**



© 1985 LFL.

© 1985 LFL.