

\$2.95 US
\$3.95 CANADA, FOREIGN
SEPTEMBER 1986
VOLUME 4/ISSUE 9

Apple II/Macintosh

THE INDEPENDENT GUIDE TO APPLE COMPUTING

Downloaded from www.Apple2Online.com

Bright Ideas on

ACCOUNTING

A Survey of Apple II Accounting Programs



PERSONAL FINANCE:
SYLVIA PORTER &
ANDREW TOBIAS

**MACINTOSH
MAPMAKING**

**POSTSCRIPT
OUTPUT
DEVICES**

**MATH
FOR KIDS**

**APPLE II
SCIENCE
LAB**



*****3-DIGIT 371
#GAS0116S091 8#680488 8H

DR KENNETH BUCHHOLZ
WWW.APPLE2ONLINE.COM



Introducing the Most Powerful Business Software Ever!

FOR YOUR IBM • APPLE • MAC • TRS-80 • KAYPRO • COMMODORE • MSDOS OR CP/M COMPUTER*

OVER
100,000
SOLD



The VERSABUSINESS™ Series

Each VERSABUSINESS module can be purchased and used independently, or can be linked in any combination to form a complete, coordinated business system.

VERSARECEIVABLES™ \$99.95
VERSARECEIVABLES™ is a complete menu-driven accounts receivable, invoicing, and monthly statement-generating system. It keeps track of all information related to who owes you or your company money, and can provide automatic billing for past due accounts. VERSARECEIVABLES™ prints all necessary statements, invoices, and summary reports and can be linked with VERSALEDGER II™ and VERSAINVENTORY™.

VERSAPAYABLES™ \$99.95
VERSAPAYABLES™ is designed to keep track of current and aged payables, keeping you in touch with all information regarding how much money your company owes, and to whom. VERSAPAYABLES™ maintains a complete record on each vendor, prints checks, check registers, vouchers, transaction reports, aged payables reports, vendor reports, and more. With VERSAPAYABLES™, you can even let your computer automatically select which vouchers are to be paid.

VERSAPAYROLL™ \$99.95
VERSAPAYROLL™ is a powerful and sophisticated, but easy to use payroll system that keeps track of all government-required payroll information. Complete employee records are maintained, and all necessary payroll calculations are performed automatically, with totals displayed on screen for operator approval. A payroll can be run totally, automatically, or the operator can intervene to prevent a check from being printed, or to alter information on it. If desired, totals may be posted to the VERSALEDGER II™ system.

VERSAINVENTORY™ \$99.95
VERSAINVENTORY™ is a complete inventory control system that gives you instant access to data on any item. VERSAINVENTORY™ keeps track of all information related to what items are in stock, out of stock, on backorder, etc., stores sales and pricing data, alerts you when an item falls below a preset reorder point, and allows you to enter and print invoices directly or to link with the VERSARECEIVABLES™ system. VERSAINVENTORY™ prints all needed inventory listings, reports of items below reorder point, inventory value reports, period and year-to-date sales reports, price lists, inventory checklists, etc.

VERSALEDGER II™ \$149.95
VERSALEDGER II™ is a complete accounting system that grows as your business grows. VERSALEDGER II™ can be used as a simple personal checkbook register, expanded to a small business bookkeeping system or developed into a large corporate general ledger system **without any additional software.**

- VERSALEDGER II™ gives you almost unlimited storage capacity (300 to 10,000 entries per month, depending on the system),
- stores all check and general ledger information forever,
- prints tractor-feed checks,
- handles multiple checkbooks and general ledgers,
- prints 17 customized accounting reports including check registers, balance sheets, income statements, transaction reports, account listings, etc.

VERSALEDGER II™ comes with a professionally-written 160 page manual designed for first-time users. The VERSALEDGER II™ manual will help you become quickly familiar with VERSALEDGER II™, using complete sample data files supplied on diskette and more than 50 pages of sample printouts.

SATISFACTION GUARANTEED!

Every VERSABUSINESS™ module is guaranteed to outperform all other competitive systems, and at a fraction of their cost. If you are not satisfied with any VERSABUSINESS™ module, you may return it within 30 days for a refund. Manuals for any VERSABUSINESS™ module may be purchased for \$25 each, credited toward a later purchase of that module. All CP/M-based Computers must be equipped with Microsoft BASIC (MBASIC or BASIC 80)

To Order:
Write or call Toll-free (800) 431-2818
(N.Y.S. residents call 914-425-1535)

- add \$3 for shipping in UPS areas
- add \$4 for C.O.D. or non-UPS areas
- add \$5 to CANADA or MEXICO
- add proper postage elsewhere

DEALER INQUIRIES WELCOME

All prices and specifications subject to change / Delivery subject to availability.

COMPUTRONICS

50 N. PASCACK ROAD, SPRING VALLEY, N.Y. 10977

CIRCLE 335 ON READER SERVICE CARD



Introducing Certificate Maker™

Because accomplishments deserve to be recognized.

Offer Congratulations! Say Thanks! Have Fun!

Giving someone a certificate is a wonderful way to recognize an outstanding achievement. It's also a perfect way to have a little fun.

Certificate Maker™ gives you **over 200 professionally designed certificates**. From strictly official to fun and witty, there's something for everyone and every occasion. So you can surprise a family member, praise a student, applaud an athlete and honor an employee with great looking certificates. And each one will be as personal, professional and special as you choose.



Personalized certificates in minutes.

Simply choose a certificate, select a border, type your message; add a date and signature... then print! It's that quick and that easy.

You can even create a name file and automatically personalize certificates for everyone in your class or club!

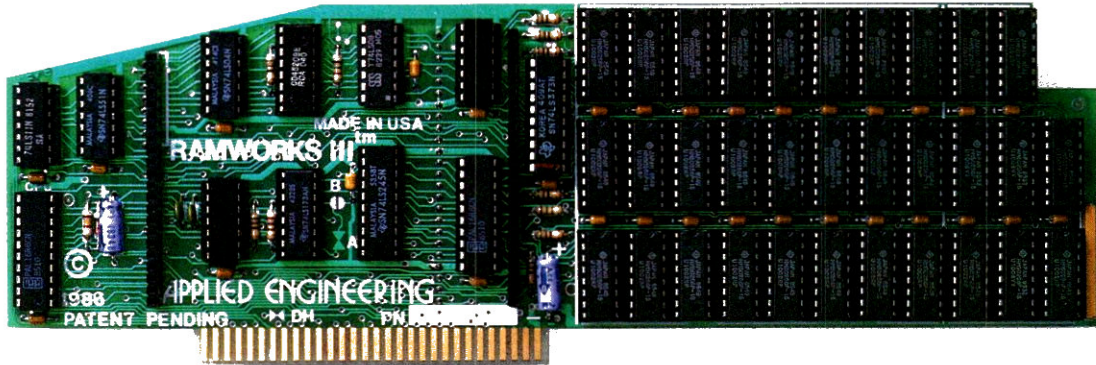
Over 200 exciting
Certificates, Awards,
Diplomas, and Licenses.



SPRINGBOARD

RamWorks III[®]

The Best Selling Memory Card for the Apple Just Got Even Better!



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

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

The AppleWorks Amplifier.

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

Only RamWorks eliminates Apple-

Works' internal memory limits, increasing the maximum number of records available from 1,350 to over 25,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 15,000. And *only* RamWorks (256K or larger) offers a built-in printer buffer, so you won't have to wait for your printer to stop before returning to AppleWorks. RamWorks even expands the clipboard. And auto segments large files so they can be saved on two or more disks. You can even have Pinpoint, MacroWorks or Jeeves and your favorite spelling checker in RAM for instant response.

RamWorks, nothing comes close to enhancing AppleWorks so much.

The Most Friendly, Most Compatible Card Available.

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

RamWorks III is compatible with all

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

Highest Memory Expansion.

Applied Engineering has always offered the largest memory for the IIe and RamWorks III continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 meg is about 500 pages of text)...but if you do ever need more than 1 MEG, RamWorks III has the widest selection of expander cards available. Additional 512K, 2 MEG, or 16 MEG cards just snap directly onto RamWorks III by plugging into the industry's only low profile (no slot 1 interference) fully decoded memory expansion connector. You can also choose non-volatile, power independent expanders allowing permanent storage for up to 20 years.

It Even Corrects Mistakes.

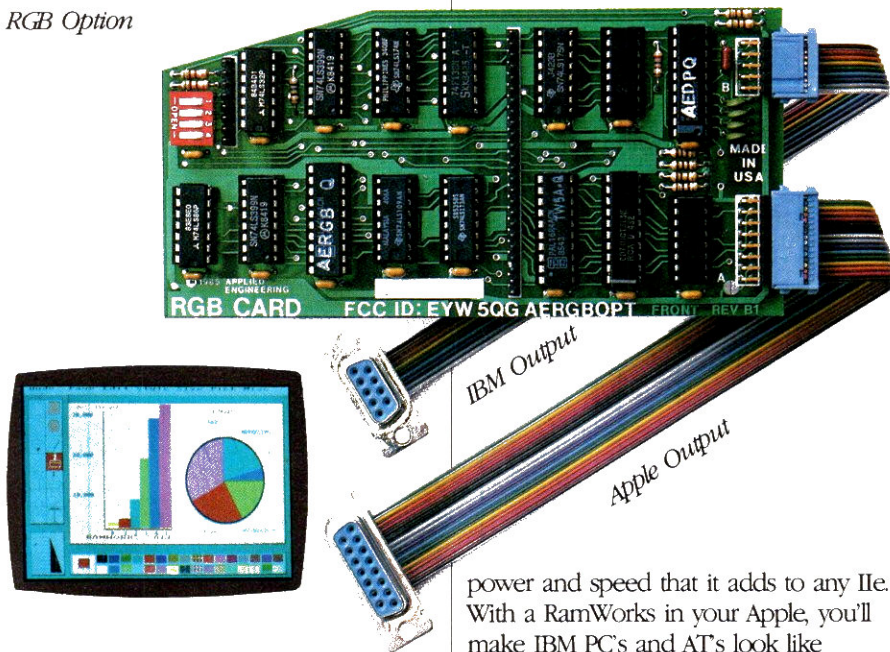
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

The Ultimate in RGB Color.

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

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

RGB Option



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

True 65C816 Bit Power.

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

Endorsed by the Experts.

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



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

Steve Wozniak, the creator of Apple Computer

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

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

coverage no matter where you purchase

- Built-in super sharp 80 column display, (with or without RGB)
- Expandable to 1 MEG on main card
- Expandable to 16 meg with expander card, with NO slot 1 interference
- Can use 64K or 256K RAMs
- Powerful linear addressing 16 bit coprocessor port
- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- The only large RAM card that's 100% compatible with all IIE software
- RamDrive™ the ultimate disk emulation software included free
- Memory is easily partitioned allowing many programs to be in memory at once
- Compatible, RGB option featuring ultra high resolution color graphics and multiple text colors, with cables for both Apple and IBM type monitors
- Built-in self diagnostics software
- Lowest power consumption (patent pending)
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Software industry standard
- Advanced Computer Aided Design
- Used by Apple Computer, Steve Wozniak and virtually all software companies
- Displays date and time on the AppleWorks screen with any PRO-DOS compatible clock
- Much, much more!

power and speed that it adds to any IIE. With a RamWorks in your Apple, you'll make IBM PC's and AT's look like slowpokes.

Quality and Support of the Industry Leader

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

It's Got It All

- 15 day money back guarantee
- 5 year hassle free warranty insures

RamWorks III with 64K	\$179
RamWorks III with 256K	\$219
RamWorks III with 512K	\$269
RamWorks III with 1 MEG	\$369
RamWorks III with 1.5 MEG	\$539
RamWorks III with 2 to 16 MEG	CALL
65C816 16 Bit Card	\$159
RGB Option	\$129
256K Upgrade	\$ 50

RamWorks III. The industry standard for memory expansion of the Apple IIE.

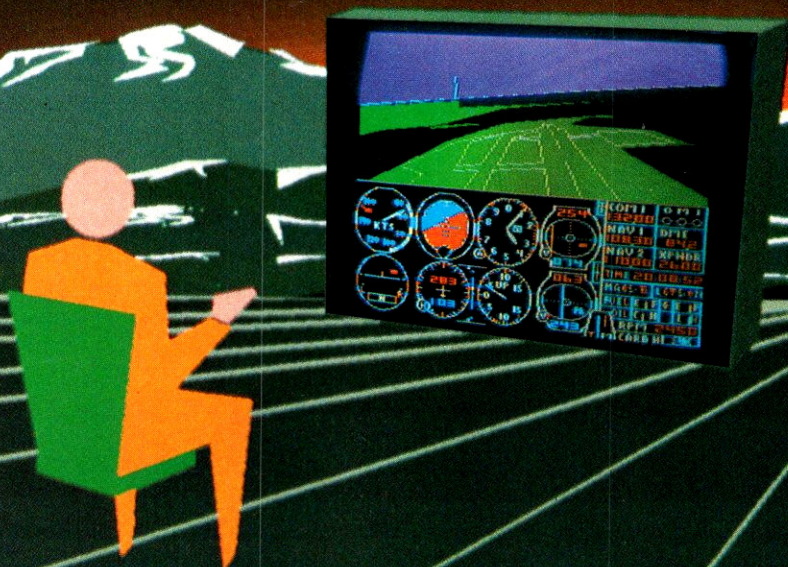
ORDER YOUR RamWorks III TODAY. 9 a.m. to 11 p.m. 7 days, or send check or money order to Applied Engineering.

MasterCard, Visa and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 if outside U.S.A.

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

Flight Simulator II

For Apple II,
Apple II+, & Apple IIe



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 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



Publisher
Sydney H. Rogers
Editor in Chief
Maggie Canon
Executive Editor
Frederic E. Davis
Technical Editor
Chip Carman
Senior Copy Editor
Eva Langfeldt
Managing Editor
Leslie Steere
Assistant Editor
Carol Person
Office Manager
Marjorie Gae Brandon
Contributing Editors
Chris Albertson, Mary Bohannon,
Michael Callery, Charles Doherty,
Russ Lockwood, Steve Rosenthal,
Charles Rubin, Vanessa Schnatmeyer,
Roberta Schwartz, Rhoda Simmons,
David Thornburg, Michael Wiesenberg
Art Director
Peter A. Tucker
Associate Art Director
Fabian Cooperman
Art Assistant
Ac Kyung Kuark
Mechanical Artists
Steve Campbell, Nancy Brown,
Sahnta Pannutti

Editorial Office: 11 Davis Drive, Belmont, CA 94002; (415) 598-2290
Advertising/Business Office: Ziff-Davis Publishing Company, a division of
Ziff Communications Company, One Park Avenue, New York, NY 10016,
(212) 503-5105

Subscription Inquiries and Service: A+, P.O. Box 2965, Boulder, CO 80322,
(303) 447-9330

Advertising Director
Northeast Manager
Mid-West Manager
Northwest Manager
Southwest Manager
Telemarketing Manager
Advertising Coordinator
Account Representatives

Assistant to Publisher
Single-Copy Sales Director
Single-Copy Retail Sales
Circulation Manager

Suzanne M. Zellner
Thomas E. Richardson
Thomas J. Lutzke
David J. Ezoquelle
Chris M. Tice
Leslie Phillip
Michael Crouch
Leslie Phillip
Peter Stangel
Helen Kempisty
Robert Woltersdorf
Carol Benedetto
Charles Mast

ZIFF-DAVIS PUBLISHING COMPANY, A DIVISION OF ZIFF COMMUNICATIONS COMPANY

President
Senior Vice President, Marketing
Vice President, Operations
Vice President, Controller
Vice President, Creative Services
Vice President, Circulation
Vice President, Circulation Services
Vice President, Marketing Services
Vice President, Development
Business Manager
Production Director

Kenneth H. Koppel
Paul Chook
Baird Davis
John Vlachos
Herbert Stern
Alicia Marie Ivans
James Ramaley
Ann Pollak Adelman
Seth Alpert
Hugh Tietjen
Gary A. Gustafson
Walter J. Terlecki

ZIFF COMMUNICATIONS COMPANY

President
Executive Vice President
Senior Vice President
Senior Vice President
Vice President
Vice President
Vice President
Vice President
Treasurer
Secretary

Philip B. Korsant
James D. Dunning, Jr.
Kenneth H. Koppel
Philip Sine
Laurence Usdin
William Phillips
J. Malcolm Morris
Steven C. Feinman
Selwyn I. Taubman
Bertram A. Abrams

A+: The Independent Guide for Apple Computing ISSN (#0740-1590) is published monthly for \$24.97 one year, \$43.97 two years, and \$57.97 three years. Additional postage \$6 for Canada, \$6 other foreign by Ziff-Davis Publishing Co., a division of Ziff Communications Company, One Park Ave., New York, NY 10016. Second-Class Postage paid at New York, NY 10016 and at additional mailing offices. POSTMASTER: Send address changes to A+, P.O. Box 2965, Boulder, CO 80321.

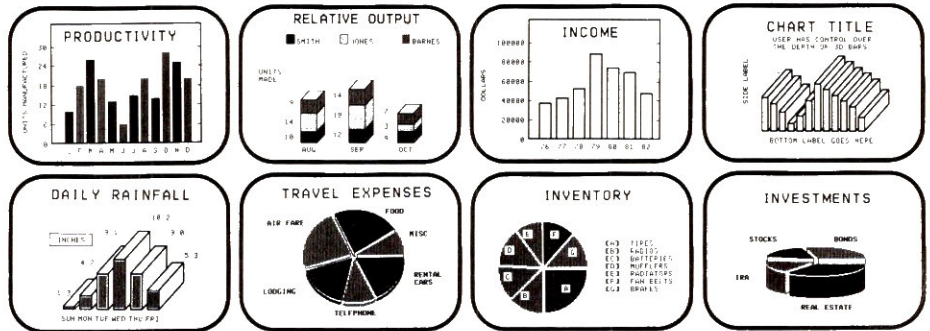
A+ is an independent journal, not affiliated in any way with Apple Computer, Inc. Apple is a registered trademark of Apple Computer, Inc. Entire contents Copyright © 1986 Ziff-Davis Publishing Co., a division of Ziff Communications Company. All rights reserved; reproduction in whole or in part without permission is prohibited. The following are trademarks of Ziff-Davis Publishing Co., a division of Ziff Communications Company: A+, A+, The Independent Guide for Apple Computing, Mac-Tips, Rescue Squad, That's Entertainment.

Permissions: Material in this publication may not be reproduced in any form without permission. Requests for permission should be directed to the Licensing Manager, Jean Lamensdorf, Ziff-Davis Publishing Company, a division of Ziff Communications Company, 1 Park Ave., New York, NY 10016. BPA membership (Selected Market Audit Division) applied for October 1983.

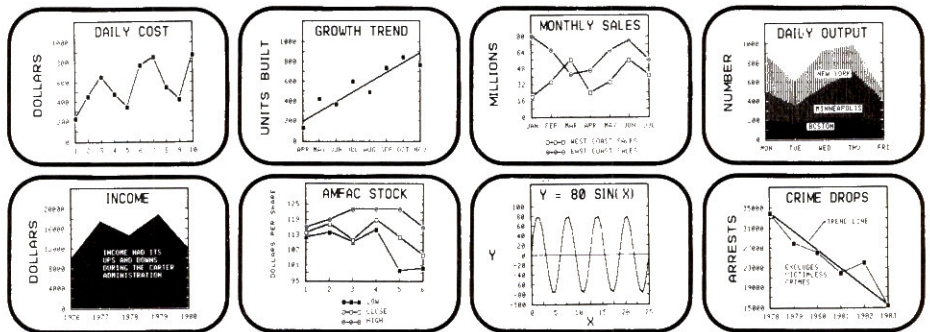
CHARTS!

FOR THE APPLE II

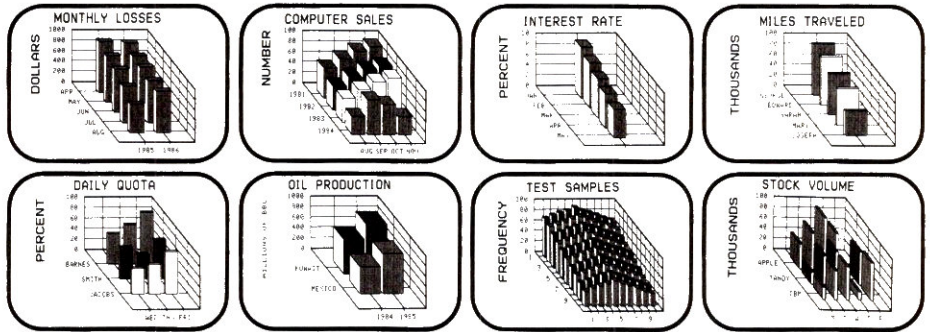
- Create charts in seconds
- Print on almost any printer



AlphaChart. 2D/3D bar and pie charts. Extras include powerful draw, type, and slide show programs. 26 chart styles. \$29.95.



CurvePlotter. Line, area, trend, and math function charts. Up to three curves per chart, 100 points per curve. 12 chart styles. \$29.95.



3DChart. Nothing else like it! 3D bars plotted versus two variables on a 3D grid. Up to 144 bars. 14 chart styles. \$29.95.

Save \$20! Order any two disks for \$39.90.

Save \$40! Buy all three disks for \$49.85.

- Check/VISA/MasterCard/COD Or, send \$3.00 for a really great demo disk
- 3 months money-back guarantee and a 24 page instruction manual



800-826-2989 (Nationwide)
800-231-7316 (California)

**SPECTRAL GRAPHICS
SOFTWARE**

6333 Pacific Avenue
Stockton, CA 95207
(209) 473-2862

CIRCLE 139 ON READER SERVICE CARD



THE INDEPENDENT GUIDE TO APPLE COMPUTING

COVER STORY

APPLE II ACCOUNTING SYSTEMS

BY CHARLES RUBIN

If you own a small business and are bogged down with the bookkeeping, it's time to consider computerizing your accounting procedures. You can turn to your Apple II and the appropriate software to make your life easier. You have quite a few products to pick from, so to help you make your decision, we asked Charles Rubin to take a look at some

of the available programs. We also compiled a comprehensive chart to detail the differences in these and other products.

SOFTWARE

PORTER VS. TOBIAS

BY KEN LANDIS AND MICHAEL SHAPIRO

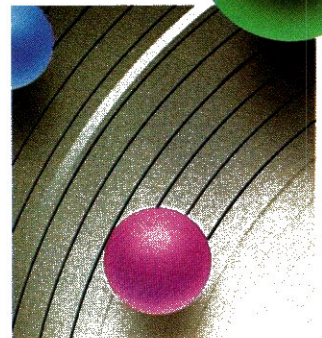
Famous names influence buying decisions, and these two famous financial wizards have packaged their brand of magic in software programs for the Apple II. Be sure to take a look at this face-off to find out about the pros and cons of each of these personal-finance products.

EDUCATION

EARLY MATH

BY UTE ELISABETH VAN NUYS

Children need many different kinds of mathematical experiences to build a strong conceptual foundation for their future studies. They need to learn, and they need to practice what they learn. Computers can be exciting and useful



SCIENCE LAB

BY DOUG GREEN

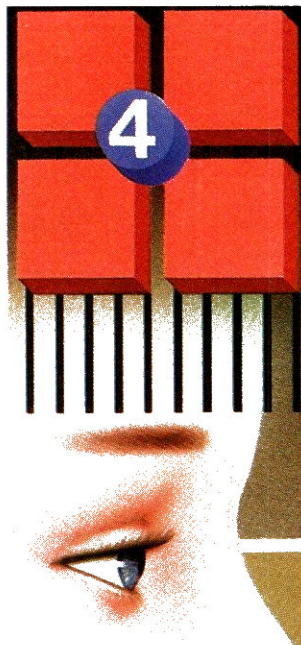
Computers allow the scientific community to create and investigate the properties of complex phenomena through the use of computer models. Such models can simulate the behavior of atoms or the weather. Today, scientists of all ages can use the Apple II to explore, analyze, and study the universe. From simulations to real experiments, there's plenty of interesting software for children interested in the sciences.

QUICK TAKE

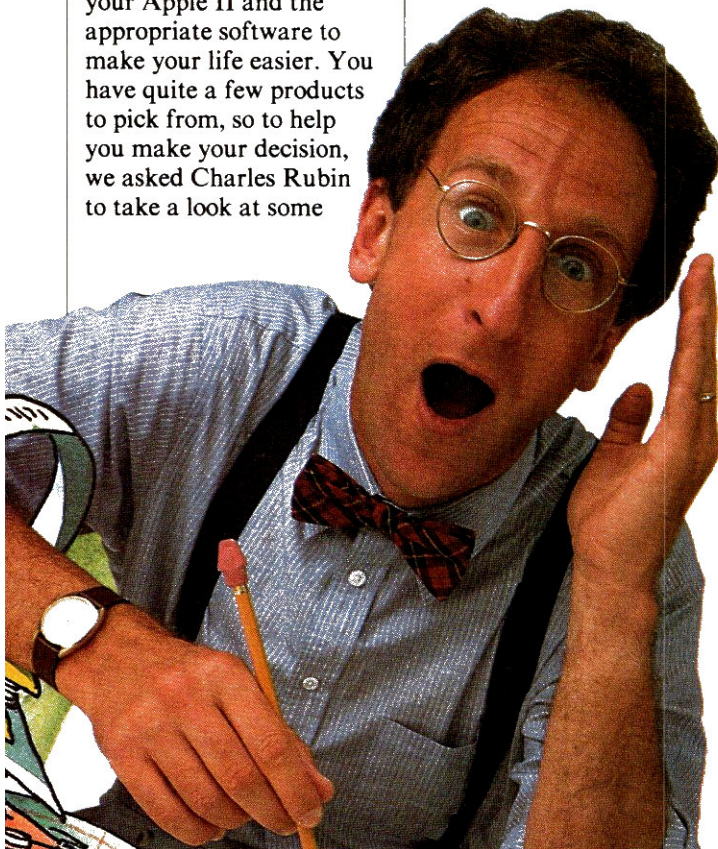
SOFTSTRIP READER

BY IVES BRANT AND THOMAS SWAIN

You've probably seen the advertisements for a new scanner technology from Cauzin Systems called Softstrips. To keep you up to date on technological developments, we asked our authors to take a look at this new product, which is available in both Apple II and Mac versions.



tools for providing some of those early experiences. In this article, our author reviews eight programs including Stickybear Numbers, Learning with Leeper, Getting Ready to Read and Add, Counting Parade, Early Games for Young Children, Charlie Brown's 1,2,3's, Let's Go Fishing, and Microaddition/Microsubtraction.



DEPARTMENTS

9
EDITORIAL

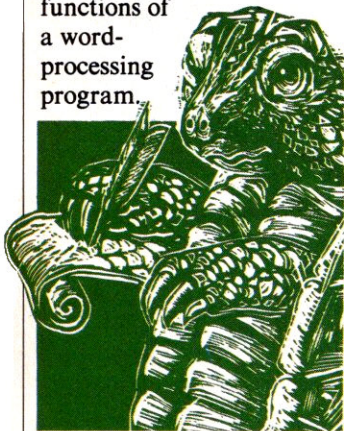
11
LETTERS

15
NEWSPLUS

BY **FREDERIC E. DAVIS**
News and views of the personal-computer industry

65
THE LEARNING CURVE

BY **DAVID D. THORNBURG**
This month David Thornburg explores the Logo universe with a review of a new Logo product. A company called LCSi has created a new version of Logo that includes the functions of a word-processing program.



69
SPEAKING OF GRAPHICS

BY **ROBERTA SCHWARTZ**
AND **MICHAEL CALLERY**
This month our graphics duo is looking at new Macintosh graphics programs, including PacPaint, Picture Base, PosterMaker, and MacBillboard.

81
THAT'S ENTERTAINMENT

Reviews of *Under Fire!*; *Moebius: The Orb of Celestial Harmony*; *Enchanted Scepters*; and *Fraktured Faebles*

108
PIPELINE

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

121
THOUGHTWARE

BY **STEVE ROSENTHAL**
Organizing files so that you can use them effectively is tricky business. This month Steve Rosenthal explains his way of mastering the problem of setting up a system for your files.

125
RESCUE SQUAD
BY **GARY B. LITTLE, CHRIS VAN BUREN, AND CRAIG CROSSMAN**

130 **A+ DIRECTORY**

130 **MACINTOSH DIRECTORY**

133 **A+ MART**

134 **INDEX TO ADVERTISERS**

136 **COMING SOON**

The Macintosh Section

93
THE POSTSCRIPT PRESCRIPTION

BY **STEVE ROSENTHAL**
The Apple LaserWriter isn't the only high-performance output device you can use with a Macintosh. Because the Mac speaks the device-independent PostScript page-description language, you can connect it to any PostScript-capable output device. This article covers several such devices, including the LaserWriter and LaserWriter Plus, QMS PS 800 and PS 2400, Dataproducts LZR-2665, and the Linotronic 100P and 300P.

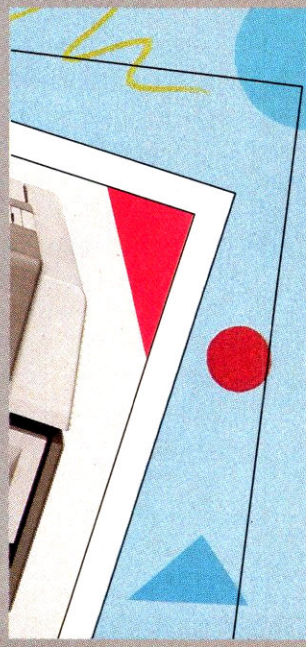


98
YOU CAN GET THERE FROM HERE

BY **CRAIG L. WEBB**
Maps have long been valued for the way they show instantly where a place is and how it relates to the surrounding world. Until recently there was no easy way to put a map into a report or term paper. The Macintosh has ended that dilemma. With it, you can create all the maps you want, modifying them to meet your particular needs.

107
MACTIPS
Suggestions from our readers

SPEAKING OF GRAPHICS
Review of four new Macintosh graphics programs begins on page 69.



A Strange Woman Wants to Marry You.

An unknown man is trying to kill you. The State of Texas wants you for murder. But that's not your problem. Your real problem is...

AMNESIA

It's a new text adventure that feels like a Hitchcock-style nightmare. You're lost on the streets of Manhattan with no money, no friends, no memory—and someone wants you dead. Somewhere in The City are the clues to your identity—and your survival. The hard part is finding them—and eliminating your problems before they eliminate you.

You are locked in a cell. It is bare and dark and smells of lives gone sour. The only light is a feeble fluorescent glow that slants in through the louvered grill on the iron door. You know the door is iron because you have been beating on it. Your hands are sore, and your right eye is swollen shut. You ache all over.

—Ask the guard for some food, thank him, then eat it and go to sleep.

A 1700-word vocabulary recognizes complicated commands in plain English.

It feels great to be a faceless, nameless atom among a million others churning about in the grid of Manhattan's streets. It feels safe. As you approach Fifth Avenue, the brief buoyancy of feeling free gives way to ordinary now-what anxieties. You've got no money, no credit cards, nowhere to sleep, and no visible means of support.

—Beg for money, then enter the subway station.

It's Manhattan on four disk sides! Over 4000 locations to explore, including 650 streets and the entire Manhattan subway system.



We think it's the best writing ever in a text adventure.

It was written by award-winning novelist Thomas M. Disch—not a team of computer programmers. In addition to his 1980 Campbell Award for *On Wings of Song*, Disch's works have won major awards in England and Japan. The game's 300-page manuscript is the most ambitious ever in interactive fiction.

"A robust writer... a virtuoso." — *New York Times Book Review*

"...perhaps the most respected, least trusted, most envied... of all SF writers of the first rank: his reputation can only grow!" — *The Science Fiction Encyclopedia*



ELECTRONIC ARTS™

How to order: Visit your retailer. If you are unable to find the product at your local retailer, you can call 800-245-4525 for direct VISA or Mastercard orders (In CA call 800-562-1112). The price for direct purchases is \$44.95 for the Apple and IBM versions, \$39.95 for the Commodore version. To buy by mail, send check or money order to Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. Add \$3 for shipping and handling (\$4 Canadian). Allow 4 weeks for delivery. There is a 14-day, money-back guarantee on direct orders. For a complete product catalog, send 50¢ and a stamped, self-addressed #10 envelope to Electronic Arts Catalog Offer, 1820 Gateway Drive, San Mateo, CA 94404. Commodore, Apple, and IBM are registered trademarks of Commodore Business Machines, Apple Computer Inc., and International Business Machines, Inc., respectively. Thomas M. Disch's *Amnesia* and Electronic Arts are registered trademarks of Electronic Arts.

Message from Maggie

AN EDITOR ABROAD

Once in a while we are the recipients of a pleasant relief from the quotidian, usually in the form of travel and, in my case, most preferably Europe. I was treated to just such a trip recently when I was invited to speak in Edinburgh, Scotland, at a day-long marketing seminar for artificial-intelligence developers. My assignment was to show foreign developers how to tap the American press to enhance their software-marketing efforts. After my speech, I flew to Paris to check out Europe's largest Apple market. During my little sojourn, I discovered that the European marketplace for Apples is as diverse as the American one is.

The Apple IIe and IIc are quite popular in the British Isles, according to one of the companies I visited, Cirtech. Cirtech is a family-owned and -run business located in the lush Scottish countryside in a small town called Galashiels, about a half an hour's drive from Edinburgh. It manufactures add-on boards for Apple II-series computers. You may have noticed some of its products, such as Flipster, advertised in the pages of *A+*. The Robertsons, who own Cirtech, and their staff reminded me so much of developers during the early days of Apple—small shop, abundant brains, and high enthusiasm.

Numerous other high-tech companies are nestled in and around Edinburgh, which is considered one of the (if not *the*, depending on whom you are talking to) leading technical brain trusts of Europe because of the prestigious Edinburgh University. Nicknamed Silicon Glen after the famous Silicon Valley, this region has attracted big-name companies such as IBM, Hewlett-Packard, and Burroughs. Even more important is that the Edinburgh area is a hotbed of innovation and new-product development, especially in the artificial-intelligence

field. The Scottish Development Agency, which put on the conference at which I spoke, is largely responsible for engineering the growth of the electronics industry in Scotland. It provides multifaceted assistance to the industry, from convincing established companies to build manufacturing facilities to putting on seminars to help fledgling software companies learn how to market their products in the U.S.

While the Apple II is popular in the British Isles, the Macintosh has won the hearts of the French. The Macintosh was marketed quite differently in France than it was in the U.S., and the tactics worked well for the head of Apple France, Jean-Louis Gassée. According to the folks at Apple France, they used snob appeal as a marketing ploy, which worked effectively on the French. As a result, the Mac got off to a strong start and continues to sell well. Monsieur Gassée's success with the Mac ultimately landed him a plum job at Apple in the U.S.

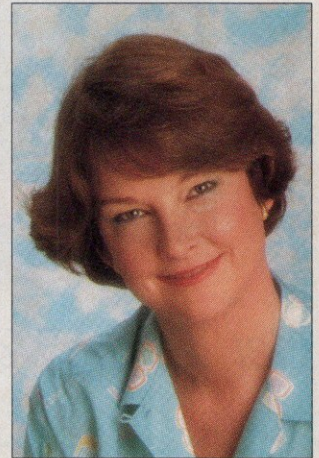
Apple France is much like Apple Cupertino, only smaller—a maze of cubicles, people moving at a slow run and working late, extreme *esprit de corps*. Apple France's headquarters are situated in a small industrial community, Les Ulis, located on the outskirts of Paris.

Developers for the Mac are abundant in France. At one point, there were 1500, and that number has since been whittled down to a mere 350 certified developers! Although I met with only a few of them, I gathered that they are a talented and lively bunch. From what I saw of products from companies such as Marylène Delbourg Delphis' ACI, you can expect to see some fantastic products coming from these folks.

Enjoy the rest of your summer—and get ready for a momentous September. +

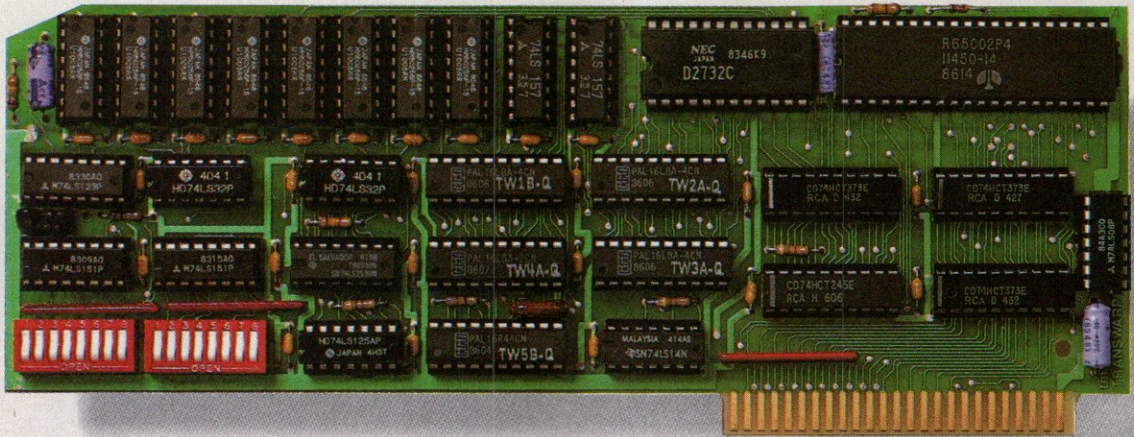
Maggie Canon

MAGGIE CANON/EDITOR IN CHIEF



The Edinburgh area is a hotbed of innovation and new-product development, especially in the artificial-intelligence field.

To boldly go at speeds no Apple has gone before.



Get TransWarp.™ *The fastest accelerator you can buy
for your Apple™ IIe, II, or II+.*

Computing at warp speed!

It's an experience you shouldn't miss. And with TransWarp, you won't have to. Because TransWarp will run your software up to *3.6 times faster* — leaving other accelerators in the stardust!

No more waiting while your Apple™ slowly rearranges text or calculates spreadsheets. With 256K of ultra-fast RAM, TransWarp speeds up *all* Apple software — including AppleWorks, SuperCalc 3a, VisiCalc, and all educational software, graphics and games. And it's compatible with all standard peripheral cards (such as RamWorks and Apple memory cards), Profile and Sider hard disks, 3½" UniDisks, 80-column cards, modems, dock cards, mice and more! You name it, TransWarp accelerates it. There's even a 16 bit upgrade chip available should 16 bit software become available for the Apple.

An important difference.

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

There's one more difference. Since TransWarp doesn't use memory caching, you get consistent high speed performance.

A cinch to use.

Simply plug TransWarp into any slot in your Apple II, II+ or IIe —including slot 3 in the IIe. Instantly you'll be computing at speeds you only dreamed about before. And should you ever wish to run at normal speed, simply press the ESC key while turning your Apple on.

Since TransWarp is completely transparent, you won't need preboot disks or special software. It's ready to go right out of the package!

Speed = Productivity

Imagine the productivity gains you'll achieve when your programs are running over three times faster. TransWarp is so powerful, your Apple will make IBM PCs™ and even ATs™ look like slowpokes — whether you're planning taxes, plotting charts or playing games! Take a look at a few of the features that set TransWarp apart:

- 3.6 MHZ 65C02
- 256K of ultra-fast on-board RAM
- Accelerates main *and* auxiliary memory
- Low power consumption for cool operation
- Totally transparent operation with all software
- Plugs into any slot, including slot 3 on the Apple IIe
- Accelerated 16 bit option available
- Can run at full acceleration, half acceleration or normal Apple speed
- 5 year warranty

Satisfaction guaranteed!

Give *your* Apple the TransWarp advantage. With our risk-free 15-day money back guarantee, you have nothing to lose but wasted time. Call today!

TransWarp Accelerator \$279
16 bit upgrade (may add later) \$89

For fast response:

Call Applied Engineering 9 a.m. to 11 p.m., 7 days at (214) 241-6060. MasterCard, VISA and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 if outside U.S.A.

Or mail check or money order to Applied Engineering, P.O. Box 798, Carrollton, TX 75006.

AE APPLIED ENGINEERING™
The Apple enhancement experts.

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

We invite your comments.

Letters

CIVIL DISOBEDIENCE?

Dear A+: I was so pleased to read John Reimer's response (June 1986) to David Thornburg's "What's Turning Teachers into Thieves?" (March 1986). Mr. Reimer did a wonderful job of speaking for all computer-using educators when he articulated the difficulties of obtaining a usable number of copies of decent-quality software for use with students in schools, where budgets are always tight and supplies scarce.

What I appreciated even more than his picture of the nitty-gritty problem was Mr. Reimer's identification of the company that he believes the software-copying issue keeps. Surely Gandhi; Martin Luther King, Jr.; Thoreau; Emerson; and Jesus Christ would empathize with the moral imperative for teachers to be civilly disobedient of the copyright law and toward the capitalistic software publishers.

But what a nice twist to this concept of passive resistance we teachers enjoy. While flying in the face of the opportunist authors and publishers of computer programs by making illegal copies and, thus, reducing their deserved profits to a fraction of what they would have been, we also get to use the software! It's so rare in life that you can take a moral stand and still get what you wanted in the first place.

One facet of the civil disobedience concept doesn't ring quite true here, though. Being truly passively resistant requires that *no one* or *nothing else be harmed*, and it would seem that, unless the economics of the software business are radically different

from those of any other, damage is being done to the publishers in more than one way.

When I don't buy a software package because I think it's overpriced, I'm passing up the ground round; I'm leaving the designer wear on the rack and the sportscar on the lot. When I illegally copy the software, the meat is under my raincoat, the jeans are in my purse, and I drive off in the Porsche. Get it, John?

But we do have choices! We don't have to buy that software; let it sit right on the stockroom shelves. Boycott—that's what civil disobedience means. And if you really want a program that will do what the one on the shelf will, you can always take a few courses and learn to write the thing yourself! Whatever other alternative you choose, if you really want to, you can avoid choosing to steal.

Your letter demeans us computer-using-non-softlifting teachers, however few or many of us there may be.

It demeans those in our past who were honestly pacifist in their response to social issues with which they could not live—they were not stealing the work of another person at the same time they dissented.

And, most sadly of all, it demeans your students. What do they learn from your example that they haven't already learned in the street?

I don't have all the answers. I know that there are lots of things I could be doing with students that don't get done because the budget issue creates one limitation—but it has always done that. Teachers never have enough of what they need to do their jobs the way they know they

could—that's teaching and that's life.

Have you ever wondered why software publishers started offering lab packs? Certainly not because we bought one Apple Writer and booted it into ten machines to teach word processing! Why do districts pay thousands of dollars to join MECC? And why do school boards have policies that state that any teacher found in violation of copyright law is on his/her own in court?

Your letter was a real disappointment. We may both be teachers, John, but we aren't in the same profession. I don't steal software in or out of school, and I teach my kids and my teachers the copyright law.

Wendy A. Sprout
Computer Lab Coordinator
Marshall-Walker High School
Richmond, VA

LET'S STOP CLONING AROUND

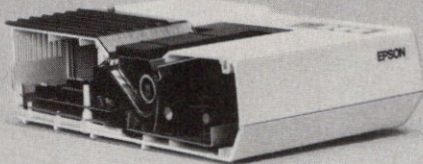
Dear A+: Although Charles Rubin's article and review of the two Apple clones, the Ace 2000 and the Laser 128, which appeared in the June 1986 issue of A+ was relatively complete regarding the reviews of these two products, his background material on Franklin, the company, was neither accurate nor fair.

It is true that the filing of Chapter 11 under the bankruptcy code by Franklin was a direct result of a copyright-violation lawsuit initiated by Apple Computer, but it is untrue to make the statement that Franklin "lost a 1984 court decision" made upon this lawsuit.

The courts never found Franklin guilty of copyright infringement. In fact, the first time the case came to court, Franklin actually received a not-guilty decision. Then Apple filed an appeal to a higher court of law. This higher court made a no-win/lose decision. The higher court simply stated, "While we are not overturning the original judgment, we do

Attention all FX80, FX100, JX, RX, & MX owners:
**You already own half of
 a great printer**

Dealer
 inquiries
 welcome.



Now
 Only
\$79.95

Now for \$79.95 you can own the rest. You see, today's new dot matrix printers offer a lot more.

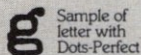
Like an NLQ mode that makes their letters print almost as sharp as a daisy wheel. And font switching at the touch of a button in over 160 styles. But now, a Dots-Perfect

upgrade kit will make your printer work like the new models in minutes— at a fraction of their cost.

And FX, JX and MX models will print the IBM character set, too.

So, call now and use your Visa, MasterCard, or AmerEx. Don't replace your printer, upgrade it!

1-800-368-7737
 In California: 1-800-831-9772



Sample of
 letter with
 Dots-Perfect

Dots-Perfect™
Dresselhaus

Sample of
 letter without
 Dots-Perfect



837 E. Alosta Ave., Glendora, CA 91740 Tel: (818) 914-5831

An upgrade kit for EPSON FX, JX, RX, & MX printers

CIRCLE 339 ON READER SERVICE CARD



EPSON is a trademark of
 EPSON America, Inc.

feel that those who gave the first judgment should re-think this matter over, once again."

Franklin did conclude a settlement with Apple—because the company was suffering financially from the court battle—that included a \$2.5 million payment (based on \$25 multiplied by the approximately 100,000 Franklins that had been sold) and an agreement that Franklin would discontinue the use of the ROMS in question and that Apple would maintain the right to inspect any new machine Franklin brought out (for possible copyright infringement).

To default in such a battle (via an out-of-court settlement) does not and should not insinuate that any wrongdoing actually occurred. To those who've said, "Even if Franklin had not settled out of court but had rather continued to fight, they would have lost," I simply state that Franklin did have some legitimate arguments and that possibly, just possibly, with a good enough set of legal counselors, it might have won the overall battle.

Tom Ezell

Microcomputer Consultant
 New Orleans, LA

PRINT-QUICK™



5 essential printer support utilities
 in one easy-to-use product

QUICK-SETUP: Easily control ALL printer features including International Characters, Page Length, Skip-Over-Perf, Left Margin, and Horizontal Tabs. Download and select supplied Customer Character Sets. Save frequently used setups to EXECable Setup Files.

QUICK-TYPER: A full featured one-line-at-a-time text editor that can imbed print feature commands *within* a line. Text may be sent right to the printer or to a standard text file. Wonderful for labels and quick memos! Unique Preview Line feature makes learning the fanciest printing techniques easy!

QUICK-DUMPER: Simply the best and the easiest-to-use Hi-Res screen printer around! Use the Quick'N'Easy Mode for one button screen printing or go into Total Control to select your own print parameters. Print all or just part of the Hi-Res screen with super easy keyboard, joystick or mouse cropping. Quick-Dumper always tells you the size of your picture before you print it!

QUICK-FONT: The finest Downloadable Character Set Designer/Editor available! Four character sets included on the disk. Use the special graphics character set with Quick-Typer or your favorite word processor to create custom business forms.

TEXT FILE UTILITIES: Print text files or display them on the screen with all hidden command characters revealed!

OVER 30 DETAILED HELP SCREENS and a **QUICK REFERENCE CARD** allow immediate use of PRINT-QUICK supporting the fine 150 page three-ring bound Owner's Manual.

PRINT-QUICK SUPPORTS: The Sider Hard Disk Drive (and other DOS 3.3 volume oriented hard disks), Apple compatible 80 column cards and RAM cards, Apple compatible clock cards, the Apple Mouse, and the Mockingboard.

PRINT-QUICK RUNS on the entire Apple II Family.

PRINT-QUICK supports printers made by Apple Computer, Citizens, C. Itoh, Epson, Okidata, NEC, Star

Ask your local dealer for PRINT-QUICK. Feel free to call us at (216) 671-8991 at any time to find out more about PRINT-QUICK (or call 1-800-233-WAVE and place an order! MC & VISA accepted).

THIRD WAVE TECHNOLOGY, INC.
 11934 Lorain Ave. • Cleveland, OH 44111

PRINT-QUICK, QUICK-SETUP, QUICK-FONT, QUICK-TYPER, QUICK-DUMPER and THIRD WAVE TECHNOLOGY are trademarks of Third Wave Technology, Inc. Apple is a reg. TM of Apple Computer, Inc. Mockingboard is a reg. TM of Sweet Micro Systems, Inc. Sider is a reg. TM of First Class Peripherals.

only \$49.95

Add \$2.00 shipping & handling
FONT DISK I (15 additional fonts) \$19.95

WELCOME III ATTENTION

Dear A+: I am one of those fiercely loyal Apple III owners your "Apple III Alter Ego" article mentioned in the July issue.

I dropped most of my other computer magazine subscriptions a couple of years ago when they dropped their Apple III coverage. Your publication seems to be the exception and truly does cover the entire Apple line. Quite often your "Pipeline" section makes mention of III compatibility with a product (although I wish more manufacturers would see if their product was III-compatible). Also, you have made mention of or run an article on the Apple III in almost every other issue. Many magazines have ignored the mere 80,000 IIIs in existence, and we III owners ignore them in return.

What this letter boils down to is this; I own eight Apple IIIs, with plans to add another five by the year's end. I am elated that your publication has chosen not to ignore us, and I will continue to support you in the hope that you will continue to support the Apple III. My III and I bid you 512,000 thank-yous.

Michael R. Schroeder
 New Brighton, NM

CIRCLE 146 ON READER SERVICE CARD

GONE, BUT NOT FORGOTTEN

Dear A+: Last winter I wrote a letter complaining of the lack of Apple III coverage by A+. I expressed a concern that A+ would go the way of other Apple publications by taking the III out of the Apple vocabulary.

I received a note back informing me not to worry, that A+ would not ignore the 100,000 or so Apple III users. Talk is cheap, and, frankly, I had my doubts.

The doubts are no longer there. You have covered the III several times in past issues. Most recently, you mentioned the III in the cable-connection article in the June issue. The July issue had an excellent article by Chris Albertson entitled "Apple II Alter Ego." Thank you!

Now if only you could get the software manufacturers to tell you when the software that you listed in "Pipeline" worked in emulation... and if only you could run an article on ProDOS and SOS compatibility... and if only...

Jeffrey Neil Fritz
Williamson, WV

MAIL-ORDER SUCCESS

Dear A+: This is to say a good word for the courtesy, service, and helpfulness of Computer Network (Friendly Computer) of Carlsbad, New Mexico, in a mail-order situation.

I ordered and received a MultiRam 512K card for my Apple IIc but was not successful in installing the card myself on a rainy Saturday and in fact broke a pin in my repeated attempts.

In despair, I phoned the company, which, to my pleasant surprise, volunteered to fix it if I sent the IIc. I did so that same afternoon. The repair was done promptly, and the charge of \$30 plus shipping was very reasonable. The computer is now back to full usefulness and shows a delightful "425K available" for AppleWorks.

My faith in mail order has always been pretty high, but this experience was several notches beyond anything before. I thank Computer Network for the help and A+ for being the source of the ads.

W. Henry Linton, Jr.
Wilmington, DE

BELIEF IN COMPATIBILITY

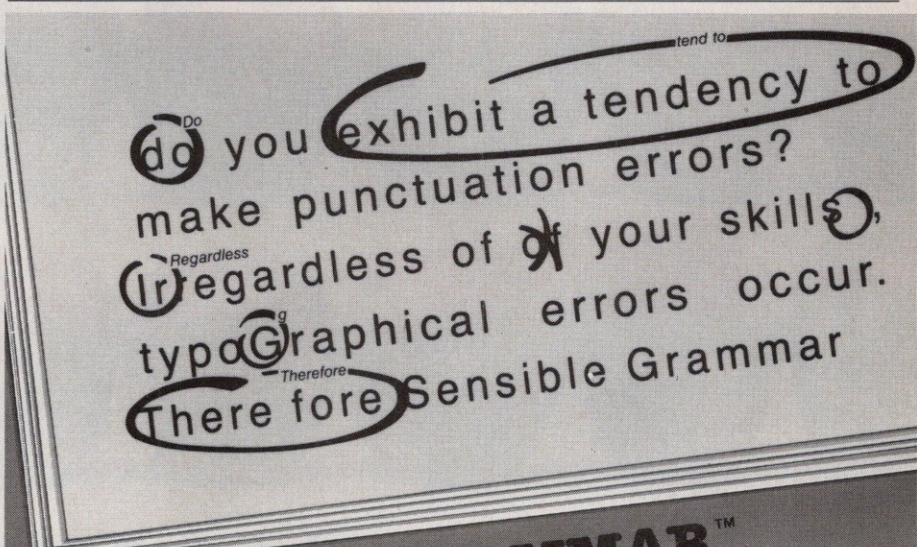
Dear A+: In reading your June 1986 issue, I was very surprised to see some comments made by Dan Pote, president of Applied Engineering.

In your article "Send in the

Clones," Mr. Pote was quoted as saying, "The word *compatible* is a meaningless word nowadays" and "I don't think compatibles offer much." This type of comment from the president of Applied Engineering, which is very outspoken on the compatibility of its products in its advertising, was quite surprising. I can not imagine Mr. Pote really believing what he was saying. Witness the fact that in the ad for Applied Engineering's RamWorks II in the same issue, the word *compatibility* was used 12 times.

I feel that the general use of the word *compatibility* has had so many definitions applied to it that it has all but lost any meaning without a full set of qualifications, which has become a large stumbling block for many Apple users. I know I have used "compatible" hardware and software, but going from one program to another or from one piece of hardware to another has caused major reconfiguration problems.

Bruce Lewis
Alabaster, AL



SENSIBLE GRAMMAR™

Yes, just like your old English teacher, your Apple Computer now checks 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; **Sensible Grammar** features a Macintosh-style user interface, is compatible with the AppleMouse and also has a complete set of keyboard commands.

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 phrases. 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.

It Never Overrides Your Judgement

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 **Siedman's Medical Dictionary™** are also available separately on diskette for use with the Sensible Speller.

Sensible Grammar (\$99.95) which works on Apple 128K IIe and IIc, and **Sensible Speller ProDOS** (\$125), which works on Apple IIc, IIe and II+, are available on 5" and 3.5" disks. **Sensible Speller IV** (\$125) works with Apple IIe, IIc, II+, II and Apple-compatible computers. **Sensible Technical**, **Siedman's Medical** and **Black's Law Dictionaries** are available on 5" disk for \$39.95 each. All programs are available separately.



Sensible Software, Inc.

210 S. Woodward, Suite 229, Birmingham, MI 48011 • (313) 258-5566

AppleWorks Compatible!

*Sensible Grammar and Sensible Speller ProDOS work with the following word processors: AppleWorks, AppleWrite-ProDOS version (Apple Computer, Inc.); Format II Enhanced-ProDOS (Kensington Microswg); Mouse Write text files (Roger Wagner Publishing); MouseWord (International Computers); PFS:Write-ProDOS (Software Publishing, Inc.); Word Juggler (Quark Inc.); WordPerfect (SSI Software); Zardas-ProDOS (Computer Solutions); and others. Sensible Speller ProDOS also works with WordTalk (Computer Arts); Writing Wizard (Scarborough Systems). Sensible Speller IV works with DOS 3.2 and DOS 3.3-AppleWare (Apple Computer, Inc.); Bank Street Writer (Brookbund); Format II (Kensington Microswg); HomeWord & Screen Writer (Sierra On-Line Inc.); PFS:Write-DOS (Software Publishing, Inc.); 107-M Wordstar (Digital Research Corp.); Micropro International; and others. Owners of trademarks indicated in parentheses. Black's Law Dictionary (West Publishing, Inc.); Siedman's Medical Dictionary (Wiley Press, Inc.).

(Note: CP/M, Pascal and PFS-Write-DOS versions do not suggest correct spelling of words or allow immediate correction of misspellings.)



CIRCLE 227 ON READER SERVICE CARD

MouseWrite

SENSIBLE SPELLER

CATALYST

Mouse Desk

pfs:
file

DOLLARS
AND
SENSE

BPI
GENERAL
ACCOUNTING

Reportworks

Mouse Calc

SuperCalc3a

Apple Writer II

pfs:
report

BusinessWorks

pfs:
write

AppleWorks

pfs:
plan

Managing
Your Money...

Pinpoint

pfs:
graph

Why The Biggest Names In Software Are 100% Compatible With AST's SprintDisk™ Memory Expansion For The Apple II™

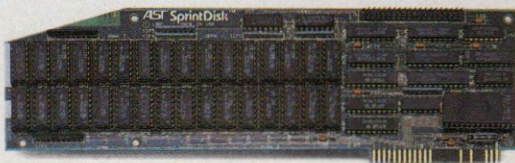
AST and leading software manufacturers are working together to break new ground, establish new standards and provide new solutions that enhance the power of the Apple II for your serious business and educational needs.

In making hardware compatibility choices—choices that can make or break companies—software leaders look to AST, the hardware leader with the proven track record. So should you.

AST is the world's leading supplier of enhancement products for personal computers with a well-earned reputation for outstanding quality and reliability. We offer a full line of products for the Apple II and Macintosh™ families. And you've heard of our award-winning SixPakPlus® multifunction card for the IBM PC—the defacto industry standard with nearly 1 million shipped.

Introducing SprintDisk: Up To 1 MB Of Expansion Memory And All The Software Compatibility, With None Of The Modifications.

The new generation memory card is here. Now, you can break the 64K barrier with all the software compatibility you need. Designed for use as a rapid-access,



mass-storage device, SprintDisk provides up to 1 Megabyte of desktop workspace for spreadsheets, word processing documents and data bases.

Good-bye Software Patches. With SprintDisk you can take advantage of expanded memory while saying "good-bye" to the hassles of modifications. All the most popular applications software* (those illustrated above and more) are completely, automatically and immediately compatible. Of course, SprintDisk is ProDOS™, DOS 3.3 and Pascal 1.3 compatible.

The Speed of AST's SprintCache™ Buffer. We include exclusive utility software—we call it SprintCache—so if you are using multiple storage devices, you can also use SprintDisk as a caching buffer. It allows you to cache up to 14 floppy, hard-disk or tape drives for higher performance and greater productivity.

Hardware Facts. SprintDisk is compatible with the Apple II Memory Expansion board. It's fully socketed and user-upgradeable with 256Kb chips. And it comes with its own RAM diagnostic software.

The Quality, Service and Support of an Industry Leader. AST's worldwide



reputation is built on quality. SprintDisk features the highest-quality four-layer construction and undergoes extensive testing and comprehensive burn-in procedures for the ultimate in reliability—AST has the lowest product failure rate in the industry. And don't forget our two-year warranty, world-renowned service and customer support.

For more information call (714) 553-0340. BBS: (714) 660-9175 or circle the reader service below.

SprintDisk, SprintCache trademarks and SixPakPlus registered trademark of AST Research, Inc. Apple registered trademark and Apple II, Macintosh, AppleWriter II, AppleWorks and ProDOS trademarks of Apple Computers, Inc. BusinessWorks trademark of Manzanita Software Systems. MouseWrite trademark of Roger Wagner Publishing, Inc. Dollars and Sense trademark of Monogram. BPI and BPI Systems trademarks of BPI Systems, Inc. Sensible Speller trademark of Sensible Software, Inc. MouseCalc and MouseDesk trademarks of Version Soft. SuperCalc, registered trademark of Socimi/ILS Inc. PFS: Write, PFS: Plan, PFS: Report, PFS: File and PFS: Graph registered trademarks of Software Publishing Corporation. Catalyst trademark of Quark Inc. ReportWorks registered trademark of Megahouse Corporation. Pinpoint trademark of Pinpoint Publishing and Virtual Combines, Inc. Managing Your Money registered trademark of Micro Education Corporation of America. Copyright © 1986 AST Research, Inc. All rights reserved. *The most current versions

FEATURES

SprintDisk

- Up to 1 MB Total Memory
- Apple II Memory Expansion board compatible
- SprintCache for fast, user-transparent disk/tape caching
- ProDOS, DOS 3.3 and Pascal 1.3 compatible
- No application software modifications necessary
- Fits any I/O slot except #3 in II, II+ or IIe
- Fully socketed and user-upgradeable

AST
RESEARCH INC.



BY FREDERIC E. DAVIS

NewsPlus

It's not really fair to call Puppy Love a game, but the program is too much fun to call it anything else.

ARTIFICIAL DOG INTELLIGENCE

Now here's a program that's a real dog—uh, I mean, an artificial dog. Puppy Love is a Macintosh program that simulates artificial dog intelligence, and it's one of

the most innovative, intriguing, and fun computer programs I've seen in quite some time.

The concept of the program is that artificial intelligence on computers has always been hindered by the lack of a natural-language interface that allows humans to converse with computers. The creator of the program, Tom Snyder Productions, figured that it would be easy to simulate the intelligence level of a dog, since no spoken-language factor was involved. So, armed with artificial-intelligence theories developed at MIT, the authors of the software created a superb program that creates artificial puppies for you to try your hand at training.

When you start the program, you receive an option of starting with a new puppy or working with one that's already been trained.

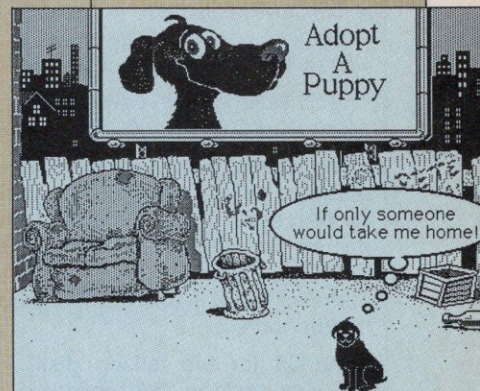
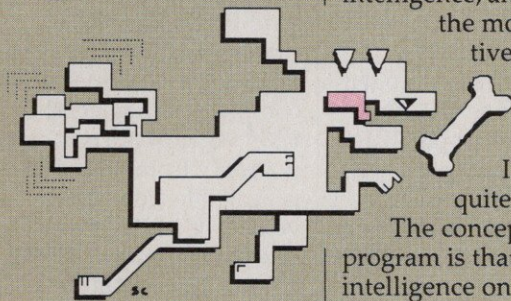
If you start with a new puppy, the program first asks you to name it and then presents you with an animated sequence that sets up the following scenario: Your puppy comes prancing onto the screen in a back alley and notices a billboard announcing a big dog show. The puppy gets dreams of grandeur and seeks your help in training for the big show. You have two main tools for training the puppy, a hand and a bone. The hand represents punishment, and the bone represents reward.

Using these two tools, you can teach your dog some absolutely amazing tricks. Once you have taught your dog a bunch of tricks, you can take it to the show to compete in events and possibly win ribbons and trophies. You can save your trained dog on disk for further training. In fact, I'm sure that well-trained Puppy Love dogs will start showing up on CompuServe and other information-utility services, as proud trainers try to show off their puppies' abilities.

The sneaky part of this very enjoyable program is that although you think you are merely training your puppy for the big

show, you are actually learning computer-programming techniques. While you are teaching your puppy a new trick, you are actually creating and testing a subroutine in an artificial-intelligence language. When you combine the tricks into a performance at the show, you are actually combining subroutines to create a program. This type of computer game has a lot more redeeming qualities than video shoot-'em-ups do. In fact, it's not really fair to call Puppy Love a game at all, but the program is too much fun to call it anything else.

In a departure from business as usual, Addison-Wesley, known best as a textbook publisher, is taking an aggressive approach to selling the program. Puppy Love will be sold for \$19.95 in a cute little cardboard doghouse



as an impulse-buy product. At that price, the program will have to sell in huge quantities to make Addison-Wesley much money, but I think it is good enough and inexpensive enough that it just might.

POWER PROBLEM?



The Solution!

KALGLO® Power Protection Products

TRANSIENT VOLTAGE SURGE SUPPRESSORS
POWER LINE FILTERS
STANDBY UNINTERRUPTIBLE POWER SYSTEMS

1-800-524-0400, in PA 215-837-0700

CALL TODAY FOR FREE LITERATURE

Kalglo Electronics Co., Inc.
6584 Ruch Road
Bethlehem, PA 18017

DEALER - OEM
DISTRIBUTOR
INQUIRIES INVITED

CIRCLE 117 ON READER SERVICE CARD

\$5 TALKING DISK

OVER 100 WORDS in vocabularies that you can put into your own programs! No extra hardware required. Sample programs include:

- Talking four-function calculator — choose English, Spanish, or German.
- Talking keyboard — letters and punctuation in English.
- Demonstration of voice editing.

The \$5 Talking Disk is available for Commodore 64, 128, Atari 800, 800XL, 130XE, and Apple II+ (64K), IIe, and IIc.

If you want to make your own vocabularies, in any language or accent, then you must have a VOICE MASTER for processing speech input. VOICE MASTER lets you do much more: YOU CAN RECOGNIZE SPOKEN COMMANDS and WRITE MUSIC AS YOU HUM! And affordable too — under \$90 including the headset and microphone.

Send \$5 for the talking disk. Prepaid orders only. Includes postage. (\$7 outside USA, Canada, and Mexico.) Information on VOICE MASTER will accompany your disk. Or you can call or write for VOICE MASTER information separately. Please specify computer make and model with your order.



COVOX inc.

675 Conger St., Dept. A

Eugene, OR 97402

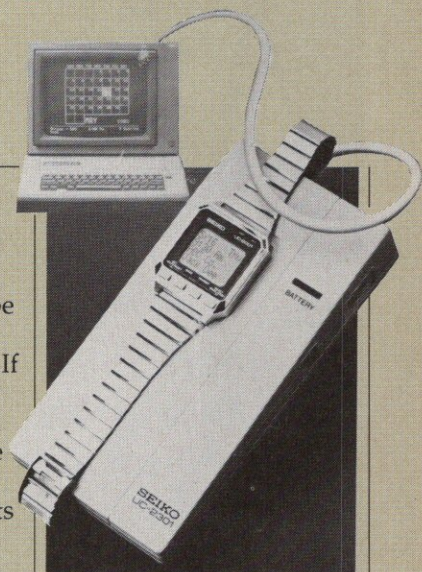
Telephone (503) 342-1271

NewsPlus

WRISTTOP COMPUTING

How would you like to be able to carry a miniature computer on your wrist? If that idea appeals to you, the Seiko Datagraph 2001 is just what you need. The Datagraph 2001 is a tiny computer that contains its own microprocessor; 2K RAM; 2K ROM; a 4-line, 40-character LCD display; a battery-operated power supply; and a special 2048-bps wireless modem that you use to download data from an Apple II. The package includes the wrist computer, an Apple II time-scheduling software program called Time-Trax, and an interface unit that serves double duty as a ProDOS clock peripheral for the Apple and as a communications interface between the Apple and the wrist computer.

The Time-Trax program can schedule up to 99 events per day, and you can quickly download your appointment schedule, along with other data such as names and phone numbers, into the wrist computer via the wireless modem. The Datagraph is handy for people who have to take various medications at different times; the wrist computer can not only sound an alarm, but you can also program it to tell you exactly what medication to take at that time. The interface unit's



ProDOS clock peripheral is a standard ProDOS clock peripheral that is compatible with AppleWorks. The complete package costs \$189.90, carries a one-year warranty from Seiko, and is available from the developer, Creative Peripherals Unlimited, 22952 Alcade Drive #160, Laguna Hills, CA 92653; (800) 228-1135—in California call (714) 770-3334.

EGGS-PLANATION

In the Easter-egg-hunt section in my July column, I asked if anyone knew which version of the resource editor contained the various Easter eggs such as the Flipping-Pig mode. Well, Dave Hoefler of Newfane, Vermont, sent me a note with some screen dumps of the version in question. To find the Easter eggs I mentioned in July, use Resource Editor version 1.0 D11 2/28/86 or D12 3/03/86. Thanks, Dave!

Would you like to carry a miniature computer on your wrist?

APPLE TIGHTENS SECURITY

Apple Computer has always been the subject of a lot of attention and speculation by computer analysts and the media. Details of new Apple products always seem to surface a while before the products are to be announced. Too often, sales of the current product line drop off once reports start to surface about new products. To keep a tighter lid



on secret information related to new products, Apple has reportedly hired corporate-security specialist D. W. Hettman and Associates of Eugene, Oregon, to develop improved security measures.

COPY PROTECTION

While software vendors struggle to come up with the Gordian Knot of copy-protection schemes, one innovative firm has developed a way to copy-

protect printouts. Nocopi, Inc., produces computer paper that can't be photocopied. Nocopi Security Papers come in both loose 8½ × 11-inch sheets and computer tractor-feed fan-fold sheets and are available with several grades of security protection. At 5–13 cents a page, this paper is a bit pricey, but it's great for confidential product details, newsletters, sensitive financial data, and other information that you don't want people to photocopy. Nocopi paper is available from Nocopi Products, P.O. Box 1906, Burlingame, CA 94011; (415) 344-0852.

BATTLE OF THE MEGABYTES

Just as 500-megabyte CD-ROMs are looking like the best thing going in mass storage, hard-disk manufacturers Maxtor Corporation and Micropolis have been showing developers 382-megabyte 5¼-inch hard-disk drives with a built-in SCSI controller that will sell to OEM dealers for as low as \$2000. This price means that these great big SCSI hard disks will sell to consumers for about \$5000 sometime next year. Don't think that SCSI devices are only for the Macintosh Plus; several Apple II developers tell me they are hard at work building SCSI interface cards for the II series.

BUSINESS • SCIENCE • EDUCATION

The complete
Apple II
statistical
package
for only:

\$99

APP-STAT™

A Powerful Tool for Data Analysis and Forecasting

- Easy to use, no commands to memorize (menu-driven)
- Descriptive Statistics, t-tests (independent and dependent samples), General ANOVA/ANCOVA (up to five factors, **unlimited number of cases**, Repeated Measures, unbalanced designs, contrasts, adjusted means, and more), Correlations, Multiple Regression (up to 15 predictors, **unlimited number of cases**), Crosstabulation, Significance Tests, 10 Nonparametric Statistics, and more
- User defined (multiple) conditional selection of subsets of cases, various ways of treating missing data
- Flexible Data Editor; easy entering/editing of data, complex (conditional) transformations of variables, and more
- Can also access files created by spreadsheets and data bases
- Barcharts, Scatterplots, clear comprehensive output
- Will run on APPLE II+, IIc and IIe with 80 column display, 1 disk drive

To order send check or money order for \$99 (plus \$5 for shipping and handling) to:



StatSoft™

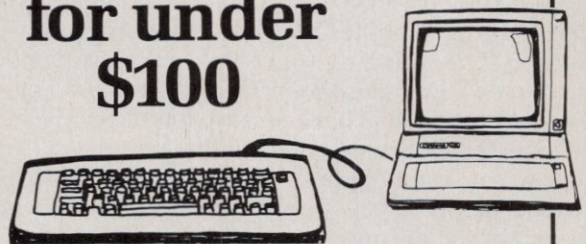


2832 East 10th Street, Suite 4, Tulsa, OK 74104. (918) 583-4149

ASK ABOUT THE VERSION FOR MACINTOSH!

CIRCLE 207 ON READER SERVICE CARD

Update your IIe for under \$100



Includes: cover plate, new keyboard enclosure, cable, mounting hardware and complete easy-to-follow instructions.

Name _____

Address _____

City _____ State _____ Zip _____

Send check or money order for \$99 (we pay shipping charges) or:

Credit card purchase — \$104 includes shipping.

Visa MasterCard
Acct. # _____

Signature _____ Exp. Date _____

California Residents add 6% sales tax.



INNOVATIVE MICRO, INC.

Systems Wholesaler (714) 661-0435
34732 Calle Fortuna, Capistrano Beach, CA 92624

CIRCLE 153 ON READER SERVICE CARD

NewsPlus

*Apple is gearing up
to adopt CD-ROM
technology in a big way.*



3-D VIDEO

Japanese electronics giant Sharp Corporation has developed an improved system for 3-D video that can be used for television broadcasts or computer graphics. The system's main innovation is a special set of glasses that have a shutter lens that uses high-speed liquid-crystal material to switch between transparent and opaque at a rate of about 60 times per second. You can program a computer controller or videodisc player to signal the glasses precisely when to alternate viewing between the right and left eyes so that each eye sees a separate view; the separate views are transformed into a 3-D image when the brain combines the views coming from each eye. Look for Sharp and JVC to come out with a 3-D home videodisc player that uses this technology in about six months.

WHAT'S IN A NAME?

A rose by any other name may smell as sweet, but sales may not be so sweet if a computer product doesn't have the right name. The superb object-oriented Macintosh adventure game *Uninvited* was originally going to be called *Death Store*, a name that would surely have put it on the list of programs parents wouldn't buy for their kids. Luckily, the developer realized the name was wrong in time to change it.

Living Videotext developed the landmark outline-processing program *ThinkTank*. The name *ThinkTank* is good because it is a creative moniker that serves as a reminder that the program is an organizational tool. In fact, *ThinkTank* has so much name awareness that now Living Videotext is thinking of changing its name to *ThinkTank Corporation*. So what do these guys do when they come up with the incredible next-generation outline processor? Do they call it *ThinkTank Plus* or *ThinkTank II*? No. Instead they call it *More*. More what?

Ideally, a product name should tell you something about the product. Good examples of names that help tell you what a product does are *Apple Writer*, *Pinball Construction Set*,

and *MacPaint*. Names such as *MITE* and *Jazz* don't tell you a thing about a product, which means a company has to spend additional marketing money to let us know what in the heck the product does before we know whether or not we even want to find out about it in the first place. In this age of information overload, we shouldn't have to remember both the name and what the program does—the name itself should help categorize the product for us.

MUSIC BY YES

A small box showed up in my office recently with a letter claiming that the box contained an amazing invention. Just more computer hype, I thought. But after playing with the device and watching a videotape of some kids playing with it, I'm a convert. The product, which does not yet have an official name, is a music synthesizer and sound-sampling board for

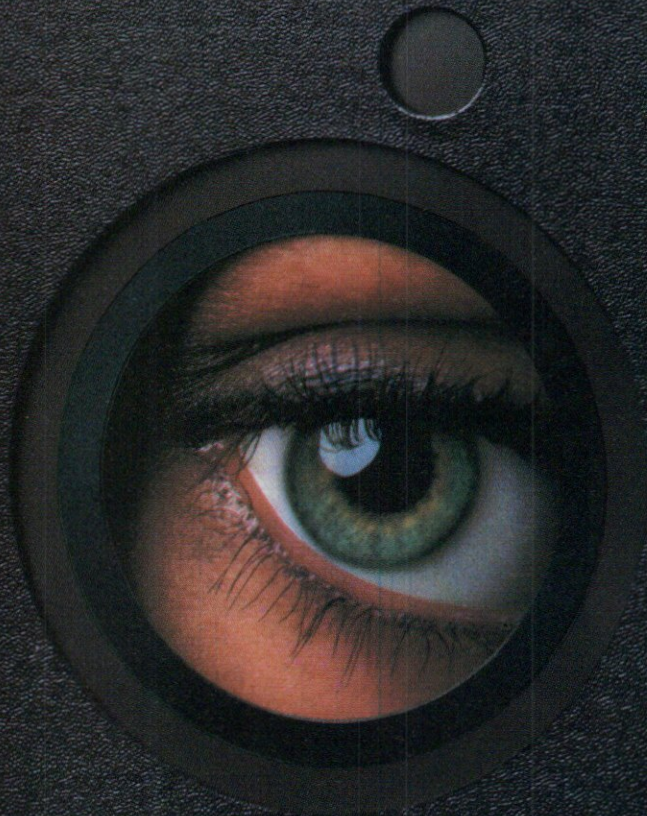
the Apple II series and a connector box for hooking the board up to speakers, a microphone, or your home stereo. The box sells for less than \$100 and lets you play music from the Apple keyboard, create sound effects, digitize sampled sounds, and edit the sounds' waveforms. The product was created by Dr. Lloyd Yam of Yam Educational Software (*YES*), in San Mateo, California.

CD-ROM PARTNERSHIP

Apple is gearing up to adopt CD-ROM technology in a big way and has recently announced a technical-collaboration partnership with the National Geographic Society and Lucasfilm (of *Star Wars* fame) to explore the best ways to combine text, video, audio, film, and software to produce educational materials that use CD-ROMs and related technologies. We'll keep you posted on any new developments. +



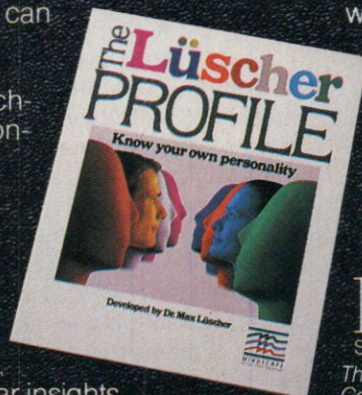
Who you really are is worth looking into.



The way you react to colors can reveal your personality.

Pioneering psychologist Dr. Max Lüscher developed a technique for color preference personality testing in 1947. Now Mindscape offers an updated version of his test in software form with *The Lüscher Profile*.

By recording and interpreting your responses to specific colors, shapes, and shades you'll better understand yourself. Family and friends will gain similar insights



when they take the test. In fact, *The Lüscher Profile* is so accurate, so simple and so much fun you'll use it again and again.

So put your personality to the test. Visit your software dealer soon for *The Lüscher Profile*.

And start seeing yourself in a whole new light.

Mindscape 
Software that challenges the mind. MINDSCAPE, INC.

The Lüscher Profile available for Apple[®] Commodore[™] 64/128, IBM[®] PC, and Macintosh[™].

Mindscape, Inc. 3444 Dundee Road, Northbrook, Illinois 60062, 1-800-221-9884. (In Illinois 1-800-942-7315)

Apple, Macintosh, IBM, and Commodore are registered trademarks of Apple Computer, Inc., International Business Machines, and Commodore Electronics, Ltd. respectively. Mindscape is a trademark of Mindscape, Inc. Test copyright © 1984 by ColorTest-Verlag AG, Switzerland.

CIRCLE 203 ON READER SERVICE CARD

APPLE II ACCOUNTING

For a small business, computerizing the bookkeeping is often the primary reason for buying a computer. Once a company's books are on the computer, getting fast, accurate information about the state of the business is much easier. Although the benefits of computerized accounting are undeniable, however, most small-business owners don't know much about either computers or accounting. Accounting programs differ in the types of reports they produce, the numbers of accounts they allow, and the way they handle data, but most small-business owners don't know enough about accounting to know whether many of these features are necessary or helpful to them.

Aside from getting advice from other business owners or your accountant, the only way to determine which accounting program is for you is to assess your needs as well as you can and then look at what's available. The Apple II world has always had powerful accounting programs from which to choose, but there are fewer choices now than in the past. Of the remaining companies producing accounting software for the Apple II (see the chart that accompanies this article), BPI Systems, Manzanita Software, Peachtree, and H&E Compu-tronics have captured the lion's share of the Apple II accounting market. Each of these companies produces Apple II accounting systems that try to combine ease of learning, ease of use, and business-level power.

BPI Entry Accounting Series

BPI has been making Apple II accounting software since 1979 and has always been known as the major player in this product category. BPI's

Entry Accounting Series was chosen the best accounting software in the *A+* Readers' Choice poll for both 1984 and 1985. Currently, the Entry Accounting Series comes in both DOS 3.3 and ProDOS formats. The system can work with, but does not require, a hard-disk drive.

The Entry Accounting Series consists of five separate modules: General Accounting, Accounts Payable,

The Apple II world has always had powerful accounting programs from which to choose.

Accounts Receivable, Payroll, and Inventory (the Inventory module isn't available in a DOS 3.3 version). The modules can run in an integrated system or individually. Each module sells for \$395 (DOS 3.3) or \$425 (ProDOS), meaning that you can spend more than \$2000 for a complete accounting system with BPI products. The General Accounting module alone is designed to meet many of the needs of a small business, however.

According to BPI's director of marketing communications, Cheryl Seeman, "The reason it's called General Accounting and not General Ledger is that it contains not only a general journal and the normal ledger reports such as trial balance and income statements, but it also includes skeleton subsidiary ledgers for payables, receivables, and payroll. It also prints checks."

The skeleton payables, receivables, and payroll ledgers are adequate for a

business that doesn't have a high volume or many employees, Seeman says. "The General Accounting system would be basically all that business needs," she says, "and then, of course, as the business expanded, it could add other BPI modules to increase its capability."

Although the skeleton ledgers let a business store basic data, they don't provide very many reports. The payables and receivables ledgers show the balance forward, the current month's activity, and an ending balance, but you can't produce detailed profiles or produce aging reports on receivables. For these extra reports and data, you need to add the separate receivables or payables modules that offer many advanced capabilities.

In the ease-of-learning/ease-of-use department, BPI offers some tutorial aids, along with a couple of features that help as you enter data. Each BPI module comes with a set of sample data, so you can practice using the system before risking your own figures. Unlike BPI's programs for the Macintosh and IBM PC, however, the Apple II versions don't have on-line help. Also, there's no on-line query facility that lets you look up account numbers if you forget them—you have to exit from the data-entry screen first.

On the other hand, two features help speed up data entry and report generation. You can set an account-prompt feature to supply a specific account number automatically whenever you enter a certain vendor or customer number. If you always send phone bills to the ABC Phone Company, for example, the telephone account number will always be filled in when you type

*Four front-running programs
win praise from their users.*

SYSTEMS

ABC's vendor number. Then, all you have to do is enter the amount.

Another feature, called the Command Queue, lets you store a series of tasks for the BPI system to perform and then have them execute automatically one after the other. For example, you can set up several reports



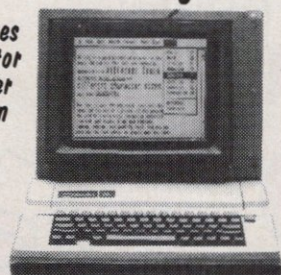
World of Computers

NO SALES TAX COLLECTED!
(N.J. Residents add 6%)

Apple IIe Color System

- ★ 2 Disk Drives
- ★ Color Monitor
- ★ Color Printer
- ★ Color Screen Dumps

Save over
\$500



- Apple IIe Enhanced CPU
- Apple Unidisk 5 1/4" Drive
- Apple Second Unidisk 5 1/4" Drive
- Apple Unidisk Controller
- Apple Utilities with ProDOS
- Apple Color Monitor IIe
- Apple Imagewriter II Color Printer
- Apple Imagewriter Ribbon-Black
- Apple Imagewriter Ribbon-Color
- Thirdware Fingerprint plus Printer Interface
- Maxell Double-Density Diskettes (Box of 10)
- Package of Computer Paper
- Dust Cover for Computer
- Dust Cover for Printer

**Suggested
list price
\$2589.00**

**Complete Color Package
\$1999.00**

Apple IIc System

- Apple IIc 128K CPU list price w/Built-in Disk Drive \$1795.00
- Apple 9" Green Monitor
- Apple IIc Monitor Stand
- Apple Tutorial Disks
- Apple ProDOS with Utilities
- Maple Tech Second 5 1/4" Disk Drive
- Epson Homewriter 10 — 100 CPS Printer
- Printer Interface with Cable
- Lucite Printer Stand
- Maxell Double-Density Disks
- Package of Computer Paper
- Dust Cover for Computer
- Dust Cover for Printer



**Sale Price
\$1199.00**

Featured Items APPLE COMPUTERS

APPLIED ENGINEERING		APPLE COMPUTERS	
Ramworks II		Color Monitor IIe	\$399 299
512 K	\$269 \$209	Super Serial Card	149 99
Ramworks II 1 Meg	369 269	Unidisk 5 1/4" Disk Drive	289 209
RamFactor 256K	239 189	Unidisk 3.5" with Catalyst Software	399 319
RamFactor 512K	289 219	Unidisk 3.5" Controller	69 59
RamFactor 1 Meg	389 289	Apple IIe CPU 64K	899 679
Transwarp	279 229	Apple IIe Mouse	149 125
Z-RAM 256K	329 269	Apple IIc Mouse	99 85
Z-RAM 512K	389 309		
Apple Brand Extended 80 Column Card	List \$149		Now Only \$59
Apple ProDOS Complete with Manual	List \$29		Now Only \$9
Applied Engineering Ramworks 256K	List \$219		Now Only \$169

ORDER TOLL FREE

800-526-5313

IN NJ 201-728-8080

Order via telephone — Mon.-Fri. 9-9 EST
Sat. 10-4 EST or Order via Computers—
Electronic Mail 24 Hours a day!

Order via Mail — Include address and phone #.
Payment: No COD's! Cashiers Checks,
Money Orders, Credit Card will ship immediately.
Personal and company checks allow 15 days.

Write for our 40 page catalog.

CDA WORLD OF COMPUTERS

31 Marshall Hill Road • West Milford, NJ 07480

BPI's General Ledger package 'has been one of the most reliable programs I've worked with, and the easiest to teach.'

to be printed by queuing them up at the end of the day. Once you start printing, you don't have to manually start the printing of each report in the queue whenever the previous one is finished.

Finally, BPI's software is now compatible with AppleWorks. A built-in utility lets users transfer their accounting data into AppleWorks files for spreadsheet manipulation or for inclusion in word-processing reports.

A Professional's Choice

Dorothy Diorio, a CPA in Jupiter, Florida, has been using BPI's General Ledger package since 1981. Her accounting firm serves 38 small-business clients on a monthly or quarterly basis, plus about 100 more year-end clients. Each client's books are stored on a different BPI system data disk. Her clients—including general construction contractors and subcontractors, retailers, professionals, and restaurateurs—represent a variety of different businesses.

"I'm very happy with the system," she says. "It gives me monthly financial statements and forms the basis of the tax return. I've got a substantial number of monthly and quarterly clients on it, and the versatility of this system lets me put just about any kind of business on it and get good information. With a contractor, for example, we have an extensive work-in-progress job file, and BPI's coding system lets me break the data down between direct and indirect costs."

When she prepares formal accounting statements for banks or other outside sources, Diorio uses AppleWorks. In the past, she's had to transfer the accounting information by hand, but she's expecting to receive BPI's AppleWorks-compatible upgrade any day.

"The new version will let me use the information directly from the BPI system," she explains. "I'm also hoping it will allow me to do some budgeting and forecasting, and it will let me save each month's work separate-

ly, so I can get a 12-month general ledger out of it." As it is, the BPI system closes out each month and doesn't maintain a historical record of each month's ledger.

Diorio has two Apple IIe computers in her office, which she shares with several employees. "This has been one of the most reliable programs I've worked with, and the easiest to teach—it gets out the information in a very quick and inexpensive way," she comments. "I can get the work done at a lower level of competency, so by the time I get it, I'm putting in a minimum amount of time on the bookkeeping, but I'm getting very accurate records. I'm able to give my clients more business-management assistance, because I've got good, current records to work with. I don't need an accountant or a highly qualified bookkeeper to process the monthly or quarterly information."

Occasionally, Diorio surveys the market to see if she should switch to a different brand of software or another computer system, but so far, she hasn't found switching to be worthwhile. "I was thinking of switching from Apple to IBM because so many more programs were coming out for IBM, but dollarwise, it doesn't make sense. I haven't found as flexible a program that does more than BPI for less than \$1500. Every program has its drawbacks. You have to go well above a thousand dollars to get a comparable program, and a CPA office doing monthly and quarterly work doesn't need a lot of the features you get."

BusinessWorks

Manzanita Software is a relative newcomer, having been in business only two years, but its older Advanced Business Accountant and new BusinessWorks programs have received high marks for power and ease of use.

BusinessWorks is sold as a series of modules that can operate by themselves or as an integrated system. The modules include a general ledger, accounts payable, accounts receivable, inventory, and payroll. You'll need a System Manager module to run any other modules.

One of the major selling features of BusinessWorks is its AppleWorks-like interface and data-interchange facilities. "It has the same look and feel to it as AppleWorks does," says Jerry Jewell, Manzanita's director of

marketing. "It actually creates AppleWorks files from accounting data in any of the modules. It uses the same keystrokes and the same file-card metaphor on the screen. When you combine AppleWorks with our accounting packages, you have all the functions a computer can provide for a small business—database management, spreadsheets, word processing, and all the accounting modules are integrated, and you don't have to learn different keystrokes or menu structures. It's all the same, all the way through."

BusinessWorks' ease of use is apparent from the moment you set up the program the first time. The accounting module or modules install themselves on a UniDisk or hard disk in response to a couple of keystrokes. You can start out using only the general ledger and then add other modules later—BusinessWorks automatically takes notice of any new modules you've added.

Once you've set the program up, you can access on-line help that tells you what the program is doing and what it expects from you at any given point. The on-screen help facility also refers you to specific pages in the manual for further information.

Another helpful feature, called Show Windows, gives you pop-up windows when you type open-apple-?. These windows contain lists of vendor numbers, account numbers, customer numbers, and other vital information you may want to refer to as you enter data. If you're entering a general-ledger account number, for example, and you can't remember the right number, you can type open-apple-?, and a show window will display a list of the available account numbers. You can pick the one you want with the right- or left-arrow key and press Return, and the program automatically enters the account number and all related information into the data-entry screen.

Show windows present lists of all kinds of information, not just account numbers. If you want to enter something into an invoice and you can't remember the number of the invoice, you can ask for the show window; the window will come up and show you all the existing invoices for that particular customer. In short, the Show Windows feature eliminates the need to refer to written lists of vendor, customer, or account numbers and so makes data entry much faster.

*BusinessWorks' ease
of use is apparent
from the moment
you set up the
program for the
first time.*

Like the BPI Entry series, BusinessWorks is an extremely powerful accounting system that produces dozens of different reports and posts entries to all the appropriate journals automatically. It can handle up to 20,000 journal entries a month and works with dollar amounts up to \$43 million.

Adding Up Auto Sales

In Highland Park, Illinois, Bill Monnier runs an auto-sales business with the help of Manzanita's accounting software. Monnier has three Apple IIe computers on a Corvus network with two 11-megabyte hard disks. Before he bought Manzanita's Advanced Business Accountant (the predecessor of BusinessWorks), Monnier used Accounting Plus and BPI products. He now uses Manzanita's General Ledger, Accounts Payable, Accounts Receivable, and Payroll modules to keep track of his sales and his 12 employees.

Comparing the three accounting systems he's worked with on an Apple II, Monnier has been most impressed with Manzanita's software and personnel. "I've got more than a year under my belt with the latest system," he says. "I've been doing Apple II accounting for about four years. The Manzanita people have been most helpful whenever I've talked to them. They have a support hot line with an 800 number, and if they don't have the answer when I call, they get right back to me. With other companies, I used to spend a lot of time on hold, or I didn't get the answers I needed."

The program was also easier for him to start using than others. "The thing that knocked my socks off was that when we started the setup program, it was completely menu-driven and it automatically allocated itself to the areas of the hard disk that we specified by a menu—we didn't have to partition sectors. It was extremely easy to have working. I had another payroll program years ago and found

HOW TO TURN YOUR MACINTOSH™ INTO A BANKER.

Here's how to make the investment in your Apple Macintosh really pay off.

With SPECTRUM™, the electronic home banking and information system from The Chase Manhattan Bank, N.A. Teamed up with your Mac, SPECTRUM is your direct link to Chase. And the start of a better way to manage your money and your time.

Click the mouse to pay bills electronically, anywhere; transfer funds; keep records; and more. Even get vital financial information and trade stocks* at discount rates.

Right at home, anytime—with complete security. All, including electronic mail, starting at just \$5 a month. And, with 2 months free for new subscribers, now's an even better time to get control of your finances.



**CALL TOLL FREE
1-800-522-7766**



CHASE

© 1986 The Chase Manhattan Bank, N.A./Member FDIC.
Macintosh is a trademark licensed to Apple Computer, Inc.
*Stocks are traded through Rose & Company Investment Brokers, Inc.,
a Chase affiliate/Member NYSE and SIPC.

**Protect
the fruits of
apple!**

Call (800) 847-4176



\$84.00*
*UPS
Included.

**IIe Foam Padded Carrying Case
with
Removable Cover**

**Macintosh
Carrying Case
\$114.50***

**MacPlus
Flight Case
\$260.50***

Now \$196.50*

*UPS Shipping Included.



shoulder strap
\$5.25

IIc Foam Padded Flight Case



Holds: IIc, monitor
w/stand, external
disc drive, power
pack, mouse.

\$189.50*

*UPS Shipping Included.

**Call for Complete
Computer Case Catalog.**

For
Fast
Service!



CREDIT CARD CUSTOMERS
CALL TOLL FREE
800-847-4176
(outside N.Y. State)



Fiberbilt
CASES, INC.

601 West 26th Street
New York, New York 10001-1199
(212) 675-5820 (N.Y. State only)
(800) 847-4176 (Toll Free)

it very cumbersome. We drove ourselves crazy. With the new system, going onto the Corvus [hard disk] was virtually automatic."

The system's ease of use was particularly important for Monnier when he hired a new clerk—he has three people who use the accounting system. "When I hired a new person, within several days she was operating the system, as far as doing payroll and whatnot, and within two weeks she never asked a question."

As far as his results are concerned, Monnier couldn't be happier. "If somebody wants to look at these records, they're added correctly, they're totally legible—there's just no comparison to the way they were five years ago." Even Monnier's accountant was impressed with the Manzanita system's capabilities. "His opinion of what we have and what we can generate is high. In fact, he's almost out of a job—I see him a lot less frequently, because we can generate our own reports and see what we've done wrong."

After some recent conversations with Manzanita, Monnier is considering an upgrade to BusinessWorks, so he can take advantage of the AppleWorks data compatibility and other features. "It allows more sales categories," he says. "The current system allows 8 sales categories, and BusinessWorks has 16. Even though this is a small business, we have in-state sales, out-of-state sales, service work, taxable, nontaxable, and so on. So we have several categories of sales we want to keep track of." BusinessWorks is also compatible with Catalyst and Pinpoint, but the older Advanced Business isn't.

Although he has three Apple systems on a network, Monnier can have only one person using BusinessWorks at a time. His wish list includes a multiuser version of the program, along with an Apple accelerator card that is compatible with his Corvus network.

Asked if he has any advice for new businesses just getting into computerized accounting, Monnier says, "It takes longer than you think it will before you get all your books running on the computer. Find a friend or make an acquaintance who knows something about computers (or preferably computers and accounting), and then be prepared to spend some time getting the system set up."

*Back To Basics'
main attraction
is that it is a fairly
complete small-business
accounting system
in one package.*

Peachtree Back to Basics

Like BPI Systems, Peachtree has deep roots in Apple II accounting software, having sold its first program back in 1978. The current product, Back To Basics, has been on the market two years. Back To Basics' main attraction is that it is a fairly complete small-business accounting system in one package—you get Accounts Payable, Accounts Receivable, and General Ledger modules in one set for a total price of \$195. You can use the three modules individually or together. The Apple II version of Back To Basics does not work on a hard disk.

"We say Back To Basics is really geared for the computer novice with little or no accounting experience," says Susan Craig, marketing manager at Peachtree. In view of that target market, Back To Basics offers a lot of fundamental accounting information to orient new users.

"Our documentation is probably one of our primary selling features," Craig explains. "We include an introduction to accounting—an accounting primer. We have a sample company that the user can go through, learning how to set up his business by using sample data. In fact, Kent Publishing has published an accounting workbook that works in conjunction with Back To Basics and is used in colleges and universities—that shows what a good educational tool it is. If it's easy enough to use to teach accounting, then it's very simple to use as far as the user is concerned, as well."

The Back To Basics software itself includes a predefined chart of accounts, so new users have a basic list of accounts to work with if they haven't set up their accounting before. You can expand or modify the listings as you gain experience.

Although it costs far less than competing systems, Back To Basics has most of the essential journals and reports that a small business needs. The general ledger includes a general

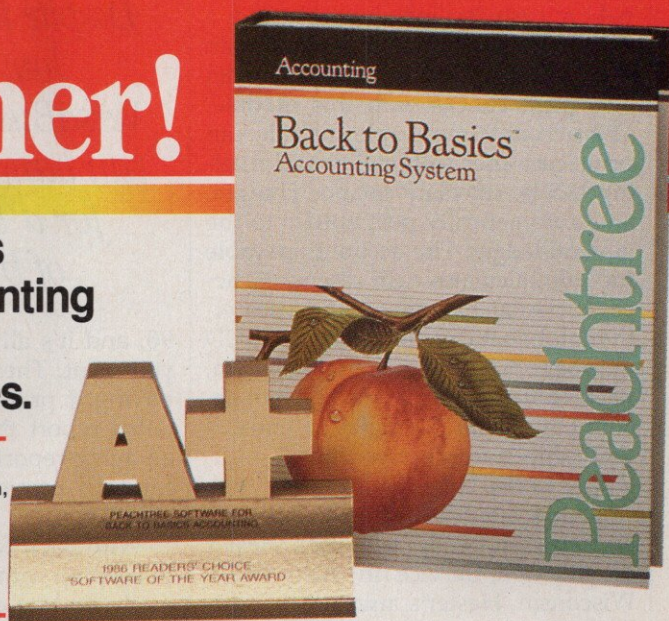
Get The Winner!

Only \$195* For Peachtree® Software's Award-Winning Back To Basics Accounting System™—The Easy To Use, Foolproof System That Installs In Only 30 Minutes.

10,000 A+ readers voted and Peachtree's BACK TO BASICS was the number one choice in Business Accounting Software.

The 3 most popular accounting modules come in this one integrated system, ready to install and use, together or separately, the minute you receive them.

- General Ledger
- Accounts Payable
- Accounts Receivable



■ PUT THIS WINNING SYSTEM TO WORK FOR YOU.

It's easy to install using screen menus. Review only 7 pages of the manual.

It's very user friendly. Simple to use with Apple II+, Apple IIe, Apple IIc and Macintosh.

You don't need experience—accounting primer and software tutorial guide you step-by-step.

No computer language to learn—system uses plain, everyday English.

■ GET AWARD WINNING-POWER.

BACK TO BASICS is so powerful your business may never outgrow it. It may be the only accounting system you'll ever need to buy.

Handles totals up to \$21,000,000.

Single transactions available up to \$999,999.99.

Password security protects information.

Journals and reports updated as each transaction is recorded.

On-line help function displays up-to-date information for customers, vendors, and chart of accounts.

Void transaction facility automatically creates reversing entry.

More than 30 reports in all 3 modules—can be viewed on screen or printed.

■ DON'T DO WITHOUT BACK TO BASICS EFFICIENCY ANY LONGER.

Organize information for more precise money management.

Get tighter controls over money going out, money coming in.

Reduce errors and wasted time.

Pay less in accounting and audit fees.

■ HERE ARE MORE OF THE MANY FEATURES THAT MADE THIS SYSTEM AN A+ WINNER:

GENERAL LEDGER

- On-line help displays Chart of Accounts.
- MTD and YTD show on income statements.
- Allows automatic Journal entries.
- Check processing and printing capability through Cash Disbursements.
- Optional cost of sales ranges.
- User modifiable Chart of Accounts included.
- Allows up to 3 checking accounts.
- Up to 10 departments with separate income statements.

ACCOUNTS RECEIVABLE

- Calculates receivables on balance forward basis.
- Prints statements and mailing labels.
- Allows automatic posting to General Ledger.
- Accepts partial payments.
- Calculates finance charges.
- Up-to-date customer information can be scrolled for review at any time.
- Customer ID's can be alpha or numeric.
- Verifies customer credit limit.
- Calculates up to 3 sales taxes per entry.

ACCOUNTS PAYABLE

- Up to 10 vendor payment terms.
- Calculates cash discounts.
- Accepts partial payments.
- Automatic posting to General Ledger.
- Prints vendor mailing labels.
- Up-to-date vendor information can be scrolled for review at any time.
- Customer ID's can be alpha or numeric.
- Prints computer checks or processes hand-written checks.
- Invoices automatically or manually selected for payment.

■ AND THESE ARE SOME OF THE REPORTS YOU GET WITH THE SYSTEM:

- Chart of Accounts
- Customer Master List
- Vendor Master List
- Trial Balance
- Detailed General Ledger
- Detailed Accounts Receivable
- General Journal
- Disbursements Journal
- Sales Journal
- Income Statement
- Balance Sheet
- Check Register
- Account Activity Report
- Accounts Receivable Aging
- Cash Receipts Journal
- Cash Requirements Report
- Open Invoice Register
- Cash Reconciliation Form
- Finance Charges Journal
- PLUS 16 MORE REPORTS!

■ YOUR NO RISK, NO NONSENSE MONEY BACK GUARANTEE

If you aren't satisfied with a product purchased from us, simply return the complete product in saleable condition within 30 days of your purchase. Your purchase price will be refunded promptly.

■ SUPERIOR SUPPORT SERVICES

You get unlimited telephone support for 45 days direct from Peachtree. "The finest support in the industry," according to Infoworld Magazine.

Apple is a registered trademark of Apple Computer, Inc. Macintosh is a trademark of McIntosh Laboratory, Inc. licensed to Apple Computer, Inc. and is used with the express permission of its owner.

CALL TODAY TOLL FREE 1-800-247-3224 8:30 to 7:00 ET
In Georgia CALL 404 • 564 • 5800 to order, for more information or for a dealer near you.

Order Now. Rush me THE BACK TO BASICS ACCOUNTING SYSTEM.

*Computer Model: Apple II+ with two 5 1/4 disk drives \$195 Apple IIe or IIc with two 5 1/4 disk drives \$195
 Macintosh 512k with 2 drives or hard disk. For special price, call 1-800-247-3224. In GA, call 404-564-5800.

SHIP TO:

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ HOME WORK

SIGNATURE _____

METHOD OF PAYMENT:

VISA MASTERCARD AMERICAN EXPRESS
 CHECK MONEY ORDER

CREDIT CARD #

EXPIRATION DATE

PAYMENT ENCLOSED \$ _____
For each unit ordered, include \$5.00 shipping and handling. Georgia residents include \$7.80 sales tax. Orders will be shipped UPS unless otherwise specified.

MAIL TO:

 **Peachtree Software®**
An Intelligent Systems Company
Dept. A009/4355 International Blvd.
Norcross, Georgia 30093-9990

journal, a cash-disbursements journal, a cash-receipts journal, and a cash-sales journal. You can maintain multiple cash accounts, and you can also print checks with this module. The accounts-receivable module can print customer statements and mailing labels, calculate finance charges, and automatically post entries to the general ledger. The accounts-payable module calculates cash discounts, accepts partial payments, and uses either alphabetic or numeric vendor ID numbers. Like Manzanita's system, Back To Basics can display a list of account numbers during data entry if you forget a number you need.

Power to the Novices

"For a small business, it does everything we need," says Ron Hester of Allenton Service in West Bend, Wisconsin. Hester's auto-repair business has five employees, and he's been using Back To Basics since early 1985.

Hester bought Back To Basics when he bought a Ile and has used his computer exclusively for accounting purposes. "We looked at BPI and State of the Art," he says, "and for what I got from Peachtree, I would've had to pay about \$1500 with another system. Also, Peachtree was recommended to me by an accountant I know."

"Compared to some of the other programs, Back To Basics was really easy to use," Hester adds. "You don't have to format your data disk in a special way, and it's easy to understand the way the program comes up on the screen."

Starting with the work orders from his shop, Hester enters the accounts receivable into the computer. The system then breaks the receivables down into labor, parts, towing, and other accounts. Once he's entered the amounts, Back To Basics calculates the sales tax and posts the total to that account. When he wants to issue statements, he can issue them to a range of customers, to all customers with open balances, or only to past-due customers. With about 70 customer accounts, Hester says, "It saves me a lot of time."

Although he says he doesn't use most of the reports the system can generate, Hester finds it easy to get the data he wants. "If I want to know how much is outstanding in accounts receivable, I just ask the program, and it will tell me how much is 30-60 days past due, 60-90, and more than

Despite their relatively low price, the VersaBusiness modules can handle accounting for a wide variety of businesses.

90, and it's all totaled in columns if you want. There are several ways of having it printed out—there's a detailed report that lists each account, an aging report that just prints totals for each past-due period, and some others."

With Back To Basics, Hester is able to keep up with his billing paperwork easily, and he also has an easier time getting information to his accountant when tax season rolls around. "I just give him the statements I print with the system," he says.

Although he had little computer experience when he began, Hester was able to set up his books on Back To Basics and then grow with the system as he learned. "I would recommend it to anyone. After using it a year, I'm still finding extra things I can do with it."

The VersaBusiness Series

The VersaBusiness Series, made by H&E Computronics of Spring Valley, New York, is a reasonably priced set of accounting modules that packs a lot of power. The main module, called VersaLedger II, is a general-ledger system that handles multiple accounts, prints checks, and produces 17 different balance sheets, income statements, account listings, and other reports. The other modules handle payables, receivables, payroll, and inventory. You can use any module alone, or you can use modules together in an integrated system. The VersaBusiness series has been available for the Apple II since 1981.

Although several hundred dealers sell the VersaBusiness series, according to Janet Lasker, Computronics' dealer sales manager, a large portion of the firm's sales are through mail order. Although customers might be leery about buying accounting software through the mail, Computronics helps smooth the way. You can purchase the manual for any module separately for \$25 and then apply that amount to the purchase of the software if you decide to buy it. Also,

Computronics offers a 30-day money-back guarantee on all of its software, and you get 60 days' free technical support with the purchase of any module.

Despite their relatively low price, the VersaBusiness modules can handle accounting for a wide variety of small- and medium-sized businesses. The software comes in both DOS 3.3 and ProDOS versions, and the ProDOS version can work on a hard-disk drive. The VersaLedger module can handle up to 615 different accounts (the number of transactions is limited by disk space), and the payables and receivables modules can handle up to 2000 accounts each on a hard-disk system. The software is not copy-protected, so you never have to worry about having a backup copy.

Watching the Inventory

At Antique Timepieces in San Anselmo, California, proprietor Drew McEachern was having trouble keeping track of some 350 watch, clock, and jewelry parts in his watch- and jewelry-repair business until he bought VersaInventory. "I have about 350 different items in inventory," he says, "and I was basically trying to keep track of them all in my head."

McEachern added VersaInventory to his Apple Ile and Sider hard disk about two years ago and soon had much more control over his stock. "It's been great," he says. "It's set up in a spreadsheet format, and you can print out a report showing the total number of items and their total dollar value, so you always know how much stock you have on hand. You tend to forget that you need X dollars' worth of inventory to do X dollars' worth of business, but at the same time you don't want to have all your money tied up in inventory. This program helps me maintain a balance between having enough stock and having either too much or too little."

It took McEachern about a month to become completely comfortable with the program, but that, he says, is due to its power. "You can have a couple of thousand items in inventory, and there are a lot of ways you can look at what you have." Between Computronics' manual and what he describes as "very helpful" customer support, however, McEachern found the transition from no inventory system to a computerized one fairly painless. All of his questions to Computronics' customer-support service were answered

PRODUCT INFORMATION

within the 60-day free support period, so he has never had to pay for additional help.

Although his other accounting data is currently maintained by a bookkeeper, McEachern is planning to upgrade to VersaLedger, VersaPayables, and VersaReceivables. "I want to try to run a computer system in parallel with my bookkeeper for a couple of months," he says, "and then, I hope, switch over to the computer completely."

Depending on your level of accounting experience, the complexity of your business, your budget, your hardware, and the amount of time you're willing to spend computerizing your books, one of these four programs will do the job. Accounting was one of the first applications to appear on Apple computers, and today's Apple II accounting-software vendors don't take a backseat to anybody else when it comes to managing your books. +

A+ contributing editor Charles Rubin is the author of Command Performance: AppleWorks, AppleWorks, and The Endless Apple, all from Microsoft Press.

The Entry Accounting System

BPI Systems
3001 Bee Cave Road
Austin, TX 78746
(800) 531-5252

List Price: DOS 3.3 version, \$395 per module; ProDOS version, \$425 per module

Requires: DOS 3.3 version: Apple II, II Plus or IIe; ProDOS version: Apple II Plus, IIe, or IIc (II and II Plus require Videx VideoTerm card; IIe requires Apple 80-column card)

CIRCLE 465 ON READER SERVICE CARD

Back To Basics

Peachtree Software, Inc.
4355 International Blvd.
Norcross, GA 30093
(404) 564-5700

List Price: \$95 per module or \$195 for all modules (general ledger, accounts payable, and accounts receivable)

Requires: Apple II Plus, IIe, or IIc; 64K RAM; two disk drives

CIRCLE 467 ON READER SERVICE CARD

BusinessWorks

Manzanita Software Systems
1 Sierra Gate Plaza, Suite 200-A
Roseville, CA 95678
(916) 781-3880

List Price: System Manager, \$95; Payroll, \$445; other modules, \$395

Requires: Apple IIe with 128K RAM and 80-column card, or IIc; ProDOS; two 3.5-inch disk drives, or one 3.5-inch disk drive with 512K RAM or hard disk

CIRCLE 466 ON READER SERVICE CARD

The VersaBusiness Series

H&E Computronics, Inc.
50 North Pascack Road
Spring Valley, NY 10977
(800) 431-2818
In NY (914) 425-1535

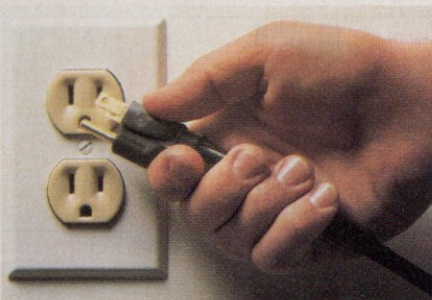
List Price: VersaLedger, \$149.95; other modules (VersaReceivables, VersaPayables, VersaPayroll, and VersaInventory), \$99.95 each

Requires: Apple II Plus, IIe, or IIc; two disk drives or hard disk

CIRCLE 468 ON READER SERVICE CARD

This is all it takes to get IBM, Apple, Tandy, Macintosh and Compaq talking to each other.

And it's simple and inexpensive.



Now a powerful **GridNet™** Local Computer Communications Network is as close as your nearest electrical outlet.

Thanks to GridComm's Communicators, virtually any

office can create its own high speed, error-free **GridNet™**... instantly! There's no need to purchase special system software. And there's none of the expense and inconvenience of installing additional wiring. Because a **GridNet™** utilizes your existing electrical grid as a highly-effective data transmission medium.

And a **GridNet™** will support IBM PC, XT, AT, and all IBM compatibles, Apple and Macintosh, Hewlett-Packard, Tandy, AT&T, Epson, NEC...all the most popular

micros and peripherals, in the same network. Freely sharing data, with complete connectivity and effective compatibility.

The cost? As much as 60% below that of specially-wired systems.

Find out just how easy it is to increase your office's productivity. See your local dealer, or contact "The Great Communicator" for more information.

GRIDCOMM

THE GREAT COMMUNICATOR

For information call 203-790-9077. P.O. Box 2779, Danbury, Connecticut 06813-2779

Trademarks: IBM, PC, XT, AT/International Business Machines Corp. — Apple/Apple Computer Inc. — Macintosh/McIntosh Laboratory Inc. — Tandy/Tandy Corp. — Compaq/Compaq Computer Corp. — Hewlett-Packard/Hewlett-Packard Co. — Epson/Epson America Inc. — AT&T/American Telephone and Telegraph Co. — NEC/NEC Home Electronics (U.S.A.) Inc.

CIRCLE 200 ON READER SERVICE CARD

THE APPLE II BY CINDY MARTIN AND CAROL PERSON

ACCOUNTING LINEUP

	GENERAL LEDGER	ACCOUNTS RECEIVABLE	ACCOUNTS PAYABLE	PAYROLL	OTHER
AGRI-LEDGER SBCS 3815 Adams Street Lincoln, NE 68504 (402) 467-3591	<input checked="" type="checkbox"/>				
BACK TO BASICS ACCOUNTING SYSTEM Peachtree Software, Inc. 4355 International Blvd. Norcross, GA 30093 (800) 247-3224; in GA (404) 564-5800	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		INVOICING INVENTORY
BOOKS! THE ELECTRIC LEDGER Systems Plus, Inc. 500 Clyde Avenue Mountain View, CA 94043 (415) 969-7047	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		INVOICING CHECK WRITING RECURRING ENTRIES BUDGETING
BPI ENTRY SERIES BPI Systems, Inc. 3001 Bee Cave Road Austin, TX 78746 (512) 328-5434	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY (ProDOS ONLY)
THE BUSINESS ACCOUNTANT Decision Support 1300 Vincent Place McLean, VA 22101 (703) 442-7900	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
THE BUSINESS ACCOUNTANT Manzanita Software Systems 1 Sierra Gate Plaza, Suite 200A Roseville, CA 95678 (916) 781-3880	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY
BUSINESSWORKS Manzanita Software Systems 1 Sierra Gate Plaza, Suite 200A Roseville, CA 95678 (916) 781-3880	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY
DESKTOP ACCOUNTANT Rocky Mountain Software Systems 1280C Newell Avenue Walnut Creek, CA 94596 (415) 680-8378	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
GENERAL LEDGER SBCS 3815 Adams Street Lincoln, NE 68504 (402) 467-3591	<input checked="" type="checkbox"/>				
HAL SOFTWARE HAL Software P.O. Box 1086 Poulsbo, WA 98370 (206) 598-4728	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
HARDISK ACCOUNTING SERIES, V. 3.03A Great Plains Software 1701 SW 38th Street Fargo, ND 58103 (701) 281-0550	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY JOB COST
PERFORMANCE SERIES Westware, Inc. 65 East 400 South Orem, UT 84058 (801) 226-8926	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY
SUCCESS DESK ACCOUNTING SYSTEM CMA 55722 Santa Fe Trail Yucca Valley, CA 92284 (619) 365-9718	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
VERSA BUSINESS SERIES H&E Computronics, Inc. 50 North Pascack Road Spring Valley, NY 10977 (800) 431-2818; in NY (914) 425-1535	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INVENTORY
WOS FUND ACCOUNTING WOS Data Systems, Inc. 455 Austin, P.O. Box 744 Colby, KS 67701 (913) 462-7581	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	PO VOUCHER

As this chart illustrates, numerous accounting programs are available for the Apple II series. The 15 programs detailed here represent a wide variety of prices, abilities, and complexity. The chart provides several important statistics on each program, as well as a checklist of major features.

MAXIMUM NUMBER OF ACCOUNTS	MULTIPLE DEPARTMENTS FOR EACH COMPANY	MULTIPLE-COMPANY PROCESSING	MULTIPLE-COMPANY CONSOLIDATION	ACCOUNTING PERIODS	POSTING TO MULTIPLE ACCOUNTING PERIODS
450-500 DEPENDS ON DISK SPACE	99			ANY NUMBER	
GENERAL LEDGER, 254; ACCOUNTS RECEIVABLE & ACCOUNTS PAYABLE, 300 EACH	UP TO 10			12	
65,000	UNLIMITED			12	
DOS 3.3: GL, 1000; AR & AP, 450 EACH; PAYROLL, 100—ProDOS: GL, 1000; AR & AP, 9999 EACH; PAYROLL, DEPENDS ON DISK SPACE; INVENTORY (WITH FLOPPY DISK), 850; INVENTORY (WITH HD), DEPENDS ON DISK SPACE	10			12	
200	63			12	
500	99			12 AND/OR 13	
1000	99			12 AND/OR 13	
400/MODULE; 256K VERSION, 2200	99	WITH MULTI-COMPANY OPTION		ANY NUMBER	
450-500 DEPENDS ON DISK SPACE	9			ANY NUMBER	
GL, 2000; AR, 400; AP, 200; PAYROLL, 300	GL, 255 PAYROLL, 15			12 AND/OR 13	
GL, 2000; AR & AP, 3000 EACH; PAYROLL, 500; INVENTORY, 6000	999	WITH MULTI-COMPANY OPTION		12	
GL, 3300; AR, 7700; AP, 800; PAYROLL, 90; INVENTORY, 10,000	36	WITH MULTI-COMPANY OPTION		12 AND/OR 13	
500	5			12 AND/OR 13	
FLOPPY: GL, 615; AR, 400; AP, 200; INVENTORY, 855—HD: GL, DEPENDS ON DISK SPACE; AR, AP, PAYROLL, & INVENTORY, 2000 EACH	UP TO 99			12 AND/OR 13	
DEPENDS ON DISK SPACE	UNLIMITED			12 AND/OR 13	

CONTINUED

THE APPLE II ACCOUNTING LINEUP

CONTINUED FROM PAGE 29

	AUTOMATIC POSTING OF RECURRING TRANSACTIONS	AUTOMATIC GENERATING OF REPEATING ENTRIES	AUDIT TRAILS FOR ALL TRANSACTIONS	BUDGETING BY ACCOUNTING PERIODS
AGRI-LEDGER SBCS 3815 Adams Street Lincoln, NE 68504 (402) 467-3591			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BACK TO BASICS ACCOUNTING SYSTEM Peachtree Software, Inc. 4355 International Blvd. Norcross, GA 30093 (800) 247-3224; in GA (404) 564-5800	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
BOOKS! THE ELECTRIC LEDGER Systems Plus, Inc. 500 Clyde Avenue Mountain View, CA 94043 (415) 969-7047	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BPI ENTRY SERIES BPI Systems, Inc. 3001 Bee Cave Road Austin, TX 78746 (512) 328-5434	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
THE BUSINESS ACCOUNTANT Decision Support 1300 Vincent Place McLean, VA 22101 (703) 442-7900	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
THE BUSINESS ACCOUNTANT Manzanita Software Systems 1 Sierra Gate Plaza, Suite 200A Roseville, CA 95678 (916) 781-3880	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BUSINESSWORKS Manzanita Software Systems 1 Sierra Gate Plaza, Suite 200A Roseville, CA 95678 (916) 781-3880	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DESKTOP ACCOUNTANT Rocky Mountain Software Systems 1280C Newell Avenue Walnut Creek, CA 94596 (415) 680-8378	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
GENERAL LEDGER SBCS 3815 Adams Street Lincoln, NE 68504 (402) 467-3591			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HAL SOFTWARE HAL Software P.O. Box 1086 Poulsbo, WA 98370 (206) 598-4728	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HARDISK ACCOUNTING SERIES, V. 3.03A Great Plains Software 1701 SW 38th Street Fargo, ND 58103 (701) 281-0550	GL & AR, YES; AP, NO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PERFORMANCE SERIES Westware, Inc. 65 East 400 South Orem, UT 84058 (801) 226-8926		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SUCCESS DESK ACCOUNTING SYSTEM CMA 55722 Santa Fe Trail Yucca Valley, CA 92284 (619) 365-9718	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
VERSA BUSINESS SERIES H&E Computronics, Inc. 50 North Pascack Road Spring Valley, NY 10977 (800) 431-2818; in NY (914) 425-1535	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
WOS FUND ACCOUNTING WOS Data Systems, Inc. 455 Austin, P.O. Box 744 Colby, KS 67701 (913) 462-7581	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REPORTS WITH ACTUAL VS. BUDGETED FIGURES	PRIOR-YEAR COMPARISONS	PASSWORD SECURITY	PRICE	SYSTEM REQUIREMENTS (NONE OF THE PROGRAMS ARE COPY-PROTECTED)
			\$550	II PLUS, IIe, IIc, OR III (IN NATIVE MODE); DOS 3.3
			\$195	II PLUS, IIe, OR IIc; 64K RAM; TWO DISK DRIVES
			BASIC PACKAGE, \$395; OPTIONAL MODULES, \$895	II PLUS, TWO DISK DRIVES OR HARD DISK (HD), DOS 3.3
			DOS 3.3 VERSION: \$395/MODULE; ProDOS VERSION: \$425/MODULE	DOS 3.3: II, II PLUS, OR IIe, 48K RAM; ProDOS: II PLUS, IIe, OR IIc, 64K RAM (II & II PLUS NEED VIDEX VIDEOTERM; IIe NEEDS APPLE 80-COL. CARD)
			\$255, 50% OFF THROUGH 9/30/86	II, II PLUS, IIe, OR IIc; 64K RAM; DOS 3.3
			\$295/MODULE; PAYROLL, \$345	IIe OR IIc; 128K RAM; TWO DISK DRIVES; DOS 3.3
			\$395/MODULE; PAYROLL, \$445; SYSTEM MANAGER (REQUIRED), \$95	IIe OR IIc, 128K RAM, TWO 3.5-INCH DISK DRIVES OR ONE 3.5-INCH DISK DRIVE PLUS 512K RAM OR HD; ProDOS
			ALL FOUR MODULES, \$395; \$250/MODULE; MULTICOMPANY OPTION, \$50	II, II PLUS, OR IIe; 64K RAM; CP/M SOFTCARD; MICROSOFT BASIC
			\$349	II PLUS, IIe, OR IIc; TWO DISK DRIVES, DOS 3.3
			GL WITH PAYABLES, \$325; AR, \$50 (UNSUPPORTED, BEING SOLD OUT); PAYROLL, \$275	II, II PLUS, IIe, OR IIc; 64K RAM; TWO DISK DRIVES (HAS OWN OPERATING SYSTEM)
			\$695/MODULE	IIe WITH 128K RAM OR III WITH 256K RAM; PROFILE, QUARK, CORVUS, OR SPACE COAST SYSTEMS' ICE HD; ProDOS
			\$1995	IIe, TWO DISK DRIVES OR HD, DOS 3.3 OR ProDOS
			\$349.95	II PLUS, IIe, OR IIc; TWO DISK DRIVES; DOS 3.3
			GL, \$149.95; OTHERS, \$99.95	II PLUS, IIe, OR IIc; TWO DISK DRIVES OR HD; DOS 3.3 OR ProDOS
			WHOLE PACKAGE, \$4995; PO VOUCHER (REQUIRES GL), \$1500; GL & REVENUE EXPENDITURE, \$1700; PAYROLL, \$2570	IIe, 128K RAM, CORVUS OR SPACE COAST SYSTEMS' CHALLENGER HD

PORTER

Two financial wizards have packaged their

You used to have to win the lottery or the Irish Sweepstakes before financial planners descended on you in droves. Today, you don't have to be wealthy, win something, or come into an inheritance to plan your finances—all you need is a computer.

If psychoanalysis was the "in" thing to do in the 70s, financial planning is its 80s counterpart. So let's have a session with the Freud of financial planning, Sylvia Porter. The software is called Sylvia Porter's Your Personal Financial Planner; I'll just refer to it as The Planner.

The Planner is a slickly packaged set of financial tools. It includes a transaction manager, budget manager, asset/liability manager, an income and expense reporter, a personal balance sheet, and a financial planner. Weaving these all together is the responsibility of The Main Program. These sections, or modules, of the program form a fairly comprehensive, but not complete, system. Let's look at each one and see what Porter and company have done.

The transaction manager is your personal general ledger. It tracks where your money comes from, where it goes, and why. You give each source or use of funds a two-digit identifier. Once you have established all your accounts (you can modify them at any time), you're ready to start entering transactions.

By simply pulling down a menu (these Mac-like menus appear throughout the program), you can add transactions. This section of the program is modeled after your check register. You enter the same information that you would put into your checkbook, and a little bit more.

With the transaction manager, you can easily reconcile your checkbook,

make automatic payments (such as car, rent, or mortgage payments), write checks, and do just about any kind of analysis imaginable on your payments and deposits. The trick is keeping the system up to date, and that takes a lot more work than writ-

ing a check at the grocery store does. Your checkbook doesn't let you construct your own reports, but the Planner does—a unique feature that deserves applause.

The budget manager is as tenacious as any greedy relative would be in watching your spend your money. The budgets are divided into 14 categories (just about anything I can think of can fit into them), and each category can be divided into ten subcategories.

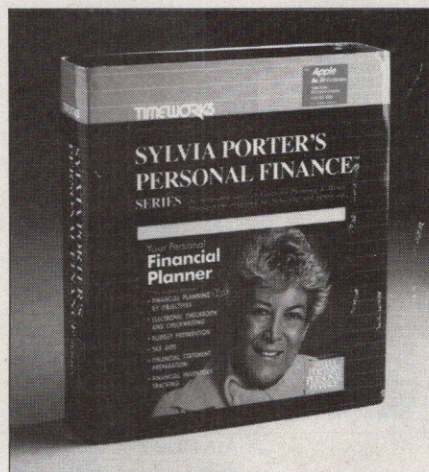
For each category, you can see what percent of the total budget the expense represents, the budget itself, your actual expenses, the percent of actual expenses, and the dollar and percent difference. Great stuff, even if it is depressing to see you've spent more than you wanted to.

If you're really masochistic, or if you've been good and want to reward yourself, you can take any category and look at it as a bar chart right on the screen or look at all the categories on a sideways bar chart measured in percentages of your total budget.

If you're constantly wondering how you're doing vs. the Joneses, then the asset/liability manager is for you. Watch your wealth (assets) and your debts (liabilities) go up and down. As with the transaction manager, you can write your own reports.

If you were a public corporation, you would have to issue a basket full of financial statements, including an income statement and a balance sheet. Welcome, shareholder, to Me (You), Inc. The Planner can produce a personal income statement and balance sheet just for you. These reports are so good that you can probably wow your banker with them.

Up to this point, Your Personal Fi-
(Continued on page 36)



BY KEN LANDIS

SYLVIA PORTER

Psychoanalyze your finances with Sylvia Porter's Your Personal Financial Planner—a slickly packaged set of financial tools from the Freud of financial planning.

VS. TOBIAS

magic in software programs for the Apple II.

Personal money management is like exercise. We know it is good for us, but most of us never get around to actually doing it on a regular basis.

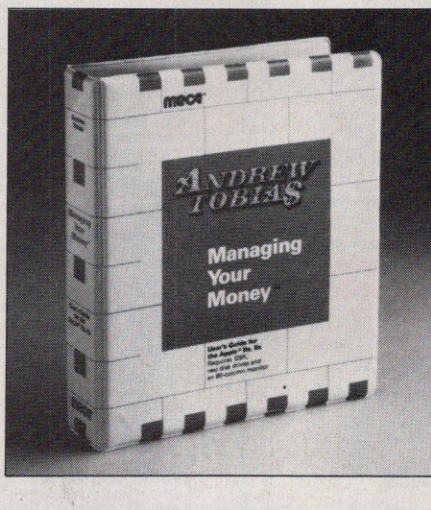
Andrew Tobias/Managing Your Money sets out to prove that anyone can use powerful financial-analysis tools—and have fun doing it.

Managing your Money is an integrated set of programs that help home-computer users perform essential financial planning and record keeping. Taken together, the programs offer an impressive array of tools. Unlike many financial and investment packages, MYM is for people who don't know a whole lot about either financial analysis or computers.

Andrew Tobias, author of *The Only Investment Guide You'll Ever Need* and other books, has earned a reputation for the clarity and good humor of his financial writing. Miraculously, Tobias, who is not a programmer, and MECA (Micro Education Corporation of America) have teamed up to create software that delights, educates, and also gets the job done.

Managing your Money consists of these nine integrated programs: (1) A tutorial that demonstrates all the commands and data-entry techniques that you need to use the program. (2) A reminder pad to keep track of your calendar. (3) Budget and Checkbook, which keeps watch on your personal cash flow. If you are really adventurous, the software can actually write and address your monthly checks. MYM provides the names of three check vendors that will print customized checks for you that are compatible with the checking account at your bank. (4) Tax Estimator, modeled after a 1040 form, which can handle schedules A, B, C, D, E, G, and W, as

well as the Alternative Minimum Tax. (5) Insurance Estimator, which actually makes insurance fun. Who among us can resist the temptation to ask our Apple to compute our life expectancy? (6) Financial Calculator, which answers mind-boggling questions



BY MICHAEL SHAPIRO

ANDREW TOBIAS

Andrew Tobias carries on his reputation for clarity and humor in Managing Your Money, financial software that delights, educates, and also gets the job done.

clearly. It can quickly calculate your mortgage or loan payments, the yield at maturity of a bond, or what your IRA will be worth in 20 years. Powerful subsections give you answers about real estate, tax shelters, and loan analysis. (7) Portfolio Manager, which keeps track of all of your assets and also allows for fast analysis of portfolios to help you minimize the effects of taxation and make better investment decisions. (8) Net Worth, which uses information from the other programs to compile your up-to-date, personal balance sheet. (9) And, finally, Housekeeping, which provides the utilities to quickly format and copy disks and match up to your printer.

Managing Your Money is very easy to learn and use. The program is menu-driven, and each screen is not only well designed and thoroughly prompted but also has its own help screen. The help screens and the manual were written by Andrew Tobias and so are concise, clear, and often funny.

Another nice thing about this package is that it comes loaded with data from the "Sample"

family. The folks at MECA know that you will learn faster by seeing what a program can do than by reading about it in the abstract. Detailed instructions tell you how to delete this data once you've become familiar with the software.

Managing Your Money was originally created for PC-DOS machines, and the Apple version is a translation. Selecting menu choices requires that you press both the open apple (or closed apple) and a number key—a minor inconvenience.

The only real drawback is the large number of disks that you need to use
(Continued on page 38)

BACK UP

ESSENTIAL DATA DUPLICATOR

Back up your copy-protected disks with **Essential Data Duplicator 4 PLUS**. ■ **EDD 4 PLUS** is new technology, not just "another" copy program. The **EDD 4 PLUS** program uses a specially designed hardware card which works with your disk drives to back up disks by accurately copying the bits of data from each track. Don't be fooled... no other copy-program/system for Apples can do this! ■ In addition to backing up disks, **EDD 4 PLUS** includes several **useful** utilities such as examining disk drives, certifying disks, displaying drive speed rpm's, plus more! ■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at \$129.95 (duodisk/uni-disk 5.25 owners must add \$15 for a special cable adapter). Add \$5.00 (\$8.00 foreign) ship / handling

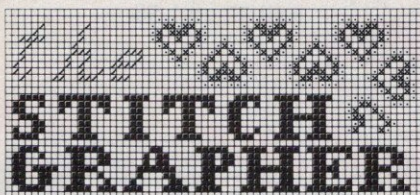
when ordering direct. ■ A standard **EDD 4** version which doesn't include any hardware is available, and can be used on Apple IIc and III (using emulations mode) and is priced at \$79.95. Add \$3.00 (\$6.00 foreign) ship/handling when ordering direct. ■ If you own an earlier version, send us your **EDD** disk and deduct \$50 from your order. ■ Ask for **EDD 4 PLUS** at your local computer store, or order direct. Mastercard and Visa accepted. All orders must be prepaid. ■ In addition, registered owners may purchase **EDD's** printed 6502 SOURCE CODE listing for educational purposes.

UTILICO MICROWARE

3777 SOLANO AVE., SUITE 352
NAPA, CA 94558 / (707) 257-2420

WARNING: EDD is sold for making archival copies only.

CIRCLE 190 ON READER SERVICE CARD



DESIGN NEEDLECRAFT CHARTS

for Counted-Cross-Stitch, Needlepoint, Latch Hook, Knitting, etc. using a revolutionary new computer program--

The Stitch Grapher.

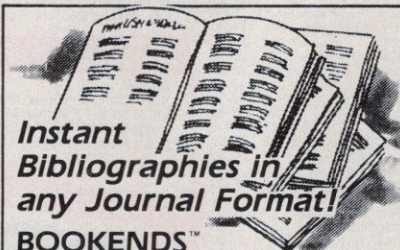
Graphs as large as 240 X 400 stitches with up to 30 symbols may be generated and printed with any of 3 grid styles along with a color chart. A unique windowing feature allows the designer to move, copy, rotate, mirror image, save and re-use previous designs.

The Stitch Grapher is compatible with the 64K Apple II series microcomputers. Disk plus 90-page spiral bound manual--\$89.95. Dealer inquiries welcome. To place an order, or for complete information contact

COMPUCRAFTS

RFD 2 Box 216, Lincoln, MA 01773
(617) 259-0409

Supports the Imagewriter and Scribe printers directly (depicted grid style is available for these printers only). Other dot matrix printers require graphics capable interface card or separate support software.



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) 258-5666

CIRCLE 165 ON READER SERVICE CARD

SYLVIA PORTER

(Continued from page 32)

Financial Planner hasn't broken any records—it simply does what many other programs have done before it, except it does it in an integrated fashion. It's nothing more than a personal general-ledger and accounts-payable system. Although nothing is wrong with that, that's not the reason you would be interested in this program. You would buy it to plan your finances, an area in which we expect Sylvia Porter to excel. She's let us down, though. The Financial Planner module could and should be renamed the Financial Historian. It tells you a lot about the past and the present, but it doesn't help you plan for the future—that must be somebody else's job.

You tell your Apple a lot about

The Planner can produce a personal income statement and balance sheet just for you.

you, and it tells you the same thing back, except that it formats it nicely. Nowhere does the program tell you what kind of insurance you should have, what kinds of investments you should consider, what the risks are, any tax implications, and so on.

When it comes to this program, Sylvia Porter and Timeworks should hang a new shingle outside their offices and change the name of the software. Instead of Sylvia Porter's Your Personal Financial Planner, the program should be Sylvia Porter's Personal Financial Bookkeeper. It's the wrong program for the right job. +

Ken Landis has been a consultant since 1978. He has published more than 100 articles on the use of computers as business or personal tools.

PRODUCT INFORMATION

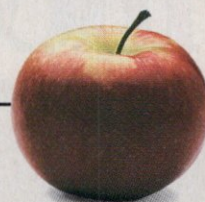
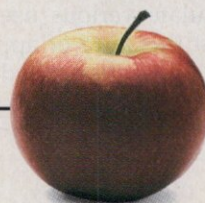
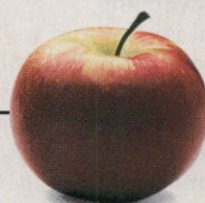
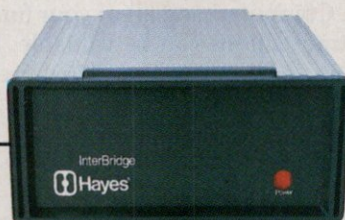
Sylvia Porter's Your Personal Financial Planner

Timeworks, Inc.
444 Lake Cook Road
Deerfield, IL 60015
(312) 948-9200

List Price: \$49.95

Requires: Apple IIe or IIc, 128K RAM
CIRCLE 387 ON READER SERVICE CARD

AppleTalk™ networks communicate better after a little bridgework.



© 1986 Hayes Microcomputer Products, Inc.

It took Hayes, the PC communications leader, to bridge the gap between AppleTalk networks.

Introducing Hayes InterBridge™. There's nothing like it!

Now one AppleTalk network can communicate with another. Across the hall. Across town. Or across the country.

It's a local bridge, that lets you share information with other AppleTalk networks in your company. Or, if one network becomes overloaded, InterBridge allows you to split that network and split the workload.

It's a remote bridge, that lets you share information with AppleTalk networks everywhere. All it takes is one InterBridge and one Hayes Smartmodem 2400™ on each end.

And it permits casual access to expensive peripherals by both local and remote AppleTalk networks. InterBridge allows you to access a LaserWriter™ file servers and gateways on another network,

Hayes®

Say yes to the future

CIRCLE 296 ON READER SERVICE CARD

even if they're thousands of miles away.

This feature alone can save thousands of dollars you'd otherwise spend on dedicated peripherals for each of your AppleTalk networks!

No matter how you look at it, or how you use it, Hayes InterBridge is quite a bargain. Now you can get a lot of fancy bridgework, without a fancy price.

See your authorized Hayes dealer for details. Or contact Hayes at 404/441-1617.

Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, Georgia 30092.

ANDREW TOBIAS

(Continued from page 33)

the program, a problem that results from the low capacity of the Apple IIe disk drives, rather than the program itself. The program comes on both sides of three floppy disks. Following the instructions, I made copies on six floppy disks. I also created four storage disks: for budgets, portfolio, main data, and archived budget data. That was ten disks before I could even get started!

Once you're into the program, disk swapping goes smoothly. For those lucky enough to have a UniDisk 3.5 drive, a 3.5-inch disk comes in the package. In fact, if you have two UniDisks, you can run the program without any disk swapping.

The manual is clear and well written and provides a lot of helpful details on special areas such as dealing with mergers, short selling, and mutual-fund investments. I think, however, that beginners especially would appreciate more details that would serve to stimulate various uses. Tobias offers just this kind of approach in a quarterly newsletter called *Managing Your Money Better*, one issue of

Managing Your Money provides good value to anyone who has to make financial choices.

which is bound into the manual. To continue to receive the newsletter, though, you have to spend \$39.95 for the yearly customer-service plan. This fee also entitles you to annual updates of the software, which, the publisher says, is continuously being improved and updated to reflect the most recent tax laws.

The Bottom Line

Managing Your Money provides good value to anyone who has to make financial choices. The real question here is not the capability of the software, but the discipline of the user. Computerizing all of your financial transactions can be valuable, but you must be aware that it requires a commitment. To do it right, you should start using the program at the first of the year and record transactions continuously. Although the time commitment of doing so is prob-

ably only an hour or two a week, you have to do it *every* week. If you don't, your data will be valueless.

If you are not this serious, don't despair; you can use this package just for fun. For example, Managing Your Money is glad to answer questions such as this one: If on the day Christ was born, I had invested 1 penny at 2% per year interest, what would my investment be worth today. Answer: \$117 quadrillion dollars. +

Mike Shapiro is a marketing consultant specializing in the high-tech and financial-services markets. He is the author of Smart Investing Using Your Personal Computer (Macmillan, 1986).

PRODUCT INFORMATION

Andrew Tobias/Managing Your Money

MECA

MECA

285 Riverside Avenue

Westport, CT 06880

(203) 222-1000

List Price: \$199

Requires: Apple IIe or IIc; 128K RAM; 80-column card; two disk drives

CIRCLE 388 ON READER SERVICE CARD

Prince

The full-featured Color-Printing Program



In May A+ Magazine said...

"This package has so many printing options that we can't cover them all in the space we have here. With Prince's ribbons and "craft-kit," you can print hi-res and double-hi-res screens, in monochrome or full color, with or without a color printer. (If you don't have a color printer, you'll have to change ribbons for each color pass.) In addition to conventional screen dumps, you can print iron-on transfers (the Transfer option flops your image), labels (the Label option adjusts the printout to fit on 3.5-inch-wide label stock), and greeting cards (the left half of the image appears on the front of the card, and the right half appears inside the card when it's opened).

Using Prince, you can edit your images (scroll, crop, erase, and add text) and then choose from a variety of printing options. The Expert Print mode has 18 optional printing parameters, including margins, size, placement, rotation, density, and so on.

Prince is, indeed, a prince of a printing program."

AVAILABLE AT BETTER SOFTWARE STORES NATIONWIDE.
For direct orders with Visa or Master Card call (616) 957-3036



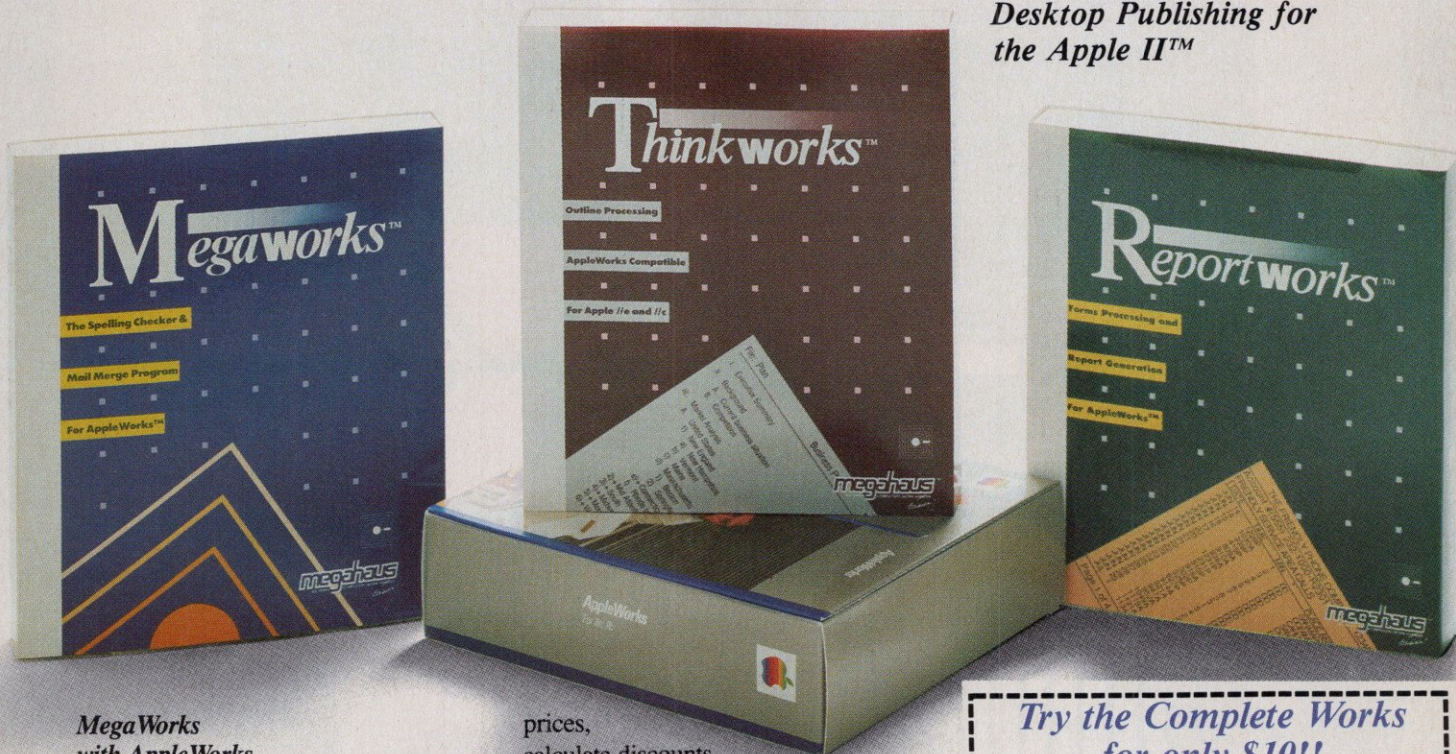
1001 Medical Drive, S.E.
Grand Rapids, MI 49506

Order Prince for color printers by enclosing \$49.95 plus \$3.00 shipping. To order Prince with ribbons for black & white printers specify Epson 80 or Image-Writer style cartridge and enclose \$79.95 plus \$3.50 shipping. Over 20 popular printers supported. FREE Craft Kit included with both versions. Call now or write for your free catalog.

CIRCLE 310 ON READER SERVICE CARD

The Complete Works With AppleWorks™

Coming Soon — PageWorks™
Desktop Publishing for
the Apple II™



MegaWorks with AppleWorks.

MegaWorks is the Mail Merge and Spelling correction program designed exclusively for AppleWorks. MegaWorks' mail merge lets you combine information from AppleWorks database files with word processing documents to print personalized form letters. MegaWorks' spelling checker corrects misspelled words in documents and allows you to customize its 40,000 word dictionary with 10,000 more words of your own. Both mail merge and spelling correction maintain word wrapping and pagination of documents.

ReportWorks with AppleWorks.

ReportWorks is the powerful report generator that uses your AppleWorks files to print lists, fill out forms and analyze your data. In fact, ReportWorks allows you to produce just about any kind of report in any kind of format. And ReportWorks can add tax, look up

prices, calculate discounts, enter client information automatically and much, much more. Now with AppleWorks and ReportWorks you can:

- Fill out any form, including purchase orders, invoices and more
- Calculate and print estimates and proposals
- Analyze and summarize lists and other data

NOW, Think Works with AppleWorks.

ThinkWorks is the powerful stand alone outline for Apple II, that also works with AppleWorks. Use ThinkWorks to organize any kind of information: lesson plans, reports, lists and proposals.

ThinkWorks is the only outline processor that allows you to combine outlines, and to include an outline inside an AppleWorks word processing document.

Try the Complete Works for only \$10!!

...and receive a coupon worth up to
\$176.00 & your \$10 back!

Call Toll Free • 7 days a week
& say... "I want DemoWorks"*

Credit Card Orders Only

(Sorry, No. C.O.D. Orders)

1-800-345-8112

in PA 1-800-662-2444

For Technical Questions Call: (619) 450-1230
To order by mail, send this coupon to the
address below. Attn: Dept. DWA-GOF

Name _____

Address _____

City/State/Zip _____

Phone (____) _____

\$10 Check Enclosed M/C Visa Exp. _____

*Contains interactive demos of all 3 programs (seven disks) and
requires an Apple IIc or Enhanced IIc. **A**

megahauss™
WE MAKE COMPUTERS WORK HARDER.

Easier!

5703 Oberlin Drive
San Diego, CA 92121
(619) 450-1230

$2 + 2 = 4$

*Computer games that
help your child
learn*

Early MATH

Math. The very word sends chills down the spines of all too many children. Though the study of mathematics is one of the oldest branches of knowledge, it still suffers from a severe image problem. Math is often regarded as a "difficult" subject or a necessary evil, and that is really too bad, for mathematics is also a key that can open many doors. Without it, access to many careers and fields of study is severely limited. As adults, we know that mathematical skills are increasingly necessary in today's world, not only for solving problems, but also for organizing and dealing with the torrent of information we receive.

Children need many different kinds of mathematical experiences to build a strong conceptual foundation for their future studies. They need to learn, and they need to practice what they learn. Computers can be exciting and useful tools for providing some of those early experiences.

Computers have been used in mathematics education since the early 70s. The ability of a computer to

*Team up your Apple
with the right
math program,
and your computer
may very well
become your
child's favorite
teacher.*

store, retrieve, and present information makes it a logical addition to the teaching/learning process. With their offerings of sound, color, and animated graphics, computers can make mathematics both comprehensible and enjoyable. They can even put your child in control of his or her own learning experiences.

It would be misleading to claim

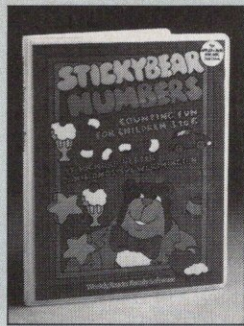
that a computer is the answer to all of your child's mathematical needs. But, with the right software, computers can provide a partial solution and an engaging one. The problem, of course, is finding the right software.

Many of us chose Apple computers because we were fully aware of the large number of educational programs available for these machines. But wealth creates its own problems. We have to choose, and the choices are many. Educational software has improved steadily in recent years, but it is still a mixed bag.

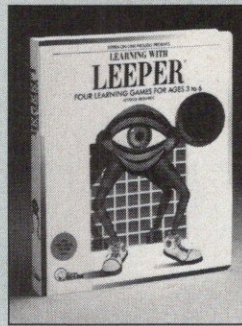
Entertaining, imaginative, and educationally sound programs crop up with satisfying regularity, but those other programs, the ones educators refer to as "swillware," are out there, too. Yet, within this wide range of possibilities, parents should be able to find worthwhile programs for children at any stage of mathematical learning. The following reviews are offered with that goal in mind.

In selecting math software for young children, parents should look

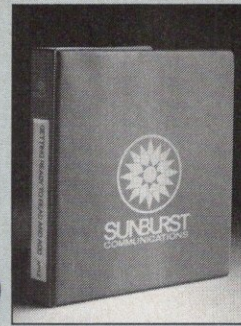
1



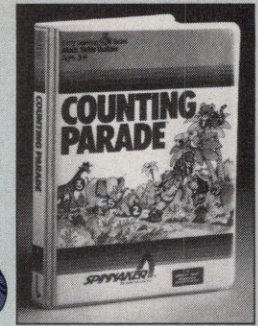
2



3



4



PROGRAM	STICKYBEAR NUMBERS	LEARNING WITH LEEPER	GETTING READY TO READ AND ADD	COUNTING PARADE
COMPANY	Field Publications/ Weekly Reader Family Software 245 Long Hill Road Middletown, CT 06457 (203) 638-2400	Sierra On-Line P.O. Box 485 Coarsegold, CA 93614 (209) 683-6858	Sunburst Communications 39 Washington Avenue Pleasantville, NY 10570 (800) 431-1934	Spinnaker Software One Kendall Square Cambridge, MA 02139 (617) 494-1200
PRICE	\$39.95	\$29.95	\$59 (teacher's version) \$44.95 (home version)	\$29.95
APPLE	II+, IIe, or IIc; 48K RAM;	II+, IIe, or IIc; 48K RAM; joystick required	II+, IIe, or IIc; 48K RAM	II+, IIe, or IIc; 48K RAM; joystick or mouse required
AGE	3-6	3-6	2½-6	3-6
SKILLS TAUGHT	Counting, number recognition, and simple addition and subtraction	Counting, number recognition, and visual discrimination	Counting, number recognition, and matching	Counting, number recognition, and grouping skills
	Circle No. 420	Circle No. 421	Circle No. 422	Circle No. 423

for the same careful construction, appealing format, and ease of use that typifies all of the better programs designed for the young. Educational programs, however, need something more. To be of real value, they should offer mathematically sound experiences in a meaningful and understandable form.

Unfortunately, what seems obvious and easily understandable to an adult is often confusing to a child. Parents have to ask themselves: "What mathematical concepts and skills does my child have right now?" All programs assume some prior exposure and learning. For example, some early-learning packages give instructions or ask questions on the screen. Others use symbols, such as +, -, or =. In these cases, the program assumes that a child knows how to read or knows the meaning of these symbols.

It would be helpful if more developers could list the concepts and skills that are needed to use a particular program on their packaging or in the accompanying literature. Unfortunately, that kind of specific infor-

mation is often lacking.

Recommended age levels help, but they can provide only a rough estimation of the ages at which children can use and enjoy a particular program. Each child is different and learns at an individual pace. The best program matches the needs and abilities of the user. It fits a child's current ability level and proceeds from there—step by logical step.

1 STICKYBEAR NUMBERS

I'll begin by looking at Stickybear Numbers, a colorful introduction to counting and number recognition. This program has been around for some time. Yet, when it comes to creating a superb learning experience, Stickybear Numbers is still hard to beat.

Even the smallest child can approach this program with confidence. There is no menu to read, no tutorial, and no lengthy introduction. Pressing any number key starts the action, and the child player is in control all the way. There are no wrong answers, only a discovery process in which

children are free to observe, experiment, and explore to their hearts' content.

Many counting programs force children to begin with a specific number and work their way through a predetermined sequence. Stickybear Numbers allows children to choose their own sequence. For example, if the child presses the number 6, six red cars roll into view, one by one. A large, high-resolution 6 appears in a corner of the display. Since the cars arrive separately, youngsters have plenty of time to count each car as it rolls to a stop.

Now players face a decision: should they press the 6 again or try a different number? If a player presses 6 again, all the cars disappear, and six tropical fish swim into view.

By this point in the game, most children are thoroughly intrigued. They'll press the same key again and again. Each time, they are rewarded with an entirely new set of six objects. The variety seems endless. Sailboats, sodas, and snowmen appear, as do trains, planes, and planets—all helping to illustrate the concept that num-

5



EARLY GAMES FOR YOUNG CHILDREN

Springboard Software, Inc.
7808 CreekrIDGE Circle
Minneapolis, MN 55435
(612) 944-3915

\$35

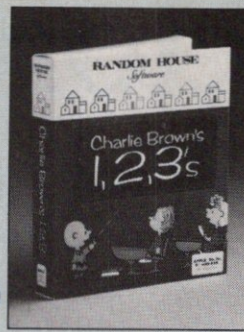
II, II+, IIe, or IIc

2½-6

Counting, number recognition, visual discrimination, matching, addition, and subtraction

Circle No. 424

6



CHARLIE BROWN'S 1,2,3'S

Random House Software
201 East 50th Street
New York, NY 10022
(800) 638-6460
In MD (800) 492-0782

\$39.95

II+, IIe, or IIc;
64K RAM

3-7

Counting and number recognition

Circle No. 425

7



LET'S GO FISHING

Learning Technologies, Inc.
4255 LBJ Freeway, Suite 131
Dallas, TX 75244
(214) 991-4958

\$19.95

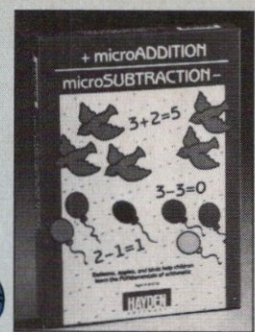
II, II+, IIe, or IIc;
48K RAM

4-8

Counting, number recognition, and visual discrimination

Circle No. 426

8



MICROADDITION/
MICROSUBTRACTION

Hayden Software
Div. of Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1200

\$19.95 each

II+ or IIe;
48K RAM

4-10

Counting, number recognition, and addition or subtraction

Circle No. 427

2

LEARNING WITH LEEPER

Learning with Leeper is a collection of award-winning games that help children develop basic skills. I will limit my discussion to Balloon Pop and Dog Count, since they focus on early number skills.

Balloon Pop is a matching game with six levels of difficulty. As the game begins, a display shape appears at the upper right of the screen. More shapes appear on the bottom of the screen. As a colorful hot-air balloon floats into view, the child uses a joystick to maneuver the balloon over one of the shapes below. Then the player presses the joystick's fire button to "pick up" the shape. The child then moves that shape over to the display to see if the two match. If the shapes match, a tune plays and the game begins again. If the shapes do not match, the child simply tries again.

This is a fun game and one that encourages sharp attention to detail as the figures become increasingly complex. In higher levels, differences be-

tween figures are so slight that a sophisticated system of elimination is required to achieve a correct match. Balloon Pop can be a valuable precursor to letter- and number-recognition skills since it prepares youngsters for the visual discrimination those skills require.

Dog Count encourages toddlers to practice number recognition and counting skills in the guise of a lively dog-feeding game. Hungry dogs sit on the left on the screen patiently awaiting their dinner. An empty bowl rests in front of each dog. On the right are rows of bones, each preceded by a number. Using the joystick, children move Leeper up the rows of bones until they reach the row that has as many bones as there are bowls. They make a choice and press the fire button. A bone appears in each dog's dish, and the dogs wag their tail in appreciation.

Error handling is excellent. If the player chooses a row that contains too many bones, the dogs are still fed, but extra bowls appear to hold the leftover bones. If too few have been chosen, some of the dogs are fed, and

ber is independent of shape, size, color, or movement.

Eventually, as they continue to explore, children will discover the space bar. Perhaps they've been watching four penguins waddle across the screen. Then, if they press the space bar, one penguin disappears! The numeral 4 changes to 3, showing that only three penguins are left. If the player presses the space bar again, another penguin disappears, and so on until no penguins are left and only a big 0 remains on the screen. It would be difficult to imagine a clearer and better presentation of what subtraction is all about.

But there is more to come. That zero is still on display, and it's tempting to try the space bar again. Voila! One penguin appears, along with the numeral 1. Up and down, from 0 to 9 and back again, fully entertaining and illustrated all the way, Stickybear Numbers makes learning fun.

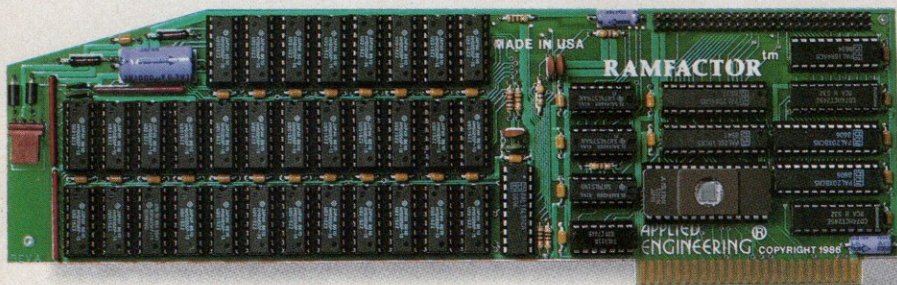
Stickybear Numbers comes packaged with stickers, a full-color poster, and a hardcover book. Suggestions for additional learning fun are included in the excellent parents' guide.

RamFactor™

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

That's right! Now Applied Engineering offers you a choice. While RamWorks is the dear winner for the auxiliary slot in a IIe, RamFactor is the standard for slots 1 through 7. Now anyone with an Apple II+, Franklin, or Apple IIe preferring to use slots 1 through 7 can now enjoy the speed and performance that until now was only available with RamWorks.

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



Very Compatible

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

AppleWorks Power

There are other slot 1-7 cards that give AppleWorks a larger desktop, but that's the end of their story. But RamFactor is the only slot 1-7 card that increases AppleWorks internal memory limits, increasing the maximum number of records in the database and lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 5¼", 3½", and hard disks. All this performance is available to anyone with an Apple IIe or II+ with an 80

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

True 65C816 16 Bit Power

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

Powerful Program Switcher

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

Quality and Support of the Industry Leader

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

Features:

- Up to 16 meg total memory, 256K to 1 meg on main board. Up to 16 meg with additional memory on piggyback card.
- Fully Apple II Memory Expansion compatible
- Compatible with Apple IIe, II+ and Franklin
- Battery back-up option allows you to turn on your Apple and run your favorite programs in less than 1 second!
- Automatically recognized by ProDos, DOS 3.3, Pascal and CP/M
- Built-in RamDrive™ software (a true RAM disk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Built-in linear addressing 16 bit co-processor port
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or later
- Allows Apple II+ and IIe to run your AppleWorks without buying additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDos clock
- Fits any I/O slot except slot 3
- Fully socketed and user upgradeable
- Much, much more

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

Order RamFactor today . . . with 15 day money back guarantee and our "no hassle" five year warranty. Call 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 if outside USA.

AE Applied Engineering™
The Apple enhancement experts

(214) 241-6060

P.O. Box 798, Carrollton, TX 75006

Buying Software for Preschoolers

Children's software choices are often determined by how much they like the picture on the box. But, as parents know, attractive packaging doesn't guarantee anything. The real value of any program is determined by what's inside the box. Since choices do have to be made, here are some guidelines to make the selection process easier.

Ease of Use: Can your child use the program easily, with a minimum of adult intervention? For the toddler, programs should be so easy to use that they are virtually self-explanatory. Multikey input, written explanations, and on-screen instructions are fine for older children, but they can prove frustrating for a preschooler. A program that is easy to use invites a child in and builds confidence from the beginning.

Appeal: A program may be bursting with educational value but, unless it is used, that disk might as well be blank. An appealing format commands interest and makes children want to spend time with the program.

Clarity: Concepts should be presented logically and clearly, with a minimum of on-screen clutter. "Busy" graphics may look lively to

adults, but young children often find them distracting and even confusing.

Control: Can your child control the program, or does the program control the child? Good software allows children to be in charge and encourages individual decisions.

Variety: Variety keeps interest high. If a program follows one rigidly determined sequence, without any possibility of variation, its appeal is likely to wear thin. Children like to explore and test "what if" hypotheses. Good programs anticipate this desire and plan accordingly.

Challenge: Clever graphics, intriguing sounds, and child-controlled action increase motivation, but the best programs also offer challenge in just the right proportions. Too much challenge is frustrating and can make a child feel incompetent. Too little leads to boredom. Confidence comes from dealing with material that is somewhat familiar—with just that added dash of challenge to keep a child reaching out for more.

Speed: Programs that move too quickly are frustrating, especially for children who are new to computing. On the other hand, programs that poke along will try the patience of

any child. Long waiting periods while a program loads or screens that sit around too long after the child has made a correct response will soon have that child looking around for something better to do.

Educational Objectives: Does the program do what it promises to do? Does it present new information or reinforce existing skills? Both objectives are valid, but practice should come only after a child understands basic concepts.

Finally, does the program's format support its educational goals, or does it detract from them? If a program disguises its educational content too well, the result can be a fascinating game, but its educational value may be lessened considerably.

Error Handling: How are correct answers rewarded: Preschoolers need positive learning experiences, and they derive a great deal of pleasure from mastering a program. Extrinsic rewards, such as smiling faces or musical fanfares, can be pleasing, as long as they are not overdone. Programs that are intolerant of normal exploration, that reward honest effort with disagreeable noises or discouraging feedback, should be avoided.

the remaining dogs face empty bowls. The feedback is visual and dramatic. What better way to teach concepts such as "too many" or "not enough"?

This program is ideal for children who are just learning to count. The format is clear and presents both one-to-one correspondence and numeral recognition. Learning with Leeper is bright and entertaining, and it offers sufficient variety to keep children happily absorbed.

3

GETTING READY TO READ AND ADD

Getting Ready to Read and Add is a carefully designed program that features, along with four prereading activities, two math games that can help children with matching, number recognition, and simple counting. The menu does require reading ability but, once players have selected a game, they can use it easily.

Moon Math presents two hills with a tower in between. A number ap-

pears over one hill. One by one, other numbers appear over the second hill. When the two numbers rising over both hills match, the player simply presses any key, and the tower emits a laser beam that zaps both numerals. Children who are still a bit shaky in recognizing numerals will find this activity helpful. Frequently, children reverse numerals or confuse similar numerals, such as 6 and 9. Moon Math should be an effective remedy for these difficulties.

Number Check also involves matching, but here the player must match a numeral to the number of squares on a die. Counting is required, but the pace is well suited to the slow counting skills of a beginner.

While Getting Ready to Read and Add may lack some of the pizzazz of other early-learning programs, its carefully structured format makes it a good choice for parents who are serious about teaching number skills in a logical, sequential fashion. Ease of use is commendable, and the docu-

mentation is excellent. Best yet, the Change option allows parents to tailor each program to their child's particular needs.

4

COUNTING PARADE

Counting Parade is designed for children ages 3 to 6. Excellent, full-color graphics make this program a real eye-catcher. Though easy to use and entertaining, Counting Parade is best for children who are already able to match objects to a corresponding numeral.

Two levels of difficulty are offered. In level 1, a menu of animals appears. The player chooses animals for the parade with the help of the joystick or mouse. As soon as the player has chosen the animals, the game screen appears.

A numeral, from 1 to 9, appears at the top of the screen. Below, green plants dot the landscape. The number of plants matches the number at the top. Music plays and animals march,

left to right, across the bottom of the screen. The child's task is to pick up an animal (giraffe, bunny, tiger, and so on) and place it on one of the plants. The player presses a button on the joystick or mouse to pick up and release each animal. A colorful toucan counts along as each animal is deposited. Once the required number has been reached, the toucan dances happily, and a new parade begins.

Level 2 is similar, but here the animals appear in groups, separated by a butterfly. The player must choose the group that matches a number at the top of the screen.

Counting Parade has a lot of visual appeal, and the pace is just right for preschoolers. The only disappointment is that so few levels are available. Once children have mastered the program, it provides no further challenge. Yet it can provide the extra practice youngsters need when their counting skills are new.

5

EARLY GAMES FOR YOUNG CHILDREN

Early Games features nine learning activities designed to teach math and language skills to children 2½ to 6 years old. This program is easy to

use and offers the variety a program needs to appeal to children at varying levels of expertise.

Compare Shapes offers a simple matching activity. Several shapes appear on the screen, and the child must choose the one that is different from all the rest.

Match Numbers encourages players to learn the position of each number on the keyboard while attempting to match the numeral shown on the screen. Even children too young to read numerals can participate in this activity. For them, it becomes another matching game. If parents join in and say the names of numerals as they appear, numeral recognition can then be added to the list of a child's accomplishments.

Count presents a series of blocks. The task is to count the blocks and press the corresponding number key. An easy task—if a youngster can count and realize that three blocks can also be represented by the numeral 3. As soon as the player presses the correct key, that number appears on the screen. An incorrect response causes the blocks to change color, and the child is encouraged to try again.

Add presents simple addition with

blocks. Once children understand that the object is to combine blocks and what the symbols + and = mean, they should be able to go it alone. Beginners will find the blocks a distinct help. They can count all the blocks in order to make sure that 2 + 1 does indeed add up to 3.

Subtract has the same format as the addition game, but the concept presented is, of course, subtraction. Subtraction is somewhat more difficult than addition for preschoolers, but with a bit of help, most children will do just fine.

A lot of care and thought has gone into Early Games. The documentation is clear and advises parents to keep in mind that the suggested age range is not a rigid timetable. Children develop at different rates and, with the right kind of assistance, they'll enjoy testing their new skills.

6

CHARLIE BROWN'S 1,2,3'S

It's difficult to imagine a child who won't be enchanted by the antics of Charlie Brown and his friends. The graphics for this program are excellent, and lively animation adds to the fun. Youngsters who play-tested this

The best AppleWorks-Compatible spelling checker just got better! Introducing the improved... Sensible Speller™

The new ProDOS Sensible Speller supports the Apple II Memory Expansion Card and is now supplied on the UniDisk 3.5, as well as on the 5¼" disk. Its huge vocabulary—80,000 words in all—is derived from the official Random House Dictionary®.

Used in conjunction with a memory expansion card, the improved Sensible Speller runs up to three times faster than before. You can also load everything—program and dictionaries—on to a hard disk drive.

However, Sensible Speller is still just as easy to use. It shows you misspellings in context, suggests the correct spelling, and allows immediate replacement of misspelled words with correct ones.

Chances are you are already equipped to use Sensible Speller because it works with AppleWorks and virtually all other Apple word processors.* It runs on all Apple IIc, IIe and II+ computers and is available at your dealer for \$125.

Black's Law Dictionary™, **Sensible Technical Dictionary™** and **Stedman's Medical Dictionary™** are available separately on diskette for use with the Sensible Speller. Each is \$39.95. A new utility now allows you to merge the dictionaries together.

*Sensible Speller ProDOS works with the following word processors: AppleWorks, AppleWriter ProDOS version (Apple Computer, Inc.), Format II Enhanced ProDOS (Kensington Microware), Mouse Write-text files (Roger Wagner Publishing), MouseWord (International Solutions), PFS:WRITE ProDOS (Software Publishing, Inc.), Word-Talk (Computer Aids) and WordPerfect (SSI Software), Word Juggler (Quark Inc.), Writing Wizard (Scarborough Systems), Zardax ProDOS (Computer Solutions), and others. Owners of trademarks indicated in parentheses: Black's Law Dictionary (West Publishing, Inc.), Stedman's Medical Dictionary (Waverly Press, Inc.).



Sensible Software, Inc.

210 S. Woodward, Suite 229, Birmingham, MI 48011
(313) 258-5566

CIRCLE 106 ON READER SERVICE CARD



COMPATIBLE WITH:

- Memory Expansion Cards
- UniDisk 3.5 & 5¼" Drives
- Hard Disk Drives
- AppleWorks and Most ProDOS Word Processors
- Catalyst

HARDWARE

- CCS
 \$ 99. 7711 Or 7710-A Serial Card
CENTRAL POINT
 79. Wild Card II Copier
C H PRODUCTS (HAYES)
 29. Mach II Joystick (II+ Or IIe)
 37. Mach III Joystick (II+ Or IIe)
INTERFACE MODULES
 39. 64K & 80 Column Card (IIe)
 49. Floppy Drive Controller (II+, IIe)
 155. Full Ht 143K Floppy Drive (IIe)
 155. Half Ht 143K Floppy Drive (IIe)
 155. Half Ht 143K Floppy Drive (IIc)
KENSINGTON
 69. System Saver Fan
KOALA
 75. Touch Tablet
ORANGE MICRO
 49. Hot Link Serial To Parallel Cable (IIc)
 79. Grappler Plus or Grappler C
 135. Buffered Grappler Plus
QUARK
 995. 10 MB Hard Disk (IIe, IIc, Or Mac)
SMT
 39. Parallel Interface And Cable (II+, IIe)
TG PRODUCTS
 19. Joystick (IIe, IIc)
TITAN
 155. 128K RAM Card
 229. Accelerator IIe
TRACKHOUSE
 79. Numeric Keypad (IIe)
VIDEX
 179. Videoterm 80 Column Card
 189. Ultraterm 132 Column Card
 25. Soft Video Switch

DISKETTES

- CONROY-LAPOINTE**
 \$ 13. 10 ea. 5 1/4" SS/SD (Apple)
 99. 100 ea. 5 1/4" SS/DD (Apple)
 25. 10 ea. 3 1/2" SS/DD (Mac)
 115. 50 ea. 3 1/2" SS/DD (Mac)
 29. 10 ea. 3 1/2" DS/DD (Mac)
 115. 50 ea. 3 1/2" DS/DD (Mac)
 259. 100 ea. 3 1/2" DS/DD (Mac)
MAXELL
 13. 10 ea. 5 1/4" SS/DD (Apple)
 32. 10 ea. 3 1/2" DS/DD (Mac)

MONITORS

- AMDEK**
 \$119. 300G 12" Green Composite
 129. 300A 12" Amber Composite
ZENITH
 109. 1220 Amber Composite
 109. 1230 Green Composite
 6. RCA Monitor Cable

PRINTERS

- EPSON**
 \$289. AP 80 75 cps, 15 NLQ
 389. FX 85 160 cps, 32 NLQ
STAR MICRO
 289. NX 10 120 cps, 25 NLQ
 379. SD 10 160 cps, 40 NLQ
PANASONIC
 269. P 1091 120 cps
SMT
 39. Parallel Card With Cable
CENTRAL POINT
 19. Laser 128 Parallel Printer Cable

MODEMS

- CONROY-LAPOINTE**
 \$195. 1200 External
 389. 2400 External

SURGE SUPPRESSORS

- CURTIS**
 \$ 29. Diamond 6 Outlets
 35. Emerald 6 Outlets, 6' Cord
 46. Sapphire 3 Outlets, RFI Filter
 55. Ruby 6 Outlets, RFI Filter, Cord

UTILITY SOFTWARE

- BORLAND**
 \$ 42. Turbo Pascal (Requires CP/M)
 36. Turbo Toolbox
CENTRAL POINT
 23. Copy II Plus
DATA TRANSFORMS
 63. Fontrix
FUNK
 37. Sideways (DOS 3.3 Or ProDOS)
MICROSTUF
 109. Crosstalk (Requires CP/M)
OMEGA
 75. Locksmith
TERRAPIN
 59. Logo
UNITED
 79. ASCII Express (DOS 3.3 Or ProDOS)
VIDEX
 35. Appleworks Modifier

Your full line, full service discount computer source.

BUSINESS SOFTWARE

- ASHTON-TATE**
 305. dBase II (Requires CP/M)
BPI
 219. Gen. Accounting, AR, AP, PR (IIe)
 235. Gen. Accounting, AR, AP, PR (ProDOS)
DOW JONES
 145. Market Manager Plus
 199. Market Analyzer
LIVING VIDEOTEXT
 89. Think Tank
MEGAHAUS
 75. Megaworks Or Reportworks
MICROPRO
 265. WordStar Professional
MICROSOFT
 62. Multiplan (DOS)
PINPOINT
 42. Pinpoint
QUARK
 79. Word Juggler & Lexicheck
SSI (SATELLITE)
 99. WordPerfect
SOFTWARE PUBLISHING
 79. PFS: File, Write, Graph Or Report

GAMES

- ELECTRONIC ARTS**
 \$ 29. Sky Fox Or Dr. J & Larry Bird
 39. Ultima III Or IV
HAYDEN
 30. Sargon III
INFOCOM
 29. Hitchhiker's Guide Or Zork I, II Or III
MICROPROSE
 23. F-15 Strike Eagle
SPECTRUM HOLOBYTE
 25. GATO (Requires 128K)
 30. Orbiter Or Tellstar I (IIe, IIc)
 49. Tellstar II (IIe, IIc)
SUBLOGIC
 33. Flight Simulator II

HOME & EDUCATIONAL

- BRODERBUND**
 \$ 32. The Print Shop
 38. Print Shop With Refill
 45. Bank Street Mailer Or Filer
 85. Bank Street Combo
MONOGRAM
 79. Dollars & Sense (II+, IIe Or IIc)
SIMON & SCHUSTER
 33. Typing Tutor III Or Spell Check
SPRINGBOARD
 19. Clip Art Vol 1
 27. Clip Art Vol 2
 35. Newsroom

1•800•547•1289

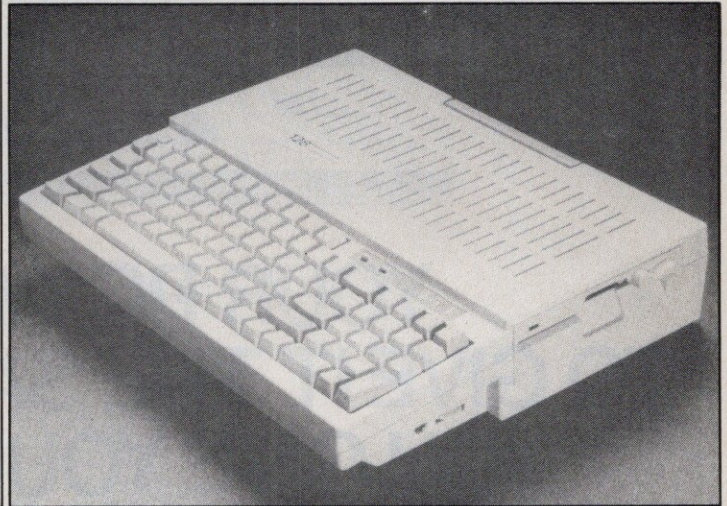
Business Accounts: 1•800•4•CONROY

In Oregon: 1•800•451•5151

Hours: 6-6 Pacific Mon-Fri, 8-4 Sat • Local: (503) 620-9878

ORDERING INFORMATION

- Most orders shipped second day air.
- Heavy items may require additional shipping charges.
- Shipping Charges:
- US & Puerto Rico — 3% (\$6 minimum)
- Prices reflect a 3% discount for Conroy-LaPointe Credit Card or cash.
- APO, FPO — US rate PLUS \$5
- Add 3% for other credit card purchases.
- Canada — 12% (\$15 minimum)
- Customer Service: (503) 620-9877
- Foreign — 18% (\$25 minimum)
- Prices and availability subject to change without notice.



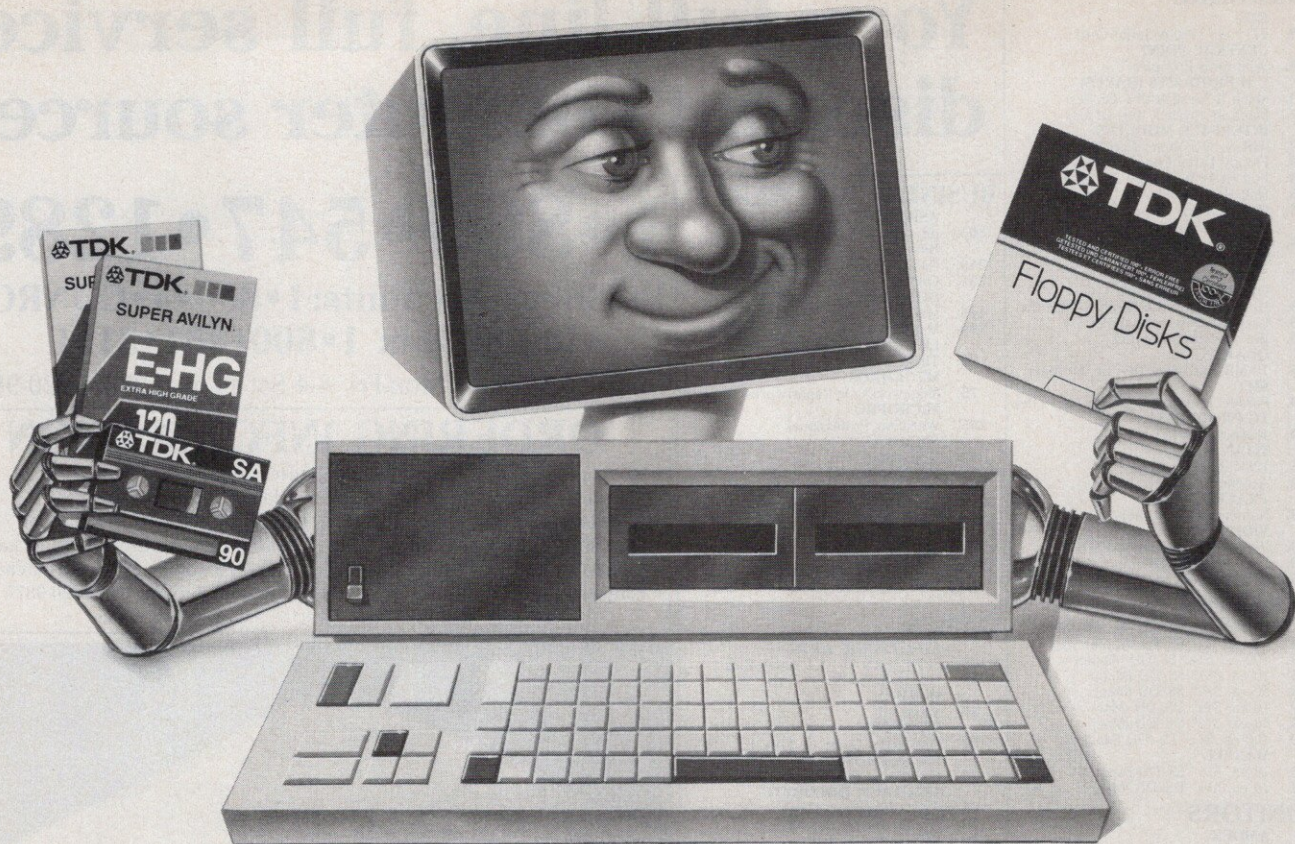
LASER 128: Better than Apple[®] at half the price.

- 128K RAM, 32K ROM
- External Drive Port
- 65C02 CPU
- Numeric Keypad
- 5 1/4" Floppy Drive, Internal
- 4 Cursor Keys
- 1 Expansion Slot, IIe
- 10 Function Keys
- 1 Parallel Port
- Supports Double Hi Res
- 2 Serial Ports
- Mouse/Joystick Port

\$499 With Monitor
And Cable

\$949 Includes Monitor,
2nd Floppy Drive,
Printer,
Cables A41

Conroy•LaPointe Inc.



YOUR PC WANTS YOU TO GIVE IT THE SAME ADVANTAGE YOU GIVE YOUR TAPE DECK AND VCR.

It's only fair. Not to mention logical. PC's want to perform as well as all your other sophisticated electronic equipment. If you're like millions of informed people throughout the world, you rely on the ultimate in audio and video recording performance. You rely on TDK.

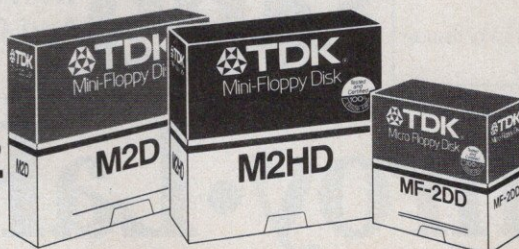
Well, you should also rely on TDK when it comes to your computer. TDK's Floppy Disks provide the same consistently high performance. The same level of absolute quality. Which is understandable since all TDK products share an unparalleled level of technical superiority that spans over 50 years.

In fact, TDK is the world's largest manufacturer of magnetic media.

What's more, they're also a major producer of electronic component parts, including the most sophisticated heads for disk drives. What a strategic advantage! With vital "inside" information like that, it's no wonder their disks provide error-free performance.

So, if you want to put a smile on your computer's face, choose from TDK's family of 5.25-inch standard, 5.25-inch High Density and 3.5-inch No-Risk™ Disks. It's to you and your PC's advantage.

TDK
THE NO-RISK™ DISK.



Northeastern Region: 516-625-0100; Southern Region: 404-948-1346; Midwestern Region: 312-676-5356; Western Region: 714-863-1844

© 1986 TDK Electronics Corp.

CIRCLE 173 ON READER SERVICE CARD

program found it both funny and enjoyable.

The software presents three activities: number recognition, counting, and a game that combines both skills. The games themselves are clear and easy to use. The trick is in getting to them. For, although the games are perfectly suited to the abilities of young children, the menu is complex enough to challenge the ingenuity of their parents.

Finding the menu is the first hurdle. Where is it? To find out, parents will have to read the accompanying booklet. Once they do so, they'll find that they must type the letter *O* when the title screen appears; otherwise, no menu shows. Getting back to the menu once a game has been completed isn't easy either. In fact, you can't do it without rebooting the entire program.

Yet, that objection aside, Charlie Brown's 1,2,3's does enable children to practice basic skills in an undeniably appealing manner. You can turn sound effects on or off by pressing Control-Z—a definite plus for many parents. As for the games, a simple press of the space bar, Return key, or one of the number keys is all that is

really required for play.

Children learn numbers with the help of a large, easy-to-read number screen. After selecting a number, the child presses Return, and the number screen disappears. The chosen number now appears above a like number of objects—five pumpkins, for example. All children have to do is find the corresponding number on the keyboard and press it. If they've chosen the correct number, Charlie Brown or one of his friends appears in a short, animated sequence.

The counting activity is a little different. The player selects a number, and that number appears on the screen, but the objects are missing. They appear, one by one, as the child presses the space bar—a nice, tactile approach to counting. If the task is done correctly, the Peanuts gang appears and rewards the player with a short "skit."

The final game combines elements from the previous games. Again, the player selects a number and then presses the space bar to make a corresponding number of objects appear. But to make the Peanuts gang perform, the player must find the total number of objects and type in that

number. After the child presses the Return key, the action begins.

Charlie Brown's 1,2,3's is educationally sound and offers a clear presentation of numbers and counting. The program is a bit slow, but the visual appeal is so strong that it easily keeps children entertained.

7

LET'S GO FISHING

Let's Go Fishing provides counting and adding practice for children of 4 to 8. That's an interesting age range, since it spans two very different developmental stages. It's difficult to design activities that are within a four-year-old's grasp without boring older children. Challenging an eight-year-old, on the other hand, may mean leaving younger children behind. The only answer is to offer games at different levels of difficulty, and this is just what the people at Panda have done. Let's Go Fishing, therefore, actually consists of two games, Let's Go Fishing and Make a Necklace. Each game requires different kinds of skills.

In Let's Go Fishing, a jolly cat sits on a floating log and holds a fishing pole. Children can modify the length

7 M E G I l e / 6 4 0 K I l c

	MultiRam RGB Card	MultiRam Ile Card
64k MULTIRAM	169.	129.
128k MULTIRAM	179.	139.
320k MULTIRAM	206.	175.
576k MULTIRAM	241.	214.
832k MULTIRAM	266.	239.
1024k MULTIRAM	284. ← ← ← ←	239.
1344k MULTIRAM	449.	-
1600k MULTIRAM	484.	-
1792k MULTIRAM	519.	-
65C816 EX Co-Processor Card		157.
Apple Ile Enhancement Kit		62.
Cermetek 1200 baud internal modem Ile/II+		209.
13" Teknika RGB monitor		324.
Accelerator Ile-350% speedup card		222.
Clockworks Card (Thunder/Time HO™ comp)		89.
Pinpoint Program or Spelling Checker (ea)		49.
Heavy Duty Power Supply Ile/II+		72.
Pico™ Slimline Drive Ilc/Ile/II+		158.
Slimline Drive Ile/II+		115.
CP/M & Pascal Ram Disk Ile/Ilc (ea)		20.

Checkmate Technology's **State-Of-The-Art MULTIRAM CX** card easily expands your Ilc to 640k, is 100% compatible with all Ilc software/hardware, & comes with the **SAME FREE SOFTWARE as MULTIRAM Ile**. It can be upgraded with a **real 65C816 kit (unlike Z-Ram™)** to likely run software for the new Apple computer!

OUR LOWEST PRICE

256k MULTIRAM CX	189.
512k MULTIRAM CX	222.
65C816 CX Kit (\$10 less w/card)	129.
VIP Professional w/any 65C816	117.
Ilc System Clock (Same as Applied Eng)	66.
C-VUE flat panel Ilc display	389.
1200 Baud Ilc Modem w/cable	189.

Terms: Add \$4-Ground or \$6-Air shipping & phone # to each U.S. card order (foreign orders/FPO/APO extra). Add 3% for MasterCard/Visa (include #/expir) & P.O.'s. For fast delivery send Cashier's/Certified check, Money Order. C.O.D. (add \$6) & personal checks accepted (allow 16 days). **Tex res add 6 1/2% tax.**

MultiRam, Timemaster II H.O./Z-Ram, Pico, respective trademarks of Checkmate Technology, Applied Engineering, WGE.

MCI Mail 2969684 • Telex 6502969684 (WUI)

WHY BUY FROM US RATHER THAN SOME MAIL ORDER HOUSES? Only we offer an exclusive 15 day MultiRam money back satisfaction guarantee, double software, more support, **FREE AUTOMATIC** software updates, **FREE 64k** with each 256k/512k/768k Ilc card. We know the products well, & we have them in stock. **CALL FOR DETAILS, PRICES, QUANTITY DISCOUNTS. SCHOOLS & GROUPS WELCOME!**

COIT VALLEY COMPUTERS • 14055 Waterfall Way, Dallas, TX 75240 • (214) 234-5047

Now

SOFTSTRIP® PROGRAMS ARE EVERYWHERE.

PROGRAMS! PROGRAMS! PROGRAMS!

Hundreds of SOFTSTRIP data strip programs are available NOW.

All add an exciting dimension to your personal computing... and more are coming every day.

Business programs... personal finance programs... application notes... music... games... entertainment... graphics. ALL ON THE UNIQUE SOFTSTRIP DATA STRIP... ON PAPER!

WHERE ARE THEY? WHAT ARE THEY?

You'll find SOFTSTRIP data strip programs...

- In the leading computer magazines including *Call A.P.P.L.E.*, *II Computing*,

MACazine, *Mac User*, *MacAPPLE*, *Nibble Mac* and the *Macintosh Buyer's Guide*. All are now printing data strips with many of their articles to give you complete software programs and demos.

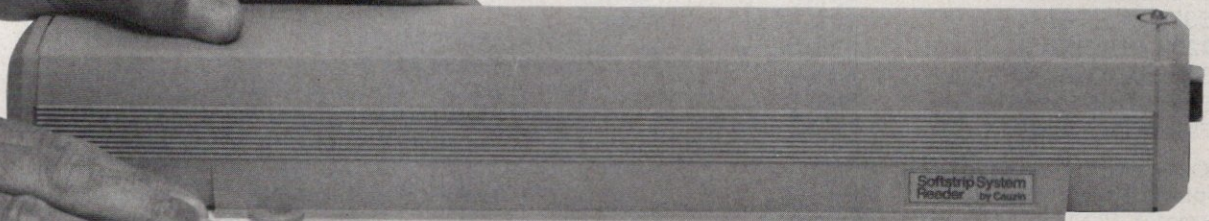
- In *The Cauzin Effect*... our monthly newsletter.
- In our advertising... like this one.
- In selected Cauzin StripWare™ software packages such as "*Essential Programs for Small Business Planning*" and "*Classic Games*".

PLUS... *Byte* and *Nibble* offer software on data strips at a significant savings over the cost of disks.

BUT YOU NEED THE SOFTSTRIP SYSTEM READER TO USE THEM

CAUZIN

835 South Main Street
Waterbury, CT 06706
(203) 573-0150





APPLE

HERE, THERE &

To Help You Make Up Your Mind We're Having an APPLEbration!
Buy a reader now... send in the warranty card and we'll immediately send you...

APPLE *Plenty*

**Arcade-Style Games
From Nibble**
Including Clam Bake and Ants.

**Selection From
"The Best Of InCider"**
Some of the very best programs
featured in InCider.

Offer expires Sept. 30, 1986.
May not be combined with other offers.

PLUS — PREVIEWS!

Fully operational segments of the original program. Not just a simple demo but a full featured extract that lets you see how the 'hottest' current programs work. Useful as they stand. Sent to you regularly with our newsletter, The Cauzin Effect.

THE SOFTSTRIP SYSTEM...READ STRIPS AND PRINT YOUR OWN.

Our unique encoding technology prints programs on paper in computer code. Anything that can be put on a disk can be put on a SOFTSTRIP data strip. Only the SOFTSTRIP SYSTEM READER can read the strips and enter the information into your personal computer.

It's as easy as can be. Simply place the reader over the data strip...hit the RETURN key and the reader does the rest...in a matter of seconds.

In addition to all this you can make

MENU MAKER (at right), Modify disk directories to fit any situation by reading in the strips and running the simple program. Screen prompts help you make all the necessary line changes to run the program. When you boot the disk after that all you need to run is MENU.

© 1985 by Apple Puget Sound Program Library Exchange

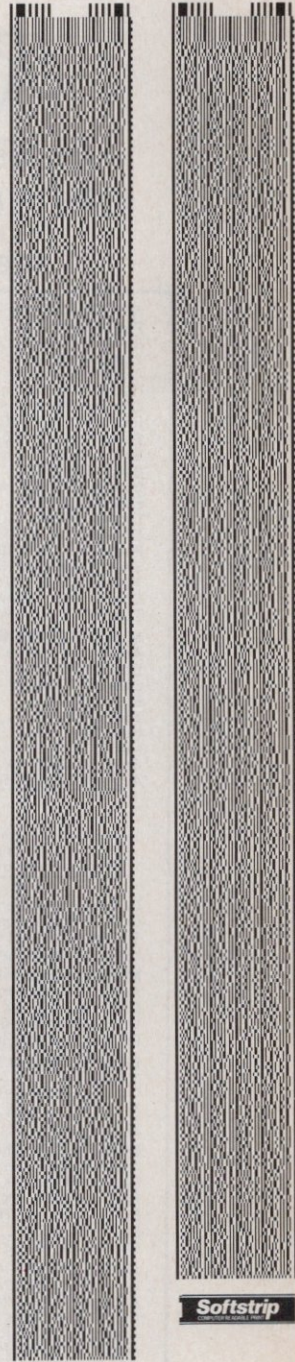
Used with permission of Call A.P.P.L.E.

Cauzin and Softstrip are registered trademarks of Cauzin Systems, Inc.
StripWare is a trademark of Cauzin Systems, Inc.

your own strips using our STRIPPER™ software. STRIPPER allows you to print your own data strips on a dot matrix printer and is available for only \$19.95.

Whether your computing is all business or just for fun...or both...the SOFTSTRIP SYSTEM will add a broad new dimension to your computer system.

ACT NOW!! Don't delay. See your local SOFTSTRIP dealer or call us at 1-800-533-7323. In Connecticut: 203-573-0150.



1 | 2 |

Apple is a registered trademark of Apple Computer.
Nibble is a registered trademark of MicroSPARC Inc.
InCider is a registered trademark of CW Communications, Peterborough.

CIRCLE 120 ON READER SERVICE CARD

of the pole by pressing the right- and left-arrow keys. They can raise and lower the fishing line by pressing the A and Z keys. It takes a while for children to keep these moves straight, but, having mastered which keys do what, young players are more than ready for some fishing fun.

Colorful fish swim below the log. The number of fish to be caught appears at the top of the screen—as part of a written statement. The statement might read, "Catch 6 fish." But there are several kinds of fish. Which ones

does the cat want? The answer resides in the lower left of the screen. The type of fish to be caught appears in a box, and children must use their visual-discrimination skills, as well as a good bit of dexterity, to catch only those fish that match the example.

Can four-year-olds accomplish all this? Surprisingly, they can. Younger children respond to the challenge and really try their best to help the cat fill his quota of fish. Older children have a much easier time and seem to enjoy all the action.

The fact that four-, five-, and six-year-olds are so attracted to this game indicates that its designers have struck a resonant chord. But some judicious input from a learning specialist could have made this game much better. For example, once a fish has been caught, it appears at the bottom of the screen, separated from the display fish by only a thin line. Most youngsters have a hard time separating the display fish from the ones they've caught because, if they catch two fish, it looks as though they actually have three.

Also, a correct response is indicated by a simple check mark; an incorrect response earns an X. That's indicative of a kind of marking system used in schools, and it's one that many educators now regard with disfavor because it gives children no useful information about what it was that they did right or wrong.

Make a Necklace is a game that requires a good deal of manual dexterity and speed. It has the look and feel of an arcade game and is definitely designed with older children in mind.

The screen displays a great many dots, or "pearls." A small "needle" appears in the upper left of the screen. The child presses the A and Z keys to move the needle up and down, the right- and left-arrow keys to move the needle to the right or left.

The number of pearls to be strung also appears on screen. The action, once the needle is moving, is fast. The player can't stop the needle, and children must be agile indeed to keep the needle from touching the sides of the screen. Once a side is touched, the entire screen disappears, and the game is over. A new screen with a new number takes its place.

Older children love the action, but the educational value of the game may get lost in the players' panic to avoid bumping into walls. Because of this, Make a Necklace is less effective than Let's Go Fishing, but conceivably it can increase adding speed for youngsters who have their basic skills down pat, and it is definitely the kind of game that keeps older children coming back for more.

Ribbon Land

MORE THAN JUST RIBBONS
ORDER HOTLINE 1-800-221-4892

In NJ or for Information CALL 201-842-1437

FREE GIFT WITH ORDERS OVER \$75

NYLON Ribbons

Printer Type	Black	Color	Transfer
	EACH 6+	EACH 6+	EACH 4+
*Apple Imagewriter, DMP, Prowriter	4.50 4.00	5.50 4.50	6.50 6.00
Apple Imagewriter II	4.50 4.00	10.00 9.00	—
Apple Imagewriter II (Reload)	—	7.00 6.50	12.00 11.00
Canon A-40/50/55, 1080A/1088/1156	6.00 5.50	6.50 6.00	—
Comrex 220, Axiom GP550, GP700	5.00 4.50	6.00 5.50	—
*Epson MX, FX, RX 80/85, Citizen 10/20	4.50 4.00	5.50 4.50	6.50 6.00
Epson MX, FX, RX 100/185, Citizen 15/25	6.00 5.50	7.00 6.50	—
Epson LQ 800	5.00 4.50	6.00 5.50	7.00 6.50
Epson LQ 1000	6.50 6.00	7.50 7.00	—
Epson LX 80/90, Homewriter 10	5.00 4.50	6.00 5.50	7.00 6.50
Epson LQ 1500	5.50 5.00	6.00 5.50	—
*Okidata 82, 83, 92 & 93/Star SG10	2.50 2.25	4.00 3.50	5.00 4.50
Okidata 182, 192 & 193	7.00 6.50	—	—
Panasonic 1090, 1091 & 1092	7.00 6.50	8.00 7.50	—
Smith Corona D 100/200, RS DMP 120	6.00 5.50	7.00 6.50	—
Toshiba 1350, 1351, P1340, P351, 341	6.00 5.50	7.00 6.50	—

Colors: Red, Yellow, Blue, Green, Brown, Purple, *Orange, Silver & Gold.

Transfer Colors: Red, Yellow, Blue & Black.

MULTI-STRIKE Black Film Ribbons

	EACH 6+
Apple LQP, Qume IV	5.00 4.50
Brother HR 15/35, Comrex II	5.50 5.00
Diablo Hi-Type II	3.50 3.00
Epson DX-10	6.50 6.00
Juki 6100	4.00 3.50
Nec 3500	5.00 4.50
Nec 5500	5.00 4.50
*Spirit 80, BMC-80, Legend 880, 808, 1080, 1380	6.00 5.50

*Available in Red, Blue, & Brown. (Add \$1.00 Each)

THIS MONTH'S SPECIALS

Mouse Pad	\$6.00
Verbatim 5 1/4" SSDD/DSDD Disks	Pack of 20 — 69¢ Each
Fuji 3 1/2" Single Sided Disks	Pack of 20 — \$1.59 Each
Prince Software w/Ribbons	\$42.00 w/o Ribbons \$32.00

T-SHIRT PRINTING CENTER

Color Transfer Pens (Set of 5 Fine Line: Red, Yellow, Blue, Orange & Green + Instructions)	\$9.00
Color Transfer Pens (Set of 5 Marker Tip: Red, Yellow, Blue Orange & Green + Instructions)	\$13.00
T-Shirts, Baseball Caps, Puzzle Blanks, & More	CALL
Heat Presses for professional results	Start at \$299.95

MacInker - Re-Ink Ribbons for about 5¢

Apple Imagewriter, DMP, Prowriter	41.95
Epson MX, FX, RX 80/85/100/185/286	49.95
Universal Base plus Driver Kit for Most Nylon Ribbons	64.95
Ink Kit (Available in Red, Yellow, Blue, Green, Brown, Purple, & Black)	8.00

Color Computer Paper - Red, Blue, Gold, Lt. Blue, Pink, Ivory, *Canary & Green.

100 Sheets	\$6.00	600 Sheets or Rainbow Pack	\$24.00
------------	--------	----------------------------	---------

*Not included in Rainbow Pack.

Color Envelopes - Invitation Size/Red, Blue, Gold, Lt. Blue & Pink.					
50 Envelopes	\$4.50	100 Envelopes	\$8.00	250 Envelopes	\$15.00

PRINT HEAD CLEANING KITS - Helps prolong ribbon & print head life.

Apple Imagewriter I & II, DMP, Prowriter	8.00
Epson MX, FX, RX 80/85, Citizen 10/20	8.00
Epson MX, FX, RX 100/185/286, Citizen 15/25	10.00
Epson LX-80/90, Homewriter 10	10.00
Epson LQ 1500	8.00
Okidata 82, 83, 92 & 93, Star SG10	5.00

APPLE SKINS - Anti-Static, Rip-Stop Nylon Dust Covers

Designer Dust Covers at Vinyl Prices!	
Apple IIc or IIe w/Monitor II Cover	16.00
Apple IIc w/Color Monitor Cover	18.00
Apple IIe Professional System Cover	20.00
Apple IIc, IIe or Uni Disk Drive Cover	6.00

CALL FOR PRICING ON ALL HARD TO FIND RIBBONS!

School & Business Purchase Orders Accepted. NJ & PA Residents add 6% Sales Tax. MC, Visa, COD ORDERS Accepted. Ribbon orders over \$50 are shipped free, UPS Ground Only. All other orders add \$3 S & H, UPS Ground Only. Prices subject to change without notice.

Ribbon Land • P.O. Box 8634 • Dept. AP8 • Red Bank • NJ • 07701

CIRCLE 202 ON READER SERVICE CARD

8

MICROADDITION/
MICROSUBTRACTION

microAddition and microSubtraction are so similar that they can be reviewed together. Essentially, each program has four activities: number values, counting, adding (or subtract-

Which Apple works better?



With new Z-RAM II installed, the Apple on the right works a whole megabyte better!

A little while ago, the owner of the Apple on the right unscrewed its hood. And in a few quick minutes, he turned his IIc into a whole new machine. With the new 1 megabyte Z-RAM II, Applied Engineering's powerful new version of an already awesome expansion card.



"I recommend Applied Engineering products wholeheartedly."

Steve Wozniak, the creator of Apple Computer

Now his Apple can completely load programs into RAM — and then store, load and run them 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 II can completely load AppleWorks into RAM. With Z-RAM II, AppleWorks responds the moment your fingers touch the keyboard. A 256K Z-RAM II lets your IIc run AppleWorks up to 30 times faster, expands the clipboard, and increases available desktop memory to 229K.

Only Z-RAM II increases the maximum number of records from 1,350 to over 15,000. And only Z-RAM II increases the number of lines allowed in the word processor from 2,250 to over 15,000, provides a print spooler, and auto segments large files so they can be saved on two or more disks.

And for those who crave even more power, Z-RAM is available with 512K, 768K or 1 megabyte of main memory!

Welcome to the world of CP/M.

But perhaps the best news is that Z-RAM II 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.

Z-RAM II is compatible with all IIc software and hardware, installs easily in just ten minutes with only a screwdriver, is available with memory upgrades up to 1 MEG that can be user-installed at any time. Z-RAM II is easily handled by the IIc power supply with our patent pending power saving design. In fact, a 1 megabyte Z-RAM II draws less power than a 512K Z-RAM.

For fast response.

Z-RAM II comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual, and a five-year "hassle free" warranty.

Make your Apple — and AppleWorks — work better. With 256K Z-RAM II (\$329); 512K (\$389); 768K (\$449); 1 MEG (\$599).

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 5% sales tax. Add \$10.00 outside U.S.

AE Applied Engineering
The Apple enhancement experts.

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

ing) balloons, and adding (or subtracting) numbers.

Number Values lets a child choose a number between 1 and 9. In micro-Addition, once the child has chosen a number, apples drop from a tree onto the ground, one by one. The program "counts" the apples by having a number appear inside each fallen apple. In microSubtraction, the child chooses the number of eggs to be hatched. As each egg hatches, a bird flies up into a tree. It is "counted" when a number appears next to it.

Counting presents an already selected group of apples or birds. The child must count the number of objects on the screen and type in that number. Three tries are permitted. After a third unsuccessful attempt, the computer displays the answer.

In Adding Balloons, the player adds a group of balloons to a second group of balloons—a jump above the previous activities, since it involves number input, understanding of + and - symbols, and the ability to add groups of objects to each other. Subtracting Balloons is a similar game, but this time the child must subtract one group of balloons from another group of balloons, calculate the dif-

The best math program matches the needs and abilities of the user.

ference, and type in the answer.

Adding Numbers and Subtracting Numbers offers two choices: Quiz or Calculator mode. If the player selects the Quiz mode, a numerical problem appears, and the child types in the correct answer. Typing C brings up the Calculator mode. Children enter their own problems, and the computer acts as a calculator, supplying the correct answer.

These are interesting programs. They are simple and, at least at the easier levels, understandable. It would be hard to find fault with their presentation of mathematical concepts. Yet, both programs could be more appealing if the graphics were better and offered more variety. Children get bored with seeing the same balloons over and over again. But, used judiciously and in combination with other, more entertaining programs, microAddition and microSubtraction can give a home-centered

math program the conceptual basis it needs. The price is certainly right.

Making the Choice

The question of which software packages are right for a child's needs and interests must ultimately be answered by parents. Only they can decide what their child needs in the way of information and reinforcement. As we have seen, some trade-offs are involved. Some programs, although they are extremely sound, lack entertainment value. Others are impressively entertaining, but are weaker in their presentation of basic information. Some are limited by a lack of variety. Still others offer so much variety and so many skill levels that a youngster will be able to use only parts of the program at first. Although many of these programs can be used by a child working alone, others require varying degrees of parental supervision. Parents know their children best and must decide which skills and which format seem best suited to their needs. **+**

Ute Elisabeth Van Nuys is a free-lance writer and computer-education consultant and has taught computer classes in the public schools.

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

Custom Printer Typefaces!

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

COUNT: ABCDabcd6789*?@

BYTE: ABCDE12345+*~!@#

OUTLINE: XYZ OXD ENG TSH

♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥

BORDER FONTS TOO!

▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬

Our Fonts or Yours

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

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

Mix Graphics and Text

Power Print turns your printer into a creative tool. For example, you may design up to 96

custom printer-characters that combine to print a small illustration like a logo or your signature. You may then include this illustration as part of your regular word processor printouts.

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



PANDA INC.

Dear Sam,

Honestly,
A. Lincoln
Uncle Abe

AppleWorks Compatible

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

Full Speed Ahead!

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

These Printers and More

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

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

\$39⁹⁵ Friendly and Unprotected

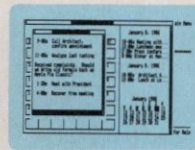
Power Print works with any Apple IIe, IIc or 64K II+. Like all Beagle software since 1980, disk backups can be made without hassle.



3990 Old Town Ave., San Diego, California 92110
AVAILABLE AT MOST SOFTWARE STORES or by mail:
Phone 619-296-6400 (Mon.-Fri., 9am-4pm Pacific)
Add \$1.50 shipping. All orders shipped immediately.

Power. Use It!

Pinpoint makes all the difference for your Apple II.

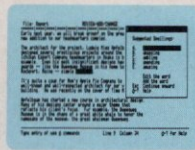


PINPOINT™ Desktop Accessories
Instant power tools. Desktop Accessories pop-up from inside AppleWorks: calculator, notepad, telecommunications, graphic and text merging, plus four others. Or write your own with TOOLKIT. \$89

AST SprintDisk™ **NEW VERSION**

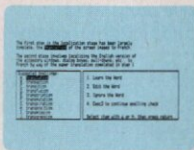


Prometheus ProModem™
1200A & 1200G



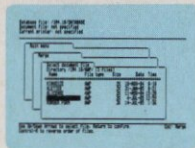
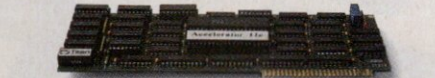
SPELLING CHECKER
Faster way to write right. Pops-up inside AppleWorks to check words, paragraphs, or documents from 60,000 word dictionary. Shows up to 10 alternative spellings, corrects and reformats in place. \$69

Titan Accelerator IIe™

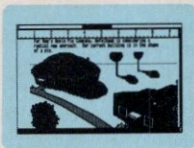


DOCUMENT CHECKER™ Perfect partner for SPELLING CHECKER. Checks documents 10 times faster! Same 61,000 word and unlimited personal dictionaries as SPELLING CHECKER so use them both. Suggests alternatives, corrects, and reformats in place. \$69 **NEW**

Street Electronics BusinessCard™

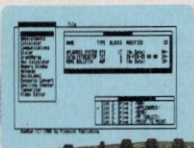
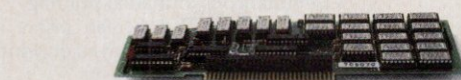
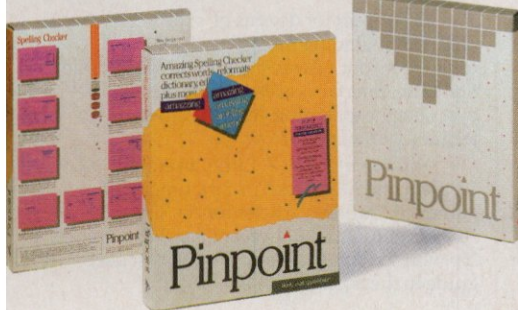


INFOMERGE™ High-output Manager. On-screen, direct merge printing and database report program for AppleWorks. Automatic/manual record selection, keyboard input, auto reformatting, preview/review, multiple print options, plus calculated fields. \$79 **NEW**



PINPOINT TOOLKIT™ Home improvement center. Eight timely accessories include graphic screen printer, memory window, video editor, Filer, new Calendar, plus write new Accessories all your own. \$49

Checkmate MultiRam IIe™



RUNRUN Three-ring circus. Powerful ProDOS Desktop Manager runs multiple Accessories at once, plus powerful path/subdirectory selector. A must for high-capacity ProDOS. \$49 **NEW**

Applied Engineering RamWorks II™



Introducing the next generation of Pinpoint performance software, integrated with AppleWorks™, to help you manage just about everything. Including the mess on your desk.

Nonsense like important dates, graphics, words, numbers, telephone messages, online information, mass mailings and a lot more.

Smart software with more power, speed, capacity, and expandability than what you're using now.

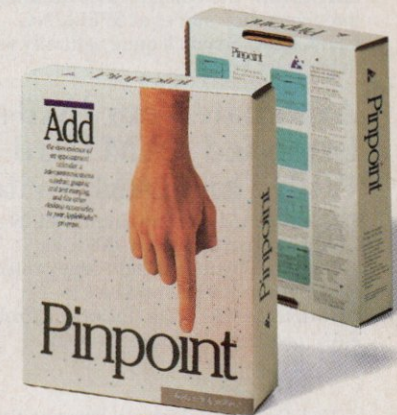
So get what you paid for. And let that powerful new Apple II hardware do the work, so you don't have to.

Not only will our software make you a great deal more productive; it costs a good deal less than you might think.

► Stop by a dealer near you for a test drive. Or call Toll Free and order direct from Pinpoint.

If, after 30 days, you're not completely satisfied, you can have your old mess back.

So you have nothing to lose. Except the mess on your desk.



Yes, please rush my order direct for the products I've checked below. No hassles; 30-day money-back guarantee.

Name _____
Company _____
Address _____
City/State/Zip _____
Phone: Day _____ Evening _____
 VISA MasterCard Amex Check
Credit Card # _____
Expiration Date _____
Signature X _____
(Add \$3.00 shipping and handling. CA residents add 6.5% sales tax.)

- \$149** **PINPOINT Desktop Accessories and the SPELLING CHECKER.** \$29 RAM Enhancement Kit, FREE. **NEW VERSION**
- \$129** **POINT-TO-POINT** Telecommunications. \$49 RunRun, FREE.
- \$89** **PINPOINT Desktop Accessories.**
- \$79** **Pinpoint INFOMERGE.** \$49 Instant Business Letters, FREE.
- \$69** **Pinpoint SPELLING CHECKER.***
- \$69** **Pinpoint DOCUMENT CHECKER.**
- \$49** **PINPOINT TOOLKIT.***
- \$49** **RUNRUN ProDOS Desktop Manager.***
- \$29** **RAM Enhancement Kit.***
- \$29** **Pinpoint Apple IIe Upgrade Kit.**

Pinpoint's software requires an Apple IIc or enhanced Apple IIe with 128K, or Apple IIe with Pinpoint Apple IIe Upgrade Kit and 128K. We recommend two floppy disk drives, a UniDisk 3.5, hard disk or extended RAM disk drive.

*Requires Pinpoint Desktop Software.

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

24 Hour Toll Free Order Phone

800-633-2252/EXT. 626



Pinpoint™

Power. *Pinpoint makes all the difference for your Apple II.* Use It!

Just pop-in your Pinpoint disk and see how much more you can get from your Apple II.

Pinpoint's Got the Software You'll Use Most Everyday

For example, PINPOINT's line of Desktop Accessories that "pop-up" from inside AppleWorks™ without disturbing your work. So convenient, you'll think they're actually built right in. And in a way, they are.

Start with PINPOINT's eight original Accessories. Add SPELLING CHECKER to check and correct your work without leaving AppleWorks behind. Or try TOOLKIT's eight new Accessories including everything you need to write Accessories all your own.

Desktop Accessories are great. But sometimes they just can't do everything you want. That's why Pinpoint offers three more-powerful stand-alone solutions.

POINT-TO-POINT™, full-featured telecommunications software with powerful macros, real-time clock support, and EXP multi-file Xmodem transfer protocol.

INFOMERGE™, the database reporting and mail merge wonder gives AppleWorks a long-needed boost. Direct merge printing, direct database manipulation, formatted on-screen preview/review display, calculated fields; all InfoMerge exclusives.

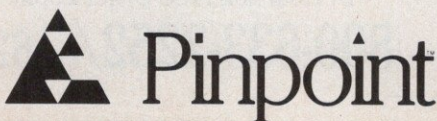
Then there's **DOCUMENT CHECKER**. Incredibly, it uses the same intelligent dictionaries as **SPELLING CHECKER**. So you'll quite naturally want to use them both.

Automate Your 1MB+ Extended RAM Card With This RAM Switcher

Pinpoint RAM Enhancement Kit \$29 Configures partitioned RAM disks. Automatically uploads non copy protected ProDOS applications and files to partitioned RAM disks. Includes a ProDOS RAM Switcher. Requires Pinpoint.

©1986 Pinpoint Publishing. Pinpoint, Point-to-Point, RunRun, InfoMerge, are trademarks of Pinpoint Publishing. Apple is a registered trademark while AppleWorks, Macintosh, ProDOS and UniDisk are trademarks of Apple Computer, Inc. Other trademarks of their respective manufacturers.

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



Communications Power with Ease

Point-to-Point™ \$129 Pinpoint Communications Window is the #1 communications software program for Apple II today. But many have asked for even more.

Introducing POINT-TO-POINT, turn-key telecommunications program with all the features you've been asking for. Take a look!

Δ AppleWorks style integrated communications with all the right tools for most any job.

Δ Exclusive Extended Xmodem Protocol (EXP) with CRC-16 transmits/receives multiple files in batches with original file names, extensions, and file attributes intact. Ready to run, without misspelled file names or tiresome file conversions.

Δ 14 powerful macros commands automate logon sequences; system operating commands automatically upload and download electronic mail or program files. Pattern recognition feature even makes decisions based on what it "sees" coming across the screen.

Δ Built-in text editor, or send AWP or text files directly.

Δ Simultaneous formatted printing while online. Instant "Print Screen" prints anything and everything displayed on your screen.

Δ Impressive file handling utilities manage files, subdirectories and paths without typing, even while online!

Δ Install PINPOINT Desktop Accessories for even greater versatility, or use RunRun and Toolkit to add valuable desktop accessories anytime.

Δ Smart utilities strip line feeds from downloaded files, and convert TXT to AWP

Do Two Things At Once

RunRun™ Desktop Manager \$49 The perfect manager for UniDisk™ 3.5, RAM drives and hard disks. Runs multiple accessories at one time (for example, run Notepad/GraphMerge or Calendar/Dialer).

Ultra-fast point-and-select program selector organizes files by name, extension, file type, file size, date or by user-defined Quick-Key groupings without typing cryptic, complicated slash commands. Convenient calendar/alarm clock display.



files; plus 8 indispensable file type conversions save double work!

Δ Support for dozens of modems, including the newest 2400 Baud units, gets your new system working right the first time. Interface cards include old stand-bys, plus the emerging Apple II interface technologies of tomorrow.

Written by Gary B. Little, an expert Apple II and Macintosh programmer, and author of countless articles for A+, Call APPLE, Nibble and five recent Apple books. No wonder Point-to-Point has the best user guide in the business.

Get the Mess Off Your Desk

PINPOINT Desktop Accessories \$89 New Version 1.3! Improved communications, more modems, printers and interfaces supported.

o Upgrades: send your original PINPOINT disk and \$10 to Pinpoint 1.3 Upgrade, Box 13323, Oakland CA 94661.

Appointment Calendar Print schedules to take with you. MonthView, DayView and Summary displays.

Calculator Four math functions: +, -, *, /. 16 digit display with scientific notation.

Communications Window Instant modem communications from AppleWorks desktop with simplified auto logon macros; no complicated control codes required. Downloads (records) files in AppleWorks' AWP file format.

Telephone Dialer Finds phone numbers anywhere on ANY screen. No phone directory or databases to re-enter.

GraphMerge Paste up to 16 single or double hi-res graphic images, mix & match, anywhere in AppleWorks documents.

Notepad Powerful baby word processor produces AppleWorks files. Use Notepad files inside AppleWorks documents, or with GraphMerge.

QuickLabel Envelope addresser/labeler, with cut-and-print utility. Position address block on an electronic envelope, then print real envelope, label or paper.

Typewriter Ideal for short letters, forms, file folder labels, and name badges. Compose, edit, then print, just like an IBM Memory Writer typewriter.

Vitamins for Your Plain Jane Apple IIe

Pinpoint Apple IIe Upgrade Kit \$29 Permits PINPOINT and many 'new' Apple IIe software programs to run on plain Apple IIe with 128K, and solving many of the compatibility problems older software programs have with Enhanced Apple IIe's.

Reports, Letters, Forms and More!

"I'm impressed with InfoMerge's capabilities; indeed it made me realize that it could be used as a database report writer -- a feature that's more attractive to me than its identity as a form-letter generator. It lets me format database reports practically any way I want to."

Ralph Brown, Marblehead, MA

InfoMerge™ \$79 Integrated Apple-Works database reporting and mail merge program with all the right tools for most any printing job.

△ Display database contents before merge, or display merged records on-screen -- fully formatted with merged categories highlighted -- before printing!

△ Direct printed output with direct AppleWorks database file manipulation without bothersome file conversions. Includes category selection criteria and exclusive automatic AWP/ADB file linking.

△ Multi-column forms with text columns aligned properly. Also merges paragraphs of text, not just single lines.

△ Calculated fields in the merged document with floating point math, eliminates redundant calculated categories cluttering up your databases!

△ Keyboard variables permitted, both "Local" (different for each record) and "Global" (same for all records).

△ Automatic or manual record merging, including record level selective print, don't print, and multi-print (to 99 copies) features.

△ Remembers last-used file names, even saves current state of the job you're printing, so you can restore and resume printing right where you left off!

△ Install PINPOINT Desktop Accessories for even greater versatility, or use RunRun and Toolkit to add timely new features and valuable desktop accessories anytime.

△ Works on any ProDOS device, including multiple floppy, UniDisk 3.5, hard disk and RAM drives at one time.

Don't forget, send in Proof-of-Purchase together with your Registration Cards to take advantage of our FREE OFFERS.

SOFTWARE AUTHORS
Pinpoint Publishing can add a burst of energy to your software. Write for a Software Submissions Kit today.

BUILD YOUR OWN SOFTWARE

Pinpoint Toolkit \$49 Eight new Desktop Accessories everyone can use, plus the tools needed to write Accessories all your own.

ProDOS Filer, Accessory Mover, Print Screen utilities, enhanced Appointment Calendar, Programmer's Calculator with tape, Video Resource Editor, Memory Window, Resource Converter, plus commented source code to several Accessories. ProDOS Assembly Language experience required (programming functions only).

Two Spelling Checkers for Peak Performance

Spelling Checker \$69, Document Checker \$69, or both for \$99 These two powerhouses share the same dictionaries so you can use them interchangeably.

SPELLER for quick convenience, DOCUMENT for longer documents. The amazing 61,000 word dictionary is integrated with unlimited word capacity personal dictionaries so there's never a need to check documents twice!

The pop-up SPELLING CHECKER checks words, paragraphs or entire documents of any size in memory. Spell checks, suggests alternative words, corrects and reformats automatically without leaving AppleWorks behind. RAM Enhancement Kit recommended.

DOCUMENT CHECKER specializes in checking larger documents. It uses more memory to check 30 words per second! Same outstanding check, suggest, correct and reformat features. Quickly switch from AppleWorks to DOCUMENT CHECKER and back with RAM Enhancement Kit or RunRun's RAM Switcher.

□ Registered SPELLING CHECKER owners can get DOCUMENT CHECKER for \$30 directly from Pinpoint.

Recipes at Your Fingertips. Great Gift!

Micro Cookbook \$49.95 Ask the computer what's for dinner. Enter ingredient, nationality, course or whatever, and Micro Cookbook offers up a menu with delicious possibilities. Choose from Micro Cookbook's 150 tested recipes or add your own. Or pick up new tricks from 14 optional Recipe Disks.

△ Automatically adjusts recipes for different serving sizes. Automatic shopping list preparation.

△ Valuable on-line reference: nutrition facts, food selection and storage, and ingredient substitution suggestions.

△ Lightning fast fourth-generation, bit-mapped database design finds plurals, truncations, multi-key relations, overlooks request errors, and otherwise works hard so you don't have to.

△ 8th Edition. Over 120,000 copies in use in 40 countries.

ORDER NOW

Special Offers Purchase one or more of Pinpoint's products listed below between 8/1/86 and 10/31/86 and send Pinpoint proof of purchase, together with completed Product Registration Cards, and we'll rush you your FREE software by return mail.

Ext. 612 □ **\$149 Pinpoint Desktop Accessories and the Spelling Checker.** \$29 RAM Enhancement Kit, FREE.

Ext. 613 □ **\$129 POINT-TO-POINT Telecommunications.** \$49 RunRun, FREE.
□ Or, at your option, receive a \$50 trade-in credit for your old communications software when you order directly from Pinpoint.

Ext. 618 □ **\$89 PINPOINT**

Ext. 616 □ **\$79 INFOMERGE.** \$49 Instant Business Letters from Q-Mar, FREE.

Ext. 619 □ **\$99 Spelling Checker / Document Checker** two-package set*.

Ext. 619 □ **\$69 Spelling Checker***

Ext. 619 □ **\$69 Document Checker**
□ Registered Spelling Checker owners can get Document Checker for \$30 by ordering directly from Pinpoint.

Ext. 614 □ **\$49 Pinpoint Toolkit***

Ext. 623 □ **\$49 RunRun***

Ext. 624 □ **\$29 RAM Kit***

Ext. 624 □ **\$29 Modem Kit***

Ext. 624 □ **\$29 Apple IIe Upgrade**

Ext. 620 □ **\$49.95 Micro Cookbook.** \$40 Desserts and Sampler Disk, FREE.

Ext. 620 □ **\$19.95 each. Recipe Disks**

Ext. 627 □ **\$49.95 New gardening tool: Ortho's Computerized Gardening**

Ext. 629 □ **\$199 PROMODEM 1200A, NEW Single Card Internal Modem**

Ext. 629 □ **\$199 PROMODEM 1200G**

Ext. 629 □ **\$399 PROMODEM 2400**

□ **FREE ISSUE, Points-of-Interest,** Our helpful newsletter with any order.

*Requires Pinpoint Desktop Software.

Call TOLL FREE 24 Hours

Order direct or ask for the name of your local Pinpoint dealer.

800-633-2252

+ Extension Number



*The Apple II becomes
your very own*

SCIENCE

*with software and
kits that let you
simulate a range
of experiments.*

Lab

Since their invention, computers have aided scientists and engineers in gathering and processing data. Computers also allow the scientific community to create and investigate the properties of complex phenomena through the use of computer models. Such models can simulate the behavior of atoms or the weather on our planet. Today, scientists of all ages can use the Apple II family to explore, analyze, and study the universe.

Simulating the Lab Environment

The Apple II can simulate a science laboratory without the mess or potential hazards. Computer models can be realistic, or they can simulate experiments that cannot be done with today's technology. As an individual, using your Apple II, you can do experiments that might otherwise require teams of scientists, and you can collapse or expand the window of time to fit your own schedule.

Simulations let you control one or more of the variables in an experiment. As you enter values and observe the results, you can discover or confirm basic scientific principles.

Chemistry simulations for the Apple II, such as those from High Technology and COMPress (see figures 1 and 2), let you perform tests on a variety of chemicals as they react with each other. You can discover Boyle's and Charles' gas laws as you observe the effects of pressure and temperature changes on gaseous molecules represented by moving dots on the screen. Other experiments allow repeated reactions between acids and bases in a short period of time. Experimental error is often built in, and these simulations often provide on-line help with necessary calculations.

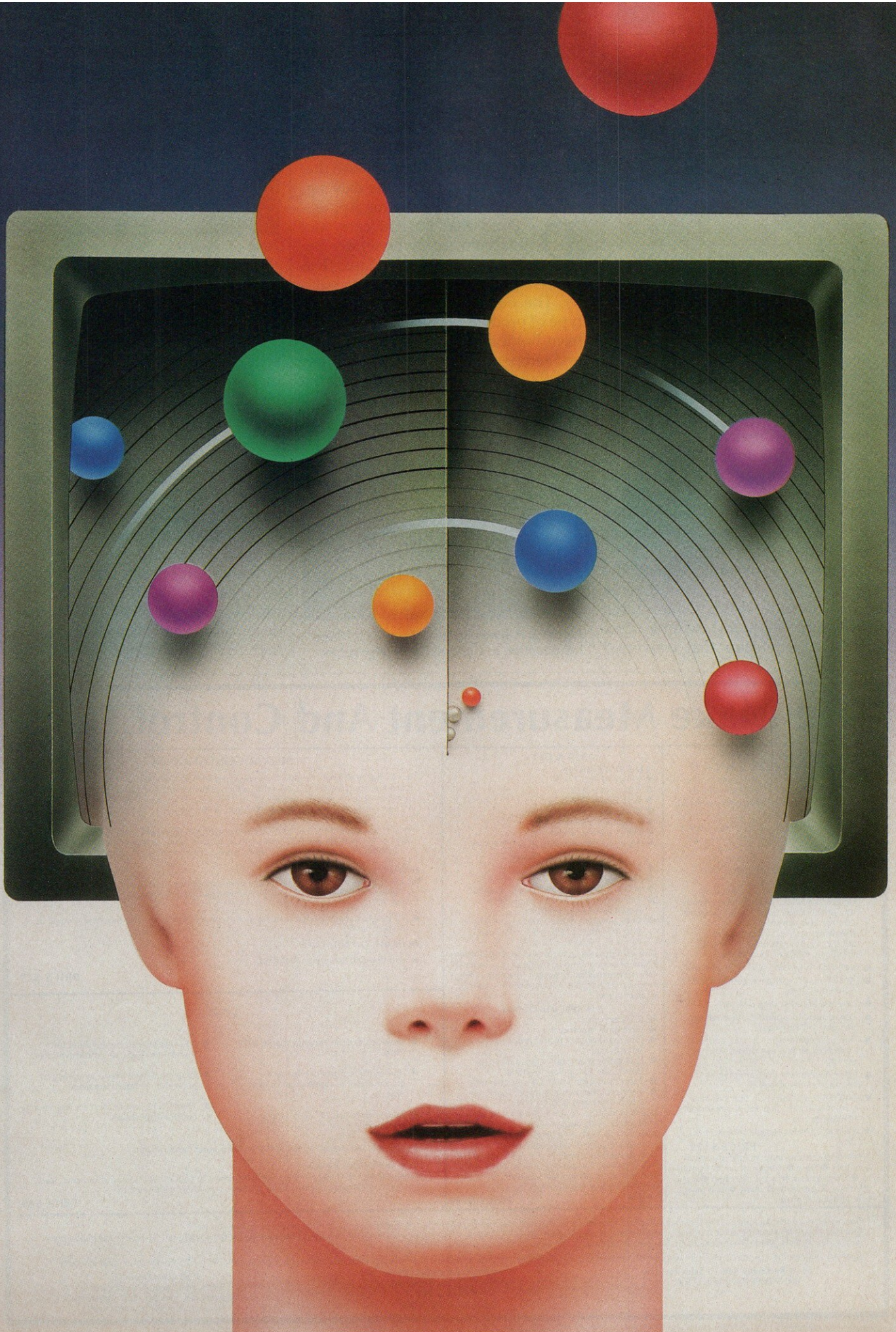
In biology simulations, your Apple II computer can help you study the behavior of caged creatures as you manipulate their environments with Discover: A Science Experiment from Sunburst. Software from Merlan Scientific and Microcomputer Workshops lets you do genetics experiments in a few minutes that would normally take generations. Operation Frog from Scholastic (see figure 3) and The Body Transparent from DesignWare promote anatomical awareness without making you

sacrifice a frog or handle a cadaver.

Nutritional simulations are also popular. With packages such as Nutritionist from N-Squared, you can compare what you want to eat with what your body needs.

The tools necessary for many physics experiments are often expensive and difficult to operate. High Technology and Cambridge Development Labs provide physics simulations in which you can measure projectiles moving through space and charged particles moving through electrical or magnetic fields. With the help of your Apple II, you can inexpensively simulate initial conditions of the experiment and let the computer tell you the results.

An earth-science simulation called Volcanoes from Earthware Computer Services allows you to predict the probability of eruptions by mythical volcanoes by studying data from a variety of instruments that you place in the field (see figure 4). The Galactic Prospector from Walt Disney Personal Computer Software gives you access to data gathered from satellites and core



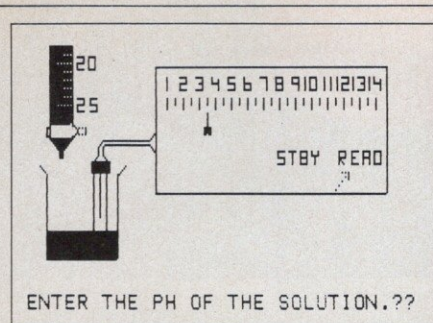


Figure 1: High Technology's Chem Lab Simulations for beginning scientists

drillings as you search for oil, gas, and various minerals.

For science students, computer simulations are no substitute for real experimentation. They do, however, help promote the understanding of scientific concepts and help in the development of logical thought and problem-solving abilities. Computer simulations can also help science students develop the level of familiarity with computers they'll need when the time comes to use computers as tools in real experiments.

With inexpensive attachments, the Apple II can receive data directly from the outside world. If you wanted to measure light, for example, you could use a detector that converted

light energy into a proportional quantity of electrical current known as an analog signal, and an analog-to-digital converter interface to convert the electronic signals from the digital data detector into your Apple. The final ingredient would be software that could make sense out of the data signals that arrived inside your Apple.

Products that let you carry out your own experiments are becoming more abundant, less expensive, and of higher quality. The outstanding example of this type of product is the Science Tool Kit from Brøderbund. It comes with light and temperature probes and an interface box that connects them to the Apple game port. The box has two

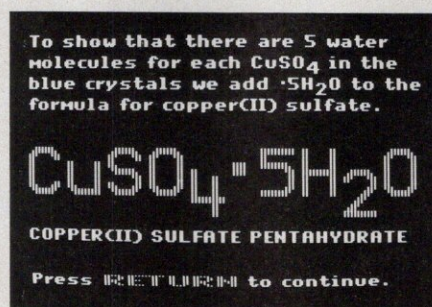


Figure 2: A screen display from COMPRESS' Introduction to General Chemistry series

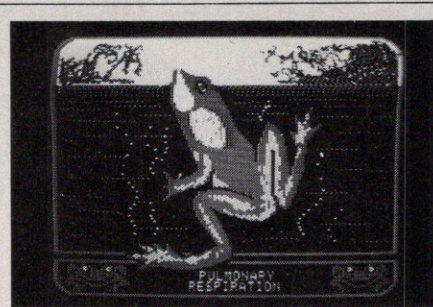


Figure 3: Operation Frog, a biology simulation program from Scholastic

ports for receiving analog data (such as the range of temperatures and light intensities the probes provide). The Tool Kit also provides two other ports that can collect digital, or on/off, data for future use (see figure 5).

The software that comes in the package lets you store, print, or graph data after you've collected it. The manual contains several experiments you can do, but nothing's stopping you from dreaming up your own. At \$49.95, the Science Tool Kit is a big winner for the price.

Brøderbund is not alone, however, in the field of experimental interfaces for the Apple II. HRM Software produces more sophisticated science kits in the \$300 price range that allow you

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, $\pm 5V$, $\pm 2.5V$, $\pm 1.0V$, $\pm 500MV$, $\pm 250MV$, $\pm 100MV$, $\pm 50MV$, or $\pm 25MV$.
- 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 1/2 mile away from the A/D.
- 22 pin, 156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
- 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

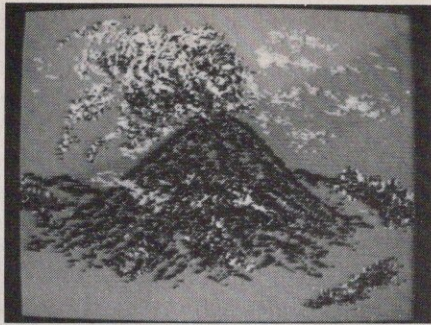


Figure 4: Volcanoes, an earth-science simulation for predicting volcanic eruptions

to measure light and temperature and many other parameters, such as heartbeat, respiration, humidity, pH, and voltage. The package includes all the necessary detectors, interfaces, software, and experimental procedures (see figure 6).

If you are looking for even more sophisticated equipment, check the latest *Central Scientific Catalog*. It features the Vela-Plus, an Apple-compatible microcomputer that can collect up to 1023 data items from four detectors at the same time. The data is stored in EPROM and transferred to the Apple at the end of the experiment. Other, more sensitive, detectors for this unit can be bought

separately. Sensors for detecting magnetic fields, barometric pressure, oxygen, and evenly spaced marks on a paper tape can be purchased in addition to the sensors already mentioned. Though a complete system can cost more than \$1000, Vela-Plus is ideal for school use.

Many products that offer excellent methods for developing the young scientific mind may not even look like science software. Products such as Factory and Super Factory from Sunburst and Pinball Construction Set from Electronic Arts promote logical thinking, spatial recognition, and creativity, which are all necessary scientific tools. Rocky's Boots and Robot Odyssey from the Learning Com-

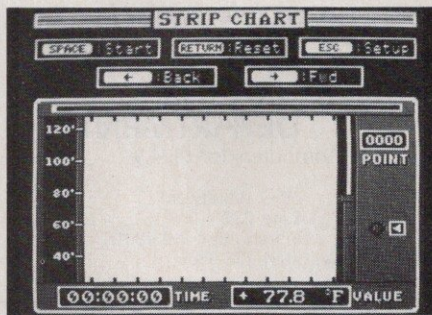


Figure 5: Brøderbund's Science Tool Kit lets users carry out their own experiments.

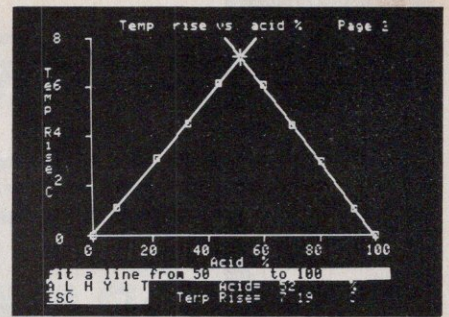
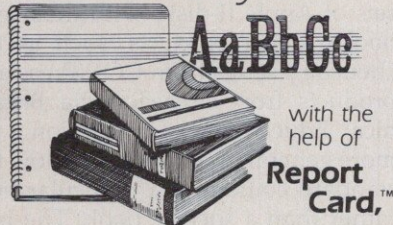


Figure 6: HRM's science kits come with detectors for measuring a range of parameters, including temperature and pH.

pany are similar products that teach about electronic components as they entertain and stimulate. Many reading adventure games, such as Mickey's Space Adventure from Sierra On-Line, contain scientific content and promote these same skills.

Science students and teachers are quick to adapt general-purpose programs for their own use. A spreadsheet makes a great tool for streamlining the calculations that often follow the data-collection process, for instance. A word-processing program is ideal for writing and revising lab reports. We have also seen science-oriented newsletters and posters created with

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 Corp. respectively.

**SCHOOL
PACKS
AVAILABLE**

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

CIRCLE 325 ON READER SERVICE CARD

COPY II PLUS™

THE BEST, MOST COMPLETE ProDOS-DOS UTILITIES.

- Copy files, disks, even entire subdirectories.
- Undelete ProDOS and DOS files.
- Fast 2-pass disk copy on Apple IIe, IIc or Laser 128.
- Tree display for selecting subdirectories—no need to type lengthy "prefixes."
- Alphabetize catalog.
- Convert DOS to ProDOS & vice versa.
- And many more.

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. (We update COPY II PLUS often to handle new protections; you as a registered owner may update at any time for \$15 plus \$3 s/h.)

Parameters for hundreds of programs are right on disk. Also includes a track editor, sector editor and HI-RES disk display. COPY II PLUS is supplied on a standard ProDOS diskette. Runs on Apple II, II+, IIe, IIc and Laser 128. Requires at least 64K and one or two disk drives.

Call 503/244-5782, M-F, 8-5:30 (West Coast time) with your in hand. Or send a check for \$39.95 U.S. plus \$3 s/h, \$8 overseas.

\$39.95

*Central Point
Software*

INCORPORATED

9700 S.W. Capitol Hwy., #100
Portland, OR 97219

*Winner of A+ Readers'
Choice Awards!*

Backup utilities also available for the IBM, Macintosh, Commodore 64/128 and Atari ST.

CIRCLE 184 ON READER SERVICE CARD

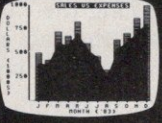
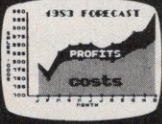


CHART LETTER DRAW SHOW

Construct bar, line, pie, scatter, XY, and area charts or any combination of the charts shown.

Add titles, labels and other lettering in 40 fonts and many sizes and colors.

Create custom drawings. Modify your drawings or drawings of others. Move things around and transfer, merge or reduce picture sections. "Paint" in over 100 colors.

Present a "slide show" of up to 32 pictures on monitor or TV screen. Subtitle pictures. Select "slides" manually or automatically in a pre-timed presentation.



*It's almost like having
your own graphic artist!*
*Try the new, improved and
more complete* **GRAPHICS
DEPARTMENT™**

Available for Apple Computers for \$124.95.

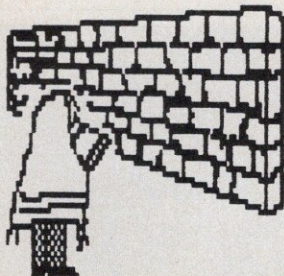


**Sensible
Software, Inc.**

210 S. Woodward,
Suite 229,
Birmingham, MI 48011
(313) 258-5566

Apple is a trademark of Apple Computer, Inc.

CIRCLE 155 ON READER SERVICE CARD



DAVKAGRAPHS™

OVER 60 JEWISH SYMBOLS AND PICTURES FOR YOUR
BRODERBUND PRINT SHOP™ LIBRARY—JUST \$24.95

- Works with *The Print Shop™* on the //+, //e, and //c.
- Ideal for personalized Holiday greeting cards, banners, signs, and letterheads.
- Wide variety of pictures—Holiday and Israel symbols, Bar/Bat Mitzvah, synagogue scenes and much more—all on DavkaGraphics!

If you have the Print Shop Companion™, you can use the special Hebrew font included with DavkaGraphics. DavkaGraphics is only \$24.95. If you don't have the Print Shop, you can get the Print Shop—a \$50 value—and DavkaGraphics for just \$59.95! If you don't have the Print Shop Companion, you can get it—a \$40 value—and DavkaGraphics for just \$52.95! **Attention DavkaGraphics owners! DavkaGraphics II**, with more than 70 new pictures, and more Hebrew fonts is now available for just \$24.95! (Please add \$2 shipping for all orders.)

call toll-free 1-800-621-8227 (In Illinois 1-312-944-4070)

Major credit cards accepted.

Davka Corporation•845 N. Michigan Ave. • Chicago, IL 60611

CIRCLE 302 ON READER SERVICE CARD

the Newsroom by Springboard and the Print Shop series by Brøderbund. Other graphics tools, such as Brøderbund's Dazzle Draw, can be used to create interesting diagrams.

A database-management program provides a convenient way to organize and sift through mounds of scientific information. To facilitate this process, some companies are offering data disks filled with scientific information in a database format. Scholastic, for example, offers several science and social-studies databases that you can access by using PFS:File.

Some science programs deal with presenting factual information that can also be gathered from books or classroom lectures. If reinforcement is necessary, tutoring and drill-and-practice programs may be helpful. Like their counterparts in other subject areas, these programs work only if you use them. Although the knowledge that you can cram into your brain using such techniques disappears quickly if you don't apply it soon, young scientific hopefuls will go nowhere without the good grades that can result from using such programs diligently.

Textbook companies are becoming increasingly involved in the production of such materials. Publishers such as Allyn and Bacon, and Wiley and Sons, offer sets of Apple II disks with their textbooks. Other products, such as the chemistry series from COMPRESS and products from Encyclopedia Britannica Educational Corporation, are more general in nature and follow the standard content of a particular field rather than a specific book. The best programs in this category provide some animation and allow for some experimentation as the material is presented. Although these packages are too expensive for most individuals, they may be available through your local schools.

Since science is such a large field, you cannot expect this year's software to cover all areas. It is important, therefore, to look for good software from titles that may date back to the creation of the Apple II. If your software dealer has trouble finding products from the companies mentioned here, check with your local schools. They should have access to catalogs containing these products. +

Doug Green is a Binghamton, New York, computer educator.

FURTHER INFORMATION

Allyn and Bacon, Inc.
7 Wells Avenue
Newton, MA 02159
Written inquiries only

CIRCLE 440 ON READER SERVICE CARD

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE 441 ON READER SERVICE CARD

Cambridge Development Labs
1696 Massachusetts Avenue
Cambridge, MA 02138
(800) 637-0047/In MA (617) 491-0377

CIRCLE 442 ON READER SERVICE CARD

Central Scientific
11222 Melrose Avenue
Franklin Park, IL 60131-1364
(312) 451-0150

CIRCLE 443 ON READER SERVICE CARD

COMPRESS, Div. of Wadsworth, Inc.
P.O. Box 102
Wentworth, NH 03282
(603) 764-5831

CIRCLE 444 ON READER SERVICE CARD

DesignWare
185 Berry Street
San Francisco, CA 94107
(415) 546-1866

CIRCLE 445 ON READER SERVICE CARD

Earthware Computer Services
P.O. Box 30039
Eugene, OR 97403
(503) 344-3383

CIRCLE 446 ON READER SERVICE CARD

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171

CIRCLE 447 ON READER SERVICE CARD

Encyclopedia Britannica
Educational Corporation
425 North Michigan Avenue
Chicago, IL 60611, (800) EBE-WARE

CIRCLE 448 ON READER SERVICE CARD

High Technology Software Products
P.O. Box 60406
Oklahoma City, OK 73146
(405) 848-0480

CIRCLE 449 ON READER SERVICE CARD

Microcomputer Workshops
Courseware
225 Westchester Avenue
Port Chester, NY 10573
(914) 937-5440

CIRCLE 453 ON READER SERVICE CARD

HRM Software
175 Tompkins Avenue
Pleasantville, NY 10570
(800) 431-2050

CIRCLE 450 ON READER SERVICE CARD

The Learning Company
545 Middlefield Road, Suite 170
Menlo Park, CA 94025
(415) 328-5410

CIRCLE 451 ON READER SERVICE CARD

Merlan Scientific, Ltd.
247 Armstrong Avenue
Georgetown, Ontario L7G 4X6
Canada, (416) 877-0171

CIRCLE 452 ON READER SERVICE CARD

N-Squared
5318 Forest Ridge Road
Silverton, OR 97381
(503) 873-5906

CIRCLE 454 ON READER SERVICE CARD

Scholastic, Inc.
730 Broadway
New York, NY 10003
(212) 505-3000

CIRCLE 455 ON READER SERVICE CARD

Sierra On-Line, Inc.
Sierra On-Line Building
Coarsegold, CA 93614
(209) 683-6858

CIRCLE 456 ON READER SERVICE CARD

Software Publishing, Inc.
1901 Landings Drive
Mountain View, CA 94043
(415) 962-8910

CIRCLE 457 ON READER SERVICE CARD

Springboard Software, Inc.
7808 CreekrIDGE Circle
Minneapolis, MN 55435
(612) 944-3915

CIRCLE 458 ON READER SERVICE CARD

Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570
(800) 431-1934/(914) 769-5030

CIRCLE 459 ON READER SERVICE CARD

Walt Disney Personal Computer
Software
500 South Buena Vista Street
Burbank, CA 91521
(818) 956-3005

CIRCLE 460 ON READER SERVICE CARD

Wiley Professional Software
Division of John Wiley and Sons
605 Third Avenue
New York, NY 10158, (212) 850-6000

CIRCLE 461 ON READER SERVICE CARD

APPLE SOFTWARE AT LOW PRICES

*The Best of
APPLE
PUBLIC DOMAIN
SOFTWARE*



*The Best of Apple
Public Domain
Software*

150-page directory
of disks

..... \$6.95

Samples from our Apple II Family

Tutorials

000 BASIC tutorial \$5

Art

007 Tom's Tool kit, print fonts, sizes ... \$5

023 Make drawings, paint w/colors ... \$5

Astronomy

028 Exposures, planet locator \$5

Word Processing

037 Freewriter (II+ needs paddles) ... \$5

Business

038 Budgeting, calendar, calculator ... \$5

039 General ledger, 15 financial

programs, label maker \$5

040 Address book, amortization \$5

045 House sale calculations, payroll ... \$5

056 Check balancer w/documentation ... \$5

057 Omnifile database w/doc \$5

Education

062 Alphabet, spelling, word games ... \$5

064 Drills: typing, spelling, states ... \$5

065 Talking calculator, math drill,

flash cards \$5

066 Teaching aids: grader, averager,

make and print tests \$5

068 Story problems, metrics, history ... \$5

069 Geography, fractions/decimals ... \$5

085 Elementary math drills:

+, -, x, ÷, 23 levels \$5

Food and Nutrition

092 Count calories, nutrient values ... \$5

Games

099 Chess, Breakout, Horse Race ... \$5

110 Roulette, Pinball, Gammon, etc. ... \$5

Math

176 Algebra, quadratics, plotting ... \$5

Music

186 Music Maker w/documentation ... \$5

Passion

190/191 Graphic displays, games ... \$10

Utilities

213 Best of utilities \$5

226 Diversi-DOS — Faster than

DOS 3.3 \$5

233 Debugging aid, text editor \$5

Communication

260/ Bulletin board system

261 with documentation (2 disk set) ... \$10

262 Hayes modem program

& utilities \$5

293 CP/M — XModem, etc. \$5

SPECIAL! Any 6 disks plus
Apple directory
Only \$33⁹⁵

Add \$4 shipping for disk orders, or \$2 if ordering
directory only. California orders add sales tax.

Enclosed \$ _____ by Check VISA MC

Card no. _____ Exp. _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

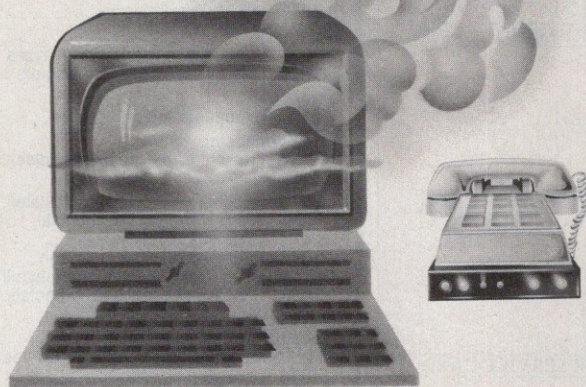
The Public Domain Exchange

2076C Walsh, Ste. 511, Santa Clara, CA 95050 • 408-496-0624

CIRCLE 256 ON READER SERVICE CARD

If you compute after dark...

...switch to the magic of GENie™ and stay on-line longer, for less!



Introducing GENie, the General Electric Network for Information Exchange. It's part of General Electric Information Services—the largest commercial teleprocessing network.

Now the power of GENie stands ready to bring a little magic into the life of PC owners just like you. And for potentially much less than other on-line information services.

With GENie, you pay no hidden charges or monthly minimum fees. You pay only for the actual time you're on-line and the \$18.00 registration fee. Nothing more.

Compare & Save

	Services						Pricing			
	SIGs/User Groups	Electronic Mail	CB Simulator	Computing News	Games	2400 baud access	Registration fee	Monthly minimum	Non-prime time rates	
									300 baud	1200 baud
GENie*	X	X	X	X	X	X	\$18.00	none	\$5.00	\$5.00
CompuServe	X	X	X	X	X	X	\$39.95	none	\$6.25	\$12.75
The Source	X	X	no	X	X	X	\$49.95	\$10.00	\$8.40	\$10.80

*Rates and Services shown in effect 12/85. Non-prime time rate applies Mon–Fri, 6pm–8am local time, all day Sat., Sun., and nat'l. holidays. Subject to service availability. Additional surcharge applies for 2400 baud service.

Save up to 60%

Check out the chart above and compare it for yourself. You'll find GENie can deliver all of your favorite services for an incomparable price at incomparable savings!

Put the power of GENie at your command

- Discuss the latest in computer products and accessories or download public domain software with GENie's **RoundTable™ Special Interest Groups**.
- Meet new people, share ideas with friends—old and new—with **LiveWire™**, GENie's CB simulator that has everybody talking!
- Get your message across and back again with **GE Mail™**, GENie's electronic mail service.
- Organize a local, regional or national get-together in one of GENie's 40 "conference rooms" with GENie's **Business Band Real-Time Conferencing**.
- Go one-on-one with classic computer games, match your wits against others with multi-player games, or download for future play in GENie's **Game Room**.
- Stay in touch with what's new on the microcomputer scene, courtesy of GENie's news service, **News and Commentary**.

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. And that means you save 20 to 60%. Or if you prefer, 2400 baud service is now available.

With services and prices like these—talk, read, learn, or play to your heart's content. Because now you can keep your eyes on the screen, not on the clock.

With your personal computer, modem, communications software, and telephone, you already have everything you need to make GENie come to life. So why not Sign-Up today. Let GENie bring a little magic into your life!

Sign Up From Your Keyboard Today 4 Easy Steps:

1. Have ready your VISA, MasterCard or checking account number to set up your personal GENie account.
2. Set your modem for half duplex (local echo)—300 or 1200 baud.
3. Dial 1-800-638-8369. When connected, enter HHH
4. At the U# = prompt, enter XJM11943, GENIE then RETURN.

No Modem Yet? Need more information or assistance? We can help! Call 1-800-638-9636, ext. 21.

Get on-line with GENie. And stay longer, for less.



INFORMATION SERVICES

General Electric Information Services Company, U.S.A.

The Learning Curve

BY DAVID D. THORNBURG

A NEW VERSION OF LOGO

Programming + word processing = LogoWriter for the Apple II.

A company called LCSi has created a new version of Logo that includes the functions of a word-processing program. This product is called LogoWriter and, as of this writing, it is available for the 64K Apple IIe and the Apple IIc, as well as another computer made by some outfit with offices in Boca Raton, Florida.

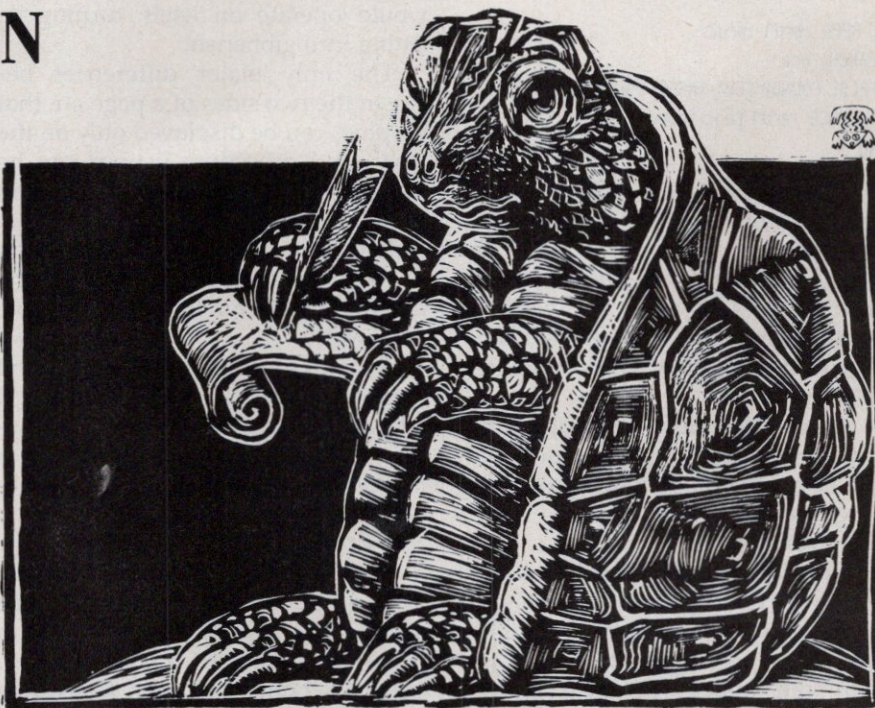
LogoWriter is not a patch between Logo and a word-processing program—it is far more than that. If ever the phrase “greater than the sum of its parts” had meaning, this product deserves that label.

As with all other versions of Logo for Apple computers, LogoWriter lets you use turtle graphics. Unlike most other Apple II versions of the language, however, LogoWriter allows you to work with up to four “turtles” on the screen at once, each of which can have any of 30 shapes you can choose from a shape library. You can edit or create shapes and stamp them onto the screen in various colors or move them around at will.

Text Handling

Most computer languages have tools for dealing with strings of text. BASIC, for example, lets you create a string of text, merge two strings, extract portions of a string, and test for the equality of two strings. List-processing languages such as LISP and Logo add other features to this repertoire, but even these languages fail to provide the kinds of abilities we expect in a word-processing program.

LogoWriter lets you insert, cut, copy, paste, search for, select, and re-



place text in a document. Not only are commands that invoke these text manipulations usable in the way we expect for a word-processing program, but they are also part of the vocabulary of the language itself. Thus, users of LogoWriter can create their own programs to manipulate text in any way they want.

To try out the program, I created a set of procedures that encodes and decodes messages, using the following steps: Encoding the message means inserting a random character after each character or space in the original text, and decoding simply involves removing the excess letters. For example, the encoding procedure translated the message

This is an example of some text to be encrypted.

into

```
Tchdissj siwsy lacng deoxdalmipalzee iokfc  
gsnojmwne atpekxctb otjoc ebmez neejnhcjr-  
jywpmtrewdy.i
```

The LogoWriter encoding and decoding procedures look like this:

```
TO CODEIT  
TOP  
REPEAT TEXTLEN [CF INSERT CHAR (97 +  
(RANDOM 26))]  
END  
TO DECODEIT  
TOP  
REPEAT TEXTLEN / 2 [CF DELETE]  
END
```

The first procedure moves the text cursor to the top of the document you're going to encode. Next, for all the characters (whose number TEXTLEN counts automatically), the cursor moves forward by one character (CF), and a random character is inserted before the selected character.

The second procedure decodes a previously coded message by alternately moving the cursor forward and deleting the selected character. Once it has deleted a character, the procedure selects the next character automatically.

I found the creation of these procedures to be informative and enjoyable. LogoWriter's text-manipulating capabilities can be every bit as enchanting as the creation of pretty pictures with turtle graphics.

But Seriously . . .

To show that LogoWriter is not all fun and games, I decided to create a more "serious" word-processing procedure. LogoWriter has a command for replacing text, but I decided to write one of my own:

```
TO REPL : wrd1 : wrd2
SEARCH : wrd1
IFELSE FOUND? [CUT INSERT : wrd2] [TYPE
SENTENCE : wrd1 [not found]]
END
```

This procedure searches for the first occurrence of the word passed in the variable : wrd1. If it finds the word, it cuts it from the document and replaces it with the word in : wrd2. Otherwise, it displays a message explaining that it didn't find the target word.

It is easy to imagine schoolchildren who have access to this product creating new classes of word-processing programs.

The Work Space

The display screen is split into two windows. The top window represents a page from a scrapbook. This page scrolls to accommodate more text than can appear at once on the screen, and it has two sides. The text capacity of a page is limited to about 4000 characters split between both

sides. The bottom window is the "command center" where you give instructions to execute procedures.

The front side of the page in the top window is generally used for the "output" of programs, and the "flip" side is for storing procedure listings. Text-handling procedures can execute on either side of the page, which has some interesting consequences. If I had the CODEIT procedure execute from the "flip" side, where this procedure was listed, the procedure would operate on itself, turning its listing into gibberish!

The only major differences between the two sides of a page are that graphics can be displayed only on the front, and procedure listings can be interpreted only if they are created on the flip side.

Pages are saved to the disk as soon as you name them, which reduces the likelihood of your forgetting to save your work.

As with all the Logo interpreters I have seen, LogoWriter is slow, and it takes up a lot of memory. Nonetheless, it offers enough unique features to open new doors to discovery to teachers and students alike.

The Product

LogoWriter is available directly from LCSi. Rather than "sell" the product, the company has decided to license it to schools for an annual fee. Once a school is licensed to use the product, it can make as many copies of LogoWriter for its use as it wants. A school that signs up for use of this

program receives a nicely packaged product, complete with keyboard templates, workbooks, activity cards, a reference manual, and other support documentation.

This unique approach to software delivery concerns me. Anyone with access to the master disk can make an unlimited number of LogoWriter copies. Since (to my knowledge) single copies of the program aren't going to be available for retail sale, unlimited copies may come home in the lunch bucket with the teacher's blessing. I am afraid that controlling the spread of LogoWriter throughout the community will be impossible.

My only hope is that LCSi receives adequate compensation for this product. It could give Logo a second chance in our schools. Our kids deserve that. **+**

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

PRODUCT INFORMATION

LogoWriter

LCSi

555 West 57th Street, Suite 1236

New York, NY 10019

(212) 265-5646

List Price: annual school license fee

Requires: Apple IIe or IIc, 64K RAM

CIRCLE 405 ON READER SERVICE CARD

ZIMCO

INTERNATIONAL, INC.

APPLE ACCESSORIES

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

FREE SHIPPING
on Prepaid Orders.



SOFTWARE

BEAGLE BROS. Mini Pix disk #1	\$17
FONTRIX	\$59
GRAPHICS DEPARTMENT	\$65
NEWSROOM	\$33
Newsroom Clip Art vol.1 / vol.2	\$16 / 23
PRINT SHOP	\$28
Print Shop Companion	\$23
Print Shop Graphics Librarian	\$15
SENSIBLE GRAMMAR	\$53
Sensible Speller PRO-DOS	\$65
PINPOINT	\$46

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

PRINTERS

BROTHER HR15-XL	\$339
CITIZEN 120D / MSP-10	\$179 / 239
EPSON AP-80 / FX-85	\$255 / 339
Epson FX-286	\$499
Epson LX-90 w / picl	\$235
NEC Pinwriter P2*	\$425
OKIMATE 20 w / Interface	\$190
OKIDATA 192P / 193	\$330 / 455
QUME LetterPro 20 / Sprint 1400*	\$430 / 899
PANASONIC KXP-1091 / 1092	\$249 / 330
Panasonic KXP-1592	\$419
SILVER-REED EXP-800	\$649
STAR NX-10 Parallel	\$239

ZIMCO

INTERNATIONAL, INC.

DRIVES

CORVUS Hard Drive	\$Call
PICO Apple II Disk Dr.w / Iyr.warr.	\$139
Disk Drive Contr- Apple II	\$30
TYMAC 3.5" Drive IIc	\$279
Disk Drive -Apple II Series	\$109

MONITORS

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

MODEMS

HAYES Smart Modem 300 (Ile)	\$152
Hayes 1200 / 2400	\$339 / 559
Hayes Micromodem IIc	\$128
NOVATION Appletac II	\$187
Appletac 212 system / upgrade	\$253 / 214
PROMETHEUS PRO-MODEM	\$269
Prometheus 1200A	\$239
1200 Baud Hayes Compatible	\$169
US ROBOTICS Courier 2400	\$399

1-800-227-6647

Inquiries, Tech Support & NYS

Call 718-479-7888

D&B # 130151913

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

CIRCLE 126 ON READER SERVICE CARD

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 DISKS
SS/IDD 6.95
DS/IDD 7.95

VERBATIM OR MAXELL
SS/IDD 13.95
DS/IDD 16.95

ELEPHANT
SS/IDD 7.95
DS/IDD 8.95

DATA CASE
7.95

SILICON EXPRESS

LASER 128—APPLE COMPATIBLE COMPUTER **\$395.95**

- Additional Fonts 8.95
- Adventure Const. 30.50
- Algeblaster 26.95
- Algebra I thru IV ea. 26.95
- Algebra V & VI 34.95
- Alphabet Zoo 18.95
- Alpha Plot 24.89
- A Mind Forever Voy. 28.95
- Archon I 22.00
- Archon II 24.25
- ASC II Express 72.50
- Assembly Lines Bk. 16.95
- Auto Duel 32.95
- Auto Works 27.95
- Back-Up III 42.00
- Bag of Tricks #2 28.00
- Ball Blazer 23.49
- Bank Street Filer 38.95
- Bank Street Mailer 38.95
- Bank Street Writer 38.95
- Bank Street Speller 38.95
- Bard's Tale 27.50
- Baron 22.50
- Beagle Bag 14.95
- Beagle Basis 17.95
- Beagle Graphics 29.95
- Beneath Apple DOS 13.95
- Bnth. Apl. Pro DOS 13.95
- Big U 16.95
- Black's Law Dict. 27.95
- Blazing paddles 27.00
- Bookends 64.95
- Bookends Extended 94.95
- Borrowed Time 22.00
- Breakthru Ardennes 41.95
- Carmen Sandiego 22.45
- Captain Goodnight 19.45
- Cat Graphics 13.95
- Chshp. Load Runner 19.45
- Chart 'n Graph Tlxb. 23.95
- Clip Art Vol. 1 15.95
- Clip Art Vol. 2 21.25
- Complete Graphics 27.95
- Copy II + 18.50
- Coveted Mirror 11.95
- Crimson Crown 11.95
- Crosstalk 95.00
- Crossword Magic 28.50
- Crusade in Europe 22.95
- Crypt of Medea 21.95
- Cut & Paste 21.50
- Cutthroats 23.69
- Database Toolbox 23.95
- Dazzle Draw 33.95
- D-Code 19.95
- Deadline 28.00
- Decision in Desert 19.95
- Delta Drawing 27.95
- DiskQuick 14.95
- Disc Repair Kit 8.95
- Dollars & Sense 66.50
- DOS Boss 11.95
- Double-Take 17.95
- Dragonworld 22.75
- Early Games 15.95
- Easy as ABC 20.95
- Eidolon 23.50
- Enchanter 23.69
- Essential Data Dup 41.95
- Europe Ablaze 30.50
- Extra K 19.95

- F-15 Strike Eagle 19.95
- Facemaker 17.95
- Family Roots 149.95
- Fantavision 26.95
- Fahrenheit 451 22.75
- Fat Cat 17.95
- Financial Cookbook 30.00
- Flex Type 14.95
- Flight Sim. II 30.50
- Fontrix 53.25
- Fntpkas 1 thru 13 ea. 13.00
- Forecast 34.00
- Fontworks 34.95
- Fraction Factory 15.95
- Fraction Fever 17.95
- Frame-Up 14.95
- Game Maker 34.95
- Gato 20.45
- Gertrude's Puzzles 24.75
- Gertrude's Secrets 24.75
- Goren Bridge 51.95
- Ghostbusters 22.00
- Gl Joe 19.95
- Graphics Department 64.95
- Graphics Expander 21.95
- Graphics Magician 26.95
- Graphworks 57.95
- GPLE 24.95
- Hacker 29.95
- Handlers Package 69.95
- Hey Diddle Diddle 17.95
- Hitchhiker's Guide 21.75
- Home Accountant 47.95
- Home Connection 19.95
- Home Data Manager 19.95
- Homeword + 41.00
- Homeword Filer 41.00
- Image Printer II 34.95
- Impossible Mission 23.50
- Infidel 26.00
- I.O. Silver 14.95
- Jeeves 29.95
- Juggle's Rainbow 18.95
- Karateka 19.45
- Kids on Keys 17.95
- Kid Writer 18.89
- Kinder Comp 17.95
- Knight of Diamonds 19.50
- King's Quest I or II 28.00
- Koronis Rift 23.49
- Legacy of Lylgamy 22.50
- List Handler 39.95
- Little Comp. People 27.95
- Locksmith 56.95
- Lode Runner 19.45
- Magic Spells 20.50
- Man. Your Money 101.95
- Map Pack 8.95
- Mask Parade 20.95
- Mastering the GRE 104.95
- Mastering the SAT 69.95
- Mas. of the Lamps 21.95
- Master Type 23.25
- Math Blaster 26.95
- Math Maze 27.95
- Medical Dictionary 27.95
- Megaworks 64.95
- Merlin 33.69
- Merlin Pro 54.95
- Merlin Combo 63.95
- Micro Cookbook 21.45
- Micro Lg. Baseball 22.50
- Millionaire 22.50
- Minipix 14.69
- Moebius 39.95
- Monty Plays Scrabble 32.95
- Mouse Budget 39.95
- Mouse Calc 86.95
- Mouse Desk 22.45
- Mouse Word 74.95
- MouseWrite 71.95
- Most Amazing Thing 22.95
- Multi Disk Catalog 17.95
- Multipan DOS 3.3 59.95
- Munch-A-Bug 23.95
- Murder by the Dozen 21.99
- Music Construction 24.50
- NATO Commander 19.45
- Newsroom 30.50
- One-On-One 24.00
- OO- Topos 11.95
- Paper Graphics 13.95
- PFS: Access 44.00
- PFS: File 69.95
- PFS: First Success 126.00
- PFS: Graph 69.95
- PFS: Plan 69.95
- PFS: Report 69.95
- PFS: Workmates 174.95
- PFS: Write 69.95
- Piece of Cake Math 15.95
- Picture Builder 23.99
- Pinball Construction 21.25
- Pinpoint 39.95
- Pitstop II 31.50
- Pixit 23.89
- Planetfall 22.00
- Prince 48.95
- Printographer 23.95
- Print Shop 26.69
- Pr. Shp. Gr. #1,2 or 3 13.95
- Print Shp. Companion 21.95
- Print Shop Refill 12.25
- Probyter 17.95
- Prof. tour golf 25.89
- Program Writer 34.95
- Pronto DOS 14.95
- Quicken 51.95
- Rambo 22.50
- RDF 24.95
- Reach for the Stars 27.50
- Reader Rabbit 27.50
- Reforger '88 41.95
- Rendezvous w/Rama 22.75
- Report Card 32.95
- Report Works 64.95
- Rescue on Fractalus 23.50
- Rescue Raiders 24.95
- Robot Odyssey I 27.25
- Rocky's Boots 27.95
- Sargon III 27.20
- Sat (Harcort Brace) 45.00
- Science Tool Kit 32.95
- Seastalker 32.95
- Sensible Grammar 52.95
- Sensible Speller 63.95
- 7 Cities of Gold 24.25
- Shadowkeep 22.75
- Shape Mechanic 20.00
- Sideways 29.95
- Silent Service 19.45
- Silicon Salad 12.69
- Skyfox 24.25
- Snooper Trp I or 2 22.95
- Solo Flight 19.95
- Sorcerer 26.00
- Speed Reader II 36.95
- Spell Breaker 34.95
- Spellcopter 23.50
- Spell It 26.50
- Spellworks 29.95

- Spitfire Simulator 24.75
- Spy Hunter 26.00
- Spy vs. Spy 24.95
- Squire 22.50
- Starcross 28.00
- Star Lg. Baseball 20.95
- Star Trek 27.95
- Sticky Bear ABC 23.75
- Basket Bounce 23.75
- BOP 23.75
- Car Builder 23.75
- Math 23.75
- Numbers 23.75
- Opposites 23.75
- Reading 23.75
- Shapes 23.75
- Spellgrabber 23.75
- Town Builder 23.75
- Typing 23.75
- Story Machine 17.95
- Story Maker 24.95
- Sum. Games I or II 22.45
- SuperCalc 3A 109.95
- Super Disk Copy 24.95
- Suspect 26.00
- Suspended 28.00
- Sword of Kadash 11.95
- Take 1 34.00
- Technical Dictionary 27.95
- Temple of Apsahi Tri. 22.45
- Terrapin Logo 54.50
- Terrapin Utilities 14.95
- Think Tank 88.89
- Thinkworks 64.95
- Time is Money 57.45
- Tip Disk #1 12.00
- Transitions 13.95
- Transylvania 11.95
- Triple-Dump 18.95
- Turbo Pascal 3.0 34.95
- Turbo Database Tlxb 27.95
- Turbo Tutor 20.50
- Tycoon 22.50
- Typing Tutor III 28.50
- Ultima III 33.25
- Ultima IV 33.25
- Understanding IIE 17.95
- Understanding II+ 15.95
- Universal file conv 24.95
- Utility City 15.25
- Versaform 43.45
- Video Toolbox 23.95
- Visible 6502 31.75
- Wilderness 38.95
- Will Writer 27.95
- Winter Games 21.45
- Wishbringer 27.95
- Witness 22.00
- Wizardry 26.50
- Wizard's Toolbox 23.95
- Wizprint 14.25
- Word Attack 26.95
- Word Handler 39.95
- Word Perfect 125.95
- Word Spinner 20.50
- World's Great. Bball 19.95
- World's Great. Fball 22.45
- Write Choice 26.45
- Xyphus 11.95
- Zork I 21.75
- Zork II or III 24.75

- Micromodem IIE 139.95
- Mockingboard A 65.95
- Mockingboard B 65.95
- Mockingboard C 116.00
- Mockingboard D 126.45
- Mockingboard A-MAX 38.95
- Mitrm CX 256K 169.00
- Mitrm CX 512K 209.00
- Mitrm IIE8 (16 bit) 154.00
- Mitrm CX 256K (16 bit) 354.00
- Mitrm CX 512K (16 bit) 394.00
- Multiram RGB 64K 154.00
- Multiram RGB 256K 194.00
- Multiram RGB 512K 234.00
- Multiram RGB 768K 274.00
- Multiram RGB 1024K 314.00
- Multiram IIE 80/64K 124.00
- Multiram IIE 80/256K 159.00
- Multiram IIE 80/512K 194.00
- Multiram IIE 80/768K 229.00
- Multiram IIE II+ 80/160 199.00
- Paddlesticks 26.50
- Parallel Printer Card 44.95
- Print-It 123.50
- Prometheus 1200A 254.95
- Prometheus 300C 99.95
- Super Serial Card 84.95
- System Saver Fan 59.95
- Thunder Clock 102.95
- Video 7 (SCG7) 109.95
- Wildcard II 69.95
- ZEE 80A Checkmate 54.95
- Zoom IIE 109.00

PRINTERS

- Citizen 120D CALL
- Star NX-10 279.95
- Star SG-15 394.95
- Star SD-10 344.95
- Star SD-15 474.95
- Star SR-10 494.95
- Star SR-15 554.95
- Star Powertype 344.95
- Okidata 182P 229.95
- Okidata 20 209.95
- Okidata 192P 399.95
- Printer Stand 16.95
- Colored Printer Rbns CALL
- Color Paper Pack 12.95

MONITORS

- Magnavox Monitors CALL
- Amdek Color 600 414.99
- Samsung Color 169.95

YOUR ORDER FORM

SILICON EXPRESS
5955 E. Main St. 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

Preferred Computing

ORDER
TOLL FREE
1-800-327-7234

Computer Accessories

When Only the Best Will Do!



We only sell proven products that work. By selling only the industry best, we can assure you of the highest level of reliability and performance. Selling large volumes of a smaller product line allows us to have the lowest discount prices and fast same day shipment.

AE APPLIED ENGINEERING™

RamWorks II™ If you have a IIe this card is perfect and if you use AppleWorks, it's an absolute must! Applied Engineering was the first company to expand AppleWorks and they're always 6-12 months ahead of the competition. And you can stay current with our FREE SOFTWARE UP-GRADES. Why settle for a partial compatible when you can have a real RamWorks at a discount price.

RamWorks II 256K **\$169**
 RamWorks II 512K **\$199**
 RamWorks II 1 MEG **\$269**
 RamWorks II 1.5 MEG **\$389**

65C816 16 Bit Card Requires RamWorks II and Apple IIe. Enhances VIP Professional. **\$149**

RamWorks II™ RGB Option Even if you bought a RamWorks just to use the RGB option, it would be worth it. The Applied Engineering RGB option has 4 text colors, runs both Apple and IBM RGB monitors, and is compatible with Apple's standard for RGB, includes cables. **\$99** (See our new RGB monitor at right.)

TransWarp™ We tested all the accelerators and TransWarp was 20-300% faster than the others. Runs cool too! **\$219**

Z-80 Plus™ Runs all CP/M® software, works with Sider hard disk. There are over 5000 CP/M® programs out there and this card runs them all. Includes operating system and manual, a great value. **\$99**

Timemaster H.O.™ We tried them all, Clockworks, Thunderclock, and others. Timemaster H.O. had the most features and was the easiest to use. It comes with about 4 times the software of anyone else. It even adds 15 new commands to BASIC! **\$99**

Viewmaster 80™ Super resolution, total software compatibility and everything you need to run AppleWorks on a II+ or Franklin. **\$109**

RamFactor™ If you have a II+ or would rather use slots 1-7 in your IIe, RamFactor is for you. It is fully compatible with Apple's memory card, runs AppleWorks on a IIe or II+ and has a battery back-up option.

RamFactor 256K **\$189**
 RamFactor 512K **\$224**
 RamFactor 1 MEG **\$289**
 Battery Back-up **\$149**

Extended 80 Column Card with 64K I know what you're saying. If you've seen one extended 80 column card, you've seen

them all, right? Well, this one's from Applied Engineering and it's well made and comes with full documentation. **\$69**

Z-RAM II™ Up to 1152K in a IIc? You bet! And only Z-RAM runs CP/M® software too! If you run AppleWorks on a IIc, this card is a must!

Z-RAM II 256K **\$249**
 Z-RAM II 512K **\$284**
 Z-RAM II 768K **\$319**
 Z-RAM II 1 MEG **\$389**

IIc System Clock™ A PRO-DOS compatible clock, displays time and date on AppleWorks screens and files, and other PRO-DOS programs. **\$69**

More Quality Products

The Sider A powerful yet compatible hard disk works with PRO-DOS, DOS 3.3, CP/M® and Pascal.

10 MEG Sider **\$599**
 20 MEG Sider **\$799**
 20 MEG Tape Back-up **\$639**

Ultra Hi Res RGB Monitor/TV Due to the very low price of the product, we can't reveal the manufacturer. But we can tell you that it is a very major manufacturer. This RGB monitor uses a 13" ultra hi res CRT for super sharp 80 column text and great graphics. But in addition to being the best RGB monitor available this unit is also a 180 channel cable ready television set with remote control. Try it. You WILL like it. **Only \$519**

RGB Cable For above **\$29.00**

Mappler RGB Converter This device converts an Apple RGB output into an IBM output (15 pin to 9 pin). Not needed when using the new RamWorks RGB option. **\$49**

5-1/4" Disk Drive Super quiet direct drive compatible with all Apple software and Apple controller card. A top quality unit with 1 year warranty. **Only \$119**

5-1/4" Disk Controller Runs up to 2 drives. **\$49**

16K RAM Card For Apple II and II+ **\$69**

Heavy Duty Apple Power Supply With over twice the output current of Apple's original power supply. This unit can run even fully loaded Apples. **\$59**

DataShield Uninterruptable Power Supply Keeps your Apple running through power transients, voltage drops, brownouts and blackouts. Provides constant flow of power in a blackout for 15-20 minutes, allowing an orderly shutdown. **200 Watt Unit \$329**

Kensington System Saver Fan with 2 power outlets and surge protector. **\$69**

Internal 1200 Baud Modem For Apple IIe and II+. Switches between 1200/300/110 baud. Built-in speaker, auto dial, auto select, auto answer. Three year warranty. A top quality unit with full Bell 212A compatibility. **\$199**

Internal 300 Baud Modem With software from ZOOM **\$99**

Pinpoint's AppleWorks Accessories The best available and they are written to fully utilize Applied Engineering's RAM cards. (Includes RAM enhancement software). Together a \$118 value. Only **\$59**

256K RAMS 150ns. 5 year warranty. Set of 8 **\$39**

VIP Professional Lotus 1-2-3 Work-alike **\$114**

SPECIAL!

RamWorks™ That's right, RamWorks not RamWorks II. RamWorks is the memory card that started the revolution. RamWorks can expand to 512K on the main board and up to 1 meg with an optional 512K piggyback and can accept Applied Engineering's new RGB option. A 512K RamWorks gives AppleWorks a 360K desktop. Comes with Applied Engineering's newest software. Hurry, at this price they won't last long. **With 512K \$149**

Why buy from us?

1. Toll free 800 number for orders.
2. We almost always ship from OUR stock and we never let ourselves run out of Applied Engineering products. Call us before 3 P.M. and it ships today.
3. Emergency overnight delivery is available.
4. We're nice guys that want to help. We want our business to grow because of repeat customers and word of mouth.
5. We handle only the industry's best. We've tested and used all the products we sell.
6. 15 day money back satisfaction guarantee on hardware. If you don't like something, we'll give you your money back. No hassles.
7. We'll support, service and warranty everything we sell.
8. No surcharge is added for charge cards and we won't charge your card until we ship.
9. No sales tax is collected on orders outside Texas.
10. All shipments are insured by us.

Order by mail: Send check or money order to Preferred Computing, P.O. Box 815828, Dallas, TX 75381

Order by phone: 1-800-327-7234 Visa, MasterCard or COD Texas, Hawaii and Alaska 1-214-484-5464

Orders only call 1-800-327-7234

Questions and Customer Service call 1-214-484-5464 Texas residents add 5% sales tax

Prices subject to change without notice

Ad # 6

NEW MAC GRAPHICS PROGRAMS

Four impressive products for creating and organizing images

This month we're looking at new Macintosh graphics programs. These are four that impressed us—all are both useful and unprotected.

First, two programs for Paintaholics, those of us who have more pictures than we can effectively manage. **PacPaint**

PacPaint solves the problem of too many pictures and too few disks. It lets you pack, or compress, "paint" documents to between 30% and 70% of their original size. The simpler the image, the greater the compression. (By the way, we're using the generic designation "paint document" to describe MacPaint, FullPaint, and MacBillboard documents. In the future, the term will also refer to documents from other, soon-to-be-announced, paint programs.)

Once you've packed a picture, you can't edit or display it unless you first use PacPaint to unpack it. If, therefore, you want to keep your paint files packed, you have two choices: use PacPaint with Switcher or install PacPaint (9K) onto your application disks. The documentation states that the latter method improves productivity, since keeping more files on your active disks cuts down on disk swapping. We don't agree. The extra step of unpacking each document before we could use it became a nuisance. Thus, we suggest that you use PacPaint for archival storage. You do back up your files, don't you? Keep your working files unpacked and pack your backups. Fewer disks, less confusion, and less money.

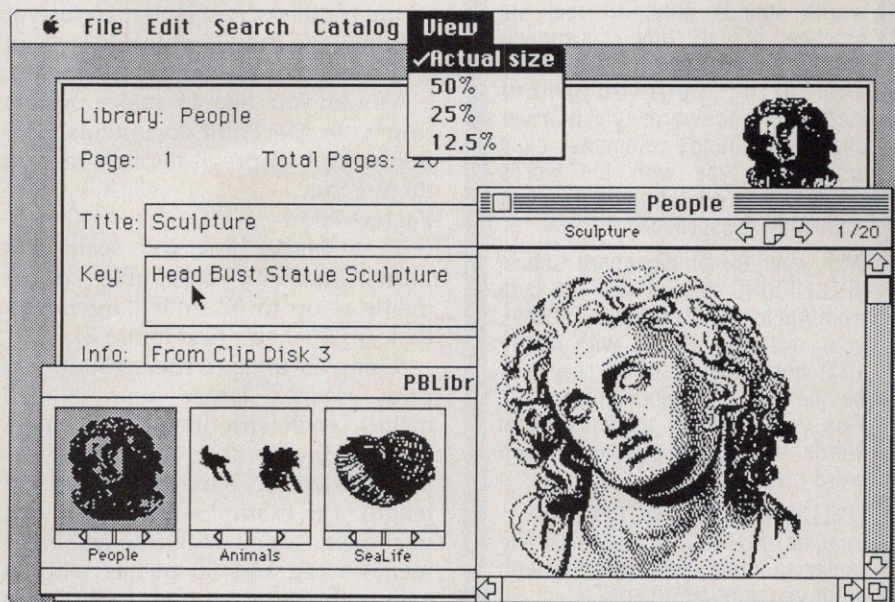


Figure 1: When you invoke the Keyword Search option, Picture Base searches the disk's libraries to find all pictures with that keyword.

Picture Base

Here's a remarkable utility for organized people (or people who wish they could get organized). Picture Base, an art-management system, lets

If you've just started your MacArt collection, now is the time to begin organizing it.

you organize paint or MacDraw documents into annotated libraries.

One library, for example, might be called Events. In this library, each page (an image or possibly a group of two or three small images) would relate to holidays and special occasions. Another library, People, would con-

tain faces, figures, and so on. For each page, you could enter keywords that would help you locate an image. A picture of a Christmas tree in the Events library, for example, might have the keywords *tree*, *Christmas*, and *holiday*.

When you use Picture Base, each library is represented by a reduction of the first page in that file (see figure 1). You can leaf through a library, one page at a time, or locate an image by invoking the Keyword Search option. Picture Base searches all the disk's libraries for that keyword and displays every image that matches it. Once you've found the image of your choice, you can copy the entire page, or a portion of it, to the Clipboard and paste it into any compatible document.

To access your libraries, you run Picture Base under Switcher or install

Correct Misspelled Words As You Type, *instead of afterwards!*

Spell checking programs are a pain, because it takes longer to check a letter than to write it!

SPELLBOUND ELIMINATES HASSLE: As you type, Spellbound beeps at you when it detects a misspelling. Simple! SPELLBOUND can display a list of spelling alternatives. Easy!

WHAT QUORUM HAS DONE:

Quorum has reverse engineered the spelling problem. Most letters average 160 unique words. In theory, comparing your letter to 80,000 words sounds great. In real life practice, it's a time consuming hassle and inefficient. Instead of comparing your document inefficiently to words you'll never use, Spellbound compares each word you type with the words research has proven to be the most frequently misspelled.

With over 9k of dictionary space, SPELLBOUND doesn't rob one byte from Appleworks' desktop. To begin, your dictionary starts with nearly 1000 words that research proves to be the most frequently misspelled. Plus, you can easily add and remove words by using Appleworks' own word processor.

SPELLBOUND's AUTOPILOT FEATURE: Imagine AUTOPILOT automatically replacing misspelled words with what you're trying to spell.

SPELLBOUND's DICTIONARY SEARCH: Imagine finding the word you want, even if you only know one letter.

TYPOGRAPHICAL ERROR CHECKING: As a bonus, Quorum gives you a second dictionary: The Most Commonly Used English Words. With this, you've got an online typographical error checker. Versatile.

For APPLEWORKS Only

100% Money Back

Satisfaction Guarantee!

SPELLBOUND just \$49⁹⁵
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, PO BOX 2134-AP
OAKLAND, CA 94621

CIRCLE 223 ON READER SERVICE CARD

the Picture Base Retriever desk accessory (11K) on your application disk.

Picture Base is perfect for clip art. If you've just started your MacArt collection, now is the time to begin organizing it. If, like us, you've already accumulated lots of MacPaint documents, be prepared to spend hours "filing" your art. As with any database, it takes time to enter

the information. If you've been through the "where is that picture of the burst pie chart?" ordeal, however, you know that the time is well spent.

Would you like to make posters from your MacPaint documents? The following two programs will let you do just that.

PosterMaker

PosterMaker lets you scale and print MacPaint-compatible documents at up to 32 times larger than their original size (see figure 2).

Using an ImageWriter printer, you print images larger than 8 x 10 inches, each strip being one sheet wide by the number of sheets of paper needed to achieve the desired length. For example, an 8 x 10-inch document, scaled up 300%, will be 24 inches wide and 30 inches long. It prints in three strips, each three sheets long. Paste the strips together and you have a poster. On the LaserWriter, enlargements are printed in 8 x 10-inch segments.

With PosterMaker, you can cut and paste images up to 32K in size. The program includes a border-drawing tool and digitized poster templates.

PosterMaker Templates Vol.1 is a

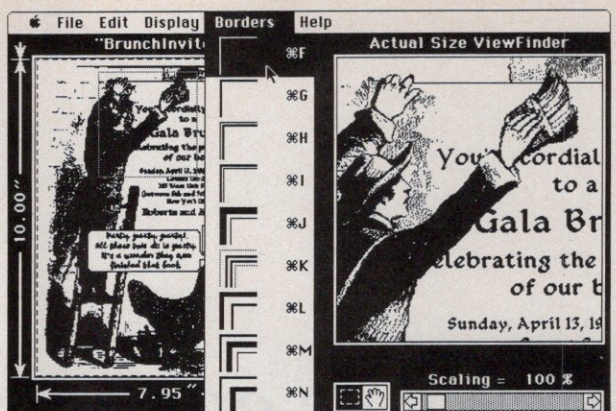


Figure 2: PosterMaker lets you scale and print paint documents up to 32 times larger than the original size.

collection of 20 19th-century poster designs. Many are humorous, and most are wonderful!

MacBillboard

Serendipity! We downloaded this shareware program from CompuServe and discovered a combination poster maker and full-featured paint program.

MacBillboard doesn't restrict your artistic endeavors to the active screen. With most of the graphics tools, the pencil and brush excepted, the window scrolls when you reach its edge, so you can continue working. With Show Page active, you can see both the full page and the drawing area while you're drawing (see figure 3).

The program offers precision scaling, an innovative multilevel FatBits, a brush editor, a paint bucket that can fill beyond the borders of the active window, and a host of printing capabilities.

With MacBillboard you can print multiple copies of a document, and you can elect to print your document traditionally (as with MacPaint), with the top half upside-down (greeting-card format), flipped sideways (iron-on format), or enlarged 2-32 times (poster format).

MacBillboard, especially its text tool, is slower than MacPaint, but it offers so many features that MacPaint lacks, and it's priced so reasonably, that we recommend it as a companion package.

If you get MacBillboard from a users' group or on-line, please be sure to send in your money and register your copy. You'll be encouraging shareware

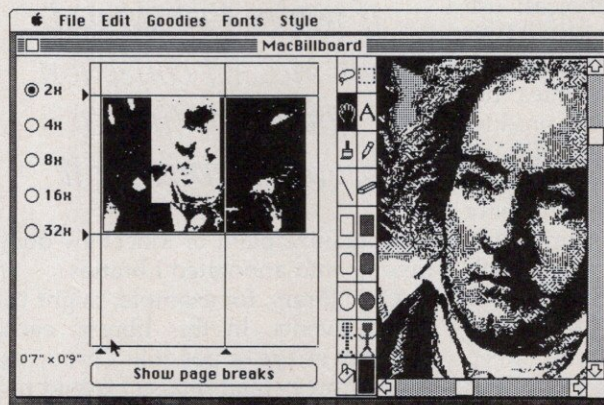


Figure 3: In MacBillboard, you can see both the full page and the drawing area while you're drawing.

developers to continue offering quality programs at a fair price. As a bonus, you'll receive an excellent manual, templates, and a program called MacBanner.

RIP, Apple Graphics Tablet

Apple has officially discontinued production of the Apple Graphics Tablet—a great loss for Apple artists. Two factors made this tablet significant: the proprietary tablet ROM made the tablet simple to program, and since the tablet was an Apple product, it was a standard with large software support.

Summagraphics, manufacturer of MacTablet (see *A+*, September 1985), told us that it had a new tablet for the Apple II in the works. We hope it will be compatible with existing Apple II software.

Now that we've cleared our backlog of products, next time we'll have some tips and a tutorial. Got a question or discovered a great product? Drop us a line. **+**

PRODUCT INFORMATION

MacBillboard

Ce Software
801—73rd Street
Des Moines, IA 50312
(515) 224-1995

List Price: Shareware; license, disk, and manual, \$35

Requires: Macintosh, 512K RAM
CIRCLE 407 ON READER SERVICE CARD

PacPaint

Mainstay
28611B Canwood Street
Agoura Hills, CA 91301
(818) 991-6540

List Price: \$39.95

Requires: Macintosh
CIRCLE 408 ON READER SERVICE CARD

Picture Base

Symmetry Corporation
761 East University Drive
Mesa, AZ 85203
(602) 844-2199

List Price: \$69.95

Requires: Macintosh
CIRCLE 409 ON READER SERVICE CARD

PosterMaker, PosterMaker

Templates Vol. 1
Strider Software
Beecher Lake Road
Pembine, WI 54156
(715) 324-5487

List Price: PosterMaker, \$39.95;
Templates, \$20

Requires: Macintosh, 512K RAM
CIRCLE 410 ON READER SERVICE CARD

LEGEND™ CARDS

EXPAND APPLEWORKS™

on Apple II, II+, IIe,
IIc and Franklin

C'CARD™...1 MEG FOR IIc \$369

**FREE APPLEWORKS™ PATCH
256K to 1 MEGABYTE OF MEMORY
HIGH SPEED DISK EMULATION
USE MOUSE WITH APPLEWORKS™**

S'Card™ for the II, II+, IIe, III, Franklin

• Slot Independent • 1024K APPLEWORKS™ on Apple II, II+, IIe, Franklin

E'Card™ for the IIe

• 80 Column Display • RGB • Use Mouse with APPLEWORKS™

Send me info on:

- C'Card (IIc)
 E'Card (IIe)
 S'Card (II/II+, IIe
Franklin)
 Desktop Mouse

NAME _____ PHONE _____

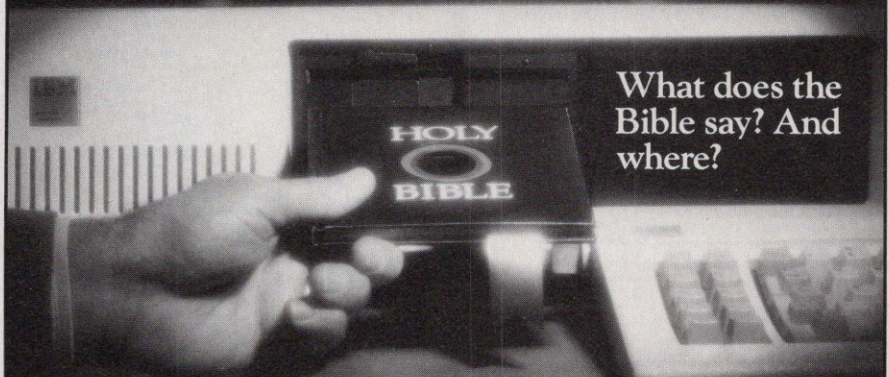
ADDRESS _____

CITY _____ STATE _____ ZIP _____

LEGEND INDUSTRIES LTD. (800) 5-LEGEND or (313) 674-0953-2220 Scott Lake Rd-Pontiac, MI 48054
Legend, E'Card, S'Card, C'Card and Desktop Mouse are trademarks of Legend Industries, LTD. Apple and AppleWorks are trademarks of Apple Computer, Inc.

CIRCLE 287 ON READER SERVICE CARD

Still Searching?



What does the Bible say? And where?

We offer an integrated family of software products that allow you to search the Bible as never before.

With "THE WORD Processor" software (which includes the complete text of the KJV or NIV Bible) you can create indexes on key words, phrases, even concepts, as well as search, display or print, for just \$199.95. Greek and Hebrew Transliterator products which include Strong's Concordance are also available. Or choose from a host of other exciting Biblical software products available in varying price ranges.

So if you're still searching, give us a call. We're anxious to show you how your PC can help you access your Bible as never before.

BIBLE RESEARCH SYSTEMS

Include \$3.00 for postage and handling. For Apple, IBM PC, Commodore 64, TRS80, Kaypro, CPM 2.2, MS-DOS.

2013 Wells Branch Parkway, Suite 304
Austin, Texas 78728 (512) 251-7541

CIRCLE 158 ON READER SERVICE CARD

CALL TOLL FREE 1-800-382-2242

NET THE SOFTWARE

7 Trap Falls Rd. Shelton, Connecticut 06484

(See Below)

WE WILL BEAT

- Tap our unmatched selection and inventory of software/hardware for the Mac and Apple (as well as the IBM PC and Commodore Amiga).
- School and corporate purchase orders are welcomed. CALL 1-800-874-1108.
- Special/rush orders. If something you need is not listed, hard to find, or needed in a hurry, CALL 1-800-874-1108.
- Order Status. CALL (203) 375-3860.
- Ask for System Sales when ordering a complete system.
- FREQUENT PURCHASER PROGRAM. Any repeat customer 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.
- No additional charges for credit card orders.
- Convenient hours. 7 days/week: 9AM-11 PM EST.
- 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.
- FURTHER DISCOUNTS BY MAIL. Circle the items in our ad you want, send the aid 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).

Send coupon and list of items desired to:
DISCOUNT BY MAIL DEPARTMENT
 Northeastern Software, 88 Ryders Lane, Stratford, CT 06497

To be eligible for the \$1.00 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 _____

Computer Model _____

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, PO, APO, and FPO \$5.00 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 7.5% 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 judgment remains with the manager on duty.

SPECIALS

ORIGIN SYSTEMS	
Maebius	36.50
Ultima IV	35.50
MICROPROSE	
Silent Service	20.00
ALS	
Spellworks	28.00
MEGAHAUS	
Reportworks	73.00
Magworks	73.00
MICROSOFT	
Applesoft Compiler	101.00
OKIDATA	
XL 92	315.00
ELECTRONIC ARTS	
Autoduel	30.00
PBI	
Jeeves	35.00
PINPOINT PUBLISHING	
Pinpoint	34.50
MINDSCAPE	
Rambo	23.00
STEDIWATT	
Stediwatt 4 Outlet	27.00
AVANTE GARDE	
Dave Winfield's Batter Up	21.50
AVALON HILL	
Linder Fire	33.50
BASF	
Basf SS/DD	10.00
V TECH	
Laser 128	411.00

FUNK	
Sideways	31.00
Sideways Pro Dos	31.00
HAYDEN SOFTWARE	
The Writer	24.00
HOWARDSOFT	
Real Estate Analyzer III	179.00
INTERNATIONAL SOLUTIONS	
Mouse Budget	37.00
Mouse Calc	83.00
Mouse Desk	23.00
Mouse Word	67.00
Mouse File	67.00
INTUIT	
Quicken	49.00
KENSINGTON	
Faformat II Enhanced	87.00
LIVING VIDEOTEK	
Think Tank II/III	77.50
MEGAHAUS	
Magworks	73.00
Reportworks	73.00
Thinkworks	73.00
MANZANITA	
Business Accountant System Man	68.00
Business Accountant GL/APAR/I	208.00
Business Accountant Payroll	245.00
Adv. Business Act. System Man	68.00
Adv. Business Act. GL/APAR/I	280.00
Adv. Business Act. Payroll	280.00
Businessworks Syst. Manager	64.00
Businessworks GL/APAR/IN	225.00
Businessworks Payroll	255.00
MECA	
Managing Your Money	104.00
MICROPRO	
Wordstar	179.00
MICROSOFT	
Multiplan	60.00
MONOGRAM	
Dollars & Sense IIE	68.00
Dollars & Sense IIC	68.00
Forecast	35.00
NOLD PRESS	
FBI Software	28.00
Graphicworks	56.00
Jeeves	35.00
PEACHTREE	
Back to Basics	97.00
PINPOINT PUBLISHING	
Pinpoint	34.50
Pinpoint Spelling Checker	34.50
Pinpoint Toolkit	CALL
PRACTICORP	
Practicor II	25.50
PRECISION SOFTWARE	
Superbase	53.50
QUARK	
Word Juggler w/ Lexicheck	58.00
Catalyst IIE	58.00
ROGER WAGNER PUBLISHING	
Mouse Write	71.00
The Write Choice	26.00
SATELLITE SOFTWARE	
Word Perfect	78.50
SCARBOROUGH	
Net Worth	46.00
SENSIBLE SOFTWARE	
Bookends or Sensible Speller	64.00
The Graphics Department	64.00
Sensible Grammar	54.00
Report Card	31.00
SIERRA-ON-LINE	
The General Manager II	128.00
Homeward/Speller Bundle	41.00
Screenwriter IIE	76.00
Homeward Filer	41.00
SIMON & SCHUSTER	
JK Lessers Income Tax	46.00
JK Lessers Money Manager	46.00
SORCIM	
Supercalc 3A	98.00
SOFTWARE PUBLISHING	
PFS: Access	43.50
PFS: File or Graph	68.50
PFS: Report or Write	68.50
PFS: File & Report	72.00
PFS: Workmates	138.50
STATE OF THE ART	
Electric Checkbook	58.00

STONEWARE	
DB Master 4 Plus	164.00
DB Bus. Pack or Mast Bus Team	184.00
DB Master Business Writer	84.00
TIMEWORKS	
Silvia Parter's Financial Plan	58.00
Swiftcalc with Sideways	99.00
TURNING POINT	
Time Is Money	57.00
UNISON	
Printmaster	28.00
PINPOINT	
Micro Cookbook II/III	22.00
VISICORP	
Flashcalc	54.00

Pronto Dos	14.75
Silicon Salad	12.75
Triple Dump	20.50
Type Faces	11.75
Utility City	14.75
BORLAND	
Turbo Pascal	38.00
Turbo Database Toolbox	30.50
Turbo Tutor	20.50
KENSINGTON MICROWARE	
System Saver	58.50
LAZERWARE	
Lisa V2.6	52.50
MICROSOFT	
Applesoft Compiler	101.00
PERFECT DATA	
Perfect Data Head Cleaning Kit	8.00
QUALITY	
Bag of Tricks II	29.00
ROGER WAGNER	
Merlin	38.00
Merlin Combo	63.00
Merlin Pro	56.00
Visible 6502	CALL
VIDEX	
Ultraترم w/SS Inv.	190.00
Video 7 RGB Interface IIE	115.00
Video 7 RGB Interface IIC	83.00

ANIMATION / GRAPHICS SOFTWARE

ACTIVISION	
Game Maker	29.00
BAUDVILLE	
Actors and Actions	17.00
Blazing Paddles	26.50
Heros and Villians	17.50
Pix It	28.00
Prince	41.00
Shope Library 1, 2 or 3	12.00
Take 1	33.00
BEAGLE BROTHERS	
Beagle Graphics	30.50
Frame Up	14.50
Alpha Plot	20.50
Flex Text	20.50
Shope Mechanic	14.50
BRODERBUND	
Dazzle Draw	35.00
Fontavision	28.50
Print Shop	28.50
Print Shop Companion	23.50
Graphics Library 1	14.50
Graphics Library 2	14.50
Graphics Library 3	14.50
Refill Paper Pack	12.50
DATA TRANSFORMS	
Fontrix	51.00
Font Packs 1-13	11.75
ELECTRONIC ARTS	
Movie Maker	25.50
PENGUIN	
New Complete Graphics System	46.00
Graphics Magician	34.50
Cat Graphics	21.00
SENSIBLE SOFTWARE	
Graphics Department	64.00
SOFTWARE PUBLISHING	
PFS: Graph Dos or Pro Dos	68.50
SPINNAKER	
Delta Drawing	25.00
SPRINGBOARD	
Clip Art Collection Vol. 1	16.50
Clip Art Collection Vol. 2	20.50
Graphics Expander	23.00
Newsroom	31.00
WEEKLY READER	
PIC Builder	20.50
Zoom Graphics	37.50

EDUCATIONAL

ADDISON WESLEY	
Smart Eyes	35.00
APPLE	
Logo II	CALL
BANTAM BOOKS	
Road Rally USA	23.00
Scarsdale Diet	23.00
BARRONS	
Barrons SAT	35.00
BRAINPOWER	
Chipwits	23.00
Thinkfast	23.00
BRODERBUND	
Science Toolkit	35.00
CBS	
Adventure Master	19.00
Body in Focus	23.00
Dinosaur Dig	23.00
Mastering the SAT	57.00
America Coast to Coast	23.00
Goren's Learning Bridge	43.00
Forecast or T-Rex	28.00
DAVIDSON AND ASSOCIATES	
Alge Bluster	26.00
Speed Reader II	36.00
WORD ATTACK, MATHBLASTER	
Or Spell II	26.00
All Davidson Data Disks	11.50
Classmate	26.00
DESIGNWARE	
Spellcopter or Spellkazam	23.00
States & Traits and European N	24.00
Body Transparent or Mission AL	24.00
Grammar Examiner	24.00
Remember	41.00
DLM	
Alien Addition or Alligator MI	18.00
Meteor Mult. or Minus Mission	18.00
Demolition Division or Dragon	18.00
Spelling Whiz or Word Invasion	18.00
Freddies Puzzles	18.00
Create With Garfield	18.00
EDU-WARE / PEACHTREE	
Compu Read	15.50
SAT Word Attack Skills	15.50
Spelling Bee Games	20.50
D-Code	20.50
Algebra 1, 2, 3, or 4	20.50
Algebra 5 & 6	25.50
Writing Skills 1, 2, 3, 4, 5	20.50
Hands on Basic	25.00
Introduction to Counting	18.50
Fractions or Decimals	20.50
FISHER PRICE	
Alpha Build	15.50
Peter Rabbit Reading	23.50
HARCOURT BRACE JOVANOVICH	
Harcourt SAT	44.50
Harcourt GRE or ACT	50.50

UTILITY SOFTWARE / LANGUAGES

BEAGLE BROTHERS	
Apple Mechanic	15.00
Beagle Basic	17.75
D-Code	20.50
Disk Quick	15.50
Dos Boss	12.75
Double Take	17.75
Extra K	20.50
Fit Cot	17.75
Flex Text	15.00
GPLE	26.00
I/O Silver	15.75
Macroworks	18.00
Mini Pix	14.75
Font Mechanic	14.75
Big U	16.75
Pro Byter	17.75

JE520 Voice Synthesizer
for Apple II, II+ and IIe
JE520AP... \$119.95
JE523TS (Software) \$ 9.95

300 Baud Plug-in Modem
for Apple IIc
PM300C... \$99.95

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... \$49.95

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

Mail Order Electronic - Worldwide
Jameco ELECTRONICS
Serving the Computer Enthusiast Since 1974
©1986 Jameco Electronics

QUALITY COMPUTER PRODUCTS FOR APPLE II, II+, IIe, IIc and Macintosh*

APPLE* Compatible Cards FOR APPLE II, II+ AND IIe*

ALL CARDS ON SALE!

Jameco ELECTRONICS

Four Key Software Programs!



RAM Disk!

128K RAM Card**
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. Four key software programs are included: Utilities, diagnostics, demos, and RAM disk emulators for DOS 3.3, CP/M and Apple Pascal. Complete with instructions.

JE868 (Expand-A-RAM) ... \$99.95**

PROMETHEUS PRODUCTS, INC.

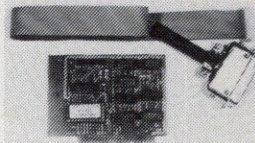


Appesurance Diagnostic Disk Controller Card

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/Appesurance II) ... \$59.95

Jameco ELECTRONICS

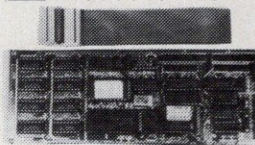


Parallel Printer Card

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. 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) ... \$49.95

PROMETHEUS PRODUCTS, INC.



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) ... \$69.95

*APPLE, APPLE II, II+ and IIe are registered trademarks of Apple Computers.

APPLE™ Compatible 5 1/4" Disk Drive and Controller Card for Apple II, II+ & IIe*



- 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 3 1/2"H x 8-9/16"D • Weight: 4 1/2 lbs.

ADD-514 (Disk Drive) \$129.95
JE875 (Controller Card) \$49.95

APPLE™ Compatible 5 1/4" Half-Ht. Disk Drive for Apple II, II+ & IIe*



- 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: 5 3/4"W x 1 1/2"H x 8"D • Weight: 4 lbs.

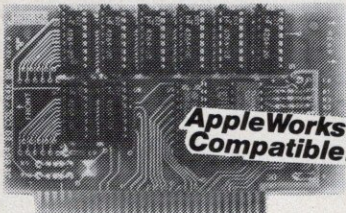
ADD-12... \$119.95

APPLE™ IIc Compatible 5 1/4" Half-Ht. Disk Drive

• Same specs as ADD-12 (above) except no controller necessary.
ADD-IIc... \$129.95

Mail Order Electronic - Worldwide
Jameco ELECTRONICS

Extended 80-Column Card for Apple IIe*



AppleWorks* Compatible!

The JE864 is an extended 80-column/64K RAM Card. This effectively doubles the amount of data that your Apple IIe can display as well as its memory capacity. • Ideal for word processing • Ultra High Resolution Graphics capability • Complete with instructions

JE864... SALE!... \$59.95

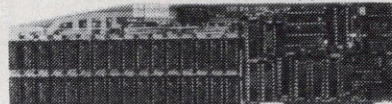
16K RAM Card (Language Card)**

The JE860 RAM Card allows the Apple II and II+ computers to expand from 48K to 64K. Complete with instructions.

JE860... \$39.95**

BIG BOARD

1MByte RAM Card for Apple II, II+ and IIe*



PLUS-WORKS™ Supports Appleworks!

BIG BOARD comes complete with RAMDISK software for DOS 3.3, ProDOS, Pascal 1.2, and CP/M for Microsoft's Softcard. A separate driver is available for the AppliCard (StarCard). You can choose the active addressing mode both via a jumper on the BIG BOARD or through software commands.

BIG BOARD-1M 1Meg RAM... \$299.95
PLUS-WORKS™ XM (Software for Apple II and II+)... \$49.95
PLUS-WORKS™ XME (Software for Apple IIe)... \$49.95

CIRCLE 279 ON READER SERVICE CARD

\$20.00 Min. Order - U.S. Funds Only
Calif. Residents Add 6% or 6 1/2% 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



Mail Order Electronic - Worldwide
Jameco ELECTRONICS



1355 SHOREWAY ROAD
BELMONT, CALIFORNIA 94002
Phone Orders Welcome (415) 592-8097
Telex No. 176043

9/86

*APPLE, APPLE II, II+, IIe, IIc and Macintosh are registered trademarks of APPLE Computers

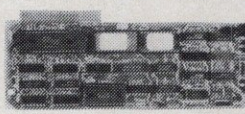
als Z-Engine CP/M Interface Card for Apple II, II+ & IIe*



The Z-Engine is an economical and reliable CP/M interface card that adds the CP/M 80 operating system to your Apple Computer • Z-80A microprocessor with CP/M 2.2 operating system and utilities • Follows Apple II Pascal Protocol • Incl. CP/M 2.2 Software • Utilities are menu-driven • Warm-boot without reset • Auto. 80-col. board and printer configuration • Manual included

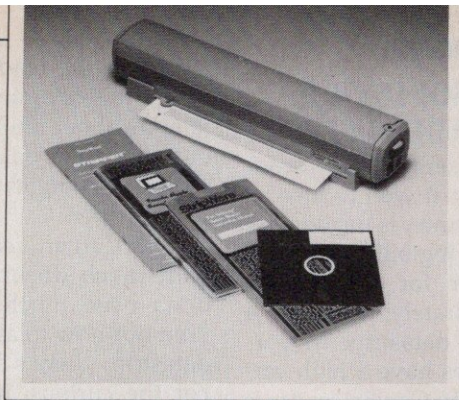
Z-Engine... \$129.95

80-Column Card For Apple II, II+ and IIe*



The Smarterm Interface Card for Apple II, II+ and IIe provides your video monitor with an 80-col. screen display, plus the 40-column Apple II display. Smarterm II understands the standard Applesoft, Integer BASIC, and Apple Pascal commands and programs. Smarterm II also adds special punctuation characters.

Smarterm II... \$139.95



Quick Take

BY IVES BRANT AND THOMAS SWAIN

Softstrip Reader

What's cheaper than a floppy diskette, easier to send by mail, and as easy to copy as a document on paper? Answer: Paper. Now you can store programs and data on paper in "datastrips," which, like the bar codes on supermarket merchandise, carry information in coded black-and-white patterns.

Cauzin Systems of Waterbury, Connecticut, has developed the new datastrip medium, which it calls Softstrip, and a \$199.95 scanning device, the Softstrip System Reader, which

reads Softstrips. The reader works with a Macintosh, Apple IIe or IIc, or IBM PC or compatible computer.

The bar codes you see on supermarket products contain just a handful of characters. A Cauzin Softstrip, which takes up about 2 x 8 inches on a sheet of ordinary paper, contains 1-5K of data. Four Softstrips fit easily on an 8½ x 11-inch sheet. The basic information unit in a Softstrip is called a dibit and consists of two minuscule boxes side by side. A white box followed by a black box represents a 1, and black followed by white equals 0.

To read a Softstrip, you need a Softstrip System Reader, which you connect to the modem or printer port

on a Macintosh or to the serial card in an Apple IIe. To create Softstrips yourself, you'll need an ImageWriter I or II, a LaserWriter, or an Epson-compatible dot-matrix printer, plus a \$19.95 program called the Stripper program, also from Cauzin.

The Softstrip System Reader is built into a 16-inch plastic tube. It comes with an accessory kit contain-

A promising new way of storing and reading data

ing a cable, a manual, and software to adapt the reader to an Apple or to an IBM-compatible system. You can select kits for the Apple IIe, Macintosh, or IBM. Mac Plus owners must use a cable adapter between Cauzin's cable and the Mac Plus' modem port to make the cable compatible with the pin-outs of the original Macintosh. For this review, we tested the Macintosh version.

Accurate but Slow

To use the Cauzin reader, you place it directly on the datastrip itself and load the included software program, called CauzComm. You have to position the reader precisely on the datastrip, by carefully matching up a small hole in the reader with a black dot next to each datastrip. If misaligned, the Cauzin reader will not be able to read the datastrip.

Underneath the reader is an open

slot. An optical sensor inside the reader travels over the Softstrip, looking through the open slot to read the data. The sensor is armed with a microprocessor that interprets the data.

On the Macintosh, once you have clicked on the Read option, CauzComm shows a pointer moving down a datastrip on the screen, to indicate the reader's progress. CauzComm converts binary information coming from the reader into files or programs readable by the computer.

The Cauzin reader performed with commendable accuracy. Repeated readings of the same datastrip yielded no inconsistencies and no programs that would not run.

Depending on the density of the information in the datastrip, the Cauzin reader transmits data to your Apple at anywhere from about 600 to 1500 bits per second. It takes roughly 22 seconds, on the average, to read a Softstrip. The factor preventing greater speed, according to Cauzin Systems, is the optical reader's microprocessor, which can work no faster at interpreting the bar codes.

The Softstrips themselves are capable of withstanding a surprising amount of abuse. Even defacing a Softstrip with pen marks did not interfere with the reader's performance. The reader operates by illuminating the datastrip with infrared light and interpreting reflected infrared light as a white area on the page. Carbon, which is very absorptive and appears black to our eyes, is visible to the Cauzin reader. Scrawling on a Softstrip with a #2 pencil will cause it become unreadable, because of the pencil's high carbon content.

The Stripper program, which allows you to print your own Softstrips, comes not on a diskette, but—you guessed it—on a Softstrip. Once read in from the datastrip, Stripper occupies about 8K on a diskette. You get two versions, one for ImageWriters and another for Epson and compatible printers. A LaserWriter version is available separately. Included with Stripper is the Dibit test program, which checks datastrips you have printed for readability.

The ImageWriter II, according to Cauzin Systems, yields more reliable datastrips than the original ImageWriter does. It also produces higher-density datastrips. The ImageWriter can fit about 1K into a datastrip, the ImageWriter II can put in about twice

that, and a LaserWriter can cram 3.5K of information into one strip. If you absolutely must have the maximum 5K on a single Softstrip, you can send a diskette to Cauzin Systems, which will print a 5K strip that you can take to a typesetter and have printed up for publication.

Error Alert

The Cauzin Softstrip reader appears to have excellent error-detection and correction capability. It checks the data as it goes, using both parity and CRC (cyclical redundancy checking) error-detection on each row of data in the datastrip.

CauzComm lets you know when the reader cannot read the datastrip because of misalignment of the paper,

TIPS FOR SOFTSTRIP SYSTEM READER USERS

1. Don't jar the reader while it is scanning a Softstrip, so it won't "lose its place." 2. If your printer is turning out datastrips of poor legibility, you can make them easier for the Cauzin reader to read accurately; just make a photocopy of the datastrip. In particular, Xerox copies have a high carbon content, and the Cauzin reader is contrast-sensitive to carbon. (Carbon absorbs the infrared light that the reader uses to read a datastrip.) 3. If you accidentally mark a Softstrip with ink, it will probably not matter at all. If you spill coffee on it, don't despair; just photocopy the datastrip quickly, before the liquid wrinkles the paper and dimensional changes make it unreadable. 4. Folded photocopies are likely to be unreadable, because the carbon actually flakes off the crease in the paper.

jarring of the reader, or another reason. The reader appears to be able to tolerate about a 6% change in the dimensions of a datastrip, allowing for moisture changes but not wrinkling of the paper.

The Cauzin reader doesn't come with much documentation, but you don't need much. Once you've figured out how to align the reader on a datastrip, there's little else to learn. For the curious, it would be nice to have some more technical details on how the reader works and how to produce the most reliable datastrips.

Using a Cauzin reader cannot compare to the ease of just popping a diskette into a drive. The datastrip medium makes life easier not for you,

Fastermind, an Applesoft BASIC program by Tim Hartnell, from the Cauzin Apple Sampler Library

Softstrip

Print-it!

THE NEW APPLE* COMPATIBLE SERIAL AND PARALLEL PRINTER INTERFACE

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

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

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

Whether your Apple II, II+, //e[®] or "look-alike" is for business or pleasure, you'll want the ability to pause and take snapshots of your screen displays and then continue from exactly where you paused, all at the touch of a button - games, business data, menus, educational instructions, graphics - even CP/M[®]. PRINT-IT! will print your screen at any time no matter what program you're running, as well as perform every function you expect of an intelligent printer card.

PRINT-IT! supports:

- Graphics - Low, high, double low, and double high resolution
- Text - 40 column as well as Apple //e and Videx[®] 80 column cards including the new Apple 80 column RGB card
- Software - Prints from ALL software, even allows any printer to be used directly from Apple MousePaint
- Printers - All of the most popular printers, including color, are easily selected with a dip switch.

PRINT-IT!, complete with cable (serial or parallel), is available at your local computer store now! If they don't have it in stock, ask them to get it for you.

Can't find a local dealer? PRINT-IT! is available for \$199 directly from Texprint.[®] Qualified educational and dealer discounts available.

¹ VISA/MC AMX accepted. Add \$4 shipping and handling within USA. Mass res. add 5% tax. *Save It!* Disk for only \$29.95.
² Apple II, II+, //e, and MousePaint are registered trademarks of Apple Computer, Inc.
³ CP/M is a registered trademark of Digital Research
⁴ Videx is a registered trademark of Videx, Inc.
⁵ Apple DMP/IMAGEWRITER/SCRIBE, BMC, C. Iton, Canon, Epson, Dataproducts, IDS, Tally, NEC, Okidata, Quadram, Panasonic, Radio Shack, Star Gemini, Transarc, Diablo plus many others.

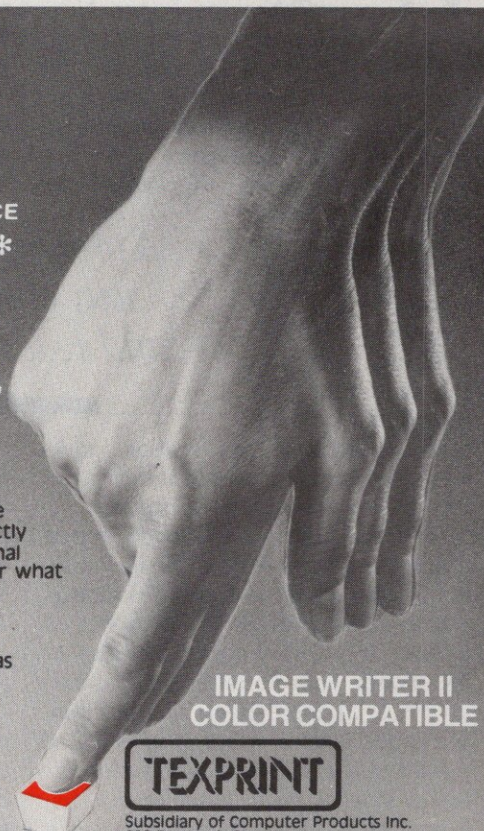


IMAGE WRITER II
COLOR COMPATIBLE

TEXPRINT

Subsidiary of Computer Products Inc.
220 Reservoir Street
Needham Heights Ma. 02194
Tel. (617) 449-5808

**For information call Toll Free
1-800-255-1510**

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

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

Universal Disk Controller

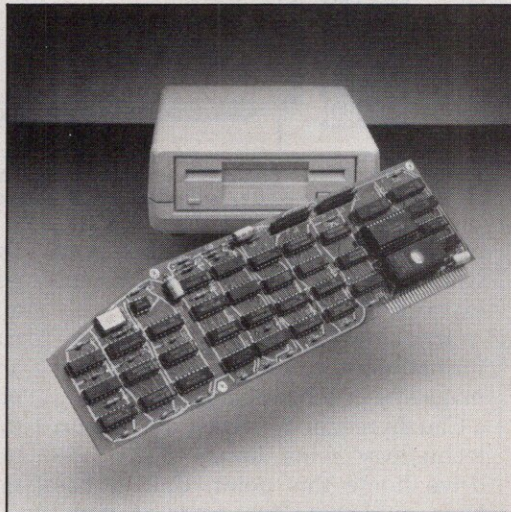
This new controller card combines the functions of 3½ and 5¼ inch drive controllers into one card. Plug in any 5¼ inch disk drive (it supports both old-style 20 pin connectors and //c style DB-19 plugs). Or directly connect an Apple Unidisk 3.5. But most remarkable, the Universal Disk Controller directly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

Unidisk 3.5 compatible

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

Mix and Match

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



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

COPY II PLUS, Free!

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

Everything is Included

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

Available NOW!

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

Central Point Software

INCORPORATED

9700 SW Capitol Highway, #100
Portland, OR 97219

(503) 244-5782

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

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

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

Universal Disk Controller & 1 drive—\$285

Universal Disk Controller & 2 drives—\$475

And ship them to me at this street address ASAP:

Name _____

Address _____

Daytime phone # (____) _____

To Order By Mail:

Simply send in this order form with a check (add \$15 s/h, \$30 overseas), or provide your Visa/MC

and expiration date _____

To Order By Phone:

Just call us at **503/244-5782**
8-5:30 (West Coast time), M-F, with
your   in hand!

Central Point
Software

INCORPORATED

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

MAC INKER™

Re-ink Any Fabric Ribbon
Automatically for less
than 5 cents.

Dedicated Image-
writer 1 and 2
(MAC INKER IM)

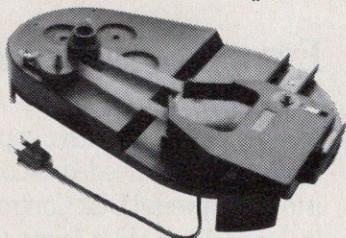
\$42.00
shipping \$3.00

Universal Cartridge
MAC INKER

\$68.50

Universal Spool
MAC INKER

\$66.95



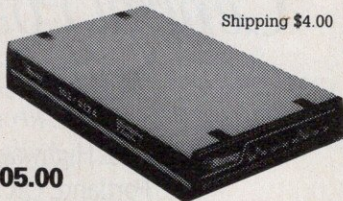
- Lubricated, Dot Matrix Ink \$3.00, bottle available in black/brown/red/green/yellow/purple/orange/gold and silver.
- Over 50,000 MAC INKER(s) in the field.
- Over 7500 printers supported.

MERCURY MODEM

Really 100% Hayes* Compatible.

- 300/1200 baud.
- audio monitor/front panel lights.
- 18 months warranty.

Shipping \$4.00



\$205.00

*Hayes is a trademark of Hayes Microproducts.

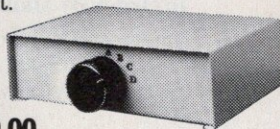
DATA SWITCHES (any type)

MACINTOSH MULTIPORT

SWITCH (9 pin). Connect up to 4 peripherals to your printer or modem port.

\$50⁰⁰

MAC-to-SWITCH
cable \$10.00.



shipping \$3.00

Order Toll Free.

Call or write for free brochure.

1-800-547-3303

In Oregon 503-297-2321 (24 hours line)

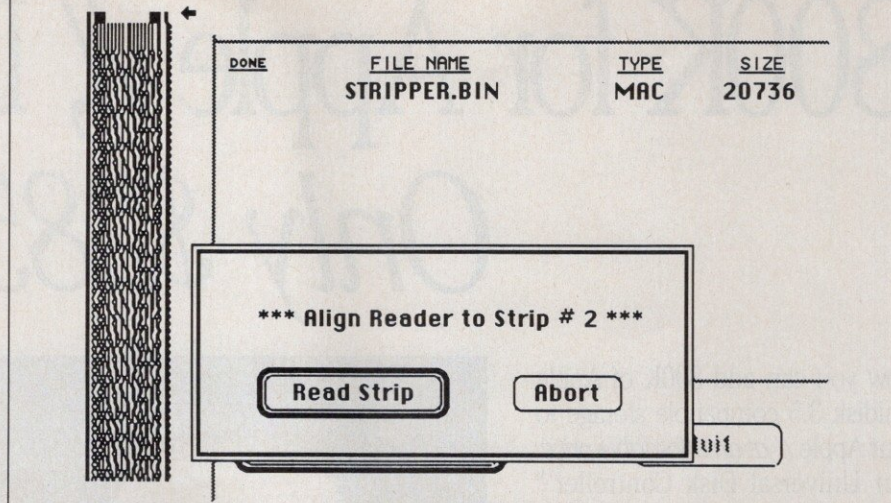
Computer Friends®

6415 SW Canyon Ct., #10, Portland, OR 97221,
telex 4949559

Dealer inquiries welcome.

CIRCLE 195 ON READER SERVICE CARD

Cauzin Softstrip™ Reader



The Softstrip Reader program (available for both the Apple II and Mac) prompts you to read the next strip when programs or data are contained in more than one strip.

the user, but for the publisher who wants to disseminate information inexpensively.

If you have a choice of retyping information or program listings from a magazine or other document or using a Cauzin reader, however, the Cauzin technology wins hands down. To drive home this point, Cauzin has been publishing hundreds of thousands of copies of small programs in magazines.

The CauzComm program is quite simple to use. It has just a few menu choices, and they are all self-explanatory. The Stripper program is equally easy to learn and use. When a program or file occupies more than a single datastrip, CauzComm tells you which Softstrip to move the reader to next. If a single strip fails to read in correctly, CauzComm does not bomb; it simply offers you the opportunity to read the same datastrip again.

Support

Cauzin Systems has a toll-free customer-support number, which is often busy. We got through more rapidly to the company's regular number, which is not toll-free, but then had to hold for three or four minutes. The support people were always friendly and knowledgeable, once we got through to them.

Who Will Benefit?

The Cauzin reader reads Softstrips accurately and rather slowly and costs about the same as many floppy drives, although floppy drives are much faster.

Publishers will find it helpful for disseminating not only programs but also templates and tables of data.

Datastrips are cheaper and less damageable than diskettes. Datastrips are also appropriate as a high-density bar code in settings such as large insurance companies that frequently send out rate sheets and actuarial tables to thousands of branch offices. The branch offices need to put this information into their computers.

Not only are floppy diskettes expensive, but these offices may also have a mixture of Apple II, Macintosh, and MS-DOS computers. As long as each office has a Cauzin reader and the right accessory kit for each computer, the headquarters can send the same datastrip to everyone. +

Ives Brant has evaluated new products for ComputerLand Corporation and PacTel InfoSystems. He is currently product review editor at a leading microcomputer trade publication. Tom Swain is a staff scientist at the Lawrence Berkeley Laboratories in California who has worked with Apple computers for five years. His first Apple II was a gift from Steve Wozniak, with whom he studied engineering.

PRODUCT INFORMATION

Softstrip System Reader

Cauzin Systems, Inc.
835 South Main Street
Waterbury, CT 06706
(800) 533-7323
(203) 573-0150

List Price: \$199.95; Stripper program, \$19.95

Requires: Apple IIe or IIc, Macintosh, or IBM PC or compatible

CIRCLE 462 ON READER SERVICE CARD

THE Premier Word Processing Package

- CREATIVE COMPUTING

NEW!
 • PAPERCLIP II
 for COMMODORE 128
 • PAPERCLIP for APPLE II/E/C
 • SPELLPACK for ATARI 130XE
 Coming Soon
 PAPERCLIP ELITE

"PaperClip is easy to use, yet offers the advanced features of programs designed for the IBM PC. These include: block move, copy, delete, macros, automatic page numbering, headers, footers, underlining, boldface, super and subscripts, variable character pitch, and custom character sets. The editing screen can be set up to 130 columns wide, & text can be scrolled in any direction. A preview mode displays formatted text exactly as it will appear on the printed page. You may further define your own formatting parameters, including margins, line lengths, page length and spacing. PaperClip contains over 30 printer files for all the current major models. The documentation is excellent and the disk itself unprotected, though keyed through a joystick port. This means you can make as many back-up copies as you like, but can use the program only when the key is inserted." CREATIVE COMPUTING

"PaperClip is one of the easiest of the professional word processors to use, with a sensible manual and plenty of aids for the accident-prone." COMPUTING NOW

"a 'must have' in an ideal software-library" ELECTRONIC LEARNING

"PaperClip is the Cadillac of word processors" OMNI

"an excellent full-featured word processor" THE BOOK OF CO...

"So clearly superior, ...State-of-the-art word processing" ANTIC "...most

"the ultimate word processor..." ANALOG

"...best professional word processor available" RUN

"exceptional word processing" INPUT "hard to beat" ACE

"You'll find yourself growing spoiled." FAMILY COMPUTING

"A superb word processor, ...the most sophisticated to date!"

"...does exactly what it was intended to do...and more..."

"...most powerful of packages" -COMMODORE MAGAZINE

"...facts attest to its excellence!" FAMILY COMPUTING

"You will not find a word processing package superior to this one!"
 CREATIVE COMPUTING

**THE BEST
 WORD PROCESSOR
 IS NOW AVAILABLE
 FOR APPLE
 COMPUTERS!**

PaperClip

"The #1 Best Selling Word Processing Package"*

CIRCLE 186 ON READER SERVICE CARD

-BILLBOARD'S COMPUTER SOFTWARE CHARTS!

Available for Commodore 64, Pet, all Atari home computers, and new enhanced 128K versions for Apple II/e/c, Atari 130XE and Commodore 128. **COMING SOON:** Paperclip Elite for IBM MS DOS, Amiga and Atari ST.

BATTERIES INCLUDED



"The Energized Software Company!"

WRITE TO US FOR FULL COLOR CATALOG of our products for Commodore, Atari, Macintosh, Apple and IBM systems.

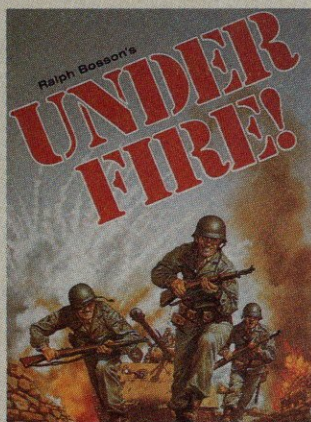
30 Mural Street
 Richmond Hill, Ontario
 L4B 1B5 Canada
 (416) 881-9941
 Telex 06-986-266

17875 Sky Park North,
 Suite P, Irvine, California
 USA 92714
 (416) 881-9816
 Telex 509-139

FOR TECHNICAL SUPPORT OR PRODUCT INFORMATION PLEASE PHONE (416) 881-9816. © 1986 BATTERIES INCLUDED. MACINTOSH APPLE, ATARI, COMMODORE AND IBM ARE REGISTERED TRADEMARKS RESPECTIVELY OF APPLE COMPUTERS INC., ATARI INC., COMMODORE BUSINESS MACHINES INC. AND IBM BUSINESS MACHINES INC. *AS COMPILED FROM NATIONAL RETAIL STORE SALES REPORTS FOR WEEK ENDING JANUARY 5, 1985. IF YOU CAN'T FIND PAPERCLIP AT YOUR FAVORITE SOFTWARE OUTLET YOU CAN ORDER DIRECT FROM US AT THE FULL SUGGESTED LIST PRICE (PLUS \$5.00 FOR POSTAGE AND SHIPPING) BY CALLING 1-800-387-5707. C64, ATARI & APPLE PAPERCLIP \$59.95. PAPERCLIP WITH SPELLPACK FOR THE C64/128 and PAPERCLIP II FOR THE C128 \$79.95. ALL PRICES SHOWN ARE IN U.S. DOLLARS.

UNDER FIRE!
MOEBIUS
ENCHANTED SCEPTERS
FRAKTURED FAEBLES

That's Entertainment



Under Fire! is an outstanding tactical simulation of squad-level World War II combat.

SQUAD TACTICS IN WWII

A friend of mine, a first lieutenant in the U.S. Army Reserve, once introduced me to a board game called Squad Leader, published by The Avalon Hill Game Company. Actually, *game* is kind of a misnomer; *highly detailed, complex, tactical World War II combat simulation* is more accurate. In his line of work, this game is a training aid. In my line of work, it is a game. Predictably, my first effort at leading cardboard heroes resulted in 90% of my force being killed, wounded, or routed somewhere in Stalingrad.

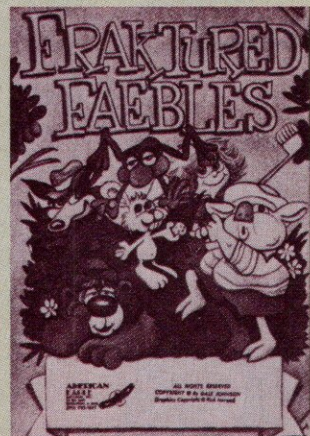
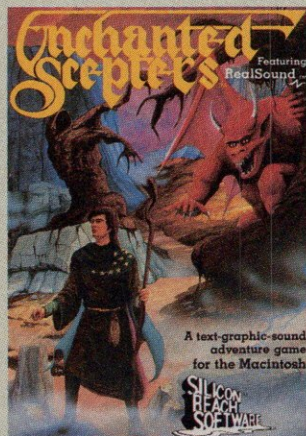
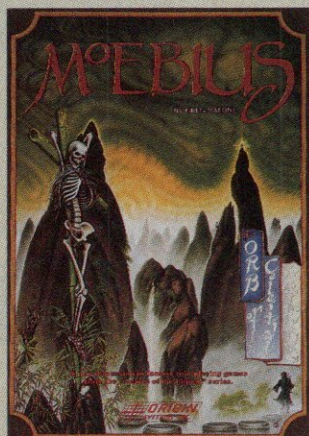
These tactical trepidations came back to me as I

unwrapped Under Fire!, a tactical World War II combat simulation for your Apple II published by, surprise, surprise, The Avalon Hill Game Company. It puts you in command of an assortment of infantry, tanks, and artillery against a hidden enemy. Two players compete head-to-head, or one person plays against the computer.

Under Fire! offers nine prepared scenarios covering a variety of tactical situations—from house-to-house fighting in a city to mobile, blitzkrieg-like firefights across open terrain. You can alter the composition of your forces for each scenario and, for the truly inspired, a “map maker” disk allows you to

create new maps. Avalon Hill calls it a “wargame construction set.” I call it a flexible, valuable addition to the package.

The program takes care of all bookkeeping chores—ammunition expenditure, firing distance, combat results, sighting, terrain effects, and so forth—leaving you to concentrate on tactical planning. The mechanics of moving troops and firing weapons with a joystick are fast and easy to learn, although mistakes at the beginning are common. On one occasion, I thought I was moving a leader to join a squad. Imagine my surprise when an artillery barrage landed on my own troops.



That's Entertainment

One distressing aspect concerns the display of sighted enemy troops on the map after each "period." Usually, enemy troops that pop into sight during a battle hang around long enough for you to shoot at them. Hence, halting play to show all sightings after each of the 24 periods in each player's turn burns up a lot of time.

Finally, although the program tallies casualties, "determining who won and who lost is a subjective task saved for the greater glory of the argument before and after the game." That is an interesting concept, but too bad programmer Ralph Bosson did not include some victory point algorithm.

Make no mistake, Un-

der Fire! is an outstanding tactical simulation of squad-level World War II combat. Avalon Hill is already planning to publish an "extended units" disk with more troops and vehicles.

War-gamers should take a serious look at Under Fire!. It is an excellent war game, and you may even learn a thing or two about tactics.

Russ Lockwood

Under Fire!

The Avalon Hill Game Company
4517 Harford Rd.
Baltimore, MD 21214
(301) 254-5300

List Price: \$59.95

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

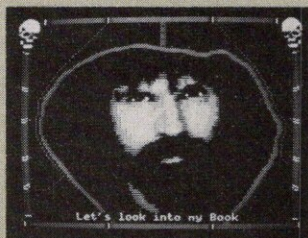
CIRCLE READER SERVICE NO. 400

A FIGHT FOR HARMONY

Long ago Moebius explored the land of Khan-tun on each of the four material planes: Earth, Water, Air, and Fire. Discovering the destructive nature of each realm's patron elemental, he fashioned The Orb of Celestial Harmony, a crystal globe in which the great Forces were imprisoned and thus brought into balance. Alas, Kaimen, perhaps the most brilliant of Moebius' disciples, has stolen the Orb, released the elementals, and established a reign of terror throughout Khan-tun. As one faithful to the Principles of Harmony, you face the task of achieving the realm of

Fire, vanquishing Kaimen, and reclaiming the Orb.

Somewhat in the mold of Ultima and Questron, Moebius features a Kung Fu theme replete with tiger-infested bamboo forests, shrines subverted by spell-casting evil monks,



sprawling palaces, and dismal prisons patrolled by vicious guards. Ninja assassins silence opponents of their dark lord, and hanging on poles about the countryside are the corpses of Kaimen's latest 'examples.' Nor are

PIK'EM 86



A Complete Pro Football Prediction Program For The 1986 NFL SEASON

61% + Accurate vs 'Spread' Since 1981
More Features — More Information In 1986 To

BEAT THE SPREAD

★ ★ FEATURES ★ ★

- Predicted Scores Each Week
- Season Schedule By Week/Team
- Records & Results:
 - Scores By Week
 - Scores By Team
 - Division Standings
 - Standings vs Line
 - Stats — Accumulated & Average
 - 1983-1985 Data Base
- Auto Opponent Input
- Printed Copy All Screens
- Easy Update—Playoffs/1987
- Dealer Inquiries Invited

54⁹⁵ INCLUDES DISK, DOCUMENTATION
SHIPPING & HANDLING

- Apple II — IIc — IIe
- Commodore 64 — 128
- IBM PC, Tandy & Compatibles
- TRS-80 MIII/IV

Stats Needed To Run Program
Available In Local Newspapers
Or

We Will Furnish Stats By Mail Or Modem
All 20 Weeks — Season Price . . . 40⁰⁰

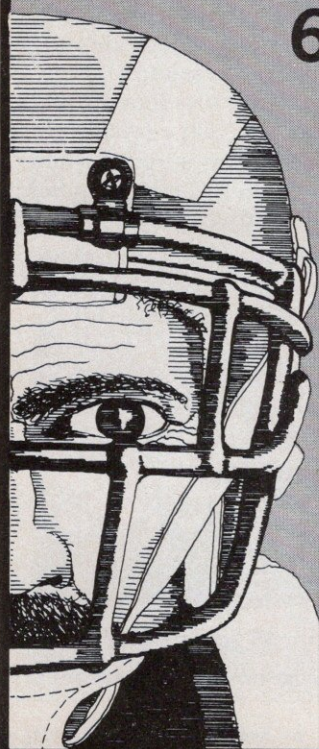
Program Comes Updated Thru Current
Week Of Season . . . No Extra Charge

ORDERS SHIPPED IN 2 DAYS
PHONE LINES OPEN 24 HRS.

TOLL FREE — 800-722-2277
TEXAS COLL. — 214-586-8212

MARATHON SOFTWARE DEPT. A
P. O. BOX 1349
JACKSONVILLE, TEXAS 75766

TOLL FREE & COLLECT FOR ORDERS ONLY



EXPOSE YOURSELF... TO THE KACHE PLUS CARD.

Accelerate Your Floppy Drives...To Out Perform Any Hard Disk Drive **PLUS** Gain The Added Features Of Up To 15 Multi-Functions

*The Kache Plus Card...Shocking Speed **PLUS** Expanded Performance*-The Kache Plus Card is a powerful floppy disk adapter board for Apple II systems that operates up to six floppy drives. It offers faster accessing speed than hard disk drive **PLUS** the added features of up to 15 popular expansion boards.

Faster Accessing Than Hard Disk Drive-The Kache Plus Card combines an advanced form of RAM, known as cache memory, with the power of a microprocessor to achieve a 2.5 to 1 speed advantage over hard disk accessing. Governed by a Hitachi 64180 microprocessor, the Kache Plus Card becomes an intelligent RAM disk card that...

AUTOMATICALLY fills cache memory with up to 512K of your "most frequently accessed data"

AUTOMATICALLY maintains the data content of cache using the "LUFO" method (Least Used First Out)

AUTOMATICALLY anticipates data requests and transfers needed files to your Apple's CPU electronically

AUTOMATICALLY saves data in RAM disk mode for future transfer to floppy disk

AUTOMATICALLY time and date stamps files written to disk

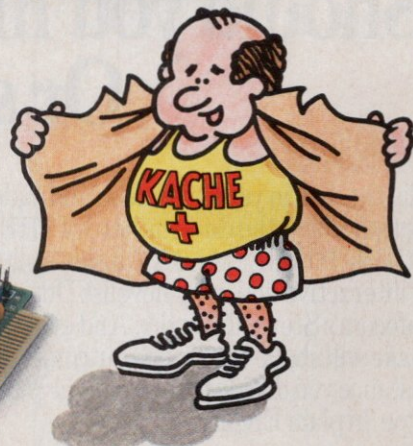
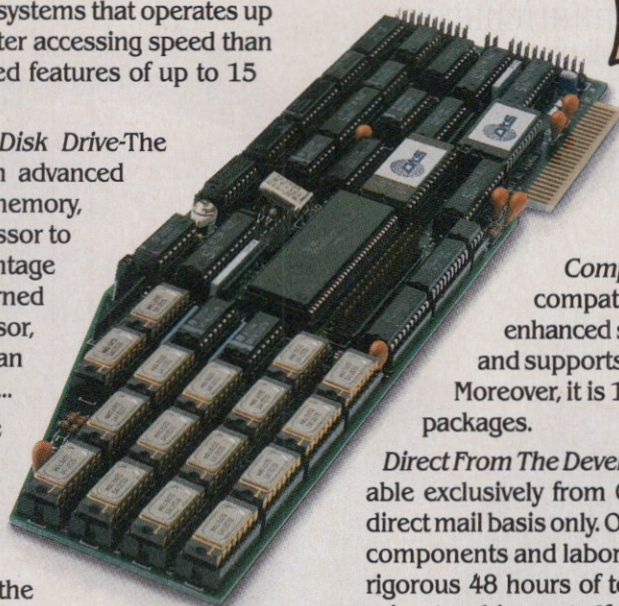
Multi-Function Features-The Kache Plus Card also doubles as a multi-function board with a choice of up to 15 expanded features for your Apple II system. And, by utilizing the benefits of the Kache Plus Card's cache memory and 64180 microprocessor, each feature offers a performance advantage over comparable expansion boards on the market.

The standard Kache Plus Card comes complete with several of the most popular expansion features to date. And, with the optional features offered it can be easily upgraded to grow with the sophistication of the computer market. In addition, future innovations from OKS will be carefully engineered for easy assimilation into the standard Kache Plus Card design.

Standard & Optional Features:

256K Cache Memory/RAM Disk
User-Friendly, Menu-Driven Board That Is Mouse Compatible
512K Cache Memory/RAM Disk
Serial Interface
256K/512K Print Buffer
External Power Supply
256K/512K Modem Buffer

Software Utilities for the Clock/Calendar
Controller Board for Concurrent Operation of 6 Floppy Drives
Parallel Printer Interface
Modem Interface
256K/512K Serial Buffer
Software Utilities for Printer, Serial and Modem Ports



Compatibility - The Kache Plus Card is compatible with Apple II, II+, IIe and IIe enhanced systems with 1-6 floppy disk drives, and supports DOS, PASCAL, ProDOS and CP/M. Moreover, it is 100% compatible with all software packages.

Direct From The Developer-The Kache Plus Card is available exclusively from Ohio Kache Systems (OKS) on a direct mail basis only. OKS offers a full year warranty on all components and labor as well as a 30 day trial period. A rigorous 48 hours of testing is completed on each unit prior to shipment. If the Kache Plus Card does not perform as we say it will, simply return it to OKS and your money will be fully refunded.

Don't Buy A Hard Disk Drive Or Another Add-On Board... Buy the Kache Plus Card instead. Priced at:

\$395⁰⁰

(Price indicated is for the standard Kache Plus Card. Optional features are available at an additional charge.)

The standard Kache Plus Card costs less than any hard disk drive. It's even priced below the cost of buying separate boards for each of the standard features.

For shocking speed **PLUS** expanded performance...Expose yourself to Ohio Kache Systems, and its latest product! For more information on the new Kache Plus Card call us toll free at...

1-800-338-0050

or write for our free brochure.

Available soon: The Data Kache Card for IBM and IBM compatible systems.



Ohio Kache Systems Corp.
4166 Little York Road
Dayton, Ohio 45414-2566
513-890-3913

© Ohio Kache Systems is a developer of computer enhancement products.

Ohio Kache System, OKS and Kache Plus Card are registered trademarks of Ohio Kache Systems, Inc.
Apple, Apple II+, IIe and IIe enhanced are registered trademarks of Apple Computers, Inc.

IBM is a registered trademark of International Business Machines, Inc.
Hitachi is a registered trademark of Hitachi, Inc.

Earth will be destroyed in 12 minutes to make way for a hyperspace bypass. Should you hitchhike into the next galaxy? Or stay and drink beer?

Slip the disk in your computer and suddenly you are Arthur Dent, the dubious hero of THE HITCHHIKER'S GUIDE TO THE GALAXY,™ a side-splitting masterwork of interactive fiction by novelist Douglas Adams and Infocom's Steve Meretzky. And every decision you make will shape the story's outcome. Suppose for instance you decide to linger in the pub. You simply type, in plain English:

>DRINK THE BEER

And the story responds:

YOU GET DRUNK AND HAVE A TERRIFIC TIME FOR TWELVE MINUTES, ARE THE LIFE AND SOUL OF THE PUB, THEY ALL CLAP YOU ON THE BACK



>WRAP THE TOWEL AROUND MY HEAD

And the story responds:

THE RAVENOUS BUGBLATTER BEAST OF TRAAAL IS COMPLETELY BEWILDERED, IT IS SO DIM IT THINKS IF YOU CAN'T SEE IT, IT CAN'T SEE YOU,

AND TELL YOU WHAT A GREAT CHAP YOU ARE AND THEN THE EARTH GETS UNEXPECTEDLY DEMOLISHED, YOU WAKE UP WITH A HANGOVER WHICH LASTS FOR ALL ETERNITY. YOU HAVE DIED.

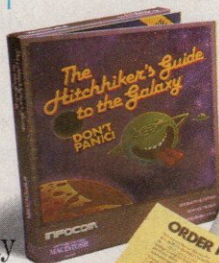
Suppose, on the other hand, you decide to:

>EXIT THE VILLAGE PUB THEN GO NORTH

In that case you'll be off on the most mind-bogglingly hilarious adventure any earthling ever had.

You communicate—and the story responds—in full sentences. So at every turn, you have literally thousands of alternatives. If you decide it might be wise, for instance, to wrap a towel around your head, just say so:

Simply staying alive from one zany situation to the next will require every proton of puzzle solving prowess your mere mortal mind can muster. So put down that beer and hitchhike down to your local software store today. Before they put that bypass in.

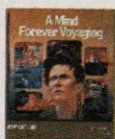


Comes complete with Peril Sensitive Sunglasses, a Microscopic Space Fleet, a DON'T PANIC Button, a package of Multipurpose Fluff and orders for the destruction of your home and planet.

CIRCLE 225 ON READER SERVICE CARD

INFOCOM™

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



Other interactive science fiction stories from Infocom.

That's Entertainment

Moebius incorporates innovations sure to affect future game releases.

such adversaries the sole challenge. In this stricken land, you can easily perish from lack of food or water, and at night the display goes black, opening the way to surprise attack.

As you quest for the restoration of harmony, much of the game involves a careful balancing of challenges and resources. A pure karma allows you to contact peasants who offer food, torches, and valuable in-

formation, and some treasure chests yield enchanted lenses that help you locate drinkable water on a special map display. The good monks you liberate supply charms and prayers imparting such magical abilities as water-walking, teleportation, and invisibility. Using magic is cumbersome, though, and drains away body and mind points. Combat victories strengthen karma, increase experience, and lead to promotion, yet they always involve some risk of defeat, which results in the loss of karma or even in death.

Possibly the best planned and most active of any major adventure game, Moebius incorporates innovations certain

to affect future game releases. Armed or bare-handed, combat occurs in an expertly illustrated, smoothly animated Karateka-type sequence in which you direct your character's every fighting movement. Particularly at higher-speed settings, the



action is very convincing, without any of the drudgery that seems to plague other combat schemes. Rather than floating above the landscape as a player, you are a participant in the scene.

Supported in typical Origin Systems fashion (the package includes a nifty ninja-type scarf!), the game does take a bit of getting into. (Hint: Don't spend a lot of time picking good names for your first two or three characters.) Remarkably grim yet curiously addictive, Moebius is a uniquely exhilarating long-play game experience.

Jeff Hurlburt

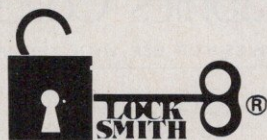
Moebius: The Orb of Celestial Harmony

Origin Systems, Inc.
340 Harvey Road
Manchester, NH 03103
(603) 644-3360

List Price: \$59.95

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

CIRCLE READER SERVICE NO. 401



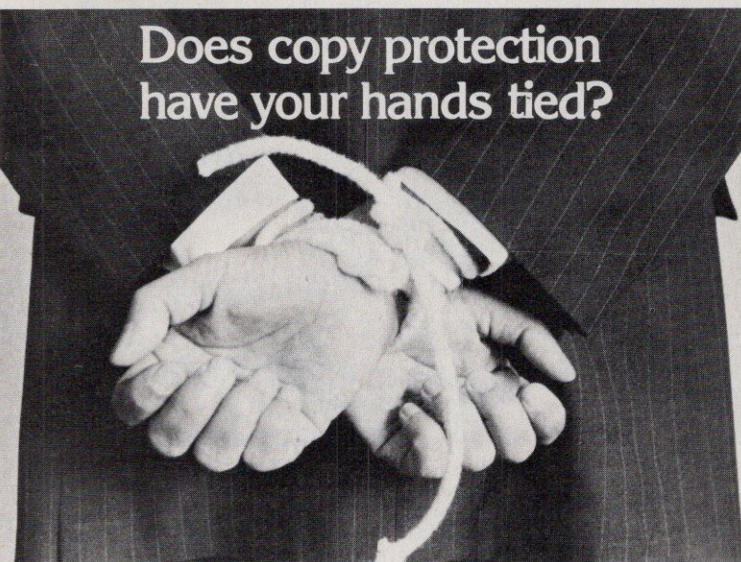
BACKUP YOUR SOFTWARE WITH LOCKSMITH 6.0™.

Locksmith, the controversial copy program that took the Apple world by storm in 1981, has evolved from a powerful bit-copy programmed into a complete disk utility system, allowing the Apple user to recover crashed disks, restore accidentally deleted files, and perform hardware diagnostics on the disk drive and memory boards. The NEW Locksmith version 6.0 is now available and includes an advanced disk recovery utility, a framing-bit analyzer, an automatic boot tracer, a sector editor, many file utilities, and of course, the most powerful bit-copy program available. A fast disk backup utility copies disks in eight seconds flat. Improvements to Locksmith Programming Language have made it more powerful and easier to use for you to write your own backup and repair procedures. Includes a library disk which contains automatic procedures to copy hundreds of Apple programs.

Locksmith requires no additional hardware, but will use any additional RAM memory that it finds, including RAM boards from Applied Engineering and Checkmate Technology.

Don't get caught with your hands tied. Order Locksmith 6.0 today.

Does copy protection have your hands tied?



NEW LOW PRICE \$79.95

Registered Locksmith 5.0 owners may upgrade to version 6.0 for **\$29.95**.
Available from your computer dealer or directly from:



Alpha Logic Business Systems, Inc.
4119 North Union Road
Woodstock, IL 60098
(815) 568-5166



©Alpha Logic Business Systems, Inc. 1985
Locksmith and Locksmith/PC are registered trademarks of Alpha Logic Business Systems, Inc.

That's Entertainment

ENCHANTING PROSPECT

Sabre you are called, apprentice of Elron, the court wizard to the throne of Callion. It is a beautiful morning when you awaken in your cubicle to find yourself summoned to the King's chambers. Life seems a little less cheery after your royal audience; now instead of being responsible for your regular duties, you are responsible for the fate of your homeland.

A host of Hurks has massed itself at the southern border of Callion, intent on invasion. For those of you who do not read the papers, the Hurks are a nation of people with all the humor of an ICBM and the social graces of an Im-

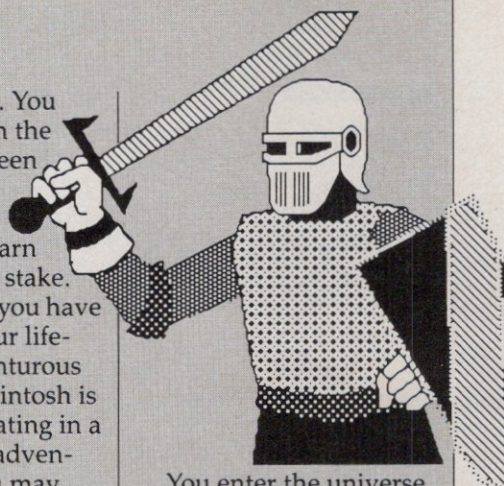
perial Storm Trooper. Not really the sort of folk you'd want as neighbors, let alone as brutal overlords.

The only way to repel the Hurks is to use of a mighty spell being prepared by the mage Elron. The spell lacks four main ingredients, however: the Enchanted Scepters, ancient embodiments of the universal principia lost decades ago in the great wars. The scepters have been scattered over and under land, in a treacherous Mayan pyramid, and beneath the sea in fabled Atlantis, all places you alone can find.

A great way to begin the day. With the clang of a sword hitting stone, you start your journey, from stripling student to experienced warrior, sybarite to

savior of a nation. You alone can perform the deed. You have been selected. You had better get going. There is a lot to learn and even more at stake.

The first thing you have to learn about your lifestyle in this adventurous game for the Macintosh is that you are operating in a different kind of adventure than any you may have seen or heard of from Infocom or Brøderbund or any other purveyor of cybernetic dreams. Silicon Beach Software has created a new kind of adventure world, one filled with sound and fancy, interactive graphics, mouse and keyboard operative commands, and that certain sort of whimsy that makes magic so real.



You enter the universe of the Enchanted Scepters with a fanfare royal in the court of the king. The fanfare actually sounds real because it is real—Real-Sound to be exact, a trademarked process created by Eric Zocher that can digitally encode any sound that can be taped. As you tour Callion and beyond, you will be accompanied by the sounds of the envi-

The ADALAB™
Data Acquisition System For Laboratories

Costs Less Than **\$2300***

● **ADALAB™** data acquisition system interfaces with virtually any lab instrument using a recorder or meter, including GC and HPLC systems, spectrophotometers, pH meters, process control apparatus, thermocouples, etc. Thousands of scientists use IMI products worldwide!

● **Lab Data Manager™** software (\$275) facilitates single or multi-channel acquisition, storage, display and chart recorder style output of lab instrument data.

*\$2220 price includes 64K APPLE IIe, disk drive with controller, 12" monitor; dot matrix printer with interface; IMI ADALAB™ interface card.

\$545 ADALAB™ INTERFACE CARD (available separately)

includes 12-bit A/D, 12-bit D/A, 8 digital sense inputs, 8 digital control outputs, 32 bit real-time clock, two 16-bit timers plus QUICK I/O data acquisition software that works within easy-to-use BASIC.

Call, write or telex IMI for complete details!

†Trademark of Apple Computer, Inc.



INTERACTIVE MICROWARE, INC.
P.O. Box 139, Dept. 209 Telex: 705250
State College, PA 16804 (814) 238-8294

CIRCLE 324 ON READER SERVICE CARD

Mini Graphics Collections

ALL NEW GRAPHICS FOR USE WITH THE PRINT SHOP™

Collection I
60 GRAPHICS
\$6.95

SUMMER FUN - HEALTH - FITNESS

Collection II
60 GRAPHICS
\$6.95

SPRING & SUMMER HOLIDAYS - RELIGIOUS SYMBOLS

Buy BOTH for only \$12.95

Add \$2.00 shipping & handling

Send Check/Money Order to:
1990 Software
P.O. Box 1862
Altoona, PA 16603
or call (814) 695-1928

Available for the
Commodore 64
Apple II+/IIe/IIc
MC/VISA accepted

The Print Shop is a trademark of Broderbund Software

CIRCLE 212 ON READER SERVICE CARD

ronment. When you battle the various monsters and bad guys (and, believe me, you will be battling a lot of baddies), you will hear the sound of the fray. Some of these sounds may be clues. You would do well to listen carefully.

You find that the mystic power of the Macintosh does not end with the creation of a sonic environment. You must take the sword that lies glistening at your feet in order to start the adventure. You can obtain the sword in the time-honored fashion of all adventures, addressing yourself to the keyboard and, with index finger rigid, punching out GET SWORD <cr>. Callion lets you accomplish all this with one quick click of the mouse, however. Similarly, when it comes time to do some progressive beastie bashing, you select your weapon of choice from a pull-down menu and put it to use the same way. If you're feeling particular, you can also invoke the Aim command from the keyboard—type aim head, for example.

You move around within Callion with the mouse or the keyboard, using the ⌘ key and the first letter of the direction you wish to travel. You can invoke other functions such as Look, Search, and Inventory the same way. I can't stress the importance of the Search command enough. It is one of the most important tools available to you for surviving and succeeding in your quest for the enchanted scepters.

Planning your journey requires a little forethought. You will find yourself dying fairly fre-

quently, missing something that was inconsequential then and desperately needed now, and so on. The best way to deal with these eventualities is to save your position frequently and under a different name every time

Be ready, all ye who choose to follow the perilous pathways of Callion; deception and danger lurk at every turn.

(all ye egotistical monster mashers out there, take heed; you are listening to the voice of experience). Any other course of action will swiftly bring you to the brink of madness.

So be ready, all ye who choose to follow the perilous pathways of Callion; treachery, deception, and danger lurk at every turn. The scepters are not easily won, and only your ingenuity can save your skin and that of your compatriots. This adventure will prove to be a true test of your mettle. May the power of the scepters smile upon your efforts.

Ken Goehner

Enchanted Scepters
Silicon Beach Software, Inc.

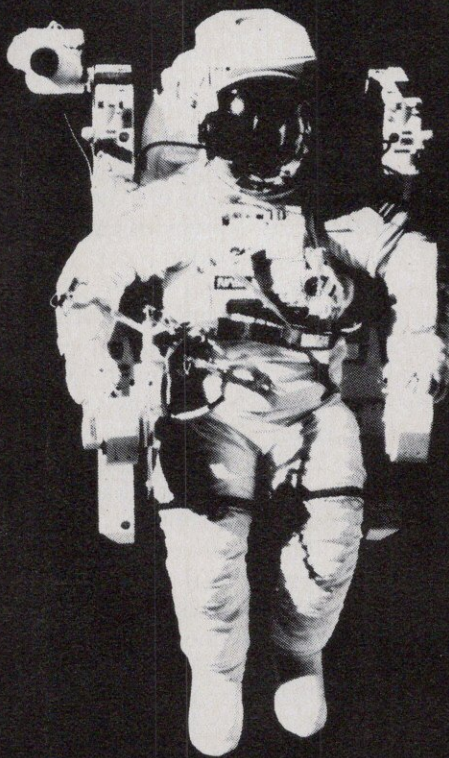
P.O. Box 261430
Suite 201
11212 Dolby Place
San Diego, CA 92126
(619) 695-6956

List Price: \$39.95

Requires: Macintosh

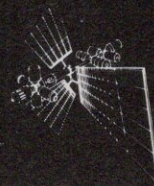
CIRCLE READER SERVICE NO. 402

TRY THIS ON FOR SIZE.



At the United States Space Camp, you'll have to. It's required attire, you see, in your training for a Space Shuttle mission. You'll be piloting a shuttle simulator, working under weightless conditions, doing what most people only see on the six o'clock news.

PROJECT: SPACE STATION



Our space station construction software, can get you to Space Camp for the time of your life. You'll need to get your hands on it and build us your best station.

We'd like to see you in this suit. Soon. See your favorite software dealer for a Space Camp Scholarship booklet and construction guidelines, or write to us at the address below.

HesWare

P.O. Box 631-SCS
So. San Francisco, CA 94080
(415) 871-0570

CIRCLE 147 ON READER SERVICE CARD

That's Entertainment

ROCKY AND BULLWINKLE IT AIN'T

In 1967, when Neil Simon was riding the crest of his success with *Barefoot in the Park* and *The Odd Couple*, his play *The Star Spangled Girl* opened on Broadway. One critic remarked: "Neil Simon . . . hasn't had an idea for a play this season, but he's gone ahead and written one anyway."

Alas, I fear the same statement can be paraphrased and applied to Dale Johnson's newest graphic adventure game, *Fraktured Faebles*.

When you encounter a game in a store or through an advertisement, what's the first thing that usually grabs you? The title, of course. And *Fraktured*

Faebles is a terrific title. To my mind, it conjured up images of the old Rocky and Bullwinkle "Fraktured Fairy Tale" cartoons, which, as I recall, were adroit send-ups of old, familiar war-horse fables. One of Dale Johnson's previous games, *Sherwood Forest*, was just that—a flip, hip, sassy version of the Robin Hood legend.

Now I believe that any adventure game has only one crucial element: a compelling plot. Whether or not it has graphics, has a command parser that understands more than a verb/noun syntax, or is packaged with amusing doodads is of relatively little importance. The game must have a central story that is interesting enough

Any adventure game has only one crucial element: a compelling plot.

to warrant spending many hours of your valuable time playing it.

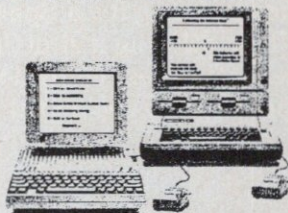
In *Fraktured Faebles*, you are plunked down in the middle of a forest, not knowing who you are, why you are there, or what you have to do. Strangely enough, two other games on the market have the same situation as the primary feature of the game—your quest is to find out who you are, etc. I'm referring to *Amnesia*

(from Electronic Arts) and *Mindshadow* (from Activision). But self-discovery is not the goal of *Fraktured Faebles*. Here your objective, if I may be so bold as to tell you, is to find and then awaken *Sleeping Beauty*. Along the way, you will have to interact with such diverse characters as *Rip Van Winkle*, *Goldilocks* and the *Three Bears*, *Red Riding Hood*, and several members of the *Alice in Wonderland* crowd. The only reason for this strange mix is, as the beginning of the game informs you, that a witch mixed up all the fairy tales, dumped you into the forest, and left you with only your ability to solve puzzles.

While we're on the subject of puzzles, you must

You probably already know that Computers Need Maintenance!

But did you know that with *Intelligent Tools* your computer can maintain and diagnose itself?



MASTER DIAGNOSTICS™

Master Diagnostics provides all of the tools and knowhow necessary so that *anyone* can do monthly maintenance duties. Calibrating disk drive speed, cleaning drive heads, checking track alignment or just adjusting your monitor to peak clarity is a snap.

In addition to the maintenance routines, extensive diagnostic procedures are available at the touch of a key. With our new diagnostic construction set; you can create peripheral diagnostics for any device card. Problems are diagnosed down to the chip level and tests will report: *what's right, what's wrong, what to do and how to do it*. Not just pass-fail type exams!

The user manual is easy to understand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. *Consumers Guide* chose Master Diagnostics as one of the best programs for 1985. Used by Apple service centers world-wide.

WHEN ORDERING SPECIFY:

version: **II+**, **IIe** or **IIc**

Master Diagnostics - \$65.00 r e . 1

with Head Cleaning Kit - \$75.00

Drive Analyzer alone - \$39.95

(Included with MD)

Visa, MC, COD, School PO's

Call Free 1-800-835-2246

Apple Diagnostics
Since 1979

NIKROM

Technical Products, Inc.

176 Fort Pond Road ♦ Shirley, MA. 01464

Upgrades - return
diskette and \$20.00

CIRCLE 329 ON READER SERVICE CARD

PROFESSIONAL HANDICAPPING SYSTEMS

Professor Picks Football™

\$99.95; with win/loss power ratings \$149.95; Professional Series™ \$199.95

Expanded Lottery/Lotto Analysis

Lottery: 3-4 digits \$79.95; Lotto: max. of 99 digits \$99.95; Enhanced Lottery/ Lotto \$129.95

PC-3 Portable Computer (4k)

Choice of Thoroughbred/Greyhound/Trotter Gold Edition™ software. \$249.95

Model 100 Portable Computer (32k)

Choice of Thoroughbred/Greyhound/Trotter Gold Edition™ software with Master Bettor™ \$649.95

PROFESSIONAL S E R I E S

PROFESSIONAL SERIES™ (Tho/Grey/Trot)

The all new Professional Series™ represents the most advanced handicapping software available.



Analysis Module™

Complete bet analysis highlights this basic Professional Series™ module. Full 50 tracks/kennels/etc. \$249.95

Factor Value/Multiple Regression Module™

Factor Value Weighting highlights this addition module™ \$149.95

Data Base Manager Module™

Automatic storage of last 11 races highlights this module. (\$99.95 with Factor Value Module) \$149.95

GOLD EDITION™ (Tho/Grey/Trot)

The classic Gold Edition™ from Prof. Jones offers flexibility, results, and ease of use.

Gold Edition™	\$159.95
Enhanced Gold Edition™	\$199.95
Limited Gold Edition™	\$299.95
Ultra Edition™	\$399.95

Handicapper's Bulletin Board now available

VHS Training Tapes now available

Terms: Free shipping all software. Add \$6.00 COD / \$6.00 UPS Blue / \$9.00 Out-of-country / ID residents add 5% / 3 weeks personal checks / cash price only add 2% Visa, MC, AMEX. Prices subject to change.

PROF JONES
SUMMER/FALL 1986
ORDER LINE
(208) 342-6939
THOROUGHBRED
GREYHOUND
TROTTER
LOTTERY/LOTTO
FOOTBALL
BASKETBALL
OFFICE HOURS
M-F 9 AM - 5 PM
SAT 9 AM - 1 PM
(Mountain Standard Time)
FREE CATALOG
1940 W. STATE
BOISE, IDAHO 83702
VISA
AMEX

CIRCLE 132 ON READER SERVICE CARD

EXPAND Your Laser 128

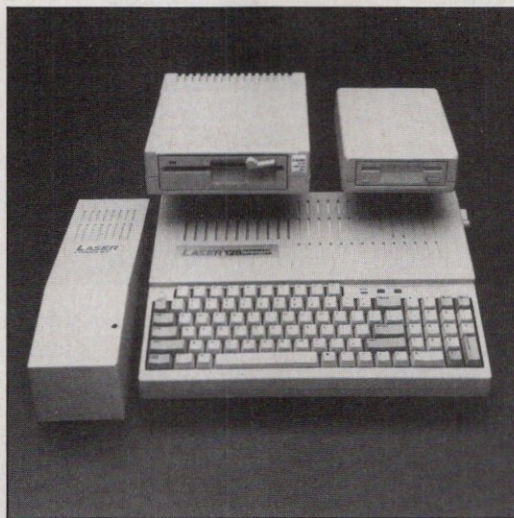
One of the reasons you bought your Laser 128 personal computer is its expansion capability. You knew that a computer without expansion slots is a dead-end that stays behind as technology advances. Now you're ready to expand your Laser 128 to take advantage of extra memory, second disk drives, 3½ inch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

Expansion Box

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

800K, 3½" Drives

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



5¼" Second Disk Drive

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

Memory Expansion

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

APPLIED ENGINEERING (RAM-FACTOR), AST (SPRINT DISK) and several others. We're working with the industry leaders to bring you the best possible price on Appleworks™ compatible memory for your Laser 128. Give us a call for details!

Laser 128

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

*Central Point
Software*
INCORPORATED

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

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

- Laser 128 Expansion Box**—\$79.95 & 6 s/h
- Universal Disk Controller and 800K 3½" Disk Drive**—\$285 & 12 s/h
- Laser 128 5¼" Disk Drive**—\$150 & 10 s/h
- Laser 128 Computer**—\$395 & 20 s/h

And ship them to me at this street address ASAP:

Name _____

Address _____

Daytime phone # (____) _____



To Order By Mail:

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

and expiration date _____

To Order By Phone: Just call us!

503/244-5782

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

*Central Point
Software*
INCORPORATED

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

That's Entertainment

You mustn't be afraid to try any notion that comes into your head.

know by now that your overall task in playing any adventure game is to perform actions in a certain specific sequence, usually determined by trial and error. In this regard, it is helpful when the game gives you back some indication that you are on the right track. *Fraktured Faebles* has no such indicator, and I spent much of the game worrying about whether I was doing the right thing. Moreover, some of the puzzles are

tough but fair, and a few—such as the tea-party sequence, which drove me mad—are downright bewildering. In this section of the game, one of the characters tells you that you will have to trust your blind luck. How right that is, as this puzzle leaves you groping around in the dark, both literally and figuratively.

Although *Fraktured Faebles* is a fairly small game—it has only 22 mappable locations—you will have to visit some of those places more than once. If you do play this game, be sure to look at everything; all the object descriptions and some of the object names contain subtle clues that help you figure out what to do with them. And, as always with

this type of game, you mustn't be afraid to try any strange notion that comes into your head, but be sure to use the handy save-game feature before you do anything risky.

Fraktured Faebles is leavened with healthy doses of humor.

On the plus side, *Fraktured Faebles* is leavened with healthy doses of humor, an element that is missing from many adventure games. For example, a stern-looking bird perched in a tree is described as a "rare overpro-

tective American eagle." And once again, programmer Johnson is teamed with the clever Rick In-crocci, who designed the striking graphics for their two previous outings, *Sherwood Forest* and *Masquerade*. But as for the major question: should you get this game? I think that despite *Fraktured Faebles'* good points, it remains a wonderful title in search of a plot.

Donald Oliver

Fraktured Faebles
American Eagle Software, Inc.
P.O. Box 46080
Lincolnwood, IL 60646
(312) 792-1227
List Price: \$34.95
Requires: Apple II, II Plus, IIe, or IIc
CIRCLE READER SERVICE NO. 403

RAMWORKS®

**ACCEPT NO SUBSTITUTES.
BECAUSE THERE AREN'T ANY.**

There'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

DOUBLE SIDED MAC DRIVE \$249⁹⁵

COLOR MONITOR

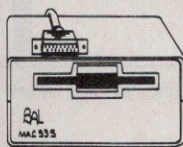
- * TOP RATED FOR APPLE
- * 13" COMPOSITE VIDEO
- * RESOLUTION: 280H x 300V
- * INTERNAL AUDIO AMP
- * ONE YEAR WARRANTY



**SAKATA
SC-100**

\$169⁹⁵

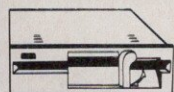
DISK DRIVES



**DOUBLE
SIDED**

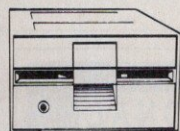
**MAC 535
\$249.95**

- * 3.5" ADD-ON DISK DRIVE
- * 100% MACINTOSH COMPATIBLE
- * DOUBLE SIDED, 800K BYTES STORAGE
- * HIGH RELIABILITY DRIVE HAS AUTO-EJECT
- * FULL 1 YEAR WARRANTY



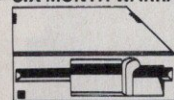
**BAL-500
\$129.95**

- * TEAC MECHANISM-DIRECT DRIVE
- * 100% APPLE COMPATIBLE
- * FULL 1 YEAR WARRANTY



**AP-135
\$129.95**

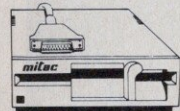
- * FULL HT. SHUGART MECHANISM
- * DIRECT REPLACEMENT FOR APPLE DISK II
- * SIX MONTH WARRANTY



**AP-150
\$99.95**

- * 1/2 HEIGHT, DIRECT DRIVE
- * 100% APPLE COMPATIBLE
- * SIX MONTH WARRANTY

FOR APPLE IIc



**MITAC
AD-3C
\$139.95**

- * 100% APPLE IIc COMPATIBLE, READY TO PLUG IN W/ SHIELDED CABLE & MOLDED 19 PIN CONNECTOR
- * FAST, RELIABLE SLIMLINE DIRECT DRIVE
- * SIX MONTH WARRANTY

DISK DRIVE ACCESSORIES

- DISK CONTROLLER CARD \$49.95
 - APPLE IIc ADAPTOR CABLE \$19.95
- ADAPTS STANDARD APPLE DRIVES FOR USE WITH APPLE IIc

PRINTER SWITCH BOXES

2 WAY SWITCH BOX \$39.95
* PARALLEL OR SERIAL (PLEASE SPECIFY WHICH)
* SWITCH 2 DEVICES TO 1 COMPUTER OR 1 DEVICE TO 2 COMPUTERS
* ALL PINS CONNECTED

3 WAY SWITCH BOX \$99.95
* PARALLEL OR SERIAL (PLEASE SPECIFY WHICH)
* GOLD CONTACTS, ALL LINES SWITCHED
* SWITCH 3 DEVICES TO 1 COMPUTER OR 1 DEVICE TO 3 COMPUTERS

PRINTER BUFFERS

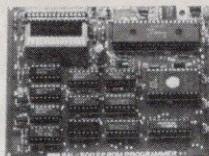
64K EXPANDABLE TO 256K

SP120P PARALLEL \$139.95
* LED INDICATOR SHOWS VOLUME OF DATA IN BUFFER

SP120S RS232 SERIAL \$159.95
* 6 SELECTABLE BAUD RATES, FROM 600B TO 19,200B

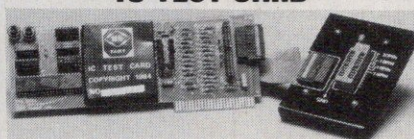
PARALLEL SWITCH/BUFFER CABLE \$14.95
* 6' CENTRONICS MALE TO MALE
* ALL PINS CONNECTED

EPROM PROGRAMMER MODEL RP525 \$59.95



- * DUPLICATE OR BURN ANY STANDARD 27xx SERIES EPROM
- * EASY TO USE MENU-DRIVEN SOFTWARE INCLUDED
- * MENU SELECTION FOR 2716, 2732, 2732A, 2764 & 27128
- * HIGH SPEED WRITE ALGORITHM
- * LED INDICATORS FOR ACTIVITY
- * NO EXTERNAL POWER SUPPLY REQUIRED

IC TEST CARD



- * QUICKLY TESTS MANY COMMON ICs
 - * DISPLAYS PASS OR FAIL
 - * ONE YEAR WARRANTY
 - * TESTS: 4000 SERIES CMOS 74HC SERIES CMOS 7400; 74LS, 74L, 74S, SOME PROMS AND RAMS
- \$99.95**

16K RAM CARD \$39.95

FOR APPLE II+

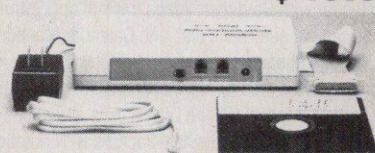
- * 2 YEAR WARRANTY
- * EXPAND YOUR 48K APPLE TO 64K
- * USE IN PLACE OF APPLE LANGUAGE CARD

BARE PC CARD AND INSTRUCTIONS \$9.95

300 BAUD MODEM

- INCLUDES ASCII PRO-EZ MENU DRIVEN SOFTWARE
- * FCC APPROVED
 - * BELL SYSTEM 103 COMPATIBLE
 - * AUTO-DIAL
 - * DIRECT CONNECT
 - * INCLUDES AC ADAPTOR

\$49.95



CABLE FOR APPLE IIc \$14.95

MODEM ADAPTOR CARD \$49.95

FOR APPLE II, II+ & IIc
USE WITH OUR 300B MODEM FOR A COMPLETE SYSTEM—UNDER \$100!

CASE WITH KEYBOARD

FOR APPLE TYPE MOTHERBOARD

- * USER DEFINED FUNCTION KEYS
- * NUMERIC KEYPAD WITH CURSOR CONTROL
- * CAPS LOCK & AUTO REPEAT

\$79⁹⁵

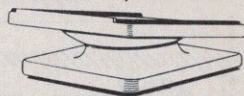
MODEL KB-1000

KEYBOARD ONLY \$49.95

- * REPLACEMENT FOR APPLE II+
- * CAPS LOCK, AUTO REPEAT
- * ONE KEY ENTRY OF BASIC OR CP/M COMMANDS

MONITOR STAND \$12.95

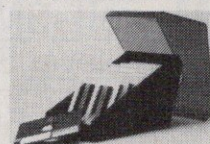
TILTS AND SWIVELS TO PROVIDE OPTIMUM VIEWING ANGLE, REDUCES OPERATOR FATIGUE



DISKETTE STORAGE FILE

\$8.95

HOLDS 70 5 1/4" DISKETTES WITH ROOM TO SPARE



DS/DD NASHUA DISKETTES

\$9.90
BOX OF 10

69¢_{ea}
BULK QTY 50

JOYSTICK

CR401 \$7.95

WITH APPLE ADAPTOR CABLE

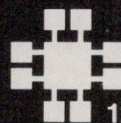


PS-A \$49.95

- * +5V @ .5A, +12V @ 2.5A
- * -5V @ .5A, -12V @ .5A



VISIT OUR RETAIL STORE LOCATED AT 1256 SOUTH BASCOM AVENUE IN SAN JOSE



JDR Microdevices

1224 S. Bascom Avenue, San Jose, CA 95128

Toll Free 800-538-5000 • (408) 995-5430

FAX (408) 275-8415 • Telex 171-110

© COPYRIGHT 1986 JDR MICRODEVICES

THE JDR MICRODEVICES LOGO IS A REGISTERED TRADEMARK OF JDR MICRODEVICES. JDR INSTRUMENTS AND JDR MICRODEVICES ARE TRADEMARKS OF JDR MICRODEVICES.

APPLE IS A TRADEMARK OF APPLE COMPUTER.

HOURS: M-W-F, 9-6

TU-TH, 9-9

SAT, 9-5

PLEASE USE YOUR CUSTOMER NUMBER WHEN ORDERING

TERMS: Minimum order \$10.00. For shipping and handling include \$2.50 for UPS Ground and \$3.50 for UPS Air. Orders over 1 lb. and foreign orders may require additional shipping charges - please contact our sales department for the amount. CA. residents must include applicable sales tax. All merchandise is warranted for 90 days unless otherwise stated. Prices are subject to change without notice. We are not responsible for typographical errors. We reserve the right to limit quantities and to substitute manufacturer. All merchandise subject to prior sale.

BEST DESK ACCESSORY AWARD! A+ Magazine

SAVE TIME AND GET ORGANIZED WITH THESE MACINTOSH ACCESSORIES.
ALL ON ONE DISK, FOR ONE LOW PRICE!

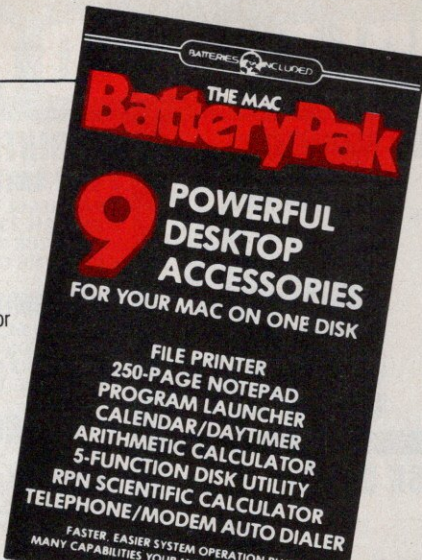
- 1 Calendar with Daytimer: keeps track of appointments, deadlines, important dates. Includes global search, automatic dial, and Calendar Manager with print command.
- 2 250-page Phonepad: stores and retrieves phone numbers instantly. Includes mini-wordprocessor for taking notes, free-form database, and Print Contents.
- 3 Automatic Modem/Phone Dialer: dials any phone number listed in Phonepad or Calendar.
- 4 Scientific Calculator: Hewlett-Packard RPN notation, statistical, logarithmic and trigonometric functions, and much more.
- 5 RPN Calculator: simplified and streamlined for everyday calculating. Continuous memory and full display control.
- 6 9-function Disk Utility: from within any application you can trash, copy, find, move and rename files, lock/unlock files, change default drive, access disk and file size/date information.
- 7 High-Speed Launcher: transfer to any other application - without going through the Finder.
- 8 Print Text: prints hardcopy of any document or program - while you keep working. Many formatting options.
- 9 Windows: gives a complete listing of every window in your system, and lets you bring any window to front of screen.



BATTERIES INCLUDED

BATTERYPAK WORKS WITH ANY 128K MACINTOSH AND THE NEW MACINTOSH PLUS! ALSO INSTALLS ON ALL HARD DISK DRIVES.

30 Mural Street, Richmond Hill, Ontario L4B 1B5 Canada (416) 881-9941 Telex: 06-986-266 17875 Sky Park North, Suite P, Irvine, California, USA 92714 (416) 881-9816 Telex: 509-139 If you can't find Battery Pak at your local retailer, you can order it direct from us for \$49.95* (plus \$5.00* for shipping and handling). Call 1-800-387-5707 (U.S. only). New enhanced version 1.2 now available! Update your disk for only \$5.00* with the return of your original disk. *Suggested U.S. list price. All prices shown are in U.S. funds. WRITE TO US FOR OUR FULL COLOR CATALOG OF SOFTWARE FOR ATARI, ATARIS, APPLE, MACINTOSH, COMMODORE, AMIG, AND IBM SYSTEMS. © 1986 BATTERIES INCLUDED, APPLE, ATARI, COMMODORE AND IBM ARE REGISTERED TRADEMARKS RESPECTIVELY OF APPLE COMPUTERS INC., ATARI INC., COMMODORE BUSINESS MACHINES INC., AND IBM BUSINESS MACHINES INC.



ONLY \$49.95
Not copy protected!

"A 'wish list' of desk utilities." (A 4 disk rating)
- Tom Neudecker/InfoWorld
"Hands down winner!"
- Sharon Aker/A+ Magazine
"Packed with accessories."
- Gordon McComb/MacWorld
"Simple to use and gets the job done."
- Steven Schwartz/Macazine
"Worth every penny."
- L. Kuttner/Computer Shopper
"The best we've seen." ("five mouse" rating).
- Steven Bobker/Macuser

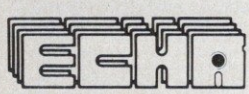
CIRCLE 185 ON READER SERVICE CARD

Cheap Disks!

Maxell-3M-Dysan-Nashua
You'll Never See These Prices Again

Bulk Pk Disks:	50	500	1000
5.25"SS	55¢	50¢	45¢
5.25"DS	65¢	60¢	55¢
3.5"SS	\$1.50	\$1.45	\$1.40
3.5"DS	\$1.70	\$1.65	\$1.60

P.S. We're also the best software duplicators on the East Coast!!!!
CALL: 800-533-4188
or 215-363-2400



DATA SERVICES, INC.
Marsh Creek Corp Center
Lionville, Pennsylvania 19353

SEI™ EDUCATIONAL SOFTWARE

- SUBJECTS FOR GRADES 7-14
- SAT PREPARATION
 - LANGUAGE ARTS
 - LITERATURE
 - FOREIGN LANGUAGE
 - MATHEMATICS
 - CHEMISTRY
 - BIOLOGY
 - HISTORY
 - GOVERNMENT

AVAILABLE FOR APPLE and IBM COMPUTERS

- EDITING AND REVISION CAPABILITIES WITH AN AUTHORIZING SYSTEM ON EACH DISK
- MENU DRIVEN AND VERY EASY TO USE
- SEI SOFTWARE ALSO TALKS
- SINGLE DISKS FOR LESS THAN \$40.00

SEI SLIWA ENTERPRISES INCORPORATED
P.O. BOX 978, YORKTOWN, VA. 23692

SEND OR CALL FOR A FREE CATALOG

FOR INFORMATION CALL TOLL FREE 1-800-443-2250

CIRCLE 133 ON READER SERVICE CARD

The Macintosh Section

HARDWARE BY STEVE ROSENTHAL

A high-performance output remedy:

THE POSTSCRIPT PRESCRIPTION

The Apple LaserWriter isn't the only high-performance output device you can plug right into a Macintosh—because the Macintosh speaks the device-independent PostScript page-description language, you can connect it to any PostScript-capable output device. Although the number of PostScript devices is still quite small, the steadily growing selection already includes several laser printers and two typesetting machines, and as more Apple II applications add PostScript-format output, you'll have the same expanded set of choices for output devices as does Apple's more upscale computer.

PostScript, in effect, acts as a standard software interface, isolating the system generating the data—the Macintosh or Apple II—from the printer or other output device—the LaserWriter or other alternative—

that produces the text and picture output. Thus, you can select from among PostScript output devices the device that most closely matches your needs without having to redo any of your programs, data, or basic operating procedures.

In addition, you can print the same file out first on a lower-performance device such as a laser printer and then later on a higher-performance (and higher-cost) unit such as a typesetting machine. Because even the more modest PostScript devices produce correctly formatted output (up to the limits of their resolution), you can use the simpler device to make "proof copies" and save the more expensive devices for the final copy.

Apple's Own

The Apple LaserWriter was the first of the publicly announced PostScript laser printers and is still the

best known. Based on the same Canon "marking engine" (the electro-mechanical printing mechanism) as that of the Hewlett-Packard LaserJet and a dozen other laser printers, the LaserWriter contains its own highly sophisticated on-board computer to translate PostScript descriptions and commands into the corresponding dots and blank spots that actually print (see box "Getting RIPped").

Furthermore, the LaserWriter contains enough RAM (1.5 megabytes) to keep track of every single dot on a full-size sheet of paper at the marking engine's maximum resolution of 300 dots per inch (dpi). A full bit image is necessary if you want to mix text and graphics on a page and if you want to be able to use software-defined fonts at any page position.

The LaserWriter Plus, announced

last January, provides largely the same capabilities as the LaserWriter, but it has more (11 vs. 4) built-in typefaces (*fonts*, in Apple's terminology) and some minor improvements in the PostScript processor.

Both versions of the LaserWriter print out at a maximum rate of eight pages per minute, although the first copy of a given page may take considerably longer while the PostScript processor builds up the image. Printing, which involves a xerographic process much like that of office copy machines, can take place on most standard sizes of office paper or on transparencies.

More RAM

Quality Micro Systems (QMS), which makes a full line of laser printers, many of which are intended for use with larger computers, claims that its eight-page-per-minute Canon-based printer works 25-30% faster than the LaserWriter. The key difference, the company says, is that the QMS PS 800 has 2.5 megabytes of user-accessible memory, as opposed to the 1.5 megabytes in the LaserWriter.

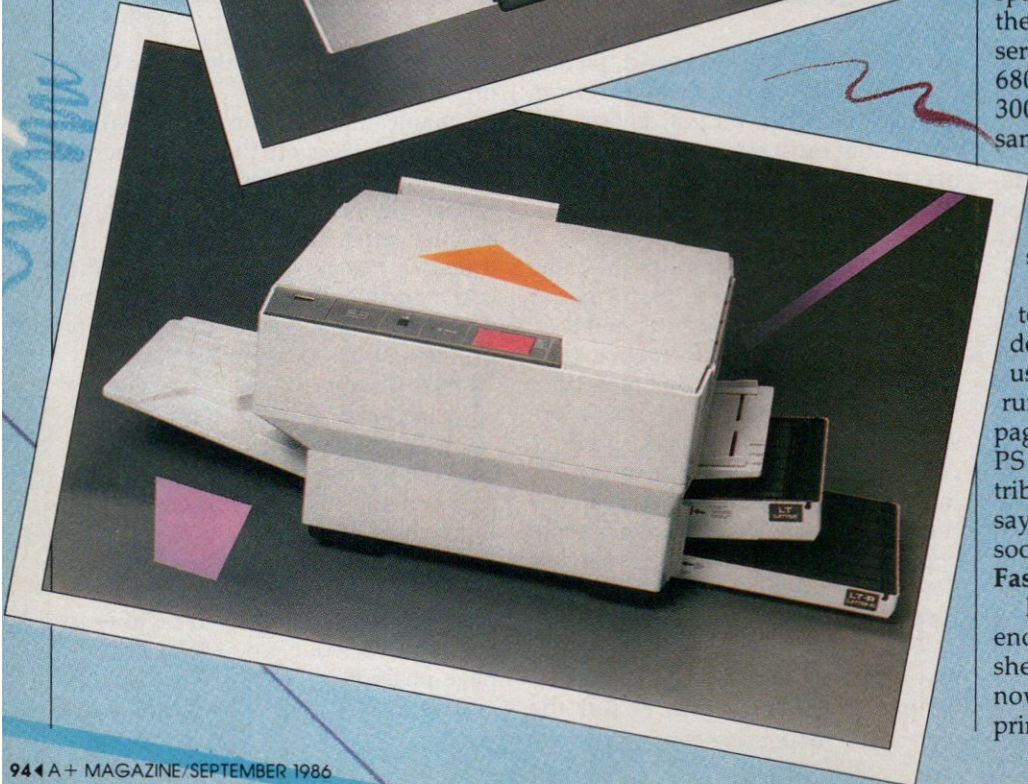
That higher storage capacity is especially important for jobs with many downloaded typefaces and graphics. With the increased memory, the PS 800 can work with more fonts and images at once and spend less time on the relatively slow process of repetitively loading fonts that have had to be bumped temporarily because of space limitations. In other respects, the PS 800 is fairly similar to the LaserWriter. It also uses a Motorola 68000 for its processor, has the same 300-dpi print resolution, has the same typefaces (Times, Helvetica,

Courier, and Symbol) in permanent memory, and is equipped with the same PostScript page-description language.

QMS has also announced a faster machine in the same series for delivery later this year. The PS 2400 uses a Xerox printing engine and runs at a maximum speed of 24 pages per minute. Initial sales of the PS series were through the QMS distributor network, but the company says it will start retail distribution soon.

Faster and Faster

If eight pages per minute is not fast enough or you want to use larger sheets of paper, you can turn right now to the Dataproducts LZR-2665 printer. This almost-200-pound laser-



printer unit churns out pages at a swift 26-page-per-minute maximum, again at a resolution of 300 dots per inch. Unlike the LaserWriter or the two QMS printers, however, the LZR-2665 has a maximum page size of 11 x 17 inches.

The LZR-2665 also uses a fully bit-mapped page, and to accommodate its larger maximum page size, it comes equipped with 2.5 megabytes of memory. In addition, you can use that 2.5 megabytes as two page images for 8½ x 11 sheets, speeding throughput by allowing the printer to lay down one page image in memory while printing another.

Connection to the LZR-2665 is via a standard RS-232 serial port or AppleTalk interface. Like the LaserWriter, the LZR-2665 has a Diablo 630 emulation mode, so it can work as a letter-quality-printer replacement with software that doesn't know anything about laser printers.

For multiuser and/or high-throughput applications, you can get an optional paper cassette for the LZR-2665 that holds 500 sheets or a sheet feeder that handles 1500. You can also add a ten-bit sorter/collator mechanism; a "Face Down Stacker/Flipper," which stacks the pages face down but in the right order, so you don't have to flip each page individually; and a "Face Down Stacker with Offset," which distinguishes each print job by offsetting it on the output pile by a small distance.

Naturally, this kind of serious production capability doesn't come cheaply. A Dataproducts LZR-2665 will set your company back about \$22,900.

True Hi-Res

Although the 300-dpi resolution most laser printers provide may be impressive compared with the ordinary output of impact dot-matrix printers, it is not nearly as detailed as that of most true typesetting systems. You may not be able to see the difference on coarse papers or in single isolated words, but there is a visible and appreciable difference between typeset matter and even good laser-printer results. Linotype Company, one of the major vendors of typesetting equipment, started working with Apple and Adobe (the developer of PostScript) even before the LaserWriter's introduction and is now out with two typesetters (in its Linotronic line) that handle PostScript files.

The Linotronic 100P (the P is for



Among the output devices that work with the PostScript page-description language are Apple Computer, Inc.'s LaserWriter printer (opposite page, top), Quality Micro Systems' QMS PS 800 printer (opposite page, center), DataProducts' LZR-2665 printer (opposite page, bottom), and Linotype Company's Linotronic 100P and 300P typesetting machines (above).

PostScript) is a desk-size unit that prints on exposed film or paper (the "RC" resin-coated paper used in graphics arts) at resolutions of up to 1270 dots per inch. A faster-speed mode gives you 317 dots per inch, and a medium-speed mode, 635.

Paper can be up to 11.7 inches wide (that's 70.5 picas in the measuring system most printers use). As with most medium-scale typesetting systems, the paper or film comes on rolls in cassettes and feeds into a second light-tight cassette after expo-

sure. A separate processor does the developing and fixing of the image.

The 100P has an AppleTalk connector, so you can use it on a network or plug it in instead of a LaserWriter. In addition to the intelligence provided in the PostScript processor, the basic Linotronic 100P includes its own 68000 microprocessor and 512K of memory.

The Linotronic 300P is similar in function but offers a slightly wider page (12 inches, or 72 picas) and much higher resolution: a maximum of 2540 dots per inch.

The Linotronic machines are not meant for casual users. In addition to the price of the typesetting machine itself (\$19,950 for the 100P and \$47,950 for the 300P), the cost of supplies and processing is several times as much per page as for laser-printer methods.

The Linotronic output is strikingly more detailed, however, a fact that is readily apparent if you do a side-by-side comparison of magnified images (see figure 1).

Other Voices

This short initial look at PostScript-compatible output devices is like an aerial snapshot of the early days of a fast-growing community. In addition to what is already built up, a large number of plots have been laid out, and signs of new construction are everywhere.

Other firms that have announced PostScript printers as of May 1986 include Apollo Computer, Digital Equipment Corporation (DEC), Metaphor, NBI, Prime, Sun Microsystems, and Wang Laboratories. Some, such as Sun, are relabeling other printers (Sun uses Apple's LaserWriter); others are creating their own combination of marking engine and processor. There are also rumors—and so far only rumors—of far more inexpen-

GETTING RIPPED

The process of turning PostScript or any other formatted output into an actual printed page encompasses two major steps: rasterization and marking.

Rasterization, or the conversion of the input into an ordered series of dots, is necessary because the printing mechanism of a laser printer actually paints a page by sweeping the laser beam across a stacked set of horizontal lines that cross the page, in much the way an impact dot-matrix printer prints by sending the print-head to and fro across each line on a page or a video terminal creates a display by moving an electron beam across and down in a regular pattern.

The sweep pattern—the raster—is fixed, a necessary approach to engineering the fast, precise movement for bringing the beam to each possible point on the page at resolutions of hundreds of dots per inch and more. The printer's built-in computer turns the laser beam on or off at each point in the pattern to create images.

Doing the conversion is a computationally intensive task, especially when the input is device-independent and must be scaled and fitted to the characteristics of a particular marking engine. The "raster image processors" (RIPs) that do the task are often comparable to personal computers or even small minicomputers in power.

Even at the fast internal speeds that typify most RIPs, rasterization can eat up a significant amount of time. Taking a full page of PostScript output and converting it to dot patterns can take you as long as several minutes on some laser printers, depending on the complexity of the PostScript code and the detail level of the image.

Rasterization is also memory-intensive. Because the marking engine needs its input as a fixed rate that matches its electromechanical cycle, the RIP must have the full-page im-

age ready and waiting to send out at a rate of millions of dots per second (a rate comparable to that of a video signal). Storing that image takes one bit of memory for each possible dot on the page's raster pattern, or about 1 megabyte (8 megabits) for an 8½ × 11-inch page at 300 dots per inch.

Laser marking engines do the second half of the job, taking the dot images in raster order and turning them into black-and-white spots on the page. The technology is very similar to that of an ordinary office photocopier. A light pattern caught on a photoconductive drum attracts toner that is then fused onto a sheet of paper to create the image. In the case of a laser printer, though, the optical image is created not by reflection of an already existing page but by the dot pattern the laser beam creates as it sweeps out the raster pattern.

All current PostScript laser printers are page printers rather than serial printers: once the output device has started a page image, the process must continue at a fixed pace until the print cycle is complete. Once a single image for a page has been created, the cycle can repeat over and over. The rated speed of the actual print mechanism is for this repetitive rate, which is also the rate it would take the printer to produce the first page only if the RIP could do its job in nothing flat.

Naturally, the abilities to create a larger image, move the beam faster, or control the beam more precisely are all difficult to engineer and therefore relatively expensive. Printers that can produce larger images are often rated for longer lifetimes, however; use more hardy photoconductive surfaces and more flexible toner-replenishment systems; and can therefore claim a significantly lower operational cost in high-output applications compared with small desktop printers such as the LaserWriter.



Figure 1: A comparison between output from a laser printer (left) and a Linotronic typesetter (right). Lower- and uppercase letter I's are 24-point type enlarged 400%.

sive PostScript laser devices. There is no technical reason why PostScript processor chips cannot be produced and cranked out like jellybeans, and the industry's experience with consumer copiers and laser printers is driving down the cost of engineering and manufacturing at an appreciable rate.

As with any business tool, however, the question is always whether one unit on the desk is worth two promised for future delivery. If you talk to anyone who has a laser printer, you'll find that few doubt the worth of going ahead right now with a purchase. The Macintosh has provided us with easy, accessible high-resolution graphics and formatted typestyles for text. It seems only right, when budgets permit, to give it an output device that brings out its best. **+**

Steve Rosenthal normally works upstream from the RIP and marking engine, turning thoughts and notes into text for PostScript encoding for A+ and other magazines.

PRODUCT INFORMATION

LaserWriter and LaserWriter Plus

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA, 95014
(408) 996-1010

List Price: LaserWriter, \$5995;
LaserWriter Plus, \$6798

PS 800 and PS 2400

Quality Micro Systems (QMS), Inc.
P.O. Box 81250
Mobile, AL 36689
(205) 633-4300

List Price: PS 800, \$5895; PS 2400,
less than \$30,000

CIRCLE 431 ON READER SERVICE CARD

LZR-2665

Dataproducts Corporation
6200 Canoga Avenue
P.O. Box 746
Woodland Hills, CA 91365-0746
(818) 887-8000

List Price: \$22,900

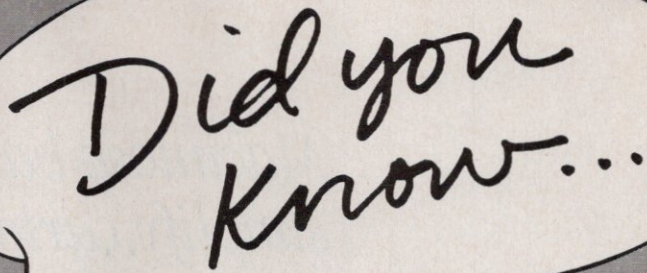
CIRCLE 432 ON READER SERVICE CARD

Linotronic 100P and Linotronic 300P

Linotype Company
425 Oser Avenue
Hauppauge, NY 11788
(516) 434-2000

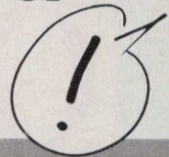
List Price: Linotronic 100P, \$19,950;
Linotronic 300P, \$47,950

CIRCLE 433 ON READER SERVICE CARD



Did you know...

that A+ readers are more responsive than other Apple owners? Every month, you generate over 122,000 requests for product information. Products you read about or see advertised in A+!



For Free Information...

...on any product you see advertised or read about in A+ Magazine, look for the Reader Service Number and mark it on the Reader Service Card found in the back of this issue. The manufacturer will send you additional information free!

Macintosh-based mapping systems simplify cartographers' craft.

YOU
CAN
GET
THERE
FROM
HERE

Have you ever visited Ranald MacDonald's grave? It's eight miles out of Curlew, along the Kettle River about—wait a second—let me draw you a map.

There really is a grave of MacDonald up near Washington state's northern border. Unlike Ronald McDonald with the like-sounding name, this MacDonald won fame for opening American trade with Japan, not for clowning around with hamburgers. My point about drawing a map still stands, though; without one, I probably would need more time to explain the grave's location than you would need to drive there. (In MacDonald's case, see figure 1).

Maps have long been valued for the way they show instantly where a place is and how it relates to the surrounding world. Not long ago, however, when the average person sent information in the form of a line of type or else not at all, there was no easy way to put a map into a report or term paper.

The Macintosh has ended that dilemma. With it, you can create all the maps you want, modifying them to meet particular needs.

Software and gadgets for a Mac-based mapping system cost anywhere between a few dollars and \$2000. Most people need only clip-art packages, which range in price up to \$200 and work in conjunction with programs such as MacPaint and MacDraw. More adventurous types who want to create or customize maps should consider obtaining a digitizer and/or a tablet device to replace the mouse.

Keep in mind, however, that the most important part of map-making is the time you spend thinking about what you want to show. Only with such planning can you assure that your map will convey the sense of place and importance that you want. (For pointers on map styling, see

"Tips for Better Mapmaking," which accompanies this article.)

The No-Tools Approach

The cheapest way to make a good map on the Mac doesn't require any special tools. Instead, you need only a map, a ruler, a pen, a Mac, and MacPaint.

Take the map and draw a grid on it, with the lines about a quarter inch apart. Then start MacPaint and begin recreating what you see on the grid, box by box. The grid method will help keep you from veering out of perspective as you transfer the map's contents onto the screen.

David Riley, art director of the *Kentucky New Era* in Hopkinsville, Kentucky, has used the grid often to create maps for his newspaper (see *A+*, March 1986, pages 118-124). He also has enjoyed success with another low-cost technique that requires a copying machine and some clear plastic acetate sheets, available at most business-supply stores.

Take the map you want to recreate and put it into the copier. Then insert the acetate sheets into the tray where the copy paper normally goes. Start the machine and copy the map onto a sheet. Take the sheet home, tape it

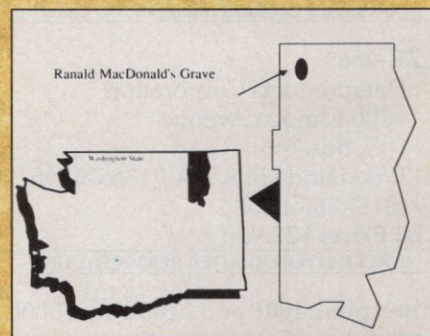
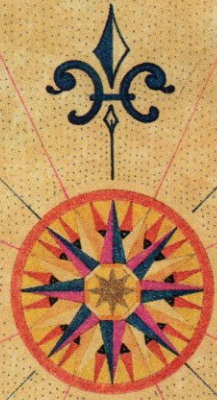


Figure 1: A Mac-made map showing Ranald MacDonald's Washington grave site

onto the front of the Macintosh screen, and start up a drawing program. Now, keeping your head very still so as not to distort the perspec-

PACIFIC OCEAN



ESCAPE BAY



QUICKFILE ST.

CAPE MACDRAFT

Thunder Scan Pt.

FROM SANTA CLARA

Macintosh Mts.

PROGRAM COVE

MacDrew Head

Bloud

PRODOS R.

L. Fortran

N. BUFFER

Bay of SCULLEY

SLOT COVE

MacAtlas Hills

NEW APPLE LAND

Cut Falls

L. Visicalc

Disk

Ram

Rom

CITY'S FOREST

Apple III Peaks

Ft. INIT

MACPAINTE

GODIN

PROFILE Pt.

DISK DRIVE

Brum

ResistRec

Scsi Trail

Capella

MacDraftsburg

FROM HONG KONG

Z80

VALLE de INFRENCA

CAL READ R.

MACTABLET BEACH

BASIC SHOALS

Port Jobs



70

60

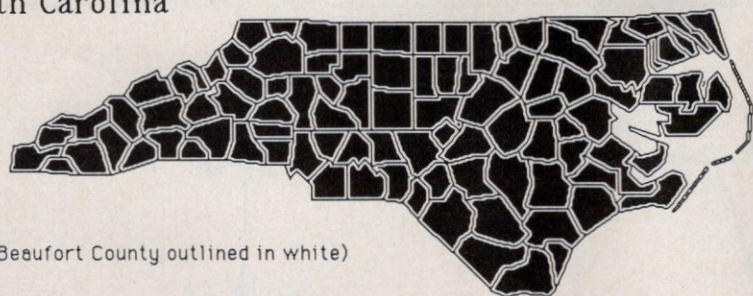
50

50

60

70

North Carolina



(Beaufort County outlined in white)

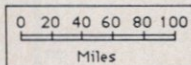


Figure 2: In this type of MacAtlas map, the boundary lines remain visible when you fill in the map with MacPaint patterns.

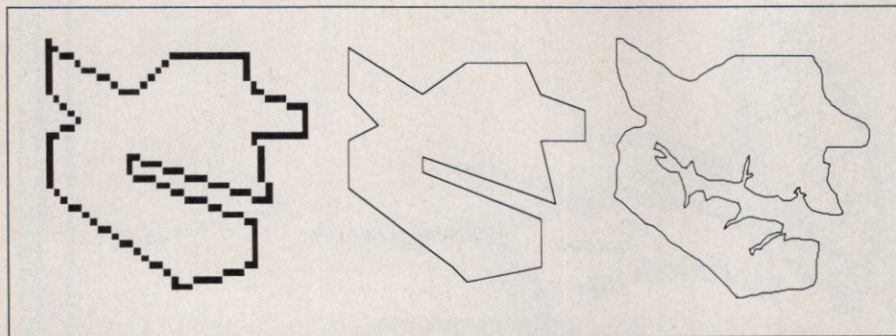


Figure 4: Enlargements of MacPaint- (left) and MacDraw-format MacAtlas maps reveal their lack of detailing. To produce a more accurate map, you need to use a professionally designed original and a tracing device (right).

tive, trace the image from the clear sheet onto the screen just behind it. When the screen gets full, just move it and the acetate sheet, again being careful to avoid changing the angle of your head.

Riley's systems exact a price in patience that might exceed what they save in cash. For those who lack such serenity, the solution may be to buy clip-art software.

Several software companies include maps in their clip-art packages. For maps alone, one of the best pieces of software is MacAtlas, created by Robert Dahl, a geography specialist for the state of New Jersey.

The MacAtlas package features six diskettes that together give a view of the world in both MacPaint and MacDraw format. MacAtlas USA contains 19 maps showing the United States as a whole or in sets of states grouped by census region. The MacPaint-format maps are available in 5×7 or 8×10 -inch sizes. The three MacDraw-format maps show the states on a U.S. map ranging in size from 6×7 inches to 16×20 inches.

Dahl shows his thoughtfulness in

a set of maps that have the states filled entirely in black, except for a one-pixel space just inside the borders. He left this space because of a quirk in MacPaint that can cause some borders to disappear when you use the paint can to fill adjacent shapes. In the blackened states, the

The most important part of mapmaking is the time you spend thinking about what you want to show.

paint patterns never reach the borders, so the state lines remain clear (see figure 2).

MacAtlas World features MacPaint and MacDraw versions of North, Central, and South America; Europe; Asia; the Soviet Union; the Middle East; the Far East; Africa; Australia and New Zealand; and Antarctica. The program also includes MacPaint but not MacDraw maps of the Caribbean and the Western Hemisphere.

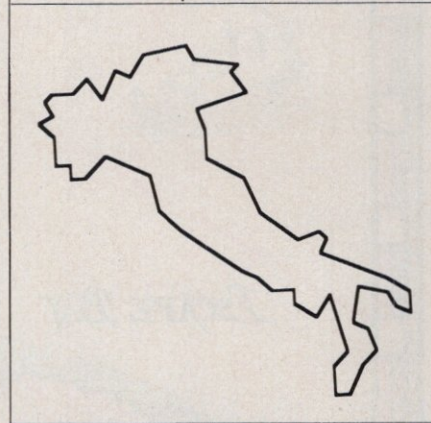


Figure 3: The MacAtlas package provides clip-art maps in both MacPaint (top) and MacDraw formats (bottom).

MacPaint is the only format for the two maps of the world, which come in 4×5 and 6×8 -inch sizes. A final set of four disks provides MacPaint and MacDraw maps of every county within every state in the United States.

Dahl does a better job in the MacPaint format than he does in MacDraw (see figure 3), but both are adequate for users who are interested in just giving an idea of the area involved, rather than presenting a carbon copy.

MacAtlas' documentation is easy to read and full of ideas on how to use shadings, lines, proportional sizes, and graphs in maps.

Dahl purposely left out scales on the World and USA disks because of the distortions involved in taking something from a three-dimensional globe and putting it on a two-dimensional map.

Scales and boxes are included in each of the county maps, however. Most American counties are polygonal, so it's a snap to take the MacDraw versions and expand them to the desired size. But after you blow

There is no perfect program for creating maps. Consider using several programs to fill various needs.

up a more jagged county, such as Beaufort in North Carolina, in either MacPaint or MacDraw (see figure 4), MacAtlas gives only an impressionistic view at best. The state maps, in contrast, look good.

MacArt Library's Geography by compuCRAFT costs less than MacAtlas but offers little. It features MacPaint-only images of Africa, Asia, Europe, South America, North America, the United States, various versions of the globe, and the entire world. The package also contains digitized images of such landmarks as the Statue of Liberty, a pyramid, and Boston's Old North Church.

None of the drawings look as good as those of MacAtlas. Even if the maps were better, I still would have to dismiss the program for sloppiness. There's little excuse for producing software that misspells a country's name ("Hati" for Haiti on my disk) and identifies the same country as both Nicaragua and Costa Rica.

Advanced Tools

At some point, just about every person who needs a lot of maps will have to do them by hand. Here are two tools that can be especially handy. The first is a tracing device

such as Summagraphics' MacTablet, Macintizer by GTCO Corporation, or Make Another Copy by Innovative Products. The MacTablet and Macintizer offer a version of the mouse that looks like a pen and operates on a special pad. With the special cursor-control device, usually known as a stylus, you can trace just about any map you want with far more accuracy than the usual clip art provides (see figure 4).

Make Another Copy is a mechanical device that locks the mouse into place and makes it follow the movements of a stylus. As a result, when you trace with the stylus, the mouse moves too and creates on the screen the image you're tracing.

Sometimes it's easiest to let the Mac read a map for you. With a digitizer, it can do that by scanning a map and then turning the light and dark images it sees into a series of electronic commands that it relays to the computer screen.

Some scanners operate like a television camera. The ThunderScan digitizer by Thunderware, Inc., uses a device that replaces the ribbon in an ImageWriter and scans a picture or map as if it were printing something (see "ThunderScan," A+, August 1985, pages 136-141). You can then touch up parts of the resultant digitized image by adjusting the contrast or brightness in specific areas (see figure 5).

I had the best results digitizing maps with lots of black and white and less success transferring maps that

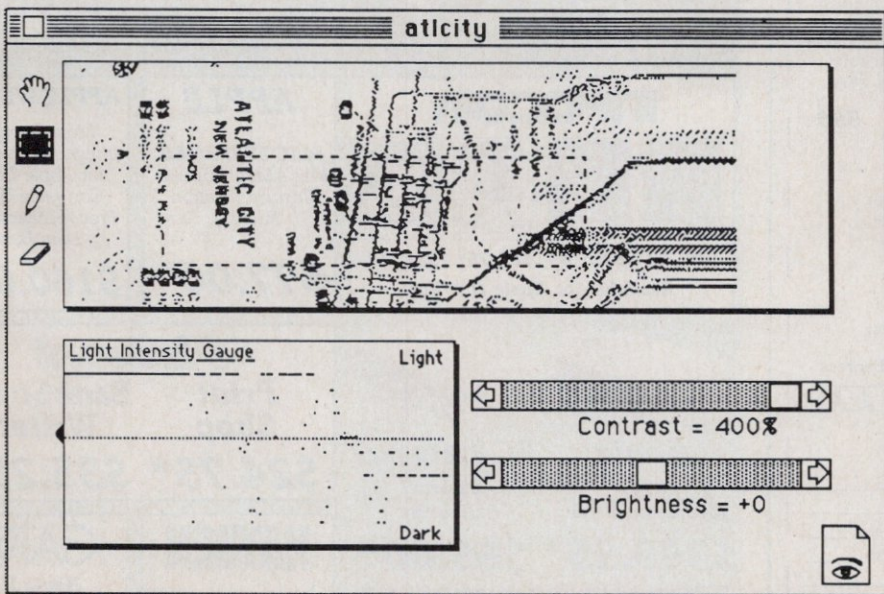


Figure 5: This map of Atlantic City was scanned into the Macintosh with the ThunderScan digitizer.

World of Computers

NO SALES TAX COLLECTED!
(N.J. Residents add 6%)

Macintosh Plus Deluxe System

1000 K of Memory
1600 K of Storage
Includes all cables



- Macintosh Plus
- Macintosh External 800K Drive
- Imagewriter II
- Printer Cable
- MacWrite Wordprocessor
- Box of 10 Maxell Diskettes
- Extra Printer Ribbon
- Head Cleaning Kit
- Macintosh Dust Cover
- Printer Dust Cover

SAVE OVER \$1000
SALE PRICE \$2899

When You Order From World of Computers You Receive:

1. 30 Day Money Back Satisfaction Period (software excluded)
2. Knowledgeable Friendly Salespeople
3. Prompt Shipment (24-48 Hours)
4. No-Charge Technical Support Line
201-728-8023

Monthly Mac Specials

Apple Computers	List	CDA
Macintosh 800K Drive	\$ 499	\$ 319
Macintosh Hard Disk 20	1499	899
Lazerwriter	5999	CALL
Imagewriter II w/cable	625	489
Apple Personal Modem	429	299
Software		
Apple MacDraw	\$ 195	\$ 139
Apple MacPaint	125	95
Apple MacProject	195	139
Apple MacTerminal	125	95
Apple MacWrite	125	95
Continental Home Account	99	59
Creighton MacSpell +	99	59
Digital Turbo MacAccount	495	289
Didigital MacAccountant	275	159
Enabling EZ3D	99	65
Hayes Smartcom II	149	89
Living Video Thinktank	195	109
Lotus Jazz	495	CALL
Microsoft Chart	125	77
Microsoft Excel	395	249
File, Word, and Multiplan	195	119
Monogram Dollars & Sense	148	89
Soft Pub PFS: File & Report	175	105
Modems		
Hayes Smartmodem 1200	\$ 649	\$ 429
Prometheus 1200M	549	319
Disk Drives		
HabaDisk 800K External	399	249
Maple 800K External	399	199
Mirror Magnum 20 Meg	1499	1049

ORDER TOLL FREE
800-526-5313
IN NJ 201-728-8080

Order via telephone — Mon.-Fri. 9-9 EST
Sat. 10-4 EST or Order via Compuserve —
Electronic Mail 24 Hours a day!
Order via Mail — Include address and phone #.
Payment: No COD's! Cashiers Checks,
Money Orders, Credit Card will ship immediately.
Personal and company checks allow 15 days.

Write for our 40 page catalog.

CDA WORLD OF COMPUTERS
31 Marshall Hill Road • West Milford, NJ 07480

PC NETWORK THE #1 SOURCE FOR ALL YOU

MEMBERS PAY WHOLESALE + 8% OR LESS AND GET 14-30 DAY SOFTWARE RENTALS



OUR ROSTER INCLUDES SOME OF THE MOST IMPORTANT NAMES IN INDUSTRY:

- | | |
|---------------------|------------------|
| AT&T | General Mills |
| Barclays Bank | General Electric |
| Bell & Howell | General Motors |
| Citibank | Hewlett Packard |
| Columbia University | IBM |
| Data General | ITT |
| Exxon | Kodak |
| Frontier Airlines | Yale University |

Plus 150,000 THOUSAND satisfied consulting firms, small businesses, governments, schools and value minded individuals.

**CALL TOLL FREE
800-621-SAVE**

(Orders—Membership and Advice!)
In Illinois Call (312) 280-0002 **M596**
Your Membership Validation Number

You can validate your membership number and, if you wish, place your first money-saving order over the phone by using your VISA, MASTERCARD or AMERICAN EXPRESS. Our knowledgeable sales consultants are on duty Mon.-Fri. 8:00 AM to 7:00 PM, Sat. 9:00 AM to 5:00 PM CST.



PERSONAL COMPUTER NETWORK
320 West Ohio Street
Chicago, Illinois 60610



PC NETWORK MEMBERSHIP APPLICATION

YES! Please enroll me as a member in the PC NETWORK™ and send my catalog featuring thousands of computer products, all at just 8% above DEALER WHOLESALE PRICES. I will also receive "THE PRINTOUT", a special quarterly update on merchandise at prices BELOW even those in my wholesale catalog and all the other exclusive, money-saving services available to Members. I am under no obligation to buy anything. My complete satisfaction is guaranteed.

Please (✓) all boxes that apply: **596**

Basic Membership
With 14 Days Rental
Business Software Rental Library \$25 add'l. per year
Games Software Rental Library \$10 add'l. per year

Special V.I.P Membership
With 30 Days Rental
BOTH Business and Game
Software Rental Libraries \$30 add'l. per year

Bill My Credit Card: VISA MasterCard American Express
Account Number:

Exp. Date _____
mon. yr.

Check or Money Order Enclosed for \$ _____
Name _____

Address _____ Apt. No. _____
City _____ State _____ Zip _____

Telephone () _____

My Computer(s) is: IBM PC IBM XT IBM AT
 Apple II Macintosh Other _____

Signature _____

(Signature required to validate membership)
Copyright © 1986, PC NETWORK, INC.

Macintosh

512K Enhanced/Mac Plus
400/800 Disk Drive, Keyboard
Mouse, Software

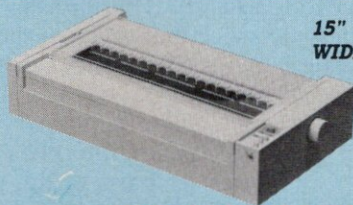
PRICES TOO LOW TO PRINT!



LASER 128

128K RAM, 1 Internal Drive,
Apple IIe/IIc Compatible
1 Parallel and 2 Serial Ports Included

\$355.00*



15"
WIDE

IMAGewriter
\$475.00*

w/Mac Kit



MICROSOFT



EXCEL
\$197.50*

(At Unheard of Prices!!!)

Multiplan, File or Word 97.50*
BASIC 75.00*
Chart 62.00*

DISKETTES
Guaranteed for Life!
Brand name diskettes
available in boxes of 10
or in bulk packs of 50

5 1/4" SS/DD
Box of 10 **\$7.95***
Box 50
ea. **47***

3 1/2" SS/DD
Box of 10
\$12.50*
Free Flip 'n' File Case

3 1/2" DS/DD
Box of 10
\$16.95*
Free Flip 'n' File Case

INFOCOM



\$19.75* \$19.75* \$21.75* \$21.75*

Available for Apple II & Mac

APPLE

MAC TERMINAL
Mac's Most Popular
Communication
Package

\$77.00*

APPLE WORKS

Most Popular
Integrated Package
for Apple IIe/IIc
Complete Word
Proc./Spreadsheet
Data Base

\$160.00*



Apple 800KB Macintosh Drive
PC Network External IIc Drive

\$349.95* \$95.00*

*PC Network Members pay just 8% above the wholesale price, plus shipping. All prices reflect a 3% cash discount. Wholesale prices fluctuate rapidly—all prices in this issue have been prepared 60 days in advance. Please call for latest prices. Minimum shipping \$2.50 per order. International orders call for shipping & handling charges. Money Orders, personal and company checks please allow 10 working days to clear.

Broderbund

Print Shop **Bank Street Writer**
\$24.75* **\$35.25***

HAYDEN
Sargon III
\$24.75*

GATO
Apple II
Mac
\$17.75*
\$22.00*

APPLE AND MACINTOSH NEEDS!

OVER 30,000 PRODUCTS AT EVERYDAY LOW, LOW PRICES!

EDUCATIONAL SOFTWARE (Please add \$1 shipping and handling for each title ordered.)

	Wholesale		Wholesale
Bluechip Baron, Millionaire or Tycoon	\$19.75*	▶ Mark of the Unicorn Mouse Stampede	\$17.25*
Broderbund Bank Street Writer	35.25*	Penguin Graphics Magician—Mac Only	28.97*
Broderbund Lode Runner, Choplifter	17.00*	Penguin Transylvania—Mac Version Only	20.00*
Broderbund Print Shop	24.75*	Screenplay Professional Blackjack	39.88*
Davidson & Associates Speed Reader II	31.00*	Sierra On-Line Frogger—Mac Tool	19.50*
Davidson & Associates Math Blaster	22.00*	Sierra On-Line Crossfire	18.00*
Davidson & Associates Word Attack!	21.50*	Simon & Schuster Typing Tutor III—Mac Tool	28.25*
Hayden DaVinci—House/Interiors or Landscapes—Mac Only	23.00*	Sir-Tech Wizardry	17.25*
Hayden Sargon III	24.75*	Spectrum Holobyte GATO	17.75*
Infocom Deadline, Suspended, SeaStalker	24.00*	▶ Spinnaker Alphabet Zoo, Face Maker, Story Machine, Hey Diddle Diddle, Rhymes & Riddles	15.25*
Infocom Enchanter, Planet Fall, CutThroats	19.75*	▶ Spinnaker Delta Drawing	20.75*
Infocom Zork II, Zork III	21.50*	Sublogic Flight Simulator II	27.25*
Infocom Zork I, Witness, Hitchhiker's Guide, Infocom Suspect, Infidel, Sorcery	19.75*	Sublogic Night Mission Pinball	19.25*
	21.75*	Virtual Combinatics Micro Cookbook	17.50*

BUSINESS SOFTWARE (Please add \$2.50 shipping and handling for each title ordered.)

	\$160.00*	Human Edge Management or Sales Edge	\$110.00*
Apple Apple Works	77.00*	▶ Living Videotext ThinkTank—512K Mac	\$85.00*
Apple MacTerminal	35.00*	Microsoft Excel	197.50*
Arrays Home Accountant	42.00*	▶ Microsoft Multiplan (DOS or CP/M)	97.50*
Arrays Home Accountant Expanded	37.50*	▶ Microsoft For Macintosh: Word, File, Multiplan	97.50*
Borland SideKick for Mac	30.00*	Microsoft Basic for Macintosh	75.00*
Borland International Turbo Pascal	30.00*	Microsoft Chart for Macintosh	62.00*
BPI GL, A/P, A/R, P/R, or INV Each Only	190.00*	Monogram Dollars & Sense	55.00*
Broderbund Bank Street Writer	35.25*	Monogram Dollars and Sense for Mac Only	71.99*
Broderbund Print Shop	24.75*	Odesta Helix for Macintosh Reg's 512K	200.00*
Central Point Copy II Plus	16.25*	Software Publishing PFS: File, PFS: Write	61.00*
Dow Jones Software Market Analyzer	184.50*	Software Publishing PFS: Graph	63.50*
Dow Jones Software Market Manager	103.50*	T/Maker Click Art for Macintosh Only	24.75*
Funk Software Sideways	26.50*	United Software Industries Ascii Express Pro	64.75*
HowardSoft Real Estate Analyzer III	163.00*		
Human Edge Mind Prober	22.00*		

HARDWARE (Please add shipping and handling charges found in italics next to price.)

COMPLETE SYSTEMS		BOARDS AND BUFFERS	
Apple Apple IIe, Apple IIc, Macintosh	CALL	AST Research Multi I/O-2	\$155.00* (2.50)
AT&T 6300 PC CPU 2	\$1,650.00* (35.64)	Microtek Dumping/GX	55.00* (2.50)
128K/2 Floppy/1 Serial/1 Parallel		Orange Micro Grappler +	66.00* (2.50)
AT&T 7300 Unix PC	3,699.00* (79.90)	Orange Micro Serial Grappler	66.00* (2.50)
10MB Hard Disk/1 Floppy/512K		PC Network Z80 Card	35.00* (2.50)
▶ Central Point Laser 128	355.00* (7.67)	Quadram Multicore 1 Parallel, 1 Serial, Clock, Expandable to 256K	140.00* (2.50)
Apple II+/Apple IIe Compatible		Quadram MP-8K Microfazer Buffer (Expandable)	110.00* (2.50)
▶ Compaq DeskPro	1,940.00* (61.11)	Quadram APIC/G Graphics Interface	62.00* (2.50)
w/256K/1 Floppy/10MB Hard Disk		Quadram eRAM-80COL w/64K	88.00* (2.50)
▶ Compaq Hard Disk Portable 256K	CALL	Street Electronics ECHO II	85.00* (2.50)
with 256K Base System	1,159.00* (25.00)	Speech Synthesizer	
▶ IBM PC Base System	1,499.00* (32.38)	Titan Technologies Accelerator I/e	207.35* (2.50)
with 256K 2DS/DD/FDC		Video 7 Apple IIc RGB Adapter	70.00* (2.50)
▶ IBM PC Professional Hard Disk	1,499.00* (32.38)		
256K/DS/DD/FDC/20MB Hard Disk			
IBM PC/AT Base System	2,795.00* (60.37)		
1.2MB Floppy/256K			

DISK DRIVES & CONTROLLERS

Apple Macintosh Add On Drive	\$349.95*	(7.50)
Apple UniDisk 3.5 w/accessorykit	319.00*	(6.89)
Corvus 6MB Hard Disk	675.00*	(14.58)
Haba 800KB DS/Mac Drive	215.00*	(4.64)
IOmega 5MB Macroulli	1,250.00*	(27.00)
IOmega Dual 10MB Macroulli	2,150.00*	(46.44)
Micro-Sci A2 143KB Drive	150.00*	(5.00)
Micro-Sci H/H Drive for II+/IIe	145.00*	(5.00)
Micro-Sci Floppy Controller	55.00*	(2.50)
Paradise 10MB Hard Disk	525.00*	(11.34)
Subsystem for Macintosh		
Paradise 20MB Hard Disk	745.00*	(16.09)
Subsystem for Macintosh		
▶ PC Network Apple IIc External Drive	95.00*	(5.00)
▶ PC Network Apple IIe Disk Drive	85.00*	(1.84)
Tecmar 10MB Hard Disk for Mac	999.00*	(21.58)

MODEMS

Anchor Lightning 2400	\$309.00*	(2.50)
Anchor Signalmen Express	205.00*	(5.00)
Hayes Micromodem IIe/Smartcom	125.00*	(2.50)
Hayes Smartmodem 300	125.00*	(2.50)
Hayes Smartmodem 1200	340.00*	(5.00)
Hayes Smartmodem 2400	525.00*	(5.00)
MicroCom Mac Modem 1200	348.00*	(2.50)
Novation Apple Cat II	174.45*	(2.50)
Prometheus ProModem 1200 with Mac Pac	247.00*	(6.00)
	253.00*	(6.00)
▶ Prentice Pop Com w/MacPac 1200 Baud Modem, Cable, Straighttalk	215.00*	(2.50)
U.S. Robotics Courier 2400BPS	345.00*	(5.00)
Zoom Modem IIe	95.00*	(2.05)

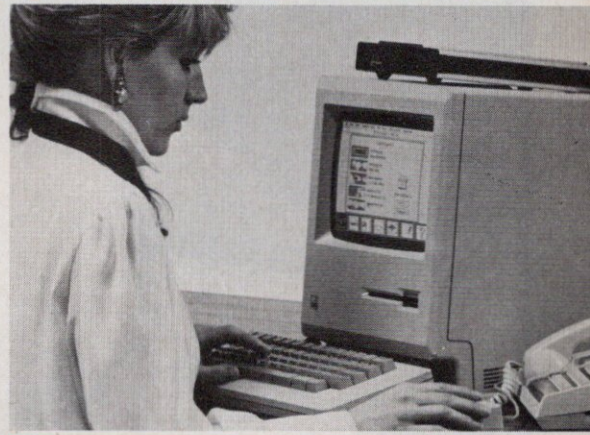
THE™ MODEMS ARE 100% HAYES COMPATIBLE

THE™ 1200 COM External	129.00*	(5.00)
THE™ 2400 COM External	277.00*	(5.00)

MONITORS

Amdek Video 300G Composite	\$110.00*	(3.00)
Amdek Video 300A Composite	120.00*	(3.00)
Amdek Color 300	215.00*	(3.00)
Amdek Color 600 RGB	365.00*	(3.00)
Apple NEW! Super Color IIe	255.00*	(2.55)
Apple Color Monitor IIc	259.00*	(2.55)
Princeton HX-9" RGB Monitor	365.00*	(3.00)
Princeton HX-12 RGB Monitor	369.50*	(6.00)
Taxan 620-U High Res Color	382.00*	(3.00)
Zenith ZVM 1230A NEW!	81.00*	(2.50)
12" High Res Green/Non Glare		

PC NETWORK



NEW! PC NETWORK

ONLINE

A 24 Hour Bulletin Board and Information Service Center

- FREE SOFTWARE: Over 20,000 downloadable shareware titles.
- NEWS FLASHES AND REVIEWS: Tie into the worlds largest computer News Network .Get all the latest on Apple,™ IBM,™ Mac, Unix and related subjects.
- PLACE ORDERS, LEAVE MESSAGES FOR TECHNICAL SUPPORT—DAY OR NIGHT.
- LATEST PRICING: and Special Sales on PC Network Products.

PC Network improves on the benefits its members continue to enjoy...

- WHOLESALE + 8% PRICING.
- 10 DAY RETURN ON HARDWARE
- 600 PAGE NETWORK CATALOG
- QUARTERLY NEWSLETTER
- 14-30 DAY SOFTWARE RENTAL
- FREE TECHNICAL SUPPORT

30 Day Money Back Guarantee on Membership

TOLL FREE (800) 621-SAVE

In Illinois (312) 280-0002 Validation Code M596
Customer Service and Order Status (312) 280-1567

COVER UP



Macintosh Plus
Cover Ups Available Now

COVER UPS: Contemporary dust covers made of first quality 400 denier rip stop nylon. **COVER UPS** are water resistant and anti-static. They will not tear, crack or create lint problems as do many vinyl and cloth covers. All seams and hems are double stitched for that finished look. **COVER UPS** will outlast the useful life of your computer, insuring years of worry free protection. We specialize in dust covers for Apple products and update our product line frequently. *Don't hesitate to protect your new Apple!* Individual covers available for most components, plus specially designed one piece covers for larger sets, such as the Apple II's, IBM PC's, and COMPAQ's. Available in six attractive colors: **Bone** (similar to the Mac), **Blue**, **Brown**, **Rust**, **Smoke** (gun metal grey), and **Tan**.

Macintosh/Mac Plus Sets (Specify)

	Prices
#M1B Macintosh, Keyboard, and Mouse	\$19.95
#M1 Macintosh, Keyboard, Imagerwriter ¹ , and Mouse	\$27.95
#M2 Macintosh, Keyboard, Imagerwriter ¹ , External Drive (400/800K), and Mouse	\$29.95
#M5 Macintosh, Keyboard, Large Imagerwriter, and Mouse	\$29.95

Apple IIc Sets

#C1 Apple IIc CPU, Monitor ² , and Mouse (Separate covers)	\$18.95
#C2 Apple IIc CPU, Monitor ² , External Disk Drive, and Mouse	\$24.95
#C3 Apple IIc CPU, Monitor ² , Imagerwriter ¹ , External Disk Drive, and Mouse	\$29.95
#C4 Apple IIc CPU, Monitor ² , Scribe, External Disk Drive, and Mouse	\$29.95

Apple IIe Sets

#E1 Monitor ³ atop IIe CPU (One piece cover. Components available)	\$23.95
#E11 E1 with Imagerwriter ¹ (Two covers)	\$31.95
#E2 Monitor ³ atop Profile DuoDisk atop IIe CPU, (One piece cover. Components available)	\$26.95
#E21 E2 with Imagerwriter ¹ (Two covers)	\$34.95

- 1 - Substitute **Imagerwriter II** for Imagerwriter. Any set add \$1.00.
Substitute **Laserwriter** for Imagerwriter. Any set add \$5.00.
- 2 - Substitute IIc **Color Monitor** for Green Monitor. Any IIc set add \$1.00.
- 3 - Substitute IIe **Color Monitor** for Monitor II. Any IIe set add \$1.00.

Other **COVER UP** Sets Available Including **IBM** and **Compaq**.

STAND-UPS: Universal printer stands designed to raise your printer for easy viewing and provide ample space below for paper storage. Our **STAND-UPS** are metal with a textured powder coat finish (same as your printer), and include molded rubber booties to protect your printer and desk top. Available in black or computer white. **STAND-UPS** are truly the first reasonably priced printer stands. Retail Value \$23.95 Direct Order \$18.95

SLIP-UPS: Our own special mouse pad. Help keep your mouse clean and rolling easy. Two sizes and four colors to choose from: **Blue**, **Brown**, **Bone**, and **Red**.

Lil Slip-Up — 6" x 8" Pad (Complete screen coverage and more - Pictured above)	Only \$ 4.95
Big Slip-Up — 8" x 9½" Pad (Room to spare)	Only \$ 7.95

Imagerwriter Ribbons (First Quality. Satisfaction Guaranteed)

Black:	\$4.50/ribbon	Box of six Only \$21.95/\$3.66 ea.
Colored: (Mix or match)	\$6.00/ribbon	Box of six Only \$26.95/\$4.50 ea.

Available in six colors: **Red**, **Blue**, **Green**, **Brown**, **Yellow**, and **Purple**.

Scribe Ribbons

Black:	\$6.00/ribbon	Box of six Only \$26.95/\$4.50 ea.
--------------	---------------	------------------------------------

◀ **PAK-UPS:** Now you can take it with you — your diskettes that is. Designed to conveniently hold 2, 4, 6, or 8 diskettes (3½"). (5¼" **PAK-UPS** available soon.) **PAK-UPS** are a lightweight convenience carrier for your diskettes that will easily fit in your briefcase or vest pocket. Velcro closure holds your diskettes safe and secure. Available in eight colors: **Black**, **Brown**, **Blue**, **Bone**, **Green**, **Red**, **Smoke**, and **Tan**.

Retail Value \$11.95 Direct Order \$9.95 or 2/\$16.95

- ORDERING:** Phone or mail order. We accept Visa & M/C.
SHIPPING: Continental U.S. UPS Ground \$3.00, 2nd Day Air \$4.00.
SCHOOLS: Purchase Orders Accepted.



SPECIAL: FREE SLIP-UP with the purchase of any **COVER-UP** set.
For a limited time only when you purchase direct.



Computer Cover Co.

P.O. Box 3080, Laguna Hills, CA 92654
CA (714) 380-0085 - Others (800) 235-5330

Macintosh/Mac Plus, Apple IIc, Apple IIe, Mac XL are all registered trademarks of Apple Computer.

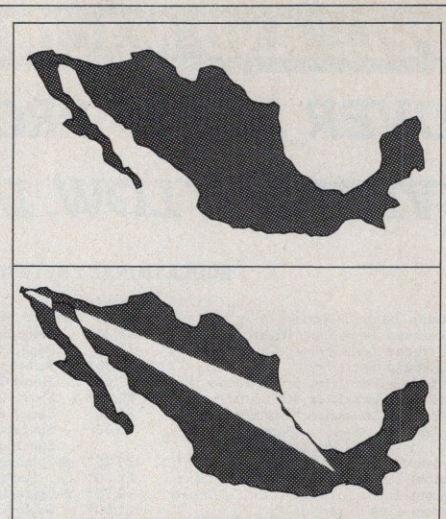


Figure 6: If you lift the stylus when you're tracing in MacDraw, your map may include unwanted lines.

used color overlays or that had been copied on dirty photocopiers.

Brian Smith, Thunderware's marketing coordinator, suggests that would-be mappers screen in the high-contrast mode and have the ThunderScan scan only in one direction and operate at the slowest scanning speed.

Wanted: Mapping Software

There is no perfect program for creating maps. Consider using several programs to fill various needs, just as you bring both a hammer and a saw when you head to a construction site.

MacDraft, which uses an object-oriented format similar to MacDraw's, can create straight lines while you're in the freehand drawing mode and then shift back to freehand curves and jags. This ability is particularly valuable when you're tracing states, such as Texas, that combine straight and meandering borders.

MacPaint shines brightest with FatBits and its pixel-by-pixel editing. MacPaint and page-layout programs such as PageMaker, ReadySetGo, and MacPublisher also let you crop maps in which you use only part of a larger map. Page-layout programs also generally provide extra variety in headline styles and sizes.

Drawing programs such as MacDraw take up less memory than MacPaint does and work better at the purely drafting aspects of a map—creating an eight-inch-wide circle for the border, for example.

Now for the MacDraw drawbacks. One of the most frustrating moments can occur after you've traced a map

CIRCLE 136 ON READER SERVICE CARD

outline with a tablet and happened to pick up the stylus once or twice. When you try to fill that map, bizarre lines suddenly appear and the map becomes as abstract as a Joan Miro painting (see figure 6).

What happened is that each time

If you want to give your next mapping job a sense of adventure, you could use the charts that CIA operatives use.

you stopped tracing a freehand line in MacDraw or MacDraft, the program automatically turned the creation into a polygon by drawing a line between the two ends. That line exists even if you draw with the No Fill command on and if you continue your freehand drawing so that you start where you originally began.

The only simple ways to avoid the problem are either to forget using a fill on the drawing, create the map in MacPaint, or figure out how to trace the map without stopping until you get back to where you began the tracing.

The MacTablet and Macintizer help alleviate the problem by offering an option that reads your tracing movements and reduces them up to 50%, which means you can take a map that's twice as big as the screen and trace it. Another bonus is that you get twice the accuracy for half the space. Another alternative is to find a copier that can make reduced copies of the map you want to trace. Keep reducing it until the entire map fits on the screen.

QuickDraw systems also can be a problem when you're handling type, because words do not shrink when you reduce a drawing. In addition, you can't rotate words and bit-mapped graphics in MacDraft, as you can with an ordinary line or polygon.

The Future

Most people no doubt will be happy tracing their maps out of a handy road atlas. But if you want to give your next mapping job a sense of adventure, how about using the charts that James Bond's American buddies use?

Tips for better

MAPMAKING

The difference between good and bad maps has less to do with craftsmanship than with intent. That's why mapmakers' first task is to think about what they need to say and what the best ways are to get the message across.

The documentation for the MacAtlas series provides dozens of ideas on creating good maps. Here are some more, culled from talks with graphic artists at United Press International who have created hundreds of maps in the past year:

- Consider your readers' geographic IQ. Most Floridians, for example, know what their state looks like and that it dangles off the southeastern edge of the United States. Many Italians, however, can spot Florida on a map only about as easily as the typical American can point out the province of Lazio on the Italian boot. So when you create a map, either include surrounding states to give a point of reference or put a smaller map in a corner showing the subject area's place in the world.
- Several small maps, or maps that blow up other maps, often do a better job of telling your message than one big map does.
- Give your map a three-dimensional look by having part of the map stick out a bit from the surrounding box or by putting a shadow underneath the map. In general, the shadow should be on the same side as the

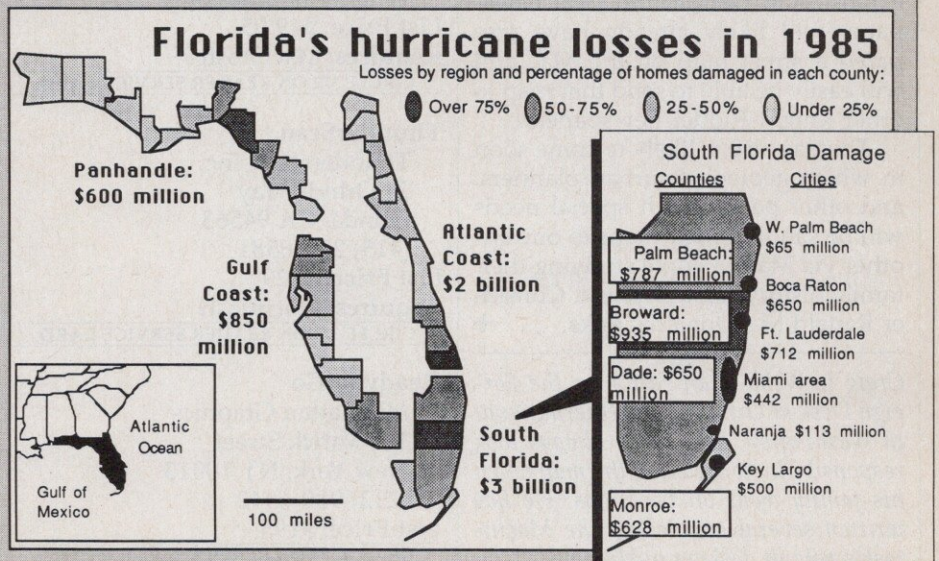
main part of the map, thus helping lead the readers' eyes into the body of the drawing.

- Include a scale, so readers get a sense of perspective.
- If you want a headline, make it big—at least 30 or 36 points. Put it near the top.
- Put body copy as near as possible to the headline.
- Maps are assumed to lie on a north-south axis unless otherwise indicated. If you tilt the map's direction, include a north arrow.
- Keep it simple.

All this advice figured into my attempt to create a map for UPI describing hurricane losses in Florida, particularly South Florida, during 1985 (see Florida map below). It was designed for Americans and thus has a locator map showing the southeastern United States.

Had this map been intended for Latin American clients, I probably would have shifted the small map to show Florida in relation to Central America and the Caribbean. And if I had wanted to send it to Europe, I would have put in a map of the entire United States.

One of the best ways to learn to create better maps is to see how newspapers and magazines do it. Among the best at the art are *Time* magazine, *National Geographic*, *USA Today*, *The New York Times*, the *Dallas Times Herald*, and the *Seattle Times*.



Central Intelligence Agency operatives, for obvious reasons, need high-quality maps. Over the years, the CIA has charted the Earth and converted all the data into vectors that fit on a set of five mainframe-style, 2400-foot, half-inch computer tapes collectively known as World Data Bank II. Now, for \$760 for the set, the agency is selling a declassified version of those maps.

A Washington, D.C., company named Azimuth has been working to format the data so it will fit in with its mapping system, which lets you see the Earth from any height, any angle. Azimuth programmer Richard Furno says he expects to have most of the formatting done by the end of this summer.

Stuart Weisman, product manager at the U.S. National Technical Information Service, the company that handles World Data Bank II, says the tapes contain about 150 megabytes of data. He adds that his group is examining the possibility of putting the data onto laser disks.

For those who can't wait, the CIA now sells print versions of its maps, some at scales as accurate as one inch for every 15 miles. Uncle Sam also has maps available through such groups as the Census Bureau, the Defense Mapping Agency, and the U.S. Geological Survey.

Maps also are the kinds of things that users' groups in far-flung sections of the country can easily share. Newspaper chains such as Knight-Ridder already have set up networks in which each member paper can pick up maps and charts created by other members. For example, if there is an explosion in Detroit, the local newspaper will likely already have prepared a street map on the Mac and will easily be able to send that map to other Knight-Ridder newspapers.

The day also is likely to come soon in which geologists, urban planners, and other people with special needs will be sending their maps to one another via Macs. People studying their family history can also use it. Consider Randal MacDonald's folks. +

Craig L. Webb is an editor on the Foreign Desk at United Press International in Washington, D.C., who always took responsibility for reading the map when his family went on vacations. He has written several articles on the Macintosh's role in desktop publishing.

PRODUCT INFORMATION

MacAtlas

Micro:Maps
Box 1353
Morristown, NJ 07960
(201) 658-4333

List Price: MacAtlas USA and World, \$79; Counties set, \$119; all six diskettes, \$199; demo disk, \$9

Requires: Macintosh, 512K RAM or second disk drive, MacPaint or MacDraw

CIRCLE 368 ON READER SERVICE CARD

Mac-Art Library: Geography

compuCRAFT
P.O. Box 3155
Englewood, CO 80155
(303) 850-7472

List Price: \$29.95

Requires: Macintosh

CIRCLE 369 ON READER SERVICE CARD

MacTablet

Summagraphics Corporation
777 State Street Extension
Fairfield, CT 06430
(203) 384-1344

List Price: \$395

Requires: Macintosh

CIRCLE 370 ON READER SERVICE CARD

Macintizer

GTCO Corporation
1055 First Street
Rockville, MD 20850
(301) 279-9550

List Price: \$599

Requires: Macintosh

CIRCLE 371 ON READER SERVICE CARD

Make Another Copy

Innovative Products
P.O. Box 1233
Oak Brook, IL 60522
Written inquiries only

List Price: \$49.95

Requires: Macintosh

CIRCLE 372 ON READER SERVICE CARD

ThunderScan

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

List Price: \$229

Requires: Macintosh

CIRCLE 373 ON READER SERVICE CARD

ReadySetGo

Manhattan Graphics
163 Varick Street
New York, NY 10013
(212) 989-6442

List Price: \$195

CIRCLE 374 ON READER SERVICE CARD

MacDraft

Innovative Data Design, Inc.
1975 Willow Pass Rd., Suite 8
Concord, CA 94520
(415) 680-6818

List Price: \$239

Requires: Macintosh, 512K RAM

CIRCLE 375 ON READER SERVICE CARD

PageMaker

Aldus Corporation
411 First Avenue South, Suite 20
Seattle, WA 98104
(206) 622-5500

List Price: \$495

Requires: Macintosh, 512K RAM, external disk drive

CIRCLE 376 ON READER SERVICE CARD

MacPaint/Draw

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010

List Price: MacPaint, \$125; MacDraw, \$195

Requires: Macintosh

MacPublisher

Boston Software Publishers, Inc.
19 Ledge Hill Road
Boston, MA 02132
(617) 267-4747

List Price: Publisher I, \$99.95; Publisher II, \$195

Requires: Macintosh

CIRCLE 377 ON READER SERVICE CARD

World Data Bank II

National Technical Information Service
Software Division
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4600

List Price: Volumes 1-5, \$760

CIRCLE 378 ON READER SERVICE CARD

Government maps

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238

CIRCLE 379 ON READER SERVICE CARD

MacMap

(Templates for use with Filevision)
Strategic Locations Planning
4030 Moorpark Ave., Suite 123
San Jose, CA 95117
(408) 985-7400

List Price: \$75 and up

Requires: Macintosh and Filevision

CIRCLE 380 ON READER SERVICE CARD

MacTips

Suggestions from our readers

MAKING FULLPAINT WORK WITH SWITCHER

I recently received a copy of Ann Arbor Softworks' FullPaint (Version 1.0) and discovered that its programmers had made a small mistake. The FullPaint manual says that the program requires a 384K partition to run under Switcher, but Switcher automatically assigns a too-small 376K (if there is not enough memory to assign the preferred 512K) when you load FullPaint into Switcher. Using ResEdit, the resource editor from Apple, you can fix FullPaint so it works properly with Switcher.

Insert a copy of your FullPaint disk (not the original!) into your Mac and a disk containing ResEdit into your external drive. After you double-click on the ResEdit icon, two windows will appear, one for the ResEdit disk (1) and the other for the FullPaint disk (2)—the numbers in parentheses refer to areas of figure 1 labeled with circled numbers. Double-click on FullPaint in the **FullPaint™** window, which makes another window (3), labeled **FullPaint**, appear. Here, you should double-click on SIZE. Yet another

other window (4) will appear, called **SIZES from FullPaint**. Double-click on SIZE ID = -1. Finally, the window (5) labeled **SIZE ID = -1 from FullPaint** will appear. Scroll to the bottom of this window, where you'll see a text box labeled Min size.

The number in the Min size box represents the minimum amount of memory the program requires in order to work under Switcher. This number tells Switcher how big a partition to set aside for FullPaint. Most new programs have Size resources. Older programs may require more than the default 128K, but you have to configure them manually. With a Size resource, the computer does it automatically. Switcher tricks the program into thinking it's running in 512K.

When I first looked at the Min size number, I was a little confused, but then I remembered that 1K actually equals 1024, not 1000. Dividing 352,256 by 1024, you get 344K, which is considerably less than both 376K or 384K. I looked at the Size resources of some other programs, however, and found that this number

was consistently 32K smaller than it should have been. [32K is the amount of memory the System and the screen require.—Editors] If you want the Min size to equal 384K instead of 376K, you must actually subtract 32K from 384K. Then you multiply the result (352K) by 1024 and get 360,448. Thus, the Min size for FullPaint should read 360448, not 352256.

Change Min size to 360448 and close all the windows. When ResEdit asks you if you want to save FullPaint, click on Yes. When the FullPaint disk pops out of the computer, you're ready to go. Note that if you're clever, you can actually use ResEdit to add Size resources to programs that don't already have them.

Cleland E. Early, Jr.
Pasadena, TX

EXCEL AND WINDOW OPTIONS

If you want to enter the same formula in several cells, simply select the cells into which you want to enter the formula and then, while holding down the Option key, press the Enter key. The formula will appear in all those cells, which means you don't have to go through the copy/paste routine. Control- enters the current time, and Control- enters the current date. In many dialog boxes with check boxes, you can toggle any selection by typing the first letter of its label. For instance, in the Style dialog box, if you want boldface type, press B, and if you want to turn the boldfacing off, type B again.

In order to close all the open windows on the desktop, simply hold down the Option key and click on the close box on the first window; the rest of the windows will automatically close.

David L. Hoefler
Newfane, VT

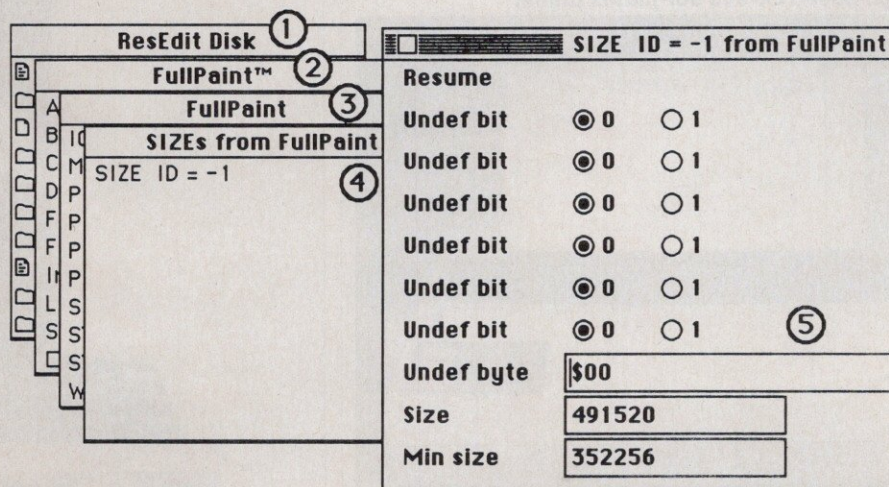


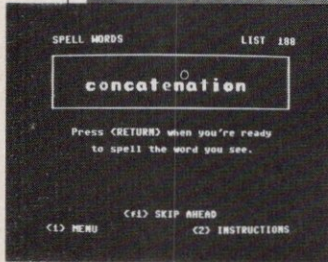
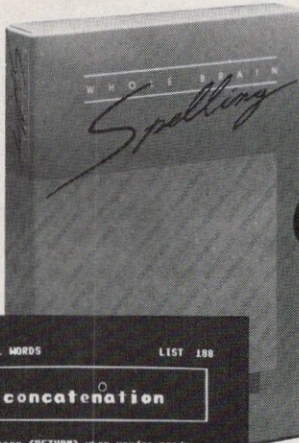
Figure 1: The FullPaint and ResEdit windows you use to fix FullPaint to work with Switcher

Pipeline



WHOLE BRAIN SPELLING

Designed to help you develop internal visualization skills to improve your



Whole Brain Spelling from SubLOGIC Corporation

spelling. Whole Brain Spelling includes 200 ten-word lists organized in order of increasing spelling difficulty. The program uses color graphics to provide feedback and to emphasize visual aspects of learning. It also rewards you for correct spellings and helps you correct misspelled words. Suitable for both children and adults, the program is available in six word-list versions—General, A Child's Garden of Words, Fairy Tale, Scientific, Medical, and Business. (List Price: \$34.95 each)

Requires: Apple II, 48K RAM, one disk drive, color monitor
SubLOGIC Corporation
713 Edgebrook Drive
Champaign, IL 61820
(800) 637-4983
(217) 359-8482

CIRCLE READER SERVICE NO. 500

EX-800 PRINTER

Designed for business users, the EX-800 is a new high-speed, easy-to-use, dot-matrix printer with a color option from Epson America. Epson's fastest 9-pin printer, the EX-800 prints at up to 300 cps in draft mode and 54 cps in near-letter-quality (NLQ) mode with 12 cpi. In pica (10 cpi), draft speed is 250 cps, and NLQ speed is 45 cps. The 80-column printer has a SelecType II control panel that allows users to choose from eight different timesteps by pushing the appropriate button. In addition, by using control codes, users can print the available timesteps in italics and as superscripts or subscripts. The printer also features bidirectional printing of both text and graphics and has an 8K buffer. An optional 32K buffer is also available.

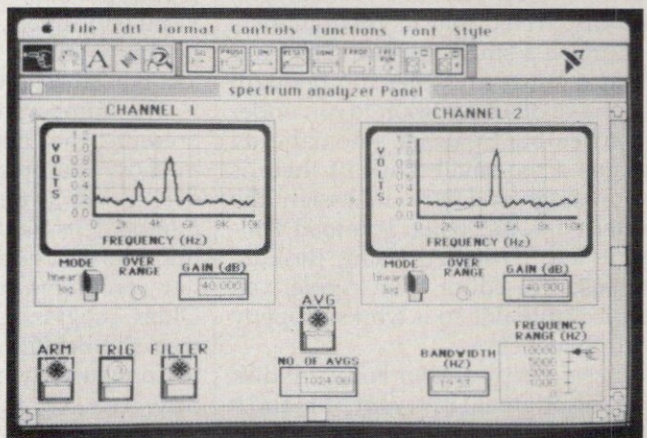
The printer comes with a built-in, bidirectional, push-feed tractor and includes an automatic sheet-load feature. An optional single-pin, cut-sheet feeder is also available. The

Epson's high-speed EX-800 dot-matrix printer



easy-to-install color option lets users produce printouts in seven colors—black, red, blue, violet, yellow, orange, and green. (List Price: \$749)
Epson America, Inc.
2780 Lomita Blvd.
Torrance, CA 90505
(800) 421-5426
In CA (213) 539-9140
CIRCLE READER SERVICE NO. 501

test and measurement applications involving instrument control; data acquisition, analysis, entry, display, and management; and report generation. The product is easy to use and features a powerful new graphical programming language in which users view their applications as model virtual

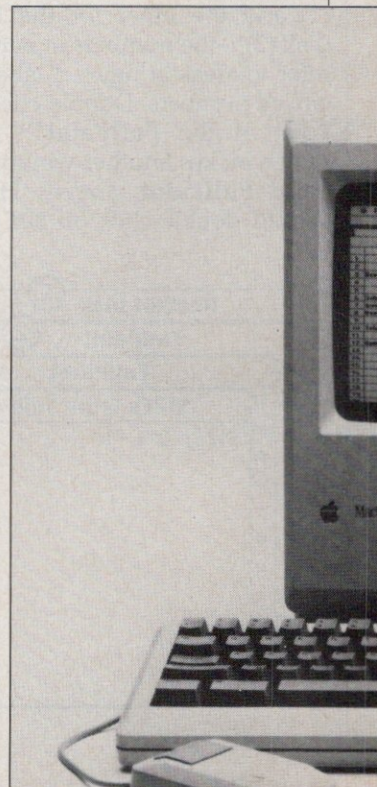


LabVIEW provides graphical programming tools for scientific and engineering applications.

MAC

LABVIEW

LabVIEW (Laboratory Virtual Instrument Engineering Workbench) provides a complete integrated environment for scientific



instruments. A virtual instrument consists of a front panel for interactive operation; a block diagram that shows data flow from input controls, through internal processing functions, to output display terminals; and an icon that allows programmatic use in block diagrams of higher-level virtual instruments. The system comes with a complete library of built-in functions. (List Price: \$1995)

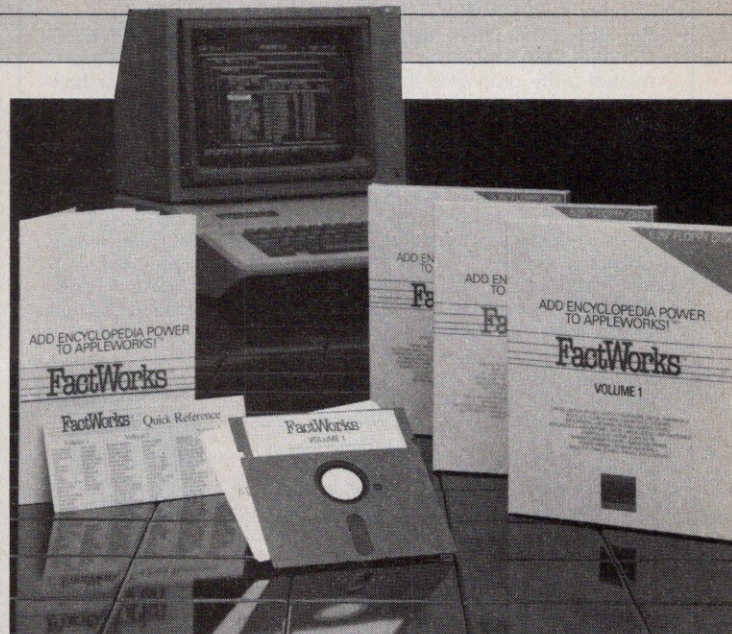
Requires: Macintosh, 512K RAM, two disk drives

National Instruments
12109 Technology Blvd.
Austin, TX 78727-6204
(800) 531-4742
In TX (800) IEEE-488
(512) 250-9119

CIRCLE READER SERVICE NO. 502

II SERIES MAC
AST-2000

A 3.5-inch hard-disk and tape SCSI subsystem for Macintosh Plus and IIe computers, the AST-2000 provides 20 megabytes of hard-disk storage along with an integrated 20-megabyte tape backup. The Mac Plus version can be expanded to 60 megabytes and can utilize AppleTalk local-area-network abilities and file-serving software for multiuser access. The tape drive can function both as a streaming backup device and as a random-access device, thus allowing easy file-by-file backup and restore operations. It incorporates its own cache memory, which reduces excessive tape movement for random file access. A stand-alone version of the backup



FactWorks, Volumes 1, 2, and 3, contains encyclopedic database files for use with AppleWorks.

tape drive is available. (List Price: \$2795)

Requires: Apple IIe or Macintosh Plus
AST Research, Inc.
2121 Alton Avenue
Irvine, CA 92714
(714) 553-0340

CIRCLE READER SERVICE NO. 503



FACTWORKS

ImagiMedia Software has released FactWorks, three volumes of information and encyclopedic database files for use with AppleWorks. Each FactWorks volume contains information on such subjects as countries of the world, authors, presidents, states, space flights, geography, animals, people, winners, and history. Using AppleWorks, users can load the FactWorks file of their choice, then search or sort the file. They can add new data and personal notes to the records; registered users will also receive free annual updates of new information to add to their files. Each volume comes with a quick-reference card that lists the files on the disk. (List Price: \$32.95)

Requires: Apple IIe or IIc, AppleWorks
ImagiMedia Software
16640 Roscoe Place
Sepulveda, CA 91343
(818) 891-3707

CIRCLE READER SERVICE NO. 504

The AST-2000 for Macintosh Plus and IIe computers combines a 3.5-inch, 20-megabyte hard disk with a 20-megabyte tape backup.



DO YOU LOVE PRINT SHOP™?

We do! And that's why we've created the **PS LOVER'S UTILITY SET (P.L.U.S.)**. P.L.U.S. gives you ten "Print Shop™" related utility programs that are so useful, you'll wonder how you ever got along without them.

There's **CATALOG PRINTER** which will print out the picture and name of all the graphics on any library disk. Now you can organize your Print Shop Graphic Library™ disks and make charts of what is stored on each one. With **LABEL PRINTER** you can design and print mailing labels which mix Print Shop™ Graphics and text. It's great for spicing up your letters and you can even use it to design labels for your software disks. **TRANSFER** allows you to convert Print Shop™ graphics so that they can be used with Newsroom™.

If that's not enough, P.L.U.S. features seven more utilities which you'll love. P.L.U.S. requires an ImageWriter™, Apple DMP™, C.Itoh™, or Epson™-compatible printer. It will work with any standard interface card. P.L.U.S. comes complete with printed documentation describing each of the utility programs.



Order product number **PS01** for only **\$24.95**. Price includes shipping and handling! No hidden charges. MasterCard or Visa accepted.

Big Red Apple Club

1105 South 13th Street, Suite 103
Norfolk, NE 68701

(402) 379-4680 Print Shop is a registered trademark of Broderbund Software.
Newsroom is a registered trademark of Springboard Software.

CIRCLE 113 ON READER SERVICE CARD

Pipeline

HARDWARE



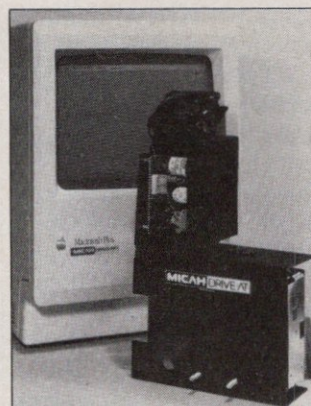
OKIMATE PRINTER

The Okimate 20 color thermal-transfer printer includes an appropriate Plug 'N Print module that can connect the printer to Apple, Commodore, or Atari computers. The Plug 'N Print kit includes a data cable, color and black cartridge ribbons, sample paper, and complete instructions. The printer can print more than 100 colors, and its 24-element printhead provides correspondence-quality print at 80 cps in standard mode and 40 cps in near-letter-quality mode. It can print 80 standard columns or 132 columns of condensed type. Users can select several type fonts and produce underlining, superscripts, and subscripts. (List Price: \$268)

Requires: Apple IIe or IIc Okidata

532 Fellowship Road
Mt. Laurel, NJ 08054
(609) 235-2600

CIRCLE READER SERVICE NO. 505



MicahDrive 20 AT, a 20-megabyte, internal hard disk for the Mac



MICAHDRIVE 20 AT

MICAH has announced a \$200 price reduction for its MicahDrive 20 AT, a 20-megabyte internal hard disk for Macintosh computers. The product includes a proprietary internal interface that transfers data to and from the computer's RAM memory at 0.625 megabytes per second. Installation is easy and involves clipping the disk to the Macintosh's main logic board. HFS, Apple's file-management software, comes bundled with the unit; each disk also has software that allows existing non-HFS-compatible programs to run. Each package comes with archival/restore software that lets users back up an entire hard disk or back up by file, directory, wild-card match, or the time the file was created. (List Price: \$1695)

Requires: Macintosh, 512K RAM
MICAH, Inc.
2330 Marinship Way
Suite 111
Sausalito, CA 94965
(415) 331-6422

CIRCLE READER SERVICE NO. 507



PLUS PLUS

Micro Conversions' Plus Plus, a memory upgrade for the Mac Plus, doubles the computer's capacity to 2 megabytes of fully linear, random-access memory, maximizing the machine's speed and power for all types of applications. (List Price: \$649)

Requires: Macintosh Plus
Micro Conversions, Inc.
1900 E. Randol Mill Road
Suite 103
Arlington, TX 76011
(817) 860-2291

CIRCLE READER SERVICE NO. 506

Precision
Data Products

Complete Line of Quality
Supplies for Your Computer

ORDER TODAY
CALL TOLL FREE
800-258-0028

BASF FlexyDisks™

LIFETIME WARRANTY
CERTIFIED 100% ERROR FREE

HOT SUMMER SAVERS

5 1/4" DOUBLE SIDE DOUBLE DENSITY DISKETTES
SPECIALLY PRICED AT

38¢
Each

QTY: 100

36¢
Each

QTY: 500

33¢
Each

QTY: 1000

BLANK DISKETTES WITH W/P TABS — STURDY 10 MIL JACKET
25 PER FACTORY-SEALED POLYPACKS

IF YOU NEED THE "EXTRAS".....

<p>Color-Coded User Labels</p> <p>Self adhesive, removable, color coded, 100/pkg</p> <p>1-4 Pkg.....\$2.95</p> <p>5+ Pkg.....\$2.45</p>	<p>Tyvec Envelopes</p> <p>Dust-free, static-free, 100/pkg.</p> <p>1-4 Pkg.....\$5.95</p> <p>5+ Pkg.....\$4.95</p>
--	--

DATA CASE
For 5 1/4" Diskettes
Holds 60!

Delivered Price.....\$3.99

SPECIAL OFFER
WITH ORDER OF
100 DISKETTES

THE 100 FILE
5 1/4" Floppy Diskette
Cases

Protects data from dust and static electricity. Case locks securely and has devices for fingertip selection. Holds 100 5 1/4" diskettes.
Delivered Price...\$12.95

Minimum order: \$25.00. Disks sold in increments of 100 only. **Shipping and Handling:** \$4.00 per 100 or fewer diskettes. Continental U.S.A. APO/FPO, add \$8.00 per 100 diskettes. Reduced shipping charge for larger quantities. (Foreign orders, please call for shipping charge.) C.O.D. add \$4.00. Cash or certified check. MI residents add 4% sales tax. Prices subject to change without notice. HOURS: 8:30 AM - 6:00 PM Eastern Time.

Satisfaction GUARANTEED

Precision Data Products

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

C.O.D.

1104

CIRCLE 228 ON READER SERVICE CARD

Interlude II

MATA HARI—Interlude #156

What time does your flight arrive?

Oh, are you picking me up?

Look for a tall brunette in a trenchcoat... and nothing else.

Ah, you've been playing Interlude again!

Right.

Maybe I can catch an earlier flight.

Please do.

Interlude II. The long-awaited sequel to the first adult computer game in history is finally here. It's provocative and playful! Outrageous and romantic! It has all the excitement of the original Interlude, plus significant new features.

The computerized interview, which is taken by one or both players, has been greatly expanded. It probes your innermost desires to discern your mood of the moment, your secret longings, your special fantasies, and then suggests for your pleasure one of its more than 160 Interludes. You can ask the computer for an Interlude for now, or one for later. Special options give each player added control over surprises and special erotica hidden in the Interludes.

The original Interlude took the computer world by storm six years ago, creating a media sensation:

FORUM Magazine: "The Interludes are imaginatively and sensitively written... the computer's recommendations are uncannily appropriate."

US Magazine: "The most edifying third party to join couples between the sheets since The Joy of Sex."

Chicago Tribune: "This marriage of computer technology and sex is natural... erases forever the image of computer-users as dull guys with slide rules in their pockets and square roots on their minds."

Money Magazine: "Sometimes it's easier to tell a computer what you want than it is to tell your partner."

Interlude II will take you to the outer limits of fantasy and romance. And, if the computer selects Interlude #99 your love life may never again be the same.

Interlude II. Are you ready for it?
CIRCLE 177 ON READER SERVICE CARD

Recreational Technology, Inc., 11011 Richmond, Suite 600, Houston, TX 77042

Name _____ Age _____

Address _____

City/State/Zip _____

Accepted for payment:

MasterCard® Acct. # _____ Exp. Date _____

VISA® Acct. # _____ Exp. Date _____

Charge customers must sign here: _____

1-800-752-7001 ext. 829
(in Texas call 1-800-442-4799 ext. 829)

\$ 39.95 Interlude II

Shipping \$3.00 (outside U.S.A. \$10.00)

TX residents add 6 1/8% sales tax (\$2.45)

Available for Apple II, II+, IIc and IIx¹

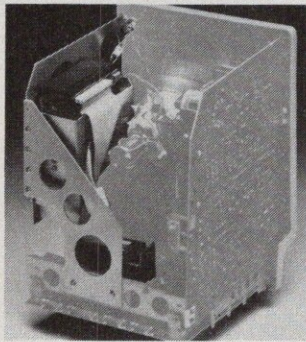
¹Trademarks of Apple Computer, Inc.

\$ _____ TOTAL A +

MAC

PRODIGY 4

A high-performance enhancement for Macintosh computers, the Prodigy 4 is an internal upgrade board that clips onto the computer's motherboard. The upgrade board contains a high-end 68020 microprocessor; a 68881



Prodigy 4, a high-performance, internal upgrade board

floating-point math coprocessor; 4 megabytes of contiguous RAM; and an enhanced, on-board SCSI port. The 68020 has a 16-MHz clock and 32-bit data

path and runs at double the speed and fetches twice as much information as the Macintosh's 68000. Standard software can run 4-5 times faster on the Prodigy, and programs that optimize the floating-point chip can run up to 100 times faster than they can on a standard Macintosh. (List Price: \$7000)

Requires: Macintosh

Levco .

6160 Lusk Blvd.

Suite C-203

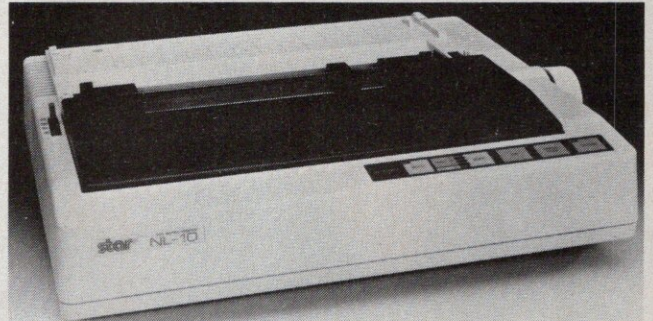
San Diego, CA 92121

(619) 457-2011

CIRCLE READER SERVICE NO. 513

NL-10 PRINTER

Star Micronics has introduced the NL-10, a nine-wire, dot-matrix desktop printer designed for professional, small-office, and home use. The NL-10 prints high-speed draft quality at 120 cps and near letter quality at 30 cps. Its front panel contains push-button controls for 11 for-



Star Micronics' NL-10 dot-matrix desktop printer

mat and print functions, including 3 print-pitch selections, tpestyle, print mode, margin settings, and forward and reverse micro paper feed. A standard, adjustable, rear tractor feed provides a quick-tear feature that reduces paper waste and saves time realigning paper between jobs. An automatic paper feed loads single sheets into the printing position. Automatic single- and dual-bin, cut-sheet feeders are available as options, and plug-in interface cartridges are available to ensure com-

patibility with most popular computers. (List Price: base unit, \$319; NL-10 with one interface cartridge, \$379; cartridge, \$60) Star Micronics, Inc. 200 Park Avenue Suite 3510 New York, NY 10166 (212) 986-6770

CIRCLE READER SERVICE NO. 514

MAC

PROFESSIONAL SERIES TABLET

Summagraphics has released the Professional Series, a graphics tablet with a full 18 x 12-inch active

Macintosh Aficionados

A+ would appreciate receiving any tips, hints, shortcuts, or suggestions that you have for using the Macintosh computer. We would like to publish these pearls in our MacTips feature in our Macintosh section. You'll receive credit in the magazine, and we'll pay \$50 for each MacTip that we use. Send your tips to:

MacTips
A+ Magazine
ATTN: Chip Carman
11 Davis Drive
Belmont, CA 94002

area, for Macintosh computers. Designed particularly for use with CAD graphics packages, the tablet has a resolution of 1000 lines per inch, and its active area can accommodate a B-size drawing or two A-size sheets of paper. It comes with an interface cable, stylus, four-button cursor, power supply, documentation, and a disk that allows installation of the tablet's driver for use with Macintosh software. (List Price: \$995)

Requires: Macintosh
Summagraphics Corp.
777 State Street Extension
Fairfield, CT 06430
(203) 384-1344

CIRCLE READER SERVICE NO. 515

SOFTWARE



MUSICPRINTER

MusicPrinter allows musicians, copyists, and teachers to write complex musical notation on Apple II computers. You can use a one- or two-keystroke entry system and can control the exact placement of a full range of musical characters. The program has its own word processor with three font styles for inserting words into choral music, writing comments on the score, or writing accompanying texts. It also has full and rapid editing, deleting, justifying, disk-filing, and printing functions. Users can print music in three styles—normal, compressed, or emphasized—and printed results are suitable for publication. (List Price: \$149)

Requires: Apple II, II Plus, IIe or IIc; 48K RAM

Temporal Acuity
Products, Inc.
300 120th Avenue NE
Building 1, Suite 200
Bellevue, WA 98005
(800) 426-2673
In WA, AK (206) 462-1007
CIRCLE READER SERVICE NO. 516



SPRINGBOARD SOFTWARE

Early Games for Young Children and Easy as ABC, two of Springboard Software's learning games for children, are now available in versions for Macintosh computers.

Intended for 2½- to 6-year-olds, Early Games for Young Children features eight games that teach children such basic skills as how to add and subtract numbers, recognize shapes and letters, say the alphabet, type with the computer, and spell their own names.

For 3- to 6-year-olds, Easy as ABC contains five games designed to teach children to identify letters, put them in alphabetical order, and match uppercase and lowercase. The program uses jumping frogs, buzzing bees, and soaring rockets that are displayed in high-quality graphics.

Both programs offer multiple skills levels, and the Macintosh versions offer picture and pull-down menus with keyboard commands for quick selections and the ability to print screens. (List Price: \$49.95 each)

Requires: Macintosh
Springboard Software
7808 CreekrIDGE Circle
Minneapolis, MN 55435
(612) 944-3915

CIRCLE READER SERVICE NO. 517

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!

Applied 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

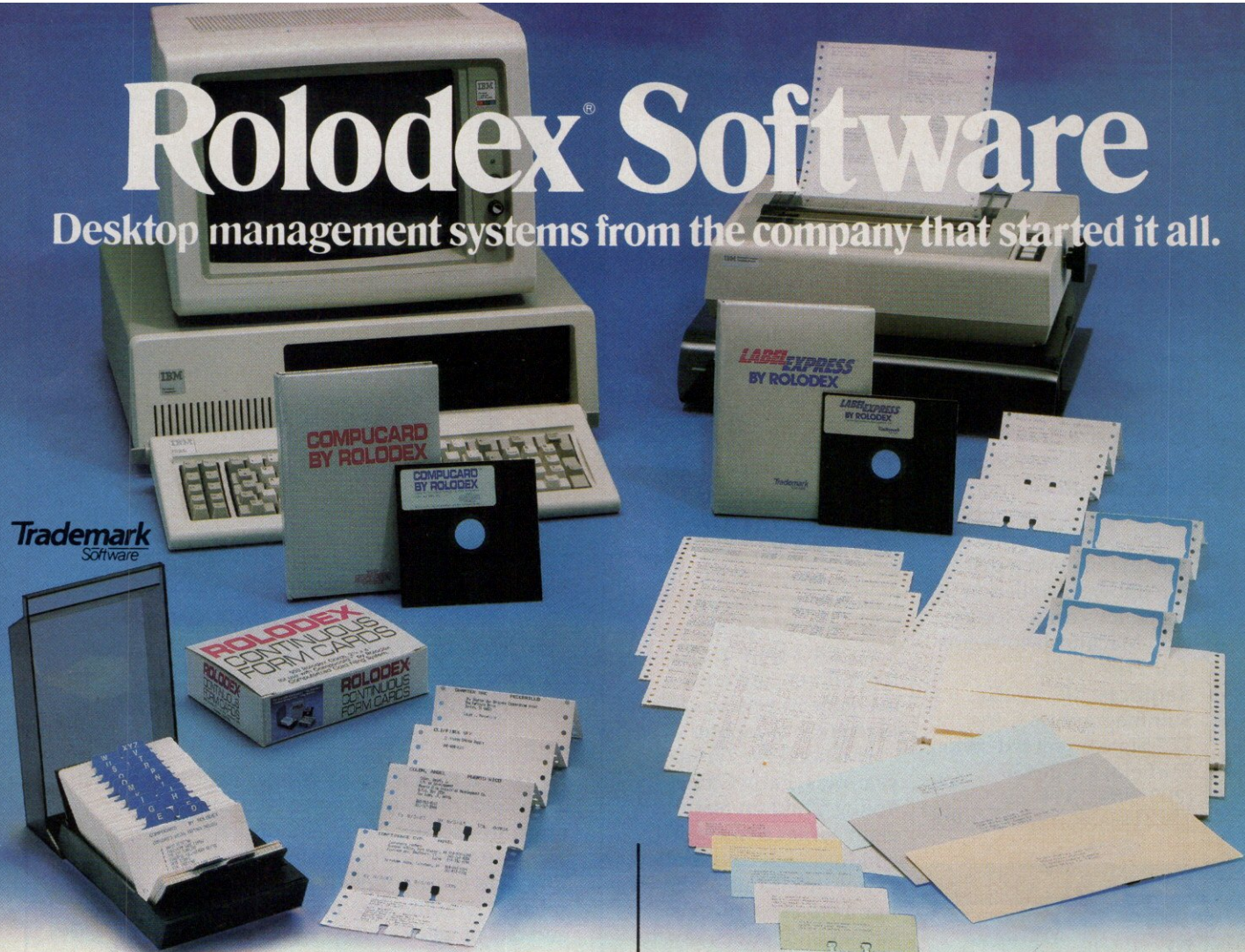
Call 214-241-6060 TO ORDER TODAY 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 outside U.S.A.

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

Rolodex® Software

Desktop management systems from the company that started it all.

Trademark
Software



COMPUCARD BY ROLODEX™

COMPUTERIZED CARD FILING SYSTEM

With Compucard by Rolodex, card sets can be created, updated, edited and duplicated fast and easy to improve office productivity and organization as card filing is simplified.

Compucard Software Program and Documentation Manual are available for IBM®/PC (CSM-I) or Apple® Iie (CSM-A) at \$49.95. They are also available complete with VIP24C Special file and 500 Rolodex Brand Continuous Form Cards, 2 1/4 x 4" at \$68.50 (CC500-I for IBM and CC500-A for Apple). Compucard features include: Free-form card format with up to 450 characters per 2 1/4 x 4" card Rapid printing Full-screen editing commands Date stamping for each entry Dual indexing Flexible select code system.

LABEL EXPRESS BY ROLODEX™

Label and List Management Software

Label Express makes it easy to create labels, locate and update mailing lists, address envelopes, print name badges or Rolodex Brand Continuous Form Cards. Label Express by Rolodex. It keeps you in touch with people.

Label Express software is available for IBM/PC (LSM-I) and Apple Iie (LSM-A) computers, at \$49.95 each. Its powerful features include: **Creating your own label formats, up to 180 characters on five lines.** Full-screen editing with popular, word processing commands Immediate indexing for each new entry Extensive and time-saving search features Full combine/merge capability Customized printing up to 999 copies.

ROLODEX CORPORATION

245 Secaucus Road, Secaucus, N.J. 07094

An **Insilco** Company

CIRCLE 182 ON READER SERVICE CARD

IBM/PC is a registered trademark of International Business Machines Corporation; Apple Iie is a registered trademark of Apple Computer, Inc.

MEGAHAUS SOFTWARE

MegaHaus has released two new programs—ReportWorks and ThinkWorks—in its line of enhancement programs for AppleWorks. Also available is DemoWorks, a package of demonstration disks and documentation for ReportWorks, ThinkWorks, and MegaWorks—a mail-merge and spelling-checker enhancement for AppleWorks. All programs feature the AppleWorks card-file interface and easy-to-use commands.

ReportWorks lets users import data from AppleWorks database and spreadsheet files to create reports, tables, and lists and to fill out full-page forms. It adds math, file-lookup, and sorting abilities to AppleWorks' reporting features.

For use by itself or with AppleWorks, the outline processor ThinkWorks lets users construct, rearrange, expand, and collapse outlines; search and replace text; and type in paragraphs for any entry. It uses standard outline labeling and indents each level of the outline automatically. Users can merge outlines into each other and can save portions of outlines for later use. (List Price: ReportWorks, ThinkWorks, MegaWorks, \$125 each; DemoWorks, \$10)

Requires: Apple IIe or IIc, 128K RAM, one disk drive, AppleWorks
MegaHaus Corporation
5703 Oberlin Drive
San Diego, CA 92121
(619) 450-1230

CIRCLE READER SERVICE NO. 518

UNIDOS

A patched version of DOS 3.3 for the 800K UniDisk 3.5 disk drive, UniDOS lets the UniDisk 3.5 function as a dual 400K disk-drive system while users work with DOS 3.3 programs and data. UniDOS can also operate 5¼-inch disk drives at the same time, allows users to copy programs and files from 5¼-inch to 3.5-inch disks, and works with Apple RAM extension cards and compatibles. (List Price: \$35)

Requires: Apple IIe or IIc, UniDisk 3.5

Meacom
P.O. Box 272591
Houston, TX 77277
(713) 526-5706

CIRCLE READER SERVICE NO. 519

GRAMMAR GREMLINS

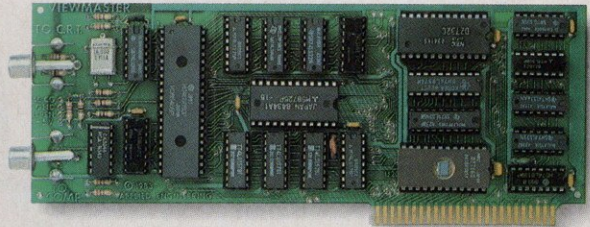
A comprehensive grammar program for elementary-school students, Grammar Gremlins presents grammar rules with more than 700 practice examples and sentences. The program covers abbreviations, subject/verb agreement, capitalization, contractions, parts of speech, plurals, possessives, punctuation, and sentence structure. It features an easy-to-use editor, animation, color, optional sound effects, and record-keeping and printout abilities. (List Price: \$49.95)

Requires: Apple II Plus, IIe, or IIc
Davidson & Associates
3135 Kashiwa Street
Torrance, CA 90505
(213) 534-4070

CIRCLE READER SERVICE NO. 520

Viewmaster 80

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



	BUILD-IN SOFTWARE	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7 x 9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERMODE	INVERSE CHARACTERS
VIEWMASTER 80	✓	✓	✓	✓	✓	✓	✓	✓
SUPRTERM		✓					✓	✓
WIZARD 80				✓			✓	✓
VISION 80	✓	✓						
OMNIVISION		✓					✓	✓
VIEWMAX 80	✓	✓		✓				
SMARTERM	✓	✓				✓	✓	✓
VIDEOTERM		✓	✓	✓				✓

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

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

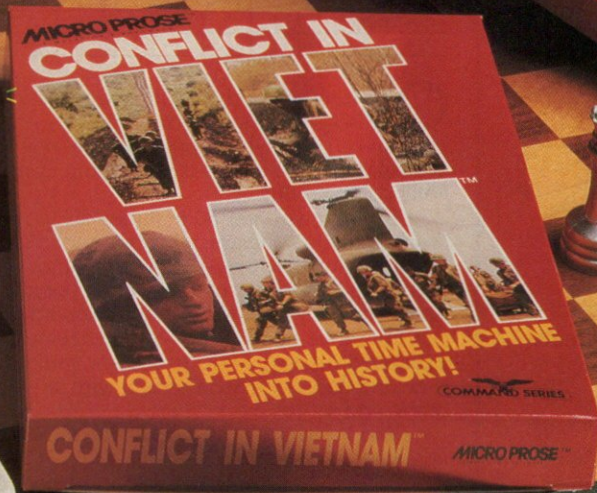
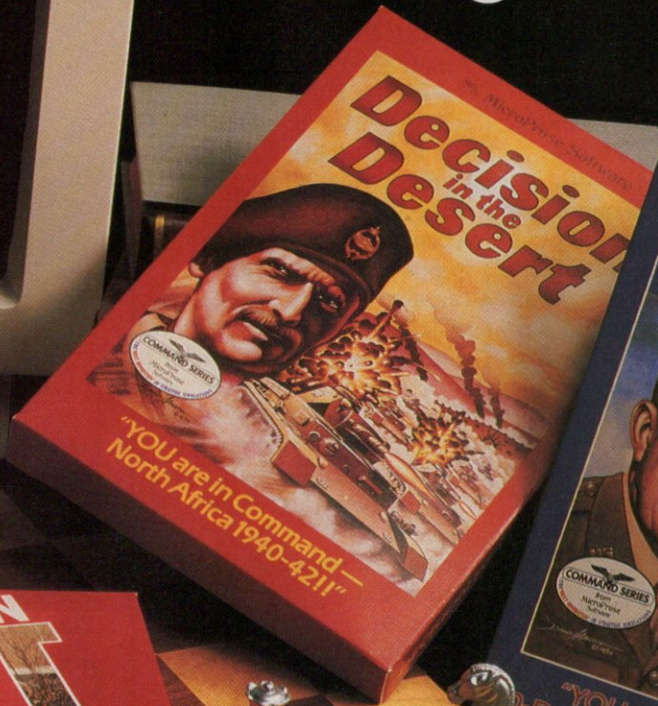
The Viewmaster 80 works with all 80 column applications, including DOS 3.3, PRO-DOS, CP/M, Pascal, WordStar, Format II, Applewriter II, dBase II, Visicalc, Multiplan, and *hundreds* of others—including AppleWorks.

Here are just a few of the powerful features the Viewmaster 80 delivers for a great price (\$139):
• 80 Characters by 24 lines • Fully compatible with all Apple languages and software • Highest compatibility with existing 80 column software • Very low power consumption • High speed (18 MHz) scroll rate • Upper and lower case characters and true descenders, both inverse and normal; all on-screen editing functions are supported • User-definable cursor shape • Compatible with Apple II, II+ and IIe • Five-year warranty

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

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

Games for the Strategic Mind



For three thousand years, men of intellect have played chess as a means of studying the acquisition of power. Now the power of the personal computer and the genius of MicroProse provide an excitingly authentic way to sharpen strategic skills—in accelerated realtime warfare on the battlefields of Europe, North Africa, and Southeast Asia. Deploy infantry, armored vehicles, or even guerrilla units, then support your troops with artillery or air strikes. Study the terrain features of the great battlefields of history. Factor in supply shortages, weather, and troop morale. As terse combat messages flow into headquarters, respond to the enemy's thrusts and

parries by ordering counterattacks or flanking movements. Or wait for nightfall, and regroup under cover of darkness for a dawn attack.

As with chess, MicroProse Command Series simulations require only a few minutes to learn at the basic level; yet it would take a lifetime to play out every possible scenario. Program variations permit you to change sides and view the battle from the enemy's perspective, or to alter the balance of forces the generals actually faced. Detailed documentation provides a historical overview, and simple combined joystick/keyboard control of troop movements implements your orders.

The MicroProse Command Series includes *Decision in the Desert*, a simulation of the tank battles waged between Rommel's Afrika Corps and the outnumbered British. *Crusade in Europe* recreates the final year of the Second World War, invasion of Normandy to the Battle of the Bulge.

Conflict in Vietnam depicts the thirty-year struggle for Southeast Asia.

Enact your strategy with a realism the ancients could never have imagined—with the MicroProse Command Series. A game for the strategic mind. . .

The MicroProse Command Series is available for Commodore 64/128, Apple II family (double Hi Res version included), Atari XL/XE, IBM PC/PC Jr., and Tandy 1000 computers, at a suggested retail price of \$39.95.

Commodore, Apple, Atari, IBM, and Tandy are registered trademarks of Commodore Business Machines Inc., Apple Computer Inc., Atari Inc., International Business Machines Corp., and Tandy Corp., respectively.

Available from your local retailer. Or call or write to MicroProse Software directly for further information and Mastercard/Visa orders.

CIRCLE 205 ON READER SERVICE CARD
MICRO PROSE
SIMULATION • SOFTWARE

120 Lakefront Drive • Hunt Valley, MD 21030 • (301) 657-1151

MAC

MYDISKLABELER

Version 2 of myDiskLabeler lets users design and print high-quality, removable labels for 3.5-inch disks. Users can use application icons and modify them or create their own using the Icon Editor or MacPaint. Seven windows let users edit text and graphics. The software reads and sorts directories and saves labels for easy updating; it also supports Apple's Hierarchical Filing System. Users can print single or multiple labels with an ImageWriter printer. Also available is a Color Option version that lets users design and print color labels with the ImageWriter II. The package comes with 54 die-cut Smart Labels. (List Price: \$44.95, \$54.95 for Color Option version; Smart Labels, \$5-\$18 per refill pack)

Requires: Macintosh, ImageWriter I or II
Microcomputer
Products

Spokane International
Airport Business Park
P.O. Box 19206
Spokane, WA 99219
(800) 752-4000

CIRCLE READER SERVICE NO. 521

MAC

TICKET TO PARIS

The simulation program Ticket to Paris combines realistic travel experience with mystery and adventure, providing authentic dialogues and true-to-life situations. Players assume the role of a traveler who flies to Paris to trace a lost cousin. While in Paris they book hotel rooms, order food from menus, visit the Louvre, shop in Gallerie

Lafayette, change dollars, and walk around the city. They also follow clues that may lead to the lost cousin and in doing so learn about French everyday life, food, art, history, and places to see. (List Price: \$39.95)

Requires: Apple IIe or IIc,
128K RAM
Blue Lion Software
P.O. Box 650
Belmont, MA 02178
(617) 489-2477

CIRCLE READER SERVICE NO. 522

MAC

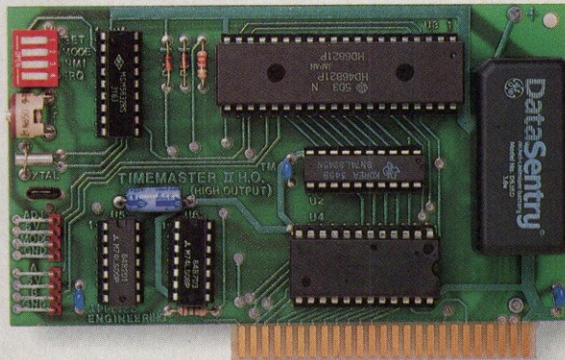
MAGIC MUSIC TEACHER

Designed for special education, Magic Music Teacher offers special switch input for physically disabled students and speech-synthesis output for those who are visually impaired. Users can operate the software using one or two switches—for example, buttons on a KoalaPad or joystick or two keyboard keys. An Echo/Cricket! voice synthesizer can provide speech output. The program offers four games that provide Suzuki-style activities—Magic Melody, Magic Rhythm, Advanced Melody, and Advanced Rhythm. The games help students develop such skills as auditory discrimination, sequencing, listening, and hand-eye coordination. (List Price: \$69.95)

Requires: Apple II Plus,
IIe, or IIc; 64K RAM
Educational Software
Review
1400 Shattuck Avenue
Suite 774
Berkeley, CA 94709
(415) 528-2788

CIRCLE READER SERVICE NO. 523

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



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

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

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

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

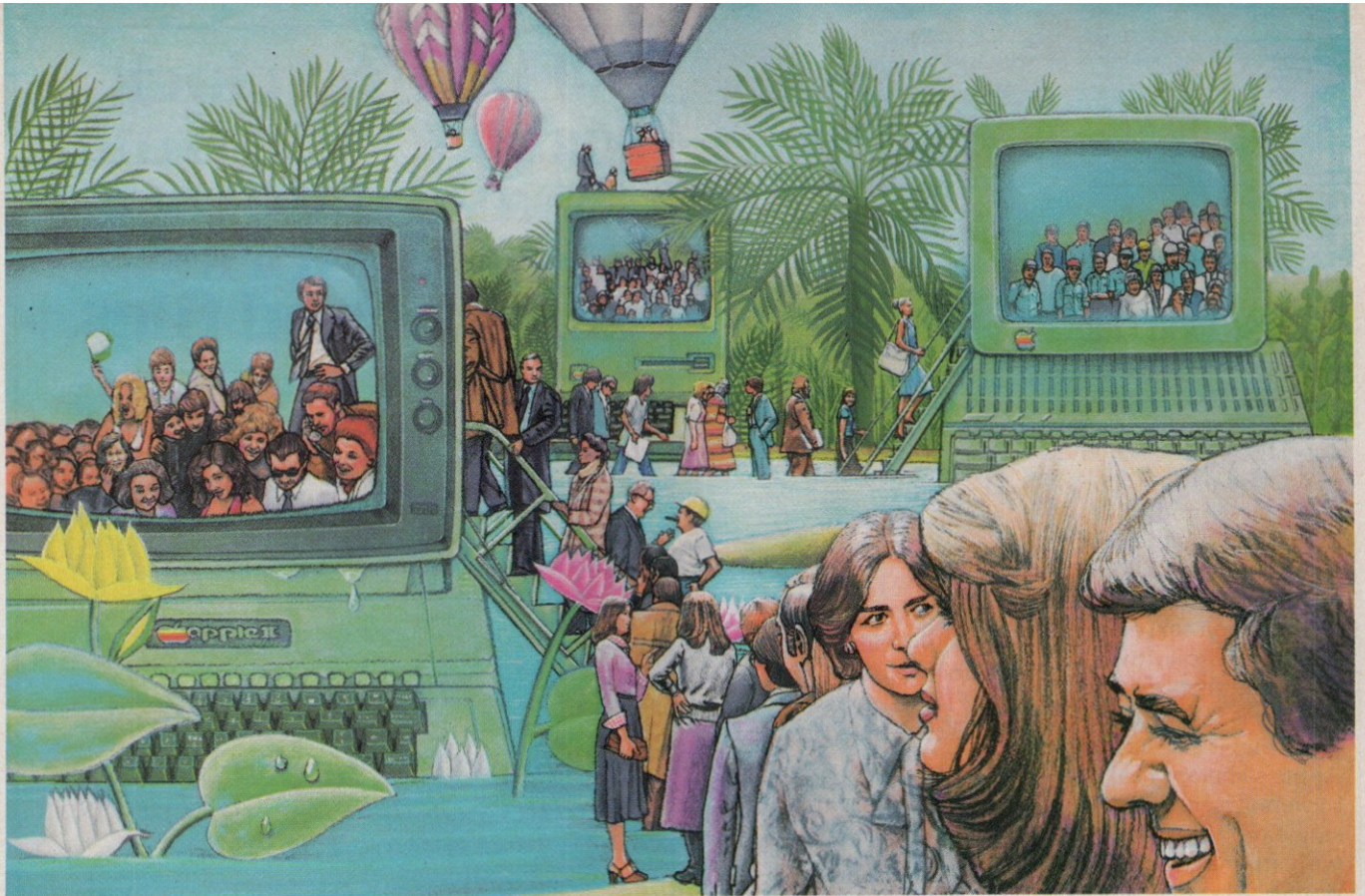
- Time in hours, minutes, seconds and milliseconds; date with year, month, day of week and leap year • 24-hour military format or 12-hour AM/PM format • Eight software controlled interrupts so you can run two programs at the same time (many examples included) • Can be set to the second • Allows AppleWorks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

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

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

AE Applied Engineering
The Apple enhancement experts.

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



USE THE BRAINS YOUR APPLE WASN'T BORN WITH.

Right at your fingertips in CompuServe's Apple® Forums.

Join the CompuServe **Apple II and III Forum** to swap everything from tall tales to short cuts with other users, and explore thousands of classic programs stockpiled since 1979.

Swap programs and files with fellow Mac owners in our **Macintosh® Users Forum**. Questions? You'll get answers from the experts here!

Visit the **Macintosh Developers Forum**. Get updates to the "Inside Macintosh Software Supplement." Interact with the Mac "team" in Cupertino.

The **Apple User Groups Forum**, supported by Apple Computer, unites officers of Apple user groups—"ambassadors" for hundreds of thousands of Apple-active enthusiasts worldwide.

Easy access to free software.

- Download *First-rate, non-commercial, user-supported software and utility programs.*
- Take advantage of CompuServe's

inexpensive weeknight and weekend rates (when Forums are most active, and standard online charges are just 10¢ a minute).

- Go online in most major metropolitan areas with a local phone call.
- And receive a **\$25.00 Introductory Usage Credit** with purchase of your CompuServe Subscription Kit.

Information you simply can't find anywhere else.

Use the Forum *Message Board* to send and receive electronic messages, and pose specific questions to Apple owners.

Join ongoing, real-time discussions in a *Forum Conference*—with Apple luminaries like Bill Atkinson, Doug Clapp, Dan Cochran, Jean-Louis Gasse, Mark Pelczarski, John Sculley and Steve Wozniak.

Search *Forum Data Libraries* for free software, user tips, transcripts of previous CompuServe online conferences and more.

Enjoy other useful services like:

- **Popular Computer Magazines**—electronic editions, for your reading pleasure. Including **Apples Online**, which reprints

articles from leading user group newsletters nationwide and other Apple-related publications.

- **Other CompuServe Forums**—supporting *Jazz™* and other *LOTUS®* products. *Microsoft®, MicroPro®, Borland International®, Ashton-Tate®,* and other software. Also *Pascal, Basic, C, Forth, Assembly* and other programming languages.

All you need is your Apple computer and a modem ... or almost any other personal computer.

To buy your Subscription Kit, see your nearest computer dealer. Suggested retail price is \$39.95. To receive our free brochure, or to order direct, call 800-848-8199 (in Ohio, call 614-457-0802). If you're already a CompuServe subscriber, type GO MAUG (Micronetworked Apple Users Group) at any ! prompt to see what you've been missing.

CompuServe®

Information Services, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, Ohio 43220

800-848-8199

In Ohio, Call 614-457-0802

An H&R Block Company

CIRCLE 271 ON READER SERVICE CARD

ECS ENGLISH SERIES

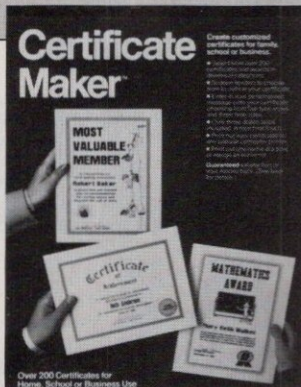
The ECS English Series is a comprehensive set of English grammar lessons that include instruction and drills on irregular verbs, helping verbs, verb conjugation, verb tenses, transformations, passive and active verbs, participles, infinitives, prepositions, mass and count nouns, determiners, demonstratives, conjunctions, and simple and present progressive verbs. Additional features include records of students' scores, progress monitoring, and adjustment of difficulty levels. The series is available as a single package containing 13 disks, instructions, and a workbook or as individual components. (List Price: package, \$495; disks, \$39.95 each; workbook, \$19.95)

Requires: Apple II Plus or IIe
Electronic Courseware Systems, Inc.
1210 Lancaster Drive
Champaign, IL 61821
(217) 359-7099

CIRCLE READER SERVICE NO. 524

CERTIFICATE MAKER

Certificate Maker provides more than 200 pre-designed certificates, awards, diplomas, and licenses in a variety of categories, such as sports, academic achievement, families, children, religion, and business. Users can personalize each certificate by selecting the certificate, choosing a border to frame it, entering a personalized message in one



Springboard's Certificate Maker

of a variety of typefaces and styles, filling in the signature and date line, and printing the result. The package also includes three dozen gold-foil seals. (List Price: \$49.95)

Requires: Apple II Plus, IIe, or IIc; 64K RAM
Springboard Software
7808 CreekrIDGE Circle
Minneapolis, MN 55435
(612) 944-3915

CIRCLE READER SERVICE NO. 525

HOUSECALL

HouseCall: Computerized Home Medical Encyclopedia is a fast, easy-to-use, expert medical system. Its database contains concise, updated information on more than 400 diagnoses that users can access either directly or through a branching questionnaire. The product includes both program and data disks and comes in protected and unprotected versions. (List Price: protected, \$79.95; unprotected, \$99)

Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; two disk drives
Rocky Mountain Medical Corporation
5680 S. Syracuse Circle
Greenwood Village, CO 80111

(800) 233-3556
(303) 773-1237

CIRCLE READER SERVICE NO. 526

With Z-80 Plus,TM 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 5½% sales tax. Add \$10.00 outside U.S.A.

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

THE NO. 1 MAGAZINE FOR ALL



APPLE USERS

- Because you use an Apple II series or Macintosh computer...
- Because you require in-depth product reviews and evaluations...
- Because you want hands-on tutorials...
- Because you need information covering new business, educational and personal applications...

YOU NEED A+ MAGAZINE!

Every issue of A+ Magazine brings you the

most complete information on applications, new products and ways to expand the overall performance of your system. There's no other Apple magazine as complete and definitive as A+, and there's no better time than now to subscribe to A+ and save 50%!

Enter your subscription to A+ Magazine today and save 50% off the annual single-copy price—that's just like getting 2 issues for the price of 1!

For fast service call 1-800-852-5200!

A+
Apple II/Macintosh
THE INDEPENDENT GUIDE TO APPLE COMPUTING

GETTING ORGANIZED ON DISK

Ways to find your way through a thicket of information

Whether it's 4 or 10 o'clock, do you know where every one of your files is? Even though computers are supposed to be good at keeping track of things, that natural talent alone isn't enough to keep most of us from losing track of our program and data files with some regularity. Keeping abreast of what information is in what file and which file is located on which disk isn't easy. Getting even close to doing so requires cooperation between us and the machine.

That isn't to say that an Apple II or Mac in normal use will actually scramble the location information that each records on its diskettes as the disk directory. Although program bugs or hardware failures can corrupt this information, such problems aren't usually the major headache.

Rather, the difficulty is that even small personal computers can now store and work with such large amounts of information in such a multiplicity of files that we can grasp the sum total only in smaller parts. We then have to combine the smaller parts in some logical and understandable way to make up the big picture.

Furthermore, although computers generally search through lists far faster and more accurately than do people, searching is still a relatively slow task, one that can take much longer for long lists than for short ones. (This slow pace is due partly to the processing time, but mostly it has to do with the need to move segments of the list being searched into and out of the disk). Even computers benefit



by dividing information into categories and searching through only the relevant classifications.

The Evolutionary Tree

Apple's early operating systems have felt the burden of this increasing search time for both machine and user, and each has evolved toward a

Organization of nonuniform data is one of the great unsolved questions of human endeavor.

solution also common to most non-Apple systems: The list-structured DOS 3.3 and the original Macintosh Filing System (MFS) have given way to the more hierarchical and categorized ProDOS and Hierarchical Filing System (HFS), respectively.

(A parenthetical remark: In the

Apple world, the word *hierarchical* seems rapidly to be giving way to the shorter and more easily pronounceable *hierarchial*—although the difference may grate on some ears, if enough people say it often enough, we'll have not only a new file system but also a new English word.)

With the hierarchical system, instead of having a single directory that lists all the files on a disk, the master directory can contain both files and subdirectories, with the subdirectories also including further divisions. Because of the branching structure, the result is sometimes called a "directory tree." This kind of tree has the roots at the top and leaves (files) and branches (subdirectories) sprouting at nodes that work down from there.

So now, instead of storing all your files as one big list, you can group them into subdirectories or folders that both we and the computer can treat as logical units (folders in the Macintosh's original MFS were just a screen convenience and didn't affect

search operations). By setting a path in ProDOS or a folder in HFS, you can tell the system to take a more limited set of your files as the temporary frame of reference, thereby simplifying and speeding up many types of file operations.

Unfortunately, the availability of categories and hierarchies doesn't solve all the problems—you still have to figure out what files belong in which categories. By and large, as long as data files and their programs go into the same folder, the computer

Large quantities of files can bog down both operating systems and people.

doesn't care, but these structural units may make a big difference to our ability to find and recognize our files.

When you try to make logical divisions, though, you quickly realize that classification and organization of

nonuniform data is one of the great unsolved (and probably insoluble) questions of human endeavor. What seems to be the logical way to partition part of the data may not work for other elements, and what is strikingly plain one day may not seem so obvious when you're conducting a search later on.

Say, for example, you use your computer mostly for business correspondence. Presumably, you use it because you write scores or even hundreds of letters over the years. If you don't have perfect recall, how do you organize your past missives?

You can, at the simplest, christen all your letter files by the name of the recipient of the letter and then put them into folders by date. Then, you'll have files labeled *Josiah* or ones labeled *White* in folders with names such as *Jan85*, and so on.

One immediate problem is that all present operating systems require unique filenames, so if you wrote two letters to Ms. White in the same month, this system would quickly get you into trouble.

Using dates as filenames instead might have some advantages. Aside from the unresolved question of what happens if you have multiple letters on the same day, date order has the following advantages: It is consistent, it requires no individual judgments, and it is infinitely expandable. If you use year-first order (85-04-15), utilities that give you a directory list sorted by name will give your files in the correct date order as well (with ProDOS, though, you'll have to put at least one letter of the alphabet before each date).

Putting the mail by date inside folders labeled by recipient might work if you never wrote more than one letter per day, but if you had a large number of correspondents, that approach might also be a problem. Too many folders can choke the search-and-recognition process, just as large quantities of files can bog down both operating systems and people.

You can, instead, use topics as the folder names, with letters by recipient or by date inside the folder. Although deciding on topic labels is a judgment call rather than a clear-cut logical process, in most cases you should be able to arrive at a number of topics that is sufficiently detailed to be useful but still small enough to be manageable.

Topical organization also helps if

FIRST TOTALLY PORTABLE APPLE //c

Use it wherever you are!

- FREE Technical support
- FREE Appleworks support
- FREE Checkmate Tech software updates
- Toll-Free order line (HI, AK & OUTSIDE CA)
- Open 7 days a week, (7am - 7pm PST)
- Personalized customer service
- No Surcharge for credit-card orders
- Lowest prices with next-day shipping
- Editorial Board Member of the "National Appleworks Users Group"

APPLE //c

C-VUE Back Lighting	250.00
Apple Back Lighting	275.00
512K Multiram CX/C816	339.00
CX 16 BIT (C816) KIT	109.00
CPU //c Clock (Ext)	64.00
Unidisk 3.5	349.00
1 Meg Legend C' Card	299.00
Locksmith 6.0	69.95
Quark 10 Meg Drive	975.00

APPLE //e

800 Watt S.P.S.	615.00
Enhancement Kit	60.00
Proclock //e	129.00
A-B Box (Ser/Par, 1 yr)	80.00
Unidisk 3.5/Controller	399.00
768K Multiram //e	219.00
768K Multiram RGB	245.00
1024K Multiram RGB	280.00
256K Dram Chip (each)	3.75

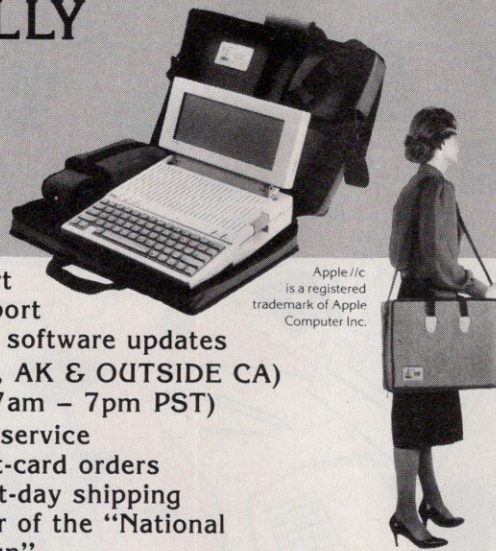
MACINTOSH

Keyboard Ext Cable	19.95
400 Watt S.P.S.	420.00
MacNifty A-B Box (DB-9)	31.95
Mac+ to IW II Cable	29.95
1 Meg Mac Master	499.00

PORTABLE SYSTEM

C-VUE LCD Flat Panel*	349.00
Prairie Power System	150.00
512K Multiram CX	225.00
Proclock //c (int)	129.00
Cigarette Lighter Adapter	24.95
Power Extension Cable	16.95
Power - Y - Adapter	18.95
Promodem 300C	125.00

- If you don't see it CALL US!
 - Next-day delivery available
- MasterCard and VISA accepted



Apple //c is a registered trademark of Apple Computer Inc.

FREE! Price Quotes on all Apple Products & Peripherals

Ordering Information:

1-800-438-2883 (AK, HI, & outside CA)

(619) 274-1253 (within CA & outside U.S.)

ROGER COATS P.O. Box 171466, San Diego, CA 92117

CIRCLE 109 ON READER SERVICE CARD

* 14-day money-back guarantee

Checkmate Technology, Inc. Prices subject to change without notice

you write a lot of the same types of letters. Using the Copy command or editing a file and then saving it under a new name (more dangerous, because you may forget to change names), you can easily start with an existing letter and customize it for the situation at hand.

I organize my own files by topic. Within the topics, for text files, databases, or other data files that have a time peg to remember them by, I use both names and dates.

On my hard disk, I use topics as the major subdivision (folders on the Mac or first-level subdirectory in ProDOS), and I keep my floppies organized in boxes by major topic and then in alphabetical order within the boxes. I try to keep the number of major topics down to an amount that will fit on a single screen display.

With the second-generation Apple operating systems, employing dates as filenames may at first seem wasteful, because the date is already recorded in both ProDOS and HFS. Either by using a utility program in ProDOS or by clicking on various choices in the View column of the Mac's main menu bar, you can see or arrange your files with the date information. On both systems, however, dates are usually accessible only on the main directory display. In the middle of an application program, if the system responds to your request for a file with a selection of the possibilities, what it shows you are the filenames—not the full directory entry with date information.

Similarly, if you look at a Macintosh desktop with small or large icons, what you get is the filename without a date. ProDOS shows you the date of last change on its main directory listing, but not the creation date. Also, if you make any kind of change on a file, both systems change the date automatically—whereas I want the date to stay fixed even if I go back later to add a note or correct an error.

That's why, for example, I've stored this column on my Mac in the A + Articles folder as TW-files.60608. That's Thoughtware and the topic, and then the date as year, month, and day (YMMDD) that I began this draft. When I see the name in a selection box or look at a directory list typed out for a disk envelope, I can tell both topic and date. I can even search for files by this embedded date, using utilities that let me search for partial

I try to keep the major topics down to an amount that will fit on one screen display.

matches on filenames (the one I use now on the Mac is HFS Locator from PBI).

On a ProDOS Apple II, I generally use the same procedure. Although ProDOS limits filenames to 15 char-

acters, even with a 5-character date suffix, I still have 10 characters to indicate the purpose of the file.

I can't say that I never lose a file anymore, but I spend a lot less time opening up the wrong ones or searching through my directories for the right information. And when I get a dialog box or do a wild-card directory search, I can mix topic and embedded date to give me twice the chance of finding exactly what I'm looking for. With the number of files I've accumulated, I need all the help I can get. +

UPTIME

• THE DISK MONTHLY •

Get 120 programs for less than 60¢ each!

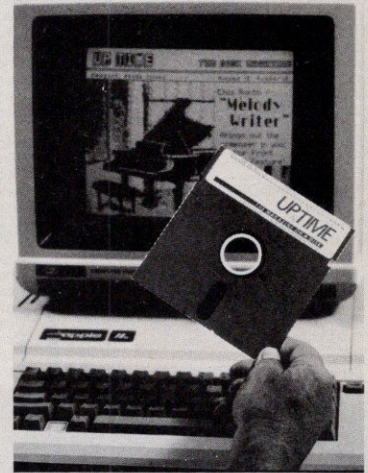
Make your life easier and get more from your computer.

Organize your life and be more productive with our home management and finance programs. Have fun learning with educational programs and fun relaxing with games and adventures. You'll find business, graphics, utilities and more!

Ten programs and more on every disk — a wealth of information. Subscribe now!

Make the very next disk yours! Fill in the coupon and return it to us.

We make it easy and inexpensive — a disk each month.



Free Offer!

Take advantage of this introductory offer! Subscribe and receive **Mail Magic FREE!** Add, edit, or delete names and addresses; sort by name, city, state or zip; print labels and more. Yours with any purchase below.

For Immediate Service Call Us Toll-Free:

1-800-437-0033

In Rhode Island: 1-401-849-4926

I'LL BYTE!!! I'm a computer enthusiast who wants more. Please start my subscription to UPTIME immediately. I want:

12 Disk Issues \$66

6 Disk Issues \$48

3 Disk Issues \$30

1 Disk Issue \$11.95

(Add \$2 per issue in foreign countries, except Canada and APO)

Name _____

Address _____

City _____

State _____

Zip _____

Please send my free **Mail Magic** disk.

Payment enclosed. (Please make checks payable to UPTIME.)

Bill my: VISA MASTERCARD

Account No. _____

Expiration Date _____

Signature _____

Please send information on UPTIME for Macintosh.

Send to: UPTIME, PO BOX 299, NEWPORT, RI 02840.

Subscribe now and save. You won't believe the value! Satisfaction guaranteed.

CIRCLE 219 ON READER SERVICE CARD

A + MAGAZINE/SEPTEMBER 1986 ▶ 123

Computer Network

CALL TODAY 1-800-621-0937

FREE Updates on Ramcard Software* • FREE 64k on 256k & 512k IIC Ramcards*
10 DAY 100% MONEY BACK GUARANTEE ON ANY HARDWARE PRODUCT*

*In 10 days of receipt we will refund your money if you're not 100% satisfied with any Hardware Product shipped to you, (less shipping).

BUSINESS

ASCII Express ProDOS/DOS	ea	77.95
Bank Street Mailer		40.99
Bank Street Writer 64K/128K	ea	40.99
Bank Street Speller		40.99
Bank Street Filer 64K/128K	ea	40.99
BPI GA,AR,AP,PAY Pro	ea	208.95
Bookends ProDOS-2C/2E-128		64.95
Crosstalk		109.00
dBase II (Req CP/M 80)		289.00
Dollars & Sense (IIC/Ile-128k)		67.95
Fontrix		63.00
Format II Enhanced 64k or 128k	ea	86.50
Manage Your Money		102.00
MouseWrite 2C/E-ENH 128		72.00
Merlin Pro 2C/2E-128K		64.95
PFS 1st Success F/R/W Pro-128K		126.00
PFS File & Report	ea	68.50
PFS: Graph		68.50
PFS Write ProDOS-2C/2E-128K		68.50
ProFILER		68.95
Sideways Pro DOS	CALL	
Sideways Dos 3.3		32.00
Supercalc 3a 2C/2E ENH		98.95
The Handlers Package		95.00
The Graphics Department		65.00
Think Tank		84.95
VIP Professional IIC/Ic -256k		149.95
Word Perfect		98.00
Word Juggler III		159.95
Your Personal NetWorth		50.00

APPLEWORKS

Appleworks II+ Modifier 128k.	47.95
AutoWorks	27.95
FontWorks	37.95
Graphworks	55.95
HabaMerge	48.50
Haba Templates	19.95
Jeeves (REQ Clock)	34.95
MacroWorks <i>New!</i>	22.95
Megaworks	68.95
Pinpoint 2C/2E-ENH 128K ProDOS	34.95
Pinpoint Tool Kit	25.95
Pinpoint Pop-up Speller Checker	34.95
Pinpoint Print Enhancement	13.95
Pinpoint & Pop-up Speller	72.95
Quicken (New)	52.95
Reportworks	68.95
Sensible Speller DOS or ProDOS	ea 71.00
Sensible Grammar	59.95
SpellWorks	28.95
ThinkWorks (New)	95.00

HOME-HOBBY

Basic Building Blocks	24.00
Chopfliter	22.89
Copy II	22.50
Dazzle Draw (Imagewrite II compat)	35.15
Deadline	28.50
Deluxe Music Construction	25.00
Enchanter	23.45
Fantavision (Req. Mouse/Color mon.)	28.95

HOME-HOBBY

F-15 Strike Eagle	20.50
Flight Simulator II	29.95
GATO	20.95
Graphics Expander Req. Printshop	23.95
Home Accountant	39.00
King's Quest II VII (C/E-128K)	ea 29.30
Lode Runner	20.50
Millionaire	24.00
Mind Prober	33.95
Newsroom +E/C	30.50
Newsroom clip art 1	16.25
One on One	24.95
Pinball Construct	25.00
Printshop +C/E	26.75
Printshop GL 1,2,3	ea 14.25
Printshop Refill	12.25
Printshop Companion	22.50
Sargon III (II, Mac)	29.30
Seven Cities-Gold	25.50
Silent Service	24.95
Skyfox	25.50
Super Zaxxon	19.50
Star Trek-Kobayashi	24.50
Turbo Pascal (Req. CP/M)	35.95
Turbo Toolbox	30.00
Shadowkeep	27.49
Summer Games	24.00
Take 1	38.89
Ultima III / IV	34.95
UniDOS (use DOS 3.3 on Unidisk 3.5)	29.95
Winter Games	24.00

EDUCATION

Early Games for Young Children	16.00
Master Type	23.45
Math Blaster	29.30
Typing Tutor III	29.30
Word Attack	29.30
Speed Reader II	41.00
Mission Algebra	28.00
Turtle Tracks	24.00
Spinnaker Full Line	SCALL
Stickybear ABC/#s/Math/etc	ea 24.00
Where is Carmen San Diego?	24.25
Algebra I thru IV	ea 26.95
Algebra V & VI	34.95
Alphabet Zoo	18.95
Fraction Fever	17.95
Visible Computer 6502	37.95
Spell It	28.69
Snooper Troops 1 or 2	22.95
Rooky's Boots	31.95
Trains	20.95
Spellcopter	24.00
Charlie Browns' ABC's	29.95
Snoopy's Rescue	29.95
Beneath Apple DOS	16.95
Beneath Apple Pro DOS	16.95
Story Maker	24.50
Algo-Blast (Davidson & Assoc)	34.95
Turbo Tutor	24.95
Sticky Bear Reading	23.99

CHECKMATE TECHNOLOGIES

Multiram IIC 64k	\$ 119
Multiram IIC 320k	165
Multiram IIC 576k	205
Multiram IIC 768k	237
Multiram IIC 64k w/RGB	158
Multiram IIC 320k w/RGB	202
Multiram IIC 576k w/RGB	235
Multiram IIC 832k w/RGB	259
Multiram IIC 1 meg w/RGB	279
16 bit Microprocessor IIC	159
Multiram IIC 256k CX	179
Multiram IIC 512k CX	239
Multiram IIC CX kit 16 bit	129
Pascal RAM software	20
CP/M RAM software	20
256K Ram Chips 150ns	4
64k Ram Chips 200ns	.75

Call For Larger Memory Sizes



NEW!

- 65C02 Processor
- Full 128k of RAM
- Built-in 5.25-inch Disk Drive
- Most Apple IIC Compatible on the Market
- External Apple II-compatible expansion slot
- 10-key numeric keypad
- Mouse and Modem Interface
- Serial & Parallel Interface

Laser 128

AppleWorks Compatible

\$395

APPLIED ENGINEERING

Ramworks II 64k	\$140
Ramworks II 320k	188
Ramworks II 576k	226
Ramworks II 832k	268
Ramworks II 1 meg.	296
Ram Factor 256 to 1meg	CALL
Z-RAM II 256k IIC	296
Z-RAM II 512k IIC	340
Z-RAM II 768k IIC	384
Z-RAM II 1 meg IIC	515
Velwmaster (+/E)	106
Z-80 Plus (+/E)	106
IIC System Clock	66
Timemaster II H.O.	101
TRANSWARP	220
16 Bit Option for IIC & IIC	70
Z-80c card for IIC	115
16k Ram card for II+	56

DISKETTES

Elephant SS/DD	9.95
Elephant SS/DD	12.95
Elephant DS/DD	15.95
Verbatim SS/DD	14.95
Verbatim DS/DD	16.00
Diskettes 3 1/2 SS/DD	24.95
Diskettes 3 1/2 DS/DD	29.95
Diskette Cleaner kit 5.25	7.95
Disk Notcher (use both sides of disk)	9.95
Disk case (holds 10 Disks)	3.00
Diskette Carousel (holds 72) 5.25	15.95

Disk Drives

Disk Drive IIC Applied Eng.	119.00
Disk Drive Controller AE	67.95
Mitac Disk Drive IIC	129.00

PRINTERS

Epson LX-80	279.95
Epson FX-85 80 col.	419.95
Epson FX-286 136 col.	609.95
Epson LQ 1000 Ser. & Par.	759.95
Epson LQ 800 Ser. & Par.	619.95

RIBBONS

Imagewriter	3.95
Prowriter 8510	3.95
Epson FX/RX 80	3.95
Epson FX/RX 100	5.83
Epson LX-80	5.83
Okidata 192	6.65

OTHER RIBBONS CALL
 COLOR RIBBONS CALL

HARDWARE

Amdex 300 12"	123.00
Cables for Modems & Printers ea	24.95
Color 300	225.00
Color 600	399.00
RGB Interface	127.00
BusinessCard	145.00
Kraft Quick Stick	CALL
Grappler +	72.00
Serial Grappler	79.00
Buffed Grappler + 16K	131.50
Hot Link, S-P cable for IIC	44.00
Grappler C	75.00
A-B switch Box 25pin	59.95
A-B Switch Box 36pin	99.95
Muppet Keys	44.00
Muppet Touch Tablet	75.00

HARDWARE

Koala Pad IIC - IIC	75.00
UltraTerm 132 Col. (II+/IIC)	179.00
Mach III w/Fire (II+/IIC)	32.25
IIC 80Ram Card	55.95
System Saver	62.00
The Cricket IIC	111.00
Thunderclock +	103.00
Disk Notcher	9.95
X-10 Powerhouse Interface kit E/C	55.95

MODEMS

Hayes Smartmodem 1200	358.00
Hayes Smartmodem 300	132.00
Micromodem IIC w/Smartcom I	129.00
Hayes 2400 External Modem	577.00
Hayes 300 Baud Smartmodem IIC	155.00

NO ADDITIONAL CHARGES FOR VISA & MASTERCARD ORDERS

For fast delivery send cashier's check, certified check or money order. Personal and company checks allow 15 days. Shipping - Software (\$3.00 min.). Shipping - Hardware (please call). Sorry No C.O.D.'s. School P.O.'s, Add 3% (\$3 min). Am. Ex.-5%. *NM Res. add 4.75% sales tax. Prices & availability subject to change without notice. All products are new and include factory warranty, therefore All software sales are final. We do not guarantee compatibility. Products purchased in error subject to 15% restocking fee. Defective merchandise replaced with same item only. Foreign add 18% (\$25 min). Not Responsible for typographical errors. Mail Orders to COMPUTER NETWORK, 3204 NATL. PARKS HWY., CARLSBAD, NM 88220 *To update your Multiram, RamWorks, & Z-RAM software Disk, please send a Diskette with a self stamped package for Return.

Rescue Squad

BY GARY B. LITTLE, CHRIS VAN BUREN, AND CRAIG CROSSMAN

DATA STORAGE WITH AN EXPANSION CARD

Q. I've just purchased the new Apple II Memory Expansion Card. I want to use it for "raw" data storage; that is, I don't want to store my data as ProDOS RAM-disk files. How can I directly access the bytes on the memory card?

A. The Memory Expansion Card is unique in that you do not use traditional bank-switching techniques to access the 256K to 1 megabyte of memory it might contain. Instead, you store a starting address in a read/write pointer and then begin reading or writing one byte at a time. Every time the computer reads a byte, the pointer is automatically incremented for you.

Programmers will recognize this technique as exactly the same one you use to read data from or write it to a disk file. The only difference is that you don't have to open or close the memory card as you would a file.

Three I/O registers hold the value for the memory-card pointer:

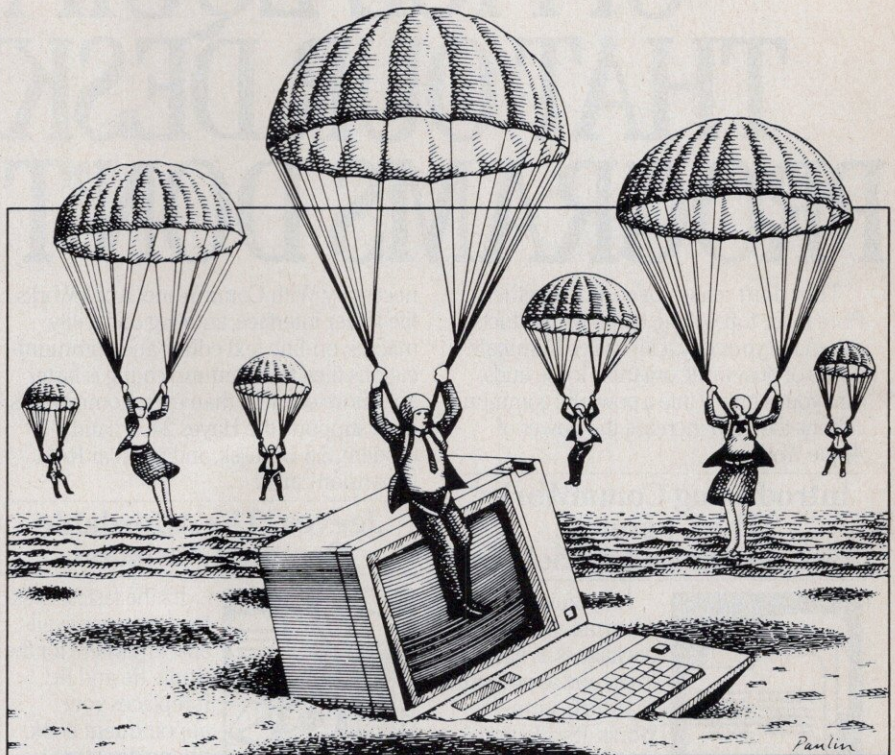
\$C080+n0 (low byte)
\$C081+n0 (middle byte)
\$C082+n0 (high byte)

The *n* represents the slot number of the memory card.

Set up the pointer, using standard POKE commands from Applesoft or STA commands from assembly language.

Since the pointer is 24 bits long (3 bytes × 8 bits per byte), you can address any byte in a 16-megabyte range with this technique. Is this a subtle hint that future memory cards will have much greater capacity?

To read a byte of data, have the computer read a value from location \$C083+n0. (For write operations, write to the same location.) As soon as you do this, the pointer increments, and the computer's ready to access the next byte on the card. That's how easy it is! —GBL



IIc UPGRADE FOR UNIDISK 3.5 USE

Q. I recently went to my Apple dealer to inquire about purchasing a UniDisk 3.5. I was told that my December 1984 model Apple IIc would need an upgrade. The service department said the IIc motherboard had to be replaced and that there was a long waiting list. What does the upgrade really entail, and why do I need it to run the UniDisk 3.5? Will I lose any compatibility with my current hardware or software?

A. To use any 3.5-inch disk drive, be it Apple's or a third party's, you must upgrade your IIc if it was purchased before December 1985. An authorized Apple dealer must do the upgrade your dealer was referring to, but it does not require the replacement of the IIc's motherboard.

Basically, the procedure involves replacing the old 16K monitor ROM with a new 32K monitor ROM, and two soldering modifications are required. You lose one feature: You can no longer boot from the external drive with a PR#7 command. You lose no compatibility and gain several new features, however. You can now boot from the UniDisk 3.5 by using a

PR#5. Also, if no disk is in the internal drive, when you turn on the computer or type open-apple-Reset, the IIc will check the external drive before the Check disk drive message appears. Thus, if you have a ProDOS disk in the external drive, be it a 3.5- or 5¼-inch drive, your IIc will boot from it.

For you assembly-language programmers, a new mini-assembler is now included, with step, trace, and direct ASCII input. The upgrade also has a revised interrupt handler and a new protocol converter (a set of assembly-language routines). For more information, see *Apple II Programmer's Guide to the 3.5 ROM* (part number A2L4037) from Apple, and *Apple IIc Reference Manual* (part number 17727-7) or *ProDOS Technical Reference Manual* (part number 17728-5) from Addison-Wesley. —CC

APPLEWORKS AND ACCOUNTING

Q. I own an Apple IIe, and my favorite program is AppleWorks. I have learned how to put many applications into the three AppleWorks features, but most have come from reading various man-

THE ONE VITAL PIECE OF OFFICE EQUIPMENT THAT OUR DESKWORKS™ PROGRAMS DON'T REPLACE

They don't make coffee. But together, PBI's three top-selling business products can make your day a lot easier. Eliminate hours of busywork, organize loose ends, turn your Apple II into a powerful communications tool and increase the power of Apple Works.

Introducing CommWorks™* The Complete Telecommunications Solution



No other communications software package is as easy to use and as powerful as PBI's CommWorks. It's a logical companion to Apple-

Works. CommWorks can save you time and money; imagine being able to access your favorite section of CompuServe automatically at the touch of a key. Transfer AppleWorks and ProDos files or even whole disks instantly (5¼" or 3½")—no conversion

necessary. With CommWorks' AppleWorks file folder interface, auto log on facility, macros, on-line text editor, and communications files, telecommunicating is faster and more efficient than ever. CommWorks even supports the Hayes 2400 baud modem, 3.5 UniDisk, and popular RAM expansion cards.

Jeeves™, The Affordable Personal Assistant



It's the fastest desktop organizer available anywhere for the Apple IIe and IIc. It replaces your appointment book, phone directory,

four-function calculator, memo pad, alarm clock and more. It resides transparently in RAM memory alongside AppleWorks, CommWorks or other ProDos based programs, so it's always there instantly upon command.

GraphWorks™ Two Programs in One



What does AppleWorks lack? Graphics. Now put together impressive presentations with ease.

GraphWorks enables you to use data directly from AppleWorks spreadsheet files to create four different graph-types: pie, line, bar, and stacked bar. Plus a bonus feature: GraphWorks will even print your extra wide spreadsheets "sideways" down the page.

Replace your outdated office equipment with the DeskWorks line from PBI. It makes the daily grind a whole lot easier. And leaves you time for longer coffee breaks. CommWorks \$95.00. Jeeves \$49.95. GraphWorks \$79.95. Available at your local dealer or order directly from us, 9AM to 5PM PST, by calling:

800-843-5722 (nat'l)
800-572-2746 (CA)

PBI Software Inc.

1111 Triton Drive, 2nd Floor
Foster City, CA 94404, (415) 349-8765
CIRCLE 241 ON READER SERVICE CARD

*Receive a free subscription to CompuServe and \$15 free access time with your CommWorks purchase.

Send us your present communications package and receive a \$25 discount on Commworks (when purchased directly from us).

CommWorks requires IIe (w/ext. 80 column card & 128K) or IIc and modem. Jeeves requires stand alone IIc or enhanced 128K IIe with interrupting source. GraphWorks requires IIe (w/ext. 80 column card & 128K) or IIc and AppleWorks. Trademarks: CommWorks, Jeeves, GraphWorks and DeskWorks—PBI Software, Inc. Apple II and AppleWorks—Apple Computer, Inc. Hayes-Hayes Microcomputer Products, Inc.

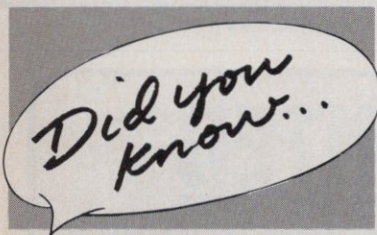
Incredible SwiftWare!™

It is not possible in an ad to really explain this Apple II (e or c) product which outperforms all other software in speed and simplicity. It does no-frills word processing, information retrieval, telecommunications and many other tasks. Reviewers call it "foolproof and frustration free" and "blindingly fast."

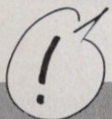
It appeals to beginners and experts. Jef Raskin, who invented the Macintosh and who later created SwiftWare, has written up the hows and whys of this product. Please write for a copy. No charge. Or order SwiftWare and see for yourself. At \$89.95 and with a 30-day refund policy, there's no risk.

US 800/982-5600
CA 800/562-7400

Information Appliance
1014 Hamilton Ct., Menlo Park, CA 94025



that for every copy of A+ sold, at least three additional users read it! Over 600,000 Apple owners, users and buyers read A+ every month!



uals I've obtained. Being an accountant, I'd like to put more accounting into the spreadsheet but don't know how to do it. Are there any books that have this kind of advanced application?

A. Information about advanced AppleWorks applications is becoming more and more plentiful. Often, a business can use AppleWorks and applicable add-on products to satisfy its accounting needs—and avoid purchasing a separate accounting package. A good place to begin is with these articles from past A+ issues:

- "Business AppleWorks," Charles Rubin, July 1985
- "Personal AppleWorks," Charles Rubin, July 1985
- "Spreadsheet Accounting," Nancy K. Dirksen and W. M. Miller, Jr., September 1985

Another good source is the *AppleWorks Exclusive Reference* newsletter, published by the Q-mar group of San Diego, California. This publication often covers advanced applications and is dedicated to AppleWorks topics. Charles Rubin, author of *AppleWorks* (Microsoft Press), now has a more advanced AppleWorks reference, entitled *Command Performance: AppleWorks*.

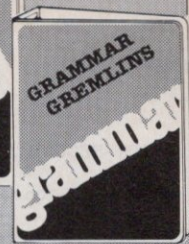
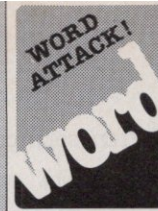
One way to get a head start on specific applications is to find existing templates that you can modify for your own needs. Many templates are in the public domain, and many others are available commercially. Two good sources of information for templates are The AppleWorks Users Group, 1300 Hinton Street, West Monroe, LA 71291 and The Q-mar Group, Box 11215, San Diego, CA 92111. —CVB

APPLEWORKS ON THE APPLE II PLUS

Q. I am interested in being able to use AppleWorks and other IIe programs on my Apple II Plus. I am stationed outside of the U.S., and other Apple II owners who've recently come from the U.S. tell me it is now possible.

A. You will need at least 64K RAM on your II Plus and an 80-column card. Optionally, you can get an extended RAM card and/or a shift key modification for uppercase/lowercase.

Several companies offer ways to run AppleWorks on a II Plus. Videx offers a program called AppleWorks Modify Plus, which works with AppleWorks Version 1.1-1.3 and any of several memory cards, for \$59. The only 80-column card it works with is



WORDS TO THE WISE from DAVIDSON.

When you are choosing educational software, the word is Davidson. It Works! Thousands of teachers and parents have made the Davidson choice . . . the wise choice in performance-proven educational software.

NEW!

GRAMMAR GREMLINS

Students of all ages learn grammar basics. Over 700 sentences reinforce grammar rules. Students practice their skills in the animated, fast-moving game. Color graphics, editor and more, all make learning fun! Apple™ II family. **\$49.95.** (IBM™ available 8/86.)

SPELL IT! Learn how to spell 1000 of the most commonly misspelled words. Animation, a lively arcade game and add-your-own words editor too! Apple™ II family, Atari™, Commodore™ 64/128, IBM.™ **\$49.95.**

WORD ATTACK! Discover the meanings and usages of 675 new words. Includes a fun, fast-action arcade game and add-your-own words editor. Apple™ II family, Macintosh,™ Atari,™ Commodore™ 64/128, IBM.™ **\$49.95.**

More award winning educational software from Davidson:

MATH BLASTER! **ALGE-BLASTER!**
SPEED READER II **CLASSMATE**

HOMEWORKE

CIRCLE 337 ON READER SERVICE CARD

(800) 556-6141

In Calif. (213) 534-4070

D Davidson.

Davidson & Associates, Inc.
3136 Kashiwa St.
Torrance, CA 90505



Please send me a FREE COLOR BROCHURE and the name of my nearest Davidson Dealer.

Name _____

Address _____

City _____ State _____ Zip _____

Educational Software that Works
©1986 Davidson & Associates, Inc.

APPLYING APPLEWORKS™

FIRST EDITION SOLD OUT!

NEW SECOND EDITION NOW AVAILABLE

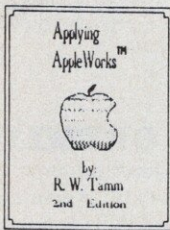
Teachers! Coaches! Businessmen! Everyone!

DISCOVER the AppleWorks™ book written with educators in mind. Go from beginner to advanced applications.

CREATE your own standard letter formats, seating charts, gradebooks, test question bank, sports scoring sheets, accounting ledgers, mailing labels, budgets, bibliography files and much more.

DISCOVER the integrated use of the UNIDISK 3.5, Pinpoint™, AppleWorks Mailing Program, Spellcheckers, Proofreaders, and many other AppleWorks™ compatible software and hardware.

SEND \$11.95 plus \$1.50 for shipping, a total of \$13.45 in U.S. funds (Add \$5.00 for countries other than USA, Canada, or Mexico).



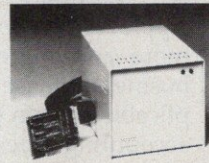
BRISTEN PRESS
DEPARTMENT A+
P. O. BOX 336
NEW HARTFORD, NY
13413

ISBN 0-936337-01-X

CIRCLE 166 ON READER SERVICE CARD

CMC HARD DISK SYSTEMS

Apple II+, Apple IIe, Apple III and Compatibles
NEW Macintosh Plus SCSI Interface



Very reliable, fast access, shock resistant mass storage system, complete with cables and controller. Compatible with ProDOS, DOS 3.3 and SOS. Under NovoComp, Apple II Hard Disk Utility, system supports variable partitions of ProDOS, DOS 3.3, CP/M and Pascal with many utilities. More than 35,000 Hours MTBF. Automatic head park, no fear of head crash. Auto boot direct from hard disk into ProDOS menu selector with utilities installed free. System is very quiet and includes a 12 volt DC ball bearing fan. Slot card draws minimum power from bus thus possible to connect more than one system with no fear of overload. ProDOS can be one contiguous volume.

CMC "QUICK" Series - Model "A-525" - ProDOS, DOS 3.3, SOS

	Regular	Now Only
20mb - 5 1/4" Complete Hard Drive System - 40,700 Blocks	\$1159.00	\$ 795.00
30mb - 5 1/4" Complete Hard Drive System - 61,000 Blocks	\$1695.00	\$1195.00
40mb-5 1/4" Twin 20/20mb Backup System - 39,400 Blocks	\$1795.00	\$1295.00
10mb - 5 1/4" Removable Hard Disk System - 19,700 Blocks	\$2195.00	\$1695.00

Price includes 90 Day Warranty, Complete with Cables, Cards, Drivers as needed.

NovoComp Apple II Hard Disk Utility supports ProDOS, DOS 3.3, CP/M and Pascal volumes of various sizes. Ok to Leave unused space. \$ 150.00

Extended Warranty Available - Parts and Labor - 12 Months - Only \$ 50.00

CMC MACINTOSH PLUS Hard Drive System - Model M-525

	Regular	Now Only
20mb-5 1/4" HardMAC+20 Complete System-Supports HFS	\$1159.00	\$ 795.00

10 Day Trial Offer - Money back if not satisfied with performance.

CMC Computer System • Charles F. McConathy • Voice Phone: 714/835-2462
1514 East Edinger #H • Santa Ana, CA 92705 • 24 Hour BBS: 714/835-0910

CIRCLE 215 ON READER SERVICE CARD

APPLEWORKING MADE EASY

Easy To Modify. Customize For Your Own Situation.
Hot Line Support Offered With Every Purchase.
All Templates Can Be Used With 55K Desktop.
Make AppleWork Become AppleFun.

These templates already include the formulas, reports, or formatting needed to make your use of AppleWorks proceed faster and easier. As a bonus, each template includes a tutorial designed to introduce the use one AppleWorks feature.

Business/Personal Management

- ◊ 1986-87 Master Appointment Calendar.....\$24.99
- ◊ Mailing List & Address File System.....\$29.99
- ◊ Checkbook Manager.....\$29.99
- ◊ Mortgage Amortization.....\$24.99
- ◊ Financial Package #1: Stocks - Foreign Exchange.....\$19.99

Home

- ◊ Entertainment #1: Restaurants - Video.....\$22.50
- ◊ AppleWorks Tips & Techniques #1.....\$19.99 *

Sports

- ◊ 1986 National Football League Schedule & Report Forms.....\$24.99
- ◊ NCAA Basketball Statistics and Records - Game & Season.....\$34.99
- ◊ Cross Country, 10K, and Marathon Race Records & Reports.....\$29.99

* free with the order for any four disks
add \$1.50 postage & handling per order

Customized Data Base Service

Pacific Technology Systems specializes in the development of custom data bases. Call or write for assistance in structuring AppleWorks for your own business, educational or personal needs. We're as flexible as a floppy disk.



Pacific Technology Systems

Department A
Box 8005
Rockville, MD. 20856
Tel. 301 231-9086



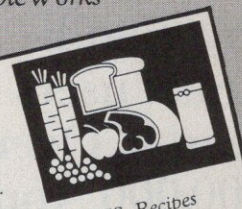
CIRCLE 199 ON READER SERVICE CARD

WANTED Cooks with AppleWorks™

NONNIE'S FILE BOX
Recipes and Kitchen Desk Organizer
for use with AppleWorks™

4★ Recipes
\$24.95 VISA/MC PA + 6% Tax

Ms. Nom de Plume presents 75 of her favorite recipes. Provides practical home applications and tutorial on WP, SS, and DB AppleWorks files. Nonnie's SS Template enables user to ADD and adjust serving size of OWN RECIPES. Recipes selected by ingredient, cooking method, characteristics, etc. 700 grocery items for customized lists. TWO reversible data disks. 35 page manual with many AppleWorks tips. Requires Apple //c or IIe with 128K and printer for full utilization.



CIRCLE 320 ON READER SERVICE CARD

Plume Software
P.O. Box 2209
Altoona, PA 16603
814-942-7058



Apple and AppleWorks are trademarks of Apple Computer, Inc.

CIRCLE 320 ON READER SERVICE CARD

GREAT PRICES ON DISKS

FOR THE APPLE

FROM 33¢

WE DON'T SELL FANCY NAMES, BUT WE SURE SELL THEIR DISKS!

When you buy a name-brand disk, you pay for more than just the disk, you pay for fancy advertising, fancy packaging. But when you buy a UNITECH disk, you get PREMIUM QUALITY, HIGH RELIABILITY, fully guaranteed disk, identical to disks that sell for many times our price! When you buy a more expensive diskette, you aren't necessarily buying a better product.

WHO MAKES UNITECH DISKS?

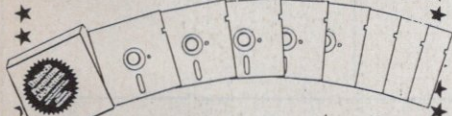
They are made by top USA makers, and should not be confused with low-ends or seconds. Since we are one of the largest disk buyers in the world, the manufacturers give us their best prices! In our agreements with the manufacturers, we can't reveal their names, but when you receive them you'll recognize these as among the highest-quality disks made!

GREAT PRICE AND HIGH QUALITY!

We've tried almost every brand of disk made, but we haven't found a more reliable, higher quality disk than the Unitech Disk. Unitech is so sure that our disks are 100% perfect that we offer our famous UNCONDITIONAL 30-DAY MONEY-BACK SATISFACTION GUARANTEE, AND OUR LIFETIME REPLACEMENT WARRANTY!

PROPERLY PACKAGED & PRICED!

You can buy Unitech disks BULK (N-Pak) no sleeve or box; BOXED IN TENS (D-Pak) or BOXED IN 25'S (J-Pak) with label, sleeve, box, and tabs. Order D-pak, add 2¢ per disk. Please specify type when ordering.



Prices are per disk	BULK					BOXED				
	100	500	1K	5K	10K	25	100	500	1K	5K
For the Apple II, II+, IIx, IIfx #UD4	45¢	42¢	39¢	36¢	33¢	58¢	53¢	50¢	47¢	44¢
SS/DD for single side computers #UD1	50¢	47¢	44¢	41¢	38¢	63¢	58¢	55¢	52¢	49¢
SS/DD for IBM-PC and compatibles #UD2	55¢	52¢	49¢	46¢	43¢	68¢	63¢	60¢	57¢	54¢
DS/HI-Density for IBM-AT #UAT	1.75	1.71	1.68	1.65	1.60	1.90	1.83	1.79	1.76	1.73
3" single side for Mac #UD3	1.49	1.44	1.41	1.39	1.37	1.59	1.49	1.44	1.41	1.39
3" double side for Mac & Amiga #UD6	1.95	1.91	1.88	1.84	1.79	1.99	1.91	1.88	1.84	1.81
5" SLEEVES, 24# white wave #SLV	5¢	4.5¢	4¢	3.8¢	3.3¢	SHIP'S SURGE! *N/A* (SEE WHEN ORDERING DISK!)				
5" SLEEVES, white Tyvek #TVV	7¢	6¢	5.5¢	5.2¢	5¢					

MORE GREAT PRICES!

- LIBRARY DISK STORAGE CASES, clear plastic #F10 99¢ ea. 10 for \$9.50
- FLIP-TOP DISK FILES, holds 70 disks, smoked plastic #F70 \$8.88
- UNI-NOTCH DISKETTE NOTCHER, accesses 2nd side of disk #N1 \$7.77
- COMPUTER MAILING LABELS, add 5 lines x 3.5" #LAB \$19 box of 5000
- HEAD CLEANER KIT, 1 cleaner disk & solvent, 15 uses! #HCK \$4.95
- DB25 GENDER CHANGERS, all pins wired, choose M/M (MMGC) or F/F (FFGC) \$7.77
- RIBBONS FOR ONDATA 80 #1 \$2 \$24 \$3 \$34 \$42 \$53 #PR180 \$2.15ea 12 \$23.65
- 80 COLUMN +64K RAM CARD FOR APPLE IIfx, guaranteed compatible #90CDL \$49
- RIBBONS FOR EPSON MX/RX #R38, #PR470 \$4.50ea 12 \$49.50
- RIBBONS FOR APPLE IMAGEWRITER, CITRON PROWRITER, #PR498 \$4.50ea 12 \$49.50
- COPY II FOR APPLE IIe/IIfx, backs up protected programs #C2AP \$39
- COPY II FOR MACINTOSH, backs up copy-protected programs #C2MAC \$39

UNI-NOTCH DISK NOTCHER

\$7.77

Cuts diskette prices in half #N1

RIGID-PAK DISKETTE MAILER/CARRIER

\$1

Holds 5 disks

SURGE PROTECTOR

\$19

Six switched outlets #RCP2

- A/B PARALLEL (#ABPAR) OR SERIAL (#ABSER) SWITCH BOX, your choice \$49
- UNIPAK CARDBOARD DISK MAILERS, holds 2 disks & letter, 6x8" #UNIPAK 10/55
- UNTESTED DISKS, returns from a major disk seller, most perfect! #HDISK 10/53
- WRITE PROTECT TABS, #TAB 100 tabs \$1.00, 1000 tabs \$9
- MEMORY EXPANSION RAMS, 150ms, 4164 (64K) \$1.40, 41256 (256K) \$4.35ea
- DISK DRIVE DUMMIE PANELS, full height #DHP or half-height #HHP \$1 each
- COMPUTER POWER CABLES, fits Apples, IBM & compatibles 5H #PCP \$2.22

HOW TO ORDER: Pay by MC-VISA-Amex-COD, or send check with order. Min order \$20, add \$3 for UPS shipping +\$2 if COD (no extra charge for credit cards). We can ship open account to schools, min school purchase \$100. FOB Unitech. All orders must include daytime phone and STREET address. MONEY BACK 30-DAY SATISFACTION GUARANTEE! SEND FOR FREE CATALOG LISTING 100'S OF COMPUTER BARGAINS!

UNITECH AMERICAN EXPRESS VISA MasterCard

20-A HURLEY STREET
CAMBRIDGE, MA 02141-2176
(617) "UNITECH"

800-343-4072

CIRCLE 160 ON READER SERVICE CARD

the Videx 80-column card. You can contact the company at (503)-758-0521.

Davka Corporation ([800] 621-8227) offers ItWorks for \$39.50. This program works with AppleWorks Version 1.1-1.3 and most memory and/or 80-column cards.

Norwich Data Services ([516]-922-9584) offers four versions of a program that works with AppleWorks Version 1.1-1.3; Plus-Works (\$19.95) gives you a desktop with a maximum of 10K RAM, Plus-Works-XM (\$49.95) works with most RAM and 80-column cards, Plus-Works-XMB (\$49.95) is a special version for Basis 108 computers, and Plus-Works-L (\$19.95) is a special version for Laser 3000 computers that gives you a 10K desktop.

Applied Engineering ([214]-241-6060) offers RamFactor, a memory card that goes into any slot from 1 to 7. You can add extra memory to expand it from 256K to one megabyte of RAM. It requires either a Videx or Viewmaster 80-column card. Although using this card is the most expensive route, it seems to be the most flexible and offers the most features. The card expands AppleWorks' desktop, increases the number of database records to 5100, increases the number of word-processing lines to 5100, and displays the time and date on the AppleWorks screen if your computer has any ProDOS clock. Additionally, AppleWorks performs faster if you move it into the card's memory. A battery backup option can save whatever is in the card's memory for up to 12 hours.

—CC +

Gary B. Little has written four books on how to program the Apple II and also wrote the Point-to-Point communications program.

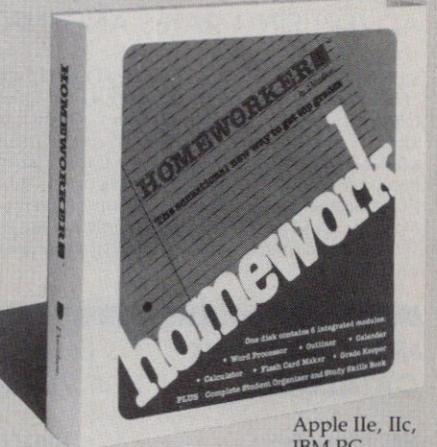
Chris Van Buren has written several books and manuals about microcomputing, including Lotus 1-2-3 and the IBM PC from New American Library. He is currently editor and publisher of the AppleWorks Exclusive Reference newsletter.

Craig Crossman is vice president of operations for an authorized Apple dealer in West Palm Beach, Florida. He is a contributing editor for other Apple publications and the Apple expert for The Source and Viewtron.

Please send your questions and problems to Rescue Squad, A+, 11 Davis Drive, Belmont, CA 94002.

HOMEWORKER

Making The Grade



Apple IIe, IIc, IBM PC.

Homeworker makes the grade and you will too! With Homeworker, you'll organize your thoughts, your time, even your study materials. And one integrated software package gives you all the tools necessary to study effectively.

- Textwriter** is Davidson's easy-to-use word processor. You'll write and edit assignments quickly and accurately.
- Outliner** helps you create an outline. Develop ideas in a zoom box. Then transfer material easily to the Textwriter to complete the paper.
- Flash Card Maker** lets you create flash cards. Test yourself on the screen or print cards to study away from the computer.
- Calendar** helps you plan your time efficiently. You'll organize your time as you enter dates for tests, assignments and activities.
- Grade Keeper** allows you to project and record your grades. It even computes your G.P.A.
- Calculator** does your computations quickly and easily. Conversion tables make it easy to change from one unit of measure to another.

The Homeworker package includes a program disk with six integrated modules, a deluxe student organizer with study accessories, an easy-to-read instructional manual, a study skills book and much more! Help yourself to top grades with Homeworker! **\$89.95**

CIRCLE 338 ON READER SERVICE CARD
Ask your dealer for this Davidson program or call us directly for assistance:

(800) 556-6141 (Outside California) (213) 534-4070 (California Only)

Davidson.
Educational Software That Works.

Davidson & Associates, Inc.
3135 Kashiwa Street, Torrance, CA 90505

ADVERTISING RATES AND INFORMATION

Standard listings consist of a bold lead line (25 characters maximum); 7 lines of body copy (45 characters per line); 4 lines for company name, address and telephone number. \$180 per insertion—3 issues minimum. Additional charge for extra lines and company logos. Prepayment and frequency discounts available. American Express, MasterCard, Visa accepted. Copy subject to publishers approval. Send typewritten or printed copy, reproducible logo art (if applicable) and remittance to Kathryn Cumberlander, Classified Sales Manager, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016. For additional information, assistance, or to place an order by phone, call collect (212) 503-5115.

► PUBLICATIONS/ CATALOGS

MACINTOSH Books

- Com. Perf.: Multiplan on the Mac \$19.95
- Creative Program. in Microsoft Basic \$18.95
- Excel in Business \$22.95
- Inside MacPaint \$18.95
- Macwork Macplay \$18.95
- The Apple Macintosh Book \$19.95
- Windows \$17.95

Ship/hnd. extra. MC/VISA/AE.
FREE Directory of Mac/Apple titles.
MICRO BOOKS
Box 4068
Richland, WA 99352
800/547-9755 Ext. 8 or 509-967-5084

► HARDWARE/ PERIPHERALS

MOUSETRACER

Use your Mac, Ile, or IIfc mouse and draw like the pros! Put cartoons, pictures, maps, etc. on the drawing board. Strap your mouse to the Mousetracer and with your favorite graphics program trace the picture of your choice. Works like a 1:1 drafting board pantograph. Send \$34.95 + \$3 UPS shipping (CA res add \$2.10 sales tax) to:

BRIMARK INNOVATIONS
9821 Yolanda Ave.
Northridge, CA 91324

► SOFTWARE/ ENGINEERING

STRUCTURAL ENGINEERING

FRAME-MAC (\$495) for 2D frame analysis & dsn. (with MacDraw-like intrfc.). BEAMAC II (\$295) for continuous beam anal. & design. BEAMAC (\$95) for simple beam anal. Any demo for \$10. Any # of nodes, section table on disk (except BEAMAC). Any # of loads of any static type. Various dgm. & text windows. Full Mac intrfc. \$-back guarantee. Info and support are free.

Erez Anzel
5800 Arlington Avenue #5T
Riverdale, NY 10471
(212) 884-5798

► SOFTWARE/ FINANCIAL

TECHNICAL ANALYSIS

PROFIT STALKER II integrated data base/charting/terminal emulation program for analysis of stock and commodity price movement. Bar & line charts include daily, volume, open interest, on-balance volume, moving averages, oscillators, & many others including point-and-figure, & spread tracking. Automatic download. For MAC 512K & Lgr. \$250. Info available.

Dept AA Button-down Software
PO Box 19493
San Diego, CA 92119
(619) 463-7474

► A+ DIRECTORY

ADVERTISING RATES AND INFORMATION

Standard listings consist of a bold lead line (25 characters maximum); 7 lines of body copy (45 characters per line); 4 lines for company name, address and telephone number. \$245 per insertion—3 issue minimum. Additional charge for extra lines and company logos. Prepayment and frequency discounts available. American Express, MasterCard, Visa accepted. Copy subject to publishers approval. Send typewritten or printed copy, reproducible logo art (if applicable) and remittance to Kathryn Cumberlander, Classified Sales Manager, Ziff-Davis Publishing Company, One Park Avenue, New York NY 10016. For additional information, assistance, or to place an order by phone, call collect (212) 503-5115.

► ACCESSORIES/ SUPPLIES

DISCOUNT PRICES!

5¼ Disks: 10 for \$5.50, 100 for \$50.00, 1000 for \$400.00. Modems: Novation, Hayes, Smarteam. Apple IIe professional for \$1199.00. Apple IIc for \$749.00. Printers: Star, Epson, Okidata, Panasonic, call for prices. Imagewriter ribbons: 6 for \$22. Monitors. Software always discounted 30%.
Sy Draft
26130 Greenfield Avenue
Oak Park, MI 48237
1(800) 321-2695/(313) 968-2620

► APPLE III

THE III MAGAZINE

Our 2nd Year!! The III Magazine is the source for owners of the Apple III, the best computer Apple ever made! An independent journal for III information, technical data, software reviews, business tips and fun. Tired of other publications neglecting your needs? For more details write or call:
THE III MAGAZINE
3201 Murchison Way
Carmichael, CA 95608
(916) 485-6525

► APPLE III

APPLE IIIs BEST FRIEND!

Pure and simple, no doubt about it, ON THREE is the best friend your Apple III will ever have. Other companies may sell programs that were developed years ago but ON THREE creates exciting NEW products for the III. Read about the Desktop Manager with Mac-like utilities, the 512K memory expansion upgrade, Draw On III Graphics and more in ON THREE magazine, the reference source for Apple III users. 12 big issues only \$40. Call Toll Free & charge to VISA, MC, AE. You'll be glad you did! FREE catalog. Questions? Call (805) 644-3514.
ON THREE, Inc.
4478 Market St.—Dept. A.—Suite 701-702
Ventura, CA 93003
ORDERS ONLY 1-800-443-8877

► COMPUTER INSURANCE

SURE IT'S INSURED?

If your computer is important to you, insure it! SAFEWARE provides full replacement of hardware, media and purchased software. As little as \$39 a year covers fire, theft, power surges, earthquake, water damage, auto accident. Call 8am to 8pm Mon. thru Fri. Sat. 9am to 5pm.
SAFEWARE. The Insurance Agency Inc.
2929 North High Street/P.O. Box 02211
Columbus, OH 43202
800/848-3469 (Nat); 614/262-0559 (OH)

►COMPUTER TRAINING

TYPE 'N WRITE

Teach the whole family from novice to expert. Speed, accuracy, and record keeping. School tested for two years and now available for home use. Send \$19.95 for two disks and Student Guide. All Apple IIs, but IIe or IIc needed for full word processing. \$55.50 for class 10 pack. M/C, Visa, P.O.

Computer Tutor Inc.
Box 12756
St. Louis, Mo. 63141
(314)-966-7370 (8 a.m.-5 p.m. CST)

►HARDWARE/ADD ON BOARDS

CIRTECH FLIPSTER

Liquidation sale: 1 Ramcard (Flipster). Regular \$399, sale price \$299.

- DOS 3.3, PRODOS, Pascal, CPM compatible.
- 1012K Appleworks Desktop
- Partitioning
- Install in any standard slot of Apple II or Franklin Ace 1000, 2000
- Free Appleworks Autoload software included.

For more information call (612) 546-5353. Orders call Toll-free.
Ampro, Ltd.
755 Florida Avenue South
Minneapolis, MN 55426
800-828-3399

►SOFTWARE/ACCOUNTING

APPLE IIe VERTICAL MARKET

Video Rental System Hotel/Motel System
Auto Parts Store Point of Sales
Restaurant Payroll Job Costing
Certified Payroll Florist Invoicing

Multi-user systems. Optional bar code reader & cash draw available plus optional integration into a full accounting system.
Westware Inc.
65 E. 400 South
Orem, UT 84058
(801) 226-8926

►SOFTWARE/ASTROLOGY

ASTER-PRO

Software analyzes, reports, and tutors about Birth Potentials, day-to-day Predictions, & Compatibility. We use it to prepare reports to clients. Compiled size 750K: professional & comprehensive. Reports 15-20 pages. Available for APPLE II plus/IIe/IIc 64K+.

\$60-any 1: \$120-any 2: \$180-for all 3.
ASTRORESEARCH
716 McLane Ave.
Morgantown, W.V. 26505
304-292-3008

►SOFTWARE/BUSINESS

DATABASE AND ACCOUNTING

Apollo Database and Apollo Accountant sell in stores for \$120 each. Your Cost: \$60 Each !!! (Both for \$99!). Highest Rating of any database package given by Creative Computing. Combines filing and spreadsheet; 50X Faster than Appleworks! Apollo Accountant allows unlimited transactions, accounts, categories.
Schmidt Enterprises
7448 Newcastle Ave
Reseda CA 91335
(818) 342-5930; Outside CA: 800 232-6777

►SOFTWARE/BUSINESS PROJECT MANAGEMENT

EVERYBODY'S PLANNER

The Planning Tool for the Rest of Us. Project Management & Flowcharts made easy. PERT charts W/54 tasks, critical path, 216 resources, early-late, start & finish dates. 7 reports, optional costing. Infinite Activated flowcharts, 20 shapes-9-sizes, 3 fonts. 64K Apple, IBM \$99.95+ \$s/h. VISA/ck.
Abracadata, Ltd.
P.O. Box 2352-A
Eugene, OR 97402
503-342-3030

►SOFTWARE/COMMUNICATIONS

APPLE II/MAINFRAME LINK

• True IBM 3780 and/or 3270 emulation • Error-free bisynchronous data transmission at speeds of 2400-9600 baud • Ideal for medical claims submission to Blue Cross/Blue Shield • Approved for direct connection to the IBM Information Networks Insurance Communication Service • Interfaces to all major IBM operating systems.
URGEO SOFTWARE INC.
PO BOX 305
Cheney, WA 99004
509-838-6058

►SOFTWARE/EDUCATIONAL

GRADE MASTER

Choice of educators everywhere!! A fast efficient "professional" grade management system for K-College teachers. Easy grade entry/change, flexible set-up, professional reports on screen or printer. Brochure, review, and user comments on request. Demo disk \$5. Apple II+/e/c & IBM. \$79+\$4 s/h TX 5.125% tax. VISA MC.
ENCODE (formerly Micro-Vision)
PO BOX 5070
Klingwood, TX 77325
(713) 358-6687

TEACHER'S TEST MAKER!

QuickTests™ quickly finds questions on disks and prints tests. You can enter any question type (e.g. fill-in), MATH, SCIENCE, FOREIGN LANGUAGE and normal keyboard characters can be used! \$5 demo. Complete package (\$180 + \$2.50 s/h). Apple IIe (with extended 80-col. card) or IIc.
Seven Hills Software. Corp.
2310 Oxford Road
Tallahassee, FL 32304
(904) 576-9415

►SOFTWARE/ENGINEERING

SPEAKER SYSTEMS DESIGN

Low frequency speaker/enclosure design with graphic response curves for ported or closed box designs. Computer modeling or custom designs or any combo. Port design for enclosures to any frequency. Full report printout includes graphs and data tables. Apple IIs, 64K, w/80 column. Complete: \$29.95.
DCL Company
6340 S.W. 145th St.
Miami, FL 33158 305-232-2199

►SOFTWARE/GAMES

TRADE APPLE II SOFTWARE

(II+,e,c) We have thousands of the newest and best adventures, arcade games, graphics software, and much more available for trading. Stop paying outrageous prices for the software that you want. Write for full details about this exciting new service and save big \$\$\$!

ADVENTURE HELPERS
360 W. Pleasantview Ave., Dept AT
Hackensack, NJ 07601
(201) 646-9168

►SOFTWARE/GENERAL

DESIGN YOUR OWN LABELS!

Use PRO LABEL to design & print multi-purpose labels for office, shop, lab, and home. Name badges, disk labels, parts ID stickers, mail labels, & more. Set size, design label, then print 1 to 1000. Intermix variable and fixed fields & fill in changeable data when printing. Do serial numbers & date stamping. Use our 20 pre-designed formats or make new ones. 100 labels, pgm, manual: \$19.95 + \$1 shpg. 128K IIe/IIc & all printers. Free Fact Sheet.
MICRO DATA SERVICES
P.O. Box 631
Marshalltown, IA 50158
1-800-634-5463, IA 800-542-7981

►SOFTWARE/GRAPHICS

PRINT SHOP USERS CLUB

We help you get the most of Print Shop! The \$30.00 membership fee includes: 1200+ Graphics on 6 disks, a Utilities disk, and one issue of the club newsletter-Update Disk (with articles and 100+ more graphics). Additional 3 issues of the Update Disk—\$25.00 Send (Check/MO/Visa/MC) or a SASE for graphics list to:
Print Shop Users Club
Box 216
Mercer Island, WA 98040
(206) 232-8272

SOFTWARE/ GRAPHICS

THE DGI TYPESHOP

creates text signs and overheads. It offers a quick, easy and economical way to give that professional look to everything, from presentation aides to party invitations. Math, foreign language and optional fonts are available now. For the APPLE and Hewlett Packard or compatible plotters. \$175. DECISION GRAPHICS, INC. P.O. Box 2776-A+ Littleton, CO 80161 303 796-0341

!! CLIPCATURE !!

Make NEWSROOM CLIP ART DISKS from Print Shop graphics, Newsroom photos, hires text or pictures! Or, produce PRINT SHOP GRAPHICS from clip art, hi-res pictures, or Newsroom photos! Charge to MC, VISA at 1-800-628-2828 ext. 863 (orders only), or send \$24.95 + \$2 S/H (WI add 5%) to: CLIPCATURE A+ 477 Windridge Drive Racine, WI 53402

SOFTWARE/ PERSONAL

KITCHEN PLANNER

Create a 1-14 day Menu and Shopping List in less than 5 min. The only program available which both composes balanced meals and lets you change them! It's also the fastest and easiest to use. Compact, useable printout. To order send \$29.95 + \$1.50 (handling) or call with VISA/MC. All Apple II's. CA add 6 1/2%. SAV-SOFT PRODUCTS P.O. Box 24898 San Jose, Calif. 95154 (408) 978-1048

SOFTWARE/ REAL ESTATE

ELECTRONIC HUD SETTLEMENT

Appleworks or Supercalc 3a template calculates cash required from purchaser and cash payable to seller of Real Estate. Sales prices to \$999,000. Prints page 1 & page 2 of HUD form and a cash in and out check. Template requires 128K RAM. RELEASED.7/85...PRICE \$29.95 Lotus 1-2-3- version \$95. WEBER ABSTRACT Suite 820 One Oxford Valley Langhorne, PA 19047 (215) 750-7550

SOFTWARE/ SCIENTIFIC

STATISTICS CATALOG!

If you need statistics for Apple II, II+, IIe or IIc, call us. Our catalog contains professional programs for: general statistics, high level Anova, multiple regression quality control, and associated graphics. Write or call now for a free catalog of quality statistics software. HUMAN SYSTEMS DYNAMICS 9010 Reseda Blvd. Suite 222 Northridge, CA 91324 1-800-451-3030, 1-818-993-8536 in CA

SOFTWARE/ SPREADSHEET

APPLEWORKS FINANCE FILES

Professional Personal or Business finance files. PPF or BFF turn your office/home computer into something more than a wordprocessor. PFF: Checkbook, mortgage loan, interest rate analysis and more. BFF: Balance sheet, cost-benefit analysis, depreciation etc. Excellent booklets. \$19.95 ea/ Post Paid. Req. IIe/IIc AppleWorks. Practical Computer Applications 2323 Tucker Ct. Santa Rosa, CA 95401-2374

SOFTWARE/ STATISTICS

STATISTICS/FORECASTING

ELF—The Statistical Package—a general purpose statistical package. \$250. TWG/ARIMA—a univariate Box-Jenkins forecasting package, designed for statisticians. EASI/ARIMA—same as above, for the non-statistician. \$350 each. Call or write for more information. THE WINCHENDON GROUP, INC. P.O. Box 10339 Alexandria, VA 22310 (703) 960-2587

SOFTWARE/ UTILITIES

FREE PASCAL NEWSLETTER

Interested in Apple Pascal? Send your name and address for a free one year subscription to our newsletter/catalog. Includes tips, news, and information about the world of Apple Pascal. Also included is a catalog of Pascal programs and utilities. Most programs and utilities have an average price of less than \$10 and include full source code. Palos Computer Concepts PO Box 560 Palos Park, IL 60464

PFS FILE USERS

The "BRIDGE" gives you the ability to extract data from PFS FILE™ to either an ASCII, text file or a DIF FILE. Extracted data can be used with word processors, spreadsheets, for conversion to other data bases (Appleworks™), or for transmission to other computers. All APPLE II's. \$59.95. SUN MICROSYSTEMS, INC. P.O. Box 1388 Ft. Lauderdale, FL 33302 (305) 486-6115

PRODOS FOR STARFIRES

Attention Corona Starfire users you can now add a ProDos software driver to your Corona Hard Drive. You know how convenient and user-friendly your Corona Hard Disk is. Take advantage of the power of ProDos and the convenience of the Corona Hard Drive. For Apple II+e w/min 64K. \$49.95+\$3.s/h Law Industries 3387 W. Corning St. New Bury Park, CA 91320 (805) 498-8268 (evenings/weekends)

CAPE COD CONVERTIBLE

Converts BASIC programs (end manual edit) APPLESOFT from/to IBM-PC BASIC APPLESOFT from/to APPLE CP/M APPLE CP/M from/to IBM-PC BASIC One-way \$150. Round trip \$225. Other utilities included are: string search, list program variables, text file comparison. CAPE COD SOFTWARE, INC. POB 654 North Eastham, MA 02651 (617) 255-9537

SOFTWARE/ STOCK ANALYSIS

STOCK MARKET STRATEGY

Charts and Reports for up to 50 stocks per disk. When and Amount to Buy or Sell. List and Copy all programs. Manual and 2 Disks \$49.95. Demo Disk \$10.00 Refunded with purchase of program. 1 or 2 Drives. 11, +, C, E. Adaptable to other systems. Copy protection and Customization free on request. Allow 14 days delivery. R.O. Keen, KeenTECH Software 8340 Addison Dr. S.E. Calgary T2H 1P1 Alberta, Canada.

SOFTWARE/ STRATEGIC GAMES

BARD'S TALE PLAYERS!

EDITOR and HINTBOOK for Bard's Tale Editor allows you to change name, class, race, exp. gold. Bring the dead back to life. Put hit and spell points to 65000! Strength to 31! Have warriors cast spells! Hintbook has hints and maps for all dungeons (20 pages). Editor \$15.95. Hintbook \$9.95. Visa/MC, ck/ mo + \$2.00 s/h. S&D Software P.O. Box 223458 Carmel, CA 93922 (408) 649-5592

SW/WORD PROCESSING

APPLEWRITER ENHANCER IIE

Bring out the full potential of Applewriter! Applewriter Enhancer is a collection of POWERFUL WPL programs designed for a small office. Many simplified features: All DOS/LOAD commands from convenient SCROLLABLE CATALOG; AUTOPRINTING; Limited CALCULATOR; CHRONOLOGICAL File; FORM Letters; and more. Just \$29.95. DOS 3.3 or ProDos. Kent, CT 06757

USED EQUIPMENT

USED COMPUTER PRODUCTS

National Listing Service. Buy or sell used products directly from 1000 now listed. It's easy. Our Price Estimating and Mailing services can help you. SAVE MONEY. Is it worth paying more for new? NO CHARGE for Buying. NO RISK for Sellers—6% fee when sold (\$20 min., 3% over \$5000). Any product over \$100. Use a touch-tone phone if you can. If you do, we are open 24 hours every day. Comp-Used 203-762-8677

MISCELLANEOUS/ ACCESSORIES SUPPLIES

DUST COVERS WITH GUARANTEE

Vinyl dust covers lint free & water resistant Apple II or IIe \$7.50 Apple IIc, Scribe Printer or Imagewriter reg. carriage \$8.50 Apple IIc disk drive \$7.50 Apple IIe monitor on CPU \$16.00 & many more. Colors: blk., brwn., base, tan, white. S.A.S.E. for more info. Add \$2. s/h. Chk/MO/VISA/Mastercard accepted. J/Check Software P.O. Box 345 Milly, AL 36558 (205) 846-2360

SUPER INDEX

POWERFUL DATABASE on a disk summarizes every article, review, program, letter & tip in A+ Magazine.

Cross-references corrections & updates.

Ends searches thru stacks of magazines

A "tip-book" citing 1000's of solutions.

Like owning a "helpline" for little more than the price of a single long-distance phone call!

GUARANTEED to save you TIME and MONEY.

\$5 for 1985, \$9 for 1983 thru 1985

FASTFIND Not Copy-Protected

High-speed search utility. Searches any 100 sector text file in 1 second. Loads them in 6 seconds. AND/OR/NOT logical operators & wild card. Searches multiple files & disks with single keypress. Up to 100 times FASTER than word processors! Finds lost files, even if you forget their names! A.P.P.L.E.'s BEST SELLER. Bonus super-fast, hard disk compatible SPEEDOS. Prints reports. Any APPLE II or III. List \$29.95

\$12 & get '83 thru '85 INDEXES **FREE**

(Add: \$2 Ship/hand., CAL. res. 6.5%, credit cards 4%, overseas \$3)
FASTFIND CO., 28503 Coverage Dr. #A, RPV, CA 90274
[Modem: 213/377-0804] VISA/MC 213/544-2350

CIRCLE 600 ON READER SERVICE CARD

TERMINAL EMULATION

Softerm 2 emulates over 24 popular terminals including the:

- DEC VT52, VT100, VT102
- Data General D200
- IBM 3101-20 (block mode)
- Hewlett-Packard 2622A
- Honeywell VIP7801, VIP7803

Guaranteed Compatibility

Call for free product brief

\$195 MC-VISA-COD

For the Apple II, II+, IIe, IIc and compatibles

SOFRONICS

7899 Lexington Dr., Ste 210
Colorado Springs, CO 80918
(303) 593-9540

CIRCLE 601 ON READER SERVICE CARD

DID YOU KNOW

A+ readers participate in one of the biggest events in Apple Computing every year? They select The Best Software Of The Year every October. Look for your A+ Readers' Choice Software ballot in the October issue and choose the Best Software of the Year!

NEW!



SafeSkin™
KEYBOARD PROTECTOR

Remains in place during keyboard use. Prevents damage from liquid spills, dust, ashes, etc. Fits like a second skin, excellent feel. Available for: IBM-PC, AT, Apple (all), Compaq, Model 100, NEC 8201, C64, Zenith 150, DEC, Kaypro, KB5151, AT&T 6300, WYSE 50 and many others, Send \$29.95, check, M.O., Visa & MC include exp. date. Specify computer type. Dealer inquiries invited. Free brochure avail.

Merritt Computer Products, Inc.
2925 LBJ Fwy, #180 / Dallas, Texas 75234
(214) 339-0753

CIRCLE 602 ON READER SERVICE CARD

ComputerEyes™

CALL TOLL FREE
1 (800) 523-2445, x48
In PA (800) 346-7511, x48



- Make Custom T-SHIRTS
- Take Computer Portraits
- Interface to ANY Standard Video Source (ex. VCR, Video Camera, etc.)

Computer Eyes™	
For APPLE (II, II+, IIe, IIc)	\$109.00
Software interface to:	
Print Shop	12.00
Double Hi-RES (IIe)	12.00
Newsroom	12.00
Panasonic/Ikegami Commercial grade B/W video camera	159.00
Special Hook-up 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

Also Available for ATARI, C-64 and IBM

HAL Systems, PO Box 293,
Scotch Plains, N.J. 07076

*** DEALER INQUIRIES INVITED ***

CIRCLE 603 ON READER SERVICE CARD

Stop Grading Tests!



The Assistant Teacher offers an integrated solution. It combines test preparation, automated scoring, gradebook management, and analysis functions into one program. Runs on all Apple II-series computers.

See your dealer or contact:
Overdrive Computer Corporation
1562 Moorings Drive Dept. M
Reston, VA 22090
(703) 471-0959

CIRCLE 605 ON READER SERVICE CARD

BUY DIRECT AND SAVE FULLY APPLE COMPATIBLE

Z-80 CP/M Card	\$ 39
80 Column Card w/Inverse (Videx compatible)	\$ 58
Autoterm 80 Col w/Softswitch & Inverse (Videx comp.)	\$ 68
Extended 80 Col w/64K Apple IIe	\$ 45
Disk Controller for 2 Drives	\$ 39
Parallel Printer Card w/Cable (Epson comp.)	\$ 37
Graphic Printer Card w/Cable (Parallel)	\$ 48
1200/300 Baud Modem External (Fully Hayes compatible)	\$175
Super Serial Card w/Cable	\$ 80
16K RAM Card w/Cable	\$ 37
128K RAM Card w/Software & Instructions (Titan, Saturn compatible)	\$110
Numeric Key Pad for Apple IIe	\$ 39
Super Cooling Fan w/2 outlets	
Lighted Switch, Surge/Filter	\$ 34
Joy Stick all Metal, Heavy Duty, Fine Tuning, self centering Apple II/II+, IIe & IIc (Specify)	\$ 25
Diskette Storage Box w/Lock & Key, Holds 100	\$ 15
Disk Notcher w/Guide, All Steel, Square Cut	\$ 8
Slim Disk Drive - Direct Drive w/Elec Sensor, Super Quiet, 1 Yr Warranty - Apple II+/IIe	\$120
Apple IIc	\$130

ASSEMBLED, TESTED & 6 MONTH WARRANTY
Shipping & Handling Under \$100/10% — Over \$100/5%
School & Institutional P.O. Accepted - Dealer Inq. Invited
HOURS: MON-FRI 9-6 EST

COMPUTER SUPPLY

P.O. BOX 164A, VALLEY STREAM, NY 11582

(516) 239-1854

CIRCLE 607 ON READER SERVICE CARD

AD INDEX

BY PRODUCT CATEGORY

ACCESSORIES

	PAGE
CARRYING CASES	
Fiberbilt	24

	PAGE
DISKS	
Echo Data	92
TDK Electronics	48

	PAGE
MISCELLANEOUS	
Computer Cover	104
Nikrom	88
Pacific Tech Systems	128

BOOKS

	PAGE
Bristen Press	128

HARDWARE

	PAGE
DISK DRIVES/STORAGE DEVICES	
CMC Computer Supplies ..	128

	PAGE
INTERFACE CARDS	
Applied Engineering .	10,44,2,3 113,115,117,119,90,60,53
AST Research, Inc.	14
Legend Industries	71
Ohio Kache Systems	83

	PAGE
MISCELLANEOUS	
Cauzin Systems	50,51
Central Point Software	61,77,89

	PAGE
Computer Friends	78
Covox, Inc.	16
Gridcomm	27
Innovative Micro	17
Kalglo	16
Kensington Microware Cover 4	
Swyftware/Information Appliance	127
Quorum International Unlimited	70

	PAGE
MODEMS	
Hayes Microcomputer Products, Inc.	37

	PAGE
PRINTERS/PRINTER ACCESSORIES	
Dresselhaus	12
Texprint	76

MAIL ORDER

	PAGE
Business Computers of Peterborough	79
Coit Valley Computers	49
CDA World of Computers	101,22
Computer Network	124
Conroy-LaPointe	47
Jameco Electronics	74
JDR Microdevices	91
Northeastern Software	72,73
PC Network	102,103
Precision Data Products	110
Preferred Computing	68
Programs Plus	34,35
Ribbon Land	52
Roger Coats	122
Silicon Express	67
Unitech	129
Zimco	66

SOFTWARE

	PAGE
BUSINESS	
H & E Computronics ..	Cover 2
Pinpoint Publishing ..	55,56,57
Public Domain Exchange ..	63

	PAGE
COMMUNICATIONS	
PBI Software	126

	PAGE
DEVELOPMENT SYSTEMS	
Interactive Microware	86
Statsoft	17

	PAGE
EDUCATION	
Davidson & Associates	127,129
HesWare	87
Sliwa Enterprises	92

	PAGE
ENTERTAINMENT/STRATEGY	
Electronic Arts	8
Infocom	84
Interlude	111
Marathon Software	82
Microprose	116
Mindscape	19
Professor Jones	88
Sublogic Corporation	4

	PAGE
GRAPHICS	
Baudville	38
1990 Software	86
Sensible Software	13,36,46,61,62
Spectral Graphics Software ...	5
Springboard Software	1

	PAGE
MISCELLANEOUS	
Batteries Included	80,92
Bible Research Systems	71
Big Red Apple Club	110
Compucrafts	36
Davka	62
Megahaus	39
Norwich Data Services	136
Plume Software	128
Rolodex	114
Sensible Software	13,36,46,61,62
Uptime	123

	PAGE
PERSONAL BUSINESS-HOME	
Chase Manhattan	23
HowardSoft	Cover 3

	PAGE
UTILITIES	
Alpha Logic Business Systems	85

	PAGE
Beagle Brothers	54
Central Point Software	61,77,89
Pro/Pac	136
Thirdwave Technology	12
Utilico Microware	36

	PAGE
WORD PROCESSING/SPELLING CHECKERS	
Batteries Included	80,92
Peachtree Software	25
Quorum Interational Unlimited	70
Sensible Software	13,36,46,61,62

ALPHABETICAL AD INDEX

READER SERVICE NO. PAGE

A

- 259 Alpha Logic Business Systems.....85
 * Applied Engineering...10
 * Applied Engineering...44
 * Applied Engineering...2,3
 * Applied Engineering...113
 * Applied Engineering...115
 * Applied Engineering...117
 * Applied Engineering...119
 * Applied Engineering...90
 * Applied Engineering...60
 * Applied Engineering...53
 323 AST Research, Inc.14

B

- 185 Batteries Included.....92
 186 Batteries Included.....80
 310 Baudville38
 148 Beagle Brothers54
 158 Bible Research Systems.....71
 113 Big Red Apple Club ..110
 166 Bristen Press128
 * Business Computers of Peterborough79

C

- 141 CDA World of Computers22
 235 CDA World of Computers101
 120 Cauzin Systems50-51
 184 Central Point Software .61
 187 Central Point Software .77
 194 Central Point Software .89
 * Chase Manhattan23
 215 CMC Computer Supplies128
 105 Coit Valley Computers .49
 * Compucrafts36
 271 Compuserve118
 136 Computer Cover Co ..104
 195 Computer Friends78
 137 Computer Network ...124
 129 Conroy-LaPointe, Inc. .47
 * Covox, Inc.16

READER SERVICE NO. PAGE

D

- 337 Davidson & Assoc. Inc.....127
 338 Davidson & Assoc. Inc.....129
 302 Davka Corp.62
 339 Dresselhaus Computer Products12

E

- * Echo Data Services, Inc.....92
 168 Electronic Arts8

F

- 164 Fiberbilt24

G

- * General Electric Information Service.....64
 200 GridComm, Inc.27

H

- 296 Hayes Microcomputer Products, Inc.....37
 335 H&E Computronics Inc.....Cover 2
 * HowardSoft.....Cover 3
 147 Hes Ware87

I

- 225 InfoCom.....84
 153 Innovative Micro.....17
 324 Interactive Microware ..86
 177 Interlude.....111

J

- 279 Jameco Electronics74
 167 JDR Microdevices91

K

- 117 Kalglo Electronics16
 134 Kensington Microware ..Cover 4

READER SERVICE NO. PAGE

L

- 287 Legend Industries, Ltd.71

M

- 293 Marathon Software82
 260 Megahaus Corporation39
 205 Microprose.....116
 230 Mindscape19

N

- 212 1990 Software86
 329 Nikrom88
 304 Northeastern Software.....72,73
 101 Norwich Data Services136

O

- 178 Ohio Kache Systems Co.83

P

- 199 Pacific Tech Systems.....128
 241 PBI Software126
 315 PC Network.....102,103
 318 Peachtree Software25
 239 Pinpoint Publishing.....55
 239 Pinpoint Publishing .56-57
 320 Plume Software128
 228 Precision Data Products110
 * Preferred Computing ...68
 132 Professor Jones88
 299 Programs Plus34,35
 172 Pro/Pac136
 256 Public Domain Exchange.....63

Q

- 223 Quorum International...70

READER SERVICE NO. PAGE

R

- 202 Ribbon Land52
 109 Roger Coats122
 182 Rolodex Corp.114

S

- 106 Sensible Software46
 227 Sensible Software13
 165 Sensible Software36
 325 Sensible Software61
 155 Sensible Software62
 231 Silicon Express67
 133 Sliwa Enterprises Inc.....92
 139 Spectral Graphics Software5
 261 Springboard Software ...1
 207 Statsoft17
 110 Sublogic4
 * Swyftware/Information Appliance127

T

- 173 TDK Electronics48
 343 Texprint76
 146 Third Wave Technology12

U

- 160 Unitech129
 219 Uptime, Inc.123
 190 Utilico36

Z

- 126 Zimco.....66

PRO/PAC™

Professional Software Packages

14925 Memorial Drive, Suite 123, Houston, Texas 77079
(713) 496-1179 Dept. A

PCP-PRINTER CONTROL PROGRAM

PRINTER CONTROL PROGRAM will help you set up your dot matrix printer with just the "touch of a key". This menu-driven pre-boot program allows you easy access to your printer's various fonts.

Join the thousands of satisfied users of the "ORIGINAL" PRINTER CONTROL PROGRAM—a user-friendly utility that sends command codes to program your printer for such print choices as: Bold, Emphasized, Double-Wide, Italics, NLQ and many combinations. Of course, the exact options depend upon the printer model but ALL versions offer many features.

PCP allows you to preview your choice of printstyle and make any changes you desire. PCP is available for all Apple II and III computers with dot matrix printers such as Apple DMP, Imagewriter I/II, Epson, C.Itoh, NEC, Okidata, Star, Panasonic, Canon and many others. New printers are added frequently.

We believe that PCP will help you to use the many features of your printer quickly and easily. Be sure to specify your computer and printer for receipt of the correct version. Only \$29.95 plus \$2.00 for shipping. "Just the touch of a key" can set your printer up to print your way!

WE NOW OFFER SOFTWARE & HARDWARE!

PINPOINT	\$45
TIME IS MONEY	\$68
PRINT SHOP	\$36
GRAPHICS LIBRARY	\$19
NEWSROOM	\$36
CLIP ART COLLECTION	\$29
MIND PROBER	\$36
TYPING TUTOR III	\$36
WHERE?CARMEN SAN DIEGO	\$29
SENSIBLE SPELLER	\$75
SENSIBLE GRAMMAR	\$60
ALL PFS SERIES	FROM \$70

APPLIED ENGINEERING PERIPHERALS

RAMWRKS II 64K	\$142
RAMWRKS II 256K	\$175
RAMWRKS II 512K	\$215
Z-RAM 255K/512K	\$207/\$311
RGB	\$106
TIMEMASTER	\$106
Z-80+ & Z-80C	\$113/\$129
VIEWMASTER	\$112
//C SYSTEM CLOCK	\$ 63
TRANSWARP	\$223
DISK DRIVES	\$113

KENSINGTON SYSTEM SAVER -	\$67
DISKETTES - NAME BRAND & BULK	BONUS-\$8.95
PRINTER INTERFACE CARDS	
GRAPPLER PLUS -	\$78
IMAGEBUFFER -	\$72
RAM CHIPS/DUST COVERS/RIBBONS	

THESE ARE JUST EXAMPLES. ALWAYS AT DISCOUNT PRICES - AT LEAST 20% OFF RETAIL. CALL OR WRITE FOR CATALOG.

THIS IS THE SMALL PRINT:

Prices, availability and specifications are subject to change. Returns require prior authorization. Texas residents must add appropriate sales tax. VISA and MasterCard orders not charged until we ship. Cashier's Check or Money Order payment may deduct 2% from merchandise total. S/H charges: \$2.00 Minimum, Software \$2.00 each, AE products-\$5.00 each, Diskettes-\$2.00/10. UPS ground shipping in the continental USA. Add \$5 to total for shipment to P.O. Boxes, APO, FPO or Foreign countries.

CIRCLE 172 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 full ASCII keyboards
- Supports all major 80 column cards
- Permanent and dynamic ram disk features
- All versions of AppleWorks supported, even V1.3
- Expand AppleWorks desktop into CP/M ram cards
- Optional patch to help with printer problems

•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 for \$30.00 at any time.

•PLUS-WORKS-XM - \$49.95 plus \$3.00 ship/hand. Requires same as above with legend, saturn, or compatible ram card(A.P.P.L.E. Big board, know Drive, prometheus, etc), Apple Computer's memory expansion card, Microtek ram card, Orbital disco-ram, PCPI Applicard, Micropro Star card, IBS AP33 ram card, or Apple IIe with ramcard.

•PLUS-WORKS-XMB-Special version for Basis 108, \$49.95 plus \$3.00 ship/hand

•PLUS-WORKS-L - Special version for Laser 3000, 10K desktop - \$19.95 plus \$3.00 ship/hand.

•Special combination offer - PLUS-WORKS-XM & 256K Apple Memory expansion card (expandable to 1 megabyte) - \$295.00

MC/Visa add 4%

Orders only 1-800-221-3826

Information, Alaska & New Jersey residents call 516-922-9584

or send check or money order to:

Norwich Data Services
PO 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.

CIRCLE 101 ON READER SERVICE CARD

Coming Soon



Installing a Write-Protect Switch for the IIc
Word-Processing Update and Chart
ProDOS for Beginners

Reviews:

CommWorks

PROFILER

MacroWorks

Panzer Grenadier

Fokker Triplane Flight Simulator

Paul Whitehead Teaches Chess

Alter Ego

Silent Service

Macintosh Coverage:

dMac III: a dBASE III clone

Introducing Microsoft Works

Microsoft Works Tutorial

READER SERVICE CARD

Use this card to get more information about advertised products.



101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130
 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160
 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190
 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220
 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280
 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310
 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340
 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370
 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400
 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430
 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460
 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490
 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520
 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550
 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580
 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610
 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640

Please indicate which of the following microcomputers you currently own and/or plan to buy in the next 6 months.

Please indicate which of the following types of software you plan to buy in the next 6 months.

	(1.) Own	(2.) Plan to Buy
Apple II	A	H
Apple II+	B	I
Apple IIe	C	J
Apple IIc	D	K
Macintosh	E	L
Other (specify)	F	M
None	G	N

	(3.) Plan to Buy 1-3 Months	(4.) Plan to Buy 4-6 Months
Business Software for Office	T	Y
Business Software for Home	U	Z
Educational Software	V	I
Entertainment Software	W	2
Programming Software	X	3

PLEASE PRINT CLEARLY—Use only one card per person

Name _____ Phone No. (_____) _____
 Company _____ Title _____
 Address _____ Apt. _____
 City _____ State _____ Zip _____
 (Zip code must be included to insure delivery)

4. Please send me one year (12 issues) of A+ for \$19.97 and bill me—I'll save 44% off the single copy price!

A+9862

READER SERVICE CARD

Use this card to get more information about advertised products.



101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130
 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160
 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190
 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220
 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280
 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310
 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340
 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370
 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400
 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430
 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460
 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490
 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520
 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550
 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580
 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610
 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640

Please indicate which of the following microcomputers you currently own and/or plan to buy in the next 6 months.

Please indicate which of the following types of software you plan to buy in the next 6 months.

	(1.) Own	(2.) Plan to Buy
Apple II	A	H
Apple II+	B	I
Apple IIe	C	J
Apple IIc	D	K
Macintosh	E	L
Other (specify)	F	M
None	G	N

	(3.) Plan to Buy 1-3 Months	(4.) Plan to Buy 4-6 Months
Business Software for Office	T	Y
Business Software for Home	U	Z
Educational Software	V	I
Entertainment Software	W	2
Programming Software	X	3

PLEASE PRINT CLEARLY—Use only one card per person

Name _____ Phone No. (_____) _____
 Company _____ Title _____
 Address _____ Apt. _____
 City _____ State _____ Zip _____
 (Zip code must be included to insure delivery)

4. Please send me one year (12 issues) of A+ for \$19.97 and bill me—I'll save 44% off the single copy price!

A+9861



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

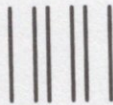
FIRST CLASS PERMIT NO. 27346 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE



Apple II/Macintosh
THE INDEPENDENT GUIDE TO APPLE COMPUTING

P.O. Box 40317
Philadelphia, PA 19106-9931



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

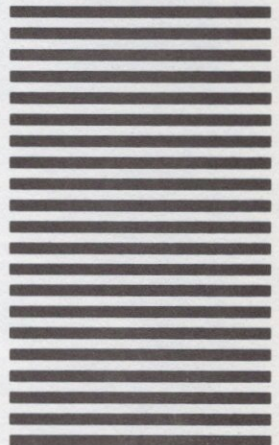
FIRST CLASS PERMIT NO. 27346 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE



Apple II/Macintosh
THE INDEPENDENT GUIDE TO APPLE COMPUTING

P.O. Box 40317
Philadelphia, PA 19106-9931



The Intelligent Decisionmakers

As an investor, your decisions depend on accurate, timely information.

The problem is that most of today's investment tools are based on outdated "guidelines" and unrealistic rules, so they can't give you the quality analyses you need to make intelligent decisions.

At HowardSoft®, we create software that's appreciated by both the inexperienced user and the seasoned pro. Real tools for real decisions.

Real Estate Analyzer®

There's a terrific piece of property you'd like to get involved with. But what happens if interest rates rise, rents fall, inflation soars? HowardSoft's Real Estate Analyzer tells you with realistic projections under today's conditions.

Because HowardSoft knows taxes, your after-tax analyses of cash flow and profitability are based on real tax laws, not outdated rules.

And you don't have to be a computer whiz or a real estate expert to use Real Estate Analyzer. Well-planned menus, clear prompts, and a manual filled with examples help you get the most from the program (and your investment) and make it a veritable education in investment analysis.

Tax Preparer®

Your taxes affect every financial decision

you'll make this year. With Tax Preparer you can produce complete returns for filing with the IRS, and even organize your data for next year to make intelligent tax planning decisions. You enter information as it accumulates. Then each update lets you apply the data to the new tax forms in a matter of minutes.

Tax Preparer handles changes easily, calculates quickly and accurately, and — at the touch of a key — delivers error-free printouts ready to sign and drop in the mail. With crystal clear instructions, and the most used forms and schedules, no wonder Tax Preparer is the #1 selling tax program.

Intelligent Software

Both packages help make running your finances easier and more effective. Each works with either the Apple II series, the IBM-PC, or a select range of PC compatibles. Each does the work of software costing many times its price. And each leads the field in accuracy of information and ease of use.

Real Estate Analyzer and Tax Preparer.

Intelligent investment for intelligent investors. Available at your dealer now.

HowardSoft.®
The software investment
you can count on.



1224 Prospect Street, Suite 150
La Jolla, CA 92037 • (619) 454-0121

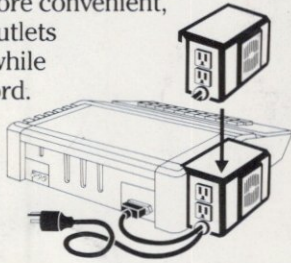
Now available
for the Macintosh™
System Saver Mac!
Call for details.

MORE THAN 1/4 MILLION APPLE II'S SAVED

SYSTEM SAVER® from Kensington Microware quietly protects more than 1/4 million Apple® II's every day. Often referred to as "the piece Apple forgot," System Saver's unique combination of features have made it the most versatile, most convenient, best selling accessory ever made for the Apple.

System Saver organizes your power needs.

To make your Apple system more convenient, System Saver provides extra outlets for your monitor and printer, while replacing the Apple's power cord. One front-mounted power switch controls your whole system.



System Saver solves power line problems.

Impurities in the power supply cause 70-90% of all microcomputer malfunctions. Line noise can be interpreted as data, confusing your Apple and causing annoying system errors. Power surges and spikes can do costly damage to your computer's delicate circuitry.

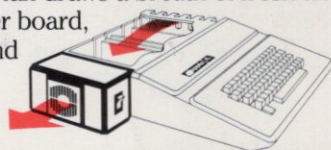
System Saver clips surges and spikes at a safe level and filters out line noise. It makes your Apple more accurate, more efficient and more reliable.

System Saver keeps your Apple cool.

Peripheral cards added to your Apple not only generate heat, they block any natural air flow through the computer. The resulting high temperature conditions can potentially shorten the lives of both your Apple and your peripheral cards.




System Saver's quiet fan draws a breath of fresh air across the Apple's mother board, over the power supply and out the side ventilation slots at the rate of 17 cubic feet per minute.



More than 1/4 million Apple owners think of System Saver as the piece Apple forgot. And 1/4 million well-protected Apples agree.

For a dealer near you, or to speak to a Kensington sales representative, call toll free (800) 535-4242
In NY (212) 475-5200.

KENSINGTON™ 

CIRCLE 134 ON READER SERVICE CARD