$2.95

A+

JUNE 1985

VOLUME 3
ISSUE 6

INCLUDING MACINTOSH COVERAGE

13 DATABASES COMPARED

FRONT DESK REVIEW

MEGAHAUS SERIES REVIEW

THE INDEPENDENT GUIDE FOR APPLE COMPUTING

Downloaded from www.Apple2Online.com

IMPROVING YOUR COMPUTER WORK SPACE

Ergonomics

SELECTING A COMPUTER CAMP

LASERWRITER PROGRAMMING

ENTERTAINMENT: RESCUE RAIDERS

STAR LEAGUE BASEBALL

SKY

MR. AND ROB

ARC

**********3-DIGIT 371
#GAS0116S091 8#680488 8H
DR KENNETH BUCHHOLZ
WWW.APPLE2ONLINE.COM

Introducing the Most Powerful Business Software Ever!

TRS-80™ (Model I, II, III, or 16) • APPLE™ • IBM™ • OSBORNE™ • CP/M™ • XEROX™

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.

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

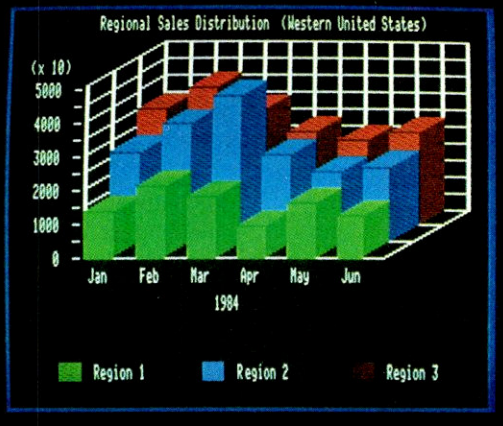
All prices and specifications subject to change / Delivery subject to availability.

COMPUTRONICS

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

* TRS-80 is a trademark of the Radio Shack Division of Tandy Corp. · *APPLE is a trademark of Apple Corp. · *IBM is a trademark of IBM Corp. · *OSBORNE is a trademark of Osborne Corp. *CP/M is a trademark of Digital Research · *XEROX is a trademark of Xerox Corp.

BEST COLOR TALENT IN THE SCREEN BUSINESS



video7

video7

Critics' Choice
The favored nominee for "Best Color on any Apple™ II Screen": Professional Color™ from Video 7™!

The name of the technology is "RGB," the highest standard in computer color.*

Professional Color, and the "Big Screen," too
Playing the dual role of "RGB" and "80-column text," Professional Color gives screen performance that's especially vivid and alive.

An Original Screenplay
Video 7 is the author of Apple's own RGB interface. So for Professional Color on your Apple II screen, get a V-Color™ card from Video 7. Call (800) 238-0101 (In California, (408) 943-0101) for the dealer nearest you.

video 7

*"RGB" (red, green, blue) is also the color standard of the IBM PC. Apple is a registered trademark of Apple Computer, Inc. V-Color, Video 7 and Professional Color are trademarks of Video 7, Inc.

CIRCLE 195 ON READER SERVICE CARD

VOLUME 3/ISSUE 6/JUNE 1985

CONTENTS

Downloaded from www.Apple2Online.com

A+

THE INDEPENDENT GUIDE FOR APPLE COMPUTING

COVER STORY

25
ERGO, ERGONOMICS
By Deborah Dietsch
Concerned about the discomforts of computing, such as backaches and eyestrain? Learn how to combat these and other problems with the right furniture, accessories and placement of equipment in your business or home.

COVER SCULPTURE: SCOTT HENSEY

SOFTWARE

42
ADVENTURE GAMES
By Shay Addams
Three programs, Adventure Master, AdventureWriter, and Eamon Dungeon Designer, allow even nonprogrammers to write their own adventure games.

PAGE 42

THE APPLE III

48
APPLE III UPDATE
By Delores Huajardo and Nancy Perroton
The last installment in our series of charts listing products of special interest to Apple III owners.

SOFTWARE

50
SPEAKING POSTSCRIPT TO THE LASERWRITER
By Steve Rosenthal
The PostScript typesetting and graphics language lets a variety of computers send instructions to Apple's LaserWriter printer. If you're interested in programming in this language, don't miss the first part in our tutorial series.

EDUCATION

56
CHOOSING THE RIGHT COMPUTER CAMP
By Vanessa Schnatmeier
A good computer camp can teach your children that computers are not only useful but also fun. Read Vanessa Schnatmeier's article to learn how to determine which camp is right for your kids.

PAGE 56

TUTORIAL

71
ProDOS
By Gary B. Little
In this second part of our "Understanding ProDOS" series, Gary Little concentrates on the Applesoft disk commands and the assembly-language subroutines that are used with it.

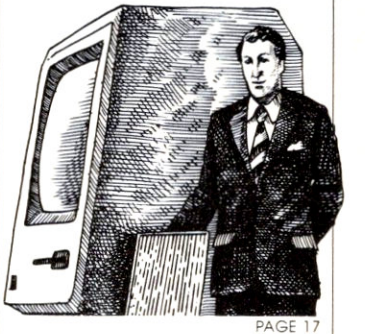
DEPARTMENTS

9 EDITORIAL

11 LETTERS

14
NEWS +
By Frederic E. Davis
News and views of the personal-computer industry

17
THOUGHTWARE
By Steve Rosenthal
Precious Macintosh memories: Every 128K Mac has the potential to grow up into a full-fledged 512K machine. You may, by now, have seen a slew of ads from companies that offer to upgrade your 128K Mac to Fat Mac status for far less than the official Apple price. Are the upgrades any good? What do these folks do when they poke around in the entrails of what may be your favorite computer?



PAGE 17

23
APPLEWORDS
By Steve Rosenthal
A short glossary of terms for use with the article "Ergo, Ergonomics" on page 25

65
MONEY MATTERS
By Ken Landis
Price-earnings and price-sales ratios: Everybody wants to pick a winner and stay away from the losers. Read Ken Landis' column this month to look at two techniques for choosing winners, one that's been around for many years, the price-earnings ratio, and a brand-new technique, the price-sales ratio.

PAGE 65

79
TELECOMMUNICATIONS
By Russ Lockwood
Databases and dialogues: This month Russ Lockwood looks at two new telecommunications services: Wilsonline, a collection of databases used worldwide by libraries, corporations, and government agencies; and American People Link, an electronic-mail and entertainment service for the home.

87
THAT'S ENTERTAINMENT
Reviews of Skyfox, Archon, Star League Baseball, Rescue Raiders, and Mr. Robot and His Robot Factory

162
PIPELINE
By Ruth Ramberg
Products you want to know about—for the entire Apple-computer line

187
RESCUE SQUAD
By Michael Callery
How to print the right stuff with Epson printers and Grappler interface cards. How to change the system font on the Macintosh. How to improve the print quality on an Apple IIc with an Epson RX-80. How to get a full 64K Apple II into your Apple III. How to delete Macintosh files while in an application. How to print from within a BASIC program running under ProDOS.

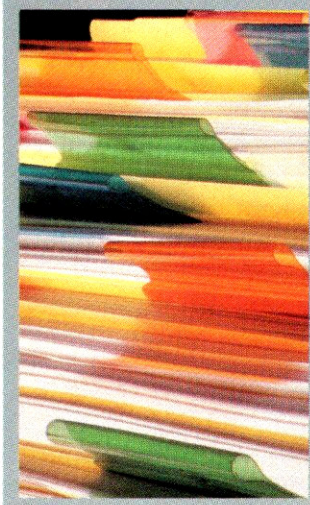
PAGE 79

198
COMING UP

199
INDEX TO ADVERTISERS

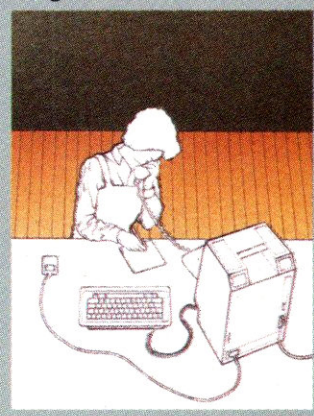
MONTHLY
MACINTOSH
COVERAGE

106
THE ELECTRONIC INDEX CARD
By Sharon Zardetto Aker
As recently as a few months ago, complaints were legion about the lack of software for the Macintosh. Now an ample selection of programs is out there. In this article, Sharon Aker does an exhaustive comparison of 13 database programs, including DB Master, FileVision, Helix, 1st Base, I Know It's Here Somewhere, MacLion, Main Street Filer, MegaFiler, Microsoft File, Omnis 2, Omnis 3, OverVUE, and PFS:File.


PAGE 106

122
FRONT DESK
By W. Charles Doherty
Front Desk, from Layered, Inc., is a new kind of office-management tool designed to track your most valuable commodity—people. Because it manages time and services for as many as 15 people, it is ideal for anyone who schedules appointments or coordinates personnel.

133
THREE INTEGRATED PROGRAMS
By W. Charles Doherty
Megahaus Corporation produces an integrated family of three programs for the Mac that help you use the machine's talents more efficiently. In this article Chuck Doherty reviews all three members of the family, MegaFiler, MegaMerge, and MegaForm.

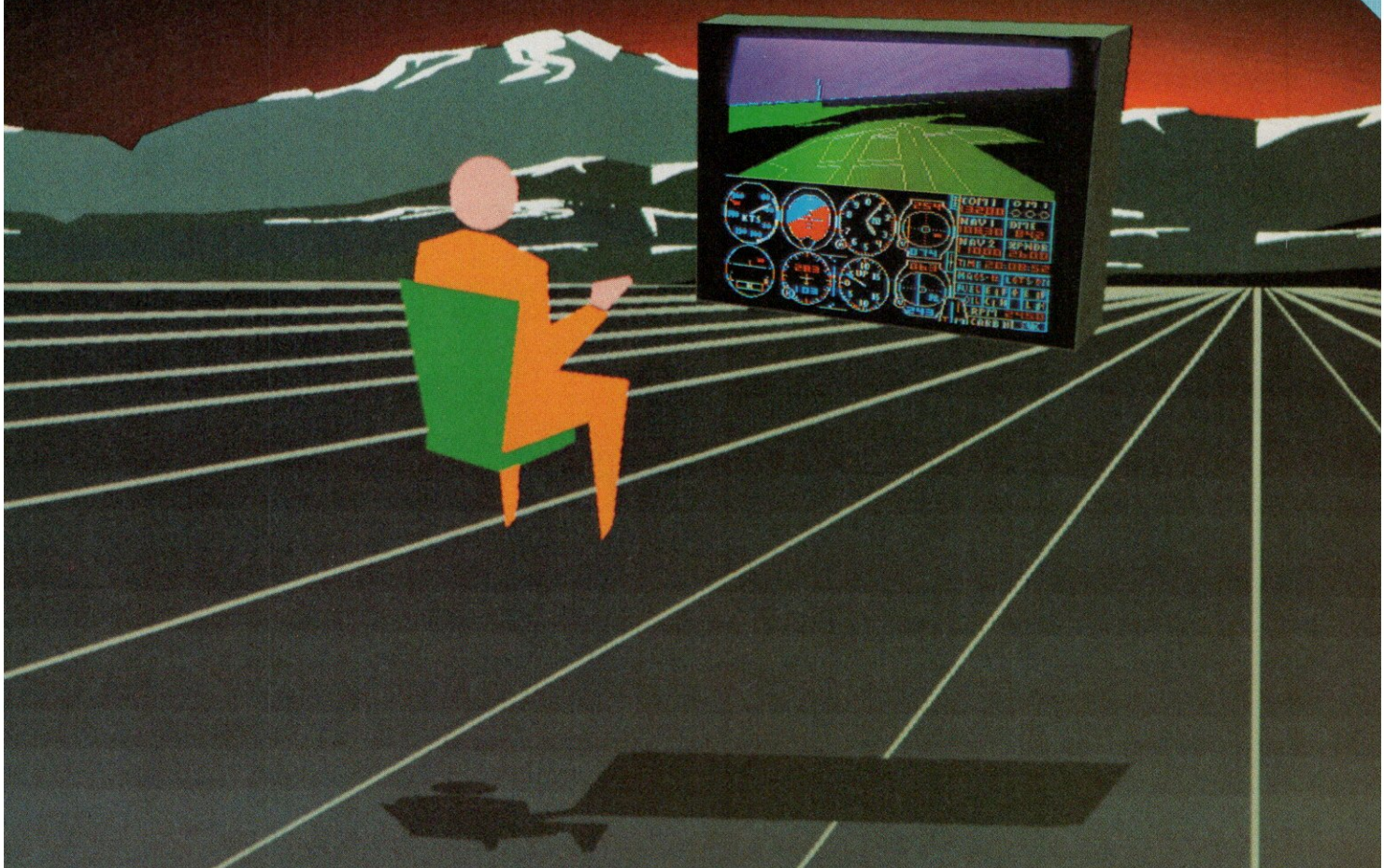

PAGE 122

143
A MACINTOSH POTPOURRI
By Thom Hogan
This month Thom looks at fattening your own Mac, FastFinder (version 1.6 from Tardis Software), a programming tool called MacNosy (version 1.0), the TMON debugger, and some other odds and ends.

155
MACTIPS
By The Readers
Shortcuts for FatBits—paint bucket in FatBits—different fonts for different footers—washing your mouse—scientific charting—animation in MacPaint

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

CIRCLE 110 ON READER SERVICE CARD

Publisher
Sydney H. Rogers
Editor
Maggie Canon
Senior Editor/Technical
Frederic E. Davis
Senior Editor/Features
Jane Willson
Senior Copy Editor
Eva Langfeldt
Managing Editor
Leslie Steere
Copy Editor
Ruth Ramberg
Office Manager
Marjorie Gae Brandon
Assistant Editor
Candace De Santis
Consulting Editors
Michael Callery, Chip Carman,
Steve Rosenthal, Roberta Schwartz
Contributing Editors
Chris Albertson, Dennis Brothers, Sue Crissman,
Robert Cowart, W. Charles Doherty,
Thom Hogan, Ken Landis, Russ Lockwood,
Vanessa Schnatmeier, John W. Tripp, John Zussman
Art Director
Peter A. Tucker
Associate Art Director
Fabian Cooperman
Art Assistant
Ae Kyung Kuark
Mechanical Artists
Kyle Houbolt,
Julie Oxberry, Dennis Norwood

Editorial Office
11 Davis Drive, Belmont, CA 94002; (415) 598-2290
Advertising/Business Office
Ziff-Davis Publishing 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 Manager	Suzanne M. Zellner
Mid-Atlantic/Southeast Manager	Thomas E. Richardson
Mid-West Manager	Thomas J. Lutzke
Northwest Manager	David J. Ezequelle
Southwest Manager	Cynthia L. Ramsey
Advertising Coordinator	Angelo M. Turco
Telemarketing Manager	Cindy M. Silverman
Account Representatives	EAST COAST Chris M. Tice
	MID-WEST Andrew S. Dietz
	WEST COAST Leslie C. Phillip
	Timothy N. Carter
Assistant to Publisher	Helen Kempisty

COMPUTER PUBLICATIONS DIVISION

President	Kenneth H. Koppel
Vice President, Editorial	Jonathan D. Lazarus
Vice President, Production	Baird Davis
Vice President, Licensing & Special Projects	Jerry Schneider
Vice President, Creative Services	Herbert Stern
Vice President, Circulation	Alicia Marie Ivans
Vice President, Circulation Services	James Ramaley
Vice President	Hugh Tietjen
Marketing Manager	Ronnie Sonnenberg
Director, Marketing Services	Ann Adelman
Business Manager	Gary A. Gustafson
Editorial Director	Ernest F. Baxter

ZIFF DAVIS PUBLISHING COMPANY

President	Richard P. Friese
Senior Vice President	Philip T. Heffernan
Senior Vice President	Philip Sine
Vice President	William Phillips
Treasurer	Selwyn Taubman
Secretary	Bertram 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 $12 for Canada, $12 other foreign by Ziff-Davis Publishing Co., 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 © 1985 Ziff-Davis Publishing Co. All rights reserved; reproduction in whole or in part without permission is prohibited. The following are trademarks of Ziff-Davis Publishing Co.: A+, A+: The Independent Guide for Apple Computing, Dispatches, 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 Jean Lamensdorf, Manager, Reprints/Rights and Permissions, Ziff-Davis Publishing Company, 1 Park Ave., New York, NY 10016. BPA membership (Selected Market Audit Division) applied for October 1983.

BPA

Next-Generation Interfaces

Street Electronics introduces a new generation of Apple® interfaces that makes using printers, modems, clocks, and other peripherals easier than ever before. And, these new products are available at prices that will surprise you.

The **BusinessCard**™ is an Apple II+ and IIe multifunction card with a printer and modem port, clock with battery back-up, built in graphic screen printing capabilities, and the option of up to 64k of print buffering. Purchasing the equivalent functions separately would cost well over $500, yet the BusinessCard sells for less than $200.

The **AlphaBits**™ **II** serial printer/modem interface has over 60 built in graphics and text screen printing commands and a 16-64k print buffer option. The AlphaBits II is compatible with a wide variety of printers, works with all Apple software, and sells for less than $100.

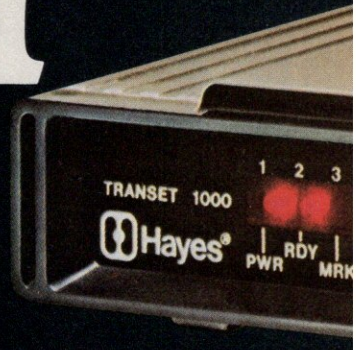
The **LiveWire**™ is an intelligent printer cable with a built in clock/calendar that connects a *parallel* printer to the *serial* port on your Apple IIc. The serial to parallel converter and clock are inside the LiveWire's unique connector – no additional hardware is needed. Also under $100.

See your local Apple dealer.
CIRCLE 187 ON READER SERVICE CARD

Street Electronics Corporation
1140 Mark Avenue
Carpinteria, CA 93013
Telephone (805) 684-4593

Apple is a registered trademark of Apple Computer, Inc.

Introducing The Single Solution To Many Problems That Can Tie Up Your Personal Computer.

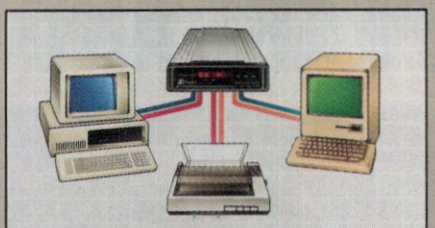


Transset 1000.™ The print buffer, communications buffer, port expander, printer sharer and I/O switcher. All in one.

Anyone with a personal computer and one or more peripherals has faced the all-too-familiar dilemma. You need your computer to do an important job. But you're forced to wait for the system to finish one job (printing, communicating, whatever) before you can go on to the next one. Or you need to stop what you're doing to switch cables when you want to use another peripheral.

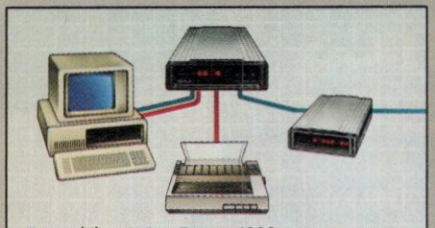
Wait no more. Now Hayes introduces an innovative new device that lets you perform many jobs—at the same time—independent of your computer. Transet 1000. It works with a wide range of systems and configurations. And it allows you to continually expand your system as your needs grow.

Transet 1000 frees your computer from waiting on your printer or modem—so you and your computer can go on to another task. It even lets you print out documents in pre-set formats without having to go back into your computer. At the same time, Transet 1000 can operate unattended mailbox communications—24 hours a day—even if your computer is turned off.



Two computers can share one printer with Transet 1000. Or, you can use Transet 1000 to let two computers communicate with each other.

In addition, Transet 1000 is a port expander and software-controlled I/O switcher. Now files can be easily directed and redirected to different peripherals, without physically changing cable connections.

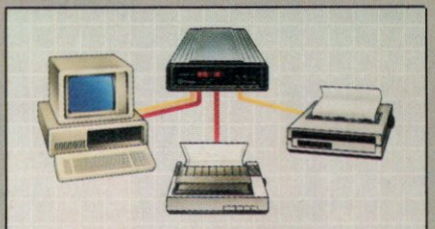


Even while printing, Transet 1000 acts as a communications buffer and 24-hour mailbox. And I/O switching lets you route information among peripherals, without switching cables.

Transet 1000 contains a standalone microprocessor, and comes with 128K of memory. It operates with any RS-232C interface computer, and has optional accessory kits available for the IBM PC and PC XT, Macintosh and Apple IIc. Kits contain the necessary host cable, a user guide and menu-driven software that lets you graphically set up or customize port parameters and printing formats. Cables available for IBM PC AT, other computers and peripherals.

Like all Hayes products, Transet 1000 combines sophisticated capabilities with easy operation. Just as Hayes set the standard in personal computer communications, now Hayes is taking the lead in computer task management.

Contact your authorized Hayes dealer to see how Transet 1000 can help you get a lot more productivity out of your computer system—without tying up your computer or you.



Transet 1000 allows printing on both a dot matrix printer and letter quality printer, while freeing your computer for other tasks.

Hayes Microcomputer Products, Inc., P.O. Box 105203
Atlanta, Georgia 30348
404/441-1617

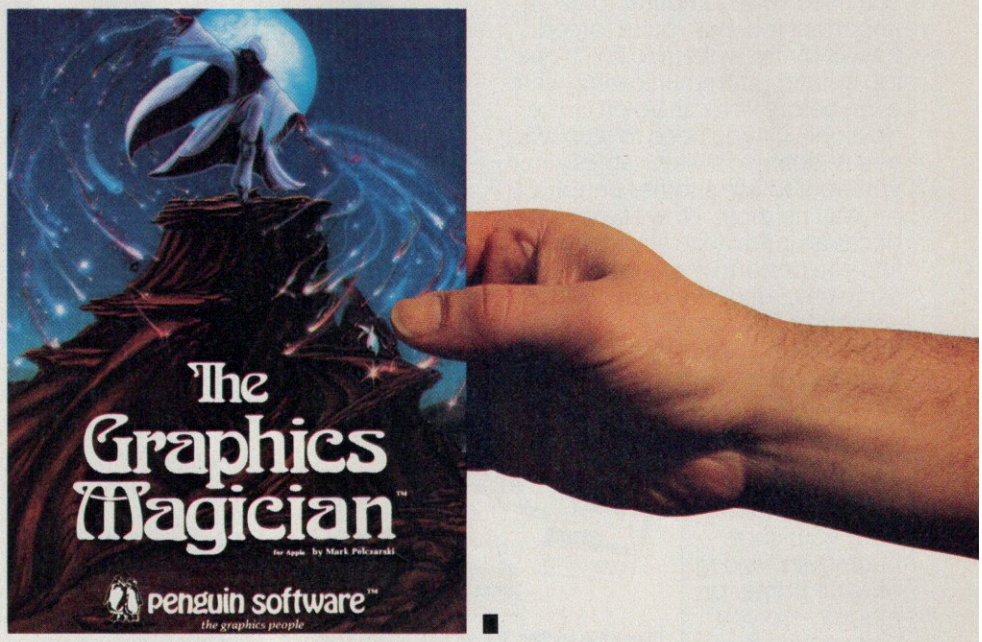
Hayes® Transet 1000

Innovative products for enterprising people

©1985 Hayes Microcomputer Products, Inc.

CIRCLE 130 ON READER SERVICE CARD

MICHELANGELO AND HIS CHISEL. SHAKESPEARE AND HIS PEN. YOU AND



What do they have in common?
Creativity . . . and the tools to create their art.

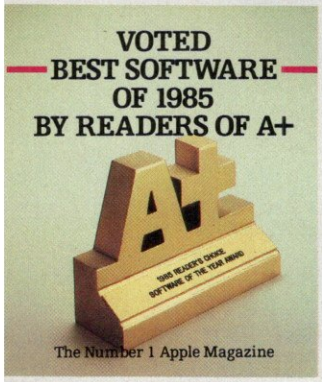
The secret through the ages has been to use the best tools for the job.
Today that means *The Graphics Magician*
for your computer artwork.

Three score and more of the largest software publishers have already chosen *The Graphics Magician* as the tool they use to include graphics and animation in their programs. It has all the things they require: rapid color fill, memory-saving picture pack routines and portability so pictures can be moved from one program to another. And now it's available for 256-color Double Hi-Res as well as Standard Hi-Res.

If you have an Apple II computer, you too can create graphics and animation and move them simply and efficiently into your programs. You might not be a Michelangelo or a Shakespeare, but with *The Graphics Magician* you've got the right tool to be as good as you can be.

In fact, A+ readers found *The Graphics Magician* so valuable that they elected it the top program in the graphics category of the 1985 Readers' Choice Awards.

The Graphics Magician is now available for Apple II computers, Double Hi-Res (requires an Apple IIc or Apple IIe with extended 80 column card) and Standard Hi-Res.

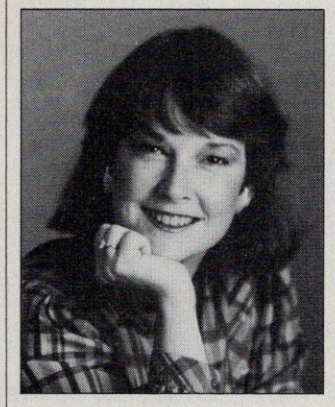


For information on these, or other Penguin products, please write for a free catalog to: Dept. A, P.O. Box 311, Geneva, IL 60134

penguin software™
the graphics people

830 Fourth Avenue, P.O. Box 311, Geneva, IL 60134 (312) 232-1984

Apple is a registered trademark of Apple Computer, Inc.,
The Graphics Magician and The Graphics Magician Picture Painter are trademarks of Penguin Software, Inc.,
Penguins drive bumper cars at excessive speeds.



A medley of articles covers ergonomics, the new LaserWriter printer, computer camps, and more

FROM POSTURE TO ProDOS

Have you noticed yourself rubbing your eyes, neck, or back after several hours in front of your computer? If you have—and I dare say that most of us have suffered some form of computer-related fatigue—you should definitely consider rearranging and perhaps even investing further in the furniture you use with your computer.

Our cover story this month, written by Deborah Dietsch, an interior-design specialist who writes for such prestigious magazines as *Architectural Digest*, takes an in-depth look at the particulars of selecting and arranging furniture and lighting so that you minimize fatigue. This article is a must for anyone who uses a computer at the office or at home, even for as little as half an hour a day.

You have probably heard about Apple Computer's fancy new printer, the LaserWriter (see the cover story, "The Macintosh Office," in the March issue of *A+* and "Desktop Publishing" in the May issue). You probably assumed you could use the LaserWriter only with the Macintosh computer, since Apple introduced it at the time of the Macintosh Office announcement. Apple II and Apple III users (as well as Macintosh and Lisa users) will be happy to know that they, too, can use this powerful new printer by learning about Postscript, the programming language that drives the LaserWriter. Since we feel it is important that II and III users not be left out of the excitement and because Macintosh programmers may want to unlock the secrets of the LaserWriter, we begin in this issue of *A+* a four-part Postscript tutorial by Steve Rosenthal that will teach you how to move files from your Apple II or III to the LaserWriter to produce stunning typeset-quality printouts. The tutorial will also show you how to program the LaserWriter for special effects, such as rotation of text and graphics.

We are also continuing our ProDOS tutorial with the second part of the series.

By the time you get this issue, with summer vacation looming on the horizon, you might be thinking about sending your children to a computer camp. Just as with any other camp, you must pick a computer camp carefully in order to provide the experience you have in mind for your children. Vanessa Schnatmeier's article "Choosing the Right Computer Camp" gives you step-by-step guidance to help you evaluate the best computer camp for your kids.

For Macintosh users, we have an exciting group of articles. In her article "The Electronic Index Card," Sharon Aker compares 13 database programs and offers advice on which program is right for you. We also have a review of a time-management program called Front Desk, as well as reviews of MegaFiler, MegaForm, and MegaMerge. All of these products demonstrate that ample professional software is now available for the Macintosh.

Not only is plenty of business software obtainable, but a surprising amount of public-domain software is also available for the Mac. Next month, in the first part of a two-part article, "Penny-Wise Programs," Robert C. Eckhardt will give you a rundown on the different kinds of products that are available and how to get them.

As you can tell, this issue is crammed full of valuable articles, and I haven't mentioned all of them! Happy reading! +

Maggie Canon

MAGGIE CANON/**EDITOR**

IF YOU'RE REALLY SERIOUS ABOUT PROTECTING YOUR DATA, PUT AN ELEPHANT™ IN YOUR OFFICE.

Elephant Premium Floppy Disks. They're specially designed for the more demanding needs of business, and because they are, we test them at a higher standard. In fact, 150% of the industry standard. And then they're certified 100% error free at that more critical level.

So we can say with confidence that Elephant Premium will protect your data when other disks won't.

Plus, Elephant Premium is the only floppy disk that features The Elephant Organizer™ – the easiest way ever to store, reference and protect your disks.

So if you're concerned about protecting data for your business, get serious. Get an Elephant.

For the Elephant dealer nearest you, call 1-800-343-8413. In Massachusetts, call collect 617-769-8150.

ELEPHANT NEVER FORGETS.

Dennison

CIRCLE 102 ON READER SERVICE CARD

Serving business for over 140 years.

SPEEDEMON UPDATE

Dear *A+*,

I wish to call your attention to the addendum to the excerpt from Charles Rubin's *The Endless Apple* entitled "The Latest Enhancements" (*A+*, March 1985, pages 154–155).

Although we are grateful for being mentioned as a competitor in the "speed-up" war of 65C02 processor boards, we have an update we would like you and your readers to know about. Mr. Rubin states that "if you're worried about power consumption, however, you should also know that the SpeeDemon draws twice the wattage of the Accelerator cards." This assertion is no longer true and hasn't been for some time. The SpeeDemon *did* draw twice the wattage of other cards at 1 amp, but it now draws 650 milliamps. I felt it important to update this issue, since I've had concerned customers calling about their power consumption.

Vicky L. Seavers
Director of Dealer Sales
McT
Santa Monica, CA

DISK DRIVES REVISITED

Dear *A+*,

Wow, was I disappointed in the article entitled "First Aid for Disk Drives" (*A+*, March 1985, pages 169–172). I was hoping that it would help to dispel some of the mystery in which computer-service personnel seem to have shrouded the Apple Disk II. About all the article covered was that you should check for loose cable connectors and how to pry up the multipin IC chips safely.

One possibly valuable clue, however, was that the 9334 (or 74LS259—which is apparently interchangeable with the 9334—the motor-enable and stepper-control circuits), the 74LS05 (the inverter bank) and PROM P6 (or P6A—boot-load routine) were chips on the controller card that were most likely to fail. Unfortunately, you didn't include any symptoms that would identify these failed chips (for instance, what does the "inverter bank" do?).

One nice thing that Apple did when it designed the Apple II computer was to put letters along the side of the board and numbers along the top of the board, thereby helping to identify the locations of chips. For example, the N9334N, mentioned previously, is located at C2. This tip might help your readers locate the chips referenced in the article.

Also, I noted Gayler's excellent book *The Apple II Circuit Description* referenced at the end of the article. I'm sorry to report that this book does *not* cover any peripheral devices such as the Disk II. For those readers wanting circuit schematics, Apple did include the Disk II Interface Card on page 145 and the Disk II Analog Board on page 146 of *The DOS Manual*, which comes with the Apple II system. So far, I've failed to locate a schematic for the small board at the back of the Disk II that includes the multiturn pot used commonly for speed adjustment. I'm hoping that your next disk-drive-repair article (April 1985) will mention that adjustment, as well as the zero-track adjustment.[*Editor's Note: It did. See* A+ *April 1985, pages 159–167.*]

Regarding the software referenced at the end of the article, I've tried Verbatim's Datalife Disk Drive Analyzer on some of my drives (from five different manufacturers), which occasionally seem to be misbehaving, and always it says the drives are "OK." The go/no-go analysis is only marginally helpful. From reading its literature, it appears that the RID disk from Dymek may be more helpful, but so far, I haven't risked the $35 on it.

One encouraging comment is that the photographic illustrations in your article were great—clear and legible.

Chester T. Rice
Kentfield, CA

'UNDOCUMENTED'

Dear *A+*,

In the February 1985 issue of *A+* (page 132), a MacTip from Paul Papanek Jr. dealt with MacTerminal's "undocumented features." In all fairness, I should point out that these "undocumented features" are merely the standard ASCII editing commands. To add to his list, ⌘-S means *send*.

Papanek also mentioned that the cursor changes to another shape when you press the Option key. He noted that it did not do anything when he was online. The explanation is that that cursor is the cursor emulation of the DEC VT-100 terminal. Although the Option key will change the cursor in the TTY mode of MacTerminal, it is functional only when MacTerminal is emulating a VT-100.

If you try to use the Option-key cursor in the TTV mode, you will get interference on the communications line. The cursor allows for text editing. When you hold down the Option key, just position the new-shaped cursor where you want to edit and click the mouse button. This action causes the old underline-type cursor to scurry to the point where you clicked the mouse. Furthermore, in VT-100 emulation, the Enter key acts as the Break key. You use ⌘ 6 as the Home key, and ⌘[is Escape.

Daniel Lewis Paul
Denver, CO

RENDEZVOUS WITH RAMA

Dear *A+*,

If David Gerrold had been using a joystick when he was attempting to dock the *Endeavor* on Rama ("Breathtaking Graphics, but Frustrating Play," *A+*, April 1985, page 180), he would have been able to get past the two docking screens. I have managed to get past the second screen four times by maneuvering the *Endeavor* down the radiating tubes at the north end of Rama, al-

though I am not sure at what point the program decides that I have landed.

By the way, the software has a glitch that will allow you to get around the docking screens and land. After booting the game, go directly to the control room and then type ACTION. Select Dragonfly, which is an easier set of two arcade-type games. Once you have successfully gotten past these "practice" screens, the program will not only put you back into the control room (which it should do), but will also inform you that you have successfully docked the *Endeavor* on Rama (which it should not do).

Even though you will have "cheated," at least this finagling allows you to get inside the mysterious extraterrestrial artifact.

John P. Monteverdi
Oakland, CA

CREDIT WHERE IT'S DUE

Dear *A+*,

I must disagree with a point Roberta Schwartz makes in her review of Brøderbund's Dazzle Draw (*A+*, March 1985, pages 58–62). She contends that Brøderbund is out of line for expecting credit when its program is used to create artwork in other software packages.

Perhaps she hasn't noticed a line that appears in the closing credits of almost every motion picture made in the world: "Filmed in Panavision." Without this line, the producers would be unable to use what has become the standard format.

At the end of most game shows and talk shows you can find a credit telling you what company provided the host's wardrobe. This is called giving credit where credit is due.

If Dazzle Draw is as good a program as Schwartz says, the folks at Brøderbund are well within their rights; if they wanted to be sticklers, they could charge a licensing fee, but I imagine they are realistic enough to know that such demands are often overlooked in this industry.

Jeff Truelsen
Ithaca, NY

BRØDERBUND CORRECTIONS

Dear *A+*,

I want to point out an inaccuracy in your review of our product Championship Lode Runner, published in the February 1985 issue of *A+*. Your statement that the *Hint Book* is included with the program has already prompted many calls from customers who didn't get a copy with their program. The *Hint Book* is, in fact, sold as a separate product, retailing at $9.95.

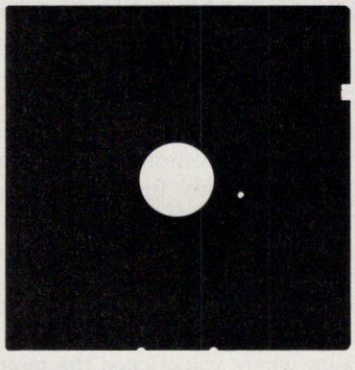
I also might comment that the Hint Book is not a solution book. It provides an approach that will work to solve each level rather than an absolute solution.

Another mistake that I would like to correct appeared in the review of our program Dazzle Draw (March 1985, pages 58–62). The actual price of the product is $59.95, not $49.95 as stated in the article.

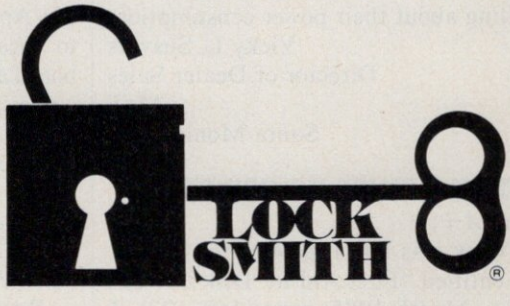
Marsha Goodman
Marketing Coordinator
Brøderbund Software
San Rafael, CA

STORY MAKER PRICE CORRECTION

The price for Scholastic, Inc.'s Story Maker program was listed incorrectly in the April, 1985 issue of *A+* ("Software for Budding Young Writers," page 38). The correct price for the product is $39.95.



The loss of data contained on this $3 diskette could cost you or your company $$thousands$$.



That's why you need

Even the highest quality diskettes are very delicate. They are easily damaged by magnetic fields, sharp objects, spilled sodapop, and peanut butter.

Locksmith backs up your data faster than ANY other backup utility available for the Apple. (Locksmith Version 5.0 can reliably backup a disk in as little as 8 seconds!)

Locksmith can backup programs which the manufacturer didn't intend for you to backup, (so-called protected software). Let's face it—the company that sold you your software yesterday may not be around tomorrow.

We are the SOURCE for Locksmith 5.0, it's our product. We are so totally committed to providing the best support for Locksmith that we hired the author of Locksmith and the entire Locksmith programming team to support Locksmith for you.

Locksmith currently comes with backup parameters for hundreds of "protected" programs.

Locksmith at $99.95—the best insurance value for your software investment.

Available from your local dealer or order direct from:

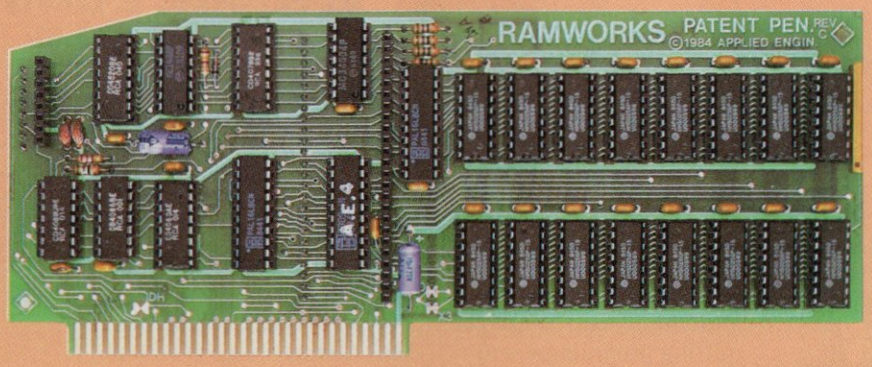
Alpha Logic Business Systems Inc.
4119 North Union Road
Woodstock, IL 60098
(815) 568-5166

Visa & Mastercard accepted
As the manufacturer of Locksmith, we invite all dealer inquiries.

Coming Soon—Locksmith/PC and MAC-Locksmith

CIRCLE 259 ON READER SERVICE CARD

RAMWORKS™



"In an industry as dynamic as the personal computer industry, it's inevitable that computers will be built with more and more memory. It's equally inevitable that newer, faster, more powerful software will be written to take advantage of that extra memory. Where does that leave you?"

Direct quote from new Apple IIe owners manual.

If you just want to play games with your Apple or write small BASIC programs, 128K is probably enough memory. But if you're using your Apple IIe for a serious purpose, you're going to need more memory. Applied Engineering has the answer: RAMWORKS. With RAMWORKS, you won't have to split files into several small pieces just to fit them into memory. You'll have ALL your data on line ALL the time.

RAMWORKS will automatically expand Appleworks, Magicalc, Magic Office System, PRODOS, Visicalc and hundreds of other programs. The simple fact is that RAMWORKS is compatible with more off-the-shelf software than any other RAM card.

A 64K RAMWORKS will ADD 46K to whatever you already have on your available desktop memory, a 128K RAMWORKS will ADD 91K, a 256K RAMWORKS will ADD 182K, a 512K RAMWORKS will ADD 364K and a 1 meg RAMWORKS will give you nearly an 800K DESKTOP. But RAMWORKS does more than just increase the desktop memory (as if that weren't enough). With RAMWORKS, Appleworks will be able to run up to 20 times faster. And now only RAMWORKS does this all automatically with no need for any optional software.

When you have a RAMWORKS card, you can have enough memory so that the entire Appleworks program will be loaded into the computer. This greatly increases the speed at which Appleworks operates because the disk drive operates at 300 RPM. RAMWORKS operates at the speed of light!

RAMWORKS just plugs in and clear instructions show how to plug more memory chips into RAMWORKS as your needs increase.

For only $129 an RGB option can be added to RAMWORKS to give you double high resolution color graphics and sharp 80 column text on any Apple compatible RGB monitor. The RGB option does not take up another slot, but rather it plugs into RAMWORKS. You can order the RGB option with your RAMWORKS or add it on at a later date.

RAMWORKS has taken the "waiting" out of computing. Floppies and hard disks are OK for long term storage. But they fall far short as on line storage. If you are using high level languages, spelling checkers, spread sheets, word processors, databases and other disk intensive software, RAMWORKS will save you time and make you more productive.

Now There's No Reason To Wait To Stop Waiting

Applied Engineering is passing along the cost savings that we've acquired through automated production. We're lowering the price on the more popular sizes of RAMWORKS, so now there's no reason to wait to increase your productivity. You'll be amazed at what you can do!

Features:

- ☑ 80 Column Text
- ☑ Double high resolution graphics (with or without RGB option)
- ☑ User Expandable to 1 Megabyte
- ☑ Can Use 64K or 256K RAMS in any combination
- ☑ Adds Memory to Appleworks
- ☑ Accelerates Appleworks
- ☑ 100% Compatible with All IIe software
- ☑ RAM Disk software available, compatible with PRO-DOS, DOS 3.3, and PASCAL ($29.00)
- ☑ RAM Disk available for CP/M ($29.00)
- ☑ Visicalc preboot available ($29.00)
- ☑ RGB option
- ☑ Takes only one slot
- ☑ 3 year no hassle warranty

Ramworks™ with 64K	$179
Ramworks™ with 128K	$249
Ramworks™ with 256K	$299
Ramworks™ with 512K	$399
Ramworks™ with 1 MEG	$649
RGB Option (can be added later)	$129

Call (214) 241-6060
9 a.m. to 11 p.m. 7 days a week or
Send check or money order to:
P. O. Box 798
Carrollton, Texas 75006
MasterCard, Visa and C.O.D. welcome.
No extra charge for credit cards.
Texas residents add 5⅛% sales tax.
Add $10.00 of outside U.S.A.

Æ
APPLIED ENGINEERING
"WE SET THE STANDARD"

NEWS+

BY FREDERIC E. DAVIS

PCjr BITES THE DUST

IBM surprised the industry last March when it suddenly dropped the PCjr from its product lineup. Industry speculation is that IBM made the decision last year and heavily discounted the PCjr last Christmas in order to clear out existing inventory. Now buyers of the PCjr are wondering if they really got a bargain at all.

I always felt that IBM was the wrong company from which to buy a home computer. IBM is set up to support business users, not home users. With the demise of PCjr, the Apple II remains as the only long-term survivor in the home marketplace. The PCjr's lack of success also goes to show that people didn't buy PCjr's for home because they had a PC at work; instead, they bought Apple IIs for home because their kids used them at school.

HYBRID PROGRAMS

Apple is currently developing a hybrid programming environment for the 512K Mac that supports Pascal, C, and assembly language. This hybrid will make these different languages compatible at the object-file and link-format levels, permitting programmers to mix and match code segments from the three languages.

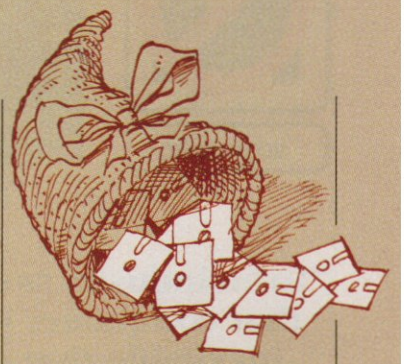
The as-yet-unannounced product will offer a full set of tools such as editors, debuggers, and UNIX-like utilities and is tentatively scheduled for release this fall. Innovative and flexible programming environments such as this should help spur the development of sophisticated new Macintosh software.

APPLE RIPE FOR PLUCKING?

Is Apple Computer, Inc., ripe for a corporate takeover? That's what several industry insiders are now speculating. Apple is in good financial shape, since it has some cash reserves and no long-term debt. Now that corporate takeovers and buy outs are becoming commonplace, Apple is considered to be an attractive property, since many believe that Apple's stock is undervalued.

Who might be interested in Apple? Well, two names that have come up in recent speculation are AT&T and GE. AT&T has reportedly expressed a keen interest in Apple, and the alliance could be excellent for both companies. AT&T's sales were more than $53 billion in 1984, compared to IBM's $45.9 billion and Apple's comparatively tiny $1.8 billion. The other potential suitor is General Electric, with 1984 sales of $27.9 billion. GE already has close ties to Apple, in that it sells Apples to its corporate clients and underwrites the Apple credit card.

One of the major obstacles to a buy out is that Steve Jobs controls a huge block of Apple stock. Unless CEO John Sculley can convince Jobs to sell a significant amount of stock, no buy out or takeover is likely.



PFS: BUNDLE

Software Publishing has made its fortune on the PFS: family of software. The PFS: products have been so popular that IBM decided to buy the rights to the series and now offers these products under the IBM Assistant series label.

Since IBM has been doing a lot of marketing for the Assistant series, Software Publishing decided to do a marketing promotion for its PFS: series on the Apple II. The result is the Best of PFS promotion, which started this May and ends July 31. The Best of PFS is a bundle that includes PFS:File, PFS:Report, PFS:Write, and a coupon good for the as-yet-unavailable PFS:Plan. The bundle has a suggested retail price of $250, which is an excellent savings.

HP TARGETS APPLE MARKET

A recent market-research study conducted by SRI International in Menlo Park, California, predicts that Hewlett-Packard will increase its share of the printer market sixfold in the next six months, giving HP an estimated 27% market share. In order to broaden the apple of its product line,

WILLIAM CONE

HP plans to introduce new methods of using its price-competitive Thinkjet and Laserjet printers with the Macintosh. We're looking into how these printers can be used with the Apple II series. We'll keep you posted on these developments.

LOTUS SINGS THE BLUES

When Lotus announced Jazz last fall, the company promised the program would be ready by March of this year. When the March deadline arrived, Lotus announced that the program

would not be ready until late May. That news alone sent Apple stock into a nosedive.

Well, by the time this magazine is in print, we should know whether or not Lotus has made good on its May delivery date. We're all hoping that the product will be on dealers' shelves soon, since many business customers are reserving judgment about the Mac until Jazz is out. This wait-and-see attitude has hurt sales of the Mac already and has been fatal to other products in the past.

DEVELOPERS' NETWORK

Delphi, an on-line information service, has started a special-interest group (SIG) for Macintosh developers that promises to be a major way of keeping up to date on Mac technical happenings. The sysop of the SIG will be former *A+* author and consulting editor Dennis Brothers, whose MacTEP terminal program first appeared in print here in *A+*. For further information contact Delphi, 3 Blackstone Street, Cambridge, MA 02139; (800) 544-4005 or, in MA (617) 491-3391.

A+ ON-LINE

We've had quite a few people ask us whether we offer an index to *A+*. Although we do not publish a printed index in the magazine, our sister company Information Access Company provides two on-line indexes. They are available for searching on-line via Dialog, which is available at most libraries and universities.

The Magazine Index (Dialog file 47) contains an index of titles, authors, illustrations, and key words and is available on Knowledge Index as well as Dialog. The Magazine ASAP database (Dialog file 647) is better for more specific searches since it contains the full text of all *A+* articles, but it is available only on Dialog. Contact Dialog Information Services, 3460 Hillview Avenue, Palo Alto, CA 94304; (800) 227-1927 or in CA (800) 982-5838.

CHRIS SPOLLEN

EXCEL

When it comes to the Macintosh, Microsoft really does mean business. Microsoft's first integrated-software program is Excel, a superlative spreadsheet/graphics/database program for the Macintosh that packs a lot more wallop for number crunching than do either Lotus 1-2-3 or Jazz.

Based on what I've seen, Excel offers the most powerful electronic worksheet of any personal-computer software. It can solve advanced programs such as those involving multiple variables and multiple interactive worksheets. Each worksheet can have a matrix of up to 256 columns by 16,384 rows and includes an on-sheet database with complete querying and sorting capabilities.

There's more. The graphics features of Excel offer everything that Microsoft Chart has, and then some. Excel also allows you to create powerful macros for automating procedures and creating custom mathematical functions, and it offers two-way file transfers with Multiplan, Chart, Lotus 1-2-3, and SYLK files.

The Mac won't make it into offices unless it can offer performance that is not available on the IBM PC series. Excel looks like the best software for number processing available for any personal computer. This type of high-powered software for the Mac should help make businesspeople more aware of the significant role the Macintosh can play in the office.

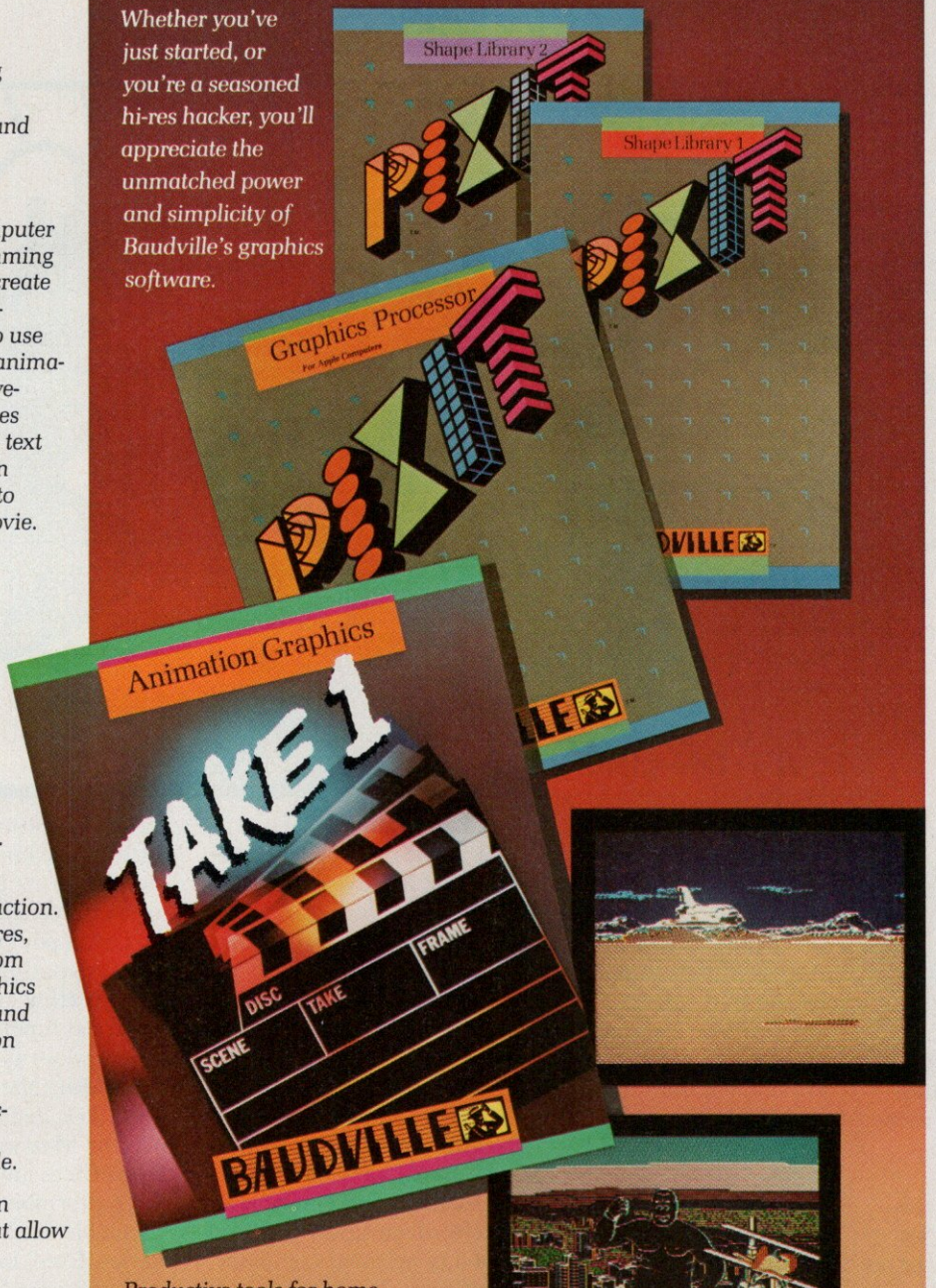
For more information about Excel, see "Pipeline" in this issue. +

Picture it!

Graphics processing that's easy, flexible and fun!

You don't have to be an artist or programmer, just select from Baudville's complete line of compatible graphics software. The possibilties are infinite.

Whether you've just started, or you're a seasoned hi-res hacker, you'll appreciate the unmatched power and simplicity of Baudville's graphics software.



Productive tools for home, education, business, and the arts.

©Copyright 1984 Baudville

Create motion picture shows.

TAKE 1

Stunning Animation that's fast, smooth, and flicker free!

Write, produce, and direct your own computer movies. No programming skills are needed to create superb full-color animation. With easy to use TAKE-1, you define animation shapes and movements, "shoot" scenes frame-by-frame, add text at any time, and then combine the scenes to make a complete movie. Perfect for presentations and demos.

Premiering:

- *True sprite capability for multi-layered action without additional hardware.*
- *No size restriction on animated objects.*
- *Complete editing at all stages of production. Can use hi-res pictures, shapes, and fonts from PIXIT or other graphics utilities for background scenes and animation shapes.*
- *A convenient selection of animation libraries are available.*
- *Moving objects can have "windows" that allow background to show through.*
- *Optional programmer's "tool kit" lets you put the power of TAKE-1 animation in your own programs.*

$59.95 Requires 64K

The complete color graphics package.

PIXIT

Includes these integrated features:

Create A Shape
using simple keystroke commands.

Shape Table Editor
allows up to 128 shapes placed anywhere in table.

Shape and Font Library
provides a convenient selection of pre-drawn shapes and text fonts.

Picture Editor
creates hi-res pictures using mixed text and graphics, circles, lines, colorfill, and shape tables.

Slide Show
displays hi-res pictures like a slide projector.

Printer Dump
Supports a wide variety of dot matrix printers and interface cards. No additional software required.

Uses standard hi-res picture and Applesoft shape table files which are compatible with other graphics utilities.

Optional Shape Libraries
greatly reduce the time required to generate computer art. Each library contains a wide variety of artist drawn shapes for specific areas of interest.

$49.95 Requires 48K
Optional Libraries @$20 each.

For Apple II, Apple II+, Apple //e or compatible computers.

Apple is a registered trademark of Apple Computer, Inc.

Available at your local software store or direct from BAUDVILLE.
Visa and Master Charge accepted, Michigan residents add 4% sales tax.

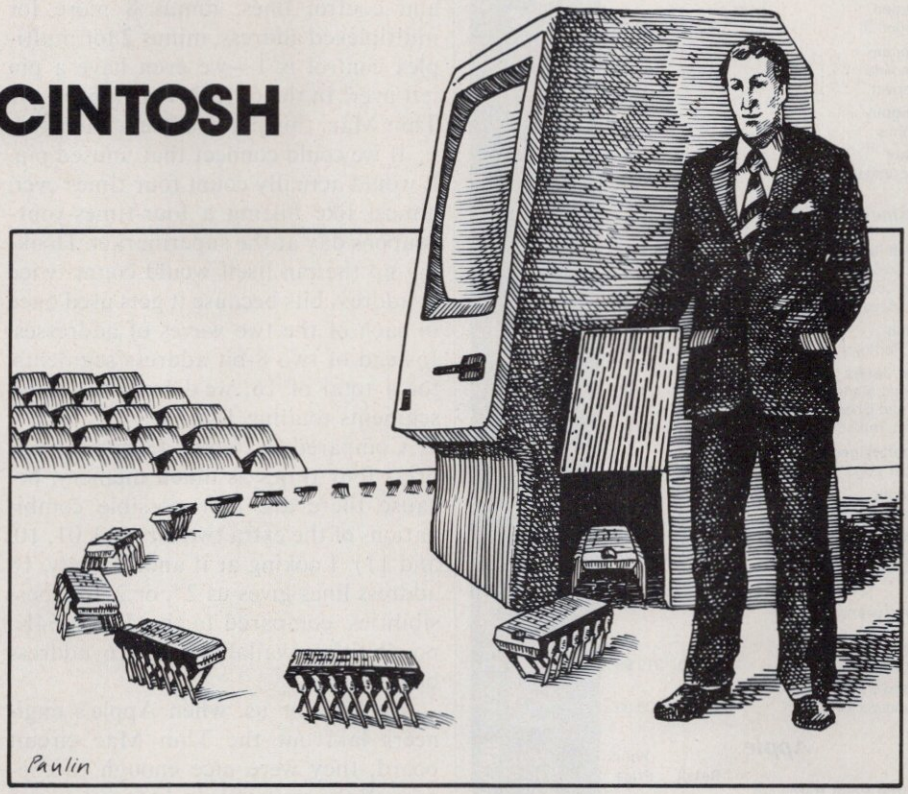
BAUDVILLE, 1001 Medical Park Dr., S.E.
Grand Rapids, Michigan 49506 Phone (616) 957-3036

BAUDVILLE

CIRCLE 156 ON READER SERVICE CARD

THOUGHTWARE
BY STEVE ROSENTHAL
The ins and outs of upgrades

PRECIOUS MACINTOSH MEMORIES



Every 128K Macintosh has the potential to grow up into a full-fledged 512K machine. You may, by now, have seen a slew of ads from companies that offer to upgrade your 128K Mac to Fat Mac status for far less than the official Apple price. Are the upgrades any good? What do these folks do when they poke around in the entrails of what may be your favorite computer?

The basic difference between a 128K (Thin) Mac and its 512K (Fat) brother is the type of memory chip they use. A Thin Mac uses 16 chips that each store 65,536 individual bits (64K × 1 chips). The Fat Mac also uses 16 chips, but each of these can store 262,144 bits (256K). Unfortunately, although the chips are quite similar, you can't just unplug the 64K chips and substitute the 256K versions.

Aside from the cruel fact that the 64K chips are soldered directly to the circuit board, you face one other major obstacle in upgrading to more memory: It takes a more precise address to specify one of 256K memory locations than it does to pick from among 64K possibilities. Upgrading your Mac, therefore, means both substituting memory chips and bringing in the additional address information. The theory is going to take a bit of arithmetic to explain, but bear with me—everything is below 20 or an even power of 2, and you don't have to catch all the details to make sense of the general pattern.

In the Thin Mac, 16 bits are necessary to specify an address. If you happen to have memorized your powers of 2, you might have recognized that 16 bits gives you 2^{16} (65,536) possibilities, which we call 64K (a binary K, or thousand, is 1024). Using 16 address bits, we can specify any of the 64K data bits in a 64K × 1 RAM chip.

The 68000 microprocessor chip in the Macintosh uses a 16-bit data path, meaning that in each read or write operation it can transfer 16 bits or 2 bytes. So, with 64K possible addresses and up to 2 bytes transferred at each address, the Thin Mac allows you to work with 128K of RAM.

What do these folks do when they poke around in the entrails of your favorite computer?

If you looked at the circuit board inside a Thin Mac, you'd see 16 of the 64K chips arranged in a neat four-by-four rectangle (the memory chips are oblong, so you don't quite get a square). The chips are standard dynamic-memory chips, with 16 pins on each.

Each chip requires one line for power and one for ground. One line tells the chip whether to accept data to store away or whether to read data back out. Data comes in on one line and leaves on another. So far, that's 5 lines, with 16 pins available in all. We did say that we needed 16 lines just to specify the address of which of the 64K memory cells we wanted the chip to read from or write to, though. Obviously, we have a problem.

Getting 16 address lines on 13 pins is a standard challenge in computer design, with a set of standard solutions. The solution used in the Macintosh is called *multiplexing*. The 16-bit set of address information goes out as two waves of 8 bits each, instead of as a single 16-bit value. Thus only 8 pins are necessary for the 16 address lines, with 2 more pins telling the chip when each wave of 8 address bits is available.

The 68000 itself doesn't use this two-wave multiplexed address, because it has enough pins on its 64-pin package

DOUG PAULIN

THE BEST FOR LESS

Macintosh

Games	Retail	Your Price
Hayden		
Sargon III	49.95	39.95
Infocom		
Deadline	49.95	39.95
Suspect	44.95	35.95
Penguin		
Xyphus	39.95	31.95
Videx		
Mac Vegas	59.95	47.95
Business/Utilities		
Assimilation Process		
Mac Keystroke Recorder	29.95	23.95
Mac Lockit	29.95	23.95
Mac Memory Disk	29.95	23.95
Axlon		
Art Portfolio	59.95	47.95
Dow Jones		
Market Manager Plus	199.95	160.00
Spread Sheet Link	99.95	80.00
Strait Talk	79.95	64.00
Expertelligence		
Exper Logo	150.00	130.00
Palantir		
Mac Type	49.95	39.95
T-Maker		
Click Art Effects	49.95	39.95
Click On	79.95	64.95
Hardware		
Koala		
MacVision	395.00	319.95
Thunderware		
Thunderscan	250.00	200.00

Apple

	Retail	Your Price
Central Point Hardware		
Copy II plus 50	39.95	31.95
CBS		
Mastering SAT	150.00	120.00
Data Transform		
Fontrix	95.00	76.00
Font Paks		
(Vol. I Through 9)	ea. 24.95	ea.19.95
Howard Soft		
Tax Preparer	250.00	199.95
Hayes		
Joystick Mach III IIe/IIc	59.95	43.95
Krell		
Krell SAT	299.95	240.00
MicroSci		
A2 Disk Drive IIe/II +	300.00	187.50
A5 Drive IIc	350.00	219.95
Spring Board		
News Room	49.95	39.95
SEI		
Spanish, French or German	39.95	34.95

800-942-2058
In Calif. 800-223-8327
Hours 8 AM-6 PM PDT

P.O. Box 1486
El Cerrito, CA 94530

For free catalog write to:
NONAGON SOFTWARE
For technical Information & Order Status Call (415) 237-5283

In Bay Area Visit
SOFTWARE SOLUTIONS
11185 San Pablo Ave.
El Cerrito, CA 94530
Hours; 10 AM-6 PM

CIRCLE 125 ON READER SERVICE CARD

for a full 24 bits of address. To get the addresses from the full-width (or 16-bit) form the 68000 uses to the two-part (or multiplexed) form the memory chips use, the Mac employs a standard interface chip called a multiplexer. In fact, a standard Thin Mac has four multiplexer chips, each of which handles 4 of the 16 address bits.

One to Grow On

Going back to the memory chips, 16 original pins, minus our first 5 power and control lines, minus 8 more for multiplexed address, minus 2 for multiplex control is 1—we even have a pin left over! In the 64K RAM chips in the Thin Mac, this pin is left unconnected.

If we could connect that unused pin, it would actually count four times over, almost like hitting a four-times-your-coupons day at the supermarket. Hooking up the pin itself would count twice in address bits because it gets used once in each of the two waves of addresses. Instead of two 8-bit address segments, for a total of 16, we'd have two 9-bit segments totaling 18 bits.

Compared to 16 bits, 18 bits can address four times as much memory, because there are four possible combinations of the extra two bits (00, 01, 10, and 11). Looking at it another way, 18 address lines gives us 2^{18}, or 256K, possibilities, compared to the 2^{16}, or 64K, possibilities available with 16 address bits.

Luckily for us, when Apple's engineers laid out the Thin Mac circuit board, they were nice enough to connect all the memory pin 1s together and to bring the extra two address lines from the 68000 to a convenient spot on the board.

To upgrade to a Fat Mac, what we have to do is change the memory chips, connect up the wires, and supply an extra multiplexer chip. On the original Thin Mac board, we have to add a tiny circuit board for the extra multiplexer chip, or piggyback the chip over an existing chip. The board in Apple's 512K Mac has a slot for the multiplexer.

If we add the multiplexer and connect everything else up correctly, the result is logically identical to a true 512K Fat Mac. In fact, some Apple dealers tell me, the result may be even better—Apple's official upgrades occasionally cause problems for the power supply, whereas installers report no such problems with the unofficial route. Conceptually, then, getting the official Apple upgrade or upgrading a Thin Mac gets you the same results. The process is quite different, though.

If you take your Mac to an official Apple dealer for an upgrade, the dealer will open up your Mac case, take out the main circuit board, drop in a new 512K board, and either sell the old board back to Apple, save it to repair Thin Macs, or sell it to a true hacker. You have a Mac that might last slightly longer than it would have without the upgrade (you have all new components on the digital board), and you're out Apple's board price plus dealer installation.

If, on the other hand, you take your Mac to a firm that does an unofficial upgrade, the cost will be less, but the process is a little more involved. You may have to leave your Macintosh overnight, because your upgrader will have a lot of fine soldering work to do.

It's your machine, and you're free to do what you want to it if you don't expect Apple to fix any damage afterwards.

According to Apple's Renée Rodrigue, the company reminds you that opening the case of a recently purchased Mac for any purpose voids the remainder of the warranty. Other than that, she says, Apple feels it's your machine, and you're free to do what you want to it if you don't expect Apple to fix any damage afterwards (you can buy a replacement main board from an Apple dealer, but you may not get the trade-in ["core charge"] back for a damaged or altered board). So be sure you trust your upgrader and check out what will happen if something goes wrong before he or she breaks that seal.

After opening the case, your trusty technician will remove the existing memory chips. Remember, those chips are soldered into place, and the circuit board is a four-layer model with tiny lines and pads, so this operation requires a high degree of skill. Conservative practice dictates sacrificing the old chips by cutting them away from their pins to simplify removing each pin individually, but some upgraders are equipped to remove chips in good enough shape to sell them as used but usable.

Many upgrade installers solder sockets into the chip positions that have just been vacated, but others solder the new chips directly into the board. The argu-

THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM

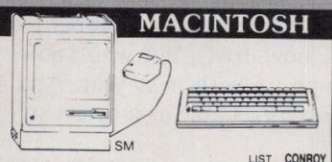
CONROY-LA POINTE SM INC. #A20

All Rights Reserved © 1984 by Conroy-LaPointe, Inc.

TELEX 910 380 3980 — **ALL MAIL: Conroy-LaPointe, Inc., 12060 SW Garden Place, Portland, OR 97223** — **ORDER NOW (800) 547-1289**

FOR YOUR APPLE

MACINTOSH



	LIST	CONROY
ASSIMILATION PROC, Turbo Touch	$ 129	$ 92
BLUECHIP, Millionaire, Barron, Tycoon, ea.	$ 60	$ 39
CENTRAL POINT, Copy II Mac or MacTools, ea.	$ 40	$ 24
CONROY-LA POINTE, Diskettes, 10 pak	$ 65	$ 29
50 pak Diskettes	$ 325	$ 140
CONTINENTAL, Home Accountant	$ 100	$ 65
CREATIVE SOLUTIONS, MacForth Level I	$ 149	$ 95
CREIGHTON, Home Pak or Mac Office, ea.	$ 39	$ 26
Mac Spell +	$ 99	$ 63
DESKTOP, 1st Base	$ 195	$ 125
DOW JONES, Market Manager Plus	$ 249	$ 159
EXPERTELLIGENCE, ExperLogo	$ 150	$ 95
FIRST BYTE, Smooth Talker	$ 150	$ 95
FORETHOUGHT, Fact Finder	$ 150	$ 95
HAYDEN, Sargon III	$ 50	$ 31
Music Works	$ 80	$ 50
HUMAN EDGE, Sales or Mgmt Edge, ea.	$ 250	$ 159
Mind Prober	$ 50	$ 32
INFOCOM, Hitchhiker's Guide	$ 40	$ 25
INNOVATIVE, Flip-n-File, 40	$ 30	$ 19
KOALA, Mac Vision	$ 400	$ 229
LIVING VIDEOTEXT, Think Tank	$ 145	$ 85
LOTUS, Jazz	$ 595	$ 395
MEGAHAUS, Megafiler	$ 195	$ 125
Megaworks or Megamerge, each	$ 125	$ 79
MICROSOFT, Business Pak **NEW**	$ 595	$ 395
Multiplan, Word, or File, each	$ 195	$ 129
MILES, Mac the Knife, v. 1	$ 39	$ 25
MONOGRAM, Dollars & Sense	$ 150	$ 95
NOVATION, Smartcat Plus Modem w/Software	$ 499	$ 349
ODESTA, Helix	$ 395	$ 265
PENGUIN, Graphics Magician	$ 50	$ 32
PROVUE, Overvue	$ 295	$ 185
SIMON & SCHUSTER, Typing Tutor III	$ 50	$ 30
SOFTW. PUBL., PFS: File & Report Combo	$ 195	$ 125
SOFTWARE ARTS, T/K Solver	$ 249	$ 159
STATE OF THE ART, Electronic Checkbook	$ 80	$ 50
STONEWARE, DB Master	$ 195	$ 125
TELOS, File Vision	$ 195	$ 125
WARNER, Desk Organizer	$ 149	$ 99

COMPUTERS

apple

IIe, IIc, Mac, Mac XL — **IN STOCK, CALL**

FLOPPY DISK DRIVES

	LIST	CONROY
MICRO-SCI, A2 Disk Drive, 143K	$ 345	$ 185
A2 Controller Card	$ 100	$ 60
Half Height Drive for IIe	$ 269	$ 189
Half Height Drive for IIc	$ 299	$ 199
RANA, Elite I, 163K, 40 Track	$ 299	$ 189
Elite II, 326K, 80 Track	$ 499	$ 369
Elite Controller	$ 145	$ 79

HARD DISKS

QUARK, QC10 for IIc/IIe/III/MAC	$1995	$1595

OTHER HARDWARE

CCS, 7711 or 7710-A Interface, ea.	$ 115	$ 85
CPS/EASTSIDE, Wild Card II (copier, II + /IIe)	$ 140	$ 99
COMX, 80 Col. + 64K RAM Card (IIe)	$ 199	$ 99
16K RAM Card (II +), 1 yr ltd wty	$ 119	$ 29
HAYES, Mach II/III Joystick (II + /IIe)		CALL
KENSINGTON, System Saver Fan	$ 90	$ 65
KEY TRONIC, KB200 Keyboard	$ 298	$ 188
KOALA, Muppet Keys	$ 80	$ 49
Touch Tablet w/Micro Illustrator (IIe/IIc)	$ 125	$ 75
KRAFT, Joystick (II/II + /IIe)	$ 65	$ 35
Game Paddles (II/II + /IIe)	$ 50	$ 26
MICROSOFT, Premium Softcard (IIe)	$ 395	$ 275
ORANGE MICRO, Buffered Grappler Plus, 16K	$ 239	$ 159
16K Buffer Board for Grappler Plus	$ 99	$ 59
PCPI, Applicard, 6 MHz, 14 features	$ 375	$ 250
RH ELECT., Super Fan II w/surge protector	$ 89	$ 59
TITAN, Accelerator IIe	$ 319	$ 219
128K RAM Card (II +)	$ 269	$ 189
TRACKHOUSE, Numeric Key Pad (II + /IIe)	$ 149	$ 94
TG, Select-a-Port	$ 40	$ 26
Joystick or Game Paddles, each	$ 35	$ 22
VIDEO 7, V Color 7, IIc, RGB Card	$ 200	$ 139
V Color 7, IIe RGB Card	$ 250	$ 169
VIDEX, UltraTerm (II + /IIe)	$ 379	$ 229
VideoTerm 80 Col. Card (II + /IIe)	$ 279	$ 175
WICO, Smartcard (spec. II/II + /IIe)	$ 199	$ 159

BUSINESS SOFTWARE

	LIST	CONROY
ALS, Word or List Handler, ea.	$ 80	$ 36
Handler Pak (Word/List/Spell)	$ 170	$ 73
ASHTON-TATE, dBase II (Reg CP/M 80)	$ 495	$ 289
BPI, AR, AP, PR or INV, each	$ 395	$ 240
BRODERBUND, Print Shop	$ 50	$ 29
Print Shop Graphics Library	$ 25	$ 18
Bank St. Writer or Speller, ea	$ 70	$ 45
Bank St. Combo (Writer & Speller)	$ 140	$ 85
CONTINENTAL, GL, AR, AP or PR, ea.	$ 250	$ 150
CDEX, for Visicalc, Multiplan, Apple IIe, ea.	$ 60	$ 40
DOW JONES, Market Manager Plus	$ 249	$ 159
Market Analyzer or Microscope, ea.	$ 349	$ 219
HOWARD SOFT, Tax Preparer for '84 taxes	$ 250	$ 165
Kit for California	$ 95	$ 63
HUMAN EDGE, Sales or Mgmt Edge, ea.	$ 250	$ 165
LIVING VIDEOTEXT, Think Tank	$ 145	$ 89
MECA, Managing Your Money	$ 200	$ 125
MEGAHAUS, Megawriter	$ 100	$ 65
Megaworks	$ 125	$ 80
MICRO PRO, WordStar	$ 350	$ 189
WordStar w/ Starcard	$ 495	$ 265
WordStar Professional, 4 Pak	$ 495	$ 265
MailMerge, SpellStar, or StarIndex, ea	$ 99	$ 54
InfoStar and StarCard Combo	$ 595	$ 295
MICROSOFT, Multi-Plan (Ap DOS)	$ 195	$ 125
QUARK, Word Juggler & Lexicheck (IIe/IIc)	$ 189	$ 129
SENSIBLE, Sensible Speller	$ 125	$ 79
SIERRA/ON-LINE, Homeword	$ 50	$ 45
Screen Writer II, 2 Pak w/Dictionary	$ 130	$ 79
SOFTWARE PUBL, PFS:File or Write, each	$ 125	$ 79
PFS:Graph or Report, each	$ 125	$ 79
STONEWARE, DB Master, v. 4	$ 350	$ 225

UTILITIES SOFTWARE

	LIST	CONROY
BEAGLE, GPLE, Alpha Plot or B.Basic, ea	$ 50	$ 27
Pronto DOS, Disk Quick, Ap. Mech. or I.O. Silver, ea	$ 30	$ 19
Full line IN STOCK		CALL
BORLAND, Turbo Pascal	$ 55	$ 33
3 Pak (Pasc, Turbo Tut, Toolbox) **NEW**	$ 105	$ 59
CENTRAL POINT Copy II Plus (bit copier)	$ 40	$ 23

UTILITIES SOFTWARE

	LIST PRICE	CONROY PRICE
EPSON, Graphics Dump	$ 15	$ 7
FUNK, Sideways	$ 60	$ 37
HAYES, Terminal Prog. for Smartmodem	$ 99	$ 65
MICROSOFT, Full Line in Stock		CALL
OMEGA, Locksmith	$ 100	$ 70
PENGUIN, Complete Graphics System II	$ 80	$ 49
Graphics Magician	$ 60	$ 40
QUALITY, Bag of Tricks	$ 40	$ 29
UNITED SWI, ASCII Express-The Pro	$ 130	$ 82
UTILICO, Essential Data Duplicator III	$ 80	$ 49

HOME & EDUCATIONAL

BEAGLE BROS., Full line IN STOCK		CALL
BRODERBUND, Print Shop	$ 50	$ 29
CONTINENTAL, Home Accountant	$ 75	$ 43
DOW JONES, Home Budget	$ 99	$ 69
KOALA, Full line IN STOCK		CALL
MICROSOFT, Typing Tutor II	$ 25	$ 17
MONOGRAM, Dollars & Sense or S.A.M., ea	$ 100	$ 59
Dollars & Sense for IIc	$ 120	$ 69
Forecast	$ 60	$ 38
SCARBOROUGH, Mastertype	$ 40	$ 27
Your Personal Net Worth	$ 80	$ 50
SIERRA/ON-LINE, Homeword	$ 50	$ 45
SIMON & SCHUSTER, Typing Tutor III	$ 50	$ 33

PLUS: **BARRONS, CBS, DAVIDSON, EDU-WARE, HARCOURT, LEARNING CO., TERRAPIN**

RECREATIONAL SOFTWARE

BLUECHIP, Millionaire, Squire, Barron, ea.	$ 50	$ 32
DATASOFT, Aztec or Zaxxon, each	$ 40	$ 27
ELECTRON. ARTS, Sky Fox & others, ea.	$ 40	$ 29
HAYDEN, Sargon III (Chess)	$ 50	$ 30
INFOCOM, Zork I, II, or III, ea	$ 40	$ 25
ORIGIN, Ultima III	$ 60	$ 37
PENGUIN, Transylvania	$ 35	$ 24
PROFESSIONAL, Trivia Fever	$ 40	$ 25
SPINNAKER, IN STOCK		CALL
SUB LOGIC, Flight Simulator II	$ 50	$ 30

PLUS: **BRODERBUND, DATAMOST, MUSE, SIR-TECH**

DISKETTES

★ CONROY-LAPOINTE™ DISKETTES ★

We guarantee these top quality products with our name. 5 YEAR LIMITED WARRANTY. Discounts on orders w/o labels.

10 ea. SS/SD, (Apple, etc) 35 Trk, W/FLIP BOX	$ 12
100 ea. SS/SD, (Apple, etc) 35 Trk	$ 99
1000 ea. SS/SD, (Apple, etc.) 35 Trk	$ 840
10 ea. DS/DD, (IBM, H/P) 48 Trk, W/FLIP BOX	$ 15
100 ea. DS/DD, (IBM, H/P) 48 Trk	$ 119
1000 ea. DS/DD, (IBM, H/P) 48 Trk	$ 859
10 ea. DS/DD, 3½" (MAC, H/P), W/FLIP BOX	$ 29
50 ea. DS/DD, 3½" (MAC, H/P)	$ 140
100 ea. DS/DD, 3½" (MAC, H/P)	$ 270

CONROY-LAPOINTE™ IBM PRE-FORMATTED

10 ea, DS/DD, 48 Trk W/FLIP BOX	$ 19
100 ea, DS/DD, 48 Trk	$ 149
1000 ea, DS/DD, 48 Trk	$ 959

SINGLE-SIDED, DOUBLE DENSITY

	LIST	CONROY
CDC, 10 ea, SS/DD, 40 Trk (Apple, etc)	$ 55	$ 19
DYSAN, 10 ea, SS/DD, (Apple, etc.)	$ 40	$ 27
MAXELL, 10 ea, SS/DD, MD1 (Apple)	$ 55	$ 19
VERBATIM, 10 ea, SS/DD, MD515-01, (Apple)	$ 49	$ 25

3½" MICRO DISKETTES

	LIST	CONROY
CONROY-LAPOINTE, 10 ea, DS/DD (MAC, H/P)		$ 29
MAXELL, 10 ea. SS/DD (MAC, H/P)	$ 60	$ 35
MEMOREX, 10 ea. SS/DD (MAC, H/P)	$ 60	$ 35
VERBATIM, 10 ea, SS/DD (MAC, H/P)	$ 65	$ 35

★ GENERIK DISKETTES ★

Top quality, w/jackets, no labels. **Quantity discounts.** 90 day "No hassle, money back guarantee."

100 ea. SS/DD, 35 Track (Apple, etc)	$ 80
100 ea. DS/DD, 48 Track, (IBM, H/P)	$ 95

MODEMS

	LIST	CONROY
ANCHOR, Signalman Mark XII (IBM)	$ 399	$ 259
HAYES, 2400B External Modem (IBM)	$ 899	$ 699
Smartmodem 1200B (IBM)	$ 549	$ 389
Smartcom II Software (IBM)	$ 149	$ 107
Smartmodem 1200 (AP or IBM)	$ 599	$ 429
Micromodem IIe w/Smartcom (AP)	$ 329	$ 239
KENSINGTON, Portable Modem, 300 Baud (MAC)	$ 140	$ 109
NOVATION, Apple Cat II 300 Baud (AP)	$ 389	$ 219
212 Apple Cat, 1200 Baud (AP)	$ 725	$ 419
SmartCat Plus w/software (MAC)	$ 499	$ 349
PROMETHEUS, 1200 Standalone Modem	$ 495	$ 345
ProModem 1200 w/software (MAC)	$ 549	$ 429
ProModem 1200A (AP)	$ 449	$ 349
ProModem 1200B (IBM)	$ 399	$ 289
QUADRAM, Quadmodem, Internal (IBM)	$ 595	$ 425
Quadmodem, External, (IBM)	$ 695	$ 495

MONITORS

AMDEK, Color 300 — Comp/Audio	$ 349	$ 249
Color 500 — Comp/VCR/RGB/Audio	$ 525	$ 375
Color 600 — Hi Res/RGB/Audio	$ 599	$ 449
300A — 12" Amber	$ 199	$ 139
300G, 12" Green	$ 179	$ 129
310A, 12" Amber/Comp	$ 230	$ 159
PRINCETON, HX-12 — Hi Res/RGB	$ 795	$ 495
SR-12 — Hi Res/RGB	$ 799	$ 599
MAX-12 — Amber (monochrome)	$ 249	$ 199
ZENITH, ZVM122 — 12" Amber	$ 159	$ 95
ZMV123 — 12" Green	$ 149	$ 89
ZMV124 & ZVM 135		20-30% OFF

PRINTERS

DOT MATRIX:

	LIST	CONROY
EPSON, RX / FX Series — In Stock		CALL
LX80 — 100 cps DQ/16 cps NLQ	$ 349	CALL
JX80 — Color Printer, 160 cps.	$ 799	CALL
LQ1500 — 200 cps DQ/67 cps LQ	$1395	CALL
MANN.-TALLY, Spirit-80 - 80 cps/80 col	$ 269	$ 219
OKIDATA, Okimate 20 — Color, Hi Res	$ 268	$ 208
182 — 120 cps/80 col	$ 299	$ 239
92 — 160 cps/80 col/para.	$ 499	$ 399
93 — 160 cps/136 col/para.	$ 799	$ 639
2410 Pacemark — 350 cps/para.	$2995	$1975
PANASONIC, P1090 — 80 cps/10"	$ 349	$ 249
P1092 — 180 cps/10"	$ 599	$ 459
QUADRAM, Quadjet—Inkjet Color	$ 895	$ 395
STAR MICRO, SG10 — 120 cps DQ/30 cps NLQ	$ 299	$ 249
SG15 — 120 cps DQ, 30 cps NLQ, 16K	$ 499	$ 419
SD10 — 160 cps DQ, 40 cps NLQ	$ 449	$ 379
SD15 — 160 cps DQ, 40 cps NLQ, 16K	$ 599	$ 509
SR10 — 200 cps DQ, 50 cps NLQ	$ 649	$ 549
SR15 — 200 cps DQ, 50 cps NLQ, 16K	$ 799	$ 679

LETTER-QUALITY:

JUKI, 6300 — 40cps/para.	$ 995	$ 795
6100 — 18 cps/para/3 pitch	$ 599	$ 439
PANASONIC, P3151 — 22 cps/15½"	$ 699	$ 549
TOSHIBA, Prop. spacing & hi-res graphics:		
1351 — 192 cps DQ & 100 cps LQ	$1895	$1375
1340 — 144 cps DQ & 54 cps LQ	$ 995	$ 659
Bi-direction Tractor Feed	$ 195	$ 175

PLOTTERS:

EPSON, 4 Pen Plotter	$ 599	CALL

PRINTER INTERFACES AND BUFFERS

	LIST	CONROY
ASSIM PROC, Mac to Epson Conn I/F	$ 89	$ 69
EPSON, Parallel Interface for LQ1500	$ 100	$ 79
Serial Interface Board	$ 130	$ 105
MPC, Apple II I/F & Cable for Epson & Gemini	$ 95	$ 59
OKIDATA, Plug 'n Play, Tractors, Okigraph, ea.	$ 50	$CALL
ORANGE MICRO, Grappler Plus for Apple	$ 149	$ 99
Serial Grappler	$ 119	$ 79
Buffered Grappler Plus, 16K	$ 239	$ 159
QUADRAM, Microfazers, full line IN STOCK		CALL
Microfazers 8K, P-P, w/copy	$ 189	$ 139

CABLES

ASTAR, RF Modulator for T.V. (Apple)	$ 35	$ 20
RCA, Monitor Cable	$ 15	$ 9

ACCESSORIES

CURTIS, Diamond, 6 outlets, switched	$ 50	$ 29
Emerald , 6 outlets, 6' cord	$ 60	$ 35
Ruby, 6 outlets, 6' cord, filter	$ 90	$ 52
Sapphire, 3 outlets, w/filter	$ 80	$ 46
EPD, Lemon, 6 outlets/wall	$ 45	$ 29
Lime, 6 outlets/cord	$ 70	$ 45
Orange, 6 outlets/cord	$ 100	$ 60
Peach, 3 outlets/wall	$ 60	$ 39
INNOVATIVE, Flip-n-File 50 (disk holder)	$ 22	$ 15
KENSINGTON, Masterpiece (IBM)	$ 140	$ 99
System Saver Fan (Apple)	$ 90	$ 65
Printer Stand	$ 30	$ 20
NETWORX, Wiretree, 4 outlet, w/filt & surge	$ 70	$ 39
Wiretree Plus	$ 100	$ 59
PERFECT DATA, Head Cleaning Kit	$ 16	$ 12

ORDERING INFO & TERMS:

MAIL TO: 12060 SW Garden Place, Portland, OR 97223 — Include telephone number. Check your figures for Shipping, Insurance and Handling (SIH). All items usually in stock. **NO C.O.D.** Cashiers checks, money orders. Fortune 1000 checks and government checks honored immediately. Personal and other company checks—allow 20 days to clear. Prices reflect **3% cash & Conroy-LaPointe Credit Card discount**, so ADD 3% to above prices for VISA/MasterCard/American Express. Your cards NOT charged til we ship. Add **SIH CHARGES:** U.S. Mainland, 3% ($5 minimum) for standard UPS ground; UPS Blue, 6% ($10 min); for U.S. Postal APO or FPO or Alaska, 6% ($10 min). Canada, 12% ($15 min). Foreign orders except Canada, 18% ($25 min). Monitors by Postal or to foreign countries, 30% ($50 min). Orders received with insufficient SIH will be refunded. All prices, availability and specifications subject to errors or change without notice, so call to verify. All goods are new, include warranty and are guaranteed to work. Due to our low prices and our assurance that you will get new, unused products—**ALL SALES ARE FINAL**. We do not guarantee compatibility. Call before returning goods for repair or replacement. **ORDER DESK HOURS—6AM to 6PM PST, Monday through Friday, Saturday 10 to 4.** EconoRAM™, Fastrak™, and Generik™ are trademarks of ComX Corporation.

CASH-n-CARRY COMPUTER STORES, INC.

Over-the-counter sales only. Open Monday through Saturday, 10:00 to 6:00.

SAN FRANCISCO — NEW STORE! 550 Washington Street (at Montgomery, opposite the Pyramid). Interstate 80, to Highway 480, take Washington Street Exit. **CALL (415) 982-6212.**

PORTLAND, OREGON — At Park 217, Tigard at intersection of Highways 217 and 99W. **CALL (503) 620-5595.**

SEATTLE, WASHINGTON — 3540 128th Ave. SE, Bellevue, WA 98006. In Loehmann's Plaza near Factoria Square, South East of Highway 405 & 90 and at South East 36th and Richards. **CALL 641-4736.**

CONROY-LAPOINTE CREDIT CARD

Send me a Conroy-LaPointe credit application form, so I can get cash discount prices with credit card convenience. $400 Minimum initial purchase

#A20

Mail To: 12060 SW Garden Place, Portland, OR 97223

NAME _____

ADDRESS _____

CITY _____ STATE ___ ZIP ___

MEMBER DIRECT MARKETING ASSOCIATION

OREGON BUSINESS AWARDS

MasterCard VISA AMERICAN EXPRESS Card CONROY-LAPOINTE CARD

NO SALES TAX

CALL (800) 547-1289
In Oregon: (800) 451-5151

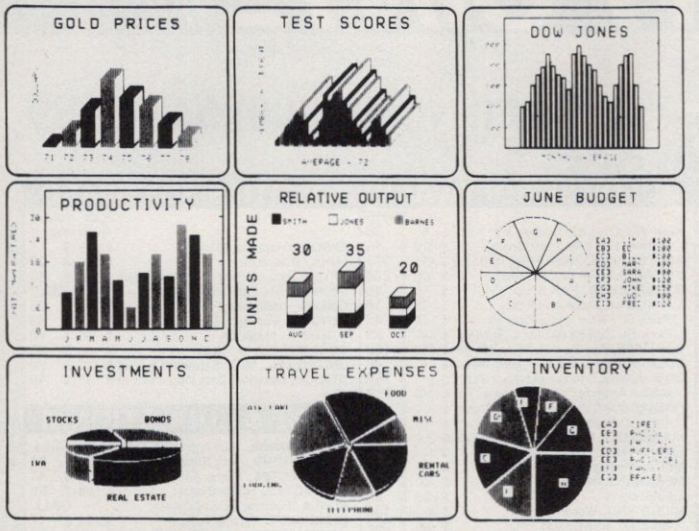
Foreign & Portland Residents Call (503) 620-9877

QUESTIONS (503) 620-9878 Weekdays Only

ORDER DESK HOURS Mon-Fri 6am to 6pm (PST) Saturday 10am to 4pm (PST) (6 am here is 9 am in New York)

CIRCLE 129 ON READER SERVICE CARD

MasterChart!



Don't pay more for less! The pictures shown above are examples of charts created with MasterChart!, perhaps the most powerful and friendly Apple II chart program on the market. Within seconds, keyboard-entered data can be converted into picture-perfect pie or bar charts, in 26 user-selectable styles, automatically scaled and labelled, and in color or black and white. And if you want to customize your charts by adding extra artwork or text, or display them in a slide show, MasterChart! comes with these valuable extras.....

A **slide projector,** for orchestrating automated, stand-alone screen presentations of a series of charts, timed and sequenced by the user. This program alone is worth the cost of the disk. It can be used with any graphics files created with any program.

A **graphics editor,** for alteration and embellishment of charts. Besides standard point-by-point sketching, built-in structures permit push-button creation of cirlces, rectangles, lines, shape-table shapes, and exotic woven plaid patterns. If you wish to add clarifying text to the charts, you may type on the screen in several different letter font styles. For the artist, the graphics editor can also be used to sketch any imaginable scene from scratch.

A **shape table editor,** for creating special shapes for your charts. These shapes can also be used for animation in your programs! A sample animation program shows how to do it.

MasterChart! includes a screen-dump program for printing your charts on paper. MasterChart! is more! Just read what these people have to say about it...

"I noticed the advertisements for Spectral Graphics' Master Chart! program and figured that, with a money-back guarantee, I would try it. Boy, am I glad I did! This is a fantastic program. You can master its many varied capabilities in less time that it would take to describe them. I would recommend it to everyone, even if you have absolutely no need for a graphing program. It's just fun to play with." **S.A. Smith, San Bernadino, Calif... letter to SOFTALK, June, 1984, page 14.**

"The software does much more than the advertisement suggests. Without question, this is among the best buys in software that I have ever come across, and certainly among the best written. It is extraordinarily easy to use, very well thought out, and priced to kill your competition (which I wish you every success in doing)." **Anthony J. Scriffignano, North Caldwell, New Jersey.**

"I have long been distressed by the lack of software available in the scientificlacademic community. At last there is a simple yet robust graphics program applicable for our purposes: MasterChart!, by Spectral Graphics Software. Business folks and scientists alike will really appreciate how user-friendly it is; I was able to produce my first three-dimensional, multi-colored, labeled bar graph within five minutes of booting the disk--without reading my documentation. I would have had to pay a scientific illustrator much more than the whole program costs just to produce that one graph....you can't do without this gem." **John B. Iverson, Richmond, Indiana...letter to SOFTALK, April, 1984, page 23.**

ONLY $29.95 Apple II+/IIe/IIc. Satisfaction guarantee or your money back (really!). Send a check or purchase order to **SPECTRAL GRAPHICS SOFTWARE,** 6333 Pacific Avenue, Suite 256, Stockton, California 95207. Or call (209) 463-7309 for COD orders and dealer inquires. MasterChart! is not yet sold in most stores. All orders are shipped immediately and are in your hands within three days.

CIRCLE 109 ON READER SERVICE CARD

ment from the nonsocket side goes like this: You can't expect to upgrade the memory chips again beyond the 256K level, because the family of memory chips at 256K has no more unused pins; chips are more reliable when soldered in (that's why Apple did it originally); and the upgrader who wants to guarantee the work also needs to know that you won't be able to switch chips.

The prosocket side retorts that even memory chips fail in the field, and you don't want to have to keep soldering and desoldering your board. It's true that no compatible upgrade family beyond 256K now exists, but who knows what the IC makers may come up with next year. And, anyway, sockets are now almost as reliable as a direct soldered connection.

Whichever way it's done, after the chips are installed by direct soldering or in sockets, your installer adds the multiplexer chip, cuts a single trace on the printed circuit board, wires up fewer than a dozen connections to the added chip, and tests the result. If everything is set up correctly, all the supplies are available, and the phone doesn't have to be answered, the process can take as little as an hour or two.

Several electronics enthusiasts that I spoke with said they had done their own upgrades and found it an easy process.

If the upgrade process is so easy, should you just shop around for the lowest price? Not necessarily, since whoever does the job will be messing with the circuit board of your Macintosh.

Chris Griffen, whose Centa Systems in Agoura Hills, California, was one of the first to offer a commercial upgrade service, says that careful work habits are what make an upgrade successful. His firm has done well over a hundred conversions and hasn't yet lost a board. The upgrade can be done more cheaply than what he charges, he says, but an installer has to make enough money to be there if you ever need your Mac repaired. Like most upgrade firms, his offers a 90-day warranty on both the memory and the main board itself.

Similarly, Steve Orme from Berkeley Computer Systems in Berkeley, California, says that any installation service has to balance price against the amount of care and the warranty it offers. His store, which does both a retail and wholesale upgrade business, also warranties the complete main board for 90 days after upgrading a Mac to 512K status. In addition, he says, you can expect his firm to be there in the years to come if you ever need service.

On the other hand, several electronics enthusiasts that I spoke with said they had done their own upgrades and found it an easy process. The hardest part, providing you're handy with a fine-tip soldering iron, is opening up the Macintosh case.

If you want to try the upgrade yourself, don't rely on this necessarily general description. You can find a step-by-step description of the procedure in the MAUG SIG (the Apple special-interest group) on CompuServe or in the January 1985 issue of *Dr. Dobbs Journal* ($3.50 by mail from M&T Publishing, 2664 Embarcadero Way, Palo Alto, CA 94303). See also "The Mac According to Hogan" in this issue for some extra tips. Keep a steady hand on that soldering iron, and watch out for static. ✚

SOFTYME®

•THE MAGAZINE ON A DISK•

FREE OFFER!

YOUR FAITHFUL NEW COMPANION

SOFTYME, THE MAGAZINE ON A DISK, BRINGS EXCITING NEW PROGRAMS AND FEATURES TO YOUR HOME EVERY SINGLE MONTH.

Now, for about the price of a disk, you can receive a floppy that's chock full of fascinating programs for personal enrichment of the whole family. Monthly programs include: home finance, education, utilities, tutorials, entertainment, even adventure. Every SOFTYME issue brings you at least 12 new programs, plus plenty of electronic news and features. What's more, each program is unlocked, opening the door to fuller enjoyment of your Apple computer.

SOFTYME makes ordinary magazines seem, well, pretty ordinary. SOFTYME is friendly, interactive and totally absorbing. Like no other magazine, SOFTYME lets you evaluate your stock portfolio, write your own cookbook, learn a winning sports strategy or challenge a master in a quick hand of cards. With SOFTYME you can follow the adventures of a fellow user charting new keyboard territory.

Start getting more out of your Apple II Series computer. Every single month.

Get SOFTYME.
We deliver two sides of fun!

Take Advantage Of This Introductory Offer!

Subscribe to SOFTYME for a full year and get a FREE copy of our "Mail Magic Labelmaker" program (an $11.95 value). Add, edit, or delete names and addresses; sort by name, city, state, or zip; print labels and more! Yours free with a one-year subscription to SOFTYME.

FOR IMMEDIATE SERVICE CALL US TOLL FREE 24 HRS **1-800-437-0033**

I'LL BYTE! Start my subscription to SOFTYME immediately.
I want:

☐ 12 months $54.00 ☐ 6 months $36.00 ☐ 3 months $24.00 ☐ 1 month $8.50

(Add $12.00 per year in foreign countries, except Canada and APO)

Name _____

Address _____

City _____ **State** _____ **Zip** _____

☐ Payment enclosed (please make checks payable to SOFTYME).
☐ Visa ☐ MasterCard Acct. No. _____

Signature _____ Exp. Date _____

Send to: SOFTYME · Dept.AP-05, PO Box 299 · Newport, RI 02840

GUARANTEE
If for any reason SOFTYME does not meet your expectations, return your first issue to us for a full refund.

CIRCLE 117 ON READER SERVICE CARD

SOFTYME is the registered trademark of Viking Data Base Technologies, Inc. Apple is the registered trademark of Apple Computer, Inc. SOFTYME uses DOS 3.3 and runs on Apple II+, IIe and IIc.

NORTHEASTERN SOFTWARE

88 Ryders Lane, Stratford, Connecticut 06497

- **Up to 50% off/software purchases over $300 an additional 2% off**
- **New larger facilities to serve you better**
- **School & corporate purchase orders accepted**
- **No additional charges for credit card orders**

We fully support the MacIntosh — call toll free
Apple Computers — call toll free

Entertainment

Spy Hunter or Buck Rogers	27.00
Tapper or Star Trek	27.00
Congo Bongo or Up 'n' Down	27.00
Sorcerer	27.00
Cutthroats or Zork I	24.00
Zork II, III	27.00
Suspect	27.00
Deadline	29.00
Planetfall	24.00
Enchanter	24.00
Infidel	27.00
Hitchhiker's Guide	23.00
Ultima III	35.00
Lode Runner or Karateka	22.00
Choplifter	22.00
Reforger 88	36.00
50 Mission Crush	24.00
Objective Kursk	24.00
President Elect	24.00
Questron	30.00
Rails West	24.00
Battle for Normandy	24.00
Imperium Galactum	24.00
Pro Tour Golf	25.00
Ring Side Seat	25.00
Cosmic Balance II	25.00
Computer Baseball	25.00
Geopolitique 1990	24.00
Baltic 85	21.00
North Atlantic 86	36.00
Germany 1985 or Carrier Force	36.00
War in Russia	48.00
Flight Simulator II	32.00
Night Mission Pinball	22.00
Wizardry I	30.00
Wizardry II	21.00
Wizardry III	29.00
Wizardry IV	24.00
Wizprint	16.00
Rendezvous with Rama	25.00
F15 Strike Eagle	22.00
Dragon World or Shadow Keep	25.00
Zaxxon	20.00
Fahrenheit 451 or Amazon	25.00
Expedition Amazon	22.00
The Quest	22.00
Coveted Mirror	21.00
Xyphus	21.50
Transylvania	21.50
Frogger	22.00
Championship Boxing	19.00
BCs Quest for Tires	21.00
Kings Quest	30.00
Wizard of Id Touch Type	19.00
Fax	19.00
Summer Games	27.00
Stellar 7	23.00
Ken Uston's Blackjack	45.00
Caverns of Frietag	19.00
Castle Wolfenstein	20.00
Beyond Castle Wolfenstein	20.00
Millionaire	30.00
Baron	30.00
Tycoon	37.00
Spitfire Simulator	25.00
Air Sim III	26.00
Bruce Lee	24.00
Sargon III	31.00
Miner 2049er	24.00
Death in the Caribbean	21.00
The Heist	24.00
Critical Mass	26.00
How about a nice game of Chess	21.00
Mask of the Sun	27.00
Hard Hat Mack	24.00
The Last Gladiator	14.00
Pinball Const. Set	27.00
Music Const. Set	27.00
The Standing Stone	27.00
One-on-One	27.00
Archon	27.00
Skyfox	27.00
Seven Cities of Gold	27.00
Murder on the Zinderneuf	27.00
Sundog	31.00

Blank Media

Elephant SS/DD	12.50
Elephant DS/DD	21.00
Verbatim SS/DD	18.00
Verbatim DS/DD	26.00
Memorex SS/DD	18.00
Memorex (Mac 3½")	34.00
BASF SS/DD	17.00
Maxell SS/DD	17.00

Educational

APPLE Logo II	84.00
BARRONS Computer SAT	53.00
CBS	
Mastering the SAT	92.00
Murder by the Dozen	21.90
DAVIDSON AND ASSOCIATES	
Speed Reader II	41.00
Word Attack	30.00
Math Blaster	30.00
DESIGNWARE	
Spellicopter	24.00
Crypto Cube	24.00
Spellikazam	18.00
DLM	
Alien Addition	20.50
Medior Multiplication	20.50
Demolition Division	20.50
Alligator Mix	20.50
Dragon Mix	20.50
EDU-WARE (PEACHTREE)	
Compu-Read	17.00
Compu-Math	29.00
SAT Word Attack Skills	28.00
PSAT Word Attack Skills	28.00
Spelling B w/Reading Primer.	23.00
Algebra 1 2 3 or 4	22.50
Algebra 5 & 6	27.50
Hands on Basic	47.00
Fractions	31.90
Decimals	31.90
HARCOURT BRACE JOVANOVICH	
SAT	47.00
GRE Test	59.90
HAYDEN SOFTWARE	
Micro Math (Add-Sub)	20.90
Micro Math (Multi-Div)	20.90
LEARNING COMPANY	
Rocky's Boots	30.00
Number Stumper	25.00
Robot Odyssey	30.00
Reader Rabbit	24.00
Magic Spell	22.00
Juggle's Rainbow	18.00
Bumble Games	24.00
Bumble Plot	24.00
Gertrude's Puzzles	27.00
Gertrude's Secrets	27.00
MECA	
Basic Building Blocks	49.00
The Running Program	49.00
MICROLAB English SAT	20.00
Math SAT	20.00
PROGRAM DESIGN	
The New Step by Step	73.00
Step By Step II	73.00
Step By Step III	73.00
SCARBOROUGH SYSTEMS	
Songwriter & Picturewriter	24.00
Phi Beta Philer	24.00
Master Type	24.00
SCHOLASTIC WIZWARE	
Fact & Fiction Tool Kit IIc	24.00
Microzine (1–6)	ea. 24.00
Story Tree	24.00
Turtle Tracks	24.00
SPINNAKER SOFTWARE	
Fraction Fever	19.00
Trains	21.90
Facemaker	19.00
Snooper Troops 1 & 2	27.25
Story Machine	21.90
Kindercomp	19.00
Delta Drawing	31.00
Kids on Keys	19.00
Alphabet Zoo	19.00
Hey Diddle Diddle	17.00
In Search of	25.00
Aerobics	27.00
Grandma's House	19.00
Kidwriter	19.00
SPRINGBOARD	
Early Games For Young Children	21.00
Matchmaker	19.00
Piece of Cake	21.00
Fraction Factory	19.00
SUNBURST	
The Factory	30.00
Teasers by Tobbs	30.00
TERRAPIN Logo	60.00
XEROX	
Sticky Bear ABC	24.00
Sticky Bear Numbers	24.00
Sticky Bear Bop	24.00
Sticky Bear Opposites	24.00
Sticky Bear Shapes	24.00

Business

APPLE	
Appleworks	Call
Apple Writer IIe	124.90
ARTSCI	
Magic Office Systems	187.90
Magic Calc	94.00
Magic Window II	94.00
ASHTON-TATE DB II	278.00
BPI	
General Accounting	235.00
GL, AR, AP, PR or INV	235.00
CONTINENTAL	
Home Accountant	43.00
Tax Advantage	41.90
FCM/FL	61.00
G/L, A/R, A/P	144.00
DOW JONES SOFTWARE	
The Market Analyzer	208.00
Market Manager	148.00
HARPER AND ROW	
The Write Stuff	41.00
HOWARD SOFTWARE SERVICES	
Real Estate Analyzer II	145.00
KENSINGTON	
Format II Enhanced	92.00
LIVING VIDEO Think Tank II/IIe	86.00
MEGAHAUS	
MegaFinder	98.00
MegaSpell	38.00
MegaWorks	Call
MegaWriter	64.00
MICROPRO	
Wordstar	217.00
Calcstar	49.00
Wordstar W/Z Card	228.00
MICROSOFT Multiplan	75.00
PEACHTREE Peach Calc	91.90
QUARK	
Lexicheck/Word Juggler IIe	118.00
SENSIBLE SOFTWARE	
Sensible Speller	72.00
Bookends	72.00
Report Card	37.00
SIERRA ON-LINE	
The General Manager II	131.00
Homeword	43.00
ScreenWriter IIe	78.00
SILICON VALLEY	
The Handlers Package	103.00
List Handler	46.90
The Word Handler II	46.90
SOFTWARE ARTS	
Visicalc Package	114.00
SOFTWARE PUBLISHING	
PFS: Access	Call
PFS: Write	72.00
PFS: File	72.00
PFS: Graph	72.00
PFS: Report	72.00
STONEWARE	
DB Master 4 Plus	208.00
VISICORP	
Visitrend/Visiplot	60.00

MacIntosh

PFS: File	74.00
PFS: Report	74.00
PFS: File/Report	117.00
Typing Tutor III	31.00
Millionaire	36.00
Transylvania	20.00
Coveted Mirror	20.00
The Quest	20.00
Main Street Filer	118.75
Helix	236.00
Sargon III	30.00
McPic!	30.00
Click Art	29.00
Home Accountant	60.00
Microsoft Multiplan	117.00
Microsoft Basic	90.00
Microsoft Chart	75.00
Microsoft Word	117.00
Mac the Knife	27.50
Zork I	24.00
Zork II & III	30.00
Master Type	30.00
1st Base	116.00
DB Master (Mac)	117.00
DaVinci (series)	ea. 30.00
Habadex	72.00
TK Solver	148.00

Printers

APPLE	
Imagewriter (10 & 15")	Call
BROTHER	
HR-25	655.00
HR-35	830.00
DAISY WRITER 2000	Call
DIABLO	
620 (RS-232C)	850.00
630 (PC)	1,785.00
Ink Jet Printer	1,150.00
DYNAX DX-15	375.00
EPSON	
FX-80	Call
FX-100	Call
RX-80F/T	Call
RX-100	Call
LQ-1500	Call
NEC INFO SYSTEMS	
N2030	680.00
N3530	1,255.00
P2T	665.00
JUKI 6100	395.00
MANNENSMANN TALLY	
MT-160L	605.00
MT-180L	795.00
MT-Spirit	295.00
OKIDATA	
Microline 82A	305.00
Microline 83A	435.00
Microline 92P	355.00
Microline 93P	595.00
PANASONIC	
KXP 1090	215.00
KXP 1091	295.00
KXP 1092	435.00
KXP 1093	615.00
PROWRITER	
8510AP	295.00
1550AP	445.00
8510SP	395.00
Starwriter A10-20P	475.00
Daisywheel A10-20S	505.00
QUME Printers	Call
SILVER REED	
EXP400P	265.00
EXP500P	325.00
EXP550P	395.00
EXP770P	745.00
STAR MICRONICS	
SG 10	235.00
SG 15	395.00
SR 10	495.00
SR 15	595.00
SD 10	345.00
SD 15	475.00
TOSHIBA Printers	Call
TRANSTAR	
120P	425.00
130P	550.00
315	455.00
Pics Card	95.00

Disk Drives

APPLE	
Disk II Drive	299.00
Duo Disk w/acc. kit	Call
Pro File Disk Drive	Call
IIc Add-On	Call
Mac Add-On	Call
INFAX	
101 10 Meg	2,145.00
102 20 Meg	3,350.00
INDUS GT Slimline	250.00
MICRO SCI	
A2 143K	190.00
Slimline IIe	193.00
Slimline IIc	207.00
Micro SCI Controller	57.00
QUENTIN	
AP 100A Full Height	198.00
AP 105 Slimline	210.00
AP 110A Twin Pack	415.00
RANA	
Elite I	195.00
Elite II	355.00
Elite III	428.00

Monitors

AMDEK	
Color 300	235.00
Color 500	395.00
Color 600	415.00
Video 300G Green	128.00
Video 300A Amber	138.00
DVM II or III	130.00
BMC	
Color Plus Monitor	239.00
BM12 AOW Green	95.00
PANASONIC	
TR 120 Green	145.00
TR 120 Amber	150.00
DTD 1300 RGB	400.00
PRINCETON	
HX-12	469.00
RGB Interface	155.00
SAKATA	
SC-100 Color	245.00
SC-200 RGB Color	455.00
SG-1000 Green	95.00
TAXAN	
Green (Hi-Res)	120.00
Amber (Hi-Res)	130.00
210 13" Color (Lo-Res)	264.00
RGB Vision III	399.00
410-64 RGB-2 Interface	185.00

Specials

EDD III	45.00
Locksmith 5.0	66.00
CIA Files	48.00
Back It Up III	52.00
Copy II+	21.00
Wildcard II	99.00
Dollars & Sense/Mac	87.00
Copy Master II	Call
Copy Mac	24.00
Megaworks	Call

Home/Accessories

Pixit	30.50
Take One	36.50
Apple Mechanic	18.00
Beagle Basic	21.00
Beagle Graphics	35.00
Disk Quick	18.00
Doss Boss	14.00
Double Take	21.00
Fat Cat	21.00
Flex Type	18.00
Frame Up	18.00
GPLE	30.00
Pronto Doss	18.50
Silicon Salad	15.00
Triple Dump	24.00
Type Faces	12.00
Utility City	18.00
Zoom Graphics	31.00
Visible 6502	32.00
Crossword Magic	31.00
Einstein Compiler	88.00
Einstein Memory Trainer	55.00
Turbo Pascal	33.00
Net Worth	49.00
Bank Street Writer	41.00
Bank Street Speller	41.00
Bank Street Filer	Call
Print Shop	28.00
Graphics Library	15.00
Digital Paint Brush	198.00
Forecast	38.00
Time Trax	65.00
DATA TRANSFORMS Fontrix	44.90
Font Paks 1-9	ea. 12.50
The Accountant	60.90
Cut & Paste	34.00
Financial Cookbook	34.00
FUNK Sideways	36.00
Orca/M	63.00
Compiler Plus (Hayden)	38.00
LAZERWARE Lisa V 2.6	54.00
MECA Managing Your Money	129.90
Applesoft Compiler	110.00
Typing Tutor II	15.00
Typing Tutor III	31.00
Dollars & Sense	59.00
Dollars & Sense IIc	70.00
The Graphics Magician	37.00
New Complete Graphics System	48.00
Paper Graphics	31.00
Cat Graphics	22.00
QUALITY Bag of Tricks	26.00
Merlin	37.00
Merlin Pro	44.00
Merlin Combo	66.00
SOFTRONICS Softerm II	128.00
TURNING POINT Time is Money	61.00
ASCII Pro	78.00
Micro Cookbook II/IIe	23.00
CPM Gold Card (Digital)	248.00
Hayes Mach II	29.00
Hayes Mach III	34.00
Kraft Joystick	34.00
TG Joystick	Call
TG Select-A-Port	28.00
Micromodem IIe/w SC I	218.00
1200 Baud Modem	458.00
KENSINGTON System Saver	64.00
KEYTRONICS Keyboards	245.00
Koala Pad	75.00
Muppet Learning Keys	44.00
The Gibson Light Pen	158.00
MCT Speed Demon	218.00
Ram Card	68.00
Soft Card	230.00
Premium Softcard IIe	294.00
Apple Cat II	193.00
212 Apple Cat II	373.00
ORANGE MICRO Grappler plus	Call
Buffered Grappler	Call
PICASSO w/interface	119.00
PROMETHIUS Pro Modem 1200	335.00
PROMETHIUS Internal IIe/II+	305.00
SATURN 128K Ram Card	215.00
Accelerator IIe	Call
Popcom Modem (1200)	Call
Nice Print	128.00
The Cricket	125.00
Echo II+	115.00
Mockingboard "A"	79.00
Mockingboard "B"	78.00
Mockingboard "C"	143.00
Mockingboard "D"	143.00
TEXTPRINT Print It	138.00
THIRDWARE Fingerprint	105.00
Flip N File 50	20.00
Elephant Trunk	19.00
Compu Serve Starter Kit	24.00
Head Cleaning Kit	20.00
Key Pad (Trackhouse)	109.00
Thunderclock Plus	109.00
Ultraterm	245.00
Videoterm SS/INV	178.00

If something you would like is not listed, just call. For Inquiries and Connecticut Orders Call (203) 375-3860

VISA

MasterCard

For Fast Delivery send cashier's check, certified check or money order. Personal and company check allow 3 weeks to clear. Shipping – Software ($2.50 minimum). C.O.D. add an additional $1.75. Shipping – Hardware (please call). Alaska, Hawaii, Canada, PO, APO and FPO $5.00 minimum. Foreign orders – $15.00 minimum and 15% of all orders over $100. Mastercard & Visa (include card # and expiration date). Connecticut residents add 7.5% sales tax. We ship same day for most orders. Prices subject to change without notice. School purchase orders accepted. All returns must have a return authorization number. Call 203-375-3860 to obtain one before returning goods for replacement.

ORDERS ONLY - TOLL FREE
7 DAYS/WK 9AM to 11PM EST
1-800-382-2242

CIRCLE 330 ON READER SERVICE CARD

ERGONOMICS

▶ **APPLEWORDS**
BY STEVE ROSENTHAL

A short glossary of terms for use with 'Ergo, Ergonomics,' page 25

AMBER SCREEN
A monochrome (one-color) monitor screen that shows text and graphics as amber and black. Some people insist that amber is easier on the eyes than black and white or green, and amber monitors are very popular in Europe. Controlled studies, however, have not found a difference in either productivity or eyestrain between similar-quality amber and green monitors.

ANTIGLARE SCREEN
A CRT screen that has been treated to reduce the amount of light reflected off the front of the glass. Common treatment techniques include etching (slightly roughening) the surface, coating it with a thin optical filter, and placing a fine nylon-mesh net in front of the screen.

CIRCULAR POLARIZER
A type of filter that reduces the amount of light and glare reflected from a CRT screen. The polarizer keeps light that has passed through the filter from the outside—and been reflected from the screen—from passing back out, but it allows most of the light from the phosphor inside the CRT to pass through. You can add a polarizer to most Apple monitors.

CONTRAST RATIO
The factor by which the lightest part of a display is brighter than the darkest. Too large a contrast ratio makes the screen seem stark, and too little contrast makes it look flat and hard to read. Large LCDs, such as the 80-column display for the Apple IIc, have much lower contrast ratios than do CRTs, which makes the LCDs harder to read.

DETACHED KEYBOARD
A keyboard that connects to the computer or terminal by a cord, rather than being built into a larger unit. Most ergonomics experts say a detached keyboard is better for long sessions because it allows you to position the keyboard where you want it and to change your posture every so often. In the Apple lineup, only the Macintosh comes with a detached keyboard, but you can buy add-on external keyboards for the II, II Plus, and IIe.

DIN 4549
The German standard for office furniture and work spaces. It is widely cited as an example of ergonomic requirements. Among other provisions, the standard calls for work spaces containing terminals or computers to have work surfaces that are 72 cm (29 inches) above the floor, at least 80 cm (32 inches) deep, and 160 cm (64 inches) wide. Legroom must be at least 65 cm (26 inches) high and wide, and chairs must be adjustable. Each workstation must have at least 8 square meters (about 26 square feet) of floor area or 12 square meters (about 40 square feet) if it is in an open area. Keyboard thickness must be not more than 30 mm (about 1 inch), and there must be 5 to 10 cm (about 2 to 4 inches) of room in front of the keyboard for a wrist rest.

ENVIRONMENTAL LIGHTING
The general light level in the workplace. Especially in offices where people are using computers, the light level should be diffuse and subdued, with more light focused where needed. Most authorities recommend 400 to 500 lux (equal to 30 to 40 footcandles—see *Lumen* entry).

ERGONOMICS
The study of the interaction between people and their work, particularly their tools and workplaces. *Ergonomic* is a coined word, meaning the science of work (ergon).

ETCHED
Applied to the faceplate or screen of a CRT, a slight roughening with a faint pattern of dots or lines. The roughening causes only a small amount of blurring of the light coming out, but it significantly reduces the reflection of light from the outside coming off the glass. Apple monitors have etched faceplates.

FLICKER
As applied to video images, a regular pulsation in brightness of the entire picture or a part of it. Brightness flicker is the pulsation in large areas at high brightness. Interline flicker refers to the small sparkles that show around the edges of objects. You can reduce flicker by increasing the field rate (the speed at which images are shown), by reducing brightness, or by using a longer-persistence phosphor.

LOW-PROFILE KEYBOARD
A keyboard that rests close to the work surface, particularly one meeting the German DIN standards. These standards call for a home row not more than 30 mm (1.2 inches) high, with a 5-to-15-degree keyboard slope (12 degrees is best). Although Apple keyboards don't meet this standard, you can buy add-ons for the II family that do.

LUMEN
A unit of light intensity. It is the amount of light that passes through a specified angle (1-degree solid angle) from a standard candle. One lumen per square foot is a footcandle; one lumen per square meter is one lux.

MATTE FINISH
A slightly roughened finish that reflects light diffusely. Matte finish on components, such as the housings of monitors or keyboards, can reduce reflection and glare.

MESH
A fine nylon net that you place in front of a video screen to cut reflected glare. Nylon-mesh glare screens are inexpensive, but they are hard to clean and only partially effective.

OPTICAL COATING
A thin chemical layer applied to the surface of a display tube to decrease the reflectance of light from outside back to the viewer.

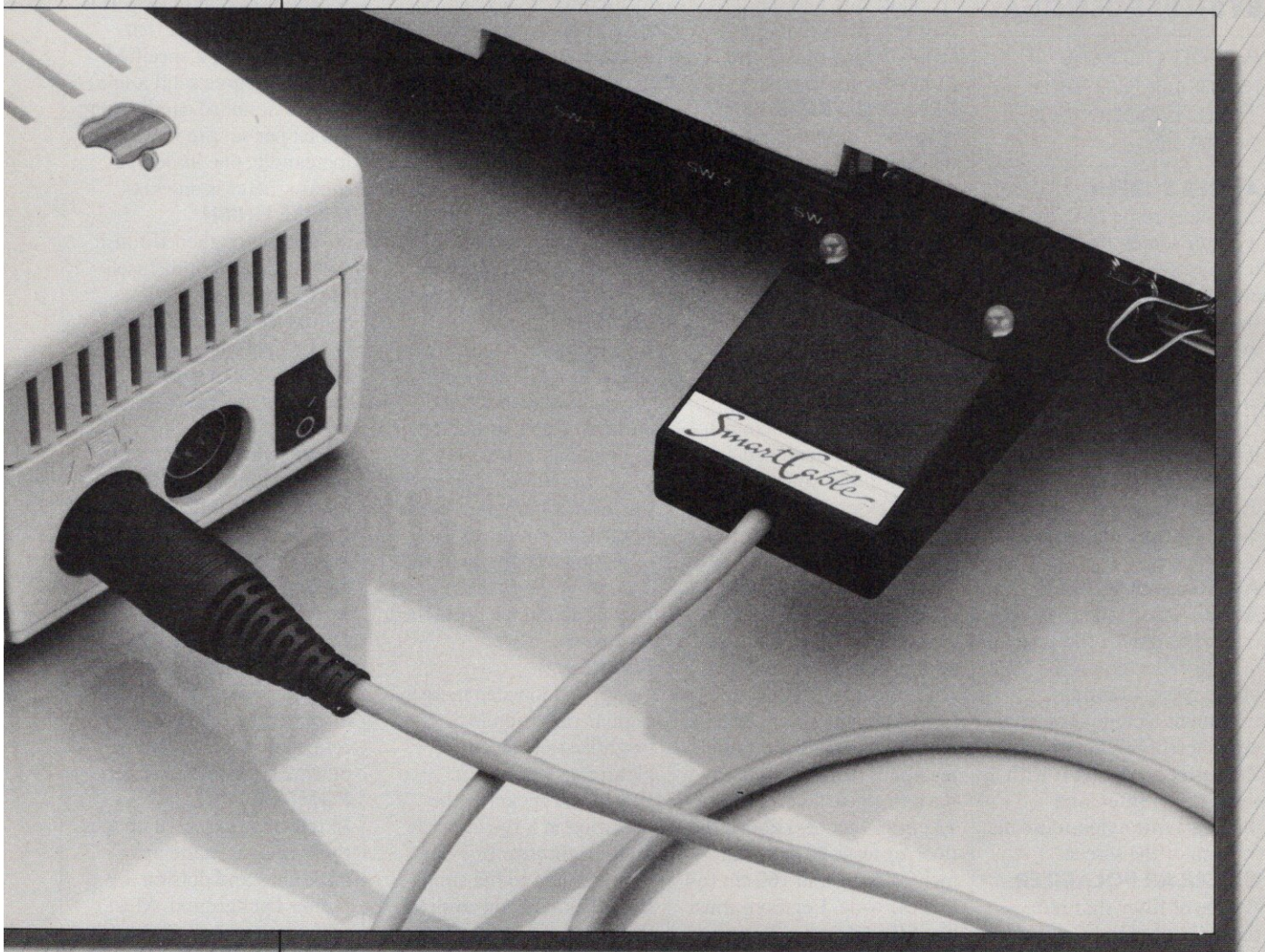
POSITIVE
In referring to screen images, those images made up of dark lines and dots on a lighter background. Most ergonomic standards prefer this mode, but it requires a higher-quality display to prevent visible flicker.

SCULPTURED KEYS
On a keyboard, the concave key tops that allow for secure finger positioning. The term is sometimes used for "dished" keyboards, in which the axes of the key movements are tilted slightly toward the middle row.

WATERFALL EDGE
On a chair, a rounded front edge that resembles the shape of the top surface of water as it runs off an abrupt edge. This design is said to reduce pressure on the thighs and prevent cutting off of circulation. ✚

APPLE JACKS

The smart solution to Apple IIc serial connections.



The Apple® IIc puts a complete computer system at your fingertips. Until you try to let your ideas out of the IIc box.

That's when you discover you need special adaptors and custom cables to hook up with printers, plotters or modems.

Unless, of course, you get smart. And pick up the SC 809 Smart Cable™ from IQ Technologies. The single-cable solution to your peripheral connection problems.

Just connect one end of the Smart Cable to your IIc and the other to virtually any peripheral. Flick a switch. And it's done! Our ingenious electronics do the rest. Automatically.

And at $49.95,* the Smart Cable is an affordable necessity that even your pocketbook can appreciate.

Ask for it by name at your dealer today. Because connecting with the Smart Cable keeps a good Apple from going bad.

IQ TECHNOLOGIES, INC.

11811 NE First Street, Bellevue, WA 98005
TELEX: 701 472 IQTECH UD (206) 451-0232

*Suggested retail price.
Smart Cable is a trademark of IQ Technologies. Apple is a registered trademark of Apple Computer, Inc.

CIRCLE 335 ON READER SERVICE CARD

BY DEBORAH DIETSCH

Comfort and well-being for computer users

Ergo, ergonomics

If you're like most Apple users, your computer has made word processing, calculations, and even drawing much faster and easier to do. Lately, however, you may have noticed that your back is aching, your eyes have started to burn, and headaches are becoming more frequent. Could it be the flu? Perhaps. More likely, though, all of these symptoms–and more–stem from a poorly designed work space for your computer.

Keystroking an Apple certainly isn't as dangerous as working with radioactive materials, but long-term exposure to uncomfortable furniture, inadequate lighting, and insufficient ventilation can produce a myriad of illnesses, ranging from tendinitis to a reduced ability to distinguish colors.

Concern over these health hazards has led to government-funded research, in this country and abroad, to determine methods of coping with computer-related physical as well as emotional ailments—ranging from thrombophlebitis (blood clots) due to uncomfortable seating to feelings of worker isolation. As a result of growing public concern over these health hazards, more than a dozen states are considering legislation to govern the office use of video-display units. The legislation calls for safeguards such as mandatory eye exams, work rotation, and adjustable desks and chairs.

Studies of computer users point out that a well-designed workplace is critical to worker comfort and safety. A 1983 National Research Council report concludes, "With proper design of VDT display, lighting and work stations . . . VDT work need not cause any unique visual problems."

Enter Ergonomics

Furniture manufacturers have begun to pay more attention to ergonomics—from the Greek, *ergos* (work) and *nomos* (natural laws)—the study of designing the work environment to meet human needs. This behavorial science, also known as "human-factors engineering," had its start during World War II in the design of aircraft controls and pilot seating. During the past two decades, ergonomics has increasingly focused on product design, drawing upon the fields of anatomy, physiology, and psychology.

With the growth of automated work and the white-collar sector, office furniture has become more ergonomic and now includes a variety of products—introduced since the 1970s—that exclusively support the desktop computer. Many of the most advanced designs come from Europe. European manufacturers adhere to strict government regulations, as a result of pressure from strong white-collar unions in countries such as West Germany and Sweden.

American furniture manufacturers have rushed to keep pace with these foreign imports, but this country has no mandatory standards governing design, manufacture, or use of computer-support furniture. Nevertheless, the number of products on the market has never been greater. They range from work surfaces that you can lower or raise up to six inches—with separate surfaces for monitors and keyboards—to chairs that you can angle, tilt, and swivel in almost any direction. Although the market for computer-support furniture has

increased, seven out of ten personal-computer users are not aware that this furniture exists, according to a recent study by the Business Projects Consulting Group, of Centerport, New York.

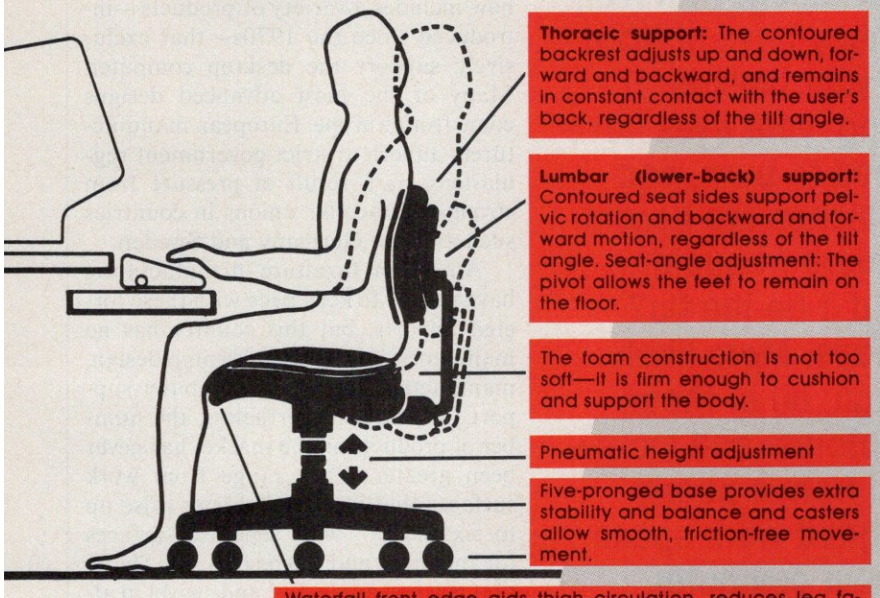
If you want to set up a computerized work area at home, what should you look for? Begin by determining how frequently you use your Apple. As ergonomics expert Jon Ryburg of the Facility Management Institute in Ann Arbor, Michigan, points out, "Ergonomics becomes really important when you spend more than a third of your time at the computer." If you are a constant user, insist on adjustable chairs, work surfaces, and lighting, so that you can adjust your environment to suit your comfort.

Furniture Design

The most rapid advances in ergonomic-furniture design center on the chair, no doubt because back disorders are the number 1 cause of worker absenteeism, affecting 50–80% of the population. A 1980 Louis Harris poll conducted for Steelcase, the largest U.S. manufacturer of furniture, found that 54% of surveyed workers felt that the comfort of their chairs affected their performance. Indeed, the current preoccupation with increased productivity on the part of American management has boosted the development of ergonomic chairs that incorporate a

(continued on page 32)

Diagram of factors that contribute to an ergonomic chair design



Source: William Pulgram and Richard Stonis, *Designing the Automated Office* (Whitney Library of Design, New York, 1984)

FOR SITTING DOWN ON THE JOB, MAKE SURE TO CHOOSE THE PROPER SEAT

Sit Comfortably

When trying out a chair in a store, check that yo hips and knees are at right angles and your fe flat on the floor. Remember, though, that few pe ple maintain this posture for long. Research sho that a sitter changes positions every eight to t minutes. Be sure that you can raise or lower t seat of the chair; experts recommend six to ni inches of movement, from a height of 16 to inches. Many so-called ergonomic chairs now i corporate gas-lift mechanisms, which make sea height adjustment as easy as pressing a butt under the seat.

The front edge of a seat should be rounded "scrolled" so that it doesn't cut into the back your legs and restrict blood flow to the thighs a feet. The seat cushion should be lightly padded that any pressure exerted on the buttocks can shifted. If too soft, a cushion can cause pressu under the thighs and thrust the hip bones forwar It should be constructed in a material th "breathes," to avoid trapping body heat and pe spiration, which can lead to rashes and other infe tions,

To support the lumbar region of the spine pro erly, a chair's backrest should fit snugly into t small of your back and tilt backward and forwa to accommodate seated movement—at an angle 80 to 120 degrees, measured from the seat. To a just to the lower back, the backrest should be ab to move up and down two inches or more.

If the chair reclines, it should have a headre but it should not push the head forward. Armre are important in reducing shoulder and arm f tigue. They should be short enough to allow t chair to be drawn up to the work surface and, id ally, be adjustable in height.

To provide stability, the base of the chair shou be five-pronged. If a leg should break off from th type of base, the remaining prongs will rema firmly and safely on the floor. For mobility, choo a swivel base on casters.

Checklist

In choosing a chair, consider the following:

1. Is the chair height easily adjustable from t seated position?
2. Does the backrest adequately support the lowe lumbar region of the spine?
3. Does the backrest tilt backward and forward
4. Can it be adjusted up and down?
5. Do armrests interfere with movement?
6. Does the seat have a rounded front edge?
7. Is the chair adequately padded?
8. Does the chair feature a five-legged base w casters?

Ergonomic chairs currently on the market are adjustable to fit almost any body type. One of the earliest models is the Vertebra chair *(TOP LEFT)*, designed by Emilio Ambasz and Giancarlo Piretti in the early 1970s and available in the U.S. from Krueger (Green Bay, WI). More-recent designs include the Equa chair *(BELOW)*, from Herman Miller, Inc. (Zeeland, MI), which provides continuous lumbar support in its flexible shell and tilts from a pivot mechanism located behind the knees. Just introduced from Knoll International (New York, NY) is new seating designed by Niels Diffrient *(BOTTOM RIGHT)* that can be pneumatically raised or lowered up to 10½ inches and features a movable foot ring on its high-task model. For SunarHauserman (Norwalk, CT), Diffrient has created the ultimate luxury in ergonomics, a leather reclining lounge chair with its own set of computer support tables, lighting, and accessories *(BOTTOM LEFT)*.

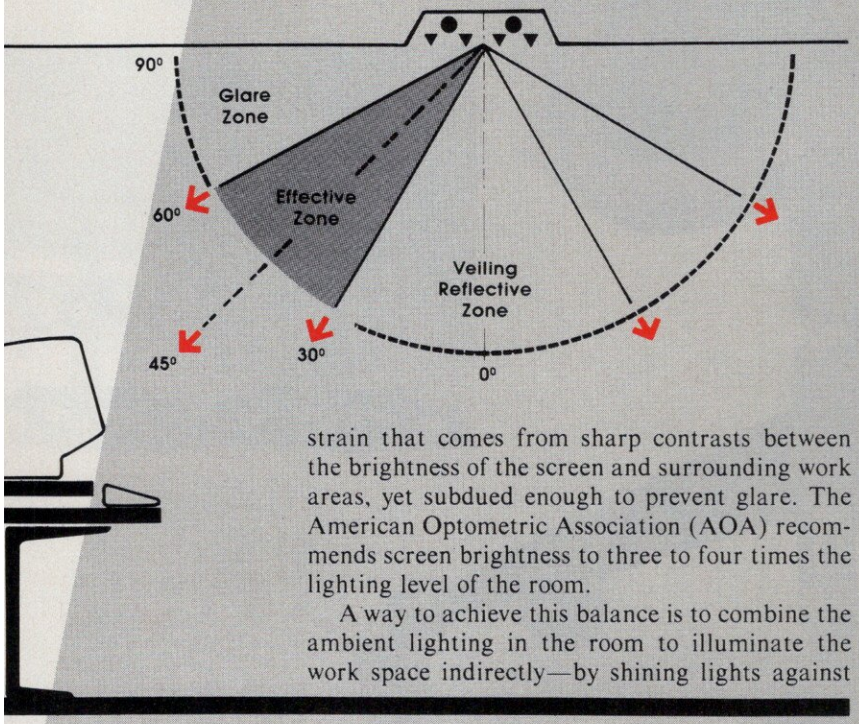
er/go/nom/ics

BEYOND THE FIXTURE ITSELF, PROPER LIGHTING DEPENDS UPON SPECIFIC ROOM CONDITIONS AND THE PLACEMENT OF YOUR COMPUTER MONITOR.

Let There Be (Glare-Free) Light

Your Apple should be positioned so that the incidence of light from overhead fixtures is as close to 45° on the monitor as possible.

Selecting the proper lighting for your computer workstation is a much more difficult task than choosing furniture or accessories, since it is dependent on specific room conditions and the placement of the computer monitor. Not only must the lighting fixture illuminate the screen—a source of light and reflection in itself—but it must also light the keyboard and adjacent paper documents on the desk. In addition, the general level of room lighting should be bright enough to avoid the eye-strain that comes from sharp contrasts between the brightness of the screen and surrounding work areas, yet subdued enough to prevent glare. The American Optometric Association (AOA) recommends screen brightness to three to four times the lighting level of the room.



A way to achieve this balance is to combine the ambient lighting in the room to illuminate the work space indirectly—by shining lights against walls or ceiling with a directly focused, adjustable task lamp on the side of your desk that you use for paperwork. The brightness of the ambient lighting should range from 30 to 50 footcandles (about half the level of brightness in an ordinary, paper-pushing office), according to the AOA, and task lighting should be at a level of 70 footcandles. (A light meter that gives a reading in footcandles is available from General Electric Company.) If you use overhead fixtures to illuminate the computer screen, the incidence of light should be as close to a 45-degree angle as possible on the monitor to avoid veiling reflections and glare.

Filters that fit over the computer screen are another way of reducing glare, but they may diminish contrast, character visibility, and brightness.

Apple Computer, Inc. has improved display visibility on the Macintosh with black characters on a white background. Known as "negative contrast" or "positive presentation," this type of display "reduces the effects of veiling reflections on the screen and may help to reduce problems of adapting to the different luminance levels of the VDT and surrounding objects," according to the National Research Council.

If you work near a window, be sure that your Apple monitor is placed at right angles to it, so that incoming sunlight doesn't shine directly into your eyes or from behind you onto the screen. Stick to neutral tones when choosing colors for your work surface, in order to prevent extreme, competing contrasts in brightness between desktop and display. Matte, rather than shiny, finishes are recommended to prevent light bouncing off the work surface onto the screen.

When choosing light fixtures, try to stay away from fluorescent tubes. Not only do some of these tubes produce an unnatural, greenish-white light, but they also have a tendency to flicker when tubes are wearing out or circuits are faulty. Some researchers believe fluorescent lamps cause long-term health risks, from fatigue to cell mutations.

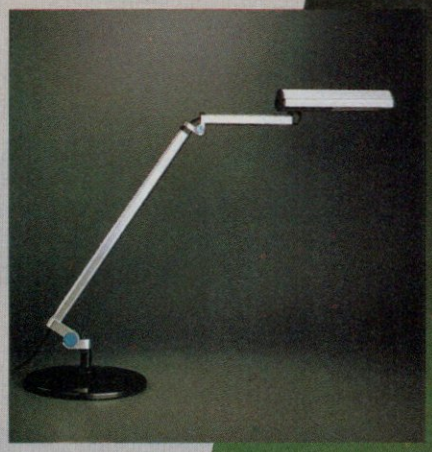
More soothing to the eyes—and to the psyche—are halogen lamps; common incandescent bulbs; and the newly developed Norelco PL13 fluorescent bulb and Vita Lite, manufactured by the Duro-Test Corporation of North Bergen, New Jersey. All of these luminaires emit bright, warm light. Vita Lite produces a mix of broad-spectrum colors that simulate natural daylight, which, according to recent studies, has been found to cure everything from depression to jet lag.

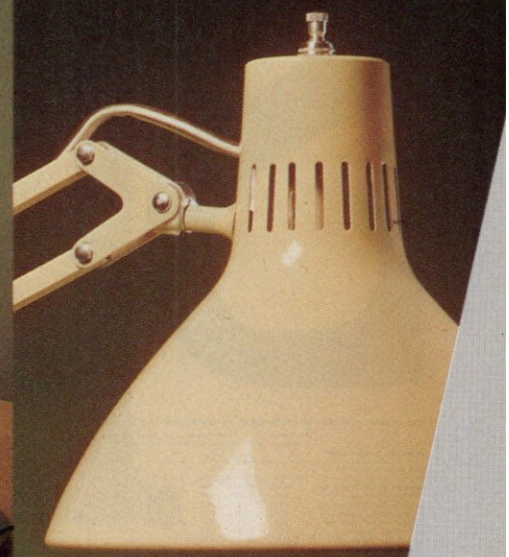
Checklist

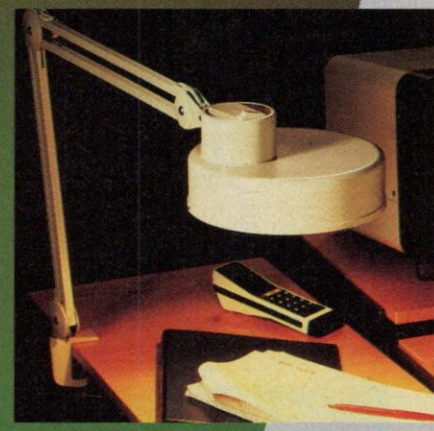
When selecting your lighting, be sure to consider the following points:

1. Is the level of illumination from the fixture adequate for computer use?
2. Is the light flicker-free?
3. Is the fixture covered with glare shields or an adjustable shade?
4. Can you easily position the lamp to avoid glare and reflections?
5. Are the windows near your work space covered with blinds, curtains, or other means of controlling daylight?

Source: William Pulgram and Richard Stonis, *Designing the Automated Office* (Whitney Library of Design, New York, 1984)







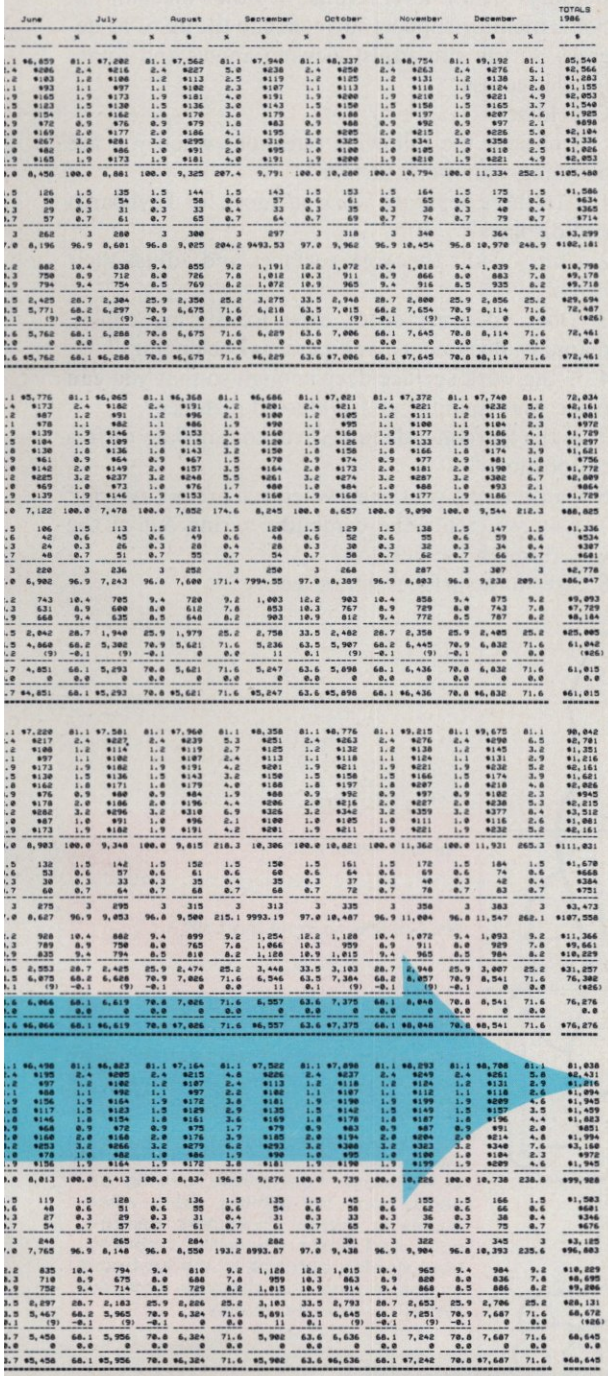
Task lighting is available in various forms, from the ubiquitous Luxo (Port Chester, NY) drafting lamp *(LARGE PHOTO)* to the step-shaded desk fixture from Herman Miller *(BOTTOM RIGHT)*. Luxo's new lighting line includes Stringa *(CENTER PHOTO)*, which incorporates spring-tension pivots inside its flexible arm. Its asymmetric fixture *(CENTER RIGHT)* is specially designed for the computer, with a multifaceted reflector to eliminate glare. The Italian-designed Desk model *(TOP LEFT)* from Atelier International (New York, NY) features an aluminum support that extends from 10 to 34 inches. Artemide's (New York, NY) Alistro lamp houses the new Norelco PL13 fluorescent bulb *(TOP RIGHT)*.

Space

THE MASSARO CORPORATION---STATEMENT OF OPERATIONS ($000

	January		February		March		April		May		June		July		August		September		October		November		December		TOTALS 1985	January		February		March		April	
WESTERN OPERATIONS	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Net Revenues:																																		
Retail Prod Under 1K	$2,993	81.1	$3,142	81.1	$3				81.1	$3,637	81.1	$3,819	81.1	$4,010	81.1	$4,211	81.1	$4,421	81.1	$4,642	81.1	$4,874	81.1	$5,118	81.1	$47,638	$5,374	81.1	$5,643	81.1	$5,925	81.1	$6,221	81.1
Retail Prod Under 5K	$98	2.4	$94	2.4					$109	2.4	$115	2.4	$120	2.4	$126	2.4	$133	2.6	$139	2.4	$146	2.4	$153	2.4	$1,429	$161	2.4	$169	2.4	$178	2.4	$187	2.4
Retail Prod over 5K	$45	1.2	$47	1.2					$49	1.1	$57	1.2	$63	1.2	$63	1.2	$63	1.4	$66	1.2	$70	1.2	$73	1.2	$77	1.2	$714	$81	1.2	$85	1.2	$89	1.2	$93	1.2
Direct Prod Under 1K	$40	1.1	$42						$49	1.1	$52	1.1	$54	1.1	$57	1.3	$60	1.1	$63	1.1	$66	1.1	$69	1.1	$643	$73	1.1	$76	1.1	$80	1.1	$84	1.1
Direct Prod Under 5K	$72	1.9	$75						$87	1.9	$92	1.9	$96	1.9	$101	2.2	$106	1.9	$111	1.9	$117	1.9	$123	1.9	$1,143	$129	1.9	$135	1.9	$142	1.9	$149	1.9
Direct Prod over 5K	$54	1.5	$57						$65	1.5	$69	1.5	$72	1.5	$76	1.7	$80	1.5	$84	1.5	$88	1.5	$92	2.0	$857	$97	1.5	$102	1.5	$107	1.5	$112	1.5
OEM Prod Under 1K	$67	1.8	$71	1.8	$74	1.8	$78	1.7	$82	1.8	$86	1.8	$90	1.8	$95	2.1	$99	1.8	$104	1.8	$110	1.8	$115	2.6	$1,078	$121	1.8	$127	1.8	$133	1.8	$140	3.1
OEM Prod Under 5K	$21	0.9	$33	0.9	$35	0.9	$36	0.8	$38	0.9	$40	0.9	$42	0.9	$44	1.0	$46	0.9	$49	0.9	$51	0.9	$54	1.2	$508	$56	0.9	$59	0.9	$62	0.9	$65	1.5
OEM Prod over 5K	$74	2.0	$77	2.0	$81	2.0	$85	1.9	$89	2.0	$94	2.0	$99	2.0	$104	2.3	$109	2.0	$114	2.0	$120	2.0	$126	2.8	$1,178	$132	2.0	$139	2.0	$146	2.0	$153	3.4
VAR Prod Under 1K	$117	3.2	$123	3.2	$129	3.2	$135	3.0	$142	3.2	$149	3.2	$156	3.2	$164	3.7	$172	3.2	$181	3.2	$190	3.2	$200	4.4	$1,858	$210	3.2	$220	3.2	$231	3.2	$243	5.4
VAR Prod Under 5K	$36	1.0	$38	1.0	$40	1.0	$42	0.9	$44	1.0	$46	1.0	$48	1.0	$51	1.1	$53	1.0	$56	1.0	$59	1.0	$61	1.4	$572	$64	1.0	$68	1.0	$71	1.0	$75	1.7
VAR Prod over 5K	$72	1.9	$75	1.9	$79	1.9	$83	1.8	$87	1.9	$92	1.9	$96	1.9	$101	2.2	$106	1.9	$111	1.9	$117	1.9	$123	2.7	$1,143	$129	1.9	$135	1.9	$142	1.9	$149	3.3
Total Net Revenues	3,690	100.0	3,875	100.0	4,060	100.0	4,272	95.0	4,485	100.0	4,718	100.0	4,945	100.0	5,192	115.5	5,452	100.0	5,724	100.0	6,011	100.0	6,311	140.4	$58,735	6,627	100.0	6,956	100.0	7,306	100.0	7,671	170.6
Cost of Goods Sold:																																		
Retail Products	54	1.5	58	1.5	62	1.5	66	1.5	65	1.5	70	1.5	75	1.5	80	1.5	80	1.5	85	1.5	91	1.5	97	1.5	$883	97	1.5	104	1.5	111	1.5	119	1.5
Direct Sale Products	22	0.6	23	0.6	25	0.6	26	0.6	26	0.6	28	0.6	30	0.6	32	0.6	32	0.6	34	0.6	36	0.6	39	0.6	$353	39	0.6	41	0.6	44	0.6	47	0.6
OEM Products	12	.3	13	0.6	14	0.3	15	0.4	15	0.3	16	0.3	17	0.3	18	0.4	18	0.3	20	0.3	21	0.3	22	0.4	$203	22	0.3	24	0.3	25	0.3	27	0.4
VAR Products	16	.4	16	0.4	17	0.4	18	0.4	17	0.4	19	0.4	20	0.4	21	0.4	22	0.4	23	0.4	24	0.4	26	0.4	$237	26	0.4	28	0.4	29	0.4	31	0.4
Total COGS	104	2.8	110	2.8	118	2.9	125	2.9	123	2.7	133	2.8	142	2.9	151	3.4	152	2.8	162	2.8	172	2.9	184	2.7	$1,677	184	2.8	197	2.8	208	2.8	224	3
Gross Profit	3586	97.2	3765	97.2	3942	96.8	4,134	91.8	4349.89	97.0	4,564	96.9	4,789	96.8	5,025	112.3	5286.35	97.0	5,547	96.9	5,821	96.8	6,108	137.1	$56,896	6485.59	97.0	6,743	96.9	7,076	96.8	7,425	167.4
Operating Expenses:																																		
Marketing	449	12.2	484	10.4	384	9.4	391	9.2	546	12.2	491	10.4	466	9.4	476	9.2	663	12.2	597	10.4	567	9.4	578	9.2	$6,013	806	12.2	726	10.4	689	9.4	703	9.2
Development	388	10.5	343	8.9	326	8.0	333	7.8	464	10.3	417	8.9	397	8.0	404	7.8	564	10.3	507	8.9	482	8.0	492	7.8	$5,111	685	10.3	617	8.9	586	8.0	598	7.8
Finance & Admin	404	10.9	364	9.4	345	8.5	352	8.2	491	10.9	442	9.4	428	8.5	428	8.2	597	10.9	537	9.4	510	8.5	521	8.2	$5,411	726	10.9	653	9.4	620	8.5	633	8.2
Total Expenses	1,234	33.5	1,111	28.7	1,055	25.9	1,077	25.2	1,500	33.5	1,350	28.7	1,283	25.9	1,309	25.2	1,824	33.5	1,641	28.7	1,559	25.9	1,591	25.2	$16,535	2,217	33.5	1,995	28.7	1,895	25.9	1,933	25.2
Income Opns	2,344	63.5	2,644	68.2	2,885	70.9	3,058	71.6	2,849	63.5	3,213	68.2	3,506	70.9	3,717	71.6	3,463	63.5	3,906	68.2	4,262	70.9	4,516	71.6	$40,363	4,289	63.5	4,748	68.2	5,180	70.9	5,492	71.6
Interest Inc. (Exp)	11	0.3	(9)	-0.2	(9)	-0.2	0	0.0	11	0.2	(9)	-0.2	(9)	-0.2	0	0.0	11	0.2	(9)	-0.2	(9)	-0.2	0	0.0	($21)	11	0.2	(9)	-0.2	(9)	-0.1	0	0.0
Income before Taxes	2,355	63.8	2,635	68.0	2,876	70.7	3,058	71.6	2,860	63.8	3,204	68.0	3,497	70.7	3,717	71.6	3,474	63.7	3,897	68.1	4,253	70.8	4,516	71.6	$40,342	4,280	63.7	4,739	68.1	5,171	70.8	5,492	71.6
Prov. Inc. Taxes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	$0	0	0.0	0	0.0	0	0.0	0	0.0
Net Income (Loss)	$2,355	63.8	$2,635	68.0	$2,876	70.7	$3,058	71.6	$2,860	63.8	$3,204	68.0	$3,497	70.7	$3,717	71.6	$3,474	63.7	$3,897	68.1	$4,253	70.8	$4,516	71.6	$40,342	$4,280	63.7	$4,739	68.1	$5,171	70.8	$5,492	71.6
EASTERN OPERATIONS																																		
Net Revenues:																																		
Retail Prod Under 1K	$2,520	81.1	$2,646	81.1	$2,778	81.1	$2,917	81.1	$3,063	81.1	$3,216	81.1	$3,377	81.1	$3,546	81.1	$3,723	81.1	$3,909	81.1	$4,105	81.1	$4,310	81.1	$40,111	$4,526	81.1	$4,752	81.1	$4,989	81.1	$5,239	81.1
Retail Prod Under 5K	$75	2.4	$79	2.4	$83	2.4	$88	1.9	$92	2.4	$96	2.4	$101	2.4	$106	2.4	$112	2.4	$117	2.4	$123	2.4	$129	2.9	$1,202	$136	2.4	$143	2.4	$150	2.4	$157	2.5
Retail Prod over 5K	$38	1.2	$40	1.2	$42	1.2	$44	1.0	$46	1.2	$48	1.2	$51	1.2	$53	1.2	$56	1.2	$59	1.2	$62	1.2	$65	1.4	$602	$68	1.2	$71	1.2	$75	1.2	$79	1.7
Direct Prod Under 1K	$34	1.1	$36	1.1	$38	1.1	$39	0.9	$41	1.1	$43	1.1	$46	1.1	$48	1.1	$50	1.1	$53	1.1	$55	1.1	$58	1.3	$542	$61	1.1	$64	1.1	$67	1.1	$71	1.6
Direct Prod Under 5K	$58	1.9	$60	1.9	$62	1.9	$67	1.6	$69	1.9	$74	1.9	$77	1.9	$81	1.9	$85	1.9	$89	1.9	$94	1.9	$99	2.3	$963	$109	1.9	$114	1.9	$120	1.9	$126	2.8
Direct Prod over 5K	$45	1.5	$48	1.5	$50	1.5	$53	1.2	$55	1.5	$58	1.5	$61	1.5	$64	1.4	$67	1.5	$70	1.5	$74	1.5	$78	1.7	$722	$81	1.5	$86	1.5	$90	1.5	$94	2.1
OEM Prod Under 1K	$57	1.8	$60	1.8	$63	1.8	$66	1.5	$69	1.8	$72	1.8	$76	1.8	$80	1.8	$84	1.8	$88	1.8	$92	1.8	$97	2.2	$903	$102	1.8	$107	1.8	$112	1.8	$118	2.6
OEM Prod Under 5K	$26	0.8	$28	0.9	$29	0.9	$31	0.7	$32	0.9	$34	0.9	$35	0.9	$37	0.8	$39	0.9	$41	0.9	$43	0.9	$45	1.0	$421	$48	0.9	$50	0.9	$52	0.9	$55	1.2
OEM Prod over 5K	$62	2.0	$65	2.0	$68	2.0	$72	1.6	$75	2.0	$79	2.0	$83	2.0	$87	1.9	$92	2.0	$96	2.0	$101	2.0	$106	2.4	$987	$111	2.0	$117	2.0	$123	2.0	$129	2.9
VAR Prod Under 1K	$98	3.2	$103	3.2	$108	3.2	$114	2.5	$119	3.2	$125	3.2	$132	3.2	$138	3.1	$145	3.2	$152	3.2	$161	3.2	$169	3.7	$1,564	$176	3.2	$185	3.2	$195	3.2	$205	4.7
VAR Prod Under 5K	$30	1.0	$32	1.0	$33	1.0	$35	0.8	$37	1.0	$39	1.0	$41	1.0	$43	1.0	$45	1.0	$47	1.0	$49	1.0	$52	1.2	$481	$54	1.0	$57	1.0	$60	1.0	$64	1.5
VAR Prod over 5K	$60	1.9	$64	1.9	$67	1.9	$70	1.6	$74	1.9	$77	1.9	$81	1.9	$85	1.9	$89	1.9	$94	1.9	$99	1.9	$103	2.3	$963	$109	1.9	$114	1.9	$120	1.9	$126	2.8
Total Net Revenues	3,107	100.0	3,263	100.0	3,426	100.0	3,597	80.0	3,777	100.0	3,966	100.0	4,164	100.0	4,372	97.2	4,591	100.0	4,821	100.0	5,062	100.0	5,315	118.2	$49,461	5,580	100.0	5,859	100.0	6,152	100.0	6,460	143.7
Cost of Goods Sold:																																		
Retail Products	45	1.5	49	1.5	52	1.5	56	1.5	55	1.5	59	1.5	63	1.5	68	1.5	67	1.5	72	1.5	77	1.5	82	1.5	$744	81	1.5	87	1.5	93	1.5	100	1.5
Direct Sale Products	18	0.6	19	0.6	21	0.6	22	0.6	22	0.6	24	0.6	25	0.6	27	0.6	27	0.6	29	0.6	31	0.6	33	0.6	$297	33	0.6	35	0.6	37	0.6	40	0.6
OEM Products	10	.3	11	0.3	12	0.3	13	0.4	13	0.3	14	0.3	15	0.4	16	0.4	15	0.3	17	0.3	18	0.3	19	0.3	$171	19	0.3	20	0.3	21	0.3	23	0.3
VAR Products	20	0.7	22	0.7	23	0.7	25	0.7	25	0.7	27	0.7	28	0.7	30	0.7	30	0.7	32	0.7	35	0.7	37	0.7	$335	37	0.7	39	0.7	42	0.7	45	0.7
Total COGS	94	3	101	3	108	3	116	3	115	3	123	3	131	3	140	3	139	3	149	3	160	3	171	3	$1,547	169	3	181	3	194	3	208	3
Gross Profit	3013.06	97.0	3,162	96.9	3,318	96.8	3,482	76.8	3662.39	97.0	3,843	96.9	4,033	96.8	4,232	94.0	4451.66	97.0	4,671	96.9	4,902	96.8	5,144	115.0	$47,914	5411.02	97.0	5,678	96.9	5,958	96.8	6,253	140.5
Operating Expenses:																																		
Marketing	378	12.2	348	10.4	323	9.4	330	9.2	459	12.2	414	10.4	393	9.4	401	9.2	558	12.2	503	10.4	477	9.4	487	9.2	$5,063	679	12.2	611	10.4	580	9.4	592	9.2
Development	321	10.3	289	8.9	275	8.0	280	7.8	391	10.3	351	8.9	334	8.0	341	7.8	475	10.3	427	8.9	406	8.0	414	7.8	$4,304	577	10.3	519	8.9	493	8.0	503	7.8
Finance & Admin	340	10.9	306	9.4	291	8.5	297	8.2	414	10.9	372	9.4	354	8.5	361	8.2	503	10.9	452	9.4	430	8.5	438	8.2	$4,557	611	10.9	556	9.4	522	8.5	533	8.2
Total Expenses	1,038	33.4	936	28.7	889	25.9	907	25.2	1,264	33.5	1,137	28.7	1,080	25.9	1,102	25.2	1,536	33.5	1,382	28.7	1,313	25.9	1,339	25.2	$13,924	1,867	33.5	1,686	28.7	1,596	25.9	1,628	25.2
Income Opns	1,974	63.5	2,226	68.2	2,429	70.9	2,575	71.6	2,399	63.5	2,706	68.2	2,955	70.9	3,130	71.6	2,916	63.5	3,289	68.2	3,589	70.9	3,805	71.6	$33,990	3,544	63.5	3,990	68.2	4,362	70.9	4,624	71.6
Interest Inc. (Exp)	11	0.3	(9)	-0.3	(9)	-0.3	0	0.0	11	0.3	(9)	-0.2	(9)	-0.2	0	0.0	11	0.2	(9)	-0.2	(9)	-0.2	0	0.0	($21)	11	0.2	(9)	-0.2	(9)	-0.1	0	0.0
Income before Taxes	1,985	63.8	2,217	68.0	2,420	70.6	2,575	71.6	2,410	63.8	2,697	68.0	2,944	70.7	3,130	71.6	2,927	63.6	3,280	68.0	3,580	70.7	3,805	71.6	$33,969	3,555	63.7	3,989	68.1	4,353	70.8	4,624	71.6
Prov. Inc. Taxes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	$0.0	0	0.0	0	0.0	0	0.0	0	0.0
Net Income (Loss)	$1,985	63.9	$2,217	68.0	$2,420	70.6	$2,575	71.6	$2,410	63.8	$2,697	68.0	$2,944	70.7	$3,130	71.6	$2,927	63.6	$3,280	68.0	$3,580	70.7	$3,805	71.6	$33,969	$3,555	63.7	$3,989	68.1	$4,353	70.8	$4,624	71.6
NORTHERN OPERATIONS																																		
Net Revenues:																																		
Retail Prod Under 1K	$3,150	81.1	$3,308	81.1	$3,473	81.1	$3,647	81.1	$3,829	81.1	$4,020	81.1	$4,221	81.1	$4,432	81.1	$4,654	81.1	$4,887	81.1	$5,131	81.1	$5,388	81.1	$50,139	$5,657	81.1	$5,940	81.1	$6,237	81.1	$6,549	81.1
Retail Prod Under 5K	$95	2.4	$99	2.4	$104	2.4	$109	2.4	$115	2.4	$121	2.4	$127	2.4	$133	3.0	$140	2.4	$147	2.4	$154	2.4	$162	2.4	$1,504	$170	2.4	$178	2.4	$187	2.4	$196	2.4
Retail Prod over 5K	$47	1.2	$50	1.2	$52	1.2	$55	1.2	$57	1.2	$60	1.2	$63	1.2	$66	1.5	$70	1.2	$73	1.2	$77	1.2	$81	1.8	$752	$85	1.2	$89	1.2	$94	1.2	$98	2.2
Direct Prod Under 1K	$34	1.1	$35	1.1	$37	1.1	$39	1.1	$41	1.1	$43	1.1	$45	1.1	$47	1.3	$50	1.1	$52	1.1	$55	1.1	$58	1.3	$542	$61	1.1	$64	1.1	$67	1.1	$71	1.6
Direct Prod Under 5K	$76	1.9	$79	1.9	$82	1.9	$86	1.9	$90	1.9	$94	1.9	$99	1.9	$104	1.9	$109	1.9	$114	2.4	$120	1.9	$126	2.8	$1,202	$136	1.9	$142	1.9	$150	1.9	$157	3.5
Direct Prod over 5K	$57	1.5	$60	1.5	$63	1.5	$66	1.5	$69	1.5	$72	1.5	$76	1.5	$80	1.8	$84	1.5	$88	1.5	$92	1.5	$97	2.2	$903	$102	1.5	$107	1.5	$112	1.5	$118	2.6
OEM Prod Under 1K	$71	1.8	$74	1.8	$78	1.8	$82	1.8	$86	1.8	$90	1.8	$95	1.8	$99	2.2	$104	1.8	$109	2.4	$115	1.8	$121	2.7	$1,128	$127	1.8	$134	1.8	$140	1.8	$147	3.3
OEM Prod Under 5K	$33	0.9	$35	0.9	$36	0.9	$38	0.9	$40	0.9	$42	0.9	$44	0.9	$47	1.0	$49	0.9	$51	0.9	$54	0.9	$57	1.3	$526	$59	0.9	$62	0.9	$65	0.9	$69	1.5
OEM Prod over 5K	$77	2.0	$81	2.0	$85	2.0	$90	2.0	$94	2.0	$99	2.0	$104	2.0	$109	2.4	$114	2.0	$120	2.0	$126	2.0	$133	2.9	$1,233	$139	2.0	$146	2.0	$153	2.0	$161	3.6
VAR Prod Under 1K	$123	3.2	$129	3.2	$135	3.2	$142	3.2	$149	3.2	$157	3.2	$165	3.2	$173	3.8	$182	3.2	$191	3.2	$201	3.2	$211	4.7	$1,955	$221	3.2	$232	3.2	$243	3.2	$255	5.7
VAR Prod Under 5K	$38	1.0	$40	1.0	$42	1.0	$44	1.0	$46	1.0	$48	1.0	$51	1.0	$53	1.2	$56	1.0	$59	1.0	$62	1.0	$65	1.4	$602	$68	1.0	$71	1.0	$75	1.0	$79	1.7
VAR Prod over 5K	$76	1.9	$79	1.9	$83	1.9	$88	1.9	$92	1.9	$96	1.9	$101	1.9	$106	2.4	$112	1.9	$117	1.9	$123	1.9	$129	2.9	$1,203	$136	1.9	$142	1.9	$150	1.9	$157	3.5
Total Net Revenues	3,884	100.0	4,078	100.0	4,282	100.0	4,497	100.0	4,721	100.0	4,957	100.0	5,205	100.0	5,466	121.6	5,739	100.0	6,026	100.0	6,327	100.0	6,643	147.7	$61,826	6,976	100.0	7,324	100.0	7,691	100.0	8,075	179.6
Cost of Goods Sold:																																		
Retail Products	57	1.5	61	1.5	65	1.5	69	1.5	69	1.5	74	1.5	79	1.5	84	1.5	84	1.5	90	1.5	96	1.5	103	1.5	$930	102	1.5	109	1.5	117	1.5	125	1.5
Direct Sale Products	23	0.6	24	0.6	26	0.6	28	0.6	28	0.6	29	0.6	32	0.6	34	0.6	34	0.6	36	0.6	38	0.6	41	0.6	$372	41	0.6	44	0.6	47	0.6	50	0.6
OEM Products	13	.3	14	0.3	15	0.3	16	0.4	16	0.3	17	0.3	18	0.3	19	0.3	19	0.3	21	0.3	22	0.3	24	0.4	$214	23	0.3	25	0.3	27	0.3	29	0.4
VAR Products	26	0.7	27	0.7	29	0.7	31	0.7	31	0.7	33	0.7	36	0.7	38	0.7	38	0.7	40	0.7	43	0.7	46	0.7	$418	46	0.7	49	0.7	52	0.7	56	0.7
Total COGS	118	3	126	3	135	3	144	3	143	3	153	3	164	3	176	3	174	3	186	3	199	3	213	3	$1,934	212	3	227	3	242	3	259	3
Gross Profit	3766.32	97.0	3,952	96.9	4,147	96.8	4,352	96.8	4577.99	97.0	4,804	96.9	5,041	96.8	5,290	118.3	5564.58	97.0	5,839	96.9	6,128	96.8	6,430	144.5	$59,893	6763.78	97.0	7,098	96.9	7,448	96.8	7,816	176.4
Operating Expenses:																																		
Marketing	473	12.2	425	10.4	404	9.4	412	9.2	574	12.2	517	10.4	491	9.4	501	9.2	698	12.2	628	10.4	597	9.4	609	9.2	$6,329	849	12.2	764	10.4	726	9.4	740	9.2
Development	402	10.3	361	8.9	343	8.0	350	7.8	486	10.3	439	8.9	417	8.0	426	7.8	593	10.3	534	8.9	507	8.0	517	7.8	$5,380	721	10.3	649	8.9	617	8.0	629	7.8
Finance & Admin	425	10.9	383	9.4	364	8.5	371	8.2	517	10.9	465	9.4	442	8.5	451	8.2	628	10.9	565	9.4	537	8.5	548	8.2	$5,696	764	10.9	687	9.4	653	8.5	666	8.2
Total Expenses	1,299	33.5	1,169	28.7	1,111	25.9	1,133	25.2	1,579	33.5	1,421	28.7	1,350	25.9	1,377	25.2	1,920	33.5	1,728	28.7	1,641	25.9	1,674	25.2	$17,405	2,333	33.5	2,100	28.7	1,995	25.9	2,035	25.2
Income Opns	2,467	63.5	2,783	68.2	3,036	70.9	3,219	71.6	2,999	63.5	3,383	68.2	3,691	70.9	3,913	71.6	3,645	63.5	4,112	68.2	4,486	70.9	4,756	71.6	$42,488	4,438	63.5	4,998	68.2	5,453	70.9	5,781	71.6
Interest Inc. (Exp)	11	0.3	(9)	-0.2	(9)	-0.2	0	0.0	11	0.2	(9)	-0.2	(9)	-0.2	0	0.0	11	0.2	(9)	-0.1	(9)	-0.1	0	0.0	($21)	11	0.2	(9)	-0.1	(9)	-0.1	0	0.0
Income before Taxes	2,478	63.8	2,774	68.0	3,027	70.7	3,219	71.6	3,010	63.7	3,374	68.1	3,682	70.7	3,913	71.6	3,656	63.7	4,103	68.1	4,477	70.8	4,756	71.6	$42,467	4,441	63.7	4,989	68.1	5,444	70.8	5,781	71.6
Prov. Inc. Taxes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	$0.0	0	0.0	0	0.0	0	0.0	0	0.0
Net Income (Loss)	$2,478	63.8	$2,774	68.0	$3,027	70.7	$3,219	71.6	$3,010	63.7	$3,374

Case.



If you use an Apple® II Plus, IIe or IIc, now there's a spreadsheet that won't invade your space.

FlashCalc,™ from Paladin.™

It allows you to finally expand your spreadsheet powers beyond 128K. At 256K, FlashCalc provides nearly twice the model size of VisiCalc® or AppleWorks.® And five times the capacity, when memory is increased to 512K.

It's also more than 3 times faster than VisiCalc. Or AppleWorks.

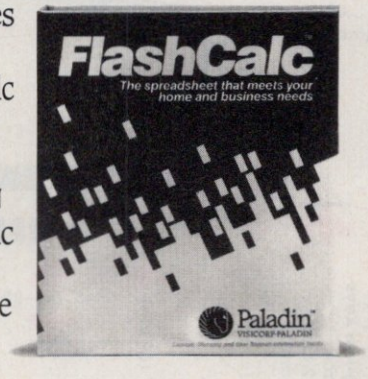
To further prove our case, consider FlashCalc's extra features. Like variable column widths, so you won't have to abbreviate Interdepartmental Amortization Analysis. (You'll also have room for the total total.)

More ready-to-use financial functions, which you'll appreciate when you depreciate.

More printer options, so you can easily adjust the size of your printed spreadsheet.

In fact, FlashCalc gives you lots of features not available on most spreadsheets. At a price not available on most spreadsheets—$99.*

A built-in conversion program even allows VisiCalc owners to easily transfer files *and* formulas.



And, of course, FlashCalc also runs on the entire IBM® PC family, including PC jr.

So call 800-4-PALADIN for the name of the FlashCalc dealer nearest you. They'll give you all the details. We've just run out of space.

Paladin™
VISICORP-PALADIN

IBM is a registered trademark of International Business Machines Corporation. VisiCalc is a registered trademark of Software Arts. Apple and AppleWorks are registered trademarks of Apple Computer, Inc. *Suggested retail price.

(continued from page 26)

high degree of built-in design flexibility to accommodate a variety of postures and body sizes. The research these designs reflect shows that computer work involves a variety of sitting positions—from leaning over the desk to reclining—that change every eight to ten minutes. States Niels Diffrient, an industrial designer who has won awards for his chair designs, "Sitting is an athletic activity. Tasks such as typing put a 30% additional load on the spine."

Although experts agree that a "good" chair design must pay attention to the lumbar region of the spine just above the pelvic bone, to the buttocks, and to the popliteal (backs of the thighs), translating these anatomical concerns into physical reality has produced various results. Bill Stumpf, a Minnesota industrial designer who has produced several outstanding furniture designs for Herman Miller, Inc., explains, "Ergonomics is not a hard science in the sense that some sciences are. If it were, chairs would tend to look more alike than they do now."

What the ergonomic specialists agree on is that seating should conform to several criteria: a rounded front edge,

YOUR WORK SURFACES SHOULD BE FLEXIBLE, SPACIOUS, AND NONREFLECTIVE.

Working Surfaces

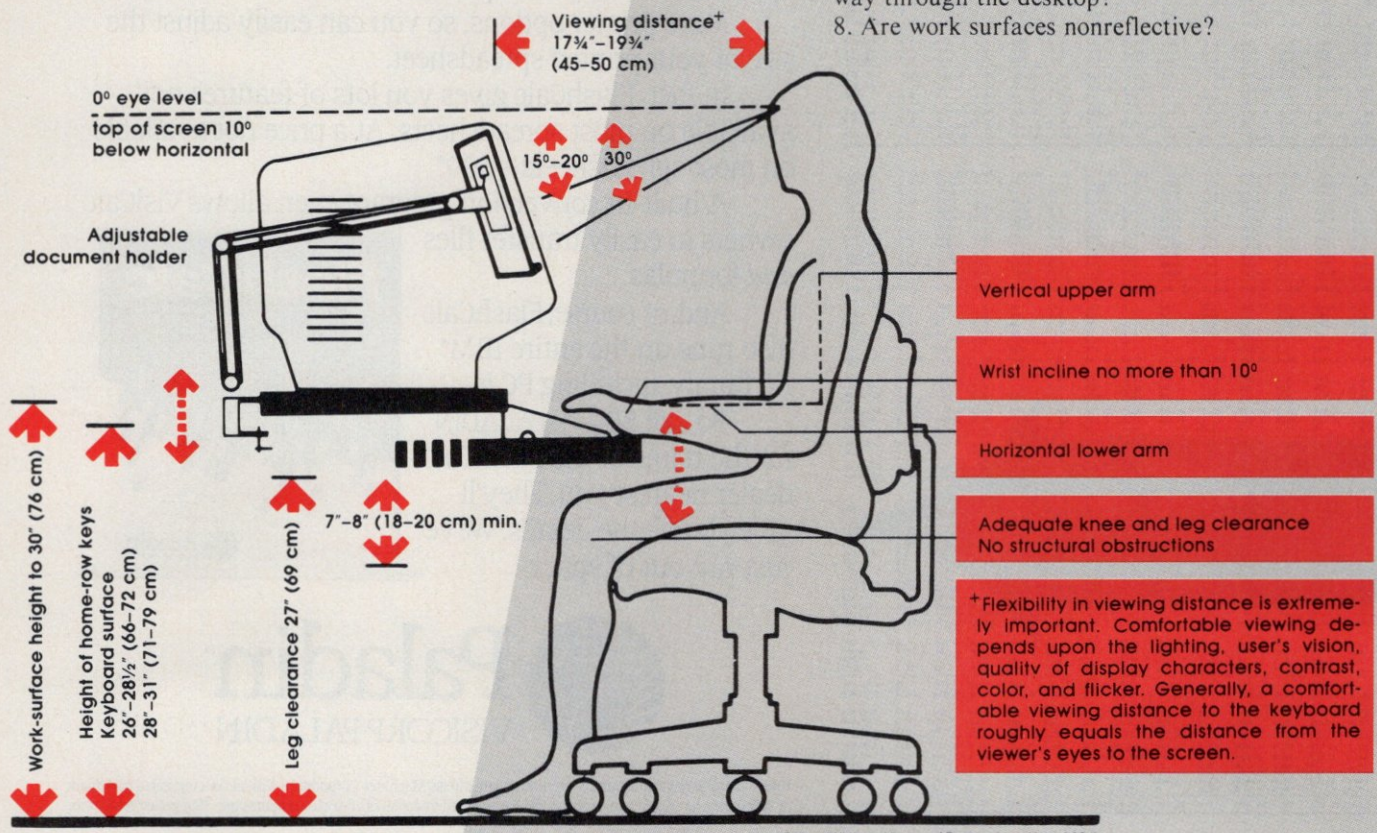
Ideally, your desk should be as flexibly designed as your chair. For a relaxed hand position, keyboards and displays should be positioned at different heights, the keyboard lower than the standard 29-inch desk height. Many of the computer-support desks and terminal stands currently available feature separately adjustable surfaces for monitors and keyboards, which you can move up, down, or sideways with a lever, crank, or other mechanism. Some monitor-support surfaces can tilt up to 15 degrees, so you can adjust viewing angles and rotate for shared use.

Checklist

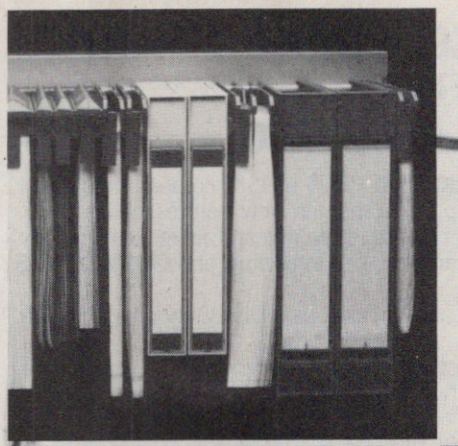
Consider the following questions when you are planning your work surface:

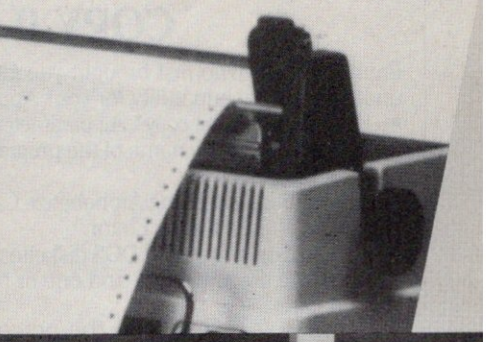
1. Are there separate work surfaces for keyboards and displays?
2. Can you tilt the work surfaces and adjust their height?
3. Does adequate space exist for storing copies, manuals, documents, and personal belongings?
4. Is the work surface deep enough so that you can place your monitor at a preferred distance?
5. Is the legroom adequate to accommodate different postures?
6. Can you rest your arms when you are not typing?
7. Can you route the computer wiring out of the way through the desktop?
8. Are work surfaces nonreflective?

A work surface should be wide and deep enough to accommodate a computer's terminal, keyboard, task lighting, and document holder, as well as provide for height, angle, and tilt adjustments for proper monitor viewing.

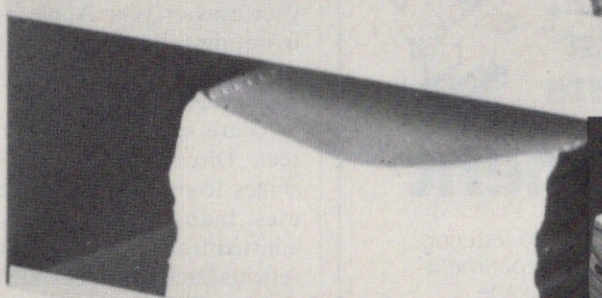


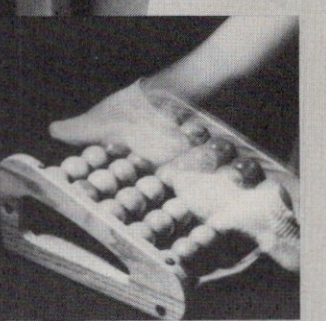
Source: William Pulgram and Richard Stonis, *Designing the Automated Office* (Whitney Library of Design, New York, 1984)

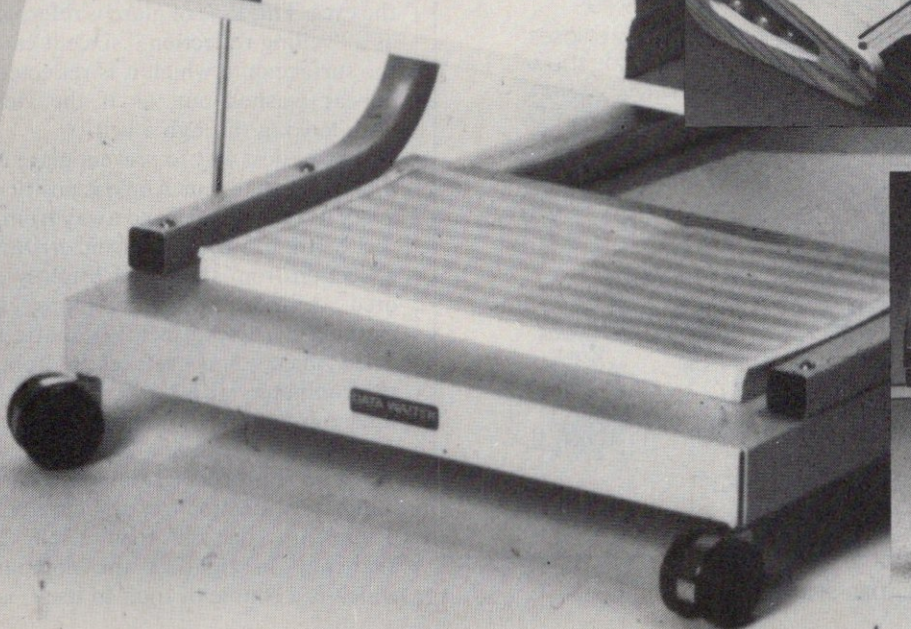




Special carts and feed baskets for printers, such as the Data Waiter from Wright Line *(LARGE PHOTO)* and the Printer Paper Frame from SteelCase, Inc. (Grand Rapids, MI) *(CENTER RIGHT)*, help organize messy and bulky printouts. Noise from printers can be reduced through acoustical housing, such as the printer station with domed hood *(BOTTOM RIGHT)* from C I Designs (Medford, MA). Once printed, paper can be stored in files in binders, or in containers such as the Documate System from Wright Line, which hangs from a shelf *(PHOTOS ABOVE AND LEFT)*. A support to rest your palm while typing from Steelcase *(RIGHT)* and a massager foot rest *(LOWER RIGHT PHOTOS)* from R and R Concepts (Santa Barbara, CA) help improve hand and foot circulation.







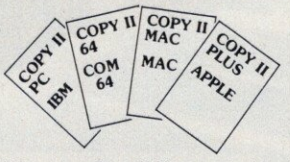
BACKUP PROTECTED SOFTWARE WITH COPY II PLUS™ 5.0

From the team who first brought you **COPY II PLUS** in 1981 comes a completely updated disk backup utility for your Apple // computer. New features include:

- Fully automatic bit copy*. All parameters are stored on disk and are revised quarterly. Simply type in the name of the program you wish to backup, and **COPY II PLUS** does the rest!
- New utilities including Alphabetize Catalog, Fast 2-pass Disk Copy on a //c or //e, and an all-new Sector Editor.
- Supplied on a standard DOS diskette. Runs on the Apple //, Apple //+, Apple //e, Apple //c. Requires 64K and one or two disk drives.

Increase the power of your Apple //...
Use **COPY II PLUS™ 5.0**

Call M-F 8-5:30 (W. Coast time) with your VISA MasterCard : **503/244-5782.**
Or send a check (add $3 s/h, $8 overseas) to



$39.95

CENTRAL POINT Software, Inc.
9700 SW Capitol Hwy. #100
Portland, OR 97219

* We update Copy II Plus regularly to handle new protections; you as a registered owner may update at any time for 1/2 price! (To update, just send original disk and $20.)

This product is provided for the purpose of enabling you to make archival copies only.

CIRCLE 185 ON READER SERVICE CARD

NEW Improved Version

Replace that graphic "artist" with a complete

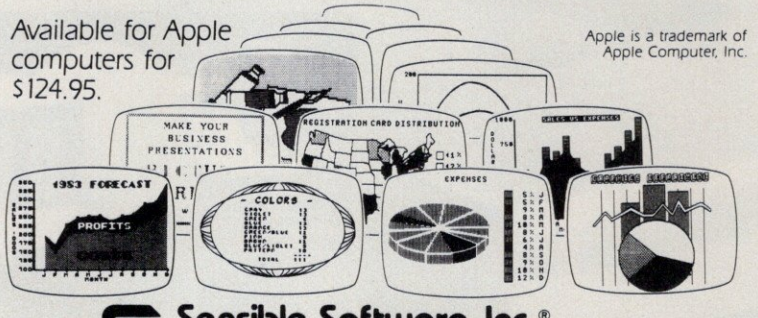
Graphics Department™

Some software packages only do charts, others only do lettering, or only "slide" showing. The menu-driven Graphics Department program combines all of these and more into one package.

Build any type of graph; add titles and other lettering; draw ellipses, points, lines, rectangles; "paint" in 100 colors; present a "slide show"; and manage your library of picture data. This new updated version of the Graphics Department can even produce area charts and 3-D pie charts, has more fonts and prints on most printers. It does it all!

Available for Apple computers for $124.95.

Apple is a trademark of Apple Computer, Inc.



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

CIRCLE 345 ON READER SERVICE CARD

ergonomics

als. Some experts predict that this furniture will give way to workstations that integrate electronics. Niels Diffrient, for example, has designed a desk prototype for SunarHauserman that incorporates a computer, disk drive, printer, cabling, paper, and disk storage.

Lighting Design

Of the complaints associated with computers, the most common are related to the eyes. Research conducted by the National Institute of Occupational Safety and Health (NIOSH) shows that 91% of the computer operators surveyed reported eyestrain, and 80%

The easiest way to prevent glare is to make sure that your Apple is positioned away from a window.

experienced burning eyes. Many of these visual problems stem directly from harsh lighting that produces glare. If you find yourself shielding your eyes or your Apple monitor from irritating reflections, you, too, may be suffering from glare.

A Glaring Problem

Glare can be either direct or indirect. Direct glare occurs when light shines from a fixture directly into the eyes. Indirect glare occurs when light emitted from one source onto a surface reflects back from that surface and into the eyes. This type of glare is referred to as a "veiling reflection," since it causes the surface onto which it is reflected to appear washed out, as if the viewer were looking through a veil.

The easiest way to prevent glare is to make sure that your Apple is positioned away from a window and away from direct sunlight. You can avoid irritating reflection from shiny and brightly colored ceilings, walls, desktops, and clothing by placing neutral, matte-finished objects and surfaces in front of the computer, with darker finishes behind you to absorb the light.

Crucial to reducing both glare and eyestrain is proper lighting design to illuminate your monitor, adjacent paper documents, and the room itself. The challenge in lighting the computer, which is a source of light in itself, is to

WITH SUPERCALC3A, YOU CAN TAKE THE APPLE II TO NEW HEIGHTS.

Introducing SuperCalc®3a for the Apple® IIc and new Enhanced IIe.

The first integrated spreadsheet software that gives your Apple the power of SuperCalc3 or Lotus 1-2-3.™

With the same state-of-the-art spreadsheet, graphics, and data management capabilities combined in one program.

If you've ever wished you could do some serious business with your Apple II, it's just what you've been missing.

SuperCalc3a is virtually the same integrated, easy-to-use software that's selling like hotcakes on the IBM® PC, SuperCalc3 Release 2.

And it will let you work with the Apple II in ways that you never thought possible.

With SuperCalc3a, you can develop far more complex and sophisticated spreadsheets than you ever could before.

Turn your results into presentation-quality graphics in your choice of up to eight different graph types, five typefaces and a rainbow of colors.

With a single keystroke.

While SuperCalc3a's advanced data management and sorting capabilities keep your searches for information from turning into fact-finding missions.

Because SuperCalc3a uses the same spreadsheet files as SuperCalc3, you can send your files to and from an IBM Personal Computer. And take your work places it's never been.

You can even transfer your old VisiCalc® and AppleWorks files directly into SuperCalc3a. Which means you can upgrade without losing a decimal point.

We've even built in the popular printing program Sideways.™ So you'll never have to cut and paste wide reports together again.

To find out more about how SuperCalc3a can sweeten your Apple, call Terry Smith at 1-800-645-3003, or visit your local software dealer today.

Or just wait a few weeks. And look into the next office.

SORCIM/IUS
MICRO SOFTWARE
A Division of Computer Associates International, Inc.

© 1985 Computer Associates International, Inc. SuperCalc is a registered trademark of Computer Associates International, Inc. Apple is a registered trademark of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation. Lotus and 1-2-3 are trademarks of Lotus Development Corp. VisiCalc is a registered trademark of VisiCorp. Sideways is a trademark of Funk Software, Inc.

CIRCLE 179 ON READER SERVICE CARD

Add a *smart* Print Screen Key to your Apple.

The FingerPrint+™ Serial and Parallel Printer Interface card lets you print whatever you have on the screen, just by the push of a button, without interrupting your program.

- Compatible with most popular parallel and serial printers.
- Connect 2 printers to the same FingerPrint+™
- Jump from one printer to the other with a single keystroke command, without interrupting your program.
- Fully software compatible, including Apple Works and Apple Mouse.
- Over 30 command functions available at the touch of a button.
- Graphics/Text dump, Hi and Lo-Res graphics, rotated 90 degrees and double size graphics.

FOR MORE INFORMATION AND THE DEALER NEAREST YOU CONTACT:
(305) 592-7522

THIRDWARE
COMPUTER PRODUCTS™
4747 NW 72nd Avenue, Miami, FL 33166

Apple, Fingerprint+ and Thirdware Computer Products are registered trademarks, respectively, of Apple Computer, Inc. and Precision Software.

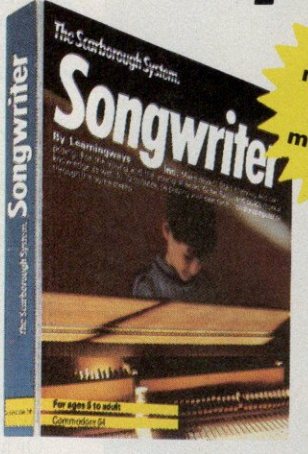
CIRCLE 106 ON READER SERVICE CARD

Critics sing Songwriter's™ praises.

"I learned more about music in one hour from Songwriter than I ever learned in two years of piano lessons."
—Knight Ridder News Service

"It takes no musical ability whatsoever to play with Songwriter ... Best of all, it's almost impossible to sound bad..."
—Electronic Games

"Recommended for purchase without reservation."
—Media Review



Specially designed to make the most of your Apple IIc's musical talent.

"Exemplifying fun learning at its best ... a first-rate piece of software."
—Family Computing

For the dealer nearest you, call 1-800-556-2283.

Available for:
Apple II family
IBM PC/PCjr
Commodore 64/128
Atari

The Scarborough System.

© 1985, Scarborough Systems, Inc., 55 S. Broadway, Tarrytown, N.Y. 10591

CIRCLE 206 ON READER SERVICE CARD

ergonomics

find a way to balance two different sets of activities: reading printed copy, which assumes a sight line 20 to 40 degrees lower than the horizontal at a distance of 16 inches, while viewing the screen, which assumes a horizontal sight line at a distance of 24 inches from the monitor to the eyes (for a solution to this problem, see "Let There Be [Glare-Free] Light" page 28).

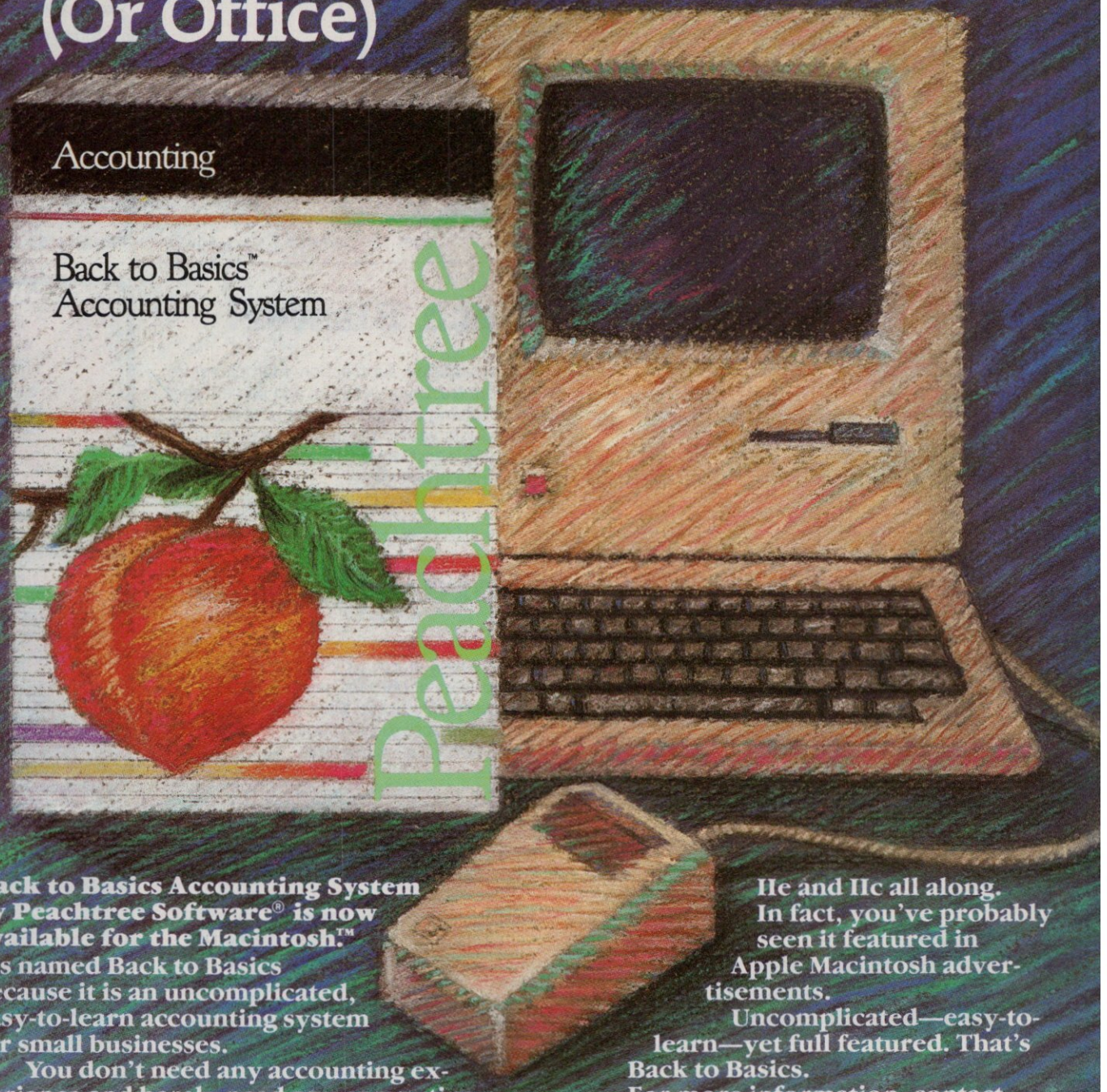
Glare and poor lighting design may not be the only factors behind computer-related eyestrain. Dr. Melvin Schrier, a fellow of the American Academy of Optometry and member of the Illuminating Engineering Society,

A simple way to avoid eyestrain is to take a 15-minute break away from your Apple every two hours.

maintains, "The major reason people have VDT (visual display terminal)-related eye problems is that they have not been tested for this type of work." Both NIOSH and the American Optometric Association (AOA) recommend annual eye checkups for testing of near-point acuity, binocularity, and convergence—visual skills that come into play when you work at a video display. Another visual problem that may plague computer users more than others is presbyopia—*presby* (old) and *opia* (eyes)—a type of reading difficulty that begins to affect people who are 35 and older, involving loss of lens accommodation and decrease in pupil size.

In addition, the eyeglasses or contact lenses that you wear may not be corrected for computer-screen viewing distances. Normal reading eyeglasses are designed for use with a 12-to 16-inch distance between the eyes and the paper; the computer screen requires a distance of 24 inches. Bifocal wearers encounter fatigue by looking from lower (reading) lenses to upper lenses. The AOA recommends that bifocal wearers obtain special multiple lenses for computer viewing, depending on the conditions in their workspace. Filtered prescription glasses that screen out rays provide protection from a video display's ultraviolet light—a leading

Introducing Accounting For Those With A Mouse In The House. (Or Office)



Back to Basics Accounting System by Peachtree Software® is now available for the Macintosh.™
It's named Back to Basics because it is an uncomplicated, easy-to-learn accounting system for small businesses.

You don't need any accounting experience and barely need any computing experience. The straightforward manual teaches both accounting and computing at the same time.

But make no mistake. This is a full-featured series of interactive products including General Ledger, Accounts Payable and Accounts Receivable.

The first business accounting system for the Macintosh, Back to Basics has been enjoyed by owners of Apple® II+, IIe and IIc all along. In fact, you've probably seen it featured in Apple Macintosh advertisements.

Uncomplicated—easy-to-learn—yet full featured. That's Back to Basics.

For more information, contact your local dealer or Peachtree Software, 1-800-554-8900.

America's Software grows on the Peachtree.®

Peachtree Software

Apple is a registered trademark licensed to Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. Peachtree and Peachtree Software are registered trademarks of Peachtree Software Incorporated, an MSA Company.

CIRCLE 318 ON READER SERVICE CARD

Educational Software
That Works:

Spell.

Spell It!

Spell expertly 1000 of the most misspelled words. Learn the spelling rules. Improve with 4 exciting activities, including a captivating arcade game! Add your own spelling words.

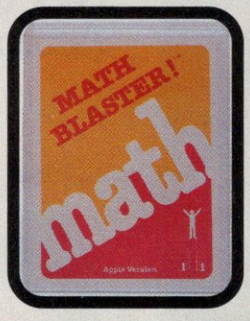
ages 10 — adult / 2 disks: $49.95

Math.

Math Blaster!

Master addition, subtraction, multiplication, division, fractions, decimals and percentages — by solving over 600 problems. Learn your math facts with 4 motivating activities, including a fast-action arcade game! Add your own problems.

ages 6 — 12 / 2 disks: $49.95

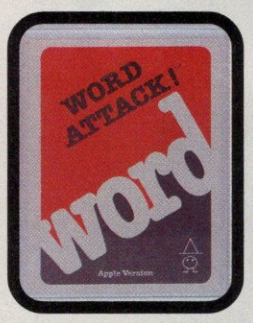


Word.

Word Attack!

Add 675 new words to your vocabulary — with precise definitions and sentences demonstrating usage. Build your skills with 4 fun-filled activities, including an arcade game! Add your own words.

ages 8 — adult / 2 disks: $49.95

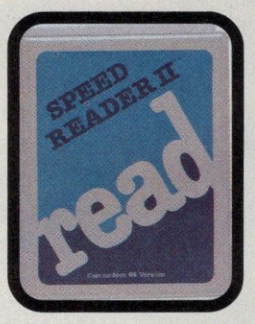


Read.

Speed Reader II

Increase your reading speed and improve comprehension! Six exercises designed by reading specialists vastly improve your reading skills. Chart your own progress with 35 reading selections and comprehension quizzes. Add your own reading materials.

high school, college & adult / 2 disks: $69.95



The Davidson Best Seller Tradition.

For your Apple, IBM or Commodore 64.
Ask your dealer **today**.

For more information call: (800) 556-6141
In California call: (213) 373-9473

Davidson & Associates, Inc.
6069 Groveoak Place #12
Rancho Palos Verdes, CA 90274

Davidson.

teacher certified NEA™

CIRCLE 337 ON READER SERVICE CARD

Apple, IBM and Commodore 64 are trademarks respectively of Apple Computers, Inc., International Business Machines Corp., and Commodore Business Machines, Inc.

er/go/nom/ics

cause of cataracts and retinal damage.

One of the simplest ways to avoid eyestrain is to take a 15-minute break away from your Apple every two hours, as suggested by NIOSH. Another way is to position the monitor so that the viewing angle is 10 to 20 degress below the horizontal plane at eye level.

Be sure that you properly maintain your Apple in order to ensure a sharp screen image, display contrast, and proper refresh rate. You can cure a computer that flickers during use in a brightly lit room by dimming the room lighting and adjusting the brightness level of the screen.

Don't forget aesthetics when you buy furniture, lighting, or any other computer-support item.

Other factors to consider in setting the scene for your Apple are the environmental conditions surrounding your work area. Room humidity should be within the 40–60% range. Air that is too dry generates static electricity, which can interfere with a computer's electromagnetic field, and air that is too moist can be detrimental to disk and paper storage.

Be sure your work area is adequately ventilated to cope with the heat output from your Apple. Fresh-air circulation is important to prevent the buildup of airborne toxins from common materials such as plywood, particle board, and foam insulation, all of which give off formaldehyde, a cause of skin, eye, and respiratory irritation.

Finally, don't forget aesthetics when you buy furniture, lighting, or any other computer-support item. No matter how ergonomic they are, you probably won't use them if their designs are completely at odds with your decor and sense of well-being. Don't hesitate to consult a local architect or interior designer for information on how to order the latest products. Remember, beauty may lie in the eye of the beholder, but comfort keeps the eyes open and bright. ✚

Deborah Dietsch is a free-lance journalist who frequently writes about the design of the automated workplace.

CDA

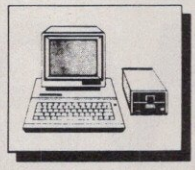
At "CDA" We Discount Price Not Service!

• FINANCING AVAILABLE

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

GOOD $1,099

PACKAGE INCLUDES:
- APPLE IIe
- APPLE Disk II
- APPLE Drive Controller
- Pro Dos Operating System
- Zenith Green Phosphur Monitor
- Extended 80 Column Card
- Two Pack of Diskettes



★ 128K OF RAM

★ SAVE OVER $300!

LIST PRICE $1,469
NOW ONLY — $1,099!

BETTER $1,699

PACKAGE INCLUDES:
- APPLE IIe (128K)
- Two Disk II Drives
- APPLE Drive Controller w/Pro Dos
- Extended 80 Column Card
- Printer Card and Cable
- Epson LX-80 Printer (100 C.P.S.)
- Pkg. of Paper (500 Sheets)
- Zenith Green or Amber Monitor
- Extra Printer Ribbon
- System Dust Cover
- Deluxe Table Top Printer Stand
- Two Pack of Diskettes

LIST $2,329
NOW! $1,699

☆ SAVE OVER $600.!

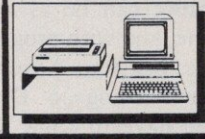
BEST $1,999

PACKAGE INCLUDES:

SAVE OVER $700

- APPLE IIe (128K)
- Microsci Duo Drive
- Drive Controller Card
- Pro Dos Operating System
- APPLE II Tilting Monitor
- Grappler + Interface w/Cable
- Epson FX-80 + Printer (160 C.P.S.)
- Deluxe Table Top Printer Stand
- Extra Printer Ribbon
- Box of (10) Diskettes
- Case of Paper (1,800 Sheets)
- Dust Cover for Computer
- Dust Cover for Printer
- Cooling Fan with Surge Protector
- PFS: Write Word Processing Software

BONUS: Complete Micro Maintenance Kit w/Head & CRT Cleaning Kits

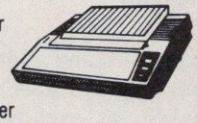


LIST $2,739
NOW! $1,999

LX-80 PRINTER

INCLUDES:
- LX-80 100 CPS Printer
- Printer Card w/ Cable
- Deluxe Printer Stand
- Extra Printer Ribbon
- Case of Computer Paper (1800 Sheets)
- Printer Dust Cover

★ INCLUDES NEAR LETTER QUALITY MODE!

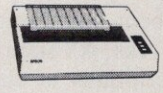


LX-80 FOR II/IIe DELUXE PRINTER PACKAGE

LIST $579 **NOW ONLY $349**
(IIc Versions Available)

FX-80– PRINTER

INCLUDES:
- FX-80 160 CPS Printer
- Buffered Grappler + (16K) Interface w/Cable
- Deluxe Printer Stand
- Extra Printer Ribbon
- Case of Computer Paper (1800 Sheets)
- Printer Dust Cover
- "Epson-Apple Connection" A detailed book on how to use the Epson w/the Apple



FX-80 + FOR II/IIe DELUXE PACKAGE
LIST $889
NOW $569
(IIc Versions Available)

APPLE ACCESSORIES

ALS Smartterm II	$179	$129
ALS Z-Engine	199	149
Apple Mouse IIc	99	83
Apple Mouse IIe	149	132
Applied Eng. Z-80 IIc	159	119
Appl. Eng. RAM Works 128K	249	169
Appl. Eng. RAM Works 256K	399	279
Micro Sci Ext. 80 Col.	159	99
Microsoft Prem. Sftcrd.	395	299
Microsoft Sftcard II	450	319
Titan Accelerator IIe	319	219
Video 7 Slot 7 RGB	159	109
Video 7 RGB Ext. 80 Col. Co	269	179
Video 7 RGB for IIc	219	159

APPLE DRIVES

Apple IIc Add-On	329	279
Apple Disk II	329	269
Micro Sci A-2	299	199
Micro Sci ½ Hgt IIc	299	199
Micro Sci ½ Hght	299	199
Rana Elite ½ Hght	329	209
Rana Elite ½ Hght IIc	339	219
Quark 10 Meg HrdDrv	1999	1495

MODEMS

Hayes Micromodem IIe	339	219
Hayes Micromodem IIc	339	239
Hayes 2400 Smrtmdm.	899	649
Novation Appie Cat II	319	219
Novation Apple Cat212	595	429
Promethius 1200 A	449	319
Promethius External	449	339
Promethius 1200 Mac Pac	449	339

MONTHLY SPECIALS!

*SMT-Extended 80 Column Card
80 Columns — Extra 64K
List $149 CDA $79

*64K Buffered Grappler
List $239 CDA $159

*Promethius 1200A Modem
1200 Baud Internal Modem for Apple
List $429 CDA $319

*Apple Drive Controller Card
List $89 CDA $29

PRINTER BUFFERS

Practical 64K Parr.	$349	$249
Quadram Microfzr 16K	199	149
Quadram Microfzr 64K	299	239

PRINTERS

Apple Imagewriter	$595	$479
Brother HR-15	499	369
Brother HR-35	1245	829
Epson (All Models)	CALL	CALL
Juki 6000	299	239
Okidata (All Models)	CALL	CALL

MONITORS

Amdek Color 300	$339	$259
Amdek Color 600	599	399
Amdek Color 700	699	499
Zenith Green Phosphur	149	89
Zenith Amber Phosphur	159	89

SURGE PROTECTORS

EPD Lemon	$ 45	$ 35
EPD LIME	70	49
EPD Peach	60	47
EPD Orange	100	74
Kensington Sys. Saver	89	65
Pace System Saving Fan/Surge Protector	79	42

Buy Direct By Mail or Phone • Orders only 800-526-5313
Inquiries and in NJ 201-728-8080 • Info on your order 201-728-8082

Your Satisfaction is Important to Us! We Ship Orders Promptly from Our Massive Inventory.

AD NO. 1019-6

ORDERING INFORMATION AND TERMS: Mail to
COMPUTER DISCOUNT OF AMERICA
31 Marshall Hill Road, West Milford, N.J. 07480
Include address and phone number. Shipping, handling and insurance are additional add 2% UPS Ground ($3.50 minimum), UPS Blue 6% ($5.00 minimum). NO C.O.D. Cashiers checks, moneyorders, and credit cards ship immediately. Personal and company checks allow 15 days.
ORDER 9 AM - 6 PM EST Monday - Friday • Saturday 10-4
OUR REFERENCES: We have been selling computers since 1977 and in computer Mail Order since 1980. Our bank is: First Fidelity, West Milford, N.J. D&B listed.

CIRCLE 292 ON READER SERVICE CARD

WITHOUT LEARNING PROGRAM, YOU CAN NOW CREATE YOUR OWN

adventure games

Now you can create your *own* fantasy world and then challenge your friends to solve the mind-grinding problems that you've dreamed up. Writing an adventure can be as much fun as playing one, and with programs such as Adventure Master, AdventureWriter, and Eamon Dungeon Designer, you won't even have to know a bit from a byte.

Before setting out to design a new world, however, you should know a bit about how an adventure game actually works. All such programs store the descriptions of their caves, castles, and characters in a database. When you type a command such as open chest, a group of formulas called the parser analyzes the words, consults the database, and displays the appropriate description or reply. Each of the programs we'll look at asks you for the names and descriptions of everything in your adventure, and then it automatically generates the necessary database. You can revise its contents at any time, which is why this kind of program is often called a database editor. To examine these editors thoroughly, I used each one to design a different version of an adventure I called Quest for Hoffa.

Adventure Master

This program simplifies the construction of adventures in which you can depict some rooms with three-color graphics as well as with text. You use a joystick or the keyboard to draw the pictures and enter textual descriptions, room connections, and other information via one of the main menu's ten other options. After selecting an option such as Edit Objects or Room Description, you type the number of the room you want to edit, and the appropriate screen appears and prompts you for information.

The process resembles that of entering names and addresses in a filing system such as PFS:File. Instead of Name and Street, each type of data (Description, Needed Object, Key Phrase, and so on) appears on the screen, followed by a blank area where you key in the text. To change a previous entry, you merely type over any existing material. The same data-entry scheme facilitates adding new commands that the program will understand if a player uses them in the game. (Eighteen commonly used commands such as Look, Take, and Save Game are already built in.)

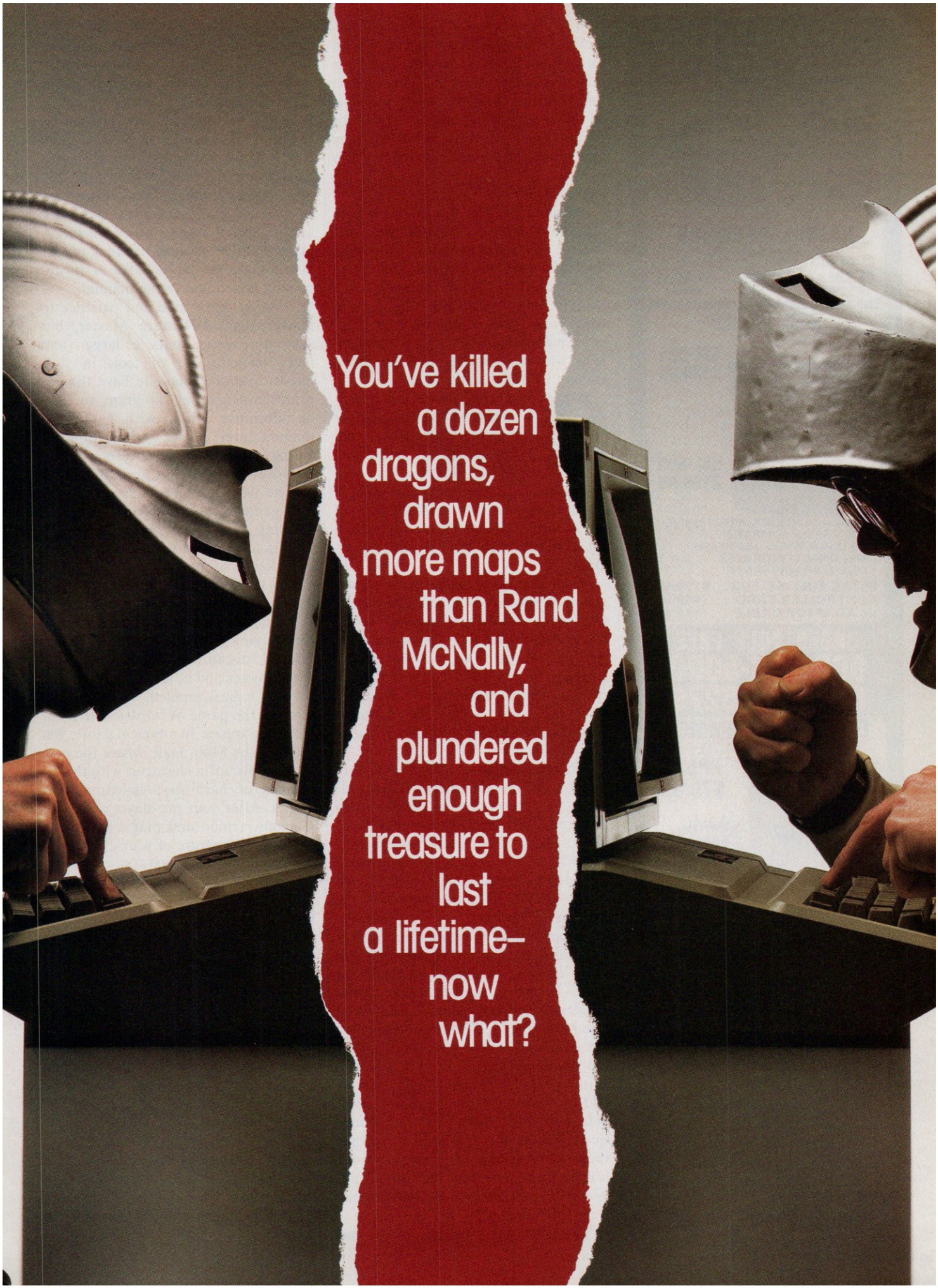
After you've filled a screen in, you have the choice of erasing it and starting over or saving it on the disk that will hold your new game. The Test feature lets you play the game in its current state and then return to the editor to make changes. You can save your work in progress to disk at any stage. When the game's done, Adventure Master saves it in a format that can run independently, so your friends won't need the editor to load and play your game.

The final product won't be as expansive as other adventures created with similar programs, because Adventure Master limits your world to 50 rooms (more if fewer than ten are illustrated), 32 objects, and 50 to 100 commands with individual text responses. It also places more restrictions on how you incorporate these elements into a game. You can put only one object in each room, for example, and each object must form a puzzle in itself. When adding a shovel to a room, I had to type in a phrase that hinted that an object was hidden there. Then I specified the words and/or objects the player had to use in order to discover and obtain it.

A good adventure game should contain at least one dark cave or room in which the adventurer needs a torch or lantern to see its contents. Unfortunately, Adventure Master provides no method for checking to see if a player is carrying a light source. I found a way to achieve this effect, but not as well as I wanted. Other minor limitations cropped up as I tinkered with the editor, but the most frustrating—to me, anyway—was that there was no way to kill a player who walked off a cliff or did anything else that ought to be fatal.

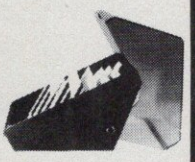
Adventure Master was the easiest of the three programs to learn and operate. The 25-page manual offers clear instructions and examples for each phase of game development. The package includes three sample adventures, and you can scrutinize their databases for examples of effective ways to apply the various features. Two of the games

CURT FISCHER


You've killed
a dozen
dragons,
drawn
more maps
than Rand
McNally,
and
plundered
enough
treasure to
last
a lifetime–
now
what?

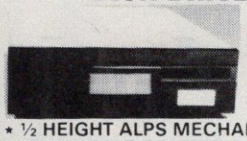
JDR DELIVERS
QUALITY FOR LESS!

DISKETTE FILE
$8.95
WITH PURCHASE OF 50 DISKETTES
$9.95 IF PURCHASED ALONE
HOLDS 70 5¼" DISKETTES

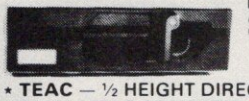


NASHUA DISKETTES
5¼ SOFT SECTOR, DS/DD BULK PACKAGED
$1.39ea QTY 250 $1.49ea QTY 100 $1.59ea QTY 50

DISK DRIVES



BAL-525
$139.95
* ½ HEIGHT ALPS MECHANISM
* 100% APPLE COMPATIBLE
* ONE YEAR WARRANTY

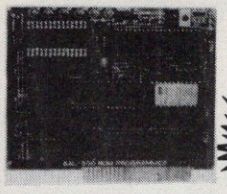


BAL-500
$169.95
* TEAC — ½ HEIGHT DIRECT DRIVE
* 100% APPLE COMPATIBLE
* 40 TRACK WHEN USED WITH OPTIONAL CONTROLLER
* ONE YEAR WARRANTY

MITAC FULL HT. FDD .. $179.95
CONTROLLER CARD $49.95
IIc ADAPTOR CABLE $19.95

ORDER TOLL FREE
800-538-5000
800-662-6279 (CA)

EPROM PROGRAMMER
FOR APPLE COMPUTERS



RP525
$79.95
NEW
* LOW COST!
* 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

OTHER ACCESSORIES
16K RAM CARD $39.95
FOR APPLE II+, 2 YR WARRANTY
VIEWMAX 80 ..... $159.95
80 COLUMN FOR APPLE II+
VIEWMAX 80e $129.95
80 COLUMN FOR APPLE IIe
THUNDERCLOCK $129.95
OFFICIAL PRODOS CLOCK/CALENDAR
KRAFT JOYSTICK $39.95
80W POWER SUPPLY $49.95
INCLUDES INSTRUCTIONS

CALL FOR A FREE CATALOG
JDR Microdevices
1224 S. Bascom Avenue, San Jose, CA 95128
800-538-5000 • 800-662-6279 (CA) • (408) 995-5430
FAX (408) 275-8415 • Telex 171-110
© Copyright 1985 JDR Microdevices

CIRCLE 167 ON READER SERVICE CARD

have no endings, and you can learn a lot by completing these before starting a new one from scratch. This option makes this program especially well suited for teenagers as young as 14 and for families who want to collaborate on new games for other family members to play.

AdventureWriter

AdventureWriter is a more complex program than Adventure Master, and thus it took me longer to write Quest for Hoffa with this program. The extra effort paid off, though, because I was able to invent problems based on a wider range of questions: Had the player visited a certain room, how many objects was he carrying, had he found enough food and water to survive?

AdventureWriter automatically checks to see if the player is carrying a light source, and I finally got to waste the careless adventurer who stumbled off that cliff. Another handy feature lets you print out hard copy of any section of the database to produce a list of all the locations or objects, for example.

Each element of a new game—locations, objects, vocabulary, conditions, messages—is continued in one of 17 individual submenus that you access from the main menu. The trickiest part is learning the 36 code words that indicate the conditions under which certain events will occur. Under the command examine shovel, for example, I had to key in this line: AT 3 MESSAGE 5, which means that if the player is in room 3 (where the shovel is located) when he types examine shovel, then message 5 (which describes that item) will appear. The initial vocabulary holds 30 common words, which you can edit, delete, or reinforce with your own nouns and verbs until you reach the limit of 255 words.

AdventureWriter games can have as many as 252 different places with up to 255 objects scattered throughout them—I had no trouble placing several objects in the same room. The database also has space for 255 messages, which are displayed when the player fulfills the conditions you prescribe. You can edit or delete any existing entry and/or add new ones. Graphics are not available, but I added sound effects and music by picking notes from the program's three-octave range. (The manufacturer is working on a new version with graphic capabilities so you'll be able to illustrate the rooms.)

The 115-page manual steps you through a tutorial adventure in which you write a small game, and the reference section explains the code words and every other aspect of the system. It fails to provide the correct instructions for the unconventional method with which Apple IIc users must format a disk for use with the program, though. The company maintains a toll-free hot line for technical problems such as this, and my query found a quick answer. A representative assured me that proper instructions will be included in an upcoming addendum to the manual.

It takes more time and patience to master than Adventure Master, but AdventureWriter puts a larger and more powerful set of tools in your hands. You don't have to have the application-generating program to play an adventure written with it, and the manufacturer assists authors in marketing well-written adventures.

AdventureWriter is appropriate for anyone who has solved several adventure games—the same kind of logical thinking and attention to detail you need to solve adventures are a prerequisite for writing the more-complex games this system can produce.

Eamon Dungeon Designer

Eamon is a public-domain fantasy/role-playing game that differs from traditional adventures by focusing on combat with orcs and other monsters rather than on logical problem solving. It resembles the game Wizardry, but without the graphics. In a typical game, you begin in the Main Hall, where the program "rolls up" a character with the attributes of hardiness, charisma, and agility. After your orc-slayer shops for weapons, armor, and magic spells, it's off to the adventure of your choice.

Eamon's action consists mostly of typing commands such as Attack dragon and reading the results of your attack and the monster's immediate counterattack. The goal of each game is simply to increase your character's attributes by victory in battle and to collect as much loot as you possibly can. (You can store characters on the disk and revive them for use in different adventures). A game called Beginner's Cave is included on the master disk, which you need in order to play any Eamon adventure.

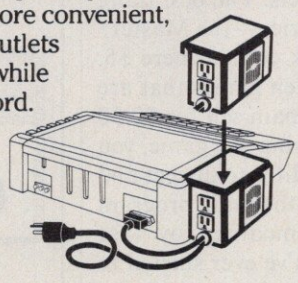
On the flip side of the master, you'll find the Dungeon Designer. Like the other editors, this one consists of several menu-driven phases in which you lay out rooms and place objects, monsters, and effects within them by typing in the

CLOSE TO ¼ MILLION APPLE II's SAVED

SYSTEM SAVER® from Kensington Microware quietly protects close to ¼ 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.



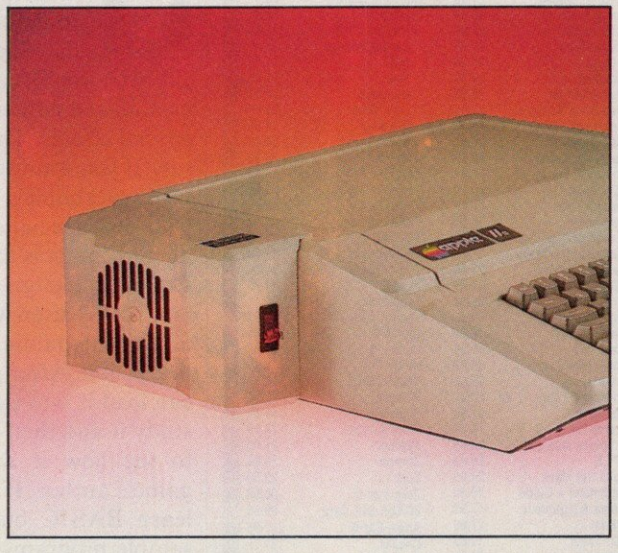
System Saver solves power line problems.

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.

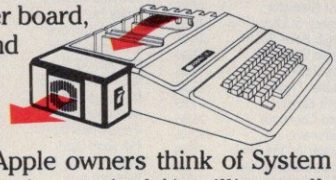
System Saver clips surges and spikes at a safe level and filters out line noise. It makes your Apple more accurate, more efficient and more reliable.

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.



Close to ¼ million Apple owners think of System Saver as the piece Apple forgot. And ¼ million well-protected Apples agree. Available at your local dealer. For more information, contact Kensington Microware, 251 Park Avenue South, NY, NY 10010, (212) 475-5200 Telex: 467383 KML NY.

KENSINGTON® MICROWARE

System Saver is UL Listed. System Saver's surge suppression circuitry conforms to IEEE specification 507 1980, Category A. Also available in 220/240 Volts, 50/60 Hz.

Trademarks: Apple/Apple Computer, Inc., System Saver/Kensington Microware Ltd.
© 1985 Kensington Microware Ltd.

CIRCLE 134 ON READER SERVICE CARD

ELEPHANT DISKS
SS/SD 12.95
SS/DD 13.95
DS/DD 17.95

VERBATIM
SS/DD 16.45
DS/DD 22.45
Head Cleaning Kit 5.79

SILICON EXPRESS

CALL We have hundreds of other programs in stock at fantastic savings!

Addt'l Fonts & Chars	13.95	PFS: Access	45.95
Alphabet Zoo	18.95	PFS: Write	73.89
Alpha Plot	24.89	PFS: File	73.89
Amazon	27.49	PFS: Report	73.89
Apple Mechanic	18.49	PFS: Graph	72.89
Arcade Boot Camp	20.95	Pinball Construction	28.89
Archon	29.89	Pixit	31.89
ASC II Pro	80.89	Planetfall	25.89
Axis Assassin	14.89	Practicalc II	48.95
Bag of Tricks	25.89	Print Shop	29.89
Bank Street Writer	42.89	Print Shop Gr.#1	17.49
Bank Street Speller	42.89	Pronto DOS	18.49
Baron	32.89	Quest	21.89
Beagle Bag	18.49	Rendezvous w/Rama	27.49
Beagle Basic	21.89	Report Card	36.89
Beagle Graphics	35.49	Rescue Raiders	24.95
Beneath Apple DOS	13.95	Sargon III	31.89
Beneath Aple PRO DOS	13.95	Seastalker	23.95
Beyond Cast. Wolf.	24.89	Sensible Speller	73.89
Blazing paddles	34.95	7 Cities of Gold	28.89
Bruce Lee	24.95	Shadowkeep	27.49
Bookends	73.89	Sideways	36.89
Castle Wolfenstien	19.89	Silicon Salad	15.49
Cat Graphics	20.95	Skyfox	28.89
Chpshp Load Runner	23.95	Snooper Trps 1 or 2	27.95
Complete Graphics Sys	48.89	Solo Flight	24.95
Computer Baseball	25.89	Sorcerer	27.89
Computer Quarterback	27.95	Speed Reader II	42.89
Copy II+	21.89	Spitfire Simulator	25.89
Coveted Mirror	21.89	Spy vs. spy	24.95
Crossword Magic	30.89	Squire	34.95
Crypt of Medea	21.95	Standing Stones	28.89
Cut & Paste	35.89	Starcross	29.95
Cutthroats	24.89	Sticky Bear ABC	24.89
Dazzle Draw	41.95	Basket Bounce	24.89
D-Code	24.89	BOP	24.89
Deadline	29.89	Math	24.89
Disk Arranger	20.95	Numbers	24.89
Disk Drive Analyzer	21.95	Opposites	24.89
DiskQuick	18.49	Reading	24.89
Disk Repair Kit	20.95	Shapes	24.89
Dollars & Sense	60.89	Suspect	26.89
Dollars & Sense IIC	71.89	Take 1	38.89
DOS Boss	14.49	Terrapin Logo	61.89
Double-Take	21.49	Think Tank	98.95
Enchanter	24.89	Time is Money	62.89
Essential Data Dup	47.89	Tip Disk #1	13.89
Expedition Amazon	21.89	Transylvania	21.89
Farenheit 451	27.49	Triple-Dump	24.89
Fat Cat	21.89	Tycoon	34.95
Financial Cookbook	35.89	Typefaces	12.49
First Class Mail	69.95	Typing Tutor III	33.95
Flex Type	18.89	Ultima II	41.95
Flashcalc	69.96	Ultima III	35.89
Flight Sim II	33.89	Utility City	18.89
Fontrix	CALL	Visable 6502	31.89
Fontpaks 1 thru 11 ea	CALL	Witness	23.95
Format II	91.89	Wizardry	31.89
Frame-Up	18.89	Word Attack	29.89
Graphics Magician	36.89	Xyphus	21.89
GPLE	29.89	Zaxxon	24.89
Hard Hat Mack	24.89	Zork I	23.89
Hitchhiker's Guide	26.89	Zork II or III	26.95
Home Accountant	47.95	80 Col. 64K Card	99.95
Infidel	27.89	Apple Cat II	223.95
I.O. Silver	19.89	Cricket	124.89
Karateka	24.95	Echo +	107.95
King's Quest	34.95	Grappler +	98.89
Knight of Diamonds	21.89	Buffered Grappler +	147.89
Last Gladiator	14.89	Koala Pad	74.89
Legacy of Llylgamyn	25.89	Hayes Joysticks	CALL
Magic Paint Brush	24.95	Micromodem IIE	221.89
Magic Window II	93.95	Microsci A2 Drive	184.89
Map Pack	13.95	Microsci IIC Drive	119.89
Master Type	25.95	Mockingboards	CALL
Math Blaster	29.89	Networker	99.95
Mico Cookbook	25.95	Orange Interface	64.95
Millionaire	32.89	16K Ram Card	64.85
Murder on the Zind.	28.89	System Saver Fan	63.89
Music Construction	23.89	Wildcard 2	98.89
NATO Commander	24.95	Gemini-10X	249.95
Objective Kursk	25.89	Okidata Printers	CALL
One-On-One	28.89	Colored printer ribbons	CALL
Paper Graphics	30.89	Amdek Monitors	CALL
Pensate	20.95		

SILICON EXPRESS
4555-11 Groves Road
Columbus, Ohio 43232
614/868-6868
Your Toll Free Access Outside Ohio
1-800-228-0755
Prices are subject to change without notice. We accept MasterCard & Visa. Personal checks allow 3 weeks. Shipping charges are $3.00. Outside U.S. Write. Ohio residents add 5½% state sales tax.

CIRCLE 231 ON READER SERVICE CARD

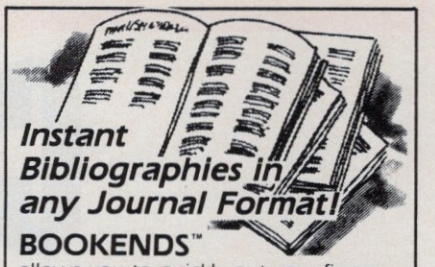
appropriate information. You can easily assemble a relatively simple role-playing game with a maximum of 100 of any of the 4 elements: rooms, monsters, effects, and objects. It delivers hard copy of any part of the database, and several utility programs are available to considerably reduce the amount of work you'll have to do.

The system's most annoying aspect is that the main menu's items represent different programs, which are loaded individually when you select them. After finishing with the Edit Dungeon Data option, for example, you must reboot the main disk in order to access other options. The documentation is stored on the disk as text files that can be displayed on the screen, but it doesn't cover the system's numerous idiosyncrasies and special features in detail. (Serious dungeon designers should consider joining the National Eamon Users' Club.)

Unlike the other editors, Eamon gives you access to the main program that actually runs the game. With a minimal foundation in Applesoft BASIC, you'll be able to design more customized games with a wide range of special effects. This knowledge is necessary if you want to alter the existing 30-word vocabulary, for instance, or invent your own special effects. The best thing about Eamon is the price—the Master/Dungeon Design disk costs a mere $5, and the 81 user-written games that are also in the public domain sell for $2.50 to $5 each. After playing one game, you can load it into the editor to dissect and study it and then list the main program to see how it was modified by that game's author. If you've ever started to learn BASIC but got bored with the sample programs, try Eamon—it gives you something *fun* to do with BASIC.

If you plan to learn programming anyway, don't dismiss the thought of using one of these editors. Working with such a program provides a painless way to absorb the principles of programming. You'll soon recognize the value of designing a game on paper before booting the editor, which is the equivalent of writing a program's flow chart. Matching possible words and commands with the conditions required for them to cause specific effects is the same as writing IF THEN statements in BASIC.

In short, the logical thinking fundamental to designing a game with a database editor also forms the basis of programming in any language. Even if



Instant Bibliographies in any Journal Format!

BOOKENDS™ allows you to quickly put your finger on any journal, any paper, any book, any specific information contained in your voluminous files.

As the New England Journal of Medicine states in its issue of January 12, 1984, it "addresses two widespread problems: first, the challenge of cataloging all the information we read; second... the need to convert bibliographic information into the...format demanded by each medical journal. Both problems are solved here in an excellent way."

Bookends has extraordinary versatility and edits with the ease of a word processor. There is no quicker or more efficient means of saving, retrieving and formatting reference information.

Bookends Extended is available with above features plus 80-column display, more memory, and ability to handle unlimited references.

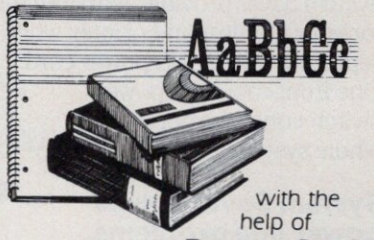
BOOKENDS™, the reference management software system is available for Apple computers for $124.95. Bookends Extended $149.95.

Apple is a trademark of Apple Computer, Inc.

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

CIRCLE 103 ON READER SERVICE CARD

Preparing Grades is as easy as



with the help of **Report Card,™** the software program which saves you time and helps you avoid mistakes, even if you are a computer novice.

Report Card tracks up to 300 students on one diskette, holds up to 40 students per class and 50 activities per student. It correctly handles "incompletes," calculates student and class averages, and ranks students with various printing and sorting options. And it has a built-in editor which makes it easy to make corrections and remove incompletes.

REPORT CARD™ including software, manual and tutorial is available for Apple and IBM PC computers for $59.95.

Apple and IBM PC are trademarks of Apple Computer, Inc. and International Business Machines Corp. respectively.

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

CIRCLE 101 ON READER SERVICE CARD

you already know how to program, an editor lets you put an idea up on the screen quickly and see how it plays without having to punch in a lot of code.

If you're just one of the many adventurers who has always dreamed of conjuring up your own exotic fantasy world but felt locked out by a lack of programming skills, one of these programs is the key that will unlock the door. Best of all, you can freely give away or even sell the games you create with any of them—just don't expect to run Infocom out of business. ✚

From a tastefully appointed cave in Valley Forge, Pennsylvania, Shay Addams publishes QuestBusters, *a monthly newsletter devoted to adventure and fantasy/role-playing games. He is also coauthor (with Dan Gutman) of* Compute!'s The Greatest Games: The 93 Best Computer Games of All Time.

▶ PRODUCT INFORMATION

Adventure Master
CBS Software
One Fawcett Place
Greenwich, CT 06386
(203) 622-2500
List Price: $44.95
Requires: Apple II Plus, IIe, or IIc; 48K RAM for all-text games; 64K RAM for games with graphics; one disk drive

CIRCLE 375 ON READER SERVICE CARD

AdventureWriter
Codewriter Corporation
7847 North Caldwell Avenue
Niles, IL 60648
(312) 647-1270
List Price: $40
Requires: Apple II Plus, IIe, or IIc; 48K RAM; one disk drive

CIRCLE 376 ON READER SERVICE CARD

Eamon Dungeon Designer
Because it's in the public domain, the Eamon Master/Dungeon Designer system is available from most Apple users' groups and many other sources. Two of the best are National Eamon Users' Club, 2701 Arnold Road, Des Moines, IA 50310 (the only place you can count on for help with the system) and Adventure-Disk, P.O. 216, Mercer Island, WA 98040 (publishes an adventure newsletter on disk, which includes a free Eamon game with each issue)
Requires: Apple II Plus, IIe, or IIc; 48K RAM; one disk drive

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

William F. Gollan
President, BCP

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

COMPUTERS

Apple IIe's and IIc's	Call		

MODEMS

Hayes Smart 300 IIc	239.95	Prometheus Pro 1200	**309.95**
Hayes Smart 1200	**399.95**	Prometheus Pro 1200 A	339.95
Hayes Micro IIe w/sc	229.95	Zoom Micro IIe + w/sc	169.95

PERIPHERAL CARDS & ACCESSORIES

AST Multi I/O	**179.95**	Kraft	39.95
Disks*Surge*Fans		Koala Graphics Pad	79.95
Verbatim		Microsoft	
Bonus SS/DD (11)	**12.95**	Z80 Soft 2 w/64k	279.95
Bonus DS/DD (11)	**16.95**	Premium Pack IIe	269.95
Curtis		Premium IIe w/d:base	339.95
Diamond	34.95	Titan	
Emerald	44.95	Accellorator II/IIe	249.95
Ruby	**64.95**	64k Ram	159.95
Sapphire	**54.95**	128k Ram	199.95
Kensington Sys. Sav.	64.95	Neptune 64k + 80	199.95
JoySticks		Neptune 128k + 80	**239.95**
CH Hayes Mach 3's	39.95	Neptune 192k + 80	**279.95**

GRAPHIC INTERFACES & BUFFERS

Print-It	**154.95**	Grappler w/16k	**154.95**
Grappler +	89.95	Grappler w/64k	**174.95**
Grappler + RS232	89.95	Quadram 64k Fazer p/p	**159.95**

PRINTERS DOT MATRIX

Apple Imagewriter	499.95	Epson FX 100+	**499.95**
Apple Scribe	249.95	Gemini SG 10	**239.95**
Citizen MSP 10 160	**349.95**	Gemini Delta SD 10	369.95
Citizen MSP 15 160	509.95	Gemini Radix SR 10	509.95
Citizen MSP 20 200	469.95	Okidata 192	**379.95**
Citizen MSP 25 200	629.95	Okidata 192 Image.	**399.95**
Epson LQ 1500	**899.95**	Okidata 193	**519.95**
Epson LX 80	**239.95**	Okidata 84	**664.95**
Epson LX 80 F/T	**279.95**	Toshiba P1340	**589.95**
Epson FX 80+	**359.95**		

SOFTWARE FOR IIe, IIc

Word Processing		Home Accountant	49.95
Bank Street Writer	44.95	Knoware	**69.95**
Bank Street Speller	44.95	Mng. Your $	124.95
Dictionary	**69.95**	Multiplan	79.95
Format II Enh.	89.95	Net Worth	54.95
Homeword	44.95	PFS:File	74.95
Homeword Speller	34.95	PFS:Report	74.95
Megaworks	79.95	PFS:Graph	74.95
Megaspell	39.95	Think Tank	94.95
PFS:Write	74.95	TK Solver	**179.95**
Sensible Speller IV	74.95	Tax Advantage	49.95
Screenwriter Pro	79.95	Turbo Pascal	39.95
Sideways	42.95	Turbo Tool	39.95
Business & Personal		Turbo Tutorial	24.95
ASCII Exp. Pro	84.95	Visicalc Pkg.	114.95
Beagle		Writing Wizard	**54.95**
Bag	**20.95**	Zoom Graphics	**69.95**
Basic	**25.95**	**Home * Educational * Entertainment**	
Diskquick	19.95	Alphabet Zoo	**19.95**
DOS Boss	**17.95**	Amazon	**27.95**
Apple Mechanic	19.95	Aerobics	**29.95**
GPLE	30.95	Arcade B Camp	**19.95**
Graphics	39.95	Barron	34.95
Triple Dump	27.95	Beyond Castle Wolf	24.95
Fat Cat	25.95	Bruce Lee	27.95
Beneath Apple DOS	17.95	Cat Graphics	24.95
Build a Book	**27.95**	Champ Lode Runner	24.95
Computer Diet	**Call**	Chopilfter	24.95
Crosstalk	129.95	Classmate	**34.95**
Dollars & Cents	64.95	Conan	27.95
Dollars & Cents IIc	74.95	Crosswork Magic	39.95
DJ Inv/Eval.+	**94.95**	Cutthroats	27.95
DJ Market Anal.+	**209.95**	Dazzle Draw	35.95
DJ Investors Wks. IIc	94.95	Deadline	34.95
DJ Spreadsheet Lnk.	149.95	Delta Draw	34.95
DJ Microscope	209.95	Dig Dug	**19.95**
Figures & Forms	**22.95**	Dragon World	**27.95**
Forcast	**39.95**		

SOFTWARE FOR IIe, IIc

Exp. Amazon	24.95	Robot Odessy	34.95
Exodus Ultima III	45.95	Rocky's Boot	34.95
Facemaker	24.95	Serpent's Star	**27.95**
Fahrenheit 451	**27.95**	SSI Baseball	27.95
Felony	24.95	SSI Golf	27.95
F-15 Strike	**24.95**	SSI Gemstone W.	27.95
Flight Simulator II	34.95	Sargon III	34.95
Gertrudes Secret	**29.95**	Seastalker	24.95
Gertrudes Puzzle	**29.95**	Sideways	39.95
Ghost Busters	**27.95**	Simon Sch. T Tutor 3	34.95
Hitchhikers Guide	27.95	Solo Flight	**24.95**
Kids on Keys	**19.95**	Sorcerer	29.95
Kindercomp	**19.95**	Speed Reader II	44.95
Kings Quest	34.95	Spell It	34.95
Koala M Keys	**49.95**	Story Machine	24.95
Master Type	27.95	Sticky Bear ABC	**27.95**
Math Blaster	34.95	Sticky Bear Math	**27.95**
Micro Cookbook	27.95	Sticky Bear Reading	**27.95**
Millionaire	34.95	Success w/Math (ea)	**18.95**
Mind Prober	34.95	Squire	34.95
Minit Man	**19.95**	Terrapin Logo	**64.95**
Murder by Dozen	24.95	Transylvania	24.95
NATO Comm.	**24.95**	Trivia Fever	27.95
Objective Kursk	29.95	Tycoon	**34.95**
Paper Graphics 1,2 (ea)	**34.95**	Word Attack	39.95
Planetfall	27.95	Xyphus	24.95
Print Shop	34.95	Zaxxon	24.95
Print Shop GL	19.95	Zork 1,2,3(ea)	29.95

MACINTOSH SECTION

Apple		ClickArt Pub.	37.95
Mac XL, 128k & 512k	**Call**	ClickArt Let.	**37.95**
Mac Drive	429.95	ClickArt Eff.	**37.95**
Mac # Pad	89.95	D.B. Master	129.95
Disks * Supplies		Davinci H,I,L. (ea)	34.95
Maxell (10)	39.95	Dollars & Cents	89.95
Memorex (10)	39.95	DJ Str. Talk	54.95
BASF (5)	19.95	DJ Market Mng.+	154.95
Flip & File 40	25.95	DJ Spreadsheet Lnk.	154.95
Kensington		Ensemble	**184.95**
Mac Surge	39.95	Factfinder	94.95
Mac Swivel	25.95	Filevision	119.95
Starter Pac	64.95	Forecast	**49.95**
Mac Modems		1st Base	119.95
Kensington 300	99.95	Haba	
Novation 300/1200	**329.95**	Habadex DB	69.95
Prometheus 300/1200	389.95	Haba Rack	**39.95**
Entertainment		Quick File	**Call**
Art Portfolio	39.95	Quartet	**134.95**
Brain Drain	**27.95**	Window Dialer	**34.95**
Card Shop	39.95	Hayden Speller	**54.95**
Cutthroat	29.95	Home Accountant	69.95
Cyborg	27.95	Koala MacVision	239.95
Deadline	39.95	MacForth Lev. 1	99.95
Forbidden Quest	32.95	MacForth Lev. 2	144.95
Graphics Magician	34.95	Mac the Knife V 1	27.95
Lode Runner	27.95	Mac the Knife V 2	34.95
Mac Attack	34.95	Main St. Filer	129.95
Mac Slots	54.95	Megamerge	79.95
Mac Vegas	37.95	Megafile	124.95
Mastertype	35.95	Megaform	**179.95**
Millionaire	39.95	Microsoft	
Murder by Dozen	29.95	Chart	79.95
Music Works	54.95	File	119.95
Pensate	27.95	Word	119.95
Run for Money	35.95	Multiplan	119.95
Sargon III	34.95	Basic	89.95
Transylvania	27.95	Mind Prober	39.95
Trivia Fever	27.95	Odesta Helix	249.95
Witness	29.95	Overvue	179.95
Xyphus	27.95	PFS:File/Report	**109.95**
Zork 1	29.95	Sales Edge	169.95
Zork 2 or 3	34.95	Think Tank 128k	**84.95**
Business & Personal		Typing Intrigue	34.95
ClickArt	37.95	Typing Tutor III	39.95

BC BUSINESS COMPUTERS OF PETERBOROUGH Gollan Co., Inc.

FREE SHIPPING CONTINENTAL USA/UPS ONLY

MasterCard VISA

APO/FPO WELCOME

766 RT. 101 W. • P.O. Box 772 • Peterborough, NH 03458

ORDERS ONLY: **800-845-3003**

QUESTIONS 603-924-9406

▶ BY DELORES WOODS HUAJARDO AND NANCY PERROTON

An estimated 80,000 Apple III computers are being used by businesses every day, and the owners of these IIIs are adamant in their praise of the Apple III as one of the best business machines around.

In order to keep Apple III owners up to date, we are publishing a three-part list of software currently available for the Apple III. This is part three.

Communications

		CIRCLE READER SERVICE NUMBER
B/T COMPUTING CORP.	CORVUS NETWORK DRIVER	**400**
CORE TECHNOLOGY CORP.	CTC COMMUNICATIONS SYSTEM	**401**
FOXWARE PRODUCTS, INC.	TERMINALL	**402**
MEAD DATA CENTRAL	LEXIS	**403**
RUSS SYSTEMS	LET'S TALK:	**437**
SOLUTIONS, INC.	DJ	**404**
	REPORT	**405**
	SORT	**406**
SUN DATA SOFTWARE	EASY TERM III	**407**
	INFONET 2.1	**408**
	TAP (TELEPHONE ACCESS PROGRAM)	**409**

Education

CDEX	CDEX FOR THE BPI ACCOUNTING PROGRAM	**410**
EXPERIENCE IN SOFTWARE, INC.	THE ART OF NEGOTIATING	**411**
FLIPTRACK LEARNING SYSTEMS	HOW TO OPERATE YOUR COMPUTER UNDER CP/M	**412**
	HOW TO OPERATE THE APPLE III AND III PLUS	**413**
	HOW TO USE MULTIPLAN	**414**
	HOW TO USE VISICALC	**415**
MAYCROFT, INC.	PATHWAYS	**416**

Hardware

HIGH TECHNOLOGY SOFTWARE PRODUCTS	APPLE JUICE	**417**
	POWER BACKER	**418**

Integrated Software

HABA SYSTEMS, INC.	HABA TEMPLATE	**419**
	HABAMERGE	**420**
	HABADEX	**421**
	III E-Z PIECES	**422**

Manufacturing

GREAT PLAINS SOFTWARE	JOB COST	**423**
HIGH TECHNOLOGY SOFTWARE PRODUCTS	GUSHER—OPERATING OIL AND GAS WELLS	**424**
	PACE—PROMPT ACCURATE COST ESTIMATOR	**425**
TIPNIS ASSOCIATES	CAM DESIGN	**426**
	COMPUTER AIDED MANUFACTURING SYSTEM	**427**
	COST EFFECTIVE SHAPE TECHNOLOGY	**428**
	GENERAL MACHINING PROCESS ESTIMATION	**429**
	GROUP TECHNOLOGY PART CLASSIFICATION	**430**

Publications

DON NORRIS' NEWSLETTER	$45/YEAR, QUARTERLY	(415) 239-1318	**431**
ON THREE MAGAZINE	$40/YEAR, 12 ISSUES	(805) 644-3514	**432**
THE III NEWSLETTER	$35/YEAR, 52 ISSUES	(916) 485-6525	**433**

Miscellaneous

ACTION RESEARCH	AIDA (STATISTICAL PACKAGE)	**434**
GREAT PLAINS SOFTWARE	GREAT PLAINS HARDISK ACCOUNTING	**435**
POWERTOOLS	CAP'N MAGNETO (GAME)	**436**

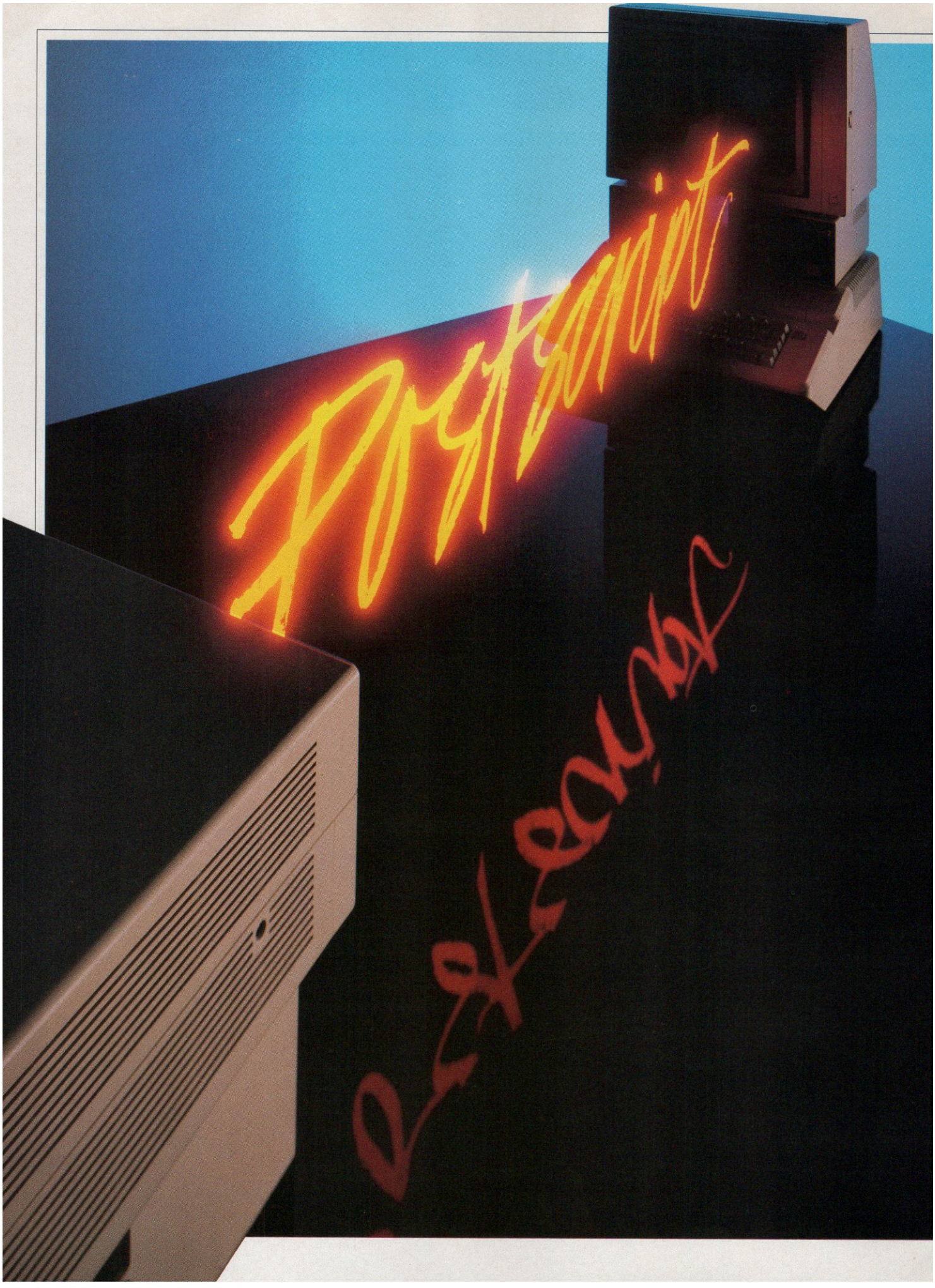
APPLE III update

Users' Groups

		CIRCLE READER SERVICE NUMBER
ATLANTA III SOCIETY	STEVE HARRISON	(404) 992-3130
CHARLOTTESVILLE APPLE III USERS GROUP	PROF. RICHARD MARTIN	(804) 924-4981
GREATER TIDEWATER APPLE III USERS	DANIEL WHITING	(804) 642-5655 or 893-3500 x2671
HOUSTON AREA APPLE USERS GROUP		(713) 522-2179
INTERNATIONAL APPLE CORE SIG	DON NORRIS	(415) 239-1318
KANSAS CITY APPLE III USER GROUP		(913) 588-6025
L.A./SO. BAY APPLE III USERS GROUP	BARNEY SIMONSEN	(213) 378-9933 x220
NORTH JERSEY APPLE III USERS GROUP	ROGER T. RICHARDSON	(201) 852-7710
ORANGE COUNTY APPLE III USERS GROUP		(714) 951-1231
SACRAMENTO APPLE III USER GROUP		(916) 482-6660
SARASOTA APPLE III USER GROUP	COMPUTER CENTRE	(813) 484-0421
SOUTHERN MAINE APPLE USERS GROUP	BILL HARKINS	(207) 865-3970
THIRD APPLE USERS GROUP	LAVONA RANN	(312) 665-6319

Utilities

ADVANCED MICROSYSTEMS	SPOOLER IIIP	450
APOLLO SOFTWARE	FONT GENERATOR III	451
APPLIED SOFTWARE	APPLE III VERSAFORM	452
TECHNOLOGY	PASCAL INTERFACE	453
BLYTHECO	MENU III, BASIC UTILITY	454
	PKASO PRINT	455
	RANDOM III, SOFTWARE FOR ACCOUNTANTS	456
	VISICALC FORMATTING AIDS	457
C. ABACI	LINEAR ALGEBRA SUITE OF THE SCIENTIFIC DISK	458
CE SOFTWARE	PROGRAMMER'S POWER TOOLS III	459
DA DATA SYSTEMS	BASIC GTO	460
	BASIC UTILS	461
	BASIC XRF	462
	BASIC XT	463
	DATA WINDOW	464
	DISK WINDOW	465
	POWER CAT	466
	POWER KEYS	467
	POWER PRINT	468
	SOURCE WINDOW	469
	THE RETRIEVER	470
DATAPAK	CALENDAR-PAK III	471
DIGITAL MICROWARE	COPY III	472
FOXWARE PRODUCTS, INC.	BASIC EXTENSION	473
GREAT PLAINS SOFTWARE	RAPID TRANSFER	474
INTERNATIONAL APPLE CORE	APPLE-CON	475
	BASIC COMPARE III	476
	CP/M TO SOS CONVERTER	477
	DOS TO SOS CONVERTER	478
	FILE CABINET III	479
LIVING VIDEOTEXT	THINKTANK	480
ON THREE	512K MEMORY UPGRADE	481
	DRAW ON III	482
	LAZARUS III	483
	ON TIME—ON THREE O'CLOCK COMBINATION	484
POWERTOOLS	BLOKACCESS	485
	CHARACTER SET EDITOR	486
	SOSCOMM	487
QUARK INCORPORATED	CATALYST BUNDLED WITH DISCOURSE	488
SOFT-LIFE CORPORATION	ATTACH DRIVER	489
SUN DATA	FONTWRITER	490
	PRINTER DRIVER III	491
	PSCREEN	492
	SOSTRAN	493
SWENSON ASSOCIATES	CUSTOMFONT	494


Postscript

Speaking PostScript To The LaserWriter

The first part of a four-part tutorial on using the language of the LaserWriter printer

Would you like to see what you can do with Apple's new LaserWriter printer? If you would like your computer to talk to the LaserWriter, the conversation has to take place in the PostScript typesetting and graphics language.

The PostScript language, which was written by Adobe Systems and licensed to Apple, is built into every LaserWriter. You can send the LaserWriter a PostScript message from an Apple II, a Macintosh, or from any other computer with an RS-232 serial port. In addition, any AppleTalk-equipped computer can connect to the LaserWriter through the AppleTalk network.

Writing the PostScript statements that make the LaserWriter produce the output you want is a form of programming. In this series of articles, I'll attempt to present the basic principles, structures, and commands you'll need to understand the way PostScript programs operate. If you have access to a LaserWriter, with the help of this series and perhaps the PostScript manual, you may want to try writing some PostScript routines of your own.

If you *don't* want to program in PostScript, you don't have to learn to do so just to use a LaserWriter. Apple provides a general PostScript printer driver for the Mac, and many software houses are including PostScript printer drivers in their upcoming application programs. Whether for intellectual exercise, a need for better control, or just for fun, you may want to find out what PostScript allows you to do, however.

PostScript is a stack-oriented language, keeping its working values, definitions, and intermediary results in a set of ordered lists. It is more like Forth than like BASIC or Pascal. In general, it uses values and objects immediately or it pushes them onto a stack. When the program needs data or encounters a command to retrieve a value, it pops a value back off the top of the stack again (see figure 1).

PostScript is also an extensible language, meaning that you can define routines in terms of basic PostScript operations and then use these new terms as part of further definitions. When the LaserWriter interprets your PostScript program, it follows each new term back through your definition until it reaches a description made up of primitive operations that it knows how to perform (see figure 2).

As a complement to the threaded-stack structure of the language, most PostScript operations are written in postfix—you first list the objects you want to use, and you then say what you want to do with them. For example, to add 3 and 4, you write

```
3 4 add
```

rather than the

```
3 +4
```

infix form you would use in BASIC or ordinary math. This procedure makes it possible for PostScript to evaluate objects according to a set of simple rules, although it does make the programs harder for beginners to read and write.

In general, PostScript works its way through a program as follows. As the computer reads each set of symbols, PostScript figures out where the breaks are between the words and assigns each group to a logical unit called a token. As soon as a token becomes available, PostScript looks to see what type of object it represents.

If the token is a number, PostScript saves it for later use by pushing it onto the operand stack. It does the same for definitions and specially marked command routines intended for later use. If, on the other hand, the token is a name, PostScript checks to see if it represents an executable routine or a primitive operation. If it does, the language executes the statement, pulling as many values off the stack as the operation requests and returning any results back onto the stack.

The basic scheme, then, is first to define any new terms and push them onto the stack. You then supply the values you want the program to work with. Finally, you give the commands that will retrieve the values, do the required arithmetic and logic, and print out the result. In practice, it's slightly more complicated, and we usually alternate between adding values to the stack and popping them back off.

We'll get to a concrete example in just a moment, but first let's take a short detour into the way PostScript handles stack operations. PostScript actually has four distinct stacks: operand, execution, dictionary, and graphic states (see figure 3). A different class of operations affects each stack.

The operand stack is much like a piece of scratch paper or the running total on a calculator. If an operation

DAVID BISHOP

REMEMBER! Always be prepared whenever you enter the adventure-filled world of...

EAMON

Six different text-adventures for the Apple.
All for only $20.00!

☐ Please send me the EAMON Introductory Offer. I have enclosed $20.00 plus applicable sales tax, shipping & handling. I understand that Public Domain Software is not commercial quality and is supplied as-is and that orders are filled on double-sided disks.

Name _____ S-2

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

VISA/MC _____ - _____ - _____ - _____ Exp _____

Signature _____

Send check or money order (US funds drawn on US bank) to: Computer Learning Center, PO Box 110876-A, Tacoma, WA 98411. Washington residents add 7.8% sales tax. Foreign orders add 20% shipping and handling.

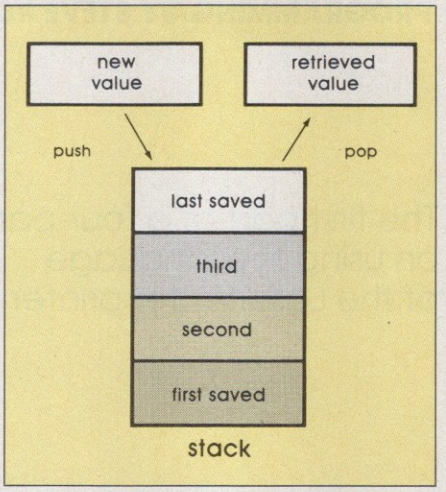


Figure 1: PostScript stores its working values by pushing them onto and popping them back off an ordered list called a stack. The last item saved is the first retrieved.

needs input values, it pops the required number of values from the operand stack. Similarly, any results produced go back on the stack for later use. This holds true for both arithmetic operations and those that handle text.

The execution stack is where PostScript stores away your program. Normally, you don't explicitly work with this stack but let PostScript do the stack management as it works its way through your program.

The dictionary stack lets you create new definitions and save libraries of procedures. PostScript searches this stack for your definitions, then for built-in operations, and flags any terms that it can't find in either.

Finally, the graphics-state stack is a holding area for sets of parameters that define how the PostScript language interfaces to a specific printer or interprets the exact graphic commands in your program. PostScript can keep track of several sets of parameters, which makes it possible temporarily to alter graphics characteristics in order to draw certain objects and then return to the original mode.

The Simplest Possible Program

We've done enough theory to start now with some practical examples. We'll begin with the simplest useful PostScript routine,

```
copypage
```

a one-line program that tells the LaserWriter to produce a printout of the current page. Because we haven't said to write anything on the page and the LaserWriter assumes a blank white page to begin with, this routine will simply eject an empty sheet of paper.

▶ The dictionary stack lets you create new definitions and save libraries of procedures.

Next, we'll make the routine a bit more complex. Suppose we want two blank pages. The routine then becomes

```
2{copypage}repeat
```

and PostScript, as it reads this line, first encounters the 2. Remember, PostScript pushes values it encounters in the input stream onto the operand stack until they are needed. So the 2 is pushed onto that stack.

Then, PostScript finds {copypage}. Curly brackets tell PostScript that it should save the enclosed commands, rather than execute them. The program treats deferred commands as a special form of text input—as operands to be saved on the operand stack until they're called for. That's what happens to the {copypage}.

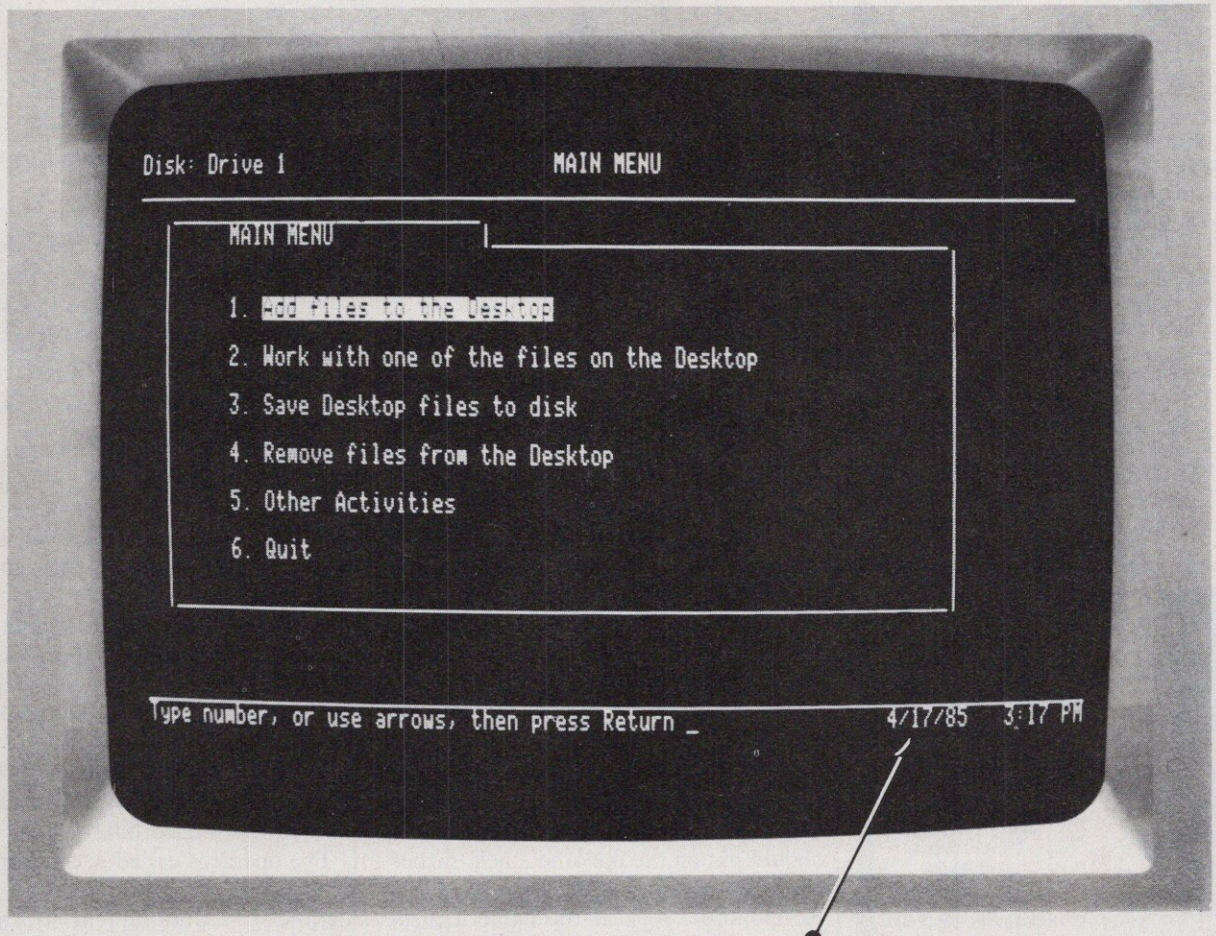
Proceeding along, PostScript then finds the repeat. Repeat is a word that it understands as an executable command that takes two operands. Going back to the stack, repeat treats the object on the top of the stack as a sequence of commands to execute and the next object on the stack as the number of repetitions to make.

The object on the top of the stack is

▶ TRY IT YOURSELF

If you have access to a LaserWriter and want to try some PostScript examples, here is the procedure. You need your computer, an ordinary communications program (such as Access II or MacTerminal), and either an RS-232 serial port or AppleTalk. If you use a serial connection, set your communications parameters to 8 data bits, 1 stop bit, no parity, and the X-ON/X-OFF protocol. You can use 1200 bps (set the Mode control on the LaserWriter to 1), 9600 bps (Mode 2), or AppleTalk (Mode 3). Send the LaserWriter a Control-D to stop any current job, a Control-T to have it report the job's status, and the Executive command to tell it to echo back commands as it receives them. Then, enter your PostScript programs.

If You Have
APPLEWORKS™
It's Easy To Tell If You Have A Timemaster H.O. Clock In Your Apple



Just Look Right Here

Only the Timemaster H.O. displays the date and time on the Appleworks screen.* If you don't have a Timemaster H.O., you'll just get the help key reminder. The Timemaster H.O. will also automatically time and date stamp your files on disk. And don't forget, the Timemaster H.O. has all the features of all the competition combined, including year, leap year (not just in PRO-DOS), month, date, day, hours, minutes, seconds and milliseconds. The Timemaster H.O. is compatible with PRO-DOS, DOS 3.3, PASCAL and CP/M. And the Timemaster H.O. automatically emulates all other clock cards so you won't have any compatibility problems because the Timemaster H.O. works with ANY program that reads ANY clock.

In fact, you could put ALL the competitive cards in every slot in your Apple and you still wouldn't have all the features of the Timemaster H.O.

The Timemaster H.O. comes with a ton of fun and useful software. It has an easy to read yet detailed manual, a 20 year auto-recharging battery and a 3 year no hassle warranty.

TIMEMASTER H.O.
SIMPLY PUT, Only $129.00 Complete
IT'S SIMPLY THE BEST

*If you purchased a Timemaster H.O. prior to AppleWorks support, an easy to use patch program is available for $20.00.

APPLIED ENGINEERING
We Set the Standard

Call (214) 241-6060 9 a.m. to 11 p.m., 7 days a week or
Send check or money order
P. O. Box 798
Carrollton, Texas 75006

MasterCard VISA

MasterCard, Visa and C.O.D. welcome. No extra charge for credit cards.
Texas residents add 5⅛% sales tax.
Add $10.00 if outside U.S.A.

FREE?DISKETTES

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

The DISK-NOTCHER by QUORUM quickly SOLVES that PROBLEM. It's like FREE DISKETTES!

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

Lifetime Warranty

Certifix™

NOW for ProDOS & DOS 3.3!

BE SAFE! The flipside of a single sided disk may have flaws. Your 'FREE' disk is CERTIFIED 100% ERROR FREE with CERTIFIX by QUORUM! CERTIFIX 'LOCKS OUT' BOTH DOS 3.3 & ProDOS DISK FLAWS. Great for testing economy disks, too!

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

FREE CERTIFIX BONUS PROGRAMS

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

Prevent Data Loss!

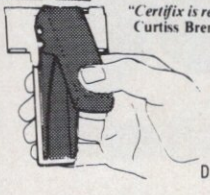
CERTIFY & FIX every disk with CERTIFIX!

"I'll be using (Certifix) many times. Everyone should have one..."
Carl Costa - Hayward, CA

"The Disk Notcher works great."
Michael Bland - San Jose, CA

"I am really pleased with the Disk Notcher..."
Ollie Greenlee - Moraga, CA

"Certifix is really a slick product..."
Curtiss Brennan - Sante Fe, NM



FREE!
64 'Write Protect' Tabs
32 Diskette Labels,
if you get the
DISKETTE FLIP-KIT
which contains the
Disk Notcher and Certifix

Get THE BEST! Ask our customers;
U.S. National Bureau of Standards
TRW • IBM • Digital Research • AT&T
Ciba-Geigy Pharmaceuticals • International Paper
U.S. Postal Service • Rockwell International
General Electric Corporate Research & Development
Alcoa • U.S. Naval Weapons Research Center

100% Money Back Satisfaction Guarantee!

DISKETTE FLIP-KIT only $34.95
DISK NOTCHER is $14.95
CERTIFIX is just $29.95
Add $2 s/h • CA add 6.5% tax

Update for early Certifix customers:
Send original disk - $4.95 s/h (CA add tax)

SEE YOUR APPLE DEALER!
OR ORDER DIRECT FROM QUORUM

1-800-227-3800

24 Hours a Day
Orders only

Ext. 30

Dealers Invited

QUORUM INTERNATIONAL, Unltd.
INDUSTRIAL STATION P O BOX 2134 AP
OAKLAND, CA 94614

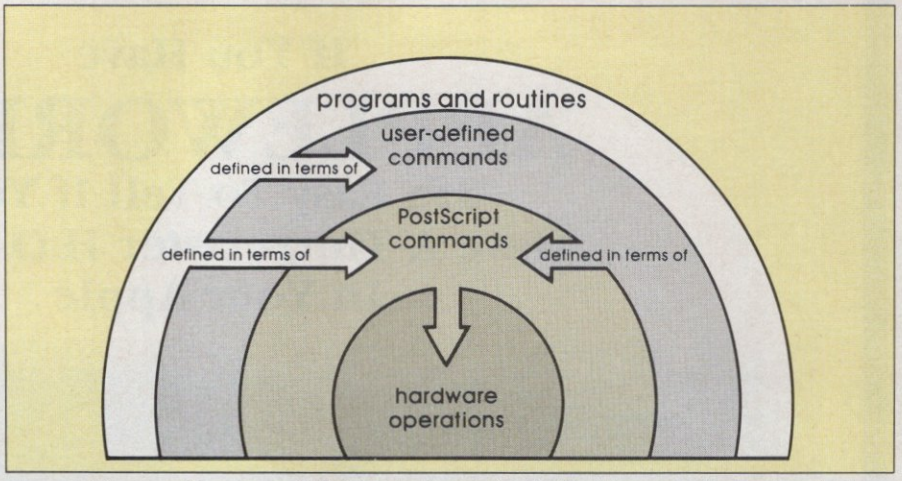


Figure 2: You can add your own definitions to the existing PostScript command set and use both existing commands and your new ones in further definitions or routines.

copypage, which still prints out the current page. The next object is the repeat factor, which in this case is 2. The LaserWriter responds by printing two blank pages.

Now, we'd like to add some text to the page. In order to do so, we'll have to gather up some more PostScript tools. To print text, we'll need to use fonts, arrays, and a positioning command.

Before PostScript can place text within a page image, it has to know what type style and size you want to use. For this example, let's use Times Roman.

The first token in our statement is

```
/Times-Roman
```

which is the name of the font, preceded by a slash. The slash tells PostScript that Times-Roman is a name that it should put on the operand stack, rather than interpreting it. Otherwise, PostScript would look at the name Times-Roman, decide that it wasn't a built-in command or a word already defined, and flag it as an error.

With Times Roman on the stack, we can then issue a command to select it for use. Our line then becomes

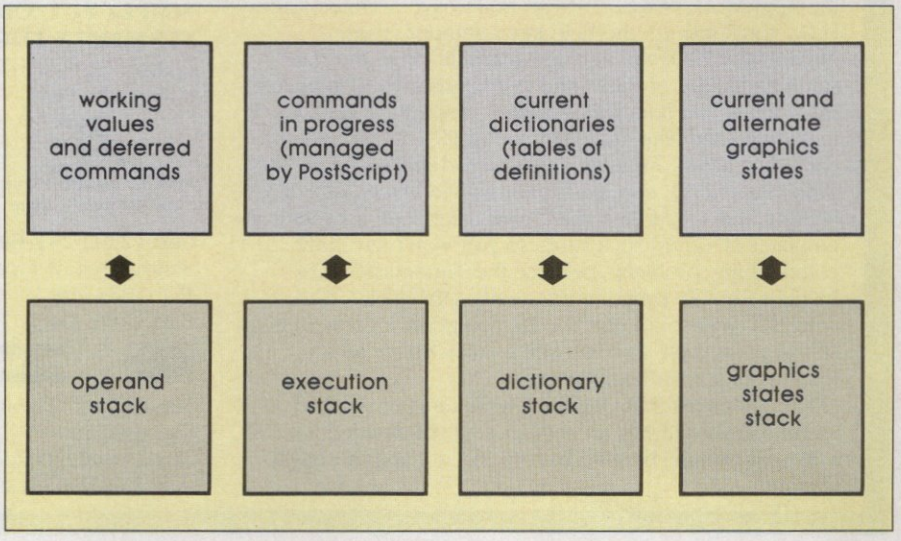
```
/Times-Roman findfont
```

and the findfont tells PostScript to locate the dictionary of information about the font whose name is on top of the operand stack and push all the information about that font onto the operand stack.

Fonts are generally stored in a reference size, rather than in the actual size of letters that we'd probably want to use. PostScript uses a one-point-high font as the reference (about 1/72-inch high), which it can do because it is able to scale fonts smoothly up in size without creating jagged lines.

The operator called scalefont takes the scale factor from the top of the operand stack and the font information from underneath it. We've set the font

Figure 3: PostScript keeps four active stacks, each of which it uses to store a different type of value.



CIRCLE 223 ON READER SERVICE CARD

name, but we need the number. To put a number on the stack, we include it in a command as a separate token. Putting these elements together, we get the command

```
/Times-Roman findfont 12 scale-
font
```

Finally, with the font all specified, we add one more command to make it the current font, until further notice.

The first lines now read

```
/Times-Roman findfont
12 scalefont setfont
```

Now that we have a font, the next step is to specify where on the page we want the typing to start. The most basic positioning command in PostScript is moveto, which tells the LaserWriter which point on the page to use as the starting point for further graphics or text commands.

Naturally enough, since a page is two-dimensional, moveto takes two numeric values as its inputs. In stack-language form, the two values must be on the stack already when we execute the moveto. The command line to start at halfway up the page, about an inch from the left margin, is 72 396 moveto, with 0,0 at the bottom left of the page and 72 units to an inch.

In PostScript, the operator to place text on the page image is show, which takes a string for an input, places the characters on the image, and advances the current location point as it goes. The string input, as you've probably guessed, must first be placed on the operand stack.

Strings in PostScript are made up of sequences of characters. We can create these sequences with operators, or as literal elements. We'll start with literals. You set strings off by enclosing them in parentheses. Our text string is, therefore

```
(This page intentionally
not left blank)
```

and the command to place the text on the page

```
(this page intentionally ) show
(not left blank) show
```

These two lines will print as one—I broke them here to fit the magazine's column width. That gets the print on the image, and we already know that it is put on the paper with showpage.

It took quite a bit of doing, but we now have a complete PostScript program. To print our single line on the page, we run the program

```
/Times-Roman findfont
12 scalefont setfont
72 396 moveto
(this page intentionally) show
(not left blank) show
showpage
```

That's enough instruction to get you started. We've seen that PostScript is a stack-oriented language, and we've worked a little bit with the stacks. We've written a short program and seen the very basics of how to get an image on a page. On the way, we've run into commands, deferred commands, arithmetic, strings, arrays, and graphics. And we've gotten the printer actually to spit out a printed page.

Next time, we'll take a closer look at the PostScript graphics commands and what we can do with them. Following that, we'll go back to text in more detail. Finally, in the last installment, we'll look at how to use PostScript in application programs. Stay tuned. ✚

Steve Rosenthal is, among other things, an ex-typesetter, ex-printer, and ex-taxi driver. He's currently an A+ *consulting editor.*

Finally.

Mouse-type cursor control for virtually all your Apple II software.

We call it the SmartLine. You call it smart time.

Because the SmartLine actually cuts keystroke time and effort by 60%. That's a savings that will make your work far more productive and your software investment far more rewarding.

At the center of the system is the SmartCard™ — a fully programmable easily installed "computer within a computer" bringing state-of-the-art control to any Apple II software that accepts cursor control commands from the keyboard.

Use it with the SmartBall™ or SmartMouse,™ the two most accurate, most sensitive optomechanical controls money can buy. You'll edit faster. Speed through spreadsheets. And stop on a pixel.

The new WICO SmartLine. It's the smartest move you can make.

The WICO SmartCard™
A "computer within a computer" with programmable microprocessor and memory, it's packaged with the SmartMouse or SmartBall, plus easy-to-use utility disk with set-up files.

The WICO SmartBall™
Easier to use than a mouse, it requires far less space for operation while providing faster, more precise cursor movement with virtually all Apple II software.

The WICO SmartMouse™
The only mouse designed for use with virtually all existing Apple II software.

WICO COMPUTER Smartline

M.A.D. INNOVATIONS
Microprocessor Applications Design

P.O. Box 13465 • Albuquerque, NM 87192
1-800-621-0660 ext. 22 • 24 Hour Order Line • MasterCard/VISA Accepted
Order Now! N.M. residents include 4.63% sales tax. Add $3 for shipping and handling.

Item No.	Description	Price
5020-74	SmartCard with Mouse for Apple IIe	$150.00
5020-75	SmartCard with Ball for Apple IIe	$150.00
5020-76	SmartCard with Mouse for Apple II/II+	$150.00
5020-77	SmartCard with Ball for Apple II/II+	$150.00
5010-30	WICO Joystick for Apple II, II+, IIe, IIc	$ 32.00
	For Mouse and Trackball with SmartCard add	$ 40.00

SmartLine, SmartCard, SmartBall, SmartMouse, Apple are trademarks respectively of WICO Corporation and Apple Computer Inc. © 1985 M.A.D. INNOVATIONS

CIRCLE 338 ON READER SERVICE CARD

They're not cropping up in every forest the way they used to, but you still have a range of choices.

COMPUTER CAMPS

No, you don't *have* to send your children to a computer camp to ensure they'll survive the high-tech 80s, but if you want to make them more comfortable with computer tools, a good computer camp can teach them that computers are not only useful but also fun.

You don't see computer camps cropping up in every forest the way you used to.

Think about what you're looking for first and then search out a camp that offers it.

A couple of years ago, computer camps were the latest craze in children's summer diversions. They were billed as the only way to ensure that budding executives-in-the-rough would be able to comprehend the world of the future.

Now, however, the fad has faded, as children work more with computers at home and at school and the computer mystique is dispersing on its own. There's still a place for computer camps, though, whether your son or daughter craves an intensive "computer experience" or simply wants to work with computers as part of a more traditional camping session. Computer camps are rarely cheap, but what camps are? The object is to have a good time and learn.

What Is a Computer Camp?

The term "computer camp" is bandied about in classified ads as much as the term "user-friendly." If you're a parent contemplating sending a child to computer camp, it behooves you to think about what you're looking for first and then search out a camp that offers it, as you would with software.

Many traditional camps advertise computer facilities and instruction as an adjunct to their regular offerings of hiking, swimming, team sports, and crafts. Let the buyer beware here. You probably won't find computer instruction emphasized in this kind of setup; it's more likely to be an elective activity. Fine, if that's what you want, but don't expect computers to be the main event.

Look out for the other extreme, that of excluding everything else for the sake of grinding away at the computer. The weighting of different activities is a minor bone of contention among camp directors, some of whom say camps that don't balance computer instruction with a near-equal amount of recreational activities are "clinics," not camps.

Mark Zacovic, executive director of ExperCamp (formerly The Original Computer Camp), says, "We don't think the hacker life-style is a balanced one," and adds that ExperCamp goes out of its way to provide well-rounded role models for campers, "not the pale, bespectacled, greasy-haired" classic computer nerd.

Michael Zabinski of National Computer Camps, on the other hand, scoffs at that style of computer camp, saying that "computer camps in the woods are 'pie in the sky.' " He believes that ten-year-olds can't get a good grip on assembly language in an environment "not conducive to concentration."

An interesting middle-of-the-road approach is available at places such as the Arizona Computer Camp, where the children work directly with computers part of the time and, during their outdoor activities, gather environmental data they use while learning to program.

I'll stay out of this controversy and simply point out that the academic style of computer camp is available if you want it.

What to Look for in a Camp

Hidden costs. In the chart that accompanies this article, I've tried to list the complete cost for each session at a camp, including any diskettes, lodging, food, or field trips. Some camps charge extra for diskettes that children can take away at the end of camp, for instance, or for commemorative camp T-shirts. Find out how much everything costs, not just the instruction.

Types of computers and the ratio of computers to campers. The chart lists only camps that use Apple equipment, of course. Some camps deliberately utilize a mixture of equipment, so that campers won't be tied to one brand of computer. Other camps deplore that tactic and say it doesn't provide in-depth learning. Decide for yourself, based on what you learn about the curriculum.

The teamwork children develop when they work together increases what they learn.

Most camps aim for two students per computer. They reason that although a one-on-one relationship with a IIe is alluring, the teamwork children develop when they work together actually increases what they learn, since the kids

CAMERON WASSON

can ask each other questions, rather than depend on the teacher alone. Having a computer for every camper isn't a detriment, either, and each child may get more hands-on time.

Computer staff. Who does the real teaching? Is it certified teachers with computer-education experience, teachers who underwent computer training before the camp started, or graduate students in computer science? Jacqueline Massing, camp director at Silicon Valley Computer Camp, argues in favor of computer-science graduates and undergraduates as instructors, saying they're easier for children to identify with and are also "much more up to date and aware of games and computer languages." (Silicon Valley Computer Camp also uses certified teachers, however.) Many camps pride themselves on using only certified teachers steeped in computer instruction; almost every camp employs less-experienced teachers' aides to lighten the work load, though.

Be sure to include your child's level of interest in your calculations.

Computer curriculum. Here's the heart of the issue. A one-to-one camper/computer ratio is meaningless if the instructional materials are vapid and weak.

Question camp directors most closely on this point, and don't forget to include your child's level of interest in your calculations: after all, intensive computer instruction eight hours a day will only bore or disgust a child with moderate curiosity in the subject.

Find out how the material is taught. Some camps rely on the instructor to transmit every drop of knowledge; others use self-programmed workbooks and a lot of solo time. Here the literature is thick with buzz-words such as "indi-

▸ BY VANESSA SCHNATMEIER

COMPUTER CAMPS

Computer camps are located in the western, central, and eastern U.S. The chart below includes the complete cost for each session at each camp, including any diskettes, lodging, food, or field trips. All of these camps use Apple computers, but not necessarily exclusively. Note the variation in time the campers spend with computers each day and the other kinds of activities each camp provides.

CAMP	SESSIONS	TUITION	AGE GROUP	CURRICULUM	COMMENTS
EASTERN STATES					
NATIONAL COMPUTER CAMPS P.O. Box 585 **Orange, CT 06477** (203) 795-9667 (various locations)	1- or multi-week sessions, June 23–Aug. 2, resident	$395 per week	Coed 9–18	BASIC, Pascal, assembler, word processing, graphics, robotics	Locations in Simsbury, CT; Atlanta, GA; St. Louis, MO; Cleveland, OH; Baltimore, MD. Some scholarships through school systems. 5 hours per day on computer, up to 5 hours more optional. "Concentrated effort in prep-school environment."
TAR HEEL CAREER CAMPS P.O. Box 2328 **Chapel Hill, NC 27514** (919) 967-6996	2 1-week sessions, July 1–12, resident	$350 per session	High school juniors and seniors	BASIC, Pascal	Tours of local computer facilities, schools. Four hours per day on computer.
TIC COMPUTER CAMP 4620 Dittmar Road **Arlington, VA 22207** (703) 241-5542	4 2-week sessions, June 21–Aug. 16, day	$310 1 week, $555 2 weeks, $800 3 weeks, $1025 4 weeks	Coed 7–16	BASIC, Logo, Pascal, assembler, LISP, C	3 hours per day on computer, 3 hours in athletics.
VIRGINIA TECH COMPUTER CAMP 400 War Memorial Gym Virginia Tech **Blacksburg, VA 24061** (703) 961-4850	2 2-week sessions, June 30–July 21, resident	$675 per session	Coed 10–17	BASIC, Pascal, assembler, optional languages, graphics, robotics, AP exam track	Emphasis on learning to program and solve problems, "fun but academic." Field trips to academic and computer labs.
CENTRAL STATES					
CAMP EDWARDS YMCA Box 16 **East Troy, WI 53120** (414) 642-7466	9 1-week sessions, June 22–Aug. 17, resident	Range from $182 to $197 per session	Coed 9–15	Literacy, BASIC, games, "Apples at work," basic programming	4.5 hours per day on computers, balance of outdoor activities
LAKE FOREST COMPUTER CAMP Lake Forest College **Lake Forest, IL 60045** (312) 234-3100, ext. 312	6 1-week sessions, June 16–Aug. 9, resident	$390 per session	Coed 10–16	Mac BASIC, Pascal, BASIC, assembler, graphics	Heavily academic, 6.5 hours per day of computer instruction, regular recreation hour in afternoon.
UNIVERSITY COMPUTER CAMPS OF AMERICA 2480 Crooks Road **Troy, MI 48084** (313) 362-4499	5 2-week sessions, June 16–Aug. 24, resident	$750 per session	Coed 9–17	Music, robotics, graphics, word processing, business, programming	4 hours per day with computers, 3 hours recreation. Discounts for local public schools. Students work in all labs first week, specialize second week.
UNIVERSITY OF ALABAMA AT BIRMINGHAM COMPUTER CAMP Special Studies, Univ. of Ala. 917 11th Street **South Birmingham, AL 35294** (205) 934-2213	2 3-week sessions, June 10–July 26, day	$295 per session	Coed 11–17	BASIC, literacy, computer history	4 hours per day with computers, 4 hours of instruction. Speakers, tours of local computer facilities.

CAMP	SESSIONS	TUITION	AGE GROUP	CURRICULUM	COMMENTS
WESTERN STATES					
ARIZONA COMPUTER CAMP 2946 Darca Drive **Prescott, AZ 86301** (602) 445-3778	6 1-week sessions grouped by age, July 6–Aug. 3, resident	$295 per session	Coed 8–15	BASIC, Logo, graphics, word processing	Students collect environmental data to be used in programs later. Half day on computer; orienteering, outdoor activities used to balance.
CALI-CAMP COMPUTER CAMP 1717 Old Topanga Canyon Road **Topanga, CA 90290** (213) 455-1305	5 2-week sessions, June 24–Sept. 6, day	$395 per session	Coed 7–14	BASIC, Logo, word processing, games	Half day on computers, the rest on outdoor activities.
COMPUTER CAMP FOR YOUTH 297 Conference Center Brigham Young University **Provo, UT 84602** (801) 378-4903	4 2-wk sessions, June 17–Aug. 16, resident	$595 per session, family rates about $200 per person	Coed 10–17	BASIC, Logo, Pascal, assembler, graphics, robotics, software	4–6 hours per day on computer; other sports on and off university campus; tours of historical sites. One track for programming, another for applications.
COMPUTER DAY CAMP The Pacific Science Center 200 2nd Avenue North **Seattle, WA 98109** (206) 382-4412	7 1-week sessions, beginning and advanced, June 24–Aug. 16, day	$185 for Center members, $195 for nonmembers, $10 more for advanced classes	Coed 10–15	BASIC, Logo, robotics	4.5 hours per day, with an academic bent. Field trips and individualized instruction. Campers work with their own tabletop robot.
COMPUTER TUTOR CAMP 980 Magnolia Avenue **Larkspur, CA 94939** (800) 227-2866 or (415) 461-7533 in CA	1-, 2-week sessions, June 30–Aug. 23, resident and day	$945 2-week res., $495 1-week res., $645 2-week day, $350 1-week day	Coed 10–17	BASIC, Logo, Pascal, assembler, music, graphics, robotics, game design	4–6 hours per day on computer; outside activities. On campus of Stanford University.
DATA BASE CAMP 6454 Valley View Road **Oakland, CA 94611** (415) 339-2844	1-week, 10-day, 2- and 3-week sessions July 14–Aug. 3, resident	$295 1-week, $475 10-day, $625 2-week, $885 3-week	Coed 7–15	BASIC, Logo, Pascal, assembler, sound and graphics, word processing, robotics	Dramatic arts included in noncomputer activities; 3 hours minimum on computer. Emphasis on individualized non-"canned" teaching.
EASTERN OREGON STATE COLLEGE COMPUTER CAMP Eastern Oregon State College Computer Center **La Grande, OR 97850** (503) 963-1582 in Oregon (800) 452-8639	4 1-week sessions sessions grouped by age, July 22–Aug. 16, resident and day	$130 per week, $80 extra for room and board	Coed 10–16	BASIC, Logo, Pascal, graphics, games	Academic side stressed; 6 hours per day on computer. Other activities as instructor decides.
EXPERCAMP (formerly the Original Computer Camp) 559 San Ysidro Road **Santa Barbara, CA 93108** (805) 969-7871 in California (800) 235-6965	2-week sessions, June 23–Aug. 30, resident	$895 per session	Coed 7–15	BASIC, Logo, Pascal, Forth, 6502 assembler, artificial intelligence, game writing, graphics, robotics	3–6 hours per day on computer. Discounts for multiple children from same family.
SILICON VALLEY COMPUTER CAMP CompuSkil Enterprises 1186 Brittan Avenue **San Carlos, CA 94070** (415) 593-4636	1-, 2-, 3-week sessions, June 23–Aug. 23, resident	$475 per week	Coed 8–17	BASIC, Logo, Pascal, assembler, robotics, music, graphics, or individual study	Half-day minimum on computers; speakers from Silicon Valley. Works closely with minority-enrichment group.
UNIVERSITY OF OREGON COMPUTER CAMP 333 Oregon Hall, Univ. of Oregon **Eugene, OR 97403** (503) 686-4231	1 9-day session, Aug. 18–27, resident	$495	Coed 9–15	Logo, robotics, music, art, word processing, business software, graphics	4 hours per day with computers. River rafting, trips to Oregon coast.

vidualized instruction," which means either low teacher/student ratios or lots of workbook time, depending on who's talking. Ask to be sure.

Valerie Abad, director of Data Base Camp, bemoans the rise of "canned" curricula in computer education. "What are they doing for three hours? Do the kids just play with software, or do they get individualized training?" Abad says her camp deliberately chose to limit its sessions to 30 or fewer students, so its teachers wouldn't be tempted to just point students at a workbook.

Workbooks aren't necessarily bad; some children indeed work better on their own with minimal instruction or interference. Here again you must take your own child's needs into account.

As for subjects offered, almost every camp offers the BASIC and Logo languages, and most offer Pascal. Game writing is a common way to capture children's interest while luring them into programming their own games. This year the hot topic is robotics. One camp, the Computer Day Camp at the Pacific Science Center in Seattle, is developing its own tabletop robot and therefore gives all students their own robot for experimentation and play.

Some camps approach computers through specialized one-subject labs. Others make no bones about their emphasis on teaching Jane and Junior to program, believing that children don't really get a crack at serious programming in most school computer-education classes.

Send Your Daughters

The ratio of girls to boys in computer camps is usually only one to three, and most camp directors think that's a shame. "It's extremely important that parents expose their daughters to do this," says Massing. "Women are awfully good programmers. If opportunities are really equal, if women are encouraged, then they'll succeed." Abad says the best time to start girls in computers and math is between the ages of 10 and 12, to get a jump on the math fear that appears between 12 and 14, when girls start worrying about being attractive to boys. Often parents don't encourage it, she says, "because they figure girls don't need it." Your child's life won't be blighted without computers, of course, but if you don't send your daughter to camp because she's not your son, you're doing her a real disservice.

Don't neglect yourself either. Some camps, such as CompuSkil's CompuTrails camp or the Computer Camp for Youth in Utah, offer sessions for families. These types of camps introduce all members of the family to computing, usually the entertainment and bookkeeping facets. If you want to get away on your own without the kids, you might try a Club Med vacation (Club Med offers computer instruction along with its other enticements) or Computer Camps International in Vernon, Connecticut.

If you don't send your daughter to camp because she's not your son, you're doing her a real disservice.

How to Find Out More

Because computer camps were so trendy during the last couple of years, several guides to computer camps were published in 1984. This year the flood

NO MATTER WHAT ADD-ONS YOU'RE CONSIDERING...

WE TEST HARDWARE THE WAY YOU USE IT

CREATIVE COMPUTING works hardware—hard! We interface it with other systems, check it for documentation, customer support, ease of operation and performance. And unlike machine-specific magazines, we test and review all products, from all manufacturers—so you know what your options are and can be confident with any purchase.

When it comes time for you to make a purchasing decision, read *CREATIVE COMPUTING* first—before you buy. Subscribe today and save 50%.

FOR FAST SERVICE CALL 1-800-852-5200 TOLL FREE

8Z276

Creative Computing P.O. Box 5214 Boulder, Colorado 80322

☐ Please accept my subscription to *CREATIVE COMPUTING* for 1 year (12 issues) at only $12.49. I save 50% off the regular subscription price of $24.97!

Mr./Mrs./Ms. _____
(please print full name)

Company _____ Title _____

Address _____

City _____ State _____ Zip _____

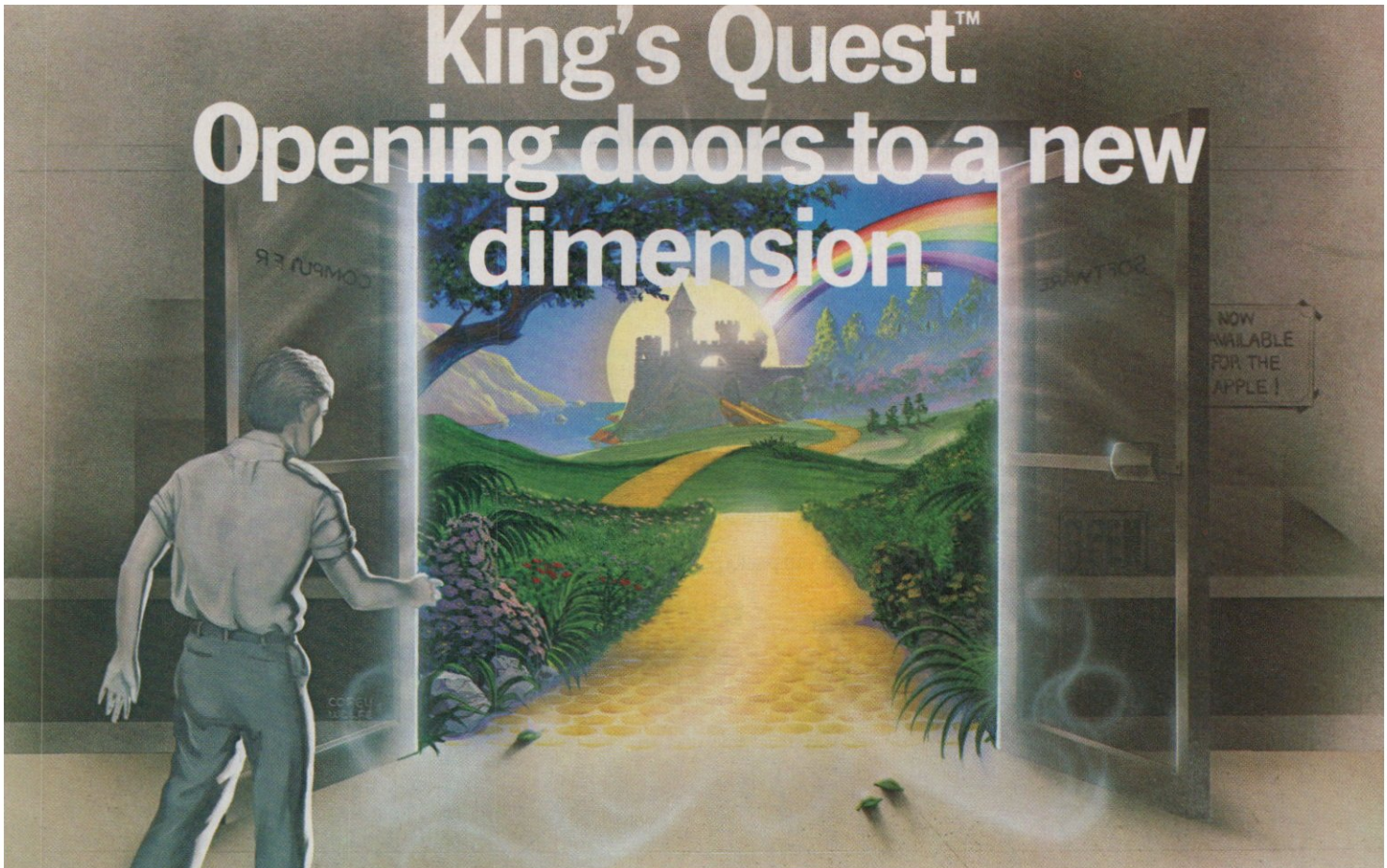
Check one: ☐ Payment enclosed ☐ Bill me later

Charge my: ☐ American Express ☐ Visa ☐ MasterCard

Card No. _____ Exp. Date _____

Please allow 30 to 60 days for delivery of first issue.

King's Quest™
Opening doors to a new dimension.



King's Quest marks a milestone in text and graphic adventures.

". . . a breakthrough in graphics-oriented adventure games...offers the best quality graphics in an adventure thus far." —*Compute!*

Packed full of high-resolution, 16-color graphics, it pushes even 128K Apple II's to their limit. Through a revolutionary simulation of three-dimensions, and astounding animation, storybook characters come alive.

". . . a significant advance. Rating: 10 (pure gold and about as good as a game could be)." —*Electronic Hotline*

By joystick or keyboard, guide Sir Graham on his quest for lost treasures. Make him walk, climb, duck, even swim. Through keyboard commands, using even whole sentences, explore the Kingdom of Daventry as you unravel its many mysteries. Unlike other adventures, you'll enjoy King's Quest over and over again.

Each time, uncover new twists, as well as more ingenious solutions to each challenge. If you do, you'll improve your score.

"A+. This revolutionary breakthrough should be at the top of your software shopping list...It's like playing an animated cartoon...

In fact, this game does more than just point the way for graphic adventures of the future-it opens up a whole new sub-genre." —*Computer Games*

KING'S QUEST available for IBM PC, Apple IIe, IIc.
KING'S QUEST II: *Romancing the Throne* now available for IBM PC.
Both require 128K.

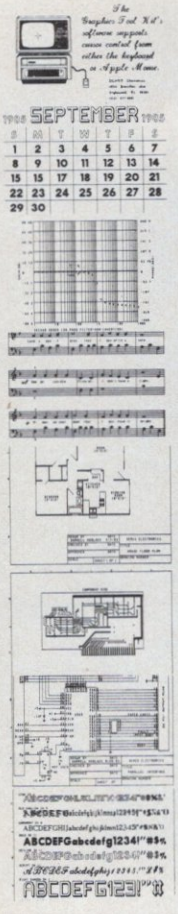
SIERRA™

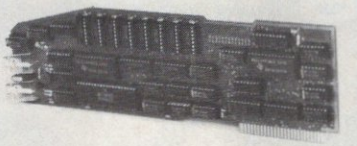
King's Quest

TM designates trademark of Sierra On-Line, Inc. © 1984 Sierra On-Line, Inc.

CIRCLE 347 ON READER SERVICE CARD

HIGH-RES GRAPHICS SYSTEM FOR APPLE II COMPUTERS



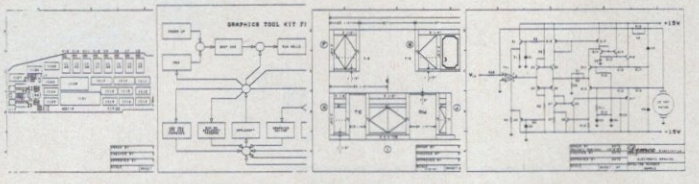


- The **HARDWARE** has two continuous pages of 640 pixels by 384 lines of bit mapped monochrome graphics.
- Completely compatible with Applesoft High-Res commands.
- Some **SOFTWARE** features are rubberband line draw, pattern fill, plot, block move/duplicate, cut and paste, shape and font positioning, and insert standard Apple pictures.
- The software also contains a vector shape table and font maker/editor programs.
- The software supports the Apple mouse and keyboard for cursor control.
- Print a full 8 ½" by 11" page of graphics to a dot matrix printer capable of 80 dots per inch.
- Complete **HARDWARE** and **SOFTWARE** package including fonts and shape tables for only $595.00.

The **GRAPHICS TOOL KIT**

DEMCO Electronics
10516 Grevillea Ave.
Inglewood, CA 90304
(213) 677-0801

APPLE II and APPLESOFT are registered Trade Marks of Apple Computer Inc.



CIRCLE 171 ON READER SERVICE CARD

GIVE YOUR PRINTER A FACELIFT.™

FACELIFT works with your APPLE II, IIe and II+ to set as many as 92 type faces, sizes and styles on the EPSON MX (with GRAFTRAX), RX and FX Printers, and their compatibles (like Star, Okidata and Smith Corona). 416 different faces, sizes and styles on the EPSON LQ-1500.

There's nothing to learn. Just call up the menu, push a typing key, and the printer is set to the face you've chosen.

From Word Processing to Spreadsheets, FACELIFT® will give you lots of the things you bought your printer for.

GET YOUR PRINTER'S WORTH.

Please Send Me a FACELIFT!
Here's my $29.95 Plus $2.50 POSTAGE & HANDLING ($32.45 TOTAL)
(California Residents add 6.5% Sales Tax)
PHONE ORDERS (213) 696-8739

☐ MasterCard
☐ Visa
☐ Check, M.O.
(Make payable to Companion Software, Inc.)

Name_____
Address_____ Tel ( )_____
City_____ State_____ Zip_____
Signature_____ Date_____
Acct #_____ M.C. Interbank #_____ Exp. Date_____
Specify Computer Make and Model_____

FACELIFT, P.O. BOX 4339, WHITTIER, CA 90607 A+

CIRCLE 303 ON READER SERVICE CARD

has subsided, however, and the shakeout in the computer industry has affected computer camps too—not only have many camps folded, but the books on camps are either difficult to find or no longer available.

If you can find a copy, the Alfred Handy Guide *How to Choose a Computer Camp*, by Joseph Cellini, is extremely helpful. *Camps 'n Computers: A Directory of Summer Computer Camp Instruction in the United States*, published by Verbatim Corporation and the American Camping Association, is no longer available, though you may be able to ferret out a copy. Bobbs-Merrill publishes the elusive *The Complete Guide to Computer Camps*, by Mike Benton.

With luck, you'll have the first kid on the block to come home with a robot whittled from twigs and an Indian-beaded diskette.

Some computer camps are accredited by the American Camping Association, which judges camps on the quality of their facilities and their recreational offerings as much as their computer tutoring. The ACA's guide to all its camps (many of which include computers in their curricula even if they're not the emphasis of their program) is available from the ACA for $6.95 at 100-A Bradford Woods, Martinsville, IN 46151.

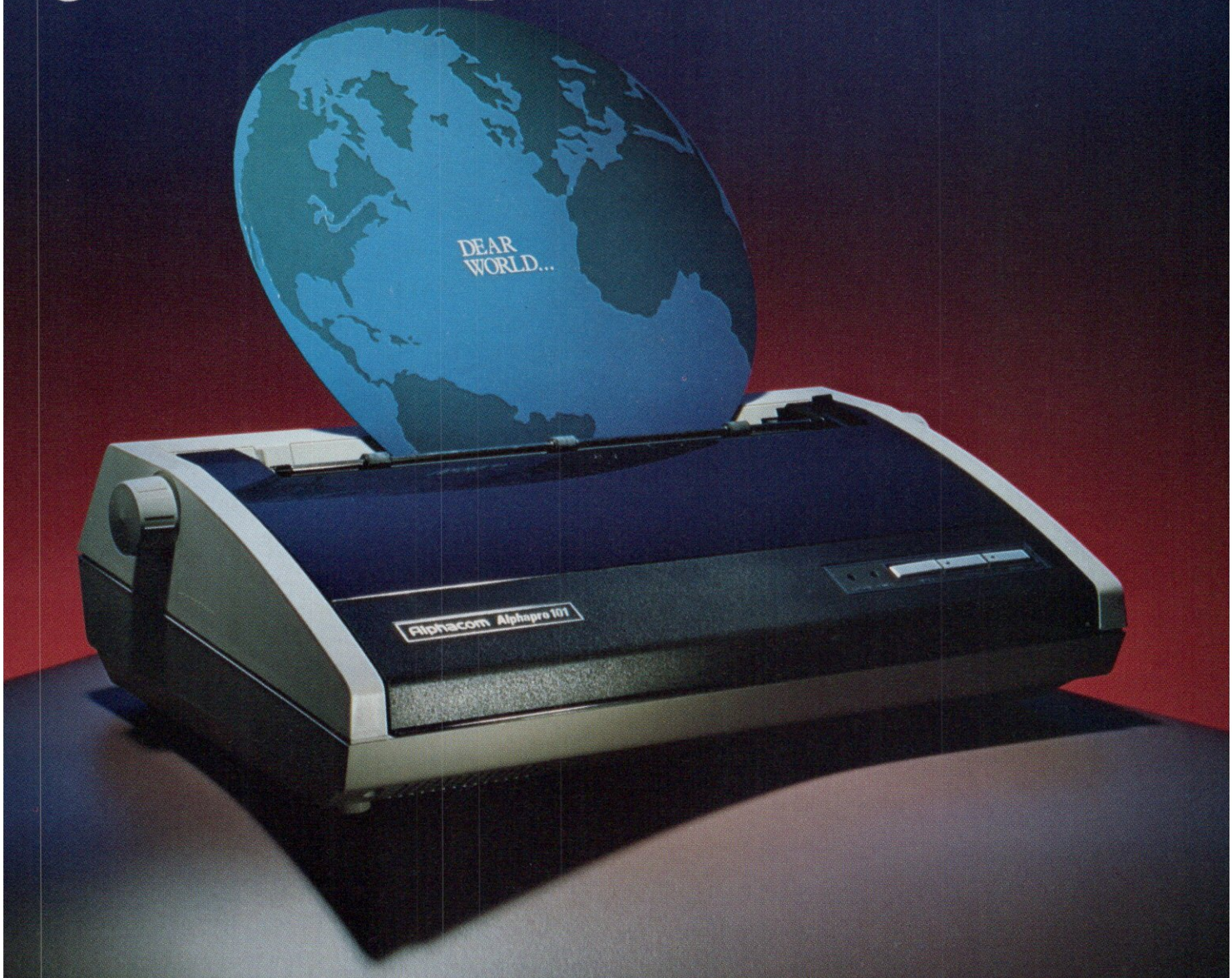
The A+ Buyer's Guide lists several Apple-specific and generic computer camps as well; this guide is available at your newsstand. Your local computer store may also have a line on good local camps—check nearby universities and colleges, which often offer day camps for locals and residential camps that can also accommodate out-of-towners.

Call Now

Whatever you do, if you're planning to sign up your child for camp *this year*, it's a case of move it or lose it. Some camps may have already filled up, so call as soon as you can. With luck, you'll have the first kid on the block to come home with a robot whittled from twigs and an Indian-beaded diskette. ✚

Vanessa Schnatmeier is a free-lance writer whose chief interests are women's issues and computer marketing.

How to make the world's greatest impression. Just $399.



Write! A person can move nations with a well presented idea.

The word processor is mightier than the sword, but only as sharp as its printer.

Daisy wheel printers produce strong, rich impressions. Impressions a dot matrix printer cannot make.

And now price is no longer an obstacle to the Write Impression. The Alphapro 101 prints letter quality for $399.

The Alphapro 101 is a 20 character per second, letter quality, daisy wheel printer—No other high performance letter quality printer can match our price. Compare the Alphapro 101 and see. Its solid craftsmanship and one-year warranty make it the most reliable buy in its price range. And it's compatible with all popular microcomputers: IBM® PC, PCjr., XT, AT;™ Apple® IIe, IIc, and Macintosh.™

The Alphapro 101 will make your point more powerful by showcasing your ideas in clean, crisp, to-the-point type.

So don't wait. See your local Alphacom dealer and make the Write Impression on the world *today*.

For the Alphacom dealer in your area, call Alphacom direct, **408-559-8000**.

2323 South Bascom Avenue, Campbell, CA 95008

Alphacom

THE WRITE IMPRESSION.

Registered Trademarks: IBM - International Business Machines, Corporation. Apple - Apple Computer, Inc. Trademarks: Macintosh - Apple Computer, Inc. AT - International Business Machines, Corporation

CIRCLE 328 ON READER SERVICE CARD

SoftCard™ II squeezes the most juice out of your Apple.

CP/M

Microsoft® SoftCard II is the latest high-performance CP/M® board that really juices the Apple® II, IIe and II+.

Hard facts on SoftCard.

The new SoftCard has a high speed (6MHz) Z-80 that runs CP/M programs up to three times faster than lesser boards. Plus 64K memory. And if that wasn't enough, we also support the Apple Profile hard disk.

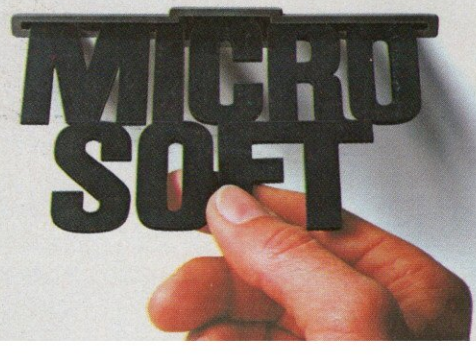
Microsoft BASIC is included so it's compatible with more Apple CP/M software than any other board on the market. Thousands of the juiciest business programs including dBaseII,™ WordStar® and sophisticated Microsoft languages like FORTRAN-80, COBOL-80 and BASIC Compiler.

Juicing up the performance of computers is nothing new for us. We invented the SoftCard and wrote Applesoft for the Apple II.

MICROSOFT®
The High Performance Software™

In fact, our BASIC is the language spoken by nine out of ten microcomputers worldwide.

Get the Apple juicer from Washington. Call (800) 426-9400. In Washington State, Alaska, Hawaii and Canada, call (206) 828-8088 and ask for the name of your nearest Microsoft dealer.

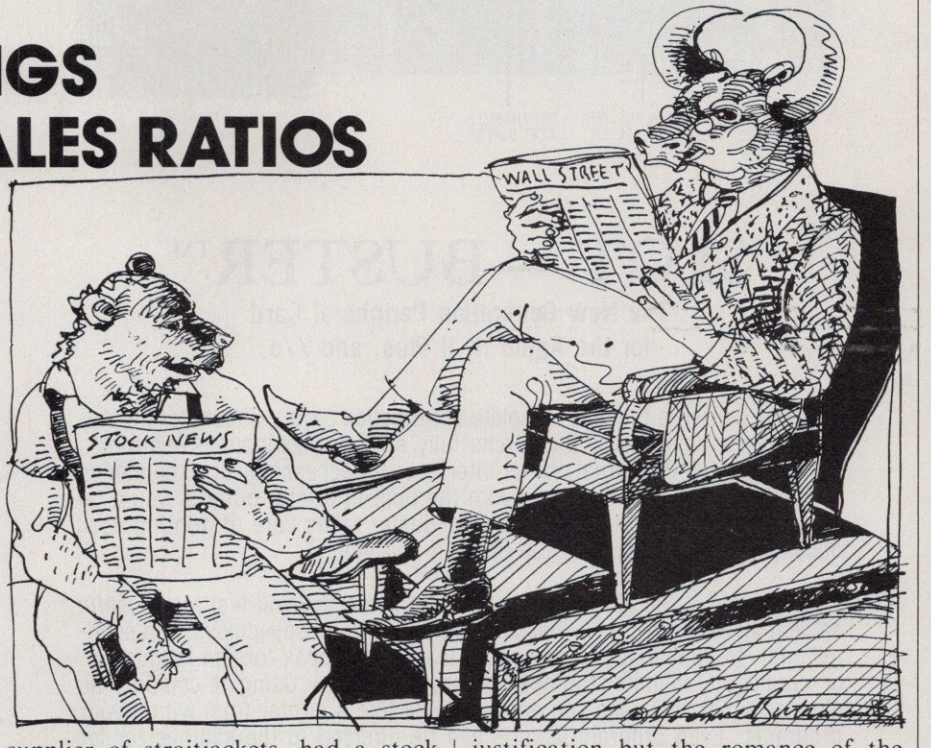


Microsoft is a registered trademark and SoftCard and The High Performance Software are trademarks of Microsoft Corporation. Apple is a registered trademark of Apple Computer, Inc. dBase II is a trademark of Ashton-Tate. WordStar is a registered trademark of MicroPro. CP/M is a registered trademark of Digital Research, Inc.

CIRCLE 321 ON READER SERVICE CARD

MONEY MATTERS
BY KEN LANDIS
One part math, two parts common sense, and three parts spreadsheet

PRICE-EARNINGS AND PRICE-SALES RATIOS



Everybody wants to pick a winner and stay away from the losers. Consider the story about the legendary Pat Bolonga. Pat who?

In 1929, at the height of the stock-market craze, Joseph P. Kennedy stopped at a bootblack stand located at 70 Pine Street, an office building near Wall Street. One of the bootblacks was (and still is) Pat Bolonga. Pat and Joe probably talked about a lot of things—baseball and politics perhaps—but the one subject they discussed that later changed both of their lives was the stock market. Joe Kennedy reasoned that if a bootblack was actively playing the market, then things had gone too far and that sooner or later the roof would cave in. Just days before the crash, Kennedy sold his stock. For the price of a shine he had saved millions. Pat lost $8000.

History has shown us that the investment philosophies of both Kennedy and Bolonga were based on the emotion of the moment, rather than on the worthiness of their investments.

Today, 46 years later, a lot has changed, but the object of the markets is still to make money. Everybody has an opinion and a technique for choosing the winners and avoiding the losers. This month, we are going to look at two techniques: one that's been around for many years, the price-earnings ratio, and a brand new technique, the price-sales ratio.

Quite simply, ratios are a quick and easy way to describe a stock in relation to something else—be it another investment, the market, or the stock itself.

Price-Earnings Ratio

To calculate this ratio, divide the market price of the stock by the earnings per share for the last twelve months. For example, if Whackco, a supplier of straitjackets, had a stock price of $10 per share and earnings of $1 per share, its P/E ratio would be 10.

What does a P/E of 10 mean? By itself, nothing, but compared against the P/E of stocks in the same industry, or the market in general, it means a great deal.

Everybody has an opinion and a technique for choosing the winners and avoiding the losers.

Comparing the P/E of stocks in the same industry, or against the market as a whole, quickly shows us which stocks the market favors. The higher the P/E, the higher the market's valuation of the company, and thus its stock. Be careful, though—a high P/E that has no other justification but the romance of the company could signal danger.

On the other hand, a low P/E can indicate a mature industry or company, one in which the prospects for growth are not good.

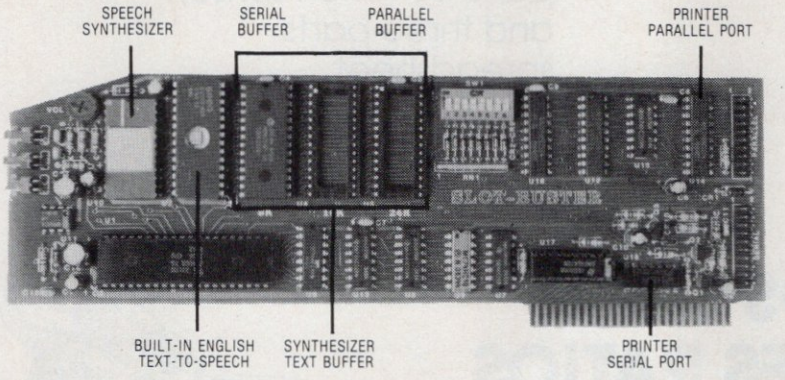
P/E ratios are typically used to find investments and then to track their relative performance against other stocks in the same industry—and against the market as a whole. Historically, the "average" P/E has been 10, but as the economy—and the industry itself—changes (whoever heard of a steel company that sells gasoline), P/E ratios will probably change, too.

Price/sales (P/S) ratios help you identify stocks you shouldn't invest in. To calculate them, you divide a company's sales during the past twelve months by the number of shares outstanding and then divide the result into the market price of the company's stock.

The resulting P/S ratio gives you an excellent indication of the strength of each dollar of market price.

YVONNE BUCHANAN

If You've Got A Slot, We've Got The Card.



SLOT — BUSTER™

The New Generation Peripheral Card for the Apple II, II Plus, and //e

The Slot-Buster is the first complete **six-function** card available for the Apple II series computers. It contains fully software compatible Centronics parallel and RS-232 serial printer interfaces for accessing correspondence and letter quality printers. And with the built-in printer buffers, you'll be able to use your Apple while the Slot-Buster takes care of printing your documents. Two documents at once, if you like!

Also included in the Slot-Buster is the most innovative and first really *useful* speech synthesizer that leaves all the others utterly speechless. It's so intelligent, in fact, that you can easily teach it to speak foreign languages, or create an unlimited number of sound effects. Using it couldn't be simpler either, because you access it just like a printer from within your programs. Even program listings can be directed to the synthesizer for verbal output. And another first. . . *The synthesizer's internal text-to-speech rules can be easily redefined for virtually any spoken language.* (We've even included Spanish text-to-speech rules on disk, free!) And with the built-in text buffer, there's never any waiting.

If you're worried that all of these advanced features will bog down your Apple, stop worrying. A fast and powerful on-board Z80-based computer oversees all of the Slot-Buster's functions, so your Apple doesn't have to. In fact, *the Slot-Buster doesn't even use any of your Apple's memory!* We think you'll also be pleasantly surprised with the Slot-Buster's price - it's only slightly higher than you'd expect to pay for a card with only one function.

The Slot-Buster is compatible with all popular printers including Apple's Imagewriter. All functions are compatible with AppleWorks, BASIC, PASCAL 1.1, and CP/M. Free disk software includes a hi-res printer dump program that supports both single and double hi-res graphics, a self-test diagnostic program, and more.

$229.95
(suggested retail price)

24 - Hour TOLL-FREE order line
(800) 227-1617 ext. 595B
In California: (800) 772-3545

For more information write or call:

RC Systems, Inc.

121 W. Winesap Rd., Bothell, WA 98012 (206) 771-6883

Apple, AppleWorks, and Imagewriter are trademarks of Apple Computer, Inc. CP/M is a trademark of Digital Research, Inc.

CIRCLE 118 ON READER SERVICE CARD

Many companies do not have stable earnings, and many high-growth firms have low earnings or none at all. These conditions do not make stock in such companies an unworthy investment, but we do have to measure such companies with a different yardstick than the traditional (P/E) ones. For these companies, the P/S ratio is superior to the P/E ratio for measuring the market's valuation.

In theory, the lower the P/S ratio, the more opportunities there are for price appreciation. The higher the P/S,

Even experts such as Fischer have been mistaken about companies with cancerous debt, but a good P/S, on their balance sheets.

the higher "accounting" the market has taken of the stock.

Remember, use P/E ratios to gauge a stock and P/S ratios to avoid a stock. Good "hurdles" by which to evaluate price/sales ratios come from Kenneth L. Fischer, a widely known proponent of P/S ratios, who is the head of Fischer Investments in Burlingame, California, and author of *Super Stocks*.

Fischer's guidelines for evaluating whether a stock's P/S is too high are as follows: More than 3 is too high for a small growth-oriented or high-tech company, more than .8 is too high for multibillion-dollar concerns, and more than .12 is too high for companies with low margins.

As we learned earlier, the P/S ratio highlights stocks we should avoid. When we find one without a negative P/S indication, however, the next step is to make a thorough, complete, and fundamental financial analysis of the company.

Why? Because a company can have a "good" P/S, but its balance sheet can be a mine field. Even experts such as Fischer have been mistaken about companies with cancerous debt, but a good P/S, on their balance sheets.

Spreadsheet Calculation

With a spreadsheet, P/E and P/S ratio analysis is fast. So fast, in fact, that you will probably want to try it on every investment you consider. Figure 1 is a P/S and P/E ratio worksheet that you can build in about five minutes. Let's take a look at it.

In the inputs section, you enter the

EASTCOAST SOFTWARE

ecs... inflation-fighting prices.

No hidden charges! No credit card fees!

APPLE

CAT #		LIST	OUR PRICE
1298	ADVENTURE WRITER	39.95	30.75
2104	AGENT USA	39.95	27.05
0560	ALGEBRA 1	39.95	27.05
1142	ALIEN ADDITION	34.00	23.05
0013	ALPHA PLOT	39.50	26.35
2598	ALPHABET ZOO	29.95	20.30
0151	APPLE MECHANIC	29.50	19.70
0490	APPLE USERS GUIDE 2/2E	17.95	14.50
0536	ASSEMBLY LINES (BOOK)	19.95	15.35
1448	BACK TO BASICS ACCT 2E/2C	195.00	123.75
0042	BAG OF TRICKS	39.95	27.65
1204	BANK ST. WRITER 2C/E-128K	69.95	47.35
1685	BANK STREET FILER	69.95	47.35
1405	BANK STREET STORYBOOK	39.95	25.55
0211	BARRON'S COMPUTER SAT	89.95	60.90
0278	BEAGLE BAG	29.50	19.70
0126	BEAGLE BASIC	34.95	23.30
1192	BEAGLE GRAPHICS	59.95	40.00
0658	BENEATH APPLE DOS	19.95	14.95
1385	BENEATH APPLE PRODOS	19.95	14.95
0111	BOOK OF APPLE SOFTWARE '85	24.95	16.00
1375	BPI GENERAL ACCOUNTING //E	395.00	263.35
0448	BUMBLE GAMES	39.95	27.05
2880	C.H.PRODUCT MACH 3 (2E/C)	54.95	38.05
2816	C.H.PRODUCTS MACH 2	44.95	31.15
2817	C.H.PRODUCTS MACH 2E/2C	44.95	31.15
2883	C.H.PRODUCTS MACH 3	54.95	38.05
1417	CHARLIE BROWN'S ABC'S	39.95	27.05
0386	CHESS	69.95	46.65
1432	CODEWRITER	140.00	80.75
0416	COMPUSERVE STARTER KIT	39.95	24.35
1138	COMPUTER SAT (HARCOURT)	79.95	54.15
1731	COPY 2 PLUS 5.0	39.95	24.40
1468	CRICKET 2C	179.95	133.35
1900	D-CODE	39.95	26.65
1645	DAZZLE DRAW-2C/2E (128K)	59.95	40.60
1265	DB MASTER PLUS	295.00	208.05
0052	DEADLINE	49.95	33.80
0630	DELTA DRAWING	39.95	27.05
1143	DEMOLITION DIVISION	34.00	23.05
1539	DISK 3-RING VINYL PAGES-10	6.75	4.10
1166	DISK BANK (50)	19.95	11.00
1722	DISK BOXES (5 COLOR CODED)	25.00	12.50
2866	DISK DRIVE EXTENSION CABLE	19.75	16.70
2833	DISK QUIK	29.50	19.70
1205	DOLLARS & $ENSE-2C	119.95	81.20
0409	DOLLARS & $ENSE	100.00	67.65
0216	DOS BOSS	24.00	16.00
0983	DOUBLE TAKE	34.95	23.30
2205	DUST COVER - IMAGEWRITER	10.00	7.15
2285	DUST COVER EPSON RX 80	7.99	5.75
2028	DUST COVER MICROLINE 92	8.95	6.40
1760	DUSTCOVER-APP.KYBOARD-2+/E	7.99	5.75
0360	EARLY GAMES YOUNG CHILDREN	34.95	23.75
1377	ECHO 2+ SPEECH SYNTH.	149.95	115.35
0092	ELEPHANT DISKS SS/DD (10)	37.00	14.75
1337	ELEPHANT DISKS SS/SD (10)	34.00	14.10
0107	EPSON MX-80 RIBBON	14.00	6.30
0029	ESSENTIAL DATA DUPLICATOR	79.95	49.95
0314	EZ PORT II	34.95	24.20
0280	FACEMAKER	34.95	23.65
1113	FAHRENHEIT 451	39.95	27.15
1126	FIGURES AND FORMULAS	29.95	20.75
1520	FINGERPRINT INTERFACE	149.00	120.00
0850	FLASHCALC (PRO DOS)	99.00	68.55
0553	FLEX TYPE (FLEX TEXT)	29.50	19.70
2821	FLIGHT SIMULATOR II	49.95	38.05
1440	FLIP-N-FILE (50 DISKS)	19.95	11.30
2796	FONTRIX	75.00	48.75
0009	FORECAST	59.95	41.50
0554	FRAME-UP	29.50	19.70
1127	GAME SHOW	39.95	27.05
0733	GEMSTONE WARRIOR	34.95	25.55
0046	GENERAL MANAGER II	229.95	153.30
0573	GERTRUDE'S PUZZLES	44.95	30.45
2213	GHOST BUSTERS	39.95	30.75
2843	GLOBAL PLE/BEAGLE BROS	49.95	33.30
1530	GRAMMAR EXAMINER	44.95	30.45
1100	GRANDMA'S HOUSE	34.95	23.65
0043	GRAPHICS MAGICIAN	59.95	40.00
0028	GUIDE TO THE APPLE //C	12.95	10.00
1437	HEAD CLEANING KIT	29.95	17.30
1346	HITCHHIKERS GUIDE GALAXY	39.95	26.90
1364	HOME ACCOUNTANT 2C/E-128K	74.95	48.05
0197	HOME ACCOUNTANT	74.95	48.05
2804	HOMEWORD	69.95	46.60
1901	I.O. SILVER	29.95	19.95
1589	IN SEARCH OF AMAZING THING	39.95	27.05
0442	JENNY OF THE PRAIRIE	39.95	27.15
0449	JUGGLES RAINBOW	29.95	20.30
2671	KAMELEON 2C INTERFACE	99.95	65.75
1917	KARATEKA	34.95	23.65
1442	KINDERCOMP	29.95	20.30
1144	KING'S QUEST	49.95	33.30
0003	KNIGHT OF DIAMONDS	34.95	23.30
1693	KOALA GRAPH TABLET-2E/2C	124.95	83.50
2954	KRELL LOGO	89.95	76.95
2972	LABELS 1-IN WHITE (1000)	9.95	6.75
2890	LEARNING BRIDGE MADE EASY	79.95	54.15
1463	LEGACY OF LLYLGAMYN	39.95	26.65
0403	LISA 2.6	79.95	61.55
0806	LOCKSMITH 5.0	99.95	70.55
1708	LODE RUNNER CHAMPION-HINTS	9.95	6.80
0982	LODE RUNNER	34.95	23.65
0194	MAGIC WINDOW 2	149.95	103.85
0192	MASTER TYPE	39.95	27.05
0089	MAXELL SS/DD DISKS (10)	38.70	18.60
2357	MEGAWORKS (2E/2C)	125.00	86.55
2147	MICRO COOK-APPETIZERS-2E	12.00	8.00
2146	MICRO COOK-SOUPS/SALADS-2E	12.00	8.00
0227	MICRO COOKBOOK //C	40.00	26.70
2148	MICRO COOKBOOK //E	40.00	26.70
1294	MICRO-SCI 2C DISK DRIVE	299.00	248.75
1316	MICRO-SCI A2 DISK DRIVE	345.00	216.65
1509	MICROLINE RIBBON	3.20	2.20
2802	MICROMODEM 2E W/SMARTCOM I	329.00	234.75
1347	MILLIONAIRE	49.95	34.60
1135	MINUS MISSION	34.00	23.05
0774	MOCKINGBOARD WITH SPEECH	219.00	168.50
1400	MOPTOWN HOTEL	39.95	27.05
1709	MR. PRINTER STAND	29.95	20.30
0580	MULTIPLAN (APPLE DOS)	195.00	135.00
0423	NIBBLE'S AWAY II	69.95	53.25
0563	PADDLE-ADAPPLE COMBO	29.95	26.90
0568	PAPER GRAPHICS	49.95	33.95
2893	PARAL PRINTER EXT CABLE 6'	34.95	21.80
0635	PARALLEL INTERFACE W/CABLE	69.95	52.45
1418	PEANUTS PICTURE PUZZLERS	39.95	27.05
0088	PFS ACCESS-2E/2C	70.00	47.40
1413	PFS FILE //E	125.00	84.60
1415	PFS GRAPH //E	125.00	84.60
1414	PFS REPORT //E	125.00	84.60
2809	PFS WRITE //E	125.00	84.60
0495	PIE WRITER 2.2 (40/80)	149.95	101.50
0882	PRACTIFILE 64 (D)	54.95	37.20
0584	PRESCHOOL IQ BUILDER 1	24.95	16.90
1196	PRINT SHOP	49.95	33.85
1793	PRINTSHOP GRAPHICS 1	24.95	16.90
0256	PRINTSHOP PAPER PACK	19.95	15.35
0349	PRO BLACKJACK - K. USTON	69.95	48.45
0461	PRONTO DOS	29.50	19.70
1279	PROWRITER NYLON RIBBON	10.00	6.65
0047	QUEST	34.95	23.75
2111	RAMCARD 16K-MPC	99.00	60.25
1386	RAMCARD 16K-WIZARD	95.00	62.85
2309	RAMWORKS/64K	179.00	149.15
0771	RF MODULATOR-INTERNAL	39.00	17.40
1450	RHYMES & RIDDLES	29.95	20.30
0574	ROCKY'S BOOTS	49.95	33.85
0133	SCREENWRITER II	129.95	86.65
0041	SENSIBLE SPELLER IV	125.00	83.35
1206	SENSIBLE SPELLER-PRO DOS	125.00	83.35
0447	SIDEWAYS	60.00	40.00
0400	SILICON SALAD	24.95	16.65
1340	SKY FOX	40.00	28.50
1373	SMARTMODEM 2C W/SMARTCOM I	339.00	265.60
0465	SNOOPER TROOPS 1	44.95	30.45
1338	SNOOPY'S READING MACHINE	39.95	27.05
0250	SPELLAGRAPH	39.95	27.05
1291	SPELLICOPTER	39.95	27.05
0435	STEP-BY-STEP	99.95	67.65
0100	STICKY BEAR A B C	39.95	27.05
0099	STICKY BEAR NUMBERS	39.95	27.05
0292	STORY MACHINE	34.95	23.65
1326	SUNDOG	40.00	30.75
1445	SUPERTEXT PRO (40/80)	79.95	54.35
0524	SWITCH-A-SLOT	179.50	161.10
0001	SYSTEM SAVER	89.95	69.20
0236	TERRAPIN LOGO	99.95	67.65
1330	TG JOYSTICK W/TOGGLE //E	64.95	45.00
0136	TG JOYSTICK W/TOGGLE	59.95	41.50
1598	THE FACTORY (HOME)	39.95	28.20
1602	THE POND (HOME)	39.95	28.20
0844	THINK TANK //E	150.00	103.85
2897	THUNDERCLOCK PLUS	150.00	121.80
1869	TIME IS MONEY	100.00	68.75
2899	TIME MASTER 2 H.O.	129.00	107.50
0462	TIP DISK #1	20.00	13.35
1193	TRIPLE DUMP	39.95	26.65
1823	TURBO PASCAL (CP/M)	54.95	38.05
0544	TYPEFACES	20.00	13.35
1237	TYPING TUTOR 3	49.95	33.85
2836	ULTIMA III (EXODUS)	59.95	40.00
1473	UNIVERSAL FILE CONVERTER	34.95	24.20
2112	UNIVERSAL PRINTER STAND	29.95	19.95
2858	VERB VIPER	34.00	23.05
2900	VIEWMASTER 80	159.00	132.50
1864	VISICALC 2+/2E	179.00	123.95
1296	WITNESS	39.95	26.65
1139	WIZARD OF WORDS	39.95	27.05
0144	WIZARDRY	49.95	33.30
2888	WORD ATTACK!	49.95	33.85
1402	WORD CHALLENGE	39.95	27.05
0249	Z-80 PLUS BOARD	139.00	115.85
0305	ZOOM/MODEM //E	179.00	134.65
0296	ZORK I	39.95	26.90

SPECIALS

2904	ARCHON	40.00	28.50
2819	CHART 'N GRAPH TOOLBOX	39.95	25.65
2910	CUT & PASTE (2E/2C)	50.00	35.65
2155	DATABASE TOOLBOX	39.95	25.65
1470	ELEPHANT DISKS DS/DD (10)	50.00	17.95
0092	ELEPHANT DISKS SS/DD (10)	37.00	14.75
0371	FINANCIAL COOKBOOK	50.00	35.65
2902	HARD HAT MACK	35.00	24.95
1654	MERLIN PRO	99.95	64.10
0597	MERLIN	64.95	41.65
1409	MERLIN/MUNCH/ASMBLY COMBO	109.95	70.50
0910	MUNCH A BUG	39.95	25.65
1341	MURDER ON THE ZINDERNEUF	40.00	28.50
2903	MUSIC CONSTRUCTION SET	40.00	28.50
2908	ONE ON ONE	40.00	28.50
2907	PINBALL CONSTRUCT SET	40.00	28.50
0599	PRINTOGRAPHER	39.95	25.65
1382	SEVEN CITIES OF GOLD	40.00	28.50
1340	SKY FOX	40.00	28.50
2906	STANDING STONES	40.00	28.50
3165	THE SOURCE SUBSCRIPTION	49.95	34.60
0093	VERBATIM SS/DD SOFTPACK	34.50	19.00
0912	VIDEO TOOLBOX	39.95	25.65
1453	WIZARD'S TOOLBOX	39.95	25.65
1131	WRITE CHOICE	44.95	28.85

MACINTOSH

0656	CHART (MAC)	125.00	86.55
2220	CHIP WITS	50.00	35.85
1223	COPY 2 MAC VOL.2	39.95	24.40
1514	DB MASTER	195.00	135.00
3162	DESK ORGANIZER MAC	149.00	103.15
1151	DOLLARS & $ENSE	149.95	100.00
2203	DUST COVER-MAC & KEYBOARD	20.00	14.30
3160	ELECTRIC CHECKBOOK	79.95	55.35
1219	ENSEMBLE	300.00	230.75
1362	FINANCIAL COOKBOOK	50.00	35.65
1324	FIRST BASE	195.00	132.00
3500	FLIP-N-FILE (60)	34.95	16.45
1926	FRONT DESK	149.95	101.50
1690	HAYDENSPELLER	79.95	55.35
1099	HELIX	395.00	273.45
1083	HOME ACCOUNTANT	99.95	64.10
0650	MASTER TYPE	49.95	33.95
1411	MAXELL 3.5-IN DISKS (10)	55.00	36.15
2787	MEMOREX 3.5-IN DISKS (10)	60.00	31.15
1073	MICROSOFT WORD (MAC)	195.00	135.00
0655	MULTIPLAN (MAC)	195.00	135.00
1946	MUSIC WORKS	79.95	54.10
0668	THINK TANK (512K)	245.00	163.35
2196	THUNDERSCAN	229.00	205.10
1239	TYPING TUTOR 3	49.95	33.30

CHECK ONE: ☐ VISA ☐ MASTERCARD

Card # _____ Exp. _____

Telephone _____

Name _____

Address _____

City _____

State _____ Zip _____

Please enter my order for: _____

_____

Please specify machine: _____

☐ *Please send free catalog.*

EASTCOAST SOFTWARE

49 Derrytown Mall
Hershey, PA 17033

MAIL YOUR ORDER OR CALL

(717) 533-8125

800-233-3237

VISA MasterCard

We Ship UPS—Shipping 1% ($2.50 min.)
C.O.D. Add An Additional $2.50
Hardware (Printers/Monitors)
Shipping is $2.50 +4% (U.P.S.)
For Air Mail, Canadian, APO/FPO Orders,
Shipping $2.50 +4% of Total Order (US Funds)
PA Residents Add 6% Tax

No Minimum Order
Visa-Mastercard-C.O.D.-Check

Prices Subject To Change
Sorry, No Foreign Orders

This Ad Prepared APRIL 1985

CIRCLE 329 ON READER SERVICE CARD

BEFORE YOU BUY ANOTHER PIECE OF SOFTWARE

CONSULT THIS BUYER'S GUIDE

Selecting the programs, systems and games for your personal computer can be an ordeal. You want the best package that's compatible with your system—*at the right price!*

LOOK NO FURTHER, THE OLYMPIC EDITION OF THE *CREATIVE COMPUTING 1984 SOFTWARE BUYER'S GUIDE* IS HERE!

The Editors of CREATIVE COMPUTING have awarded the Olympic Gold, Silver and Bronze medals to the leading software packages in the following categories:

- Full-feature word processors
- Home word processors
- Education: Pre-school, Elementary and Secondary
- Spreadsheets
- Database packages
- Games

Full descriptions, product reviews and screen photos of each award winner make this the definitive guide to the leading software of 1984!

In addition to the Olympic Ratings Guide, you'll find:

- A complete directory of software products with full program descriptions, system requirements and prices, PLUS
- A full listing of software manufacturers, with names, addresses, types of software made and compatible hardware for each product!

If you own an Apple, Atari, Commodore 64, TRS-80 Color Computer, or any IBM PC, and you're in the market for new business, educational, personal productivity, recreational and utility programs, take the ordeal out of shopping...save money and get the best package for your system *at the best price!*

Order your copy of the CREATIVE COMPUTING 1984 SOFTWARE BUYER'S GUIDE today!

Also available at your local newsstand and computer store.

Creative Computing 1984

SOFTWARE BUYER'S GUIDE

CN 1914, Morristown, NJ 07960 AN09

YES! I'm enclosing $4.95 ($3.95* plus $1 postage & handling) for the 1984 SOFTWARE BUYER'S GUIDE. (Outside USA $6.)

Mr./Mrs./Ms._____
print full name

Address_____

City/State/Zip_____

*Residents of CA, NJ and NY State add applicable sales tax.

company name, the last closing price of the company's stock, earnings during the last twelve months, sales, and the number of shares outstanding. You can retrieve this information from the Dow Jones News/Retrieval service, published financial statements, stock-reporting services (e.g., Value Line), or your broker.

Using this information, the spreadsheet then calculates the P/S and P/E ratios from these two simple formulas.

I10:(F2)+C10/(E10/F10)
K10:(F2)+C10/(D10/F10)

To calculate the P/S ratio, first calculate the sales (E10) divided by shares (F10); then divide that figure into the closing price of the company's stock (C10).

P/E is just as easy. The spreadsheet simply divides the closing price of the company's stock (C10) by the earnings per share, which you in turn calculate by dividing the earnings (D10) by the number of shares outstanding (F10). These formulas are replicated for all stocks (rows 11–15) in our example.

You Can't Go Wrong

That's it. If you use a combination of P/E and P/S ratios, you can't go amiss. Compare each stock's P/S to that of its competitors and to Fischer's guidelines. Track them over time, and you will get a feel for what's right and what's wrong. The same goes for P/E ratios, except that you will find industry averages in many stock reports or newsletters.

P/E ratios tell you what the market thinks of a stock, and P/S ratios tell you what you should think of it. ✚

Ken Landis is one of the pioneers in the use of Apples as financial tools.

A/1	B	C	D	E	F	H	I	J	K	L
2	PRICE/SALES AND PRICE/EARNINGS RATIO WORKSHEET									
3										
4										
5	**********					##########				
6			INPUTS					OUTPUTS		
7	**********					##########				
8										
9	COMPANY	PRICE	EARNINGS	SALES	SHARES	PRICE/SALES		PRICE/EARNINGS		
10	APPLE	$28.00	$104,400,000	$1,898,000,000	61,411,765	0.91		16.47		
11	IBM	$131.38	$6,582,000,000	$45,937,000,000	611,142,061	1.75		12.20		
12	US STEEL	$28.00	($556,000,000)	$18,988,000,000	84,242,424	0.12		- 4.24		
13	GD SEARLE	$57.13	$161,600,000	$1,245,000,000	49,876,543	2.29		17.63		
14	CHRYSLER	$32.50	$981,200,000	$18,000,000,000	133,496,599	0.24		4.42		
15	FORD	$45.63	$2,966,400,000	$51,348,000,000	183,224,212	0.16		2.82		

Figure 1: Price-sales-ratio and price-earnings-ratio worksheet

Kraking by Disk Jockey.....$64.95 ...SALE..$50.00

Two full sides crammed full of detail, step by step, Kraking tutorials, tips and Kraking programs by the new King of the Krakers.

TWO FULL SIDES

10 Chapters
8 Appendices
15 Tutorials
9 Programs

CRACKING TECHNIQUES '83.....$39.95 ...SALE..$35.00
CRACKING TECHNIQUES '84.....$39.95 ...SALE..$35.00
COMBINATION OFFER - CT '83 & CT '84.....SALE..$65.00
CRACKING TECHNIQUES '85.....$39.95 NO SALE..$39.95
TRIPLE OFFER - CT '83, CT '84, & CT '85 ...SALE.$100.00

These disks, full of tips and tricks of disk copying and cracking, which are complete sell outs at the many computer shows, are now being made available through mail order.

These highly specialized disks contain tips and techniques provided by the top crackers of the world. Anyone who has traveled the vast electronic highways of the computer bulletin boards will easily recognize these famous names: Apple Bandit, Disk Zapper, Red Rebel, Long John Silver, Axe Man, The Burglar, Captain Nibble, Mr. Xerox, Lockbuster, The Colossus, Mister C, Richard Brandow, Bozo NYC, Clone Man, Reset Vector, Woodpecker, The Beast, Trystan II, the Pongus, Jim Phelps, The Marauder, and the Disk Jockey. Some of these famous software pirates have been featured on ABC's NIGHTLINE, NBC's TODAY, in Newsweek, Infoworld, Tech Weekly, and in the New York Times. Now find out why all these people have earned their heavy reputations! Here now are the techniques that made them famous.

Included on the disks are full descriptions on the use and applications of DEMUFFIN and DEMUFFIN+, techniques for modifying a 16k RAM card into a fake ROM, a dissertation on special techniques, Non Maskable Interrupt, Boot Tracing, Brute Force, and several sections on handling Foreign DOS. The internationally famous Axe Man has several detailed sections on different techniques including "How to use a RAM card as a major cracking tool." Also included are the complete programming codes for building your own copies of the legendary Bozo's Cracker ROM and the Lockbuster's F8 ROM. Contains seven (7) Apple Bandit files including how to really use Copy][+ and the super COPYB from the Disk Jockey.

All of the information gathered together on these disks are the highlights of the 1982-85 pirating season as featured on the infamous Boston Pirate's Harbor bulletin board. Pirates Harbor has long been established as the international Mecca of software cracking. As an added bonus, complete cracking instructions are provided for many of the top pieces of software, both for games and business. These are not obscure, arcane pieces of lore; they are practical tips and techniques that you can start applying immediately the day you receive your disk.

Mac-Crack.....$74.95 ....SALE..$65.00

Mac-Crack is now available for the MACINTOSH. Just like its great forerunners, Cracking Techniques for the Apple II, II+, //c, & //e, this great new disk is crammed full of cracking tutorials, tips, and disk utilities for the MACINTOSH.

CRACKING TECHNIQUES

STOP worrying about disk failure ! Learn how to back-up ! Customize your software to meet your needs & requirement .

For MasterCard and VISA only !!
Call toll free - Ask for Operator 68

1-800-824-7888

In Alaska or Hawaii, call 1-800-824-7919

PIRATES HARBOR
P.O. Box 8928 Boston, MA 02114
617-227-7760 Voice
617-720-3600 Modem

These products should NOT be used for illegal purposes.
Apple & MACINTOSH are trademarks of Apple Computer, Inc. Cracking Techniques and Mac-Crack are trademarks of Pirates Harbor.

YES, I want to learn the Secrets of Cracking
Please RUSH:

		Regular	Sale
___	Kraking by Disk Jockey (2 sides)	$ 64.95	$ 50.00
___	Cracking Techniques '83	39.95	35.00
___	Cracking Techniques '84	39.95	35.00
___	Combo - CT '83 & Ct'84	79.90	65.00
___	Cracking Techniques '85	39.95	39.95
___	Triple - CT '83, CT '84, & CT '85	119.85	100.00
___	Four Pak-CT '83,CT'84,CT'85, & Kraking	184.80	140.00
___	Mac-Crack tm	74.95	65.00

Shipping included for USA. Massachusetts residents add 5% tax.
Limited offer on prices and availability. ALL SALES ARE FINAL!

[ ] Check enclosed for $_____ A+6

NAME:_____ PHONE:_____

ADDRESS:_____ COMPUTER:_____

CITY:_____ STATE:_____ ZIP:_____

CIRCLE 346 ON READER SERVICE CARD

Print-it!™

THE NEW APPLE* COMPATIBLE SERIAL AND PARALLEL PRINTER INTERFACE

Go From Screen to Paper 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][,][+, //e②or "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/M③. 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 Videx④ 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,⑤ 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 Texprint① Qualified educational and dealer discounts available.

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

① Visa,MC,AMX accepted. Add $4 shipping and handling within USA, Mass res. add 5% tax
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. Itoh, Canon, Epson, Dataproducts, IDS, Tally, NEC, Okidata, Quadram, Panasonic, Radio Shack, Star Gemini, Transtar, Diablo plus many others.

▶ TUTORIAL/BY GARY B. LITTLE

UNDERSTANDING ProDOS

PART TWO OF A CONTINUING TUTORIAL ON THIS NEW OPERATING SYSTEM PROGRAM FOR THE APPLE II FAMILY. THIS MONTH WE FEATURE A DISCUSSION OF THE MOST COMMONLY USED APPLESOFT DISK COMMANDS, THE ONES THAT ALL APPLE II USERS, NOT JUST PROGRAMMERS, SHOULD LEARN HOW TO HANDLE.

In last month's cover story, Steve Rosenthal and Ken Kashmarek presented an overview of the newest operating system for the Apple II family, ProDOS. In this and three future articles, we'll take a closer look at ProDOS, the Applesoft disk commands and assembly-language subroutines that are used with it, and the underlying software drivers it uses to communicate with input/output (I/O) devices such as disks and clocks. I'll also describe for you how to use two utility programs called Filer and Convert that perform various file-handling chores (such as copying files, formatting disks, exchanging files with DOS 3.3 disks, and so on).

This month, we'll concentrate on the most commonly used Applesoft disk commands, the ones that all Apple II users, not just programmers, should learn how to handle. Before we begin, however, let's review two concepts that you have to understand clearly before you can hope to master ProDOS: directories and pathnames.

A ProDOS disk is called a volume and is identified by a name you assign to it when you first format it. (You can use the ProDOS FILER program for formatting). A newly formatted disk contains one directory, called the volume directory, that holds information concerning a maximum of 51 files. These files can be standard program or data files or files that define other directories (called subdirectories). These subdirectories can also hold either standard files or subdirectory files.

We need to know two things in order to identify any file uniquely on a disk: the name of the file itself and the name of the directory in which it resides. ProDOS receives this information as a unique identifier called a pathname, which comprises the names of each of the directories that ProDOS must traverse to reach the file in question. The first name in the path is always that of the volume directory and must begin with a slash (/). All other names in the path are separated from the previous name by another slash.

For example, I'm writing this article with a copy of AppleWorks on a disk that has a volume directory called A.PLUS. This directory contains a subdirectory file called JUNE that contains a file called PRODOS.PART.II that contains the text of this article. The entire pathname for this file is /A.PLUS/JUNE/PRODOS.PART II.

The rules for naming directories and files are the same. A name must be fewer than 16 characters long and must begin with a letter of the alphabet. The other characters in the name can either be letters, digits, or periods. Note that, unlike in DOS 3.3, filenames cannot contain spaces, special symbols, or control characters.

The Applesoft disk commands used with ProDOS are defined in a file called BASIC.SYSTEM that runs automatically when you boot a disk. (Actually, the first file in the volume directory whose name ends in .SYSTEM is the one that runs. If you are using a disk that contains Applesoft programs, though, BASIC.SYSTEM will undoubtedly be the first such file.) BASIC.SYSTEM extends the Applesoft command set by installing a group of 32 disk commands that any Applesoft program can use. This month, we will be looking at 19 of these commands (see figure 1).

To use an Applesoft disk command from within a program, you must use the Applesoft PRINT statement to print a Control-D character (which signals a coming disk command), the name of the disk command, the command parameters, and then a carriage return. For example, to list all the files in a volume called /UTILITIES, you type (as one line) a program line that looks something like this:

```
100 PRINT CHR$(4);
    "CAT/UTILITIES"
```

In this example, the CHR$(4) statement generates the Control-D character, the disk command is CAT, and the command parameter is /UTILITIES (a pathname). The PRINT statement automatically generates the required carriage return.

If you're entering an Applesoft disk command directly from the keyboard in the Applesoft Command mode (that's the mode where you see the] prompt symbol), you don't have to worry about the Control-D. All you have to do is type the name of the command, followed by the command arguments, and then press Return. The keyboard equivalent of the CAT command is simply

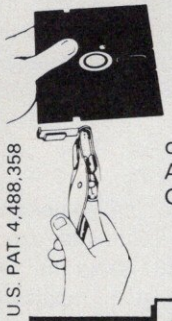
```
CAT/UTILITIES [Return]
```

You should be aware, however, that BASIC.SYSTEM does not permit entry of

INCREASE YOUR DISK CAPACITY 100%

DOUBLES DISKETTES INSTANTLY!

Now, the back of 5¼" diskettes can be used, even in a single-head disk drive. Double all your present diskettes safely...without disturbing the existing data!



nibble notch

cuts square notch for Apple, Franklin, and Commodore

only $14.95*

U.S. PAT. 4,488,358

ALSO

DISK OPTIMIZER SYSTEM©

SOFTWARE FOR APPLE II, II+, IIe, III, AND FRANKLIN

CERTIFIES YOUR NEW DISK 100% ERROR-FREE!

• Locks out bad sectors • Adds 36th track • Performs disk drive speed check • Adds DOS • And More!

SPECIAL PACKAGE PRICE

Nibble Notch 1 & Disk Optimizer Combo (Optimizer alone reg. $24.95)* **$29.95* FOR BOTH!**

INQUIRE ABOUT OUR ALL-NEW MULTILINGUAL DISK OPTIMIZER!

* On all orders add $2 for postage & handling ($5 Foreign). Florida res. add 5% Sales Tax.

SATISFACTION GUARANTEED OR YOUR MONEY BACK!

VISA ORDER TODAY MasterCard

TOLL FREE 1-800-642-2536
FLORIDA 305-493-8355

or send check or money order to:

nibble notch® computer products

4211 NW 75th Terrace • Dept. 2 31
Lauderhill, FL 33319

Command	Syntax
–	pathname [,S#] [,D#]
BLOAD	pathname [,A#] [,B#] [,L# *or* ,E#] [,Ttype] [,S#] [,D#]
BRUN	pathname [,A#] [,B#] [,L# *or* ,E#] [,S#] [,D#]
BSAVE	pathname,A# ,L# *or* ,E# [,B#] [,Ttype] [,S#] [,D#]
CAT	[pathname] [,S#] [,D#]
CATALOG	[pathname] [,S#] [,D#]
CREATE	pathname [,Ttype] [,S#] [,D#]
DELETE	pathname [,S#] [,D#]
EXEC	pathname [,F# *or* ,R#] [,S#] [,D#]
IN#	snum *or* A# *or* snum,A#
LOAD	pathname [,S#] [,D#]
LOCK	pathname [,S#] [,D#]
PR#	snum *or* A# *or* snum ,A#
PREFIX	[pathname] [,S#] [,D#]
RENAME	pathname1, pathname2 [,S#] [,D#]
RUN	pathname [,@#] [,S#] [,D#]
SAVE	pathname [,S#] [,D#]
UNLOCK	pathname [,S#] [,D#]
VERIFY	[pathname] [,S#] [,D#]

Figure 1: The Applesoft disk commands described in this article—Brackets enclose optional parameters.

all its commands from the keyboard this way. You can enter all the examples in this article while you're in the Applesoft command mode, though.

As you can see from figure 1, most of the Applesoft disk commands support, or require, several parameters that specify such information as the pathname of files to be acted on, loading addresses, lengths, and so on. A brief description of each of the parameters appears in figure 2.

You can specify letter parameters in figure 2 (such as ,A#—where # represents the value of the parameter) in any order by appending them to the end of the command line. On the other hand, a pathname or "snum" parameter must come immediately after the command name. (The only exception is the Rename command, which requires two pathnames; the second pathname must appear immediately after the first.)

How to Enter Disk Commands

You can enter most Applesoft disk commands with the slot (,S#) and drive (,D#) parameters that specify the physical location of the disk to be accessed. You don't have to use these parameters if you know the pathname of the file in question, because ProDOS will automatically search all installed disk drives for the file. If you can specify a simple filename, however, to which no prefix has yet been attached (we'll discuss prefixes a little later) or if you use either the ,S# or ,D# parameter, the name of the volume directory specified by the slot and drive parameters (or their defaults) automatically creates the pathname.

This ability to use slot and drive parameters allows Applesoft programs to maintain greater compatibility with DOS 3.3, in which you have to specify the slot and drive parameters to access disks in the nondefault drive.

Let's take a look at some of the more-common Applesoft disk commands.

CAT and CATALOG

Both these commands display a list of the names of the files on a disk. Only the names of the files in the directory specified in the pathname following the command will be in the list. (If no such pathname is specified, then the list will be of the currently active directory.) CAT also displays the type of each file as a three-character mnemonic such as BAS (BASIC program), BIN (binary file), TXT (textfile), SYS (system program), DIR (directory file), and so on; the number of disk blocks the file occupies (each block is 512 bytes in size); and the date on which the file was last modified.

The ability to use slot and drive parameters allows Applesoft programs to maintain greater compatibility with DOS 3.3.

The CATALOG command displays the same information that CAT does, as well as the time of last modification of a file, its creation date and time, its size (in bytes), and its "subtype" entry. The subtype entry is the default load-

CIRCLE 263 ON READER SERVICE CARD

ing address for a BIN file and the record length for a TXT file.

After you've listed all the files in the directory with either the CAT or the CATALOG command, the number of blocks free and blocks used on the disk are displayed. CATALOG also displays the size of the disk, in blocks.

PREFIX

This command lets you define the chain of directory names to which any specified filename will automatically be appended to create the full pathname that ProDOS requires. Setting the prefix to a particular directory path allows you to specify files in that directory by filename only, instead of by full pathname.

You can add to an existing prefix by specifying the name of the next-lower-level subdirectory.

Suppose the volume-directory name of a disk is/GEOGRAPHY and that it contains a subdirectory file called EUROPE (its file-type mnemonic would be DIR). If you want to access a file in the EUROPE subdirectory by just specifying a simple filename and not the entire /GEOGRAPHY/EUROPE/FILENAME pathname, enter the command PREFIX/GEOGRAPHY/EUROPE to set GEOGRAPHY/EUROPE as the prefix.

You can add to an existing prefix by specifying the name of the next-lower-level subdirectory (without a preceding slash). For example, if /GEOGRAPHY/EUROPE contains a subdirectory called FRANCE, you can set the prefix to /GEOGRAPHY/EUROPE/FRANCE by entering PREFIX FRANCE (assuming, of course, that the preexisting prefix is still /GEOGRAPHY/EUROPE).

If you want to know the current setting of the prefix, simply enter the PREFIX command without any parameters, and the prefix will appear. (Note: If you do this inside an Applesoft program, the prefix string will be set equal to the string variable in the next INPUT statement. That is, after

```
100 PRINT CHR$ (4): "PREFIX":
    INPUT A$
```

is executed, A$ will contain the prefix.)

Whenever you remove a disk from a drive and insert another one, you should set the prefix to the volume-directory name of the new disk. The easiest method is to enter a command such as PREFIX,S6,D1 (for a slot-6, drive-1 disk). If you don't take this step, you will see a PATH NOT FOUND error message if you use CAT or CATALOG on the new disk without specifying its volume-directory name.

CREATE

You use this command to create a directory entry for a specified file. Its most common use is to create subdirectory files, since the other common types of ProDOS files (Applesoft programs, binary files, and text files) are automatically created by other Applesoft disk commands (SAVE, BSAVE, and OPEN).

For example, if you want to create a subdirectory that is called DEMO-.PROGRAMS within the current di-

Parameter	Standard Meaning	Permitted Values
pathname	the active file	(see text)
snum	active I/O slot	0–7
,A#	starting address	$0000–$FFFF
,B#	byte number	$0000–$FFFF
,D#	disk-drive number	1–2
,E#	ending address	$0000–$FFFF
,F#	field number	$0000–$FFFF
,L#	length	$0000–$FFFF
,@#	line number	$0000–$FFFF
,R#	record number	$0000–$FFFF
,S#	disk-slot number	1–7
,T#	file-type code	$00–$FF(*)

(*) You can specify a three-character file type mnemonic with the ,T# parameter instead of a number (see text). For this reason, this parameter is usually referred to as the ,Ttype parameter, where type = BAS, BIN, TXT, SYS, DIR, and so on.

Figure 2: The Applesoft disk-command parameters—the # in the parameter name represents the parameter's value. The value can be specified in hexadecimal or decimal format (hexadecimal numbers must be preceded by $).

Zimco International

85-39 213 Street • Queens Village, NY 11427

FREE SHIPPING (on prepaid orders)

PRINTERS:

Brother HR-35	$ 858
C. Itoh Starwriter F-1040	$ 870
C. Itoh 1550 P	$ 541
Citizen MSP-10	$ 350
Citizen MSP-15	$ 525
Citizen MSP-20	$ 486
Daisywriter 2000 w/48K	$ 854
Epson FX-80	$ 415
Epson FX-100	$ 579
Epson RX-80	$ 225
Epson RX-80 FT	$ 289
Gemini 15X	$ 359
Juki 6100 (L.Q.)	$ 399
Mannesman Tally MT-160L	$ 560
Mannesman Tally MT-180L	$ 729
Mannesman Tally Spirit 80	$ 289
NEC Spinwriter 3550 (PC/XT)	$1378
Okidata 82A	$ 302
Okidata 83A	$ 534
Okidata 84P	$ 650
Okidata 92P	$ 365
Okidata 93P (200cps)	$ 565
Qume Sprint 11 (40 cps)	$1277
Qume Sprint 11 (55 cps)	$1464
Qume Sprint 11 (90 cps)	$1995
Qume Sprint 11 Tractor	$ 197
Qume Sprint 11 Sheet Feeder	$ 375
Qume Letter Pro 20	$ 449
Qume Letter Pro Tractor	$ 150
Panasonic KXP-1090	$ 193
Panasonic KXP-1091	$ 269
Panasonic KXP-1092	$ 395
Panasonic KXP-3151	$ 445
Prowriter 8510ap	$ 315
Silver Reed EXP-400	$ 225
Silver Reed EXP-500	$ 258
Silver Reed EXP-550	$ 415
Toshiba 1340	$ 599
Toshiba 1351	$1240

APPLE DISK DRIVES:

Concord Controller 4	$ 79
Concord Full Height	$ 195
Corvus 5.5 meg drive-mac	$1355
Corvus 20 meg drive	$3298
Corvus Trans-Apple	$ 499
Quentin Controller	$ 64
Quentin 5 1/4" Direct	$ 175
Quentin Full Height	$ 209
Quentin Slimline	$ 198
Rana Controller	$ 78
Rana Elite I	$ 180
Rana Elite II	$ 376

MODEMS:

Anchor Signalman 300/1200	$ 229
Anchor Volksmodem 300	$ 50
Anchor Volksmodem 1200	$ 180
Anchor Volksmodem Cables	$ 10
Hayes Smartcom II	$ 97
Hayes Smartmodem 300	$ 199
Hayes Smartmodem 300 (//c)	$ 239
Hayes Smartmodem 1200	$ 399
Hayes Smartmodem 1200B	$ 349
Hayes Smartmodem 2400 R232	$ 640
Hayes Micromodem //e	$ 213
Novation Access 1-2-3 IBM	$ 430
Novation Apple Cat II	$ 199
Novation Apple Cat 212 System	$ 373
Novation Apple Cat 212 Upgrade	$ 223
Novation Apple Cat 1200 RS232	$ 345
Novation IBM 1200B	$ 325
Novation J-Cat	$ 98
Novation Smartcat 103	$ 185
Novation Smartcat 300/1200	$ 389
Novation Smartcat Plus (MAC)	$ 315
Prometheus Pro-Modem	$ 320
Prometheus Pro-Modem 1200A	$ 335

DISKETTES:

BONUS Brand DS/DD	$14.00
Elephant SS/SD	$12.50
Elephant SS/DD	$13.50
Maxell MD I	$17.50
Maxell MD II	$22.00

MONITORS:

Amdek Color II Plus RGB	$ 403
Amdek Color III Plus	$ 372
Amdek Color IV T	$ 610
Amdek 300 Amber	$ 129
Amdek 300 Green	$ 121
Amdek 300 Color	$ 237
Amdek 500 Color	$ 369
Amdek 600 Color RGB	$ 417
Amdek 700 Color	$ 520
Amdek 710 Color RGB	$ 596
Amdek RGB DV3 Interface	$ 124
BMC Color 919 1U	$ 191
BMC JJ120-1A Amber	$ 115
BMC 12-AUW Green	$ 81
IBM Monochrome	$ 260
NEC JC 1215MA Color	$ 231
NEC JC 1201 12" HI RES	$ 129
Panasonic DTH103 HI RES	$ 415
Princeton HX-12 RGB	$ 475
Princeton MAX-12	$ 183
Quadram Amberchrome TTL	$ 163
Sakata Amber SA-1000	$ 108
Sakata Color SC-100	$ 225
Sakata Color SC-200	$ 453
Sakata Color SC-300	$ 633
Sakata Green SG-1000	$ 108
Taxan Amber	$ 120
Taxan Green	$ 125
Taxan RGB Vision 3	$ 397
Taxan 210 Color	$ 249

APPLE ACCESSORIES:

ALS ADD RAM for //+	$ 63
ALS CP/M Card	$ 257
ALS Mighty Mac	$ 69
ALS Printermate	$ 45
ALS Serial Interface	$ 257
ALS Smartterm II	$ 111
ALS Z Card II	$ 119
ALS Z Engine	$ 125
Applied Eng. 80 Column	$ 130
Applied Eng. Ram Works 64k	$ 155
Applied Eng. Ram Works 128k	$ 229
Applied Eng. Ram Works 256k	$ 350
Applied Eng. Ram Works 512k	$ 620
Applied Eng. Ram Works 1 meg	$1100
Apricorn Ext. 80 Col.	$ 85
Echo Speech Synthesizer	$ 99
Gibson Light Pen	$ 170
Grappler +	$ 79
Grappler +, Buffered	$ 145
Grappler +, Bufferboard for	$ 63
Grappler +, CD	$ 88
Grappler +, Serial	$ 77
Grappler +, 16k Buffer	$ 22
Kensington System Saver	$ 60
Koala Pad	$ 68
Kraft Joystick	$ 33
Kraft Paddles	$ 35
Micon Z 80 CP/M	$ 75
Mockingboard A	$ 85
Mockingboard B	$ 74
Mockingboard C w/speech	$ 145
Mockingboard D	$ 150
MPC Parallel Card	$ 50
Micro Buffer II	$ 143
TG Joystick	$ 21
TG Paddles	$ 30
TG Select-A-Port	$ 38
TG Trak Ball	$ 45

800-227-6647

In NY Call (718) 479-7888

Terms: Prices are subject to change without notice. We are not responsible for typographic errors. All orders returned, refused, or ordered in error are subject to a 10% restocking fee. Stock situations may vary. All prices reflect a 3% cash discount. NYS Residents add 8.25% sales tax. Personal/corporate checks — allow 2 weeks to clear. Prices do not include shipping and handling charges unless order is prepaid by cash, certified check, or money order. Computer sales are not subject to free shipping. MasterCard and Visa do not qualify as prepaid orders. Purchase orders accepted with prepayment only.

CIRCLE 349 ON READER SERVICE CARD

rectory, you enter the command CREATE DEMO.PROGRAMS at the keyboard. As a result, a subdirectory file (marked by a DIR mnemonic) appears in the current directory. You can also create other types of fields by using the ,Ttype parameter (where *type* is the three-character mnemonic for the file type).

LOAD, SAVE, and RUN

These three commands act only on Applesoft program files (the CATALOG mnemonic for such files is BAS). The LOAD command moves such programs from disk to memory, where you can list, edit, or run them. The SAVE command achieves the opposite result. This command transfers the Applesoft program in memory to a disk file. The RUN command is the same as the LOAD command, except that after you load the program, it runs automatically.

The ProDOS version of the RUN command is different from the DOS 3.3 version in one respect. You can use ,@# to specify the line number in the Applesoft program that is to run first (if you don't specify otherwise, the program always starts running at the lowest line number). For example, the command

```
RUN/GAMES/MOUSE.TRAP,@500
```

would run a program called MOUSE.TRAP (in the GAMES directory), beginning at line 500.

BLOAD

This command lets you transfer data from a file to an area of memory. The most common form of the BLOAD command is

```
BLOAD MY.FILE,A#
```

where # represents the address of the beginning of the block to which the file is to be transferred.

The default file type is binary (BIN), but you can override the default by using the ,Ttype parameter. You can also use the BLOAD command without the ,A# parameter; in this case, the file will be loaded at the location at which you originally saved it to disk with the BSAVE command (this address appears in the Subtype column when you catalog the disk with the CATALOG command).

The easiest way to create an EXEC file is to use a word processor or line editor that stores its documents as standard ProDOS text files.

You can load any portion of a file by using one or more optional parameters: ,B# (the starting position within the file), ,L# (the number of bytes to be transferred), and/or ,E# (the last memory location of the transfer).

BRUN

This command is the same as the BLOAD command, except that after you load the file, it runs automatically, beginning at the loading address. You can use the BRUN command only with binary (BIN) files.

BSAVE

BSAVE allows you to save the contents of a range of memory to a file. (The default file type is binary [BIN], but you can override this default with the ,Ttype parameter.) For example, in order to save the contents of memory locations $300–$3CF to a binary

THE BYTE GENERAL

3 Sierks Lane • Roslyn Harbor, NY 11576

Technical and Order Lines Open 24 hours, 7 days a week!!!

Orders: **516-625-0920** Technical: **516-484-6391**

FREE AIR SHIPPING! on prepaid orders

WE BEAT PRICES!!

PLEASE REFER TO: AD # 35

Elephant SS/SD $12.95
Elephant SS/DD $13.95
Elephant DS/DD $15.95

Modems:

Anchor Automation Signalman 300/1200	$229.00
Anchor Automation Volksmodem	$ 49.00
Anchor Automation Volksmodem 12 300/1200	$189.00
Volksmodem Cables (Specify Computer)	$ 15.00
Hayes Smartmodem 300	$199.00
Hayes Smartmodem 1200 Ext. (Standalone)	$399.00
Hayes Smartmodem 1200B IBM Internal w/Smartcom	$380.00
Hayes Smartmodem 1200B IBM Hardware Only	$350.00
Hayes Smartmodem 2400	$699.00
Hayes Smartmodem 300 IIc w/Smartcom and Cable	$239.00
Hayes Micromodem IIe w/Smartcom II	**$215.00**
Novation Apple Cat II	$205.00
Novation Apple Cat 212 System	$375.00
Novation Apple Cat 212 Upgrade	$225.00
Novation Smartcat Plus Macintosh	$349.00
Prometheus Pro-Modem 1200 Ext.	$325.00
Prometheus Pro-Modem 1200A Apple Int.	$335.00

Monitors:

Amdek Color 300 Composite	$249.00
Amdek Color 600 RGB Hi-Res	$425.00
Amdek 300 Amber	$149.00
Amdek 300 Green	$129.00
Princeton HX-12 RGB Color Hi-Res	$475.00
Princeton MAX-12 Monochrome	$175.00
Sakata Amber SA-1000	$125.00
Sakata Green SG-1000	$110.00
Sakata Color SC-100 Composite	$230.00
Sakata Color Sc-200 RGB Hi-Res	$425.00

Disk Drives:

Apple Brand Disk Controller	$ 55.00
Shugart Apple Disk Drive	$149.00
Rana Elite I	$215.00
Tandon Tm-100-2 DS/DD Disk Drive (IBM)	$149.00

Diskettes:

Elephant SS/SD 5 1/4 Diskettes	$ 12.95
Elephant SS/DD 5 1/4 Diskettes	$ 13.95
Elephant DS/DD 5 1/4 Diskettes	$ 15.95
Elephant Macintosh Diskettes	Call
Elephant Bulk SS/DD Diskettes (50 Disks)	$ 60.00

Printers:

C.Itoh Prowriter 8510ap	$310.00
C.Itoh Prowriter 1550P	$520.00
Epson RX-80 F/T	$290.00
Epson RX-80	$239.00
Epson FX-80	$415.00
Epson FX-100	$599.00
Star Gemni SG-10	$240.00
Star Gemni SG-15	$379.00
Juki 6100 Daisy Wheel Printer	$410.00
Okidata 92ml	$359.00
Okidata 92ml IBM Plug & Play	$359.00
Okidata 92S Macintosh/IIc Version	$420.00
Okidata 93ml	$625.00
Cables For Above Printer	$ 26.00
Okidata 92 Ribbons	$ 2.00
C.Itoh Prowriter Ribbons	$ 6.00
Epson MX/FX/RX80 Ribbons	$ 5.00
Silver Reed EXP-400	$279.00
Silver Reed EXP-500	$350.00
Silver Reed EXP-550	$415.00

Apple Accessories:

Gibson Light Pen	$165.00
Koala Pad Apple II/IIe Version	$ 69.00
Koala Pad Apple IIc Version	69.00
Kraft Apple IIc/IIe Joystick	$ 34.95
Kraft Apple II/II Joystick	$ 34.95
Generic Kraft Joystick IIe/IIc/II	$ 28.00
Thunderclock	$109.00
ALS Z Engine Hardware w/CPM 2.2	$125.00
ALS Smarterm II 80 Column Card	$129.00
Advanced Logic Systems Dispatcher Serial Card	$ 89.00
MPC 64k Extended 80 Column Card IIe	$ 99.00
MPC Parallel Printer Card	$ 55.00
Echo Speech Synthesizer	$ 99.00
Grappler Plus	$110.00
Buffered Grappler Plus	$170.00
MA Systems Omnigraph (Same As Grappler Plus)	$ 69.00
16k Ram Card	$ 55.00
Z80 CPM Card	$ 69.00
6 Outlet Surge Protector	$ 29.00
Kensington System Saver Fan	$ 65.00
Super Cooling Fan (2 Outlet w/Surge Protector)	$ 35.00
Videx 80 Column Card w/Inverse/Soft Switch	$209.00
Videx Ultraterm 160 Column Card	$229.00

DEALER INQUIRIES INVITED

Terms: Please use item numbers when ordering. NYS Residents add 8.25% sales tax. Personal/corporate checks — allow 2 weeks to clear. Prices do not include shipping and handling charges unless prepaid orders. Prices are subject to change without notice. We are not responsible for typographic errors. There is a 30 day time limit on all returns. After 30 days, all sales are final, and defective material must be sent directly to the manufacturer. All orders returned, refused, or ordered in error are subject to a 10% restocking fee. Prices reflect a 3% cash discount.

CIRCLE 306 ON READER SERVICE CARD

file called PAGE.THREE, you enter the command

```
BSAVE PAGE.THREE,A$300,E$3CF
```

or

```
BSAVE PAGE.THREE,A$300,LSD0
```

where ,A$300 indicates the starting address of the range, ,E$3CF gives the ending address, and ,L$D0 shows the number of bytes to be saved. You can also use ,B# to specify the byte position in the file at which the writing will begin. Note that the DOS 3.3 version of BSAVE did not have the ,E# or the ,B# parameters.

The LOAD command moves Applesoft program files from disk to memory, where you can list, edit, or run them. The SAVE command achieves the opposite result.

EXEC

This command redirects requests for input, which normally comes from the keyboard, to a specified text file instead, until the computer has read everything in the text file. Suppose you have a text file called MY.STARTUP, for example, that contains the following three lines:

```
HOME
PREFIX,S6,D1
RUN MY.PROGRAM
```

Enter EXEC MY.STARTUP from the Applesoft Command mode, and the screen will clear; the prefix will be set equal to the name of the volume directory on the slot-6, drive-1 disk; and the MY.PROGRAM program (in the volume directory) will be loaded and executed, just as if you had entered all three commands directly from the keyboard. If you don't want to use EXEC on an entire file, you can use ,F# or ,R# to specify the number of the first line in the file to be used.

The easiest way to create an EXEC file is to use a word processor or line editor that stores its documents as standard ProDOS text files. For example, you can use the AppleWorks word processor to compose a file and then save it to disk by pressing open-Apple P and indicating that you want to print the file to a text (ASCII) file on disk.

– (Dash)

This "intelligent run" command has no DOS 3.3 equivalent. Its pathname can describe an Applesoft program, a binary program, or a text file, in which cases – will behave exactly like a RUN, BRUN, or EXEC command, respectively. You can also use the dash to load and run ProDOS system programs such as BASIC.SYSTEM. (System programs' CATALOG mnemonic is SYS.).

LOCK and UNLOCK

These two commands let you modify the write-protect status of a file. Once you've locked a file with the LOCK command, you cannot delete, modify, or rename it unless you unlock it first with the UNLOCK command. You can easily identify the status of a file by using CAT or CATALOG to display the names of the files on the disk. If an asterisk precedes the name of the file, it is locked.

DELETE

You use this command to remove the entry for a file from the disk directory and to free up the disk blocks that

SOFTWARE FOR ALL OF US
from Core Concepts™
Financial-Productivity Series
NEW!
FREE SHIPPING!

PROFIT PURSUIT™ 4 programs on 1 disk. **ONLY $34.95**

1. **LEASE MASTER™:** Find lease payment amounts, pre-tax monthly and yearly yield, total yield. Compute with multiple advance payments and residual value. Print or display lease amortizations starting or stopping at any period.
2. **PRICING MASTER™:** Find the cost, selling price, mark-up, and margin. Recalculate by changing any entry. Print item name and data. A must for retailers & wholesalers!
3. **DEPRECIATION +:** Print or display Straight-Line, Declining Balance, Sum-of-the-Years-Digits depreciations. Plus, 3, 5, and 10 year ACRS for personal property, 15 & 18 year ACRS for real estate.
4. **APR!:** Find the Actual Percentage Rate of loans with prepaid points and fees. APR! will compute the monthly payment amount.

WORK FORCE II™ 6 programs on 1 disk. **ONLY $34.95.**

1. **THE LOAN ANALYZER:** Compute loan and mortgage amortizations, balloon payments, total interest paid, daily percentage rates, present value of capital leases, and periodic payment amounts. Find an unknown term or the amount which can be financed. Print or display amortizations starting or stopping at any period.
2. **THE LINE WRITER™:** A line-at-a-time correctable typewriter. Great for addressing envelopes and other small word processing jobs.
3. **THE BALANCING ACT™:** Checkbook balancing is made easy with this once a month checkbook balancing program. Menus allow entries to be added or changed. Group totals, amount of error, and all entries can be printed or displayed.
4. **THE CALCULATOR:** Turns your Apple into a four function printing calculator with memory and percent.
5. **THE SAVINGS ANALYZER:** Compute the future value of savings, IRA's, and investments in moments with The Savings Analyzer.
6. **THE WAGE ANALYZER:** Analyze your income by the hour, time & ½, weekly, bi-weekly, semi-monthly and annually. Calculate increases or decreases by amount or percent. Printout provides a great way to present pay raises to employees.

Greg Glau of **InCider** says: *"Borrowing money is no problem with the loan analysis section to guide you. Work Force II is easy to understand and operate. It's an honest value..."* **June 1984**

Compatible with the Apple IIc, IIe, II+, & II

Call Toll Free
ORDERS ONLY / 24 HOURS
1-800-221-9280
Ext. 979

ALL ORDERS SHIPPED IMMEDIATELY!

Apple is the trademark of Apple Computers Inc.

Since 1983

☐ Please send me PROFIT PURSUIT at $34.95
☐ Please send me WORK FORCE II at $34.95
☐ check or money order ☐ VISA ☐ MC ☐ AE ☐ COD (add $4.00 for COD)
Arizona residents add 6% Sales Tax. Oversea's add $5.00

Card # _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Signature _____ Valid From____ to____

Name_____ Phone_____

Address_____

City/State/Zip _____

Core Concepts
P.O. Box 24157 Tempe, AZ 85282
Product Information (602) 968-3756
DEALER INQUIRIES INVITED

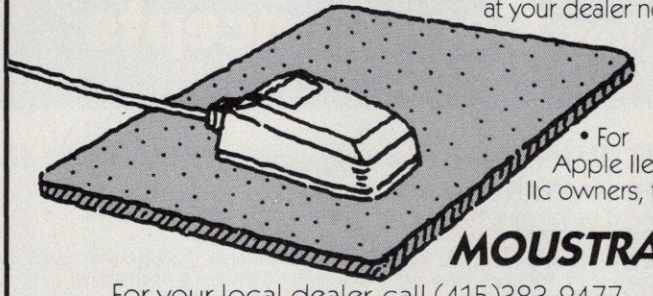
CIRCLE 236 ON READER SERVICE CARD

Why thousands of mouse owners bought a $10.00 product they thought they didn't need.

The fact is, your mouse can go through a lot of wear and tear every time you use it.

That's why tens of thousands of Mac and Apple II owners rely on the Moustrak. Its surface reduces mouse wear, keeps the rollers clean and the tracking smooth. Unlike your desktop.

And, the Moustrak is made from the highest quality materials available, in a variety of colors, sizes and prices. All at your dealer now.



• For Apple IIe and IIc owners, too!

MOUSTRAK™

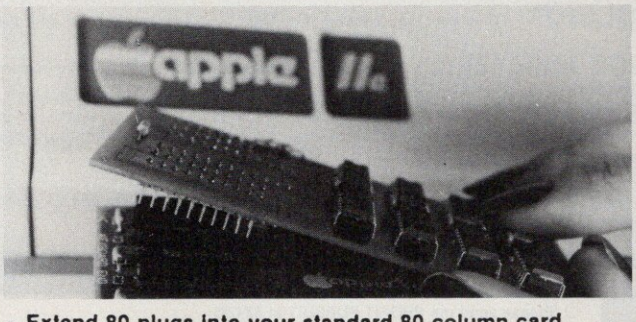
For your local dealer, call (415)383-2477

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

CIRCLE 339 ON READER SERVICE CARD

*APPLEWORKS SAYS "55K Available"

WHEN YOU TRANSFORM YOUR 80 COLUMN CARD INTO THE "EXTENDED 64K VERSION"



ONE YEAR WARRANTY

If you are not satisfied you may return within ten days for a Full Refund. (Shipping not included)

- Extend 80 plugs into your standard 80 column card to make your Apple //e* a 128K system.
- Extend 80 offers *Total Compatibility.*
- Extend 80 is a quality, thoroughly tested product.
- Extend 80 sells for just $129.95 +
- *Extend 80 offers double resolution graphics capability.*
- *Extend 80 can be used while programming under Apple computer's Pro Dos.*

*Appleworks and Apple //e are trademarks of Apple Computer, Inc.

+ Add $3.00 for shipping ($5.00 outside the U.S. - Payment in U.S. dollars only)

To order send check for $129.95 + ☐Mastercard ☐ Visa ☐ Am. Express

(FL residents add 5% sales tax)

CALL TOLL FREE: 1-800-821-0208 (OUTSIDE FLORIDA)

CARIBBEAN COMPUTER SALES, INC.
221 EAST OSCEOLA - SUITE 210
STUART, FL 33494 (305) 287-3336

CIRCLE 149 ON READER SERVICE CARD

the file is using. The DELETE command works only on unlocked files.

RENAME

This command lets you change the name of any file on a disk from the first specified filename to the second. For example, if the current name of the file is SUPERMAN and you want to change it to SUPERWOMAN, you enter the command RENAME SUPERMAN,SUPERWOMAN to effect the change.

IN# and PR#

These commands redirect requests for input (IN#) or output (PR#) to a peripheral card in an expansion slot (the slot number is specified by the snum parameter) or to the address of any input/output (I/O) subroutine in memory. For example, to redirect output to a printer in slot 1, use the command PR#1, and to accept input from a subroutine located at hexadecimal $300, use the IN#A$300 command.

Another form of the IN# and PR# commands can enable you to redefine the meaning of an IN# or PR# command that is used with a slot-number parameter. If you enter the command PR#1,A$300 or something similar, then whenever you subsequently enter a PR#1 command, output goes to location hexadecimal $300 instead of to slot 1.

VERIFY

The VERIFY command really has only one useful purpose—to determine whether a particular file or directory exists on a disk. (In DOS 3.3 you use it to check whether any part of the file has been lost because of damage to the disk.) For example, if the current prefix is /A.PLUS and you want to see if the pathname /A.PLUS/PART.TWO exists, enter a VERIFY PART.TWO command. If the pathname does, indeed, exist, no error message will appear. If it doesn't, you will see a PATH NOT FOUND error message.

Well, that ends this month's discourse on the first group of Applesoft disk commands. Next month we'll continue by introducing you to the remaining disk commands, those that are most useful for programmers. +

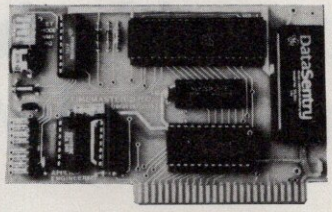
Gary B. Little is a lawyer and author residing in Vancouver, British Columbia. He has written three books for programmers of the Apple II series of computers: Inside the Apple IIe, Inside the Apple IIc, *and* Apple ProDOS, Advanced Features for Programmers *(1985, Brady Communications).*

APPLIED ENGINEERING

To a World of Compromise, We Make No Contribution

THE NEW TIMEMASTER II H.O.

- Absolutely, positively, totally PRO-DOS and DOS 3.3 compatible.
- Time in hours, minutes, seconds and milliseconds (the ONLY PRO-DOS compatible card with millisecond compatibility).
- 24 hour military format or 12 hour with AM/PM format.
- Date with year, month, day of week and leap year.
- Eight software controlled interrupts so you can run two programs at the same time (many examples are included).
- The only card recognized by both the DOS 3.3 and PRO-DOS versions of Apple Writer IIe.
- Appleworks will now time and date stamp all your data automatically.
- Compatible with ALL of Apple's languages. Many sample programs for machine code, Applesoft, CP/M and Pascal on 2 disks.
- On-board timer lets you time any interval up to 48 days long down to the nearest millisecond.
- Rechargeable nickle-cadmium battery will last over 20 years.
- Two BSR/serial ports for future expansion.



	PRO-DOS COMPATIBLE	INCLUDES DOS DATER	MILLISECOND TIME	YEAR DATA	LARGEST SAMPLE SOFTWARE	REMOTE SET PORT	BSR PORT	EMULATES ALL OTHER CLOCKS
H.O	YES	YES	YES	YES	YES	YES	YES	YES
BRAND A	NO	NO	YES	NO	NO	NO	NO	NO
BRAND C	NO	NO	NO	NO	NO	NO	NO	NO
BRAND M	NO	NO	NO	NO	NO	NO	NO	NO
BRAND P	YES	YES	NO	YES	NO	NO	NO	NO
BRAND S	NO	NO	NO	YES	NO	NO	NO	NO
BRAND T	YES	NO	NO	NO	NO	NO	YES	NO

Full emulation of all other clocks. Yes, we emulate Brand A, Brand T, Brand P, Brand C, Brand S and Brand M too. It's easy for the H.O. to emulate other clocks, we just drop off features. That's why the H.O. can emulate others, but none of the others emulate us. The Timemaster II H.O. will automatically emulate the correct clock card for the software you're using. You can also give the H.O. a simple command to tell it which clock to emulate. This is great for writing programs for those poor unfortunates who bought some other clock card.

REMOTE CONTROL

Our BSR X-10 interface option for the H.O. allows you to remotely control up to 16 lights and electrical appliances through your BSR X-10 home control system in your home or office. You're already wired because a BSR system sends its signals over regular 120 volt wiring. That means you can control any electrical device in your home or office without additional wiring.

PRICE $129.00 BSR Option (may be added later) $49.00

VIEWMASTER 80

There used to be about a dozen 80 column cards for the Apple. Now there is only ONE.

- TOTALLY Videx Compatible.
- 80 characters by 24 lines, with a sharp 7x9 dot matrix.
- On-board 40/80 soft video switch with manual 40 column override.
- Fully compatible with ALL Apple languages and software—there are NO exceptions.
- Low power consumption through the use of CMOS devices.
- All connections are made with standard video connectors.
- Both upper and lower characters are standard.
- All new design (using a new Microprocessor based C.R.T. controller) for a beautiful razor sharp display.
- The VIEWMASTER incorporates all the features of all other 80 column cards, plus many new improvements.

	PRICE	BUILT-IN SOFTSWITCH	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7X9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERRIDE	INVERSE CHARACTERS
VIEWMASTER	139	YES	YES	YES	YES	YES	YES	YES	YES
SUPRTERM	MORE	NO	YES	NO	NO	NO	NO	YES	YES
WIZARD 80	MORE	NO	NO	NO	NO	YES	NO	YES	YES
VISION 80	MORE	YES	YES	NO	NO	YES	NO	NO	NO
OMNIVISION	MORE	NO	YES	NO	NO	NO	NO	YES	YES
VIEWMAX 80	MORE	NO	YES	NO	NO	YES	NO	NO	YES
SMARTERM	MORE	YES	YES	NO	NO	NO	YES	YES	NO
VIDEX	MORE	NO	YES	YES	NO	YES	YES	NO	YES

The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, WordStar, Format II, Easywriter, Apple Writer II, VisiCalc, and all others. The VIEWMASTER 80 is THE MOST compatible 80 column card you can buy at ANY price!

PRICE $139.00

Z-80 PLUS

Now Includes New 4.0™ Software

Enter the CP/M world with the new Z-80 Plus card from Applied Engineering and introduce your Apple to thousands of new programs. Only the Z-80 Plus comes standard with the new 4.0 software, the most advanced system for running CP/M programs ever. Only CP/AM 4.0™ has advanced features like built-in disk emulation for popular memory expansion boards (those made by Apple and Applied Engineering and others) to give you a faster system with more storage. You also get menu driven utilities that are much easier to use than the older CP/M utilities so you can get down to all that great CP/M software faster. If you already own the Z-80 Plus, you can upgrade to the 4.0 software for only $29. The Z-80 Plus runs older CP/M programs too, down to Version 1.6 (2.2 is the most popular). With the Z-80 Plus you can run the largest body of software in existence. Simply plug the Z-80 Plus into any slot in your Apple. You'll have two computers in one and the advantages of both, all at an unbelievably low price.

- TOTALLY compatible with ALL CP/M software.
- The only Z-80 card with a special 2K "CP/M detector" chip.
- 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 II+ and Franklin).
- Runs WORD STAR, dBASE II, TURBO PASCAL, FORTRAN-80, PEACHTREE and ALL other CP/M software with no pre-boot.
- A semi-custom I.C. and low parts count allows the Z-80 Plus to fly thru CP/M programs at a very low power level. (We use the Z-80A at a fast 4MHZ.)
- Does EVERYTHING the other Z-80 boards do, plus Z-80 interrupts.

PRICE $139.00

SUPER MUSIC SYNTHESIZER — END MOCKINGBOREDOM

- Complete 16 voice stereo music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) to your stereo, boot the disk supplied and you are ready to input and play songs.
- It's easy to program music with our compose software. You will start right away by inputting your favorite songs. The Hi-Res screen shows what you have entered in standard sheet music format.
- Now with new improved software for the easiest and the fastest music input system available anywhere.
- We gives you lots of software. In addition to Compose and Play programs, 2 disks are filled with over 30 songs ready to play.
- Easy to program in Basic to generate complex sound effects. Now your games can have explosions, phaser zaps, train whistles, death cries. You name it, this card can do it.
- Four white noise generators which are great for sound effects.
- Full control of attack, volume, decay, sustain and release.
- Our card will play notes from 30HZ to beyond human hearing.
- Automatic shutoff on power-up or if reset is pushed.
- Many many more features.
- Works in any slot of a IIe or II+ including slot 3 of a IIe.

PRICE $159.00

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 work in Apple IIe, II, II+ and Franklin. Applied Engineering also manufactures a full line of data acquisition and control products for the Apple; A/D converters and digital I/O cards, etc. Please call for more information. All our products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle **THREE YEAR WARRANTY.**

APPLIED ENGINEERING

Call (214) 492-2027, 9 a.m. to 11 p.m. 7 days a week or send check or money order to P. O. Box 798, Carrollton, Texas 75006. MasterCard, Visa and C.O.D. welcome. No extra charge for credit cards. Texas residents add 5⅛% sales tax. Add $10.00 if outside U.S.A.

You never know who you will meet or what will be said when you're on American People/Link.

AMERICAN PEOPLE/LINK™ users meet a lot of different people. That's because PEOPLE/LINK — the nation's first all entertainment videotex network — allows anyone with a word processor, personal computer or terminal, and a modem to communicate with other users throughout the country from the privacy of their own homes.

Sometimes these electronic conversations are serious...sometimes they're outrageous...but they will always keep your interest as you talk to friends and make new ones. PEOPLE/LINK's recreational programs include:

PARTYLINE — Meet people and talk live with other PEOPLE/LINK members throughout the country in groups or privately.

CLUB-LINK — Join or start a club or group devoted to a favorite hobby, rock group, lifestyle, etc.

WHO-IS-WHO — locate other users with similar interests.

And there's much more with programs like NETMAIL, our person-to-person electronic mail, PEOPLESCAN, the national bulletin board system, and play games such as poker, blackjack, checkers, chess, backgammon, and bridge (color graphics are available for most popular computers).

And the greatest thing is that you don't have to be a computer whiz or even know how to type to use PEOPLE/LINK...just be smart enough to subscribe now!

AMERICAN PEOPLE LINK

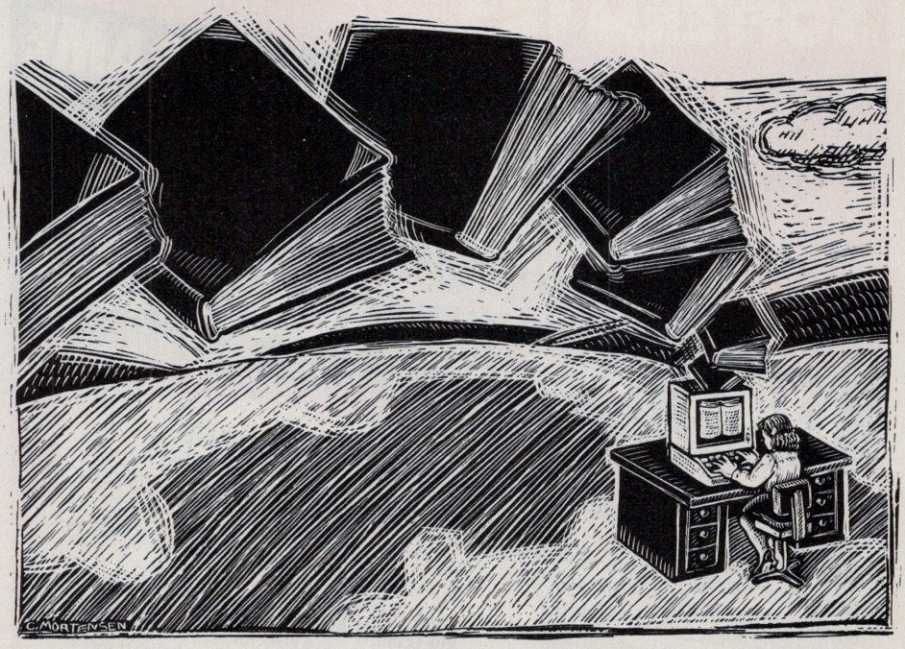
Use your Visa, Mastercard, or American Express.
Call Us Toll Free: **1-800-524-0100**

Illinois Residents Call: **1-312-870-5200**

American PEOPLE/LINK
Arlington Ridge Office Center
3215 N. Frontage Road—Suite 1505
Arlington Heights, IL 60004

CIRCLE 332 ON READER SERVICE CARD

DATABASES AND DIALOGUES



Telecommunications represents a growing industry. Modem prices are down, modem sales are up, and new services are being introduced every year. Corporations, schools, and individuals are discovering the convenience of telecommunications.

This month, we look at two new services—Wilsonline, a collection of databases used worldwide by libraries, corporations, and government agencies; and American People Link, an electronic-mail and entertainment service for the home. We also include telecommunications news of interest and then end with a letter from a reader who properly chastises me and proposes a worthwhile project.

WILSONLINE

Many venerable publishing companies are offering electronic editions of their printed work. The latest entry is Wilsonline from the H.W. Wilson Company, a firm that traces its reference roots back to 1898. You may not recognize the company name, but anyone who has researched a term paper knows all about its primary product, *The Reader's Guide to Periodical Literature*.

Wilsonline consists of 14 databases, 10 of which are on-line versions of Wilson's printed indexes—Applied Science and Technology Index, Biological and Agricultural Index, Book Review Digest, Business Periodicals Index, Cumulative Book Index, Education Index, Humanities Index, Index to Legal Periodicals, Reader's Guide to Periodical Literature, and Social Sciences Index. Four other databases—Library of Congress/MARC File, Journal Directory, Publisher's Directory, and Name Authority file—are available only on-line.

Wilsonline updates the databases twice per week, with citations to articles appearing on-line generally within ten days of publication. All databases include at least one and a half years of citations, and most go back even further. The Library of Congress/MARC file stretches back seven years.

Wilsonline plans to add more databases during 1985, including Art Index (October), Bibliographic Index (November), Biography (July), General Science Index (May), and Library Literature (October). Currently, Wilsonline houses information on more than 3000 periodicals and 500,000 books.

Modem prices are down, modem sales are up, and new services are being introduced every year.

How to Use Wilsonline

You can search the databases individually or search up to eight databases at the same time. For veteran researchers, the commands are fairly standard. For newcomers, the commands prove easy to master. Wilsonline comes with a 105-page tutorial book to help you get started. An extensive manual, *Wilsonline Guide and Documentation*, which describes search procedures and databases in detail, costs an extra $30.

Wilsonline uses the free-text and controlled-vocabulary methods for searching databases. Free text means that you can find citations by entering any string of characters. The system checks your characters against those on file and provides all the matches.

Controlled vocabulary means you enter specific terms defined by the company. The system returns all citations logged under those terms. For example, to locate information on Winchester hard-disk drives, you can enter Winchester, using free-text searching, or Memory Devices (Computers), using controlled-vocabulary searching.

Wilson extends the flexibility of its searching methods by including the

CRISTINE MORTENSEN

Boolean operators AND, OR, and NOT; the ability to truncate free-text search words; and scanning through a particular date range. These features allow you to narrow your search—saving time, effort, and money.

The citations provide a variety of information, the most important being where to look for information on a particular topic. Do not get me wrong, the printed versions are extremely helpful, but one search using Wilsonline may just convert you to telecommunications for life.

Price

H.W. Wilson Company maintains a fairly involved pricing schedule, with discounts for prepaid Wilsonline subscriptions and for subscribers of the printed indexes. Nonsubscribers to Wilsonline or the printed indexes pay $45–$65 per connect hour (depending on database), plus $8 per hour for telecommunications charges (access via Tymnet or Telenet). Off-line prints cost 20 cents per citation with a $10 minimum. A one-day training seminar is $60 per person.

SOFTERM™ 1&2

MICRO-TO-MAINFRAME COMMUNICATIONS AND EXACT TERMINAL EMULATIONS

SOFTERM 1 CONNECTS YOU WITH INFORMATION SERVICES.
Now you can access information services, bulletin boards, and electronic mail systems from home or office. Softerm 1 includes keyboard macros, a built-in phone book for automatic dialing, simultaneous capture to print or disk, copy screen to print or disk, and terminal status display.

SOFTERM 2 CONNECTS YOU WITH YOUR COMPANY'S COMPUTER.
This expanded version of Softerm lets you access the information stored in your company's mainframe. With either version of Softerm, you can download information into your Apple and capture it on your own disk in any format you choose—DOS, CPM,™ or Pascal. Softerm's extensive file transfer capabilities provide automatic execution using command files, support for popular protocols like XMODEM, and our own Softrans™ protocol which comes with an adaptable program for your host computer.

MAKES YOUR APPLE WORK EXACTLY LIKE ANY MAJOR TERMINAL.
Softerm 2 includes exact emulations of more than 25 popular terminals, and provides all keyboard and display functions. Also, both conversational and block modes are supported.

Apple is a registered trademark of Apple Computer, Inc.

SOFTERM CAN'T BECOME OBSOLETE.
We constantly improve Softerm. And we make those improvements available to you 24 hours a day, 7 days a week. To update your program, simply dial our computer and transfer the improvements to your disk.

SOFTERM IS A COMMUNICATIONS BARGAIN.
Softerm 1 is only $135; Softerm 2 is $195. Plus, you get an unconditional 30-day money-back guarantee. So ask your dealer for a demonstration today.

TERMINAL EMULATIONS
TTY Compatible
ADDS Regent 20, 25, 40, 60
ADDS Viewpoint, Viewpoint/78*
Data General D200, D410*
Datapoint 3601, 8220*
Digital Equipment VT52, VT102, VT220*
Hazeltine 1400, 1410, 1500, 1520
Hewlett Packard 2622A
Honeywell VIP 7205, 7801, 7803
IBM 3101 Model 10 and 20
Lear Siegler ADM-2*, ADM-3A, ADM-5
TeleVideo 910, 921*, 925, 950
Texas Instruments Model 931*
User Defined
*Coming Soon

Softerm is also available in versions for the IBM PC and Tandy Model 1000 and 2000 personal computers.

SOFTRONICS
3639 New Getwell, Suite 10, Memphis, TN 38118
For orders and information call 901-683-6850

CIRCLE 164 ON READER SERVICE CARD

AMERICAN PEOPLE LINK

American People Link aspires to become another full-featured home service like CompuServe, The Source, and Delphi. Obviously, it faces an uphill battle against these firmly entrenched services. Still, the telecommunications industry is so dynamic that a newcomer can carve out its own niche and grow if it offers the right mix of features, responsiveness, and price.

With these criteria in mind, I can easily get excited about American People Link. Although currently a bit short on features, it lets you know right from the start that it wants subscribers' input. One phrase in the manual caught my eye: "You are a valued customer and we will always treat you as such." If the company follows through with that resolution, we predict a long and happy life for American People Link.

Promises aside, American People Link currently offers two main services: electronic mail and Partyline. Electronic mail allows you to trade messages

American People Link aspires to become another full-featured home service.

with other subscribers. Partyline, like CB Simulator on CompuServe or Chat on The Source, lets you talk live to other subscribers.

With Partyline, you can hold a private conversation with select people by using a code word. Also, you can use a Muffle and Hush command so that an obnoxious partner can neither see your typed lines nor send you typed lines. This handy feature certainly cleans up the party.

The service is easy to use and offers a choice of menus and commands. Newcomers should become fluent with the commands within a short time. Every command is preceded with a slash (/), such as /HELP, /HUSH, or /OFF, and you can toggle the menu back on, should you forget a particular command.

American People Link offers an on-line newspaper with features, advice column, editorial, and letters to the editor; a subscriber directory so you can find other people with similar interests; and a printed newsletter called Letterlink. New features in the works include a bulletin-board service, special-interest clubs, on-line interviews with celebrities, and simple two-player games

Tally outwrites Imagewriter. With better performance at a better price.

Our new MT 85 and MT 86 write 50% faster than Apple's Imagewriter. We give you the same typestyles you get with MacWrite.™ The same graphic flexibility you have on a Macintosh.™ But there's one standard feature on the Tally MT 85 and MT 86 that doesn't even come on an Imagewriter.

Ultra-fine correspondence quality.

Which lets you produce letter perfect work at 45 characters per second on your Apple IIe or IIc.

And it all fits in a space not much bigger than your in-basket.

Introducing Apple®-compatible printers from Mannesmann Tally starting under $500.

Draw your own conclusions.

MANNESMANN TALLY MT 85/86	APPLE IMAGEWRITER
SPEED	
180 cps	120 cps
CORRESPONDENCE QUALITY	
Standard	Not Available
MULTI-TYPESTYLE CARTRIDGES	
Yes	No
MODULAR INTERFACE	
Yes	No

See your Mannesmann Tally dealer for a demonstration of the most exciting new printers you can have for the money.

Or for literature and where-to-buy information, call us toll free at 1-800-447-4700.

What better way to improve your image?

MANNESMANN TALLY

COMDEX See us at booth 340.

Apple is a registered trademark of Apple Computer, Inc. MacWrite and Macintosh are trademarks of Apple Computer, Inc.

CIRCLE 181 ON READER SERVICE CARD

that use the graphics capabilities of your Apple.

Price

And what is the cost for this service? A one-time initial subscription fee of $14.95, and just $2.95 per hour on weekends and from 6:01 P.M. to 7 A.M. weekdays, for 300 baud. That is roughly half the price of CompuServe and Delphi and less than half the price of The Source. This price increases to $8.95 for 1200 baud. Prime-time service from 7:01 A.M. to 6 P.M. weekdays, for both 300 baud and 1200 baud, costs $8.95; again, about half the cost. Access is via Telenet, and Canadian subscribers who use the Datapac system pay a $5-per-hour surcharge.

TELETIPS

This section provides news related to the telecommunications world and offers a quick overview of new features added to services already reviewed. The information comes from culling the numerous press releases that streak across my desk each day.

Nuke 'Em 'Til They Glow

No joke, folks, Flying Buffalo, Inc., held the first "The Day Before" National Nuclear War Card Game Tournament on April 14–15, 1984, using

The destruction of the world took only 23 hours . . . .

electronic mail on CompuServe and MCI Mail. As you might expect, "there were no winners (everyone was destroyed). The destruction of the world took only 23 hours . . . 1485 megatons of nuclear warheads were dropped on targets, and 687 million people died." Toledo, Ohio, was the last city vaporized, and it won the coveted "Supergerm" traveling trophy. The second annual tournament was held on April 13–14, 1985. We'll tell you the results as soon as we get them.

Flying Buffalo, long a play-by-mail game company, also runs other war games using CompuServe electronic mail, including Galactic Conflict, Heroic Fantasy, Feudal Lords, and Starweb. For more information, contact Flying Buffalo at its mail I.D., PPN 76703,703 or type GO GAM-41.

AEC to the Rescue

The Association of Electronic Cottagers offers marketing support, business and professional services, on-line consultations, and databases for "computer entrepreneurs and telecommuters who work at home on salary." Founders Paul and Sarah Edwards, who operate the Work-At-Home Special Interest Group on CompuServe, have drafted an Electronic Cottage Bill of Rights with eight provisions.

Provision 1, for example, states: "Legislatures shall make no laws prohibiting freedom of opportunity to work in one's home with a computing and/or robotic device when that work does not interfere with neighbors' enjoyment of their own homes and communities." For immediate information, contact CompuServe PPN 76703,242.

CompuServe Additions

Sports enthusiasts can now access TeleSports, a sports-information service featuring news about collegiate and professional athletics, including point spreads, injuries, statistics, team analysis, and scores.

CompuServe now distributes USA Today Update, Gannett's electronic information service, which provides general news, business news, weather, international news, and special reports on specific industries and professions.

The Source Updates

The Source adds up-to-the-hour commodities prices, news, and commentary with Commodity World News. The new service offers hourly price updates for 57 commodities, approximately 200 news items per day, and general industry insight updated three times per day.

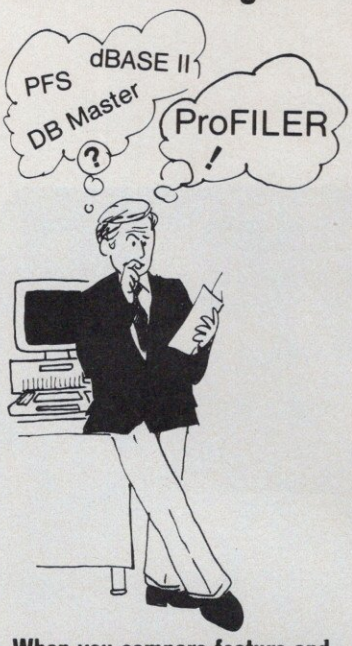
The Source also offers A–Z, a comprehensive database, listing information about 14,000 domestic and 8000 international hotels. A–Z is updated monthly.

Properly Chastised

From Mike Jayson of Jason Electric: "I enjoy your column very much! I wish it was a monthly feature of *A+*; especially with the increasing numbers of folks who telecompute. However, I am SHOCKED that you tell people to WRITE you. What, no E-mail number for CompuServe or The Source! You of all people."

May I disconnect my modem for a month! My apologies to Mike and to those who actively use telecommunications. I admit I look at CompuServe E-mail rarely, preferring to bounce around the Creative Computing SIG (PCS-22). I urge you all to check into the CC SIG (the monitor torture test in DL7, written in Applesoft BASIC, has attracted quite a bit of attention). For those who want to send E-mail to me directly, my PPN is 70210,750. I promise to check my box more often. Of

Confused About Data Base Programs?



When you compare feature and price there is no confusion.

ProFILER 2.0 is HERE!

The Data Manager for the Apple Computer with all the NEW features you've been waiting for.

8 times faster than DOS 3.3 – Twice as fast as ProFILER 1.0

FEATURE	ProFILER†	PFS File*
Multiple Forms per Disk	YES	NO
Maximum Records per File	1500+	1000
(65,000 w/ ProFILE Hard Disk)	YES	NO
Report Generator Included	YES FREE	NO ($100)
Pro DOS Operating System	YES FREE	NO
Full Screen Editor	YES	NO
Works on Apple II+, IIe, IIc, III, Franklin	YES	YES
Arrow Keys function OK	YES	NO
Multiple Index Files	YES	NO
Auto Catalog of Data Files - **NEW**	YES	NO
Variable Printer Initialization - **NEW**	YES	NO
Reports to Screen or Printer - **NEW**		
Easy Word Processor Interface - **NEW**	YES	NO
Apple writer II® Mailmerge Interfaces - **NEW**	YES	NO
Cost DataBase	**$89.95**	**$90.00+**
Report Generator	**FREE**	**$90.00+**
TOTAL COST	**$89.95**	**$180.00+**

ALL THESE FEATURES FOR ONLY $89.95

PFS Conversion Utility Program
Converts PFS files easily to ProFILER format
$39.95

ProFILER available from selected dealers or directly from:

PM software

19731 Providence Ln. • Box 1788 Huntington Bch, CA 92647
(714) 963-2221 • (714) 548-5429
Terms: Send $89.95 (plus $3.00 for shipping
CA residents add 6%)

VISA MasterCard

Mastercard, VISA Check or money order
®Apple, Applewriter II and ProFILE are registered trademarks of Apple Co., Inc.
*PFS is a registered trademark of Software Publishing Corp.
† ProFILER by Custom Computer Products

CIRCLE 150 ON READER SERVICE CARD

Grappler® Graphics
Relax! It's Easy

Whether you're looking for sunken treasure, or graphing your business sales, you must have effective graphics tools. And when it's time to print your results, you need to get what's on your screen off your screen. Enter the Grappler printer interface. Quick, easy and effective.

THE GRAPPLER IS YOUR HIDDEN TREASURE

We all know that a picture tells a thousand words, so your graphics are your most important printouts. With the Grappler, graphics printing is a snap. A few quick and easy keystrokes, and your Hi-Res image is promptly reproduced on just about any printer you care to name. Depending on which keys you hit, your graphics can be printed enlarged, enhanced, inverted, rotated, and... well, the message here is flexibility.

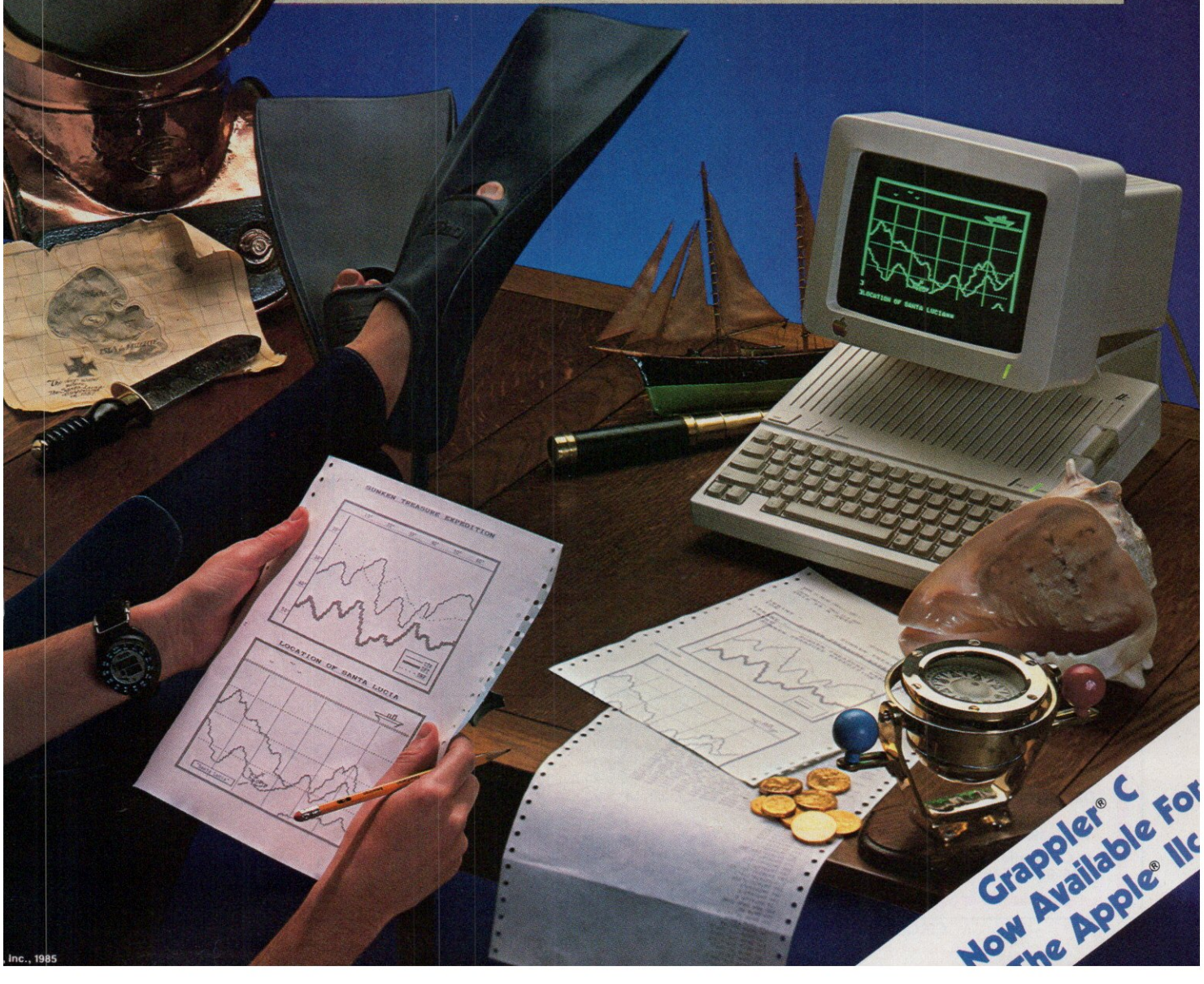
A GRAPPLER DESIGNED FOR YOU

To date Orange Micro has sold over 255,000 Grapplers, so you know you're in experienced hands. There are Grapplers available for many popular micros, including parallel and serial models for the Apple IIe, a new version for the Apple IIc and an advanced Commodore 64 interface. Most Grapplers offer buffering or other valuable options. All come with the "Seldom Used 1 Year Warranty." There's a Grappler for virtually every application, so remember to ask for it by name when you purchase your printer interface. You'll be glad you did. Graphics printing has never been so easy.

Grappler® Orange Micro® Inc.

1400 N. Lakeview Ave., Anaheim, CA 92807 • (714) 779-2772 • TELEX: 5101001014

CIRCLE 252 ON READER SERVICE CARD



Inc., 1985

Replace 19 floppies with 1 diskette?

TeamMate does it!

Now your Apple IIe can have high capacity data storage like a Winchester while you still enjoy the convenience and familiarity of a standard floppy.

TeamMate's flexible disk drive from **Eastman Kodak** gives you 2.78 megabytes of data storage on one rugged diskette. You get unlimited expandable storage and access to Winchester capabilities... **at a very low cost.**

Installation takes only minutes, thanks to TeamMate's software transparency with ProDOS. No software drivers or modifications are needed.

Here are the TeamMate subsystems available now:

TM 2203... A single Kodak flexible disk drive giving you 2.78MB on one diskette.

TM 2206... Two Kodak drives for a total of 5.56MB of online, expandable storage.

TM 2210... 10MB of Winchester storage, with the option of later adding a Kodak flexible drive.

TM 2213... A 10MB Winchester combined with the Kodak 2.78MB flexible drive for built-in backup.

TM 2232... 32MB of Winchester storage—the ultimate in high performance mass storage.

TeamMate Model	Quantity 1-2	Quantity 3-9	Quantity 10+
TM 2203	$ 895	$ 761	$ 716
TM 2206	$1295	$1101	$1036
TM 2210	$1295	$1101	$1036
TM 2213	$1695	$1441	$1356
TM 2232	$2195	$1866	$1756
Kodak Diskettes	$ 15	$ 14	$ 12

All TeamMate subsystems include drive(s), controller, TeamMate chassis, power supply, necessary cabling, and manual. Kodak subsystems include a Kodak diskette.

Team• Mate

Yes, I want to expand data storage on my Apple IIe. Please send me the following:

Price includes UPS surface shipping.
Allow 3-4 weeks delivery.

Quantity:

_____ TeamMate 2203 @ _____ ea.
_____ TeamMate 2206 @ _____ ea.
_____ TeamMate 2210 @ _____ ea.
_____ TeamMate 2213 @ _____ ea.
_____ TeamMate 2232 @ _____ ea.
_____ Kodak diskettes @ _____ ea.

Subtotal _____
CA & MA residents, add sales tax _____
For optional UPS Blue Label delivery add $10 per unit _____
Total Enclosed $ _____

Ship To:

Name _____
Address _____
City _____
State _____ Zip _____
Daytime Phone _____

Payment Enclosed:
☐ check ☐ money order
☐ cashier's check

Make check payable to:
Data Technology Corporation
Dept. TM-1A
2525 Walsh Avenue
Santa Clara, CA 95051

For fastest delivery, call:
In California, call collect:
408-986-9545

1-800-824-3724

CIRCLE 250 ON READER SERVICE CARD

course, for those who do not yet own a modem and CompuServe account, you can rely on the post office.

With the telecommunications gap crossed, Mike also has a project suggestion: to see a listing of bulletin-board services for Apple users. Well, bulletin boards have a funny way of appearing and disappearing quickly. Nevertheless, they are popular; and I think your suggestion is a good one. So, bulletin-board sysops, send me a letter, by E-mail or on regular paper, telling me about your bulletin board. Space providing, and if I can verify that the BBS is operating, I will see about printing a listing.

Logging Off

Telecommunications is a growing industry for business and for the home. Whether for research or leisure, connecting a modem to your Apple places a window to the world at your fingertips. ✚

Russ Lockwood is an assistant editor at Creative Computing *and a former staff writer for The New York Times Information Service.*

▶ FURTHER INFORMATION

Wilsonline
950 University Avenue
Bronx, NY 10452
(212) 588-8400
CIRCLE 368 ON READER SERVICE CARD

American People Link
3215 North Frontage Road
Suite 1505
Arlington Heights, IL 60004
(312) 870-4260
CIRCLE 369 ON READER SERVICE CARD

Flying Buffalo
P.O. Box 1467
Scottsdale, AZ 85252
(602) 966-4727
CIRCLE 370 ON READER SERVICE CARD

AEC
677 Canyon Crest Drive
Sierra Madre, CA 91024
(818) 355-0800
CIRCLE 371 ON READER SERVICE CARD

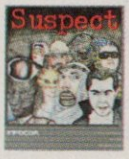
CompuServe
5000 Arlington Centre Blvd.
Columbus, OH 43220
(614) 457-8600
CIRCLE 372 ON READER SERVICE CARD

The Source
1616 Anderson Road
McLean, VA 22102
(703) 734-7500
CIRCLE 373 ON READER SERVICE CARD

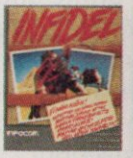
WE UNLEASH THE WORLD'S MOST POWERFUL GRAPHICS TECHNOLOGY.

To look at Infocom stories, you'd say they're all prose. No graphics. Ah, but there's more than meets your eyes.

We draw our graphics from the limitless imagery of your



imagination—a technology so powerful, it makes computer screen pictures look like



graffiti by comparison.

And no one knows how to unleash your imagination like Infocom. With thrilling plots. Unpredictable situations. And original puzzles calculated to drive you out of your skull.

Step up to Infocom. All words. No graffiti. The secret reaches of your imagination are beckoning.

It's time to open your mind's eye.

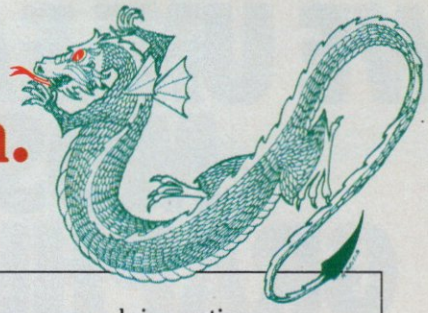
INFOCOM™

INTERACTIVE FICTION SOFTWARE

Infocom's interactive fiction is available for a wide variety of personal computers.

CIRCLE 224 ON READER SERVICE CARD

Big Game Hunting? Try Baggin' Our Dragon.



It's the biggest game in town

Our dragon, of course, is Wizardry—that unique series of computer recreation programs designed for Apple users who are seeking the ultimate "big game" challenge.

Since its debut, Wizardry has been the best-selling computer game of its kind.

For a very good reason:

Because Wizardry is more than just a game, more than a diabolically clever maze.

Wizardry is a complex world of variety and depth. A world of richness and pleasure.

Packed with suspense, full of surprises, Wizardry is enchanting—a compelling diversion that turns your leisure time into prime time.

Wizardry is powerful and sophisticated. A simple command system, 3D maze displays and superb programming provide you with month after month of involvement and satisfaction.

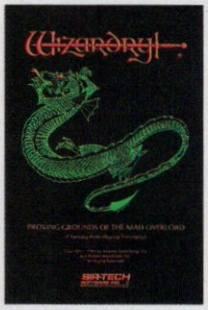
Four years old and still growing, the game is already recognized by critics and game lovers as a classic.

Simply stated, Wizardry is the finest fantasy role-playing computer game you can buy.

Set your sights on the best. Track down Wizardry—the biggest game in town.

Enter the World of Wizardry®

A Classic Encounter

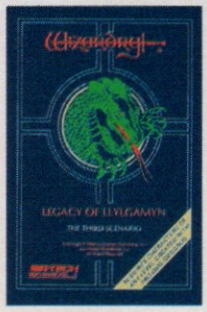


Proving Grounds of the Mad Overlord

The First Scenario

Unlike any other game you have ever played. A fascinating 10-level maze full of monsters, sorcery, traps and treasures. As you gain skills, the characters you create grow stronger, richer, wiser and better able to survive. The final goal is elusive. Your experience . . . unforgettable.

Twice voted "All Time Most Popular Computer Program" —Softalk Readers

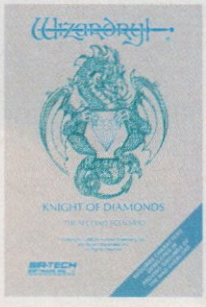


Legacy of Llylgamyn

The Third Scenario

A spellbinder that advances the classic traditions of Wizardry. Find the great dragon L'kbreth and save the people of Llylgamyn. Includes full screen maze display and Windo-Wizardry, the revolutionary pop-up window graphics system. Requires brave adventurers of any level developed in PROVING GROUNDS.

". . . A Landmark in Graphics Advancement" and "The Best Yet" —Softalk

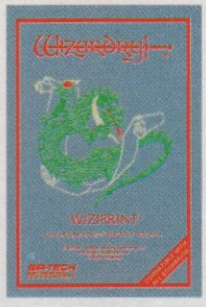


Knight of Diamonds

The Second Scenario

This classic journey should only be attempted with those Wizardry heroes who have attained the 13th level of ability in PROVING GROUNDS. Their challenge—and yours—to adventure through a six-level maze and become the Knight of Diamonds. First-rate fantasy!

Awarded "Best Adventure Game for the Home Computer"
—Game Mfrs. Association of America



Wiziprint

Character Statistics Printout

A helpful utility program that prints the possessions, attributes and known spells of all your Wizardry characters. Quick, neat and easy-to-read. For use with 80-column printers. Compatible with all Wizardry scenarios. A real timesaver!

"Wiziprint is a very handy utility disk for ardent Wizardry players"
—Roe R. Adams III, Softalk

LOOK FOR THE DRAGON—
SYMBOL OF WIZARDRY.
PROMISE OF EXCELLENCE.

All software available for Apple II series computer 48k
Coming soon for the Macintosh
Proving Grounds also available for IBM PC and PCjr 64k

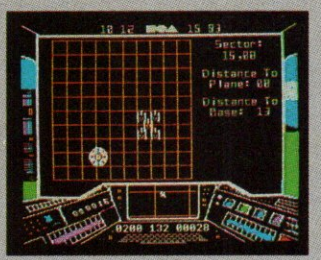
SIR-TECH SOFTWARE INC.

6 MAIN STREET • OGDENSBURG, N.Y. 13369 • (315) 393-6633 ***LEADERS IN COMPUTER FANTASY ROLE-PLAYING***

Apple is a registered trademark of Apple Computer, Inc. IBM is a registered trademark of International Business Machines. Wizardry is a registered trademark of Sir-Tech Software, Inc.

SKYFOX
ARCHON
STAR LEAGUE BASEBALL
RESCUE RAIDERS
MR. ROBOT AND HIS ROBOT FACTORY

THAT'S entertainment



You're looking out the front windshield of a supersonic fighter, and instead of aliens, you see planes, tanks, and a monstrous mothership.

SOPHISTICATED SHOOT-'EM-UP

You think you have it rough? Why, back in the olden days—long before double-hi-res graphics, flight simulators, and two-button joysticks—all we had to play was Space Invaders, and it was in black and white!

In Space Invaders, these rows of aliens came down from the top of the screen, and you had to hide behind bunkers and fire at them. It wasn't much, but it sure ate up a lot of quarters and a lot of afternoons.

Since that time, all sorts of clever games have appeared in the arcades and are available for home computers, as well—games with great graphics and animation that require real strategy to win. The funny thing is, a lot of them are shoot-'em-ups, more variations on the Space Invaders idea.

A Case in Point

Skyfox, by Electronic Arts, is a clever adventure in which you participate from the perspective of the pilot. You're looking out the front windshield of a supersonic fighter, and instead of aliens, you see planes, tanks, and a monstrous mothership. Your job is to keep them from destroying your home base. The only way you can protect your home base is to shoot them down or blow them up. Not a lot of room for skilled diplomacy here, right?

To the credit of its designer, Ray Tobey, however, Skyfox is a very sophisticated shoot-'em-up. A computer shows you the enemy's positions on a large world grid, and an automatic pilot takes you to the nearest enemy infestation. Your arsenal of equipment includes a running radar display; heat-seeking guided missiles; and clock, fuel, speed, shield, and altitude indicators. There are more things to look at on your control panel than Han Solo has in his hobby room—not to mention the view outside the window!

One Third Off.

The keypad for the Apple IIe* now costs one-third less.

If you do spreadsheets, ledgers, tax prep—any program on your Apple IIe that uses numbers—you need a IIe Tender Keypad. And now it costs one third less than it's ever cost before.

Only $99.

With the IIe Tender, you get complete cursor control in all directions, the four mathemetical functions, a decimal point, comma, space bar and delete key. For a few dollars more, you can have the IIe Tender Programmable, which also gives you four keys that can be permanently defined to any frequently-used key.

A little extra.

Either way, you get a well built, color-coordinated keypad that installs in minutes without taking up an expansion slot; one that's human engineered to provide you with a sure touch and less user fatigue. Not to mention the free Coupler-Calc software you get to turn your keypad into a fixed or floating-point calculator.

Try one.

There's never been a better time to try a IIe Tender. At your local Apple* dealer or software store now.

TRACK HOUSE

Track House is a division of Grimes Co.

GRIMES

115 South Arovista Circle
Brea, California 92621
Telephone (714) 671-3931

Dealer and Dealer Rep. inquiries invited. Several territories available.

Standard model keypads are also available for the Apple II+*. Ask your dealer for details.

*Apple, Apple IIe and Apple II+ are registered trademarks of Apple Computer, Inc.

CIRCLE 255 ON READER SERVICE CARD

THAT'S entertainment

The Action

Skyfox is not quite a flight simulator, but it's close. You launch like something out of "Battlestar Galactica." Once you are out of the launch tunnel, the horizon tilts and wheels, dips and rises, as you move the joystick right and left, forward and back. Below you, tanks approach; above you, planes are visible. Pressing button 0 fires bullets—or blips, or whatever—and the planes and tanks blow up. Pressing button 1 releases a heat-seeking guided missile.

> The horizon tilts and wheels, dips and rises, as you move the joystick.

After you've destroyed all the planes and tanks you can find, you get to go after the mothership, which is big, very big. It's also extremely hard to destroy. I never could get close enough to blow one up, but it must be possible.

Skyfox doesn't require a lot of strategy, but it does provide a lot of action. It's probably best for boys under the age of 13. I could get involved in it only by pretending that the tanks were bill collectors and the planes were lawyers. Now *that* was exciting!

David Gerrold

Skyfox
Electronic Arts
2755 Campus Drive
San Mateo, CA 94403
(415) 571-7171
List Price: $40
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive; two-button joystick

CIRCLE READER SERVICE NO. **355**

A KAMIKAZE VERSION OF CHESS

I have high praise for Archon, a game that puts you into complex battles requiring arcade skills, as well as strategic thinking—but more of the former than of the latter.

Archon comes from Electronic Arts and was written by Anne Westfall, Jon Freeman, and Paul Reiche III. It is a kind of kamikaze version of chess, using magic, hand-to-hand combat, and a quicksand playing board. The square your piece is standing on changes colors regularly, thereby affecting the strength of your character.

The tactical board of the game is laid out like a chessboard, but unlike in chess, you don't have pawns or rooks in Archon. You have Valkyries, golems, unicorns, djinni, wizards, phoenix, knights, and archers on one side—and, on the other,

banshees, trolls, basilisks, shapeshifters, sorcerers, dragons, manticores, and goblins. All of these creatures have different strengths and abilities. None of them have very nice personalities, so conflicts between them tend to be . . . ah, violent—and usually short.

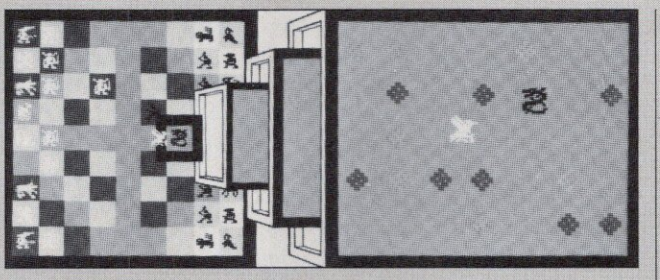
In addition to all of the above, Archon includes magic spells. The manual, which reads like a module from Dungeons and Drag-

ons, describes teleportation spells, healing spells, time-shifting spells, resurrection spells, imprisonment spells, and even a spell that summons elemental demons.

The Battles

When two pieces land on the same square, they fight it out; the game switches to an arena screen and the battle begins instantly. The joystick moves the character, and the button fires its weapon. The battles bring out each character's abilities. Creatures with a lot of strength and endurance are much more likely to win a fight than creatures with little of either. Naturally, the survivor wins the square.

I found the battle part of the game to be the trickiest. Some characters "reload" quicker than others, and some can't seem to fire their



weapons in certain directions. Some characters just feel easier to use. I spent the better part of a day just fighting battles so I could find out what each character could do in combat. At the end of the time, I still wasn't totally certain.

Complex and Challenging

Be prepared to spend a lot of time just learning all the possibilities in the game before you actually start to play. Possibly the game's only flaw is the amount of work it takes to learn it. On the other hand, the game is complex enough to present a challenge to even the most dedicated gamester.

For the average person, though, Archon may present too many possibilities. The appeal of chess, for instance, lies in the great wealth of possibilities that exist in the different relationships of the pieces on the board. Perhaps Archon best suits those people who are impatient with the subtleties and demands of chess and who prefer a game that plays more like a free-for-all than like a deliberate contest of strategy.

One or two people can play, and it helps if they don't like each other very much. If they do, they probably won't by the time the game is over. Be prepared to get involved in the fates of your characters because they tend to take on lives of their own. You won't like seeing them killed off, and you won't like the person who does it. I expect Archon to break up many wonderful friendships.

David Gerrold

Archon
Electronic Arts
2755 Campus Drive
San Mateo, CA 94403
(415) 571-7171
List Price: $40
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

CIRCLE READER SERVICE NO. **354**

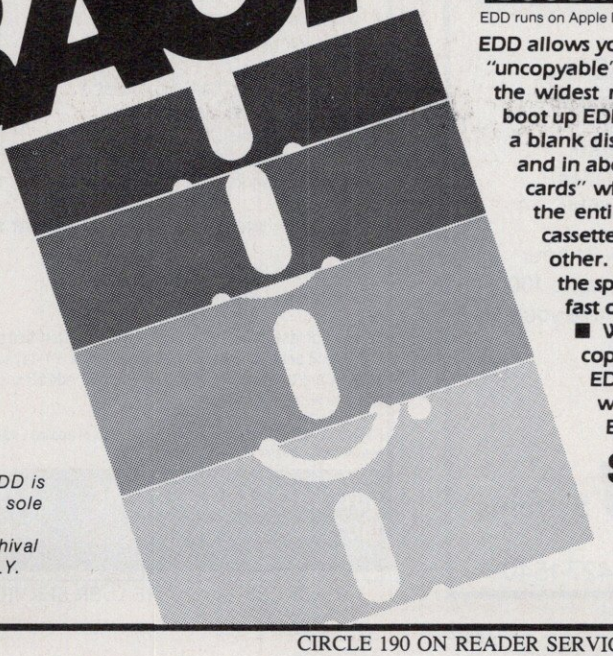
BACK UP YOUR DISKS

NOW AVAILABLE AT YOUR LOCAL COMPUTER STORE

ESSENTIAL DATA DUPLICATOR III™

EDD runs on Apple II, II plus, IIe, IIc and Apple III (in emulation mode) using one or two disk drives.

EDD allows you to easily and quickly make back up copies of your "uncopyable" Apple disks. ■ Since EDD has been preset to copy the widest range of copy-protections possible, you just simply boot up EDD, put the disk you want to copy in one disk drive and a blank disk in the other (EDD will work using one drive also) and in about 2 ½ minutes a copy is made. ■ Unlike the "copy-cards" which only copy "single load" programs, EDD copies the entire disk. This would be similar to hooking up two cassette recorders, playing from one, and recording to the other. ■ We have even included an option so you can check the speed of your disk drives because drive speeds running fast or slow can damage disks and cause other problems. ■ We publish EDD program lists (information about copy-protected disks) every couple of months, which EDD owners can receive. The current list is included with the purchase of EDD. ■ The bottom line is this; if EDD can't copy it, chances are nothing will.



***Warning:** EDD is sold for the sole purpose of making archival copies ONLY.*

$79.95 Ask for EDD at your local computer store, or, *to order direct;* send **$79.95** plus $2 shipping ($5 foreign). Mastercard/Visa accepted. *Prepayment required.*

UTILICO MICROWARE
3377 Solano Ave., Suite #352
Napa, CA 94558 (707) 257-2420

CIRCLE 190 ON READER SERVICE CARD

THAT'S entertainment

THE JOYS OF SLOW BALL

Unlike the frenetic excitement of football and basketball, baseball is appealing because it's out of pace with the modern world. It's a casual game with infrequent thrills that punctuate long, lazy summer afternoons.

You can sit in the stands, drink a beer, talk statistics, argue about the designated-hitter rule, compare the '74 A's with the '34 Cardinals, and try to figure out the opposing team's signs—all while waiting for a single pitch.

Unfortunately, that unique pacing—the thing that's most appealing about baseball—is the hardest thing to capture when creating a computerized version of the game.

Most computer baseball games don't even try. Instead, they simplify the sport and speed up the action—ignoring strikes and balls, allowing only two or three different types of pitches, even cutting the game down to three innings.

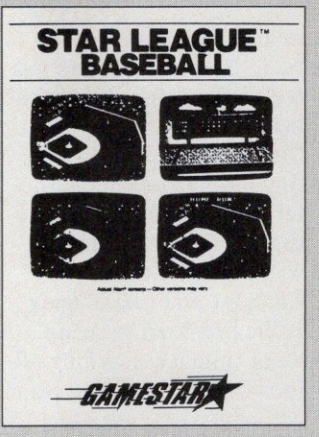
But Star League Baseball from Gamestar is as slow and relaxed as the real thing. It's hardly the perfect computerized version of the game, but, for a fanatic, it's a satisfactory substitute.

A Few Caveats

Realistically, Star League Baseball requires a color display. Playing it on a monochrome monitor is like watching a postseason playoff game in snowy Toronto.

It requires a joystick. I tried playing it with regular game paddles, but my infielders kept wandering out to the right-field fences, apparently demanding that they be given a less-challenging position on the field.

To top it all off, the Star League Baseball manual was written for Atari users. Apple owners must refer to the addendum to translate Atari commands into Apple commands.



Maybe I've just had too many softballs bounce off my head, but I really had trouble figuring out what to push when, especially when I first started. Add that to the fact that the people at Gamestar say the Atari display is a bit sharper, and you'll probably reach the same conclusion I did: If you have access to an Atari home computer, this instance may be the one time you'd prefer to buy a program for it instead of for your Apple.

The Game

Visually, Star League Baseball is quite agreeable, complete with stands, scoreboard, lush green field, and players that are as detailed as you could reasonably hope for. (A Macintosh version of the game is promised that will, of course, sacrifice color but add a fine level of detail to the players.)

As you play, you hear the crack of the bat, watch the shadow of the ball move

Don't off your computer Make it Nocterminal™

Telecommunicate your information

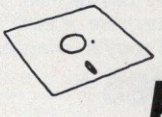
Use your personal computer to MARKET and SUPPORT your products and services online. Operate your own message, mail and information system while maintaining communication with your customers even after business hours.

More **PROFESSIONAL & VERSATILE** than commercially available Bulletin Board software

- Password protect selected files or entire system
- Allow callers to create, upload and download files
- Prompt the caller to attach comments to your files

Use your computer to provide your customers with 24 hour service and support information. Display to callers up to 1000 text files using an organizational chart structure. Have your own **Nocterminal**™. A///$125, A//e & A//c $95

For a demonstration and information, have your computer call 408/427-0310



RUSS Systems

320 Dufour, Santa Cruz, CA 95060 408/427-1540

CIRCLE 334 ON READER SERVICE CARD

MORE RAMWORKS™ MEMORY!

Everything needed, including easy instructions on expanding your Ramworks Card with MORE MEMORY FOR YOUR APPLE //e! All chips are highest quality & guaranteed three years.

	List Price	Our Price
64k Ramworks expander kit	70.	47.
128k Ramworks expander kit	140.	92.
256k Ramworks expander kit	250.	162.
512k Ramworks expander kit	500.	314.
1024k Ramworks expander kit	1099.	659.
64k Ramworks Card (complete)*	179.	158.
128k Ramworks Card (complete)*	249.	199.
256k Ramworks Card (complete)*	399.	299.
512k Ramworks Card (complete)*	649.	485.
1024k Ramworks Card (complete)*	1199.	899.
Appleworks Program	250.	210.
Imagewriter (wide carr/acc kit)	749.	626.

*** Includes FREE AppleWorks Expander software!**

Terms: For fastest delivery send Cashier's or Certified check, or Money Order. C.O.D. and personal checks accepted (allow 14 days to clear). Add 3% for MasterCard/Visa (include # and expiration). Add $3 shipping. Texas residents add 6⅛% sales tax.

Ramworks, AppleWorks/Imagewriter trademarks of Applied Engineering & Apple Computer respectively. Dealer inquiries welcome.

COIT VALLEY COMPUTERS **(214) 234-5047**
14055 Waterfall Way Dallas, Texas 75240

CIRCLE 340 ON READER SERVICE CARD

The Apple IIc with Z-RAM

Applied Engineering and Apple computer have teamed up to take your IIc to new heights.

Applied Engineering's Z-RAM card for the IIc is available with 256K or 512K of additional memory and a powerful Z-80 microprocessor for running CP/M software.

Z-RAM fits neatly inside the IIc. Installation is easy, clear instructions show you how. You'll need a screwdriver and about 10 minutes (if you can change a light bulb you can install Z-RAM).

Z-RAM and Appleworks will knock your socks off.

A 256K Z-RAM will give you a 229K available desktop and Appleworks will be completely loaded into memory. Appleworks will now run about 10 times faster in your IIc with 1 disk drive than in other IIc's with two disk drives. A 512K Z-RAM will give you a 413K available desktop. A 256K Z-RAM can be upgraded to 512K at a later date when your needs grow.

Z-RAM is also a high speed solid state disk drive. With Z-RAM your programs will load and save over 20 times faster. Z-RAM's RAM disk is compatible with Applesoft, Pro-DOS, DOS 3.3, PASCAL and CP/M. And with Z-RAM you can copy a disk in one pass. Just insert the original, remove the original, insert blank disk! That's it! Z-RAM is another disk drive, only 20 times faster, 4 times larger capacity, and no whirring, clicking or waiting!

But before you start panting over all that extra memory, don't forget that the Z-RAM card has a built-in high speed Z-80 processor chip that allows you to run CP/M programs like Wordstar, dBASE II, Turbo PASCAL, Microsoft BASIC, FORTRAN and COBOL and over 3,000 other CP/M programs. So Z-RAM not only makes Apple programs run better and faster, it lets you run MORE programs.

With the Z-RAM card installed, your IIc is still your IIc only now you'll have that extra memory that Appleworks and other programs need. And you can run all that great CP/M software that others can only dream about.

Z-RAM is 100% compatible with all IIc software and hardware including the mouse, 2nd disk, modem and printer. Z-RAM is easily handled by the IIc power supply as power consumption is kept very low by using two custom integrated circuits and a patent pending power saving design. And Z-RAM is from Applied Engineering, the acknowledged leader and innovator of accessories for the Apple.

Z-RAM comes complete with manual, RAM disk software, Z-80 operating system, CP/M manual and a 3 year no hassle warranty.

So the next time somebody asks you why you didn't get an IBM P.C. tell him you bought a IIc because the IBM didn't have enough memory and was too slow and couldn't run CP/M software. And tell him you made it past the 8th grade.

Z-RAM with 256K **$449**
Z-RAM with 512K **$649**

Call (214) 492-2027
9 a.m. to 11 p.m. 7 days a week
Send check or money order to:
Applied Engineering
P. O. Box 798
Carrollton, Texas 75006

MasterCard, Visa and C.O.D. welcome. No extra charge for credit cards. Texas residents add 5⅛% sales tax. Add $10.00 if outside U.S.A.

APPLIED ENGINEERING

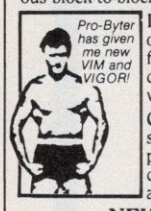
NEW! *ProDOS Disk with Tip Book!*

PRO-BYTER™

$34.95 (Compatible with any version of Apple II, ProDOS™)

ALL-NEW— BYTEZAP PRO

Inspect ProDOS™ and DOS 3.3 disks at the byte level. Make changes, improvements and disk or program repairs that are normally impossible. An *all-new program* with instantaneous block-to-block (or sector-to-sector) viewing.



DISK SEARCH: Find any word or phrase on a disk. Automatically trace or search any file. Repair "zapped" disk bytes that might cause malfunction. Instant disk maps show which sectors or blocks any file occupies.

CUSTOMIZE DISKS: Easy instructions show how to make changes to disks, other programmers' programs, and DOS itself—a changed byte here and there can produce amazing results. Hey, this stuff is *FUN!*

NEW ProDOS UTILITIES

MACHINE LANGUAGE SORT: One CALL in your Applesoft program will alphabetize a list of words or numbers—*super-fast!* Works with normal string-arrays (*A$(1), A$(2),* etc.).

CONVERTER: Convert any Applesoft program line into machine code that can be CALLed by any Basic program.

TEXT TYPER: Read and print ProDOS text files (on your screen or printer) without having to boot another disk.

MORE: Put time and date of save in your disk catalogs. Print alphabetized lists of your ProDOS catalogs (including *all* hidden subdirectories). Make any Applesoft command work like any other. Scramble Basic so only you can read it...

MACHINE LANGUAGE EDITOR

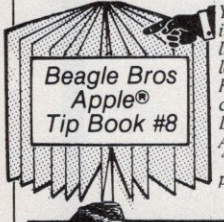
If you type in machine language programs from magazines, you'll *love* being able to make corrections by inserting and deleting code (no machine language knowledge required).

This easy-to-use editor also serves as a neat two-way-scrolling memory scanner. (Find out what's *really* going on inside your Apple's head.) The Pro-Byter manual shows you where in memory to look to find some very interesting stuff.

PLUS ALL-*NEW* APPLE TIPS

From the authors of DOS BOSS (Bert Kersey and Jack Cassidy)—page-after-page of juicy tips, experiments and inside info about your Apple. Learn secrets about Apple's new ProDOS operating system and Apple disk structure.

The latest official version of ProDOS (V1.1.1 with the new "Bye" command) is included on the Pro-Byter disk.



You get a GOLD MINE of tips, including: How to use memory like an extra disk drive (ProDOS lets you load & save files in RAM), How to disable the LIST command so it says "File Locked", How to disable or swap ANY command, How to change "Startup" to any name, How to personalize ProDOS catalogs...

UTILITY CITY™

$29.50 (Compatible with any version of Apple II/DOS 3.3)

A-Plus Magazine Readers' Choice 1985 Product of The Year

21 USEFUL UTILITIES: ***List-formatter*** puts each statement on a new line with indented loops and printer page breaks. ***Multi-Cat*** lets you create multi-column catalog printouts. ***Filename Zap*** allows invisible and trick file names, etc. Utility City is for beginning as well as advanced Applesoft programmers—very educational.

SILICON SALAD™

$24.95 (Compatible with any version of Apple II/DOS 3.3)

OVER 100 PROGRAMS!

Program Splitter makes room for hi-res graphics in big programs, ***Disk Scanner*** finds bad sectors, ***DOS-Killer*** adds 2 disk tracks of disk space, ***2-Track Cat*** doubles the number of files, ***Text Imprinter*** converts text screen text to hi-res...

NEW! *128K Extended Memory Utility!*

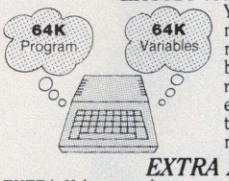
EXTRA K™

$39.95 (Compatible with any Apple IIc or 128K IIe/DOS 3.3 *and* ProDOS™)

PUT YOUR 128K TO WORK!

Even with 128K of memory, your Applesoft programs, pictures and variables only occupy and access the lower 48K. The EXTRA K disk contains several powerful programs that let you utilize *all* of that 128K capacity, speed and muscle.

EXTRA VARIABLES



Your Applesoft programs can now function undisturbed in main memory while all variables, strings and other data reside in your Apple's massive extra 64K. Everything functions normally—no special commands or procedures required.

EXTRA APPLE

EXTRA K lets you have two 64K Apples and programs in memory at once and switch between them in a flash. You can even have a ProDOS™ Apple and a DOS 3.3 Apple in memory simultaneously and swap files back and forth without subjecting yourself to Apple's *Convert* program.

EXTRA-FAST COPIES

EXTRA K's "nibble copier" duplicates *and verifies* unprotected floppy disks in 35 seconds instead of 1½ minutes (add 3-4 disk-swaps for 1-drive copy). Because of your Apple's extra memory, only 3 or 4 "passes" per disk are necessary.

EXTRA FEATURES

Compare any two disks, byte-for-byte. Create "dual personality" ProDOS/3.3 disks. Peek and poke auxiliary memory. Keep a live "logbook" of everything that has appeared on your text screen and review it when you want...

EXTRA SCREENS

Store all kinds of images in memory and display any one (all or part) instantly. Up to 7 hi-res pictures or 62 text screens can be stored at once. Call several pictures to the screen per second, opening up new Apple animation possibilities.

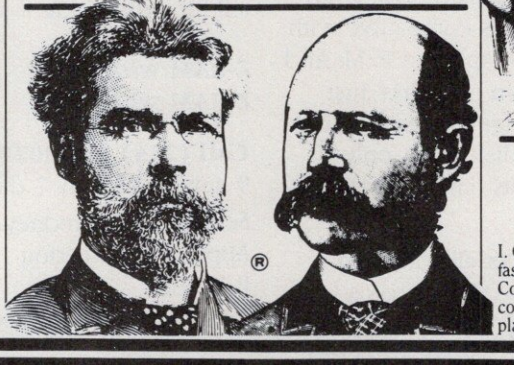
EXTRA K allows high-speed multi-screen switching.

DOS BOSS™

$24.00 (Compatible with any version of Apple II/DOS 3.3)

CUSTOMIZE DOS 3.3

Change *Catalog* command to *Cat,* or *"Syntax Error"* to *"Oops!",* or anything you want. ***Protect your programs:*** An unauthorized Save-attempt can print "Not Copyable". List Prevention, other useful tips and fascinating experiments. DOS Boss will teach you a ton about Apple programming!



New Applesoft Compactor/De-Bugger!

D CODE™

$39.95 (Compatible with any version of Apple II/DOS 3.3 *and* ProDOS™)

PROGRAM PACKER

D CODE squeezes all of the wasted and unused bytes out of your Applesoft programs, saving valuable memory space and increasing your programs' speed and efficiency.

Automatically combine program lines, shorten variable names and/or remove REMarks. D CODE also uncovers wasted program lines that can't possibly be executed.

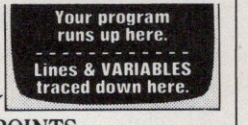
AUTO-PROOFREADER

Keyboard errors are caught as you type. If you enter an illegal program line, you are told immediately—*before* you (or worse—someone else) runs your program. Or you may simply type "CHECK" to scan an *entire program* in a couple of seconds and uncover potential crashes. If no mistakes are found, you get an immediate "NO ERRORS" message.

SUPER-TRACE

When a program stops or crashes, type "DUMP" to see the last 10-10,000 statements and line numbers that were executed, in the order executed—an instant program *history.*

D CODE features sophisticated "live" tracing too, with each executing statement, line number and selected variable values appearing in a window at the bottom of the screen.



BREAKPOINTS

D CODE lets you set up de-bugging "breakpoints" so your program stops when you want. For example, you can ask that your program be stopped the moment X gets set to 99, or the 3rd time a particular program statement is encountered.

LIGHTNING-FAST FIND!

D CODE lets you find strings and variables *fast*—even large programs can be searched in about *2 seconds!* All lines with a specified word are automatically listed with the word highlighted. This feature alone is worth the price of D CODE.

GPLE COMPATIBLE

D CODE remains "transparent" to your programs and is fully-compatible with GPLE, Double-Take, ProntoDOS, etc.

Beagle GAMES

I. O. SILVER™

$29.95 (Compatible with any version of Apple II)

HI-RES STRATEGY!

I. O. SILVER is *both* a thinking person's strategy game and a fast-action arcade game. Your job is to create a hi-res "Super Computer" on the screen while avoiding a pesty gang of computer bugs. I. O. Silver's Strategy Workshop lets you plan your moves before each level. Excellent high-speed animation and hi-res action. Great for ages 12 & up.

SOURCE CODE: Programmers can get fully commented *I. O. Silver* Source Code on three 2-sided disks for $30. Ordering info comes with the game.

BEAGLE BAG™

$29.50 (Compatible with any version of Apple II)

12 GREAT BASIC GAMES

Voted by Apple software buyers to *Softalk's* "Top-30 Most Popular" list, Beagle Bag is one of the best Apple game bargains on the market today. All games are LIST-able, so you can see what makes them work, or make changes.

Beagle Bros MICRO SOFTWARE

The Apple Programmer's Best Friend

BEAGLE BROS, INC.
3990 OLD TOWN AVENUE, SUITE 102C
SAN DIEGO, CA 92110 PHONE 619-296-6400

Print Pictures on Your Printer!

TRIPLE-DUMP™

$39.95 (Compatible with any version of Apple II/DOS 3.3 *and* ProDOS™)

PRINT ANY APPLE IMAGE

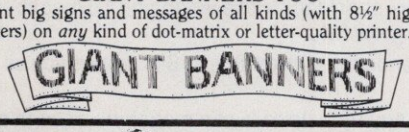
TRIPLE-DUMP lets your dot matrix graphics-capable printer print *(1)* Hi-Res and Double Hi-Res graphics. *(2)* Lo-Res and Double Lo-Res graphics. *(3)* Forty and 80-Column text screen text.

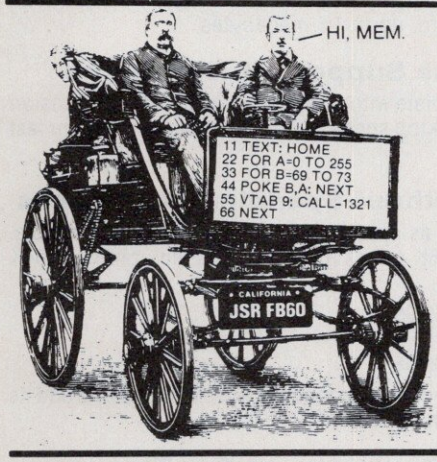
All kinds of images can be transfered to your printer with absolutely no programming knowledge. *Or* you can call Triple-Dump's routines from your own Applesoft Basic programs.

TRIPLE-DUMP gives you a full range of special effects—crop, rotate, magnify, compress, adjust density, etc.

GIANT BANNERS TOO

Print big signs and messages of all kinds (with 8½" high letters) on *any* kind of dot-matrix or letter-quality printer.





FATCAT™

$34.95 (Compatible with any version of Apple II/DOS 3.3 *and* ProDOS™)

APPLE-DISK LIBRARIAN

Organize your disk library! FATCAT enters all of your ProDOS and 3.3 disk catalogs into one or more "Master Catalog" for fast searching, sorting and printing. Find the files you're looking for and eliminate space-wasting duplicates.

You can update your Master Catalog at any time by simply letting FATCAT read in your new or altered disks.

ALPHABETIZE FILE NAMES

FATCAT will sort your ProDOS and 3.3 disks so they catalog in alphabetical order. Or you can re-arrange file names in any order. *Compare* any two files too, and find the differences.

DISKQUIK™

$29.50 (Compatible with Apple IIc or 128K IIe/DOS 3.3)

DOS 3.3 IN-MEMORY DISK DRIVE!

DISKQUIK makes your Apple IIc or 128K IIe think it has an extra drive connected to Slot 3. It's just like using a super-fast (hard-disk speed), silent drive. Catalog with a "CATALOG,S3" command. Save and load all kinds of files to and from RAM with normal commands (holds about *half* the data of a floppy).

MANY USES: For example, load often-used programs into memory when you boot, so they are ready to use.

PRONTO-DOS™

$29.50 (Compatible with any version of Apple II/DOS 3.3)

TRIPLE-SPEED DOS 3.3!

ProntoDOS lets you load & save files at triple speed. Hi-res pix, for example, load in under 3 seconds.

MORE RAM & DISK SPACE

Create high-speed bootable disks with 15 extra sectors of space. Move DOS 3.3 to your Language Card (64K reqd.) for an *extra 10K* of usable memory. Also: Pronto's new *TYPE* command instantly displays DOS 3.3 text file contents.

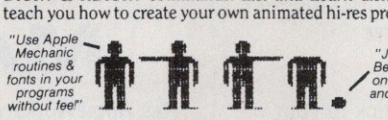
Hi-Res Shapes and Fancy Type!

APPLE MECHANIC™

$29.50 (Compatible with any version of Apple II/DOS 3.3)

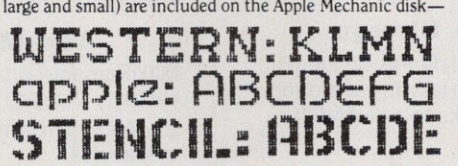
HI-RES SHAPE ANIMATION

Your drawings are converted into hi-res "shape tables" so your programs can perform animation with Apple's built-in DRAW & XDRAW commands. *List and Learn* disk demos teach you how to create your own animated hi-res programs.



FANCY DISPLAY TYPE

Six proportionally-spaced hi-res screen-display fonts (both large and small) are included on the Apple Mechanic disk—



26 more typefaces are available on our *Apple Mechanic Typefaces*™ disk (sold separately: $20.00).

16-COLOR DOUBLE HI-RES GRAPHICS!

BEAGLE GRAPHICS

$59.95 (Compatible with Apple IIc or 128K IIe/DOS 3.3 *and* ProDOS™)

DOUBLE HI-RES

Access 16 hi-res colors and 560 (horiz.) x 192 (vert.) pixels (*twice* normal resolution) on your Apple IIc or 128K IIe.

AS AN ARTIST, you can draw, fill and label double hi-res pictures using just the keyboard, *or* your AppleMouse™, joystick, Koala Pad™ or Graphics Tablet. Easy-to-use icon-assisted *Cut & Paste* features make graphic manipulations easy. Any image section may be altered or re-located.

OR, AS A PROGRAMMER, you get 33 new commands for drawing, filling and manipulating double-res images. You can convert normal programs and pictures to double-res, save and load any image section, compress picture data to 1/3 disk space, produce double-res "slide shows" and more.

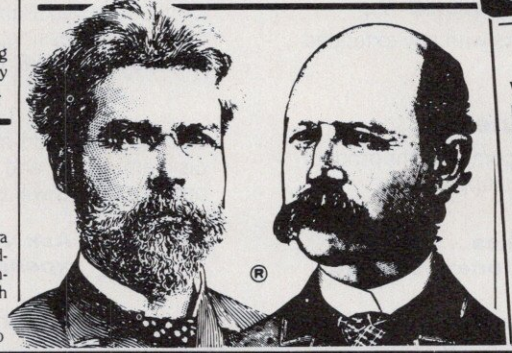
EXCELLENT REVIEWS—see Jan-85 *A-Plus* Magazine.

BEAGLE BASIC™

$34.95 (Compatible with unenhanced Apple IIe or 64K II+/DOS 3.3)

BETTER APPLE BASIC

Put Applesoft in RAM so you can change and improve it. Add new commands to Basic, like *ELSE, SWAP, TONE...*



Public Notice

Beagle Bros products are available at most Apple software stores. If your favorite dealer doesn't have a particular disk, get on his case. He can have it in his store for you in 2 or 3 days by phoning Beagle Bros or *any* U. S. Apple Software Distributor.

GPLE™

$49.95 (Compatible with any version of Apple II/DOS 3.3 *and* ProDOS™)

THE APPLE PROGRAM EDITOR

GPLE is Beagle Bros' "GLOBAL PROGRAM LINE EDITOR", the most popular, efficient way to edit Applesoft programs. GPLE works like a *word processor* for Basic program lines.

INSERT & DELETE

Now you can *quickly* make changes to your programs. No more awkward "escape-editing" to make changes. No more hassles with extra spaces in quote statements. No more slow "cursor-tracing" to the end of a line before pressing Return.

SEARCH & REPLACE

Find every occurrence of a string or variable in your programs. Or *replace* any word with any other. For example, change all X's to ABC's, or all "HORSE" strings to "COW".

FUNCTION KEYS

Define your own Apple "function keys". For example, ESC-1 can Catalog drive 1, ESC-N can clear the screen and type your name and address, etc. Customize your Apple with a set of ESC functions that perform any set of tasks that you want.

DOUBLE-TAKE™

$34.95 (Compatible with any version of Apple II/DOS 3.3 *and* ProDOS™)

2-WAY SCROLLING

Listings and disk Catalogs scroll both up *and* down, making file names and program lines easier and faster to find. You change scroll-direction with the Arrow keys. Machine language listings and Hex-Ascii dumps scroll two-ways too.

BETTER LIST FORMAT

Double-Take's easy-to-read listings have each Applesoft program statement on a new line for *fast* program reading.

BONUS FEATURES

A$="ABC"
X=3.14159
Y=255
← **VARIABLE-DISPLAY:** Instantly prints all of your program's variables in the order used, with their current values.

A$: 5 10 150
X: 10 20 3000
Y: 5 40 55 60
← **CROSS-REFERENCE:** Alphabetizes every variable your program uses, and displays them with their line numbers.

Plus AUTO-LINE-NUMBER, improved Re-Number, Hex-Dec Convert, Program Stats, eliminate/re-define the cursor...

Visa/MasterCard or COD, order Toll Free
ALL 50 STATES/24 HOURS (orders only)
1-800-227-3800 ext.1607

Beagle Bros products are on the shelves at your local Apple Software Store.

We also ship *FAST* via First Class Mail:

☐ Alpha Plot	$39.50	☐ Fatcat	$34.95
☐ Apple Mechanic	29.50	☐ Flex Type	29.50
☐ A.Mech.Typefaces	20.00	☐ Frame-Up	29.50
☐ Beagle Bag	29.50	☐ GPLE	49.95
☐ Beagle Basic	34.95	☐ I. O. Silver	29.95
☐ Beagle Graphics	59.95	☐ Pro-Byter	34.95
☐ D Code	39.95	☐ ProntoDOS	29.50
☐ DiskQuik	29.50	☐ Silicon Salad	24.95
☐ DOS Boss	24.00	☐ Tip Disk#1	20.00
☐ Double-Take	34.95	☐ Triple-Dump	39.95
☐ Extra K	39.95	☐ Utility City	29.50

ADD $1.50 FIRST CLASS SHIPPING (ANY SIZE ORDER).
COD add $3.00/California add 6%/Overseas add $4.00

NAME _____
ADDRESS _____
_____ ZIP _____
VISA/MCARD# _____
EXPIRATION DATE _____ VISA MasterCard

MAIL DIRECTLY TO BEAGLE BROS.
WE PROCESS ALL ORDERS IMMEDIATELY.

Beagle Bros MICRO SOFTWARE

The Apple Programmer's Best Friend

BEAGLE BROS, INC.
3990 OLD TOWN AVENUE, SUITE 102C
SAN DIEGO, CA 92110 PHONE 619-296-6400

© 1985, Beagle Bros, Inc.

How To Improve AppleWorks even on a][+!

1. *Run AppleWorks on **ANY** Apple with* MULTIVIEW™

Simply add the MultiView 80/160 Card ™ and a joystick to your Apple][+ or Apple compatible and you too can run AppleWorks!

Appleworks Support At No Charge

MultiView is the ***FIRST*** video card to offer AppleWorks on the][+ and //e. Every MultiView comes with a preboot to let you see a letter quality 80×24 MultiView display with AppleWorks on a //e ***AND***][+.

Seven Easily Read Screen Sizes
(MultiView does more than just run AppleWorks)

MultiView displays 80×24, 80×32, 80×48, 96×24, 132×24, 132×30, and 160×24 screen sizes on almost any monitor along with 12 attribute sets, including bold and underlined characters. An exclusive "wide-angle" feature makes MultiView's easily-read screens even easier to read.

Super Spreadsheets With MultiView

Imagine 132 or 160 character wide spreadsheets able to show more than a year of financial figures on one screen ***WITHOUT SCROLLING!*** Try a wide screen size once and you'll never want to go back to ordinary 80-columns. The Universal Spreadsheet Preboot supports 6 popular spreadsheets in 7 screen sizes with more spreadsheets to come.

Word Processors Too

Apple Writer and other word processors can use MultiView's larger screen sizes to let you see on screen ***EXACTLY*** what your printout will look like... no matter if you are printing in elite or condensed type. And of course Apple][+ owners can use the latest //e ProDOS versions of Apple Writer on their][+ with the Apple Writer Preboot — another first!

Works In The //e And Enhanced //e

MultiView works in any slot. In slot 3 it works with any extended memory card in the //e's auxiliary slot.

Saves Your Computer

Low power design uses 25% less power than competitions product — a must to avoid overworking your power supply.

See the difference MultiView makes... ask your dealer to demonstrate MultiView today. $349.95.

2. *Expand the Apple //e from 64K to 1.5 megabytes with* MAXIRAM™

Has AppleWorks warned "Desktop Full" or have other programs said "Out of Memory" too often? Then you know a fixed 64K extended memory card just isn't enough.

Add Memory When You Need It

MaxiRam solves memory shortages with a whopping 1.5 megabyte capacity that you can grow into.

Buy MaxiRam from your dealer with as little as 64K or as much as ¾ megabytes.

Easily add memory at any time up to ¾ of a megabyte or, with an optional extension card, up to 1.5 megabytes.

AppleWorks Support At No Charge

MaxiRam comes complete with an Appleworks desktop expansion program allowing desktop space of over a megabyte and ram fast program speed.

Megabytes Without Spending Megabucks

MaxiRam's prices are as reasonable as MaxiRam is expandable. MaxiRam 64K and 128K prices meet or beat many ordinary 64K memory card's prices.

64K $159.95	512K $599.95
128K $219.95	¾ Meg $799.95
256K $369.95	

You can even recycle your old extended card's memory and add its 64K chips to MaxiRam.

Direct Replacement For The 64K Extended Memory Card

MaxiRam fits into the auxiliary slot and is 100% compatible with all //e software, displays 80-column video, and supports double hi-res graphics.

Designed for Greater Processing Power

Exclusive to MaxiRam is a built-in CPU port permitting direct linear memory addressing, up to 1.5 megabytes, by 16 bit microprocessors from the 8086, 68000, and 65816 processor families.

RGB Plus More

An RGB ¾ Meg add-on card that attaches to MaxiRam, software for disk emulation and spreadsheet expansion, and a 16 bit co-processor card will be available later this year.

Ask your dealer for MaxiRam, *the expandable* memory card for the //e

Other Fine Products: **Zee80A Card:** Turns the Apple into a CP/M computer to run Wordstar, dBase II, Turbo Pascal, etc. Software not provided. $89.95
IIe-80RAM Card: Adds 64K of memory and 80-columns to the Apple //e. $129.95

Prices subject to change
International CIF Prices - Add 10%

Checkmate Technology, Inc.
509 South Rockford - Drive •Tempe, Arizona 85281-3021
(602) 966-5802 U.S.A.
(800) 325-7347 Telex: 165-025 CEC PHX

ALL PRODUCTS MADE IN THE U.S.A. — EXCLUSIVE 5 YEAR WARRANTY

Apple is the registered trademark of Apple Computer, Inc.
Apple Writer, AppleWorks, Applesoft, and ProDOS are trademarks of Apple Computer, Inc.
dBASE II is the trademark of Ashton-Tate.
Turbo Pascal is the trademark of Borland Int, Inc.
Wordstar is the trademark of MicroPro Corporation.

Copyright ©1985 CHECKMATE TECHNOLOGY, INC.
All rights reserved

CIRCLE 128 ON READER SERVICE CARD

across the field, experience virtually everything short of seeing the fans scramble for a foul ball.

As a bang-the-ball, whiff-the-batter type of game, Star League Baseball stands up well to anything else. You can choose between two pitchers to start the game, each with an eight-pitch repertoire, and even bring in a late-inning knuckleballer to handle relief. The action is demanding, but lifelike, requiring you quickly to switch gears between pitching, fielding, and picking off opponents.

When you're batting, you can bunt, hit away (as in real baseball, *when* you hit affects *where* you hit), or take pitches that look high or outside.

Low on Strategy

As a strategy game, though, Star League Baseball falls short. Although the package promises that you can "choose your own starting team," all you really get to decide is whether your team is to be made up of sluggers or line-ball hitters. From that point, however, there's no subtlety to the selection. You don't, for instance, set a lineup that puts a power hitter in the number 4 position, or a weak hitter in the number 9 spot. Thus, you don't get to make the kinds of decisions that a manager makes. Every hitter is the same, and, when you're playing, you're just one of the gang.

A Game for Baseball Fans

Star League Baseball is designed for one-player play against the computer (a pretty tough opponent) or two-player play. You can practice your batting in a nongame situation, but not your fielding—a problem, since playing the field in Star League Baseball is actually pretty complicated. In fact, I lost a few 40–0 games to the computer before I figured out exactly what to do.

All in all, it's safe to say that Star League Baseball won't take over for the real thing, but it does take just about as much time and can give the rabid fan something more to rave about.

J. Anthony Dirksen

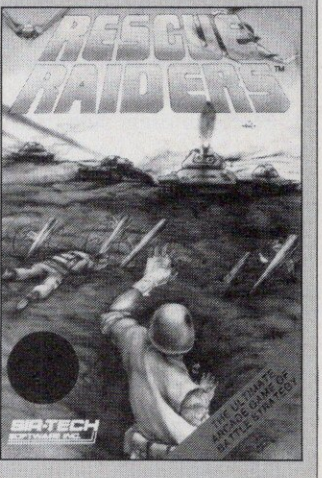
Star League Baseball
Gamestar, Inc.
1302 State Street
Santa Barbara, CA 93101
(805) 963-3487
List Price: $29.95
Requires: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive; joystick

CIRCLE READER SERVICE NO. **352**

SAVE THE FREE WORLD

Dear *A+*,

I know you're expecting a review of Rescue Raiders, but I don't think I'm going to have time to write it. You



see, I've gotten as far as level 4, but I keep getting killed. Each time that hap-

mecc SOFTWARE
For the Apple II Family

$24.95 each

FREE Catalog with first order

MIND PUZZLES

OTHER PROGRAMS—Have Fun Learning
The Friendly Computer *Path Tactics*
The Market Place *Early Addition*
Paint With Words *Jenny's Journeys*
Problem Solving Strategies
Sound Tracks

All Programs ONLY $200

Data Case
Reg. $17.95
only $9.95 with any order

Capacity: 50 5¼" diskettes with index dividers and labels. Bilt-in carrying handle for ease in transporting. Unit has smoke color lid, beige base. 4-color single box.

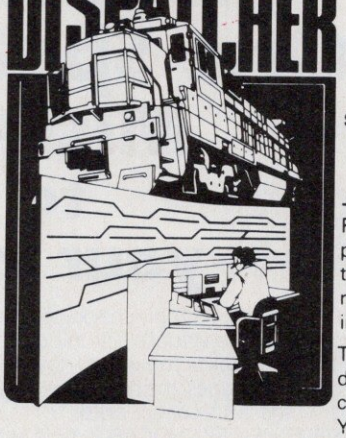
Wholesale Disk BONUS
Free disk in every box.
5¼" SSDD— .94 ea.
5¼" SSDD— 1.20 ea.
Minimum order—Box of 10.

Quantity discounts upon request.

PHONE TOLL FREE to ORDER
1-800-634-2248
in North Dakota—280-0121
Corporate & School POs Accepted
C.O.D.
SOFTWARE SERVICES
1323 23rd St. S., Suite C9 Fargo, ND 58103

CIRCLE 316 ON READER SERVICE CARD

Be the TRAIN DISPATCHER



Available for your:
Apple II, II+, IIe, IIc
for only $29.95
+ *postage and handling*

send to:
Signal Computer Consultants
P.O. Box 18222, Dept. 27,
Pittsburgh, PA 15236
(412) 655-7727

Play this fast-paced computer video game that's so true-to-life that a major railroad indicated they use it in dispatcher training.

TRAIN DISPATCHER's 24 displays help you make crucial decisions, RAPIDLY. You're under pressure, but in control – throwing switches, clearing and cancelling signals, constantly maneuvering both east and westbound trains. Keep the tracks clear ahead of all your trains and watch your score go up!

Action packed, yet non-violent, TRAIN DISPATCHER's 5 levels of play challenge players from age 8 to 80. Work your way up from "Cub Dispatcher" to "Chief Dispatcher" or even "Trainmaster."

Created by designers of computerized traffic control systems for operating railroads, TRAIN DISPATCHER will increase your appreciation for actual railroad operations.

TRAIN DISPATCHER comes complete with Instruction Manual and keyboard template.

USA & Canada add $2.50 postage and handling ($4.00 foreign) for each game ordered. All checks or money orders must be in U.S.A. funds. all foreign payments must be against U.S.A. banks. PA residents add 6% state sales tax. Visa, Mastercard also accepted, show card number expiration date and signature.

CIRCLE 341 ON READER SERVICE CARD

pens, I have to start over, but this time I think I've got it figured out. I'll know as soon as I get back to level 4. A couple of weeks ought to do it. Fortunately, a Save Game feature allows me to keep the game going for as long as it takes—if I don't get killed again.

Let me tell you, I didn't think the game would be so time-consuming. The first time I booted it up, I thought it was just another

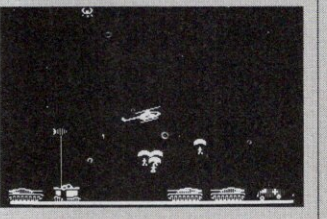
> Just make sure you have enough helicopters.

version of Choplifter. The same joystick-controlled helicopter was flying along a horizontally scrolling battlefield—only this time, instead of rescuing hostages, the player's job is to drop bombs on enemy tanks and troops. "Ho hum," I said, "It's just another shoot-'em-up." But I figured I ought to try playing it a little before I wrote about it. That was three weeks ago. Rescue Raiders is definitely not just another shoot-'em-up. (By the way, my agent wants to know why I'm three weeks late turning in my new novel!)

Modern World War II

The game's description sounds odd: the idea is that it's World War II fought with modern technology—tanks, helicopters, smart missiles, and so on. You see, these terrorists have got hold of a time machine—never mind, you don't need to know the details. Just make sure you have enough helicopters and tanks.

Helicopters are especially important, because when you run out of them, the game is over. A long bar

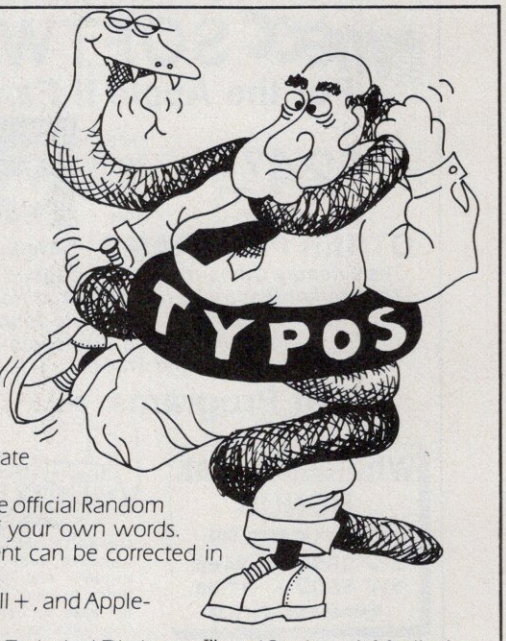


across the top of the screen represents the battlefield and shows you where everything is and what's going on at all times. The main screen shows you what's going on in the vicinity of your chopper.

The east end of the battlefield is your base; the west end is the enemy base. You need a two-button joystick so you can fire machine guns, drop bombs, and release smart airborne missiles. The missiles are extremely useful for shooting down enemy helicopters—except sometimes the enemy fires back and you have to do some ticklish evasive maneuvers to avoid being blown to bits. Oh, did I mention how much I like the animation in this game? I especially like the way the airborne missiles drop out of the helicopter and head west—but I don't like the way they sometimes misfire and crash.

You can also deploy troops (five at a time), engineers (two at a time), tanks, antiaircraft-missile carriers, and demolition-team vehicles. Once deployed, they travel steadily west, destroying every enemy soldier or vehicle in their path until they are destroyed themselves. You can give them air cover, of course, and even fly ahead to take out oncoming tanks, but you

It takes only One Spelling Mistake to blow your image



No matter how much work you've put into that report, no matter how accurate your references and sound your conclusions, a single spelling mistake can destroy its credibility.

HOW CAN YOU GUARD AGAINST THIS? Simply check your paper with Sensible Speller™, the software program that is a virtual electronic dictionary. With tireless, efficient detachment, it will catch mistakes you would not notice. It will in fact display misspelled words in context, suggest the correct spelling, and allow immediate replacement of misspelled words with correct ones.

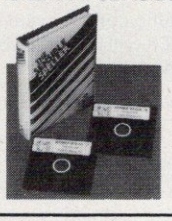
WHAT IS THE SIZE OF SENSIBLE SPELLER'S VOCABULARY? All 80,000 words of the official Random House Dictionary. And there's enough room left on disk to add thousands of your own words.

HOW LONG DOES IT TAKE TO USE SENSIBLE SPELLER? A ten-page document can be corrected in one or two minutes.

ON WHAT COMPUTERS CAN YOU RUN SENSIBLE SPELLER? On all Apple //c, //e, II+, and Apple-compatible computers.

WHAT OTHER DICTIONARIES ARE AVAILABLE? Black's Law Dictionary™, Sensible Technical Dictionary™, and Stedman's Medical Dictionary™ are available separately on diskette.

WHERE MAY SENSIBLE SPELLER BE PURCHASED? It is available at your dealer for $125 in either the "IV"* or ProDOS version.*



SENSIBLE SPELLER ProDOS IS APPLEWORKS COMPATIBLE

Sensible Software, Inc.

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

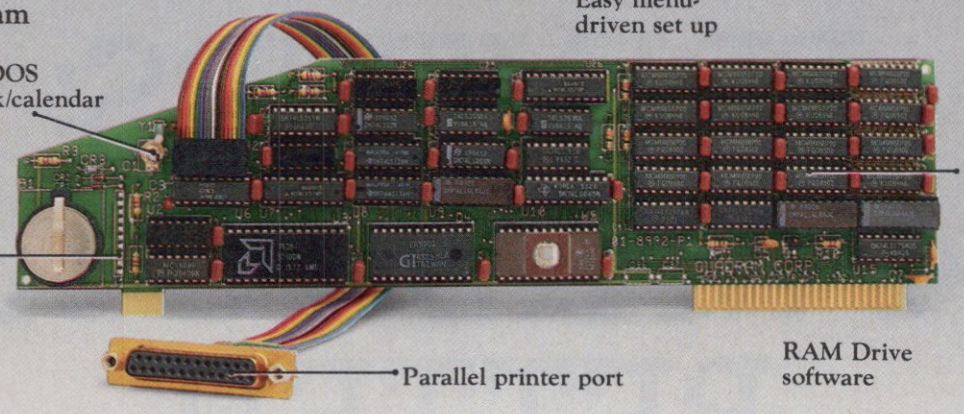
*Sensible Speller ProDOS works with the following word processors: AppleWriter-ProDOS version, AppleWorks (Apple Computer, Inc.); Format II Enhanced-ProDOS (Kensington Microware), and others. Sensible Speller IV works with DOS 3.2 and DOS 3.3-AppleWriter (Apple Computers, Inc.); Bank Street Writer (Brodebund); Format II (Kensington Microware); HomeWord & Screen Writer (Sierra On-Line Inc.); PFS: WRITE (Software Publishing, Inc.); Word Handler (Silicon Valley Systems); CP/M-Wordstar (Digital Research Corp.-Micropro International); and others. All features are not available with CP/M. PFS WRITE & Word Handler. Owners of trademarks indicated in parentheses.

CIRCLE 227 ON READER SERVICE CARD

Quadram Enhances Apples!

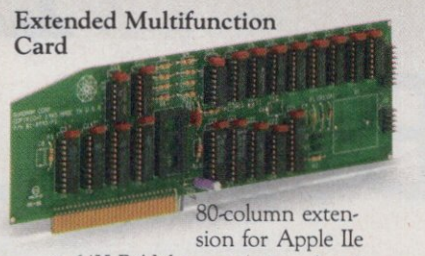
Quadram expands the power of the Apple II series personal computers. Quadram set the standard with the Quadboard. Now we offer you Multicore, the card that delivers RAM expansion to 256K, parallel and serial ports, a ProDOS clock/calendar, and RAM drive software. Plus, there's the new Extended Multifunction Card, Clock/Calendar Card, Serial Interface Adapter, and Buffered Serial Interface Adapter. All designed to bring out the best your Apple has to offer. For further details on these cards as well as our popular APIC parallel interface and eRAM 80 cards visit the dealer nearest you, or contact us at 4355 International Blvd., Norcross, Georgia 30093 (404) 923-6666.

Multicore by Quadram



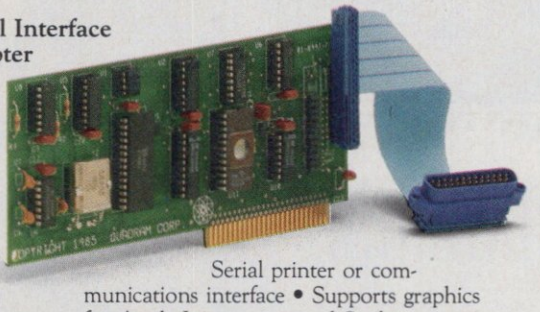
Pro-DOS Clock/calendar
Long-life Lithium battery • Easy to use date/time software.

Extended Multifunction Card



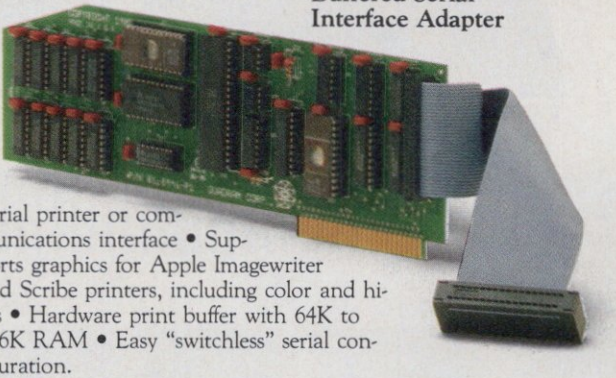
80-column extension for Apple IIe • 64K RAM expansion option • Color RGB interface • ProDOS clock/calendar.

Serial Interface Adapter



Serial printer or communications interface • Supports graphics for Apple Imagewriter and Scribe printers • Apple Super Serial Card compatibility • Easy "switchless" serial configuration.

Buffered Serial Interface Adapter



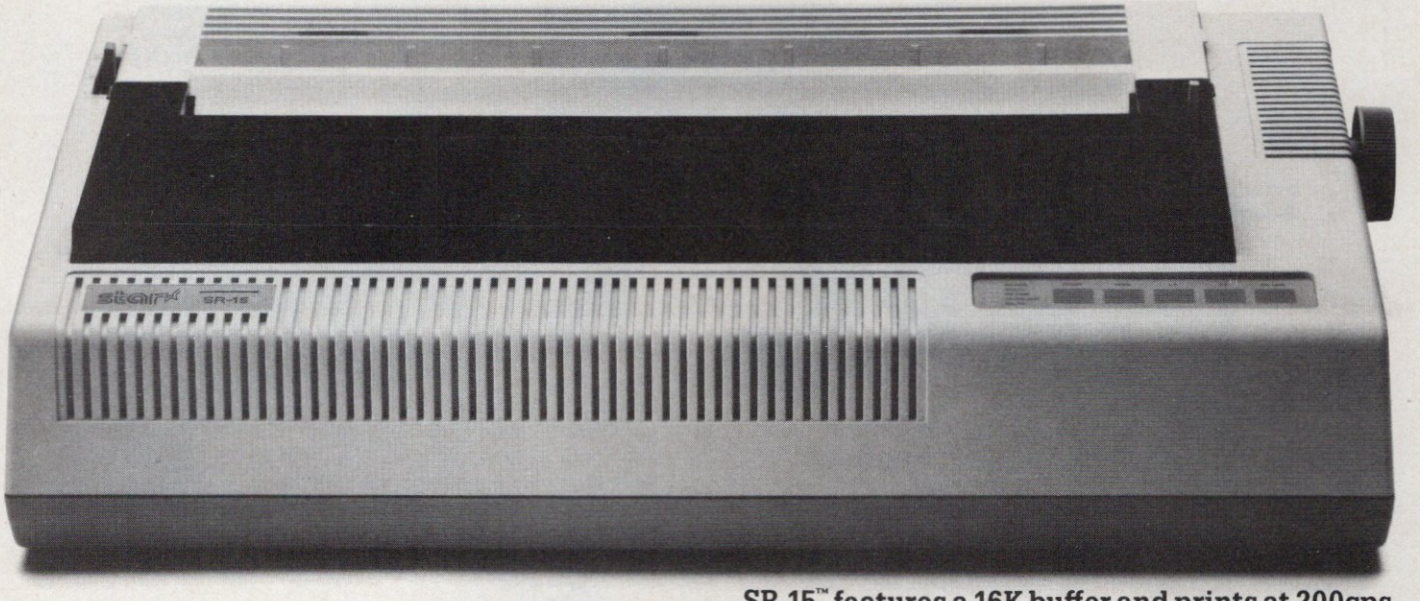
Serial printer or communications interface • Supports graphics for Apple Imagewriter and Scribe printers, including color and hires • Hardware print buffer with 64K to 256K RAM • Easy "switchless" serial configuration.

QUADRAM™
An Intelligent Systems Company

Apple, Apple II, IIe, II+ are trademarks of Apple Computer Corp.

CIRCLE 139 ON READER SERVICE CARD

STAR'S NEW SPREADSHEET PRINTERS: 4 WAYS TO A BETTER BALANCE SHEET.

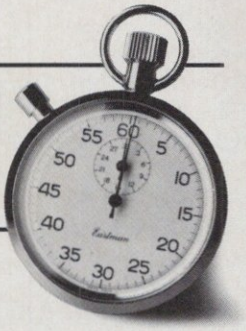


SR-15™ features a 16K buffer and prints at 200cps

For a better return on your computer investment, consider Star's new "S" series spreadsheet printers.

They're faster—with 20% increased throughput and an unbeatable 16K memory. And better—100% IBM® compatible, with prices that make these printers the best value in the business.

0 TO 15" IN JUST .66 SECONDS



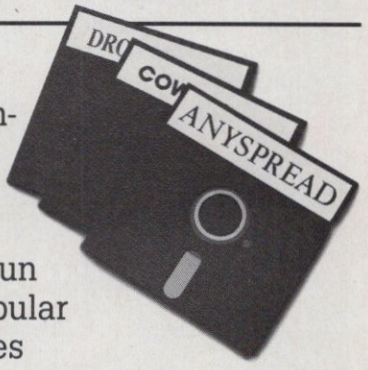
No other printer gives you greater throughput-per-dollar than Star. With the highest-speed NLQ in its class. And the best print quality in the business.

All our new business printers feature draft *and* near-letter-quality *standard* (no extra charge). So whatever the assignment, these printers come fully qualified.

16K AND NOT A BIT LESS

On all Star's new business machines, the convenience of a 16K buffer is standard. No leading spreadsheet printer has more memory. So hooking up with a Star gives your system the power to process and print at the same time.

EASY AS 1-2-3



Star's business printers are fully compatible with IBM®-PC, Apple,® and all compatibles.

They're ready to run with hundreds of popular spreadsheet packages including 1-2-3,™ General Accounting,™ dBase III™ and MultiPlan.® Even integrated formats like Framework™ and Symphony.™

All Star printers are covered by a full one year warranty on parts and labor. Plus a network of factory-trained service centers.

Faster. More memory. More flexibility. More compatibility. Greater reliability. The best print quality. And the best value in the business.

Star's spreadsheet printers give you the best-looking financial statements you've ever seen.

SD-15™ prints draft and NLQ

SG-15™ includes 16K memory for spreadsheets

star®

THE POWER BEHIND THE PRINTED WORD®

200 Park Avenue, New York, NY 10166
Chicago, IL (312) 773-3717 • Boston, MA (617) 329-8560
Irvine, CA (714) 586-8850

CIRCLE 211 ON READER SERVICE CARD

All trademarks (except SG-10/15, SD-10/15, SR-10/15 and Star Micronics Inc.) are proprietary to or registered trademarks of companies other than Star Micronics, Inc.

have to watch out for the enemy's missiles and anti-aircraft emplacements.

If you can deploy the right combination of tanks,

> Each battle feels at least twice as challenging as the one before.

antiaircraft-missile carriers, troops, engineers (to repair your antiaircraft emplacements), and demolition vehicles (if just one of these gets through, it can destroy the enemy time machine), you can win the battle. There are eight battles—and each one feels at least twice as challenging as the one before. What makes it even harder is that every time you deploy resources, it costs you bucks. Further, your supply of bucks is limited and replenishes quite slowly. A new helicopter costs five moneybags; a tank costs one. An antiaircraft-missile carrier costs only three minimoneybags; it's a good idea to deploy a lot of antiaircraft-missile carriers. They automatically shoot down any enemy chopper within range.

No Simple Shoot-'em-up

Thus, even though Rescue Raiders looks like just another simple shoot-'em-up, it's really a sophisticated game about managing resources. The strategy is to use your limited income to deploy your army most effectively.

Listen, I know you're impatient for me to write a review of Rescue Raiders, but I don't think it's fair to write about a game when I've had such a limited amount of exposure to it. I think I should try to go all the way up to level 8 and make sure that my evaluation is fair. I think if I work at it every weekend and most of my evenings, I can probably be finished by Thanksgiving Day, and you could have the review in time for the Christmas issue of *A+*. How does that sound?

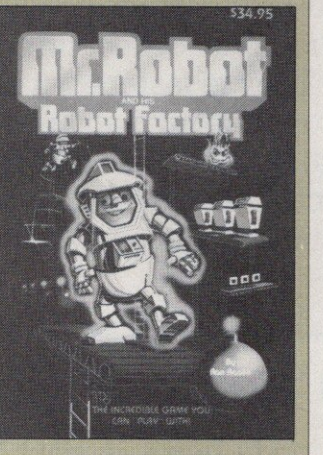
Yours truly,
David Gerrold

Rescue Raiders
Sir-Tech Software, Inc.
6 Main Street
Ogdensburg, NY 13669
(315) 393-6633
List Price: $34.95
Requires: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive; joystick

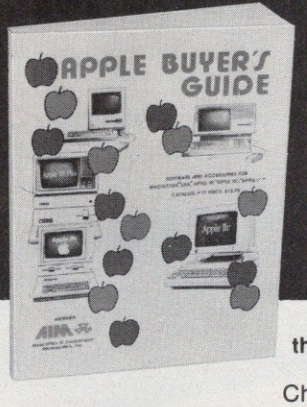
CIRCLE READER SERVICE NO. **356**

INDUSTRIAL-STRENGTH ACTION

Every once in a while, an arcade game stops you dead in your tracks. It possesses



that unique combination of action, graphics, and challenge to lure you back to the Apple time and time again. Although easy to play, it is



An Apple™ software library at your fingertips

the AIM Buyer's Guide

Choose your software and accessories from page after page of the newest items in the market's most complete and authoritative source on Apple™ Computers. And, the AIM Buyer's Guide is updated monthly to assure 'state of the art' availability.

See your local AIM member today, or send $12.95 for the latest issue or $45.00 for annual subscription and a list of participating AIM dealers.

To order, write or phone:

AIM
Association of Independent Microdealers
3010 N. Sterling Ave.
Peoria, IL 61604
Phone: (309) 685-4843

CIRCLE 121 ON READER SERVICE CARD

FONT DOWNLOADER.
For Apple][&][e and][c and Apple Type Computers

Expand the capacity of your printer!

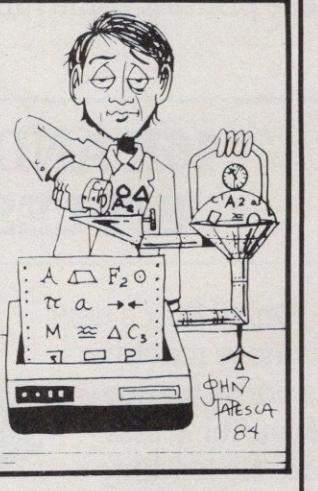
Designed by RAK WARE

Load custom fonts into your **Apple Imagewriter, Apple Dot Matrix Printer, Prowriter™ 8510A, OKI® Microline 92, 93, 84 Step II,** and Epson® FX and use them with virtually every word processor to turn your printer into a **custom typesetter.** After the fonts are loaded, they will stay in your printer until it's turned off. A font editor is also provided to allow you to create your own graphics, text, foreign language letter, math and electronics symbols to load into your printer. On-Disk (Specify Printer)

. . . . . $39.00

New! Font Library disk of 15 original fonts

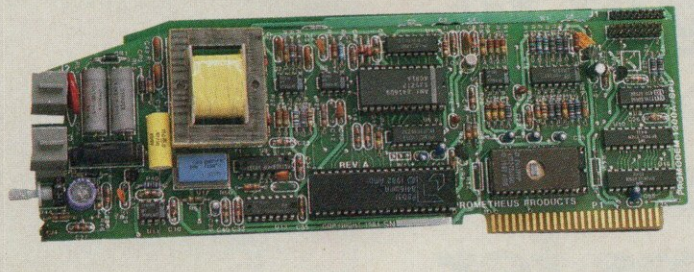
Only $19.95



Micro-W. DISTRIBUTING, INC.
P.O. Box 113
Pompton Pl., N.J. 07405
CALL (201) 838-9027
Dealers & Distributors Inquiries Invited

The Apple II... HOT-LINE

A Plug-In 1200/300 Baud Intelligent Modem For Your Apple II... Just $449 Including Software



ProModem 1200A is a 1200/300 baud Hayes compatible auto-dial modem card that plugs directly into any expansion slot in the Apple II, II+, or IIe. All you have to do is plug it in and connect the telephone cord.

Ours is the only 1200 baud modem to seriously consider for your Apple II. At just $449, it's priced well below its nearest competitor, yet it does much more. No longer do you have to buy an external modem, a serial card, an RS232C cable and communications software which, combined, would cost you hundreds of dollars more. There's really no comparison.

ProModem 1200A is the best modem, too. The internal software in its on-board ROM consists of a powerful menu driven terminal program. There is no need for a separate software disk. After a few keystrokes you'll be on-line and communicating.

Features include: Auto-dial/Auto-answer, tone and pulse dial, help commands, built-in diagnostics, two phone jacks, line status detect with redial on busy, full and half duplex and speaker with volume control.

You just can't lose when our plug-in ProModem 1200A comes ready to use, with on-board software, easy to understand documentation and a telephone cord — all for just $449.

A Powerful Menu-Driven Terminal Program

```
        1200A TERMINAL DRIVER
    © PROMETHEUS PRODUCTS INC.
```

```
1) COMMUNICATIONS
2) FILE TRANSFER
3) OPTIONS
            USE ESC TO EXIT
            ENTER SELECTION
```

```
1) BAUD RATE  1200  300
2) DATA BITS  8  7
3) PARITY  NONE  ODD  EVEN  MARK  SPACE
            USE ESC TO EXIT
            ENTER SELECTION
```

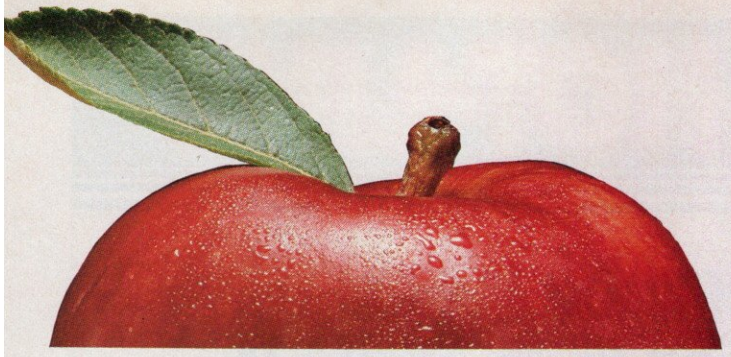
```
1) TYPE        XMODEM  LINE
2) DIRECTION   SEND  RECEIVE
3) FILE NAME
            USE ESC TO EXIT
            ENTER SELECTION
```

```
1) PRINTER       ON  OFF
2) CLOCK         ON  OFF
3) STATUS LINE   ON  OFF
4) KEYBOARD      ON  OFF
5) CAP LOCK      ON  OFF
6) ECHO          ON  OFF
7) LF AFTER CR   ON  OFF
            USE ESC TO EXIT
            ENTER SELECTION
```

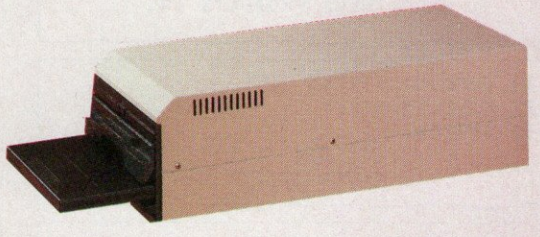
The Hot Line **PROMETHEUS PRODUCTS INCORPORATED**
4545 Cushing Pkwy. • Fremont CA 94538

Call Now For Complete Info...
415/490-2370

CIRCLE 122 ON READER SERVICE CARD



The Infax 101A gets right to the core of storage problems for your Apple!



The Infax 101A disk drive subsystem has been designed specifically for Apple* owners interested in added storage.

The Infax 101A features a removable 10 megabyte data cartridge. Your Apple* can have almost infinite storage capacity with the new Infax 101A.

Look at the features the Infax 101A offers: ★ Bernoulli technology ★ Highest performance, reliability of any removable disk drive. ★ Lowest cost 10 megabyte (formatted) data cartridge. ★ More resistant to shock and vibration than any other fixed or removable disk drive. ★ Fastest start / stop (cartridge replacement) time of any high performance disk drive. ★ Non-contact head to disk interface. ★ Micro-processor-based error correction. ★ User transparent error detection and correction. ★ Automatic start-up diagnostics, idle drive shutdown, error recovery procedures. ★ Host adapter / controller and software supports up to 4 drives simultaneously. ★ Cartridge write protect switch.

Now the Infax 101A supports Apple III, S.O.S. and Apple II ProDOS!

The Infax 101A comes with disk drive, data cartridge, power supply cables and personal computer adapter. Software included supports Apple* DOS 3.3, Pascal and CP/M microsoft card CP/M version 2.23** Also included are support software for quick copying, backup and file management. Slot independent. Supports auto-boot capability. Infax is a registered trademark of D² Products. *Apple, Apple III, Apple II ProDOS and S.O.S. are registered trademarks of Apple Computer, Inc. **CP/M is a registered trademark of Digital Research, Inc.

INFAX®

For additional information and the name of the dealer nearest you call (404) 981-6778. Or write: Infax, Inc., 5301 Covington Highway, Decatur, Georgia 30035.

CIRCLE 136 ON READER SERVICE CARD

difficult to master and becomes trickier with each passing level. Mr. Robot and His Robot Factory is one of those games—exciting, frenetic, and addictive.

The game is a cross between Pac-Man and Donkey Kong. The object is to guide Mr. Robot around a factory and pick up power pills before his energy runs out. This factory is a real metallic jungle—treadmills, ladders, escalators, sliding poles, trampolines, bombs, magnets, and transporters. Worse, "alienfires" roam the floors trying to grab and melt Mr. Robot. Only touching an energizer brings a temporary respite from the flames of the alienfires.

> 'Alienfires' roam the floors trying to grab Mr. Robot.

The graphics are colorful, if not overly spectacular. Mr. Robot and His Robot Factory emphasizes heart-pumping action, rather than fancy graphics. Still, you can easily distinguish between different objects, and the screen images are a cut above those of arcade games such as Lode Runner (see *A+*, May 1984, pages 129–131).

Challenging Action

The game holds 22 floors of challenging action. The eighth floor (level H), nicknamed the Trampoline Floor, presents the first apparently insurmountable obstacle. The solution is to bounce to the top of the screen, collect the power pills, and then jump off the right edge. If you time your leap correctly, you will touch the energizer and bound down four trampolines, eliminating the alienfires on each one.

Then—and this is the real key to the screen—jump to the right as if to jump off the screen. You will bounce off the screen border to the trampoline below. The rest is a simple matter of jumping and running, but do not forget to grab the bonus robot token in the middle of the screen. You will need every robot you can get to clear the more straightforward—and more difficult—9th floor (level I).

The game also includes a build-your-own factory module. You can create up to 26 of your own devious screens using any and all of the shapes, obstacles, and tricks contained in the preprogrammed game. Lode Runner had this feature and the result was a sequel, Championship Lode Runner (see *A+*, February 1985, pages 187–188), with 50 exceptionally tough screens. I think a Championship Mr. Robot is an equally good idea.

Be forewarned: Mr. Robot and His Robot Factory is addictive. It will keep you glued to your Apple for a long time. An exceptional blend of time-tested elements forms a truly challenging and exciting game. I highly recommend Mr. Robot and His Robot Factory.

Russ Lockwood

Mr. Robot and His Robot Factory
Datamost
8943 Fullbright Avenue
Chatsworth, CA 91311
(818) 709-1202
List Price: $19.95
Requires: Apple II Plus, IIe, or IIc; 48K RAM; one disk drive; joystick

CIRCLE READER SERVICE NO. **353**

The Latest Compact 3.5″ Hard Disk System from AST Research.

MicroStor™, the Apple IIe™ 10Mbyte Hard Disk System with an optional 10Mbyte Tape Back-up.

MicroStor™, the compact 3.5″ hard disk system is designed for the knowledgeable professional who needs a rugged, high quality, dependable mass storage system at an economical price.

AST, known for setting high standards with enhancement products for personal computers such as the IBM PC™, the Apple IIe™, and the Macintosh XL™, is providing the latest 3.5″ hard disk technology in easy-to-install configurations. The MicroStor system starts with a 10 megabyte hard disk that can be upgraded to include backup support of a 10 megabyte cartridge tape drive.

MicroStor runs 4-6 times faster than floppy drives. It provides safe storage of your valuable data and is 100% compatible with ProDOS™.

For more information about MicroStor's versatility, see your local computer retailer or call AST Research for a dealer near you.

AST RESEARCH INC.

2121 Alton Avenue, Irvine CA 92714
Telephone (714) 863-1333
Telex 753699 ASTR UR

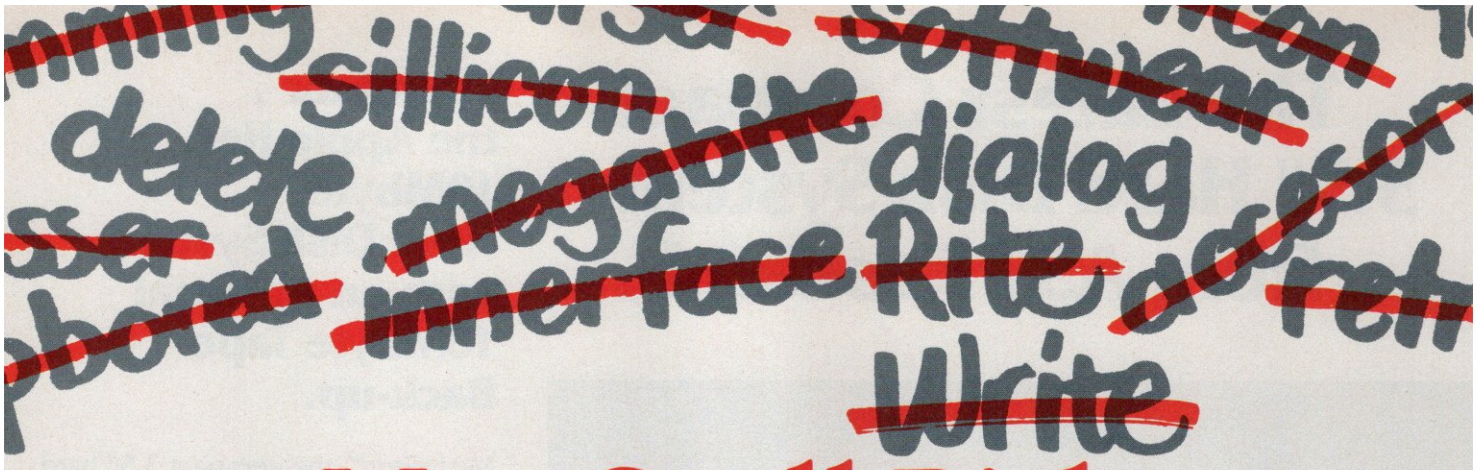
AST, a world leader in enhancement products for personal computers.

Apple IIe, Macintosh, Macintosh XL, and ProDOS are trademarks of Apple Computer, Inc.

IBM PC is a trademark of International Business Machines Corp.

MicroStor is a trademark of AST Research, Inc.

CIRCLE 323 ON READER SERVICE CARD



Mac·Spell·Right™

makes perfect spelling automatic

From the team who wrote MacWrite™ comes Mac·Spell·Right™, a powerful new application program that *automatically*-checks and corrects your spelling. You get the power of Webster's Dictionary and Roget's Thesaurus with the click of a button. The dictionary contains over 40,000 root words. And the thesaurus provides over 15,000 word choices. What's more, you can add more than 1,000 words of your own.

Think of how your productivity will improve. It won't take nearly as long to check and edit documents. No more switching back and forth between disks and programs, because Mac·Spell·Right adds "Spell" to the MacWrite menu. Just click "Spell" from the MacWrite menu bar to check a specific word or the entire document. Mac·Spell·Right works directly within MacWrite and runs transparently while you work. That's not all. It also works with 128K or 512K Macintosh models with single and external drive systems. If you're using Word by Microsoft™ instead of MacWrite, you'll love what The·Right·Word™ can do for your spelling.

Put Mac·Spell·Right to work for you. You may even find yourself with a little extra time on your hands to expand your vocabulary.

Mac·Spell·Right is available now through your local Apple Computer dealer. List price $89. Or, to order, call toll-free: 1-800-MAC-5464. In California, toll-free: 1-800-421-0243.

Other quality products from Assimilation:

Mac·Turbo·Touch™, an input device designed to "turbo charge" your Macintosh. List price $129.

Mac·Memory·Disk™, lets you access speed and memory in your 512K Macintosh; operates as a RAM Disk. List price $29.

Mac·Daisywheel·Connection™, a software driver and printer cable that allows you to print from any popular serial letter quality daisywheel printer or electronic typewriter. List price $99.

Mac·Epson·Connection™, a printer driver for high quality dot matrix Epson printers. List price $89.

Mac·Tracks™, a customized shortcut to mouse-driven commands. List price $29.

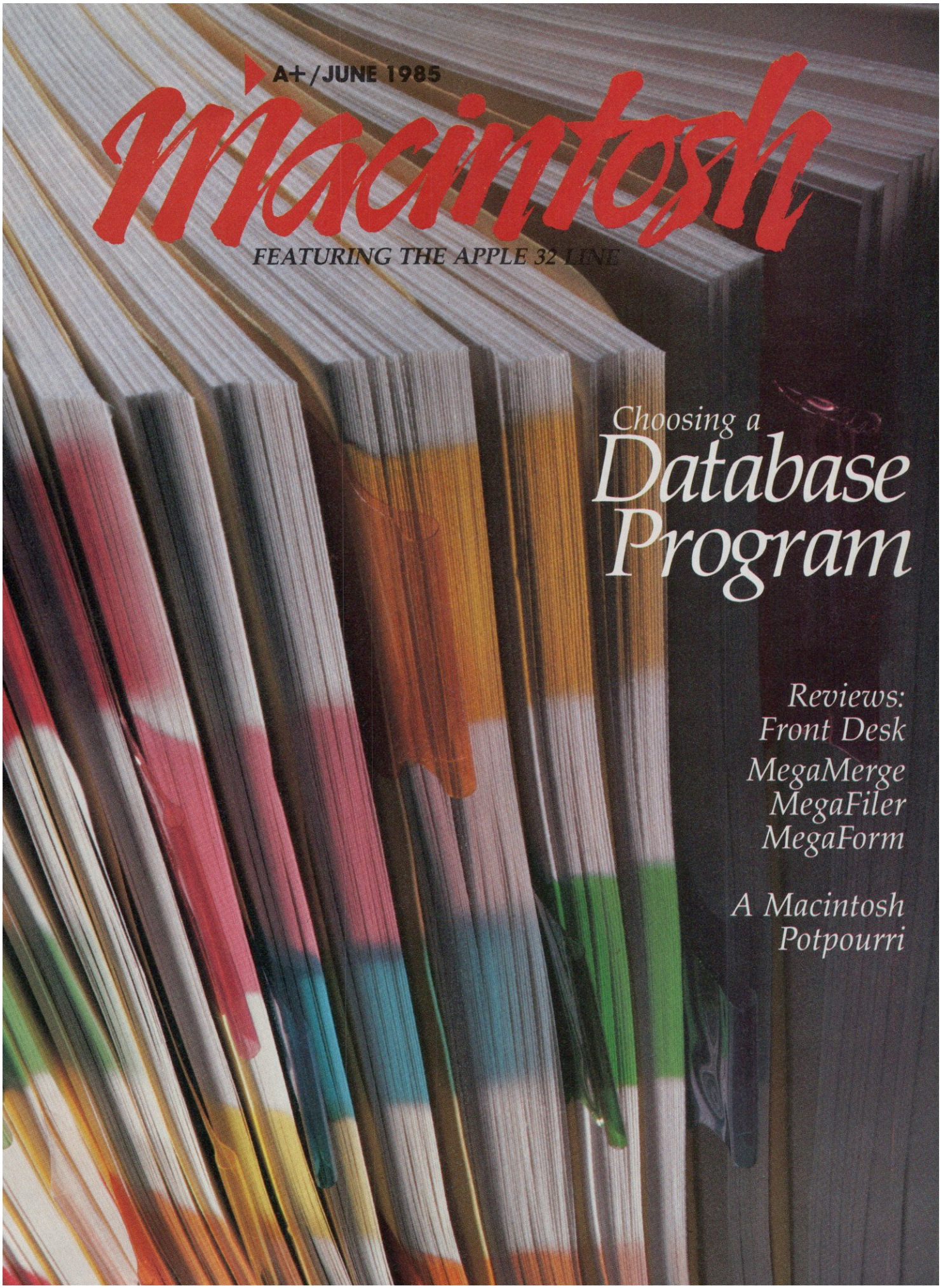
Lock·It™, a privacy feature that lets you limit access to your files. List price $29.

Assimilation™

CIRCLE 212 ON READER SERVICE CARD

Apple Computer and MacWrite are trademarks of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer. Mac·Daisywheel·Connection, Mac·Epson·Connection, Mac·Spell·Right, The·Right·Word, Mac·Turbo·Touch, Mac·Memory·Disk, Mac·Tracks, and Lock·It are trademarks of Assimilation Inc.

© Assimilation, Inc. 1985


A+/JUNE 1985
Macintosh
FEATURING THE APPLE 32 LINE
Choosing a
Database
Program
Reviews:
Front Desk
MegaMerge
MegaFiler
MegaForm
A Macintosh
Potpourri

THE ELECTRONIC FILE FOLDER

Choosing a database program

As recently as a few months ago, complaints were rife about the lack of software for the Macintosh. Now a plethora of programs are out there.

If a database manager is what you need, you can choose from the dozen or more programs that are now available, but you probably wonder how you will be able to pick the one that best meets your needs. For that matter, you may even wonder if you need one at all—that box of tattered index cards has worked all these years, right?

Should you be unfamiliar with the purposes and power of database programs, some general information may help you resolve the question of whether or not you need one. Once you have decided you need such a program, start your research. Find out what features are available and which programs have those features.

The charts that accompany this article (see pages 111 and 116) rate 13 Macintosh database programs in various performance areas. Use the information in the charts and the guidance the article provides to help determine your database needs and the program that meets them.

A database is a collection of information—any kind of information, from names and addresses to the particulars of your customer accounts or even graphic images. A database manager, or file manager, is a program that lets you collect, organize, maintain, and manipulate your information. It also allows you to print various reports that are usually selective summaries of the information.

What are the advantages of an electronic database over any of its paper counterparts? You can store more information in less space, retrieve it more quickly, have calculations performed automatically, and easily vary the printed output.

The three most important terms in database management are *file*, *record*, and *field*. A file is a collection of records, much like a file box that holds index cards. A record is analogous to a single card in the file—a collection of related information, such as the name, address, and telephone number of one person. A field is a single piece of information, such as a name or a telephone number.

Beyond the basics of files, records, and fields, programs offer varying levels of manipulative ability: alphabetical and numeric sorting, the selection of groups of records with something in common, and so on.

When shopping for a database-management system (DBMS), the first thing to do is ask yourself three important questions: How much information can the program handle? How many ways can that information be manipulated? How well does the program perform in the areas that are important to you?

To help narrow your list of prospective DBMSs, check your needs against the data in the Vital Statistics chart (see page 111).

Do you need the extra power of a relational system? With a relational DBMS, you can link together the records of two separate files into a single temporary file. By assigning one customer the same customer-identification field, you can, for instance, tap into a customer name-and-address file while processing the orders stored in another file. You will not have to enter or store the name and address in the order file, which results in a considerable saving of both time and storage space if customers place multiple orders.

How much data do you need to store? With most DBMSs, the amount of room on the disk is the only limit on the size of your file. The number of records you can have in a file depends on the amount of information in each record. The number of characters that you can put in each field is important: if you want to enter syn-

DOW/CLEMENT PHOTOGRAPHY

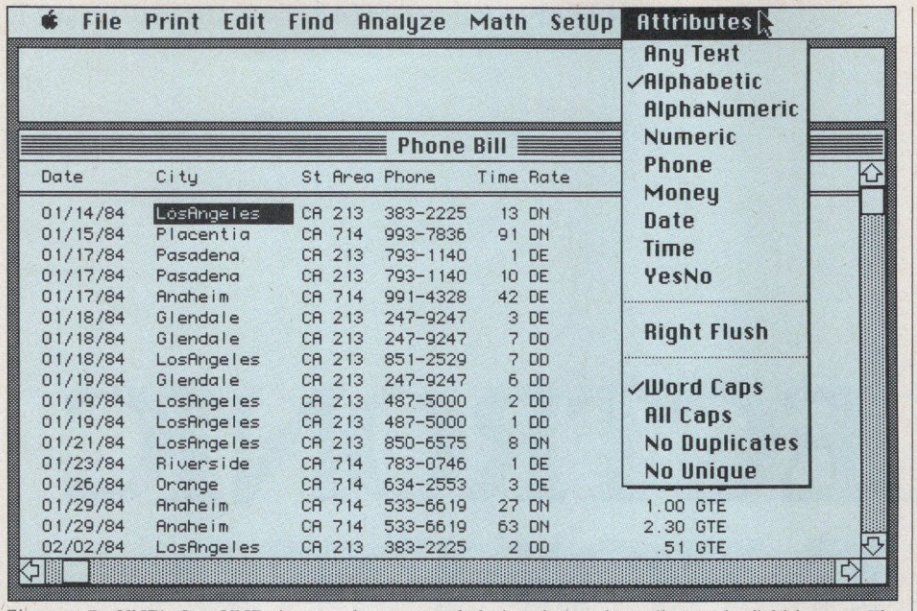


Figure 1: ProVUE's OverVUE gives an almost overwhelming choice of "attributes" for field formats. The columnar arrangement of information allows you to see more than one record at a time and makes data entry very easy. This columnar setup is the only one available in OverVUE; some programs allow you to toggle between such an arrangement and a free-form record design.

opses of the books in your professional library, a 40-character limit will be very frustrating.

How do you want to organize your records? Some programs let you sort alphabetically or numerically on only one field at a time. A multilevel sort can arrange your records by ZIP code, also alphabetizing names within each ZIP area. A program with "infinite" sorting levels lets you sort on as many fields as a record contains.

Do you need to view more than one file at a time? Some programs allow multiple open files but do not let you transfer information easily.

Once you have a list of the database programs that can handle your overall filing needs, you can start thinking about the finer points.

The first thing to do when setting up a database is to design the records: name the fields, define their sizes, and determine their placement on the screen.

Methods of defining the field size vary, from typing in the number of characters to tracing an area of the screen, but you always have to plan ahead. (Well, not always—Microsoft File and OverVUE, for example, let you go ahead and type, and you can change the size of the fields later.)

A good database program lets you easily change your database design as your needs change. The most important editing option is one that lets you add a new field even after you have started to enter information—because that's when you discover you need a new field.

Macintosh databases vary greatly in the amount of available numeric and text-formatting options. Formatting a field so that it holds only dollars, or integers, or a certain number of decimals, saves time when it comes to entering the information—you can enter a 5, and it will appear as $5.00. Most programs allow no text formatting at all and restrict you to the system default font, both on the screen and on paper. If looks are important to you—and the Mac has spoiled us in that area—check on what a program lets you print out.

The final consideration in the realm of record design is the overall design freedom the program provides. OverVUE, for example, has a rigid format reminiscent of a spreadsheet layout (see figure 1). Each record is on a single line, and changing column positions and widths is the extent of your alteration abilities. In contrast, Microsoft File allows very flexible formatting. You can drag fields and labels around, changing their vertical or horizontal dimensions at will (see figure 2).

Field Types

When you are designing the record format of a file, you can usually specify the type of field as well as its name and size. Most programs can at least differentiate between text and numeric fields. Since you cannot enter text into a defined numeric field, you can specify the type of field in order to avoid many data-entry mistakes. The major advantage of numeric fields, however, is that they can be sorted by their value.

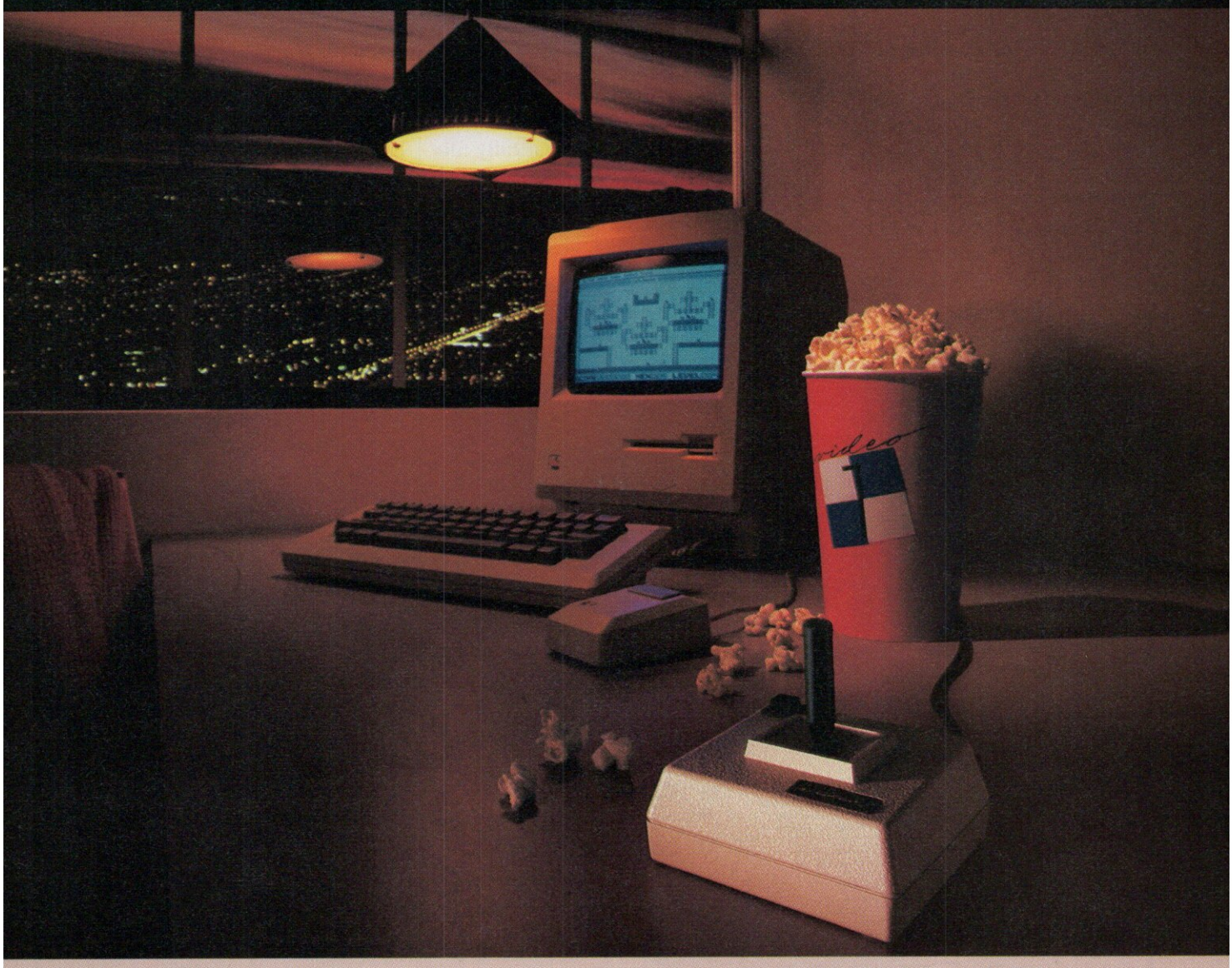
The Picture Field

The Macintosh has made it possible to add a new type of field to database terminology: the picture (or graphics-image) field. Microsoft File is the only program I reviewed that offers such a feature. With the advent of reasonably priced digitizers and graphics-editing tools such as MacPaint and MacDraw, a picture field takes on new importance and versatility. How about a digitized picture of a stamp in your collection, an employee in your company, or a logo for your mailing labels?

Some programs require unique fields and some simply allow them. A unique field is one in which the entry must differ from those in all other re-

Figure 2: This sample record is from Microsoft's File, the most versatile of the databases reviewed. You can use different fonts, styles, and sizes for text, and you can define special "picture fields." The word Ratings *in this record is an independent label, a useful feature also available in some other programs. Another option you should look for in a database program is one that will let you type in blocks of text, such as in the Comments field shown here.*

NTERMISSION FOR THE SERIOUS VIEWER



MouseStick
Break the routine. Give your serious side time off. All without leaving your desk. With MouseStick,™ from Video 7.™

Mastery from the masters
MouseStick is the *original* joystick for the Macintosh.™ And it's from Video 7, masters of video enhancements for Apple™ computers.

Friend, not foe
MouseStick works with any software on any size Macintosh. It's armed with a dual plug, so mouse and MouseStick take you from office to castle and back, without even flipping a switch.

Escape with MouseStick
So get MouseStick for your Macintosh. And give your serious side a break. Mousestick. From Video 7.
Call for the dealer nearest you: (800) 238-0101, in California, (408) 943-0101.

MouseStick includes a joystick and the MouseStick interface which is compatible with any Atari-type joystick. MouseStick is a trademark of Video 7 Inc. Apple is a registered trademark of Apple Computer Inc. Macintosh is a trademark licensed to Apple Computer Inc.

video 7

CIRCLE 183 ON READER SERVICE CARD

cords. If NAME were a unique field, you could not have two JASON KANTER entries. Unique fields can help keep records straight, but they also constrain your information storage. Ideally, a program should give you the option of naming a unique field and let you override it on command.

A versatile DBMS includes the ability to calculate fields that contain formulas referring to other fields in the record. In this way, for instance, you can have each record show the weekly pay for an employee based on the number of hours worked and the individual pay rate.

Data Entry and Manipulation

Once you have designed your records, it's time to enter information into your file. Two features in particular speed this process: field replication and a global field option.

Field replication allows you to copy a field entry from the last record into the current one. A global field option is similar to field replication: The indicated field automatically fills with the same data in every record.

After you've entered the information, you'll probably want to sort it in order to organize the records. Besides the number of levels it can handle, other qualities of a sorting feature deserve consideration. A program that requires a predefined key makes you decide ahead of time which field is to be the "sortable" one; this rather rigid structure never lets you change your mind.

A program that lets you define one or more fields as an index field sorts more quickly when you choose to sort by those fields. And, if you can't do a reverse sort, you will never be able to list things from the highest priced, highest rated, or highest anything on down to the lowest.

Almost any program lets you select a particular group of records—everyone who owes over $100, for example, or all records from New Jersey—when it's time to print things out. A good feature to look for, though, is a Select option that lets you take a certain group of records and manipulate them further—in effect, this option gives you the ability to work with a subfile.

Whether you are using a Select option to get a group of records or a Search option to look for a single record at a time, the Macintosh databases vary greatly in the way they let you "ask" for records. Decide if you need to retrieve your data by simple search criteria—names that begin with A, for instance—or complex search criteria, such as customer accounts with outstanding (more than 90 days) amounts over $500, who haven't made a partial payment this month.

Although a simple report can be just a columnar listing of the information in your file, it can also be much more than that. A report can let you do cross-record calculations, as opposed to calculating one field that works only within each record. Although a calculated field can give you the weekly pay for each employee, a report can give you the total of your weekly payroll.

You may need a program that can do more than simply add numbers. Some of the functions available in various programs include averaging,

DISK DRIVES

TOP QUALITY • APPLE COMPATIBLE • FULLY WARRANTIED

FOR APPLE II, II+ & //e — SUPER 5 Direct Slim Drive $185
AP-50 Full Height Drive
(Shugart SA390 Mechanism) $159
FOR APPLE //c — SUPER 5 Direct Slim Drive $189
FOR MACINTOSH — PLEASE CALL!

	List Price	Our Price
HARDWARE FOR APPLE		
16K Ram Card for II, II+	$ 79	$ 42
Z-80 Card for II, II+, and //e	185	69
Cooling Fan with Two Outlets and Surge Protection	69	35
High Quality Joystick with Fire Button for (Specify II+ or //e)	49	29
Computer Case Similar to II+	149	59
Replacement Keyboard	159	69
Computer Case with Built in Numeric Keypad	299	119
RF Modulator	49	19
Power Strip with Surge Protection and 6 Outlets	59	20
ADVANCED LOGIC SYSTEMS		
CPM Card (6 MHz w CP/M 3.0)	399	289
Z Engine (Universal Z-80 Card)	199	139
Smarterm II (80 Col., II, II+, //e)	179	129
Business Card w T-Maker	499	349
CH PRODUCTS (HAYES PRODUCTS)		
Mach II Joystick for II+	39	35
Mach III with Fire Button for II+	49	42
Paddlestick for II+	49	35
Mach II Joystick for //e	44	38
Mach III with Fire Button for //e	54	45
Paddlestick for //e	44	35
CALIFORNIA COMPUTER SYSTEMS		
Clock Calendar	120	95
7711 Async Serial Interface for Printer & Modem	135	99
KENSINGTON MICROWARE		
System Saver Fan	89	65
KOALA TECHNOLOGIES		
Koala Pad with Software for //e, c	124	75
Muppet Learning Keys w Software for //e & c	79	55
Gibson Light Pen System w/Software for II, II+, //e	250	149
MICROSOFT		
Premium SoftCard //e	395	289
MICROTEK		
Dumpling-GX	89.95	79
128K Ram Card	299	229
Magnum 80me (80 Col, 64K //e	139	119
ORANGE MICRO		
Grappler +	175	99
Buffered Grappler + (16K buffer)	239	159
Serial Grappler +	119	99
PERSONAL COMPUTER PRODUCTS		
Appli-Card 6MHz/64K Memory	375	269
PRACTICAL PERIPHERALS		
GraphiCard (with 6' parallel cable)	99	79
SeriAll	159	109
Microbuffer II+ (Internal buffer; serial and parallel; fits inside Apple)		
16K Microbuffer II+	199	139
32K Microbuffer II+	219	159
64K Microbuffer II+	259	179
Microbuffer In-Line (Stand-Alone Buffer)		
32K Microbuffer In-Line (Specify Par or Ser)	299	209
64K Microbuffer In-Line (Specify Par or Ser)	349	239
Microbuffer E (Mounts directly inside Epson MX, FX or RX printers)		
Microbuffer E 16K Parallel	$159	$119
Microbuffer E 32K Parallel	199	149
Pro Clock	159	119
QUADRAM		
eRam 80 - 80 Col., 64K for //e	135	115
SWEET MICRO SYSTEMS		
Mockingboard A (Stereo Music)	124	92
Mockingboard B (Speech)	124	92
Mockingboard C (A + B)	219	155
TG PRODUCTS		
Select-a-Port for II, //e	49	39
TITAN SYSTEMS		
64K Ram Card for II+, //e	349	169
128K Ram Card for II+, //e	499	219
64K Ram + 80 Columns for //e	249	199
128K + 80 Columns for //e	399	299
Accelerator //e (II+, //e)	599	249
TRACK HOUSE		
Programmable 10 Key Numeric Keypad for //e	199	139
10-Key Non-Programmable Keypad (Specify II+ or //e)	149	109
VIDEX		
Ultraterm	379	259
Videoterm 80 Column Board	279	189
80 Columns + SS + Inverse	319	239
FOR APPLE //c AND MACINTOSH		
ADVANCED LOGIC SYSTEMS		
Mighty Mac Desk Organizer	99	89
DISCWASHER		
Printer Port Adaptor for //c	129	99
HAYES		
Smartmodem 300 w Smartcom I, Cable for //c	339	249
KENSINGTON MICROWARE		
Maccessories: Portable Modem	140	99
KOALA TECHNOLOGIES		
MacVision Digitizer for Mac	399.95	249
Koala Pad w Software for //c	125	75
Muppet Learning Keys w Software for //c	79	55
MICROSOFT		
Chart for Mac	125	89
Multiplan for Mac	195	135
Mac Bundle	595	429
NOVATION		
Smart Cat I w/Mite Software for Mac	499	319
PRACTICAL PERIPHERALS		
Serial to Parallel Converter for //c	109	89
PROMETHEUS		
Promodem 1200 w/Mac Pac	549	409
Promodem 1200 w/Cable for //c	509	379
SWEET MICRO SYSTEMS		
Mockingboard D for //c	229	169
TELOS		
Filevision for Mac	195	129
TRONIX/MONOGRAM		
Dollars & Sense for //c	120	89.95
Dollars & Sense for Mac	149.95	109
CALL OUR KNOWLEDGEABLE SALES FOR PRODUCT AND PRICING UPDATES!		
PRINTERS		
COMREX (Div. of Epson)		
Comriter CR-II Par (LQ, 20 CPS, 3K Buffer)	$599	$429
Comriter CR-II Serial	629	449
Keyboard	199	169
Tractor	120	99
EPSON		
All LATEST Printer Models		CALL
OKIDATA		
All LATEST Printer Models		CALL
SILVER REED		
EXP-400 LQ 13 CPS	399	289
EXP-500 LQ 16 CPS	549	359
EXP-550 LQ 19 CPS	649	429
STAR MICRONICS		
All LATEST Printer Models		CALL
TOSHIBA		
P1340 (Specify Par or Ser)	995	739
P1351 Parallel	1895	1299
MONITORS		
AMDEK		
V300 Green (12" Hi Res)	179	139
V300A Amber (12" Hi Res)	199	149
Color 300 (13" lo Res Comp	399	269
COMREX (DIV. OF EPSON)		
CR-5650 A 12" Amber	139	109
CR-5650 G 12" Green	139	109
TAXAN		
12" Hi Res Amber	180	139
12" Hi Res Green	170	129
MODEMS		
HAYES		
Smartmodem 300	289	199
Smartmodem 1200	699	399
Micromodem //e with Smartcomm I	329	229
NOVATION		
J-CAT	149	99
Apple CAT II	319	199
212 Apple CAT Upgrade	389	219
212 Apple CAT System	599	375
PROMETHEUS		
Promodem 1200 Stand-alone(RS232)	495	349
Promodem 1200A w/Software	449	339
ZOOM TELEPHONICS		
Zoomy modem //e	179	139
DISKETTES		
BASF		
SS DD 5¼" Box of 10	35.00	19
SS DD 3½" Box of 5	29.95	22.95
MAXELL		
SS DD 5¼" Box of 10	38.70	19
VERBATIM		
SS DD 5¼" Box of 10	49	19.95
SS DD 3½" Box of 10	69.95	39.95
Disk Drive Analyzer (Specify Apple)	39.95	29.95
Disk Drive Head Cleaning Kit	10.95	8.95
SOFTWARE PLEASE CALL!		

Please call or write for FREE CATALOG with current LOW LOW PRICING!
312-355-9726
If you don't see what you need, call us... we probably have it.

We accept check, money order, **VISA, Mastercard,** or **American Express** (include # and expiration date). Our prices reflect a 2% cash discount. Please add 2% for credit card purchase. $2.50 shipping & handling in continental U.S. (Alaska, Hawaii and foreign add $5.00 for orders under $100, 5% for orders over $100). Illinois residents add 6.25% sales tax. Personal and company checks allow 2 weeks to clear. **Purchase orders accepted from schools and major corporations.** Prices subject to change without notice. **Dealer inquiries invited.** If in the Chicago area, we invite you to visit our retail showroom, located at 24 W 500 Maple Ave., Naperville.

MICRO CITY P.O. Box 571 Downers Grove, IL 60515

CIRCLE 115 ON READER SERVICE CARD

VITAL STATISTICS ABOUT 13 DATABASE PROGRAMS

	DBMaster	FileVision	1st Base	Helix	I Know...	MacLion	Main St. Filer	MegaFiler	Microsoft File	Omnis 2	Omnis 3	OverVUE	PFS:file
Relational	NO	NO	YES	YES	NO	YES	NO	NO	NO	NO	YES	NO	NO
Records per file	🖫🖫🖫	999	🖫	🖫	🖫	🖫	65,000	10,000	🖫	🖫	🖫	RAM	2900
Fields per record	100	30	100	🖫	10*	25	36	60	1023	120	1440	64	3100
Characters per field	3000	2000	50	🖫	420*	255	40	25*	32,767	60	60	62	2300*
Sort levels	10	1	10	∞	1	∞	8	1	∞	9	9	∞	1
No. of files open	1	1	1	🖫	5	10	1	3	1	1	12	1	1

ADDITIONAL FEATURES

		DB Master	FileVision	1st Base	Helix	I Know...	MacLion	Main Street Filer	MegaFiler	Microsoft File	Omnis 2	Omnis 3	OverVUE	PFS:file
Record Design	Undefined field size		✓		✓					✓				
	Add fields	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
	Change field size	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Change field label		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
	Independent labels	✓	✓		✓	✓			✓	✓	✓	✓		
	Numeric formats	◔	○	◑	●	○	◑	○	○	●	◔	●	◑	○
	Text formats	○	○	○	◕	○	○	○	◑	●	◔	◕	◔	○
	Design freedom	○	●	◔	●	◕	○	○	◕	●	◔	◕	○	◔
Field Types	Text	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Numeric	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
	Date	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	
	Picture		✓		✓					✓				
	Unique (key)	✓	✓		✓		✓				✓	✓		
	Calculated	✓			✓		✓			✓	✓	✓	✓	
Entry/Manipulation	Field replication			✓						✓	✓	✓	✓	
	Default fields	✓						✓			✓	✓	✓	
	Sort without key	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
	Index fields	✓	✓		✓		✓			✓	✓	✓		
	Reverse sort	✓		✓	✓		✓			✓	✓	✓	✓	
	Select option	✓	✓	✓	✓		✓	✓		✓			✓	✓
	Search criteria	●	●	◕	●	◕	◕	◕	◑	●	●	●	●	◕
Reports	Functions	◑	◑	◕	◕	○	◑	◔	◔	●	●	●	●	◕
	Format	◑	◕	◔	●	○	◑	◑	◑	●	◑	●	◔	◑
	Summaries				✓					✓			✓	
Other	List option	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	
	Hidden fields							✓		✓	✓	✓		
	Works on Network										✓	✓		
	Uses passwords										✓	✓		
	Mailing labels	○	◕	○	◕	◑	○	◑	◕	◕	◕	◕	◑	◕

KEY:

*Figure given is probable or average maximum, based on total characters allowed per record, or total of fields and labels allowed per record.

∞ = unlimited

🖫 = limited by disk space

🖫🖫🖫 = can span 44 disks

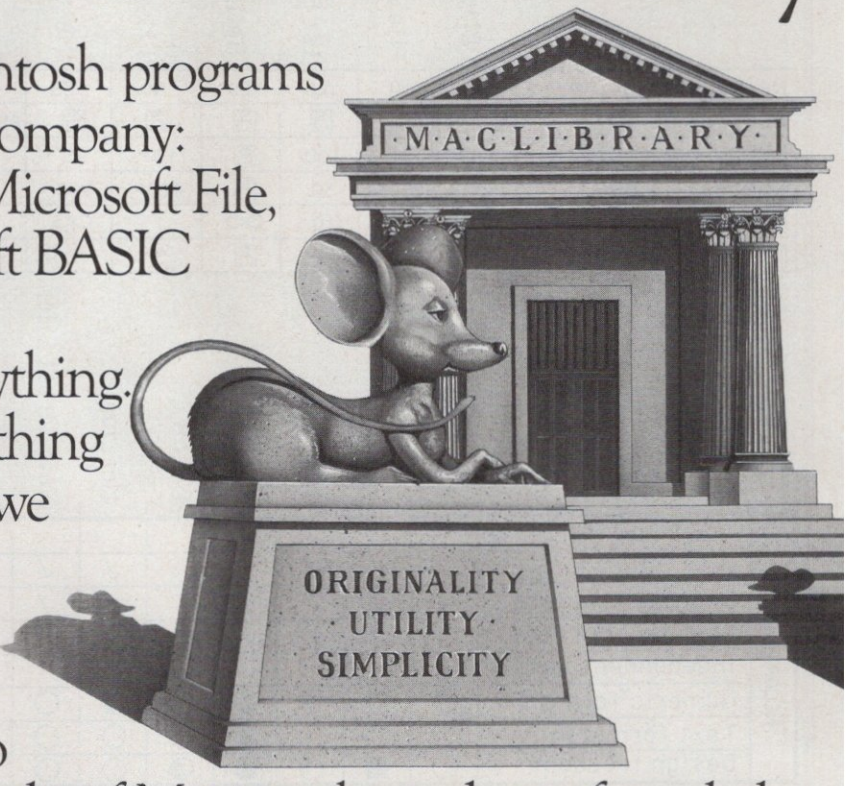
RAM = limited by available memory

✓ = feature available

blank = not available, or not applicable

○ none
◔ poor
◑ average
◕ good
● excellent

The first library



We've written more Macintosh programs than any other software company:

Microsoft® Multiplan,® Microsoft File, Microsoft Word, Microsoft BASIC and Microsoft Chart.

But we can't write everything.

So when we find something really excellent out there, we publish it.

Every program has to sweat out an interview.

Because we've begun to build up an impressive body of Macintosh work, we founded Microsoft MacLibrary™ programs to house them.

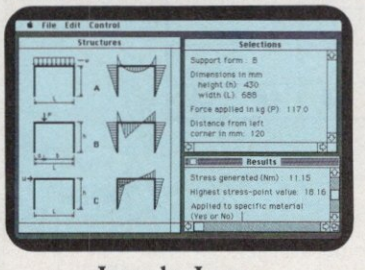
Programs for business, for learning, for fun.

And these disks can't just roll in off the street. Each program has been exhaustively reviewed, previewed, and scrutinized.

We look for highly original, highly useful programs that are easy to learn and use.

Our first releases.

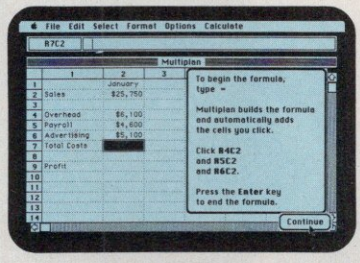
The renowned programming language, Logo, has now come to Macintosh. A mainstay of university curriculums, Logo teaches programming concepts, techniques, and problem solving strategies. And it makes it all fun to boot. Intriguing enough to challenge even an advanced programmer —or motivate a child—this is Logo's latest

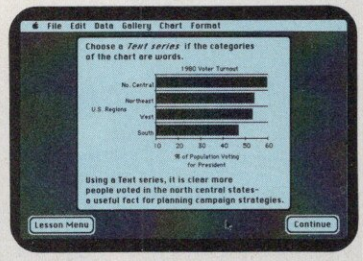


Logo by Logo Computer Systems Inc.

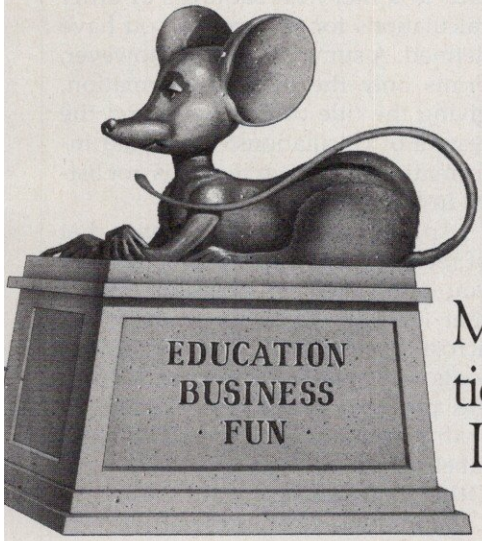
dedicated to Macintosh.™

generation. And it takes full advantage of all of Mac's easy to use features.





Learning Microsoft Multiplan®
and Microsoft Chart by Micro Courseware Corp.



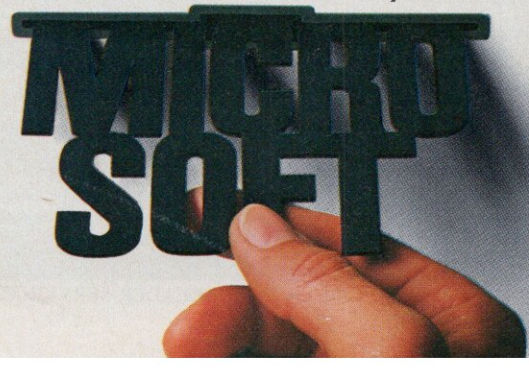
Learning Microsoft Multiplan and Microsoft Chart is a superb interactive instructional program by Micro Courseware Corp. It walks you through the basics and into the intricacies of these sophisticated business tools. Teach yourself quickly and simply how to produce presentation quality graphics. As well as what-if projections, portfolio managers, and financial models.

MICROSOFT®
The High Performance Software™

Finally, there's Entrepreneur™ by Harvard Associates. You're in the software business, competing against one to eight other capitalists of either the human or computer persuasion. With 36 months to boom or bust, prosper or squeak through.

Check out a few programs.

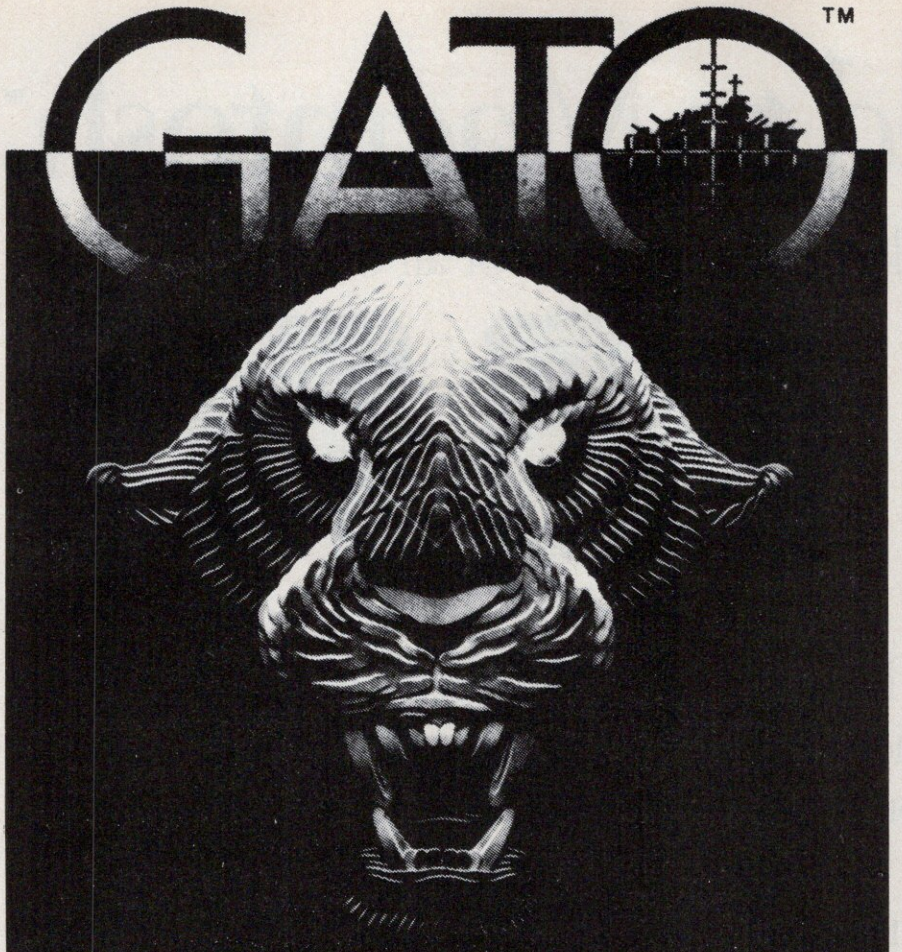
For a list of your nearest dealer stocking MacLibrary software, just call (800) 426-9400. Or in Washington State, Alaska, Hawaii and Canada, call (206) 828-8088. We think you'll be impressed. Because making it into MacLibrary speaks volumes.



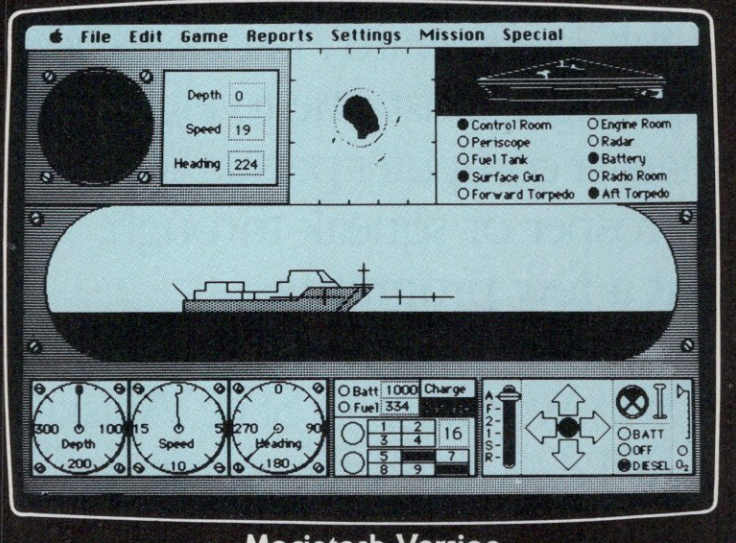
Microsoft and Multiplan are registered trademarks and MacLibrary and The High Performance Software are trademarks of Microsoft Corporation. Macintosh is a trademark licensed to Apple Computer, Inc. Entrepreneur is a trademark of Harvard Associates.

CIRCLE 319 ON READER SERVICE CARD

GATO™



WW II GATO-Class Submarine Simulation
3-D Graphics with Sound



Macintosh Version
Also Available for Apple® IIe/c or
IBM® PC Series (includes PCjr.)
Minimum 128K

SPECTRUM HOLOBYTE, INC., 1050 Walnut, Suite 325, Boulder, CO 80302 (303) 443-0191. Check your local computer store or wherever software products are sold. Dealer Inquiries call: (800) 621-8385 x 262. Written by Paul Arlton and Ed Dawson. IBM and Apple are registered trademarks of International Business Machines Corp. and Apple Computer, Inc. respectively.

CIRCLE 233 ON READER SERVICE CARD

counting the items entered, finding the minimum or maximum figures in the column, and even calculating standard deviation.

Almost as important as *what* can be printed in a report is *how* it can be printed. Can you print in different fonts, use boldface, define headers and footers? Can you print field labels? Can you number pages and have a new page start as each new category is printed?

A regular report lists all the records in a file, with subtotals or other calculations for the groups you have defined. A summary report, however, prints only the overall information, giving the title of the group and the results of calculations; the actual information from each record is not listed in the report.

An additional consideration is that of mailing labels. Some programs let you print mailing labels on sheets that contain three or four labels across, and some let you use various fonts and styles in the output. No single program gives great variety in both placement and style of mailing-label output, though.

Other Features

Four minor features that may be important to advanced users are a List option, hidden fields, password protection, and file locking.

Viewing one record at a time and clicking on the Next and Previous buttons to move around in the file can be tiresome. Listing records on the screen makes scanning and data entry easier. (Some programs allow you to list only by designing a report, which you can then view.)

Most programs let you print only chosen fields in a report, and in many programs, some fields do not show on the screen because the record design is larger than one screen size. A true hidden field, however, is one that you can prevent from showing on the screen, which keeps the screen from being unnecessarily cluttered and speeds up your data entry and record reading.

An important consideration for business databases is password protection—can you prevent data in certain fields from being altered, and even being seen, without proper au-

How to Keep Your Macintosh™ from Frying to a Crisp

Protecting Your Hardware From The 6,000 Volt Destroyer

Over 50% of all hardware and software complaints received by manufacturers have nothing at all to do with product quality. To the contrary, most damage reported is caused by surges in household or business current.

These surges continually degrade sensitive microcircuitry resulting in lost data and, even worse, computer repairs that are often mistakenly blamed on original equipment failure.

30,000 Volts At The Tip Of Your Finger

Another common danger to the computer, its peripherals and software, is static electricity. Few people realize that their bodies can carry as much as 30,000 volts of static.

The discharge of static electricity through the operator's fingertips can pose just as great a threat to your system as power line surges.

The Faulty Ground

In addition to operator safety, a properly grounded computer is better able to drain off charges that would otherwise create dangerous voltage levels between the computer's chassis and microcircuitry. Again, the operator is typically not aware of whether the outlet is properly grounded and therefore risks both the operator's safety and hardware damage.

RFI Can Play Havoc With Your Image

While RFI (Radio Frequency Interference) is not a source of damage to computer or operator, it can play havoc with the monitor image and to software. RFI is caused by nearby radio stations, the operator's own radio or television, as well as other electrical devices. RFI shows up on the monitor as a scrambled image and may also appear as data that has been garbled while in memory. If for no other reason, the computer operator should guard against RFI simply because its effect can nullify the time saving benefits provided by the computer.

MacGard looks and works equally well with the APPLE II, APPLE II+, APPLE IIe, APPLE III, and the APPLE LISA.

MacGard: Real Protection For The Serious User

MacGard from Systems Control is the single most complete computer protection device available today. From its inception, MacGard was designed with Macintosh in mind. From its quality injection molded plastic casing which compliments your Macintosh's appearance, its at your fingertips convenient placement on the side of your unit, and its combination of superior protection features, the MacGard is the ultimate system accessory for your Macintosh.

MacGard provides the serious user with a complete series of protection benefits.

- It clamps off all line to line and line to ground surges *before* they can enter your system.
- It provides an anti-static pad you need only touch to safely drain off harmful static.
- It provides an LED light to indicate proper ground of your electrical outlet.
- It provides RFI attenuation to assure a clean monitor image and software safety.
- A master on-off switch provides convenient control to power up your computer and two other peripherals.
- MacGard has a one year limited warranty.
- If you're not satisfied within 30 days, return MacGard for a full refund.

If you're a serious user, you owe it to yourself to own a MacGard. Your MacGard can only be purchased directly from Systems Control. Cost of the MacGard is $89.95 plus $3.50 for shipping and handling. To order or request more information, call toll free, 1-800-558-2001 Ext. 115, in Wisconsin, 1-800-242-3102 Ext. 115. We accept both Visa and MasterCard. No. C.O.D.

Systems Control P.O. Box 788 M Iron Mountain, MI 49801

MacGard™

A product of Systems Control. A division of M.J. Electric, Inc. Macintosh is a trademark licensed to Apple Computer, Inc.

MacGard is designed to surpass operating requirements for category A as outlined in IEEE Standard 587-1980, "Guide for Surge Voltages in Low-Voltage AC Power Circuits."

CIRCLE 267 ON READER SERVICE CARD

REPORT CARD

	DB Master	FileVision	1st Base	Helix	I Know...	MacLion	Main St. Filer	MegaFiler	Microsoft File	Omnis 2	Omnis 3	OverVUE	PFS:file
Power	●	◑	●	⊕	◔	●	◑	◑	●	●	⊕	●	◔
Performance	◕	⊕	●	●	⊕	●	◕	◕	⊕	◕	⊕	●	●
Ease of learning	◕	◑	●	◑	⊕	◔	◕	●	◕	◕	◑	●	⊕
Ease of use	◑	◕	●	●	●	◕	◑	●	●	◕	●	●	●
Integration level	◔	◑	◕	●	◕	◕	◔	◕	⊕	◑	◕	●	◕
Reports	◑	◕	◔	◕	◑	◔	◕	◕	⊕	◑	●	◑	◔
Data transfer	○	○	◑	◑	○	◑	○	◕	●	◑	⊕	◑	◑
Use of Mac interface	◔	⊕	◕	⊕	◕	◔	◑	◕	⊕	◑	●	◑	◔
Documentation	◔	●	●	●	●	◑	○	●	◕	◕	◕	⊕	●

Key: ○ awful ◔ poor ◑ average ◕ good ● excellent ⊕ outstanding

Figure 3: Report Card rates each of the 13 database programs in general categories.

thorization? Sometimes different levels of protection are available for certain fields, records, or entire files.

Within a networking system, if more than one person at a time tries to access the database, a file can be ruined. A file-locking feature prevents such accidents by limiting access to one user at a time.

If you find it a little mind-boggling trying to consider all of the features and cross-comparisons, take a look at the report card (see figure 3). I have rated each of the 13 programs in general categories, focusing on the following qualities:

Power. How many fields and records can the program handle? Is it relational? Is it flexible enough to meet diverse needs?

Performance. How well does it do what it is supposed to do?

Ease of Learning. How long does it take to learn the basics of creating and handling a file—and how much effort does it require?

Ease of Use. Is it easy to enter data and scan records? Is it easy to get from one record to another? Are there keyboard options for menu selections? Are there ways to enter multiple commands without pulling down the menu repeatedly?

Integration Level. Can you go directly from designing a record form to entering data? Do you have to switch to a separate mode to add, edit, or delete records?

Reports. Can you print in draft/standard/high-quality modes? Can you use different fonts and styles? Can you easily print out different types of "pages"—mailing labels, index cards, lists, reports, envelopes?

Data Transfer. Are the files readable from any other application? Do they link with MacWrite or with another program by the same manufacturer? Can you save them as text files that another program or computer can read?

Mac Interface. How does everything look; how does it work? Are the mouse and menus well integrated into the program environment? Does the program utilize the Mac's graphics capabilities?

Documentation. Is it printed on good paper in a clear typeface, with a decent index and reference section? Is it written in English, technobabble, or Greek?

Charts twice the size of the ones presented here couldn't tell you everything you need to know to make a final decision about a database purchase. You should check other issues of *A+* for in-depth reviews of many Macintosh databases; in the meantime, these additional comments may help:

DBMaster can handle phenomenally large fields that can span 44 disks. You can use fonts and styles on-screen, but not in printouts.

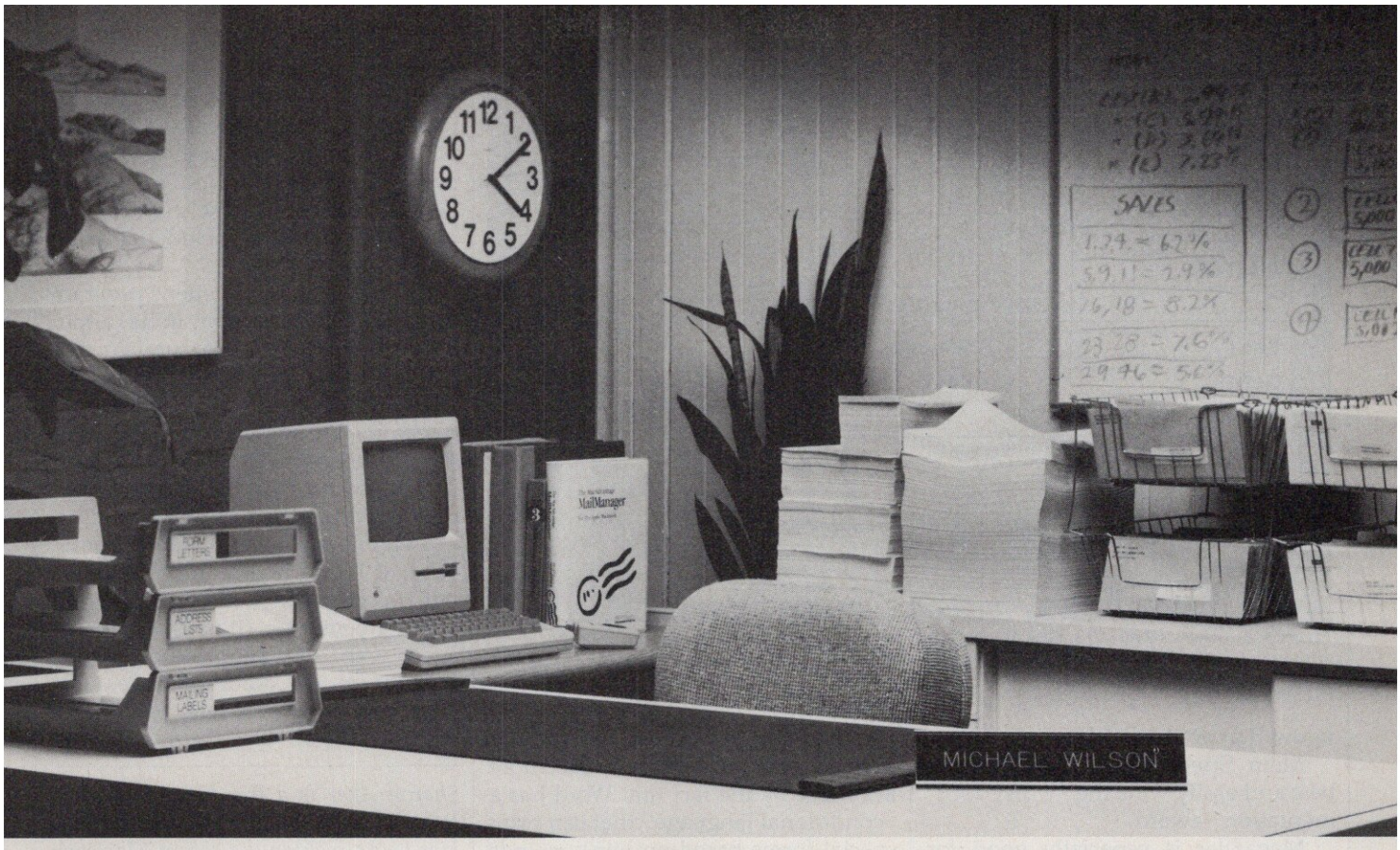
Filevision is a graphics-database program. You can store and retrieve information through pictures that have an underlying database of text information about the objects in a picture.

1st Base is a powerful, well-designed program that is seriously hampered by its draft-quality-only printing and lack of communication with other software packages.

Helix uses the Macintosh interface of icons and windows to the maximum, providing users with a powerful relational database that they can easily control by diagramatically manipulating complex arrangements of data.

I Know It's Here Somewhere is an absolutely perfect little program (see figure 4, next page). It is small, though, and so is suited for use in a home rather than in a business—even a small business.

Computer Software Design's MacLion should probably get an "outstanding" rating for power, because a lot of power is buried in there—somewhere. MacLion comes with a complete programming language to let you manipulate records to your heart's content, but you will hardly



We wanted Michael Wilson to tell you how much time he saves with MailManager.

But he went home early.

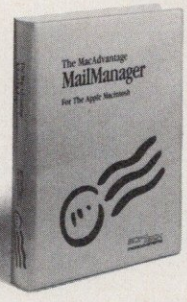
MailManager was designed to speed things up for anyone who generates lots of labels, lists and letters. That's why Mike's out the door early so often.

MailManager teams up with MacWrite or Microsoft Word to turn your 128K or 512K Mac into a powerful database manager and form letter generator.

If you use a Macintosh, you already know how to use MailManager. Only MailManager does all this—and does it very fast—for just $119:

Prints without pausing after each record (that's what slows down other merge/sort programs) • Re-formats form letters automatically when merging information from your database • Integrates MacPaint artwork into form letters • Lets you define up to 72 criteria per database • Immediately retrieves records you need based on any or all of these 72 criteria at the click of Mac's mouse • Manages as many records as you can store on a 3.5-inch or hard disk • Needs no special printer interfaces to produce letter-quality or dot matrix hard copy.

Ready to spend less time managing your data? Call toll-free. And let us bring you up to speed. Call Customer Sales toll-free for the location of your nearest MailManager dealer: 800-451-8080 In California, 800-824-7867



SOFTECH MICROSYSTEMS

16875 West Bernardo Drive, San Diego, California 92127
(619) 451-1230

MailManager is another product in The MacAdvantage family of sensibly priced Apple Macintosh software from SofTech Microsystems, Inc.

MailManager™ and The MacAdvantage™ are trademarks of SofTech Microsystems, Inc.
Microsoft Word™ is a trademark of Microsoft Corp.
Macintosh™ is a trademark licensed to Apple Computer, Inc.
Apple,™ MacWrite™ and MacPaint™ are trademarks of Apple Computer, Inc.

CIRCLE 177 ON READER SERVICE CARD

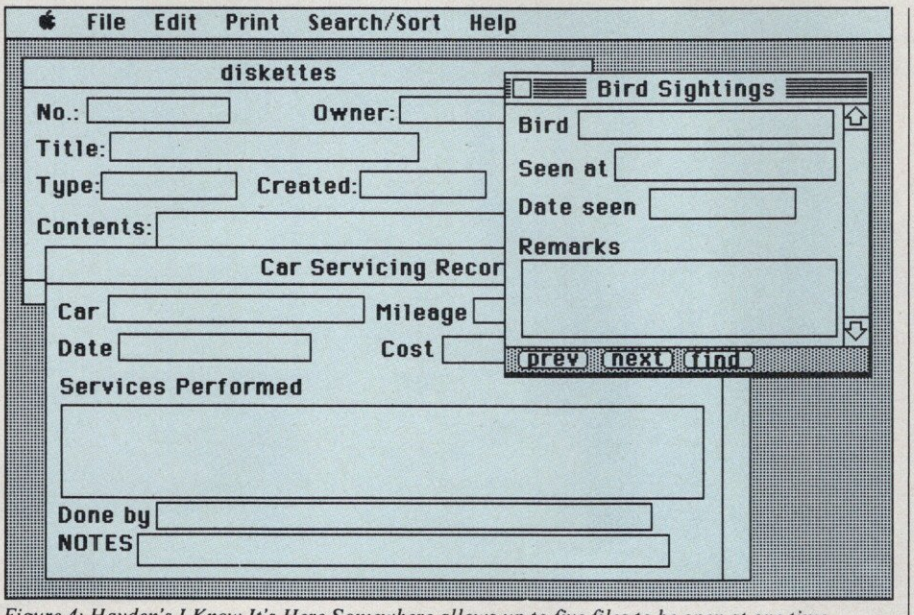


Figure 4: Hayden's I Know It's Here Somewhere allows up to five files to be open at one time. Although it is not a powerful program, its ease of use and perfect performance make it just right for small, personal file needs.

know that you're working on a Mac.

Main Street Filer is mediocre at best and easily wins the "worst documentation" award.

MegaFiler is especially good for mailing labels, and it has the advantage of being compatible with other Mac applications from Megahaus.

Microsoft File is an all-around winner. The program is made more attractive by the fact that Word has a "conditional language" that can print special forms based on File's records (see figure 2).

Omnis 2 doesn't offer much in the way of output quality or variety, and it certainly doesn't look as if it were made for the Macintosh. It is upwardly compatible with the relational Omnis 3, however. Although it was not available for review, Omnis 3 should be available by the time this article is published, so I have included it in the charts.

OverVUE is an excellent program that needs improvement in its output options (see figure 1). An update, due out about the same time as this article, will offer a number of new features, including relational capabilities, keyboard macros (a way to chain often-used commands together), and charting and graphing abilities.

PFS:File is plain and not very powerful. It works easily and smoothly, but you might as well be working on another computer. (It is usually packaged with PFS:Report—the report features in the Additional Features chart (see page 111) refer to PFS:Report's abilities). ✚

Sharon Aker is a free-lance journalist specializing in Macintosh applications. Her books include the recent MacPack *from Ashton-Tate and the forthcoming* Microsoft BASIC on the Mac *from Scott, Foresman.*

The Prodigy Comes Of Age!

ExperTelligence™
559 San Ysidro Rd.
Santa Barbara, CA 93108
(805) 969-7874

Macintosh is a trademark licensed to Apple Computer, Inc.

ExperLogo *for the Macintosh*™ is a powerful extension of the Logo computer language. ExperLogo excels as the patient tutor for those being introduced to computers for the first time, while at the same time it serves as a powerful development tool for the skilled programmer.

ExperLogo's innovative features include:

- *2-D, 3-D and Spherical Graphics*
- *Compiled Speed*
- *Powerful Data File Input/Output Capability*
- *Ability to Process Data Using Arrays*
- *Expanded Set of List Processing Primitives*
- *Friendly Mac-like User Interface*
- *Easy Access to the Macintosh Toolbox*

Speed, combined with other advanced features that eliminate memory constraints and provide for sophisticated data file manipulation, are some of the reasons ExperLogo is now ready to assume the additional role as a serious program development language.

ExperLogo embodies power and versatility while retaining Logo's original virtues of being easy and fun to use. ExperLogo is available at your local computer dealer. Ask for a demonstration and see for yourself the amazing speed and capabilities.

Have an ExperLogo experience!

CIRCLE 278 ON READER SERVICE CARD

PRODUCT INFORMATION

DB Master
Stoneware, Inc.
50 Belvedere Street
San Rafael, CA 94901
(415) 454-6500
List Price: $195
CIRCLE 358 ON READER SERVICE CARD

Filevision
Telos Software Products
3420 Ocean Park Blvd.
Santa Monica, CA 90405
(800) 554-2469
(800) 368-3813 in CA
List Price: $195
CIRCLE 397 ON READER SERVICE CARD

1st Base
DeskTop Software Corporation
228 Alexander Street
Princeton, NJ 08540
(609) 924-7111
List Price: $195
CIRCLE 359 ON READER SERVICE CARD

Helix
Odesta
3186 Doolittle Drive
Northbrook, IL 60062
(800) 323-5423
(312) 498-5615 in IL
List Price: $395
CIRCLE 398 ON READER SERVICE CARD

I Know It's Here Somewhere
Hayden Software
600 Suffolk Street
Lowell, MA 01854
(800) 343-1218
List Price: $59.95
CIRCLE 360 ON READER SERVICE CARD

Main Street Filer
Main Street Software
1 Harbor Drive
Sausalito, CA 94965
(800) 824-8757
List Price: $199
CIRCLE 362 ON READER SERVICE CARD

Microsoft File
Microsoft Corporation
10700 Northup Way
Box 97200
Bellevue, WA 98009
(206) 828-8080
List Price: $195
CIRCLE 364 ON READER SERVICE CARD

Omnis 2 and Omnis 3
Organizational Software Corp.
2655 Campus Drive, Suite 150
San Mateo, CA 94403
(415) 571-0222
List Price: Omnis 2, $275; Omnis 3, $375
CIRCLE 365 ON READER SERVICE CARD

MacLion
Computer Software Design
1911 Wright Circle
Anaheim, CA 92806
(714) 634-9012
List Price: $379
CIRCLE 361 ON READER SERVICE CARD

MegaFiler
Megahaus Corporation
5703 Oberlin Drive
San Diego, CA 92121
(619) 450-1230
List Price: $195
CIRCLE 363 ON READER SERVICE CARD

OverVUE
ProVUE Development Corp.
222–22nd Street
Huntington Beach, CA 92648
(714) 969-2431
List Price: $295
CIRCLE 366 ON READER SERVICE CARD

PFS:File and PFS:Report
Software Publishing Corporation
1901 Landings Drive
Mountain View, CA 94043
List Price: $125 each, $195 for both
CIRCLE 367 ON READER SERVICE CARD

Your Macintosh is not *just* a computer. It's a part of your business and a part of your life. It's just like family, and it deserves the *best* of care. So put on a ***'COVER UP'*** and see how great your Mac will look while being protected from dust and spilled liquids. ***'COVER UPs'*** are custom designed to fit like a glove, and yet allow very easy access to your Mac. With our ***'COVER UPs'***, you can arrange your hardware any way you like. An individual ***'COVER UP'*** is available for each component in your system. So after a long day with Mac, you won't have to rearrange your hardware when you shut down. Just ***'COVER UP'***. *Save time, and save your Mac,* in one of seven beautiful colors, from tan to blue to bone (same as the color of the Macintosh).

Set #	Contents	Sug. Retail*
MACINTOSH SETS		
#M1	Macintosh, KYBD, Mouse, Imagewriter	$29.95
#M2	Macintosh, KYBD, Mouse, Imagewriter, and Ext. Disk Drive	$31.95
#M4	Macintosh, KYBD, Mouse, Imagewriter, Ext. Disk Drive, and Numeric Ten Key	$32.95
MACINTOSH XL SETS		
#L1	Macintosh XL with Profile Piggyback	$25.95
#L2	Macintosh XL 2/5, 2/10	$23.95

Set #	Contents	Sug. Retail*
APPLE IIc SETS		
#C1	Apple IIc KYBD and Monitor	$18.95
#C2	Apple IIc KYBD, Monitor, and Ext. Disk Drive	$24.95
APPLE IIe SET		
#E1	Apple IIe KYBD, Monitor, and Ext. Disk Drive	$25.95
#E2	Pro Model with Duodisk	$25.95

***Shipping and Handling UPS ground add $3.00**
***Shipping and Handling UPS 2nd day air add $4.00**
*We accept Visa and MasterCard

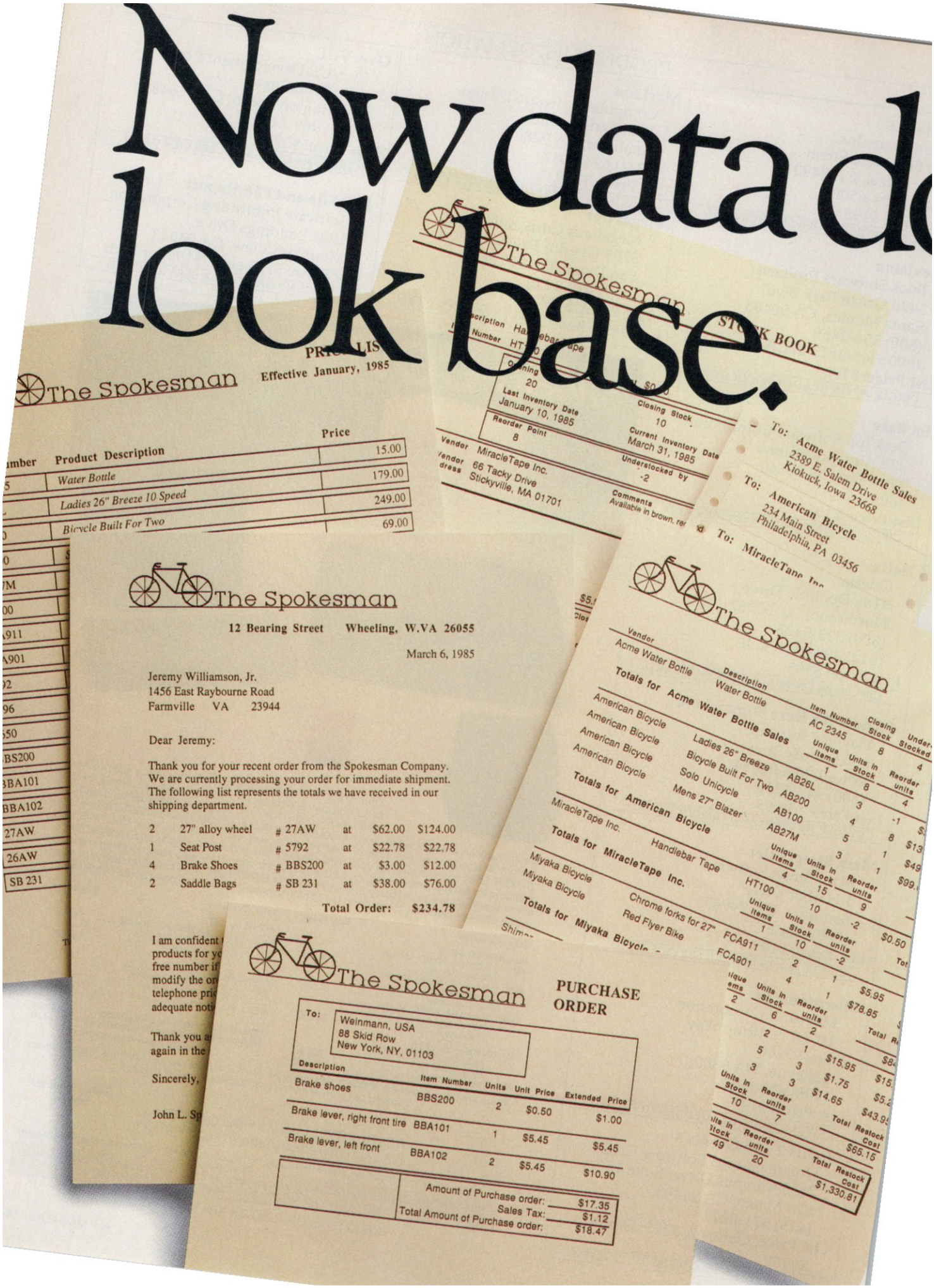
These are just a few of the ***'COVER UPs'*** available. For a complete product list circle reader number below, or call in order and receive special A+ readers discount.

Computer Cover Co.
P.O. Box 3080, Laguna Hills, CA 92654
CA (714) 380-0085 Others (800) 235-5330
Dealer Inquiries Invited

Macintosh, Apple IIe, IIc, Mac XL are all registered trademarks of Apple computer.

NEW PRODUCT Now you can take it with you, your diskettes that is. New 'SOFT PAK' makes it possible. Attractive pocket size (3½") diskette carriers. Two sizes available now. 4 or 6 Pak.

CIRCLE 163 ON READER SERVICE CARD


Now data do
look base.
The Spokesman
Effective January, 1985
Price
Water Bottle 15.00
Ladies 26" Breeze 10 Speed 249.00
Bicycle Built For Two 69.00
The Spokesman
STOCK BOOK
Number HT100
Opening Stock 20
Last Inventory Date January 10, 1985
Closing Stock 10
Current Inventory Date March 31, 1985
Reorder Point 8
Understocked by -2
Vendor MiracleTape Inc.
66 Tacky Drive
Stickyville, MA 01701
Comments Available in brown, red
To: Acme Water Bottle Sales
2389 E. Salem Drive
Kiokuck, Iowa 23668
To: American Bicycle
234 Main Street
Philadelphia, PA 03456
The Spokesman
12 Bearing Street Wheeling, W.VA 26055
March 6, 1985
Jeremy Williamson, Jr.
1456 East Raybourne Road
Farmville VA 23944
Dear Jeremy:
Thank you for your recent order from the Spokesman Company. We are currently processing your order for immediate shipment. The following list represents the totals we have received in our shipping department.
2 27" alloy wheel # 27AW at $62.00 $124.00
1 Seat Post # 5792 at $22.78 $22.78
4 Brake Shoes # BBS200 at $3.00 $12.00
2 Saddle Bags # SB 231 at $38.00 $76.00
Total Order: $234.78
I am confident
products for yo
free number if
modify the or
telephone pric
adequate noti
Thank you a
again in the
Sincerely,
John L. Sp
The Spokesman
Vendor
Description
Item Number
Closing Stock
Under Stocked
Acme Water Bottle
Water Bottle
AC 2345
8
4
Totals for Acme Water Bottle Sales
Unique Items 1
Units in Stock 8
Reorder units 4
American Bicycle
Ladies 26" Breeze
AB26L
3
4
American Bicycle
Bicycle Built For Two
AB200
4
-1
American Bicycle
Solo Unicycle
AB100
5
8
American Bicycle
Mens 27" Blazer
AB27M
3
1
Totals for American Bicycle
Unique Items 4
Units in Stock 15
Reorder units 9
MiracleTape Inc.
Handlebar Tape
HT100
10
-2
Totals for MiracleTape Inc.
Unique Items 1
Units in Stock 10
Reorder units -2
Miyaka Bicycle
Chrome forks for 27"
FCA911
2
4
Miyaka Bicycle
Red Flyer Bike
FCA901
6
2
Totals for Miyaka Bicycle
Unique Items 2
Units in Stock 6
Reorder units 2
The Spokesman
PURCHASE ORDER
To: Weinmann, USA
88 Skid Row
New York, NY, 01103
Description
Item Number
Units
Unit Price
Extended Price
Brake shoes
BBS200
2
$0.50
$1.00
Brake lever, right front tire
BBA101
1
$5.45
$5.45
Brake lever, left front
BBA102
2
$5.45
$10.90
Amount of Purchase order: $17.35
Sales Tax: $1.12
Total Amount of Purchase order: $18.47

esn't have to

Introducing FileMaker.

Because just *having* information isn't enough. You have to be able to do whatever you want with it. Arrange it. Rearrange it. Massage it. Embellish it. Make it into something you can use. Easily.

FileMaker™ lets you not only store and organize your business information, but manipulate it in limitless ways, to create literally any kind of form or report you want.

First of all, FileMaker lets you change direction, any time, without redoing everything. It even lets you start out without a direction.

And in addition to doing all the meat-and-potatoes things a database is supposed to do—calculations, summary reports, sorting of all kinds—FileMaker does everything you bought your Macintosh™ for. Text editing. Graphics. Pull-down menus. Keyboard commands. Windows. Different fonts, styles and graphic design tools. Your information not only makes more sense, it makes an impression. Any kind you want.

With FileMaker, you can even design your own data entry forms, so you can put information *in* any way you want, without arbitrary limitations. And of course, it does all the tricky little things automatically... like indexing every word, number and date for speed searches.

Because you design your output right on the screen, you can see exactly what you (and your customers) are going to get. And you can create any number of forms for your information to take.

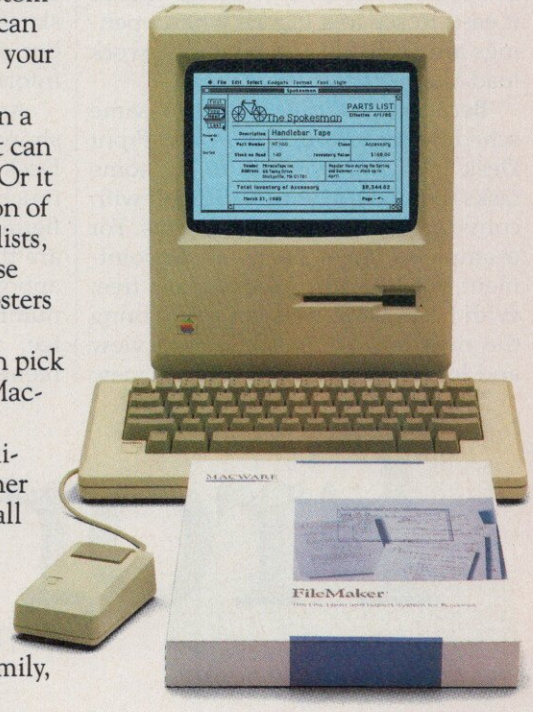
So what might have been a dreary order acknowledgement can now be a clear, friendly letter. Or it can be a meaningful comparison of inventory by vendor. Or parts lists, receiving verifications, purchase orders, labels, name badges, rosters and hit lists.

With FileMaker, you can pick up from other programs, like MacWrite,™ MacPaint,™ MicroSoft Plan,™ Jazz,™ and share the applications you've created with other members of your team. You get all the tools you need to easily consolidate group efforts into one database.

And FileMaker takes full advantage of the Macintosh family, including the Macintosh XL,™ Macintosh Office™ and LaserWriter.™

So for $195 (suggested retail), things could look considerably better for your entire division, department, professional practice, retail operation, club, organization, or principality.

Contact your Macintosh software dealer for a demonstration, or call 1 800 MACWARE to find out where you can get FileMaker in your area. From Forethought, Inc.



MACWARE™

© 1985 Forethought, Inc. FileMaker and MACWARE are trademarks of Forethought, Inc. MacWrite, MacPaint, Macintosh, Macintosh XL, Macintosh Office and LaserWriter are trademarks of Apple Computer, Inc. Microsoft Plan is a trademark of Microsoft Corporation. Jazz is a trademark of Lotus Development Corporation.

SOFTWARE/*BY W. CHARLES DOHERTY*

Front Desk

A perfect match for the Macintosh

A calendar and time-accounting package for the person who schedules appointments, coordinates personnel, and calculates billing

Front Desk, from Layered, Inc., is a new kind of office-management tool designed to track your most valuable commodity—people. Because it manages time and services for as many as 15 people, places, or things, it is ideal for anyone who schedules appointments or coordinates personnel.

Monthly Calendar

Front Desk's central feature is a full-screen monthly calendar that displays the current month, as set on the Macintosh's internal calendar (see figure 1). The current day is highlighted, and check marks indicate past days. By clicking on the months at the right of the screen, you can move forward or backward through the year to locate a specific date.

Clicking to the left of any week on Front Desk's monthly calendar changes the display to a graphic representation of that particular week (see figure 2). Each appointment scheduled during the week appears as a shaded block. This design makes it easy to see at a glance when openings are available and when the work load is at its heaviest.

Because you can view the same schedule in a variety of ways, Front Desk makes it possible to do some tasks that would be very difficult with conventional scheduling systems. For example, a client needs an appointment but has only Wednesdays free. With Front Desk, you can easily bring the next few Wednesdays into view and locate an opening. You can view a "month of Sundays," if need be!

KEVIN O'SHEA

One Day at a Time

Double-clicking on a particular day brings a schedule of that day into view, and you can see a day's worth of appointments in various ways. Since Front Desk manages time for several people, one option is to view the schedule for all staff members. This schedule shows the activities slated for each member of the team, but does not allow for very detailed information.

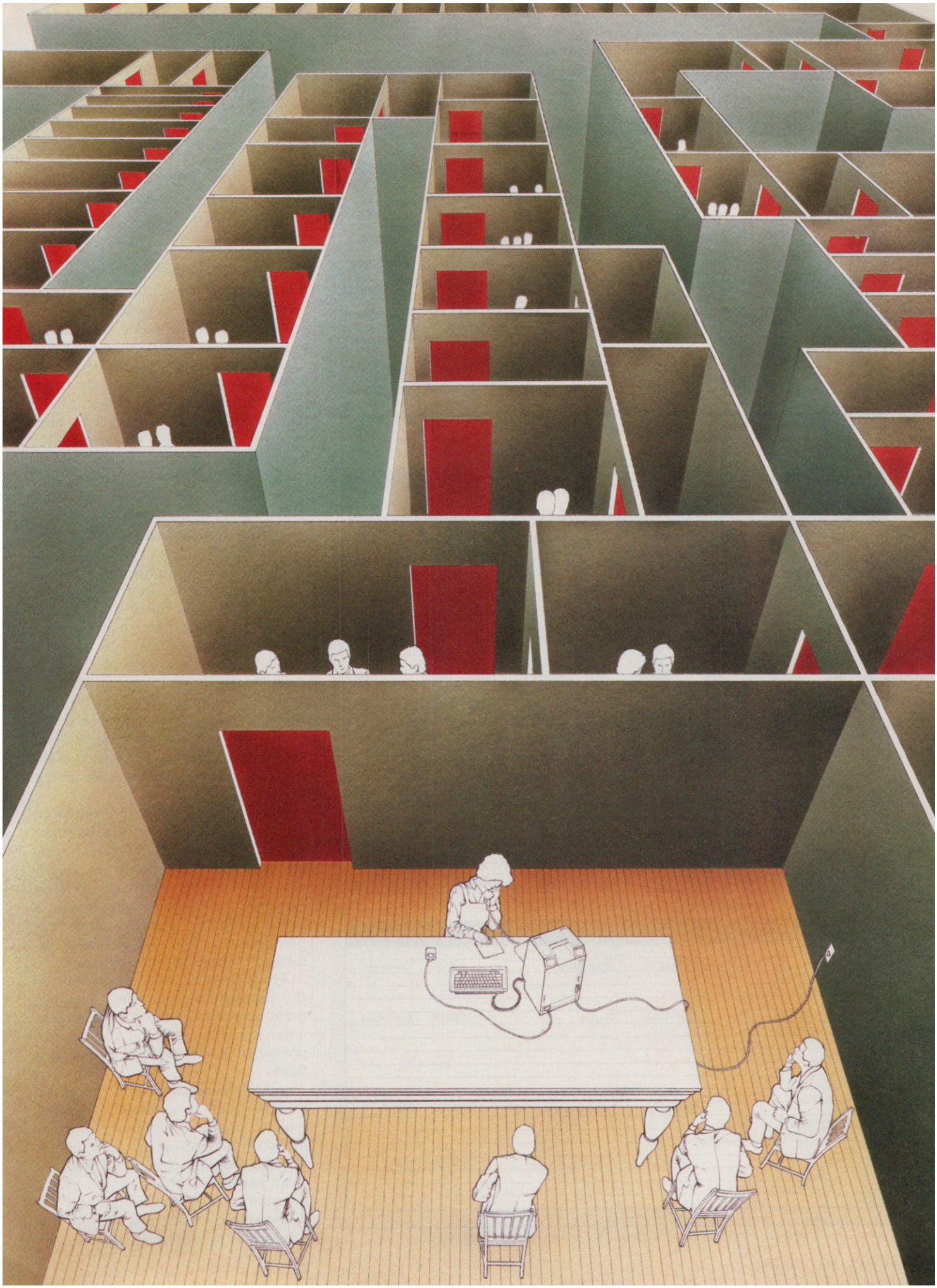
Arranging the display so that it shows only one "resource"—as Front Desk calls staff members—gives a much more informative picture (see figure 3). Here, on each single line, are the name of each person with an appointment, the person's telephone number, the type of appointment, the fee, and the status of the appointment. Scroll bars at the right of the screen move the listing to a later or earlier time in the day, and scroll bars at the bottom of the screen let you jump forward or backward one or more days at a time.

Appointment-Entry Form

If you need more detailed information, double-clicking on a time block brings an appointment-entry form into view (see figure 4). The form shows a detailed breakdown of an appointment and includes starting and ending time, expected revenue, and even a section for comments and notes.

You use this same form to enter new appointments. Simply double-click on an empty time slot, and a blank form appears. Fill in the required information, and Front Desk automatically reserves the time and calculates expected revenue based on the services to be performed. Enter appointments that are longer than standard length by selecting several adjacent time slots at the same time.

A Service menu holds a choice of professional services that your company offers. In a law firm, this menu could include Consultation, Closing, Will Preparation, Incorporation, and other legal services. If you were using the program in a dental office, you would list Cleaning, X ray, Filling, and Extrac-



File Edit Actions Arranged By Service Status

March 1985

For All Attorneys © Layered, Inc. 1984

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Wk 1						✓ 1	✓ 2 Closed
Wk 2	✓ 3 Closed	✓ 4	✓ 5	✓ 6	✓ 7	✓ 8	✓ 9 Closed
Wk 3	✓ 10 Closed	✓ 11	12	13	14	15	16 Closed
Wk 4	17 Closed	18	19	20	21	22	23 Closed
Wk 5	Cl 24 Cl 31	25	26	27	28	29	30 Closed

JAN 86 FEB 85 MAR 85 APR 85 MAY 85 JUN 85 JUL 85 AUG 85 SEP 85 OCT 85 NOV 85 DEC 85

Figure 1: Front Desk's full-screen monthly calendar

File Edit Actions Arranged By Service Status

June 1985

Time	Monday 6/3					Tuesday 6/4					Wednesday 6/5					Thursday 6/6					Friday 6/7				
	LB	EL	BS	RD	PC	LB	EL	BS	RD	PC	LB	EL	BS	RD	PC	LB	EL	BS	RD	PC	LB	EL	BS	RD	PC
800A	■		■	■				■						■		■		■			■		■		
830A	■		■	■		■		■	■	■	■	■		■		■		■			■	■			■
900A	■	■	■				■	■	■	■	■	■	■	■		■		■			■	■			■
930A	■	■	■		■		■		■		■		■	■			■	■			■			■	■
1000A	■			■	■	■	■		■		■		■	■		■	■				■		■	■	■
1030A	■			■			■		■		■		■	■		■	■				■		■		■
1100A	■			■	■			■				■	■			■	■				■		■		■
1130A	■		■	■	■	■		■		■	■		■			■	■	■			■		■		■
1200P		■	■	■	■	■	■		■		■			■				■			■	■			■
1230P		■	■	■	■		■	■		■	■		■		■		■	■				■			
100P	■		■	■	■			■		■	■		■		■	■	■	■			■				■
130P	■		■	■							■		■		■	■	■	■			■			■	
200P	■	■		■	■				■			■			■	■		■			■	■			■
230P	■	■		■	■				■		■	■			■	■		■			■	■	■	■	■
300P	■	■		■	■				■		■	■		■				■			■	■			
330P	■	■	■	■	■		■		■		■					■	■	■			■	■		■	
400P	■	■				■	■				■	■				■	■	■			■	■		■	
430P	■				■	■					■	■				■	■	■				■			
500P	■					■						■						■							
530P		■																■							

Figure 2: A display of a week's appointments for five staff members

File Edit Actions Arranged By Service Status

Eric Levine

Wednesday, June 5th 1985

Time	Name	Telephone	Service	Amount	Status
800A					
830A	Kawasaki, Guy	353-2098	Consultation	100.00	Confirmed
900A	-Continued				
930A					
1000A					
1030A	Oguejiofor, Ed	984-4500	Closing	250.00	Confirmed
1100A	-Continued				
1130A					
1200P					
1230P					
100P					
130P					
200P	Ed	234-0655	Estate Planning	150.00	Call
230P	-Continued				
300P	-Continued				
330P					
400P	SVB	234-0655	Consultation	150.00	Call
430P	-Continued				
500P	-Continued				
530P					

Figure 3: Front Desk can also show the appointments for one day, for each staff member.

tion in the Service menu.

Simply select the service while the Appointment-Entry form is on the screen, and it is entered into the form automatically. Adding or removing a menu item is an easy task and can be done anytime.

Each service on the menu carries with it a billing status as well. If the service is billed on an hourly basis, Front Desk calculates the charge automatically by multiplying the hourly rate by the length of the appointment. Flat-rate items are billed at one price, regardless of the appointment length. You can alter both hourly and flat-rate charges as necessary. A final option lets you assign nonbillable status to services you offer at no charge, such as initial consultations and sales calls.

Tracking Services and Revenues

Front Desk's design enables you to customize the program to your exact business schedule. In the Calendar Setup mode, you tailor the program by selecting your opening and closing hours, marking any days of the week you are closed, and selecting a standard length for each appointment.

True to its name, Front Desk works best at the front desk of a professional office. You can get information from the program quickly and easily, making it ideal to use while you're on the telephone.

A common problem in professional practices occurs when clients make appointments and then forget the day and/or time. A phone call to the office requires the secretary to look through the appointment book, a time-consuming activity, since appointment books are usually arranged by time and not by name.

Front Desk has an easy solution to this problem. Simply select Appointment Search from the Actions menu, enter the client's name, and the appointment is brought to screen in a flash.

All of the appointments in a given month reside in a historical record, which stores one to three prior months, depending on your needs. When a month is completed, the program purges the oldest month in this record to make room for the new addition. Front Desk pauses before this transaction takes place to let you back

Now Compatible with The Macintosh™ Office

THE MOST REVOLUTIONARY ATTACHMENT TO THE MACINTOSH™ SINCE THE MOUSE.

The Bernoulli Box™, the cartridge disk subsystem that revolutionized mass storage for the IBM PC, XT, AT, most compatibles, and the TI Professional, now proudly adds Apple's Macintosh to the list.

The Bernoulli Box and its 5-megabyte removable cartridges together deliver unparalleled data base dynamics. And that, more and more, is what your business needs today. Not centralized, monolithic banks of information, but data bases defined by job function and software application. Data bases that give people the versatility to work more productively.

But there is more. More performance and reliability. Transfer rates and access times faster than most Winchesters. No head crashes ever. And cost per megabyte that Winchesters cannot touch.

The Bernoulli Box's cartridge capacity, portability and absolute interchangeability give your business more options. You can easily build primary data bases. You can package individualized data bases, software and all—for payroll, accounting, marketing, computer graphics—in convenient, dedicated cartridges. And you can pack all of the data into a briefcase, an interoffice envelope, or even a file drawer.

The Bernoulli Box. When placed beside Apple's "computer for the rest of us," the best box you can buy. **For the dealer nearest you, call 1-800-556-1234, ext. 215. In California, call 1-800-441-2345 ext. 215.**

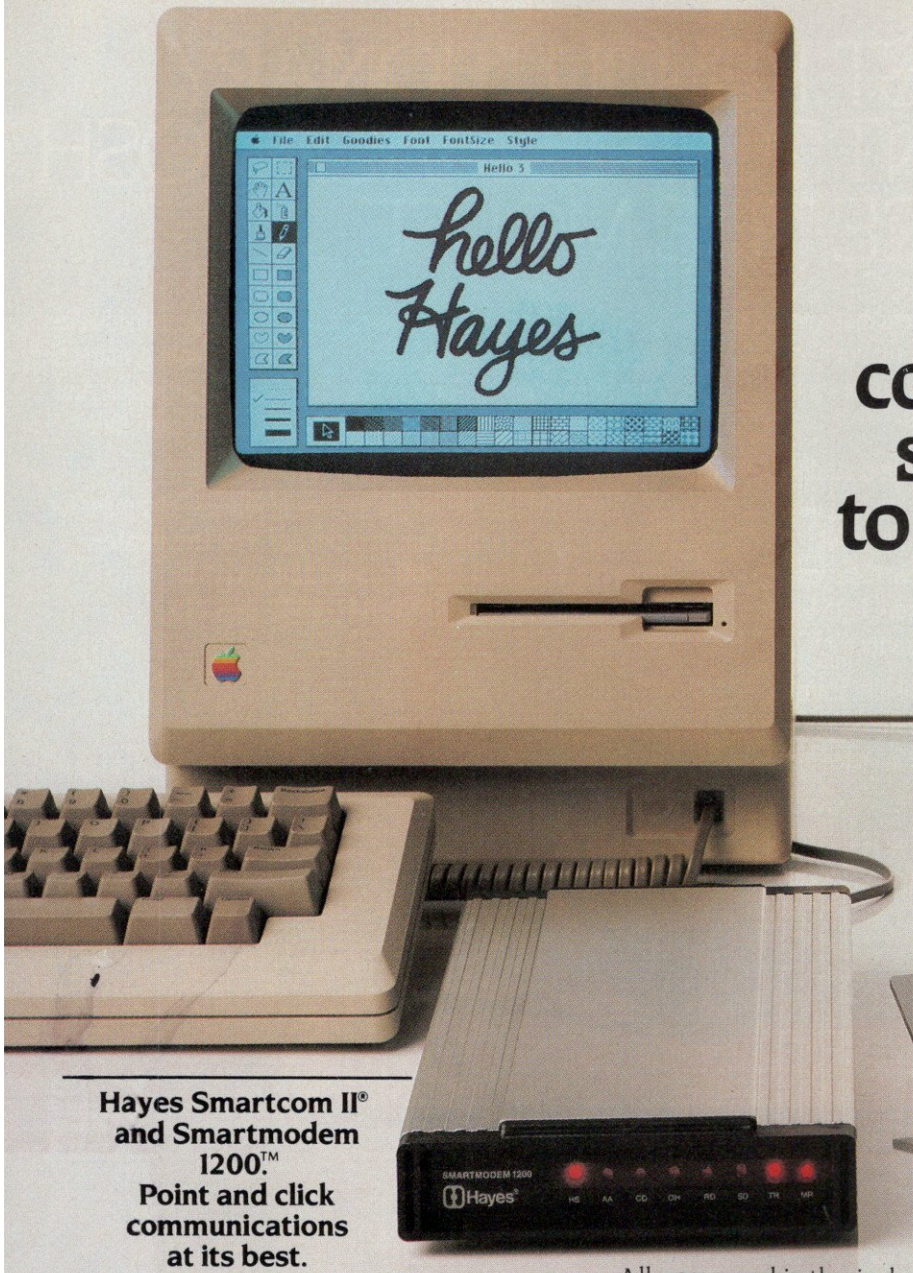
CIRCLE 124 ON READER SERVICE CARD

IOMEGA®

IOMEGA Corporation
1821 West 4000 South
Roy, Utah 84067

THE BERNOULLI BOX™

Introducing the most ingenious communications system known to man. Or mouse



Hayes Smartcom II® and Smartmodem 1200.™ Point and click communications at its best.

Now Macintosh* can communicate with the best: Hayes.

When it comes to personal computer communications, Hayes set the standards. For the IBM* PC and compatibles. And now for Macintosh, too.

All you need is the industry leader, Smartmodem 1200 (or our 300 or new 2400 bps modems), and a special version of Smartcom II software. For sophisticated, computer to computer communications–a la Macintosh.

Using your mouse, icons and pull-down windows, Smartcom II makes communications as easy as pointing. And clicking.

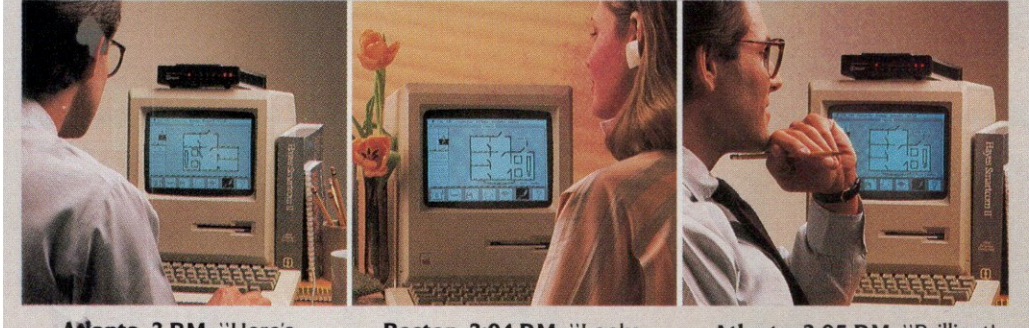
Mac to Mac graphics. Picture perfect!

Now your Mac can send and receive pictures and drawings long distance with other Macintoshes. And if you have a powerful 512K Mac, you can also take advantage of the unique interactive graphics capabilities of Smartcom II. So that pictures or tex sent to other 512K Macs can be simultaneously reviewed, perfected and updated from both locations! For the fun of it, you can even try interactive games on the graphic gameboards.

Mac to personal computers and data bases everywhere.

Want to communicate with an IBM PC? Or dozens of other personal computers? Your Smartmodem 1200 and Smartcom II communications system makes it easy to send and receive text over ordinary phone lines. Quickly. Accurately. Economically.

And a wealth of business, personal and financial information awaits you from on-line data bases. Smartcom II even comes with automatic log-on for many of these services (and introductory bonus subscription and access time discounts valued at over $300!).



Atlanta, 3 P.M. "Here's the plan for the new space. What do you think?"

Boston, 3:04 P.M. "Looks good. But can you move the lounge over here, and add a second exit, like this?"

Atlanta, 3:05 P.M. "Brilliant! I'll incorporate these changes for tomorrow's meeting."

Smartcom II is a registered trademark and Smartmodem 1200 and Please are trademarks of Hayes Microcomputer Products. Inc. *Trademarks of their respective companies. © 1985 Hayes Microcomputer Products. Inc.

And *Please*.™ Mac-organize your data. Mac-nificently!

Hayes offers more than communications. *Please*, the easy-to-use yet powerful file management software, will be available for Macintosh soon. To manage mailing lists, print forms or handle dozens of other tasks.

Hayes for Macintosh. The smartest move you and your mouse can make.

See your authorized Hayes dealer for a hands-on-mouse demonstration of our products for Macintosh. Today!

Hayes®
Innovative products for enterprising people

Hayes Microcomputer Products, Inc.
5923 Peachtree Industrial Blvd.
Norcross, Georgia 30092 404/441-1617

CIRCLE 166 ON READER SERVICE CARD

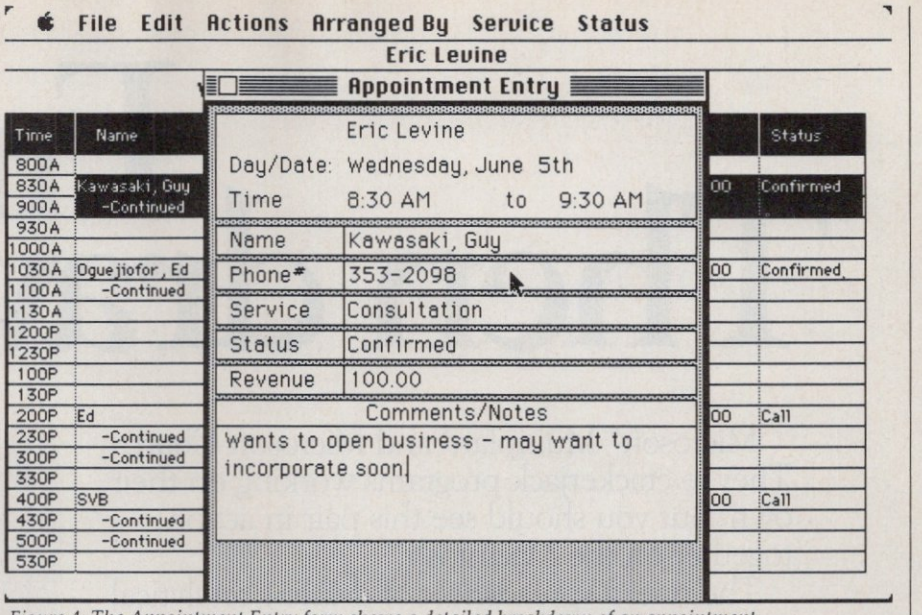


Figure 4: The Appointment Entry form shows a detailed breakdown of an appointment.

Cambridge Legal Asso -- Work Hours Report.
For The Period : June, 1st To June, 30th 1985.

All Attorneys:		LB	EL	SB	DD	Total	% by
	Rate	95.00	100.00	125.00	95.00	Hours	Service
Services:	Fee						
Consultation	.00	28.5	10.5	7.5	15.0	61.5	25.8
Contract	250.00	10.0	4.5	3.5	3.0	21.0	8.8
Negotiation	.00	3.5	.0	3.5	3.0	10.0	4.2
Title Search	125.00	12.0	.0	.0	.0	12.0	5.0
Closing	250.00	5.0	4.0	2.0	.0	11.0	4.6
Purchase & Sale	200.00	5.0	3.0	4.5	1.5	14.0	5.8
Estate Planning	.00	8.0	7.0	7.0	.0	22.0	9.2
Estate Settlement	.00	3.0	.0	2.0	.0	5.0	2.1
Incorporation	.00	.0	.0	.0	.0	.0	.0
Administration	.00	.0	.0	.0	.0	.0	.0
Personal	.00	.0	.0	3.0	.5	3.5	1.4
Undefined Service		2.5	8.5	41.5	25.0	77.5	32.6
Total Hours		77.5	37.5	74.5	48.0	237.5	100.0
% Of Total by Attorneys		32.6	15.7	31.3	20.2	100.0	

Figure 5: The Work Hours Report shows the type of appointments during a month.

up the older records and put them into your permanent archives.

Front Desk produces many useful reports. One of these, the Appointment Confirmation Report, lists all the appointments scheduled for a given day or week and whether the individual appointments need final confirmation.

Selecting Appointment Analysis from the Actions menu produces two other reports—the Work Hours Report and the Revenues Report. The former shows the type of appointments each member of your staff has scheduled for the month. The Work Hours Report also compares the work load of staff members (see figure 5).

The Revenues Report gives a breakdown of a company's revenue sources, showing how much of your income is coming from each service. The same report shows how the income breaks down by staff member, and it also gives the average hourly income derived from each service (see figure 6).

Reports can reflect activity for a day or for a complete month, and for one or all of the staff members listed on a Work Hours Report or Revenues Report. Standard Macintosh print-formatting commands are available in the Report mode, allowing you full control over the final output.

Quality of the First Order

Like all well-designed Mac software, Front Desk uses scroll bars, dialog boxes, and pull-down menus throughout. If you are comfortable

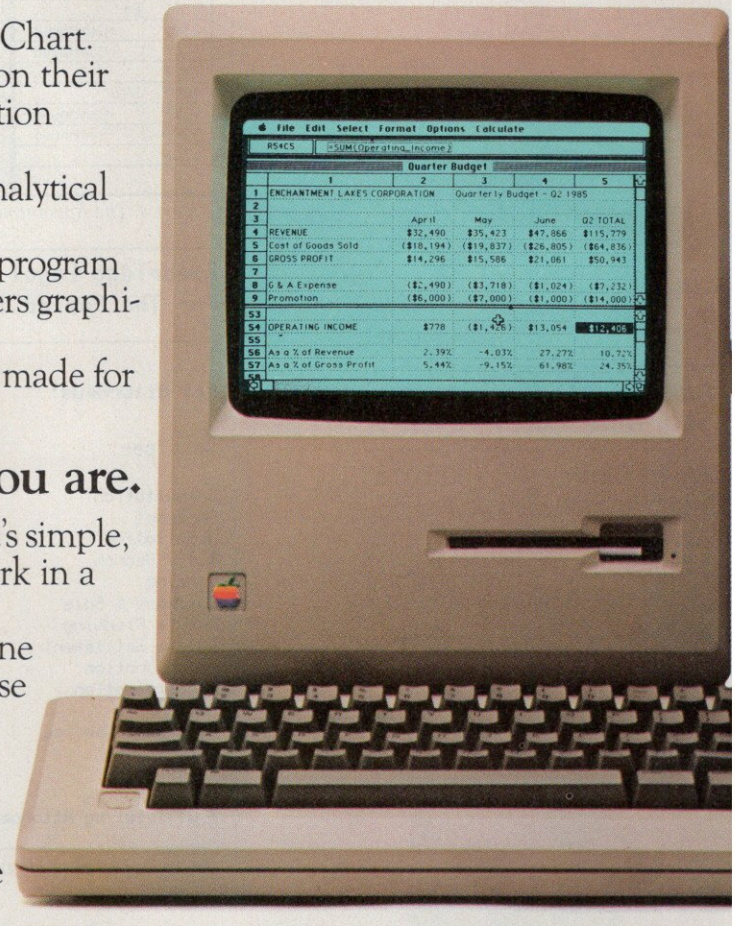
Find the Then draw your

Microsoft® Multiplan® and Microsoft Chart. They're crackerjack programs working on their own. But you should see this pair in action together on the Macintosh.™

The one, a spreadsheet of dazzling analytical power and graceful simplicity.

The other, a picture perfect charting program that makes rows and columns of numbers graphically clear.

And the beauty is, they were literally made for each other. And for Macintosh.



Multiplan accepts you as you are.

Multiplan takes full advantage of Mac's simple, intuitive operating style. So you can work in a way that will come natural to you.

You don't have to memorize any arcane commands. Just point and click the mouse to move mountains of figures and formulas quickly and painlessly.

In addition, Multiplan gives you features that make hard copies gratifyingly readable. For instance, the enviable ability to print sideways.

So you can't run out of column room. No matter how wide your spreadsheet gets.

Chart makes people see what you mean.

Microsoft Chart gives you lots of ammunition for your arguments: Pie charts, bar charts, line, column, area and scatter charts. Or combinations.

MICROSOFT®
The High Performance Software™

Pick the one that best illustrates your point. Then translate your numbers into pictures and have them on paper in a matter of moments.

Using the mouse, it's a cinch to fine tune the graphs to get exactly what you want. Move any section. Change its size, shape, or highlight it.

Chart can even be linked with Multiplan. So any change on your spreadsheet will show up automatically on the charts.

answer. own conclusions.

We get the max out of Mac.

It figures that we'd be the ones to make Mac work so well with figures. We've written more Macintosh programs than any other software company. Including Microsoft Word, Microsoft File. And Microsoft BASIC, Mac's first language.

That experience shows in programs which not only exploit all of Mac's unique features, but make it extraordinarily capable and productive.

In addition, all of Microsoft's Macintosh products can exchange data with each other.

And because our programs work alike, if you learn one, you're

well on your way to learning the rest.

To find the name of your nearest Microsoft dealer, call (800) 426-9400. In Washington State, Alaska, Hawaii and Canada, call (206) 828-8088.

Then check out Multiplan and Microsoft Chart. And watch them perform some nice little numbers.

Microsoft and Multiplan are registered trademarks and The High Performance Software is a trademark of Microsoft Corporation. Macintosh is a trademark licensed to Apple Computer, Inc.

CIRCLE 320 ON READER SERVICE CARD

CORVUS INTRODUCES SHARED STORAGE. FOR THE REST OF THE OFFICE.

Without mass storage that every Macintosh can access, your networked office won't have a prayer.

Because you'll still have to share data by swapping floppies.

And just consider how fast a floppy disk fills up with an entire workgroup compiling data. To share information, you have to get those floppies neatly stacked, sorted and cataloged.

Something your computer should do for you.

Which is why we've introduced OmniTalk software. It lets you network your Macintosh Office and LaserWriter printer with an OmniDrive hard disk. So you can store all your files in one place. And share information whenever you want, with whomever you want.

Without turning your floppies into little frisbees. Several people can even access the same information at once—something a floppy could never do. With OmniDrive and OmniTalk, your Macintosh Office has faster access to software and data, greater storage capacity, even easier back-up capability. Plus, you get three levels of protection to keep your files safe. And with the Corvus 126MB hard disk, it all costs less per megabyte than any other system. You see, Corvus has more experience networking than anyone else. No one offers more, because no one can.

So take it from us. If you're going to add people to your new Macintosh Office, add the mass storage system that everyone can use. OmniDrive from Corvus. Then your Macintoshes can really start talkin' business.

For more information, call (800) 4-CORVUS.

CORVUS

Macintosh is a trademark licensed to Apple Computer, Inc.
LaserWriter is a trademark of Apple Computer, Inc. OmniDrive and OmniTalk are trademarks of Corvus Inc.

CIRCLE 276 ON READER SERVICE CARD

Cambridge Legal Asso -- Revenues Report.
For The Period : June, 1st To June, 30th 1985.

All Attorneys:		LB	EL	Total	% by	Total	Avg.
	Rate	95.00	100.00	Revenue	Service	Hours	$/Hr.
Services:	Fee						
Consultation	.00	2707.50	1050.00	3757.50	23.9	39.0	96.34
Contract	250.00	3000.00	750.00	3750.00	23.9	14.5	258.62
Negotiation	.00	332.50	.00	332.50	2.1	3.5	95.00
Title Search	125.00	2000.00	.00	2000.00	12.7	12.0	166.66
Closing	250.00	1500.00	1000.00	2500.00	15.9	9.0	277.77
Purchase & Sale	200.00	1200.00	400.00	1600.00	10.2	8.0	200.00
Estate Planning	.00	760.00	700.00	1460.00	9.3	15.0	97.33
Estate Settlement	.00	285.00	.00	285.00	1.8	3.0	95.00
Incorporation	.00	.00	.00	.00	.0	.0	.00
Administration	.00	.00	.00	.00	.0	.0	.00
Personal	.00	.00	.00	.00	.0	.0	.00
Undefined Service		.00	.00	.00	.0	11.0	.00
Total Revenue		11785.00	3900.00	15685.00	100.0	115.0	136.39
% Of Total by Attorneys		75.1	24.8	100.0			
Total Hours		77.5	37.5	115.0			
Average Revenue/Hour		152.06	104.00	136.39			

Figure 6: The Revenues Report gives a breakdown of revenue sources.

with Mac software, you will have no trouble operating Front Desk.

Front Desk's operating manual is one of the most complete and informative users' guides I have seen. The manual is superbly produced and illustrated. It covers each command thoroughly and contains a complete glossary and index.

A second, smaller manual shows you how to set up a Front Desk system in a doctor's office, health club, and in many other settings.

Front Desk is copy-protected, but Layered provides a free backup copy for all registered users. Returning the registration card also entitles you to a 90-day warranty and access to free and reduced-price updates.

I am hard-pressed to think of any other Mac-based software package that meets its objectives as smoothly and professionally as Front Desk does. If efficient management of time and resources is an important part of your job, then Front Desk should be at your front desk. ✚

Chuck Doherty is an independent computer consultant and free-lance writer from South Dartmouth, Massachusetts. His work regularly appears in several computer and audio publications.

PRODUCT INFORMATION

Front Desk
Layered, Inc.
85 Merrimac Street
Boston, MA 02114
(617) 423-9041
List Price: $149.95

CIRCLE 374 ON READER SERVICE CARD

AVAILABLE NOW

REAL ESTATE INVESTORS DEVELOPERS - CPA's

SERIOUS BUSINESS SOFTWARE FOR YOUR MACINTOSH™ from REALDATA

TAX SHELTER SYNDICATION ANALYSIS - Cash flow projections and allocations for real estate limited partnerships. INCLUDES NEW DEPRECIATION RULES. By Irwin Nestler **$295**

ON SCHEDULE - Economic project planning for subdivision and condominium developers and lenders. This month-by-month timetable helps you analyze and schedule all cash inflow and outflow. By Irwin Nestler **$195**

REAL ESTATE OVERLAYS '84 - Sophisticated analysis of investment property. Our most popular program includes an extensive cash flow/sensitivity model, now with 1984 TAX REFORM ACT RULES. **$150**

FINANCIAL OVERLAYS - Personal financial statement, critical ratio analysis, lease vs. buy, and more. **$100**

COMMERCIAL/INDUSTRIAL APPLICATIONS - Detailed project cost analysis, multi-unit income-and-expense schedule, and lease-tracking model. **$100**

RESIDENTIAL MODELS - Market analysis by linear regression, mortgage qualifier, and rent vs. buy analysis. **$100**

Minimum shipping charge $5 - CT residents add 7.5% sales tax

Each package contains advanced Multiplan™ models READY TO RUN - EASY TO USE

Requires Multiplan™ and 128k or 512k Macintosh™

REALDATA
Software for Real Estate and Financial Professionals
78 North Main St., South Norwalk, CT 06854

TO ORDER, CALL OR WRITE TODAY **203-255-2732**
MC/VISA/COD Accepted

Multiplan is a trademarke of Microsoft Corp. Macintosh is a trademark of Apple Computer, Inc.

CIRCLE 342 ON READER SERVICE CARD

COMPLETE YOUR LIBRARY OF A+

Add to your A+ collection today. Make your personal library complete and authoritative with any issues you may be missing.

Copies are available for issues published during the last twelve months—be sure to specify the issues you want. If a particular issue is out of stock, your payment will be refunded promptly.

Back issues of A+ are priced at $6.00 each, postpaid. Outside USA, $7.00 each.

A+ MB1S
MCBI, Morristown, NJ 07960

Please send issues of A+ listed below:

Issue	Qty.	Unit Price	Total Price
		Payment Enclosed	$

Mr./Mrs./Ms. _____
(print full name)
Address _____
City/State/Zip _____

A PRINTER SO FAST YOUR APPLE WON'T KNOW WHAT HIT IT.

If you're hunting for the perfect printer for your Apple® II, IIc, IIe or Macintosh,™ there's one way you can't miss. Set your sights on the ProWriter™ 8510SR or 1550SR, from C.Itoh.

Because no matter what your application, this dot matrix printer does the job faster than any other in its price class. At only $629.

If it's data processing you need, the 8510SR zips out 180 cps, with 100 lines per minute throughput. You can also get draft quality at 120 cps and, as an added feature, beautifully sharp near letter quality printing as well.

For graphics work, the 8510SR prints a full 40% faster than others in its league.

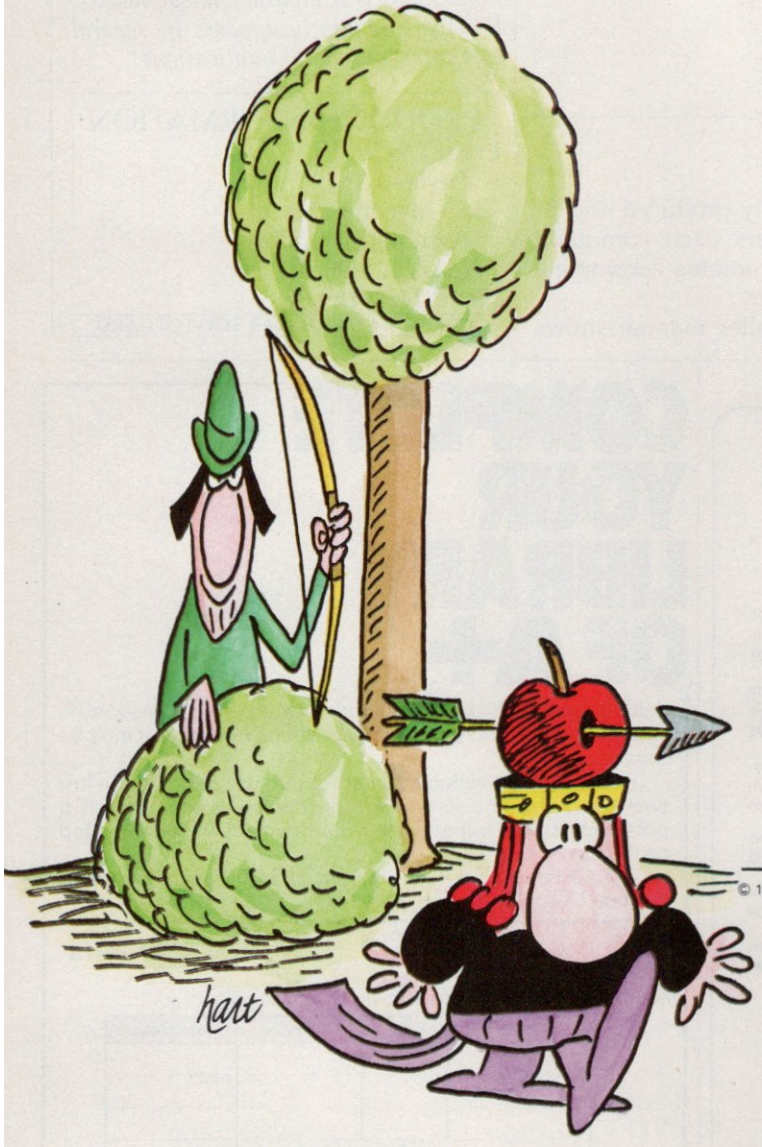
And when it comes to reliability, the ProWriter never falls short of the mark. Because like every C.Itoh printer, the 8510SR has been rigorously tested and proven on the job. And it comes with a full year's warranty, backed by 350 service centers coast-to-coast.

With over a decade of experience, and the strong backing of its 126-year-old, $60 billion parent company, it's little wonder C.Itoh printers outsell the others by a long shot.

For more information on the ProWriter 8510SR or the wider carriage version 1550SR, see your C.Itoh dealer or call toll free 1-800-423-0300.

Or write C.Itoh Digital Products, Inc., 19750 South Vermont Avenue, Suite 220, Torrance, CA 90502.

™ Macintosh is a Trademark of Apple Computer Corp.
ProWriter is a Trademark of C.Itoh Digital Products.
® Apple is a Registered Trademark of Apple Computer Corp.
© 1985 C.ITOH DIGITAL PRODUCTS, INC.



© 1984 News Group Chicago, Inc.

C.ITOH
Printers

CIRCLE 296 ON READER SERVICE CARD

The Megahaus series of Macintosh software

3 Integrated Programs

Data integration is an important part of the Macintosh computer's design that lets it move information from one program into another with relative ease. Although moving graphics from MacPaint into MacWrite documents is fairly simple, some tasks are much more difficult. For example, taking names and addresses from a list and inserting them, one by one, into form letters is possible, but it would be a very tedious job.

Megahaus Corporation produces an integrated family of three programs for the Macintosh that help you use the machine's talents more efficiently. By bridging the gap between different program types, these packages also allow you to do some tasks that were impossible in the past.

MegaMerge adds form-letter capabilities to standard MacWrite documents. To create a form letter, you use MacWrite to prepare the document itself. Every form letter has two parts: a section that is common to all of the letters you will send and the material that will change from letter to letter (such as name, address, and salutation). You distinguish the parts of the letter that are subject to change by using a different font style than that of the rest of the text. Figure 1 shows a typical form letter in which the 14-point Chicago font sets the name, address, city, state, ZIP, salutation, and product apart from the rest of the letter, which is in the standard 12-point Geneva font.

A second file holds the names, addresses, and other information for merging into the letter. This file contains the item names you'll use in the other document, along with the corresponding data for each one (see figure 2, next page). The font of the category names in the letter (called the merge font) matches that of the category names in the data file, so that the program can identify the data it merged into the letter.

You can produce the data file with MacWrite, but even entering two or three names this way is time-consuming, since you must include category names with each entry. MegaMerge can use lists you've generated with MegaFiler, making the task considerably easier.

With floppy-disk drives and an Imagewriter, MegaMerge's printing process is painfully slow—the system spends as much time reading data from the disk as putting it on paper. If you're thinking of using MegaMerge for a large mailing, you had best either set plenty of time aside for printing or consider investing in a hard-disk drive and a LaserWriter, which will speed up the process significantly. With a single 3½-inch floppy-drive system, you'll also have more

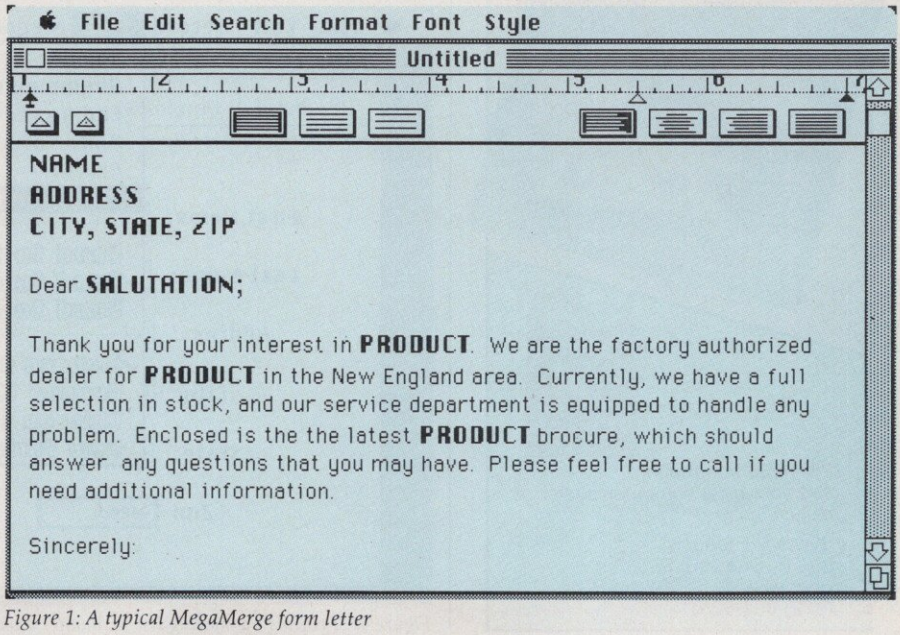
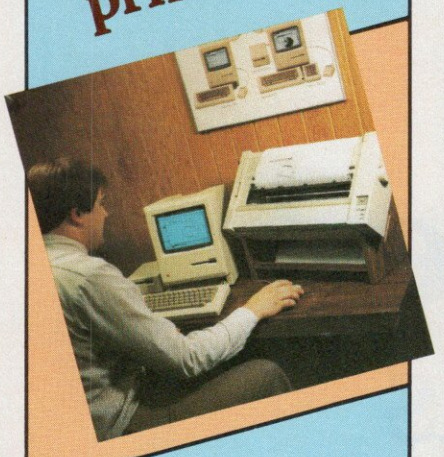


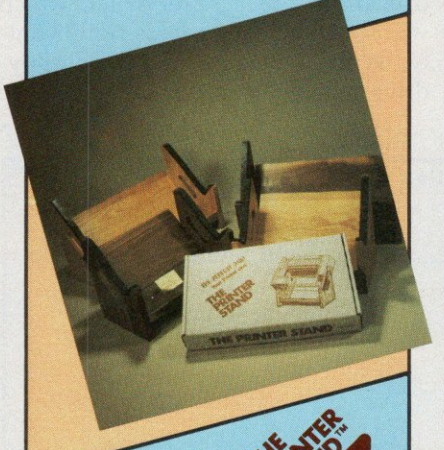
Figure 1: A typical MegaMerge form letter

SEE what you're printing!



The Printer Stand lets you see the paper as it's being printed

- Tilts Your Printer to a 45°Angle
- Space-Saving Convenience - paper feeds from underneath - fanfolds in front or behind.
- Solid Wood Construction
- Naturally hand-finished solid oak or walnut hardwoods
- Non-slip padded grips insure a solid foundation and protection for the printer
- The Printer Stand 80 fits 80 column printers **Only $49.95**
- The Printer Stand 132 fits 132 column printers **Only $59.95**



THE PRINTER STAND™

For more information, see your local computer dealer or call collect.

Synergy Products
809 E. Chestnut St.
Boonville, IN 47601
(812) 897-5351

CIRCLE 310 ON READER SERVICE CARD

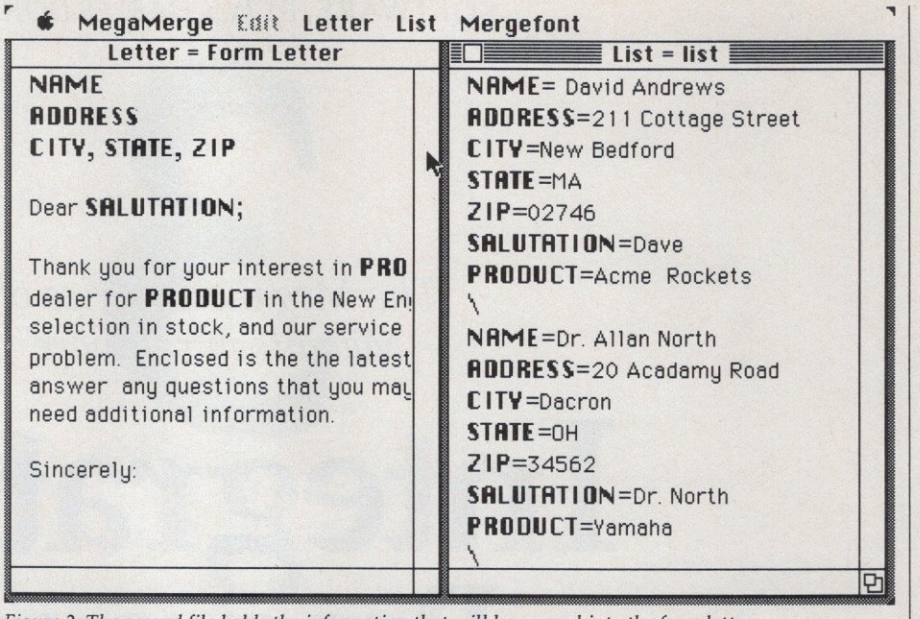


Figure 2: The second file holds the information that will be merged into the form letter.

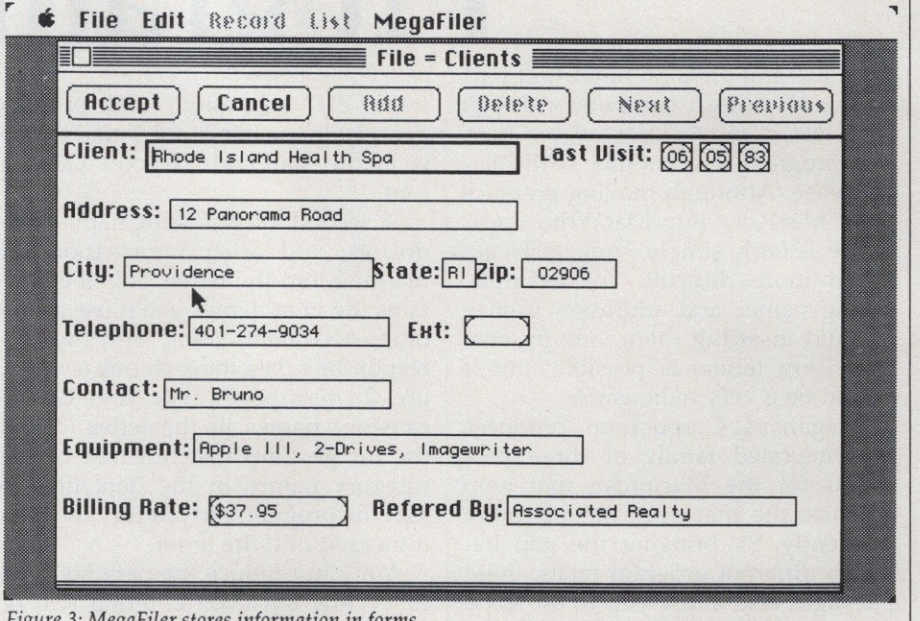


Figure 3: MegaFiler stores information in forms.

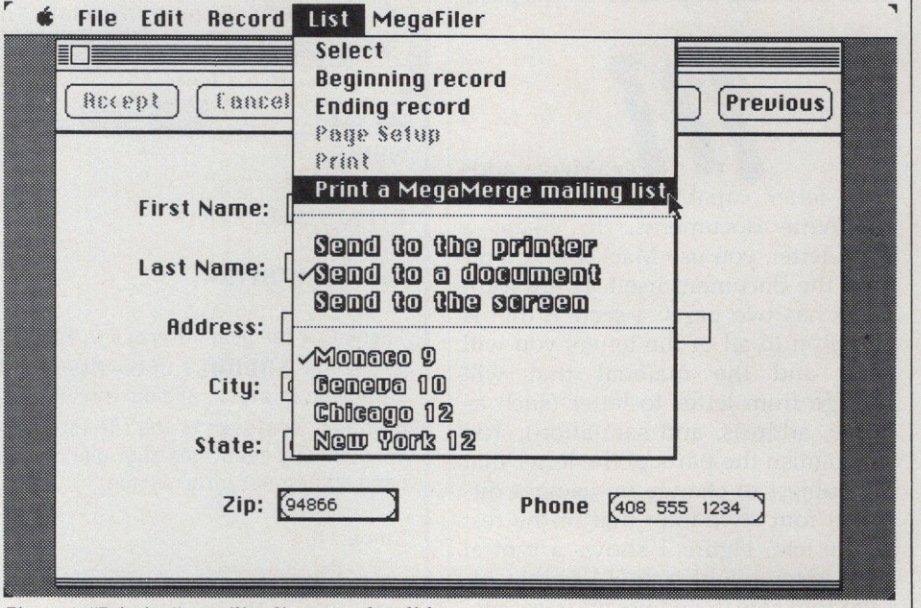


Figure 4: "Printing" a mailing list to another disk

than your share of disk swapping when you prepare the list and document files.

MegaMerge supports chain printing, the printing of several MacWrite documents sequentially as if they were one large piece. This option helps overcome the limit on document length in RAM-based versions of MacWrite (versions 1.0–2.2). To use this feature, you simply create a MacWrite document that lists the names of the documents you want printed, in the order you want them to appear. The process is similar to the one you use with form letters, except that MegaMerge substitutes complete files for each of the filenames you have listed. Another function allows you to merge MacPaint illustrations into MacWrite documents during the printing process or create form letters with the automatic insertion of graphics rather than text.

MegaFiler

MegaFiler is a light-duty system for information storage and retrieval that is easy to use but just as easy to outgrow. Like MegaMerge, MegaFiler can work with a single-drive system, but an external drive makes program use much easier.

You store information in forms (records), in much the same way as you would do manually with index cards (see figure 3). A form can hold up to 60 separate pieces of information (fields) with a maximum total of 1500 characters. Each file allows up to 10,000 records, but the size of each record and the amount of available disk space can limit the file size.

The program uses dialog boxes and pull-down menus throughout. As with most Macintosh software, MegaFiler follows the Mac's conventions, and you can use it efficiently right from the start, with little need to consult the manual.

Once you've selected a data file, you can add new records, browse through those already in the file, or search for entries that match particular criteria. To recall records, you look for a match in any field, but the search is much faster if you presort the file by the appropriate field. For example, a file of customer data, presorted in order of purchase date, would help you locate

EPSON

Marry an Epson to your Mac.

With EPSTART.™ The completely compatible printer driver.

The perfect couple. Your Macintosh linked to an Epson—Epson reliability, Epson quality reproduction of Apple's ingenuity—all the text, all the typestyles, all the graphics. Even take advantage of Epson's letter quality printing on the LQ-1500 and single-color printing on the JX-80. All you need is EPSTART software for an Epson marriage made in paradise.

$45 at your Epson dealer. Requires a standard Macintosh printer cable and an Epson MX, RX, LX, FX, JX, or LQ printer with a serial interface. (MX III Graftrax Plus.)

SoftStyle®

SoftStyle, Inc. • 7192 Kalanianaole Hwy. • Suite 205
Honolulu, Hawaii 96825 • Toll free **(800) 367-5600**

CIRCLE 313 ON READER SERVICE CARD

Brainy Buffer.

Do you press "print" and wait? And wait? And wait?

HanZon's 64K **Universal Data Buffer** is the only self-configuring intelligent device that gives you uninterrupted use of your personal computer.

With four standard interface ports, now you can share output devices with two micro systems. Just plug them in and you're ready to go. And it's expandable up to 256K.

Call HanZon today for more information and the name of your nearest dealer: 206-487-1717.

HANZON·ENHANCED

HANZON
"Computer Enhancements"
18732 142nd Ave. N.E.
Woodinville, WA 98072

Suggested retail price: $385.

CIRCLE 216 ON READER SERVICE CARD

JUST ARRIVED!

The first complete desk management program for the Mac.

It's here! A powerful software program featuring dynamic storage/retrieval capabilities for your Mac. It's called THE DESK ORGANIZER®. And it's ready to help you organize yourself, your work, you name it.

At the core of THE DESK ORGANIZER is a *free-form filing system* that files anything you want, just by typing it. Notes. Letters. Reports. Phone numbers. Names and addresses. And you can retrieve or update at any time.

Surrounding this system are easy-to-use tools that add a new dimension to your Mac:

THE DESK ORGANIZER's *extensive correspondence facility* replaces Mac's limited notepad. Its *calculator* adds an electronic paper tape—and a powerful formula calculator (the Mac has neither). And THE DESK ORGANIZER offers *unlimited alarms* that chime gently to remind you of meetings. Plus a *telephone dialer* that automatically searches files, locates the proper number and connects you.

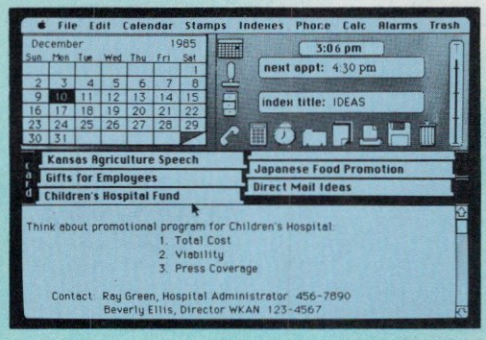
What's more, THE DESK ORGANIZER increases the filing capacity of the Mac—by storing hundreds of Mac notes and letters on a single diskette.

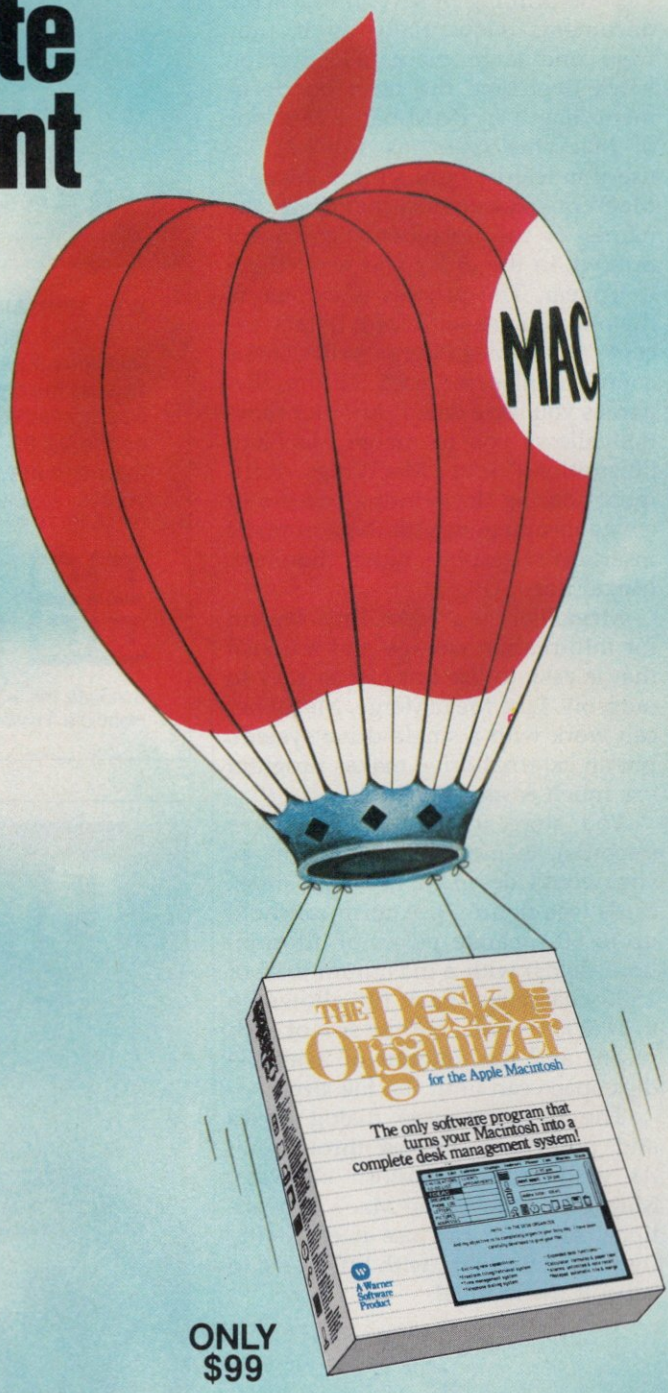
Born to run on the Mac, THE DESK ORGANIZER can *co-reside with other Mac programs*—to keep you completely organized no matter what you're working on.

To get this infallible electronic secretary for **only $99,** see your Mac software dealer.

OR CALL WARNER SOFTWARE (212) 484-3070.

Warner Software, Inc., 666 Fifth Ave., New York, NY 10103
A Warner Communications Company





INCLUDED FREE: 25 business form letters and a library of useful formulas. Runs on 128K and 512K Macs.

Truly a major software breakthrough!

Macintosh® is a registered trademark of Apple Computer, Inc. The Desk Organizer® is a registered trademark of Conceptual Instruments Company.

CIRCLE 193 ON READER SERVICE CARD

customer records by date, but it would hold you up if you were searching for a customer by name.

MegaFiler comes complete with several ready-to-use form designs, but creating your own forms is easy. You need only enter the field names you want to use, specify the type of information each field will contain (alphabetic, numeric, or date), and define an area on the form for the data to appear. The entire process is so simple that you can create a new file design in just a few minutes.

Reports for analyzing the data in your files are also easy to design. Two styles are available for the finished list. The label format allows you to print mailing and shipping labels, and the table format organizes the report into rows and columns of data. In the table format, you can also have a summation or count appear at the bottom of the report for numeric analysis.

In both cases, you use the mouse to select which fields you wish to include and position them in the order you wish them to appear, which makes label and report design a snap.

I experimented with several of the sample files, as well as a few files of my own design. In one test, I "printed" a small mailing list to another disk so that MegaMerge could read it and merge the information into form letters (see figure 4). With one disk drive, the process required 18 disk swaps, although the file held only eight names and addresses. With a two-drive system, no swaps are necessary, however.

MegaForm

Megahaus' form-generating program, MegaForm, requires 512K RAM, and a second disk drive is optional but strongly recommended. This program—like the others—is difficult to use on a single-drive machine.

MegaForm is in a class by itself. It lets you create custom forms such as invoices, order forms, or expense sheets and fill them in manually or with data from MegaFiler records. These forms can be as simple or as complex as you need and even include graphics you've created with MacPaint as part of the form design.

When designing a form, you work

HEWLETT PACKARD ThinkJet

Marry a ThinkJet to your Mac.

With JETSTART.™ The completely compatible printer driver.
Your Macintosh side by side with Hewlett-Packard's 7-lb. portable, ThinkJet. Think of it. Every Macintosh printing capability and Macintosh quality as you jet through the text and graphics at less than a whisper. All you need is JETSTART software for a ThinkJet marriage made in paradise.

$45 at your Hewlett-Packard dealer. Requires a standard Macintosh printer cable and a ThinkJet serial printer.

SoftStyle®

SoftStyle, Inc. • 7192 Kalanianaole Hwy. • Suite 205
Honolulu, Hawaii 96825 • Toll free **(800) 367-5600**

CIRCLE 312 ON READER SERVICE CARD

BACKUP PROTECTED SOFTWARE WITH COPY II MAC™

From the team who gave you COPY II PLUS and COPY II PC comes a powerful, easy-to-use disk backup utility for your MACINTOSH computer. Features include:

- Bit Copy Program
- Make Files Visible/Invisible
- Sector/File Editor
- Format/Verify Disks
- Repair Damaged Disks
- Copy Protect/Unprotect
- Undelete Files
- Copy Files/Disk

Increase the power of your MACINTOSH . . . use **COPY II MAC**

Available at your local dealer or direct from us.

CENTRAL POINT Software, Inc.

ONLY **$39.95**
PLUS $3.00 SHIPPING/HANDLING

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

(503) 244-5782
M-F 8-5:30 (W. Coast Time)

VISA MasterCard

CHECK, COD WELCOME
(Prepayment Required)

Versions also available for IBM, Apple and Commodore 64!

These products are provided for the purpose of enabling you to make archival copies only.

CIRCLE 184 ON READER SERVICE CARD

with a set of graphic tools similar to those in MacPaint. They let you create and position boxes, lines, and titles. Once you've finished the design, you assign certain areas of the form for data entry. You can fill the entry—or cells, as MegaForm calls them—with data directly from the keyboard or calculate its value based on information in another part of the form. Thus, you can design forms that automatically calculate figures such as tax, total or discount rate. The commands Megaform uses are similar to those of an electronic-spreadsheet program and are easy to learn.

A cell can "look up" its value from a table located in another part of the form. The data it gets may be a simple value or a reference to yet another table of data. You can make tables or any cells invisible by placing them outside the main form in an area that does not reproduce when you print out the form. Another option provides a sequential "serial" number that you can use to number automatically each form that you fill out.

MegaForm, MegaFiler, and MegaMerge each offer unique features.

MegaForm's ability to cross-reference information contained in cells to MegaFiler data files is the program's most powerful option. For example, an order form may contain a cell, marked "Part Number," with a part number you've entered from the keyboard.

MegaForm can use the number in that cell to locate a MegaFiler record corresponding to that particular item. This record, in turn, may contain information such as the description and price of the item, which can be referenced by another part of the form. One form can access several different data files for information, which, in effect, adds basic "relational" capability to MegaFiler.

Once you've designed a form, you can fill in as many individual copies as you need. Completed forms are stored in a permanent archive file, and you can recall them for examination later. After you put a form into the archive, however, you can't alter the form in any way.

MegaForm's Print option produces hard copy of the form you're currently filling or of another form stored in the archive. Since the entire form—including graphics—prints out, the printing process is slow. Printing the invoice form in figure 5 on an Imagewriter in the standard printing mode took more than four minutes. In the high-quality mode, printing takes even longer. This speed handicap makes MegaForm impractical for producing a large quantity of forms on an Imagewriter. If you anticipate needing many forms, you should definitely consider purchasing a LaserWriter, which will greatly improve this program's performance and output quality. To help speed things up even more, MegaForm allows you to print just the data portion of a form while

Need a Backup of the You Purchased?
Lost an Important File or Disk?

Mac Zap

- Automatic Backup of Protected Disks!
- Track Read/Analyze/Edit/Write Utility
  Read/Edit/Write Blocks on Disk, even with **Abnormal** Address/Data Markers!
  Full Screen Mouse oriented Editor
  Search/Compare/Edit **Memory** or Disk
- Multiple Windows!! 8!!
  Disassembly Graphics
  Disk Controls Vol Info
  File Info (Allocation Map)
  Edit File Attributes
  Hex and Ascii Window

Hard Disk Support! Disk and File Recovery!!
55 Page Manual with Tutorial and Disk Info.

Also by Micro Analyst Inc. 'Software Protection on Microcomputers'
170 Page Book on Apple/Mac/IBM Both Software and Hardware.

MA

To order, Write or Call
Micro Analyst Inc.
P.O. Box 15003
Austin, TX 78761
512 - 926-4527

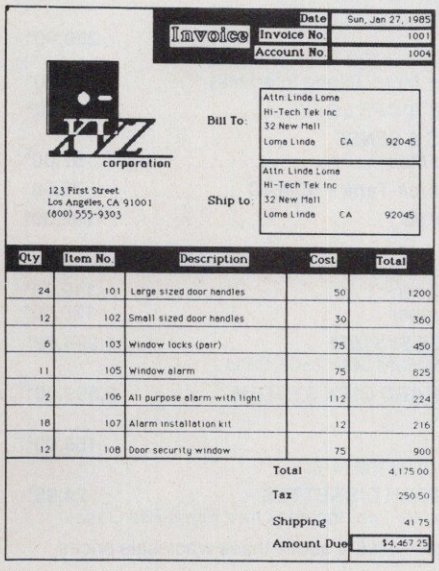
Price	
Mac Zap	$60
Book (Optional)	$40
Ship ($10 Overseas)	$02

Visa/MasterCard Accepted

CIRCLE 219 ON READER SERVICE CARD

using preprinted forms—rather than blank paper—in your printer.

As interesting as MegaForm may be, it is not the most practical solution to most data-management problems. For example, it lacks a way to analyze or generate reports from the information stored in the archive. Once you've filled a form in, you can print it, but nothing more. Hopefully, Megahaus will address this limitation in a future version.



Invoice

Date: Sun, Jan 27, 1985
Invoice No.: 1001
Account No.: 1004

XYZ corporation
123 First Street
Los Angeles, CA 91001
(800) 555-9303

Bill To:
Attn: Linda Loma
Hi-Tech Tek Inc
32 New Mall
Loma Linda CA 92045

Ship to:
Attn: Linda Loma
Hi-Tech Tek Inc
32 New Mall
Loma Linda CA 92045

Qty	Item No.	Description	Cost	Total
24	101	Large sized door handles	50	1200
12	102	Small sized door handles	30	360
6	103	Window locks (pair)	75	450
11	105	Window alarm	75	825
2	106	All purpose alarm with light	112	224
18	107	Alarm installation kit	12	216
12	108	Door security window	75	900
		Total		4,175.00
		Tax		250.50
		Shipping		41.75
		Amount Due		$4,467.25

Figure 5: A MegaForm invoice form

Worth Considering

MegaForm, MegaFiler, and MegaMerge each offer unique features that make them worth considering as additions to your software library. They all come with excellent manuals, and toll-free telephone support is available for all registered users. ✚

Chuck Doherty is an independent computer consultant and free-lance writer from South Dartmouth, Massachusetts. His work regularly appears in several computer and audio publications.

PRODUCT INFORMATION

MegaMerge 2.1, MegaFiler 1.01, MegaForm 1.0
Megahaus Corporation
5703 Oberlin Drive
San Diego, CA 92121
(619) 450-1230

List Price: MegaMerge, $125; Megafiler, $195; MegaForm, $295

Requires: MegaMerge and MegaFiler—Macintosh, 128K RAM, second disk drive recommended; MegaForm—Macintosh, 512K RAM, second disk drive recommended

CIRCLE 395 ON READER SERVICE CARD

HEWLETT PACKARD LaserJet

Marry a LaserJet to your Mac.

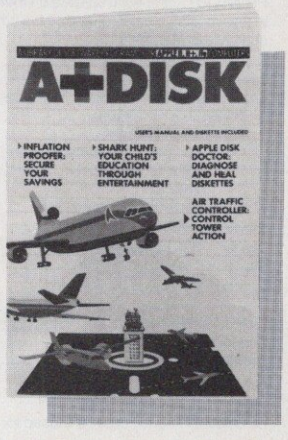
With LASERSTART.™ The completely compatible printer driver.
Your Macintosh teamed with Hewlett-Packard's LaserJet. A combination designed to deliver—super speed, ultra quiet—spectacular graphics and laser quality text, perfect to the letter. All you need is LASERSTART software for a LaserJet marriage made in paradise.

$95 at your Hewlett-Packard dealer. Package comes complete with software and printer cable.

SoftStyle®
SoftStyle, Inc. • 7192 Kalanianaole Hwy. • Suite 205
Honolulu, Hawaii 96825 • Toll free **(800) 367-5600**

CIRCLE 221 ON READER SERVICE CARD

RETAILERS:
IF YOU CARRY APPLE COMPUTERS, SOFTWARE OR PERIODICALS



You can open new doors to increased software sales with A+DISK the continuous library of software for Apple II series computers. Each disk introduces experienced and new users to new software that will whet their appetite for more sophisticated programs you carry! For a low ticket package that rings up big ticket sales, call us today! CALL: 212-503-5380!

Or write: Ziff-Davis Publishing Company
Retail Sales Department
One Park Avenue—4th Floor
New York, NY 10016

PC NETWORK

BUY HARDWARE AND SOFTWARE AT WHOLESALE +8% AND GET 14-30 DAY SOFTWARE RENTALS†.

In just the last few months, *The NETWORK* has saved its members more than $24,000,000 and processed over 100,000 orders.

The nation's largest corporations depend on PC NETWORK!

On our corporate roster are some of the nation's largest financial industrial and professional concerns *including some of the most important names in the computer industry:*

AT&T	*General Motors*
Barclays Bank	*Gillette*
Bell & Howell	*Hewlett Packard*
Citibank	*Hughes Aircraft*
Columbia University	*IBM*
Data General	*ITT*
Exxon	*Kodak*
Farm Bureau Insurance	*Multimate*
Frontier Airlines	*United Nations*
General Mills	*Yale University*
General Electric	*Veteran's Administration*

plus thousands of satisfied consulting firms, small businesses, user groups, municipalities, government agencies and value-wise individuals ACROSS THE NATION! Their buyers know that purchasing or renting from PC NETWORK saves them time, money and trouble. They also count on us for product evaluation, professional consultation and the broadest spectrum of products and brands around.

CALL TOLL FREE 1-800-621-S-A-V-E

In Illinois call (312) 280-0002

Your Membership Validation Number: M565

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 service consultants are on duty Mon-Fri 8 AM to 7 PM, SAT 9 AM to 5 PM CST.

PERSONAL COMPUTER NETWORK
320 West Ohio
Chicago, Illinois 60610

Call now...Join the PC NETWORK and start saving today!

PC NETWORK • MEMBERSHIP APPLICATION

YES! Please enroll me as a member in the PC NETWORK™ and rush my catalog featuring thousands of computer products, all at just 8% above DEALER WHOLESALE PRICES. I will also periodically receive "THE PRINTOUT", a special up-date on merchandise at prices BELOW even those in my wholesale catalog, and all the other exclusive, money-saving services available to Members.

565 ☐

I am under no obligation to buy anything. My complete satisfaction is guaranteed. Please check (✓) all boxes that apply:

Basic Membership
With 14 Days Rental

- ☐ One-year membership for $8
- ☐ Two-year membership for $15 (SAVE $1)
- ☐ Business Software Rental Library for $25 add'l. per year–with 14 day rentals
- ☐ Games Software Rental Library for $10 add'l. per year

Special V.I.P. Membership*
With 30 Days Rental.

- ☐ One-year membership for $15
- ☐ Two-year membership for $25 (SAVE $5)
- ☐ BOTH Business and Game Software Rental Libraries for $30 add'l. per year—with 30 day rentals

*VIP members receive advance notice on limited quantity merchandise specials

☐ Bill my credit card: ☐ VISA ☐ MasterCard ☐ American Express

Account Number: _____

Exp. Date _____ mo. year

☐ Check or money order enclosed for $ _____

Name _____

Address _____ Apt. No. _____

City _____ State _____ Zip _____

Telephone ( ) _____

Please provide the following information to insure compatibility with your system (check all boxes that apply):

☐ APPLE //e ☐ APPLE //c ☐ APPLE // + ☐ IBM-AT
☐ MACINTOSH ☐ LISA ☐ APPLE III ☐ IBM PC
☐ **Other:** _____

Signature _____

(Signature required to validate membership)

FEATURED PRODUCTS

BRAND NAME SSDD DISKETTES FOR APPLE II and III
Box of 10 Guaranteed for Life. ..... $ 9.00*

CENTRAL POINT *COPY II + COPY II-MAC* 20.00*

OKIDATA NEW PERSONAL PRINTERS
Microline 182/120CPS/Epson Graphics/LQ Mode + More! 200.00*
Okimate Color 20 80CPS/100 + Colors/Epson Graphics/LQ Mode + More! (Need Interface) 109.00*

SILVER REED *EXP 400 10CPS LQ* 230.00*

MONOGRAM *DOLLARS & SENSE for Apple II + /E and Mac* 57.00*

LIVING VIDEOTEXT *Think-Tank + /E/MAC* 75.00*

HAYES *MICROMODEM IIe* 192.00*
With Smartcom I

AMDEK MONITORS
V300G Composite Green 110.00*
V300A Composite Amber 120.00*

IBM PC *256K HARD DISK SYSTEM* 1,906.62*
1-320K Drive/1-10MB Hard Disk/256K CPU

COMPAQ PORTABLE HARD DISK SYSTEM 2,599.00*
10MB/1 Floppy/256K

HAYDEN *ENSEMBLE* 155.00*
1st integrated package for the MAC

BRAND NAME MACINTOSH DISKETTES 24.95*
Box of 10 Guaranteed for Life. Includes free Flip & File Case

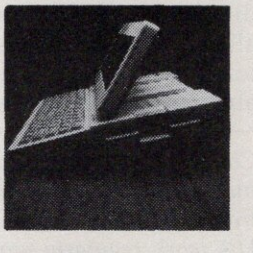
*NETWORK Members pay just 8% above these wholesale prices plus shipping.

Complete Apple Systems

The NETWORK offers fantastic discounts on these three complete Apple packages.

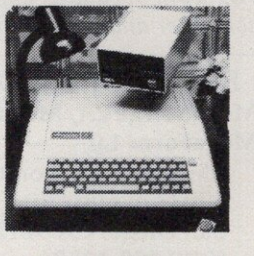
▶ APPLE //c
128K System
Modem Port
Serial Printer Port
Mouse/Game Port
Composite/RGB/TV
40/80 Column
Monitor Port
QWERTY/DVORAK
Keyboard
Built in Drive
Software

TOO LOW TO PRINT!



▶ APPLE //e PROFESSIONAL SYSTEM
128K //e CPU
80 Column Card
2 Disk Drives
Software

TOO LOW TO PRINT!



▶ MACINTOSH BASE SYSTEM
192K Memory
400K Diskette
Keyboard
Mouse
Software

TOO LOW TO PRINT!

Wholesale Prices Change Rapidly...if you ever see a lower price advertised anywhere please call! *You will find the Network's Price will always be the best!*

PC NETWORK

...AS A PC NETWORK MEMBER ONLY!

Listed below are just a few of the over 20,000 products available at our EVERYDAY LOW PRICES!

GAMES & EDUCATIONAL SOFTWARE

(Please add $1 shipping and handling for each title ordered from below.)

	Wholesale
Bluechip *Barron, Millionaire or Tycoon*	$ 28.25*
Broderbund *Loadrunner*	19.75*
Broderbund *Choplifter*	19.00*
Broderbund *Print Shop*	28.75*
CBS *Goren-Bridge Made Easy*	45.00*
CBS *Mastering the SAT*	81.00*
CBS *Murder By The Dozen*	20.97*
Davidson & Associates *Speed Reader II*	37.97*
Davidson & Associates *Math Blaster*	29.97*
Davidson & Associates *Word Attack*	29.97*
Epyx *Temple of Apshai*	21.97*
Hayden *DaVinci—Houses/Interiors/ or Landscapes—Mac Only*	29.97*
Hayden *Sargon III*	28.47*
Hayden-SAT *Sampler Test*	11.97*
Infocom *Deadline*	28.00*
Infocom *Enchanter, Planet Fall*	22.00*
Infocom *Seastalker*	22.00*
Infocom *Sorceror*	25.00*
Infocom *Suspended*	28.00*
Infocom *Zork I*	22.00*
Infocom *Zork II*	$ 25.00*
Penguin *Graphics Magician— Mac Only*	28.97*
Penguin *Transylvania Macintosh Version Only*	20.97*
Screenplay *Professional Blackjack*	39.88*
Sierra On-Line *Frogger Mac Too!*	21.00*
Sierra On-Line *Crossfire*	18.00*
Simon & Shuster *Typing Tutor III—Mac Too!*	28.25*
Sir-Tech *Wizardry*	28.50*
Sublogic *Night Mission Pinball*	20.00*
Spinnaker *Alphabet Zoo*	15.97*
Spinnaker *Delta Drawing*	24.97*
Spinnaker *Face Maker*	15.97*
Spinnaker *Hey Diddle Diddle*	15.97*
Spinnaker *Kinder Comp*	15.97*
Spinnaker *Rhymes & Riddles*	15.97*
Spinnaker *Story Machine*	15.97*
Spinnaker *The Most Amazing Thing*	20.77*
Videx *MacGammon & Cribbage— Mac Only*	29.40*
Videx *MacVegas—Mac Only*	35.40*
Virtual Combinatics *Micro Cookbook*	21.00*

BUSINESS SOFTWARE

(Please add $2.50 shipping and handling for each title ordered from below.)

ATI *How to use Multiplan*	$ 42.00*
Borland International *Turbo Pascal*	30.00*
BPI *GL, AP, AR, PR, or INV Each Only*	211.50*
Broderbund *Bank Street Writer*	40.00*
Central Point *Copy II Plus*	20.00*
Dow Jones Software *Market Analyzer*	198.00*
Dow Jones Software *Market Manager*	171.00*
Funk Software *Sidways*	35.00*
Howardsoft *Tax Preparer 1985*	150.00*
▶ **Living Videotext** *Think-Tank- Mac Too!*	75.00*
Human Edge *Mind Prober*	26.50*
Human Edge *Management of Sales Edge*	138.00*
Human Edge *Communication Edge*	98.00*
▶ **Mark of the Unicorn** *Mouse Stampede*	23.97*
▶ **Microsoft** *Multiplan (DOS or CPIM)*	105.00*
▶ **Microsoft** *Word for Macintosh*	102.25*
▶ **Microsoft** *File for Macintosh*	$102.25*
▶ **Microsoft** *Multiplan for Macintosh*	102.25*
Microsoft *Basic for Macintosh*	85.00*
Microsoft *Chart for Macintosh*	66.25*
Microstuf *Crosstalk*	105.00*
Monogram *Dollars & Sense*	52.00*
Monogram *Dollars & Sense for Macintosh Version Only*	89.98*
Odesta *Helix for Macintosh Reg's 512K*	237.00*
Sensible Software *Sensible Speller IV*	67.50*
Softcraft *Fancy Fonts*	125.00*
Software Publishing *PFS: File*	69.00*
Software Publishing *PFS: Write*	69.00*
Software Publishing *PFS: Graph*	69.00*
Stoneware *DB Master Version— Mac Too!*	199.00*
T/Maker *Click Art for Macintosh Version Only*	29.97*
United Software Ind. *Ascii Express Pro.*	71.50*

HARDWARE

(Please add shipping and handling charges found in italics next to price.)

COMPLETE SYSTEMS

Apple *Macintosh Base System*	CALL	
Apple Apple IIc	CALL	
Apple Apple IIe	CALL	
Columbia *Desktop & Portable Systems*	CALL	
Compaq *All Models*	CALL	
▶ **COMPAQ** *Hard Disk Portable 10MB Hard Disk/1 Floppy/256K*	$2,599.00*	*(59.08)*
DATA General *DG ONE 128K/1 Drive "The Real Portable"*	1,999.00*	*(43.20)*
▶ **IBM** *PC Base System 2DSDD/FDC/256K*	1,495.02*	*(32.55)*
▶ **IBM** *PC Professional Hard Disk 1 DSDD/FDC/10MB Hard Disk/256K)*	1,906.62*	*(42.89)*
IBM *PC/AT All Configs*	CALL	
▶ **Sayno** *MBC 550 "Lowest Cost Compatible"*	620.00*	*(13.39)*
▶ **Sayno** *MBC 775 Color Portable IBM Clone 2 Drives/Color Monitor/256K*	1,775.00*	*(38.00)*
▶ **Tava** *PC Complete IBM Compatible (256K/2 Drives)*	1,200.00*	*(25.92)*
Texas Instruments *Professional*	CALL	

DISK DRIVES & CONTROLLERS

Alps *AP-100A Dual Apple Drives in One Case*	$ 309.00*	*(7.00)*
Alps *AP-100B Same as 100A with One Drive*	159.00*	*(4.00)*
▶ **Alps** *AP-100C Slimline Drive in Case*	159.00*	*(4.00)*
Apple *All MODELS*	CALL	
Apple *Macintosh Add On Drive*	349.95*	*(7.58)*
Corvus *6MB Hard Disk*	1,436.00*	*(31.02)*
Davong *Hard Disks for Macintosh*	CALL	
Micro-Sci *A2 143KB Drive*	185.00*	*(5.00)*
Micro-Sci *Floppy Controller*	55.00*	*(2.50)*
Rana *Elite I 163K Drive*	225.00*	*(5.00)*
Rana *Elite II 326K Drive*	320.00*	*(7.00)*
Rana *Elite III 652K Drive*	398.00*	*(10.00)*
Rana *Floppy Controller*	70.00*	*(2.50)*
▶ **Panasonic** *Half Height DSDD Drive—No Case*	115.00*	*(2.48)*
Shugart *AP-50 Full Height Add-On*	155.00*	*(4.00)*
▶ **Tandon** *TM100-2 Full Height DSDD Drive Only*	102.00*	*(2.20)*
Tecmar *10MB Hard Disk for Macintosh*	1,350.00*	*(29.16)*

MEMORY CHIPS

All chips guaranteed for life.

▶ **64K Memory Upgrade Kits** *(9 chips)*	$ 15.21*	*(1.00)*
▶ **64K Dynamic Ram Chips** *(Each)*	1.69*	*(1.00)*

MODEMS

Anchor *Volksmodem*	$ 47.00*	*(2.50)*
▶ **Anchor** *Mark XII LOWEST PRICE 1200BPS HAYES COMPATIBLE EXTERNAL MODEM!*	230.00*	*(5.00)*
Hayes *Micromodem IIe w/Smartcom*	192.00*	*(2.50)*
Hayes *Smartmodem 300*	180.00*	*(3.60)*
Hayes *Smartmodem 1200B with new Smartcom II, VT 100 Emulator*	325.92*	*(2.50)*
Novation *Apple Cat II*	174.45*	*(2.50)*
Prometheus *ProModem 1200*	279.00*	*(6.00)*
Prentice *Pop Com MAC Pack 1200 Baud Modem, Cable, Straightalk*	322.00*	*(2.50)*
U.S. Robotics *Password*	215.00*	*(4.65)*

MONITORS

Amdek *Video 300G Composite Monitor*	$ 110.00*	*(3.00)*
Amdek *Video 300A Composite Monitor*	120.00*	*(3.00)*
Amdek *Video 310A IBM Type Monochrome Monitor*	130.00*	*(3.00)*
Amdek *Color 300 Composite Color*	215.00*	*(6.00)*
Amdek *Color 500 RGB Color*	320.00*	*(6.00)*
Princeton *HX-12 RGB Monitor*	CALL	
Taxan *210 Combination RGB/ Composite Display*	230.00*	*(6.00)*
Zenith *ZVM-123 High Res Green (Consumer Reports Rated Best Buy!!)*	76.00*	*(2.50)*

BOARDS AND BUFFERS

ALS *Z-Engine*	$ 129.00*	*(2.50)*
AST *Research Multi I/O-2 Serial/Clock*	165.00*	*(2.50)*
Microsoft *Premium Softcard IIe*	243.67*	*(2.50)*
Microtek *Dumpling/GX*	55.00*	*(2.50)*
Microtek *Magnum 80me 80 col + 64K*	93.00*	*(2.50)*
Orange Micro *Grappler +*	96.90*	*(2.50)*
Orange Micro *Serial Grappler*	78.00*	*(2.50)*
PC Network *Z80 Card*	35.00*	*(2.50)*
Personal Comp Prod *6MH Appli-Card*	552.00*	*(2.50)*
Quadram *MP-8K Microfazer Buffer (expandable)*	110.00*	*(2.50)*
Quadram *APIC Parallel Interface*	57.00*	*(2.50)*
Quadram *APIC/G Graphics Interface*	62.00*	*(2.50)*
Quadram *eRAM-80 80-Col with 64 Memory*	88.00*	*(2.50)*
Street Electronics *ECHO II Speech Synthesizer*	100.00*	*(2.50)*

PRINTERS

Apple *15" Imagewriter Requires Kit*	$ 530.00*	*(11.45)*
Apple *8.5" Imagewriter Requires Kit*	446.00*	*(9.34)*
Apple *Imagewriter Accessory Kits for IIe/IIc or Mac*	48.00*	*(1.00)*
C. Itoh *Starwriter F10/40 40 CPS LQ*	875.00*	*(18.90)*
▶ **Epson** *LX-80 100CPS 80 COL LQ Mode— New Model!!!*	225.00*	*(4.90)*
▶ **Epson** *FX-80 160CPS 80 COL*	370.00*	*(7.99)*
▶ **Epson** *FX-100 160CPS Wide Platen*	525.00	*(11.34)*
Epson *LQ1500 NEW LQ/DP Printer*	CALL	
Epson *Apple-to-EPSON Parallel Cable*	21.00*	*(1.00)*
NEC *2030 20CPS Letter Quality Printer*	625.00*	*(16.53)*
NEC *3530 33CPS Letter Quality Printer*	1,185.00*	*(31.54)*
Okidata *82A Serial & Parallel*	280.00*	*(7.00)*
▶ **Okidata** *ML 182 New 120CPS/LQ Mode/FRICTI Epson Graphics*	200.00*	*(4.34)*
▶ **Okidata** *NEW! Color 20 80CPS/100+ Colors/ LQ Mode/Epson Graphics/+ More (Requires Interface)*	109.00*	*(4.34)*
▶ **Okidata** *NEW! Epson Interface for Okimate Color 20*	69.00*	*(1.50)*
▶ **Okidata** *ML 92 160CPS 80 COL Printer*	350.00*	*(7.56)*
Okidata *Apple-to-Okidata Parallel Cable*	20.75*	*(1.00)*
Quadram *Quadjet Multicolor Ink-Jet with Kit*	396.00*	*(8.55)*
Qume *Sprint 11/45 45 CPS Letter Quality*	1,155.00*	*(24.40)*
Qume *IBM Cable and Interface (required)*	72.00*	*(1.00)*
▶ **Silver Reed** *EXP 400 11CPS Letter Quality*	230.00*	*(4.99)*
▶ **Silver Reed** *EXP 500 15CPS Letter Quality*	280.00*	*(6.00)*
Talley *MT-160L 160CPS DP/LQ Printer*	540.00*	*(12.00)*
Texas Instruments *855 DP/LQ w/Tractor*	679.00*	*(14.70)*
Toshiba *P-1340 80 Col version of P-1351*	530.00*	*(11.50)*

ACCESSORIES AND SUPPLIES

▶ **Brand Name Macintosh Diskettes** *Box of 10 Guaranteed for Life Includes free Pop & File Case*	$ 24.95*	*(1.00)*
PC Network *SSDD Diskettes (Box of 10)*	9.00*	*(1.00)*
Chalkboard *Powerpad*	62.00*	*(1.50)*
Kensington Microwave *System Saver Fan*	56.97*	*(1.50)*
Koala *KoalaPad Touch Tablet*	78.00*	*(1.50)*
Hayes *Mach II Joystick for IIe*	25.00*	*(1.50)*
Hayes *Mach III Joystick w/Fire Button for IIe*	31.00*	*(1.50)*
M & R *Sup-R-Mod RF Modulator*	44.00*	*(1.50)*
Apple *Macintosh Carrying Case*	74.00*	*(1.60)*
Micron *Micron Eye*	275.00*	*(5.94)*
PC Network *Cooling Fan with Surge Protector & Dual Outlets*	25.00*	*(2.50)*
WP Printer Paper *2600 Sheets Microfine Perfs*	17.00*	*(10.00)*

Mac-Too! indicates the Mac version is available at the same price.

***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. Personal checks please allow 10 working days to clear.

CALL TOLL FREE **1-800-621-S-A-V-E** (orders and membership only)

In Illinois call (312) 280-0002 validation **M565**

CIRCLE 315 ON READER SERVICE CARD.

...WITH THESE 15 UNIQUE BENEFITS

1 COST + 8% PRICING—The NETWORK purchases millions of dollars in merchandise each month. You benefit in receiving the lowest price available **and all at just 8% above published dealer wholesale price.**

2 OUR 600 PAGE WHOLESALE CATALOG — Members receive our 600 page wholesale catalog containing over 20,000 hardware and software products for the *IBM PC, APPLE* and over 50 other popular computer systems. **THE NETWORK'S CATALOG IS THE LARGEST SINGLE COMPILATION OF PERSONAL COMPUTER PRODUCTS AVAILABLE TODAY. NOW UPDATED QUARTERLY!**

3 IN-STOCK INSURED FAST HOME DELIVERY—The NETWORK maintains a **giant multi-million dollar inventory of most popular products,** allowing us to ship many orders from stock. Non-stock items are typically maintained in local warehouses just days away from The NETWORK and YOU. We pay all insurance expenses on your shipment. **EMERGENCY OVERNIGHT SERVICE IS AVAILABLE ON REQUEST.**

4 10 DAY RETURN POLICY—**If you are not satisfied, for any reason with any hardware component purchased from The NETWORK within 10 days of receipt, we will refund your entire purchase (less shipping) with no questions asked.**

5 MEMBERSHIP SATISFACTION GUARANTEE—If for any reason you are not satisfied with your membership within 30 days, we will refund your dues IN FULL.

6 EXPERIENCED CONSULTANTS—The NETWORK hires consultants, not order takers, to aid you in product selection. Our consulting staff possesses in excess of 150 man years of personal computer product experience. **We back our consultants with our money back guarantee: IF ANY PRODUCT RECOMMENDED BY OUR CONSULTING STAFF FAILS TO PERFORM AS PROMISED—WE WILL TAKE IT BACK AT OUR EXPENSE FOR A 100% REFUND.**

7 FREE TECHNICAL SUPPORT—The NETWORK supports every product it sells. Our qualified TECH-SUPPORT staff will help you assemble your system, interpret vendor documentation and get your software and hardware to work. **WE WILL GIVE YOU ALL THE HELP YOU NEED, WHEN YOU NEED IT—FREE!**

†**8 OPTIONAL BUSINESS RENTAL LIBRARY**—All members can join our BUSINESS RENTAL LIBRARY ***featuring over 1000 available titles*** for just $25 PER YEAR above the base membership fee. **This entitles you to rent business software AT JUST 20% of the DISCOUNT PRICE FOR A 14 DAY PERIOD. If you decide to keep the software, the entire rental fee is deducted from the purchase price. VIP MEMBERS GET A FULL 30 DAYS for just $30 above the V.I.P. base fee. This also includes the game library privileges for a $5 combination savings.**

†**9 OPTIONAL GAME SOFTWARE RENTAL LIBRARY**—The Game Rental library is available to members for just $10 PER YEAR and permits evaluation (or just enjoyment) of any game or educational software product as above.

10 SPECIAL SAVINGS BULLETINS—THE PRINTOUT—Issued Quarterly at no charge to Network members only! The Printout contains all the New Product listings and price changes you need to keep your Catalog up to date. Also, we buy excess dealer inventories, and store bankruptcy closeouts, which we turn around and make available to our members at fantastic savings via *THE PRINTOUT.*

11 DISCOUNT BOOK LIBRARY—Working with numerous publishers and distributors, The NETWORK has assembled a library of over 1000 computer related books and manuals at savings of up to 75% from the normal store price.

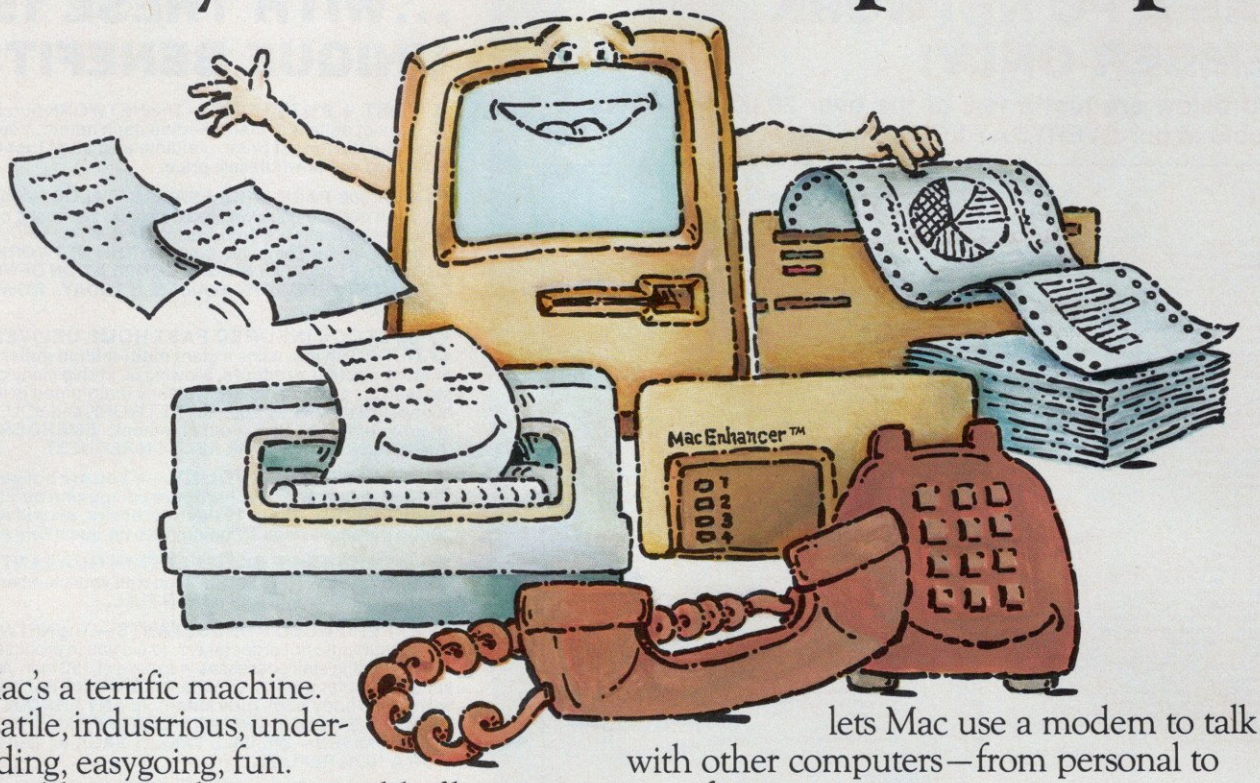
12 MEMBERSHIP REFERRAL BONUS—Our most valuable source of new members is you! To date almost 40% of our members have been referred by word of mouth from other satisfied members. For those of you who refer new members, The NETWORK will credit a cash bonus to your account applicable to any future purchase.

13 CORPORATE ACCOUNT PROGRAM—Almost 50% of The NETWORK's members are corporate buyers and users *(see opposite page left).* The NETWORK can establish open account status and assign designated account managers to expedite orders, and coordinate multiple location shipments.

14 QUANTITY DISCOUNTS—For large corporations, clubs, and repeat or quantity buyers The NETWORK can extend additional single order discounts, when available to us from our manufacturers and distributors.

15 PRICE PROTECTION—The PC Industry is crazy!! Prices change not yearly or monthly or even weekly but often day by day! These changes are sometimes up *but are mostly down!!!* **THE NETWORK GUARANTEES THAT IN THE EVENT OF A PRODUCT PRICE REDUCTION, BETWEEN THE TIME YOU PLACE YOUR ORDER AND THE TIME THE PRODUCT SHIPS YOU WILL ONLY PAY THE LOWER AMOUNT!!**

Get your Mac to open up.

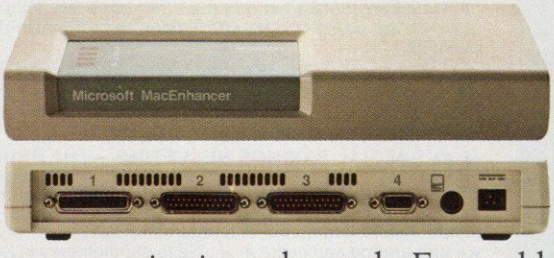


Mac's a terrific machine. Versatile, industrious, understanding, easygoing, fun.

Trouble is, Mac lives in a world of his own. He doesn't communicate well with his coworkers. Doesn't work well with them.

Now there's help.

The Microsoft® MacEnhancer™ expansion system can get him out of his shell. It'll open



his communications channels. Expand his horizons.

MacEnhancer simply plugs into Mac's communication port. It lets you keep that original port while adding an IBM®-type parallel connector for your printer and two IBM-type serial connectors.

So now Mac can hobnob with even the finest letter quality printers. Cope with hyperactive dot-matrix printers.

And it comes with MacEnhancer terminal software. A communications program that lets Mac use a modem to talk with other computers—from personal to mainframes.

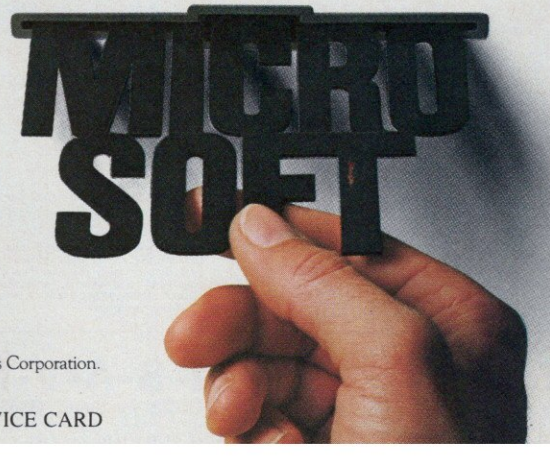
All without losing the loveable Mac personality. Just "point and click."

Getting Mac to expand his horizons wasn't easy, but somebody had to do it. And

MICROSOFT®
The High Performance Software™

who better than Microsoft? We've written more Macintosh™ programs than any other software company. Including Microsoft Word, Microsoft File. And Microsoft BASIC, Mac's first language.

For more information, or to free associate with your nearest Microsoft representative, call (800) 426-9400. In Washington State, Alaska, Hawaii and Canada, call (206) 828-8088.



Microsoft is a registered trademark and The High Performance Software and MacEnhancer are trademarks of Microsoft Corporation. IBM is a registered trademark of International Business Machines Corporation. Macintosh is a trademark licensed to Apple Computer, Inc.

CIRCLE 175 ON READER SERVICE CARD

A Macintosh Potpourri

Fattening your Mac, FastFinder, MacNosy, TMON, and more

Since summer officially starts this month, perhaps it's time to spend a column doing some late-spring housecleaning.

This month, in no particular order, we'll look at fattening your own Mac, FastFinder (version 1.6) from Tardis Software, and a programming-tool-in-progress: MacNosy (version 1.0). I also have a few comments on previous columns and products I've dealt with. That should clear my shelves of the miscellaneous things I've been wanting to tell you about, so next month we'll jump back into our look at some Mac programming languages.

Fattening Your Own Mac

Well, they said you could do it, and I did—I fattened my own Mac. The original impetus for chopping up my pristine Macintosh motherboard was an article that appeared in the January issue of *Dr. Dobb's Journal* (2464 Embarcadero Way, Palo Alto, CA 94303; back issues cost $3.50 each, which includes shipping). Next came a short article in *68 Micro Journal* that gave an abbreviated version of the Mac-fattening routine.

Then, at the first MacWorld exposition in late February in San Francisco, about half a dozen firms offered various "parts kits" and their own instructions at mouthwatering prices (as low as $225–$350 if you wanted them to do the work). Since I'd enlisted in the microcomputer revolution with a soldering iron in hand (there wasn't any other way), I decided that I had nothing to fear, assuming I still remembered how to solder.

First the warnings: Fattening your own Macintosh will void your warranty, may ruin your motherboard forever (if you slip), will take a good deal of time spent hunched over teeny holes trying to get the solder out of them, and generally is not most folks' idea of fun.

Getting the Mac apart is relatively easy (I bought a set of one-inch-long hex wrenches from Jensen Tools, which work well enough to open the case, but the "proper" tool to get the case open is a Torx screwdriver such as the Xcelite XTD-10). Cutting all 16 RAM chips off the motherboard gave me a bit of a shudder, since at that point, I was committed to making the change. Once you've cut the chips off, you need to desolder (and remove the solder from) 256 locations. It's at this step that I can offer Mac fatteners a few words of advice.

The Macintosh motherboard is a four-layer printed circuit board, which means that some of the traces (connections) run across the two outside surfaces and others run across two surfaces *inside* the board. Pulling the solder from the holes that are connected only on the outside is simple—my 27-watt iron did a nice job, and an iron of that size is small enough so that you don't run much risk of damaging the board. Unfortunately, two of the connections for each memory chip attach to the middle layers of the board, and the way Apple laid out the board makes the middle layer act as a heat sink, diverting the heat from the iron onto the traces—exactly what you don't want to happen!

So, if you're going through all the trouble of doing the four hours' work it takes to fatten a Mac, take some advice: desolder every connection for each memory chip, except those for pins 8 and 16, with a low-wattage iron, such as the 27-watt one I used. Don't even bother with pins 8 and 16 yet. Once you've cleared out all the other holes, *switch soldering irons*. I found that a 35-watt iron was the smallest that allowed me to get the solder out of pins 8 and 16. Be more careful with these pins than you were with the others—this step is tricky, and is the one point at which you are most likely to damage the motherboard.

Once you overcome this hurdle, things are easy again. Switch back to the low-wattage iron, solder in 16 sockets where the memory ICs used to be, solder in the extra required ICs and resistors, then stuff the sockets with 256K × 1 RAM chips. Voilà, you have 512K!

The low price for 256K RAM chips on March 1 was about $8 apiece. Thus, with a little shopping around and some intense work, you can fatten a Mac for less than $150.

Assuming that you do a good job, the only problem will be figuring out what to do if your machine needs repairs or you try to update to a Hyperdrive hard-disk drive. To install a Hyperdrive, the manufacturer, General Computer, desolders the 68000

LOOK
AT THESE PRICES!

maxell®

Get 100% error-free certification and a lifetime warranty from Maxell. In tests simulating 20 to 30 years of use Maxell diskettes showed no sign of wear or data loss. You're assured of reliability with Maxell's lifetime diskette warranty.

	50+	100+
3½" Single Sided/ Double Density	$3.24	$3.15

Minimum Order 50 Diskettes.

FREE
11 oz. porcelain mug with every order!

CALL TOLL FREE 1-800-USA-FLEX
IN ILLINOIS 1-312-351-9700

Please mention this ad when calling in your order. MasterCard, Visa, C.O.D. or net 30 days with approved credit on purchases over $200.00. Prices subject to change without notice.

COMARK
COMARK, INC. 135 N. Brandon
Glendale Heights, Illinois 60139

CIRCLE 291 ON READER SERVICE CARD

chip and installs a small disk-controller board. The Hyperdrive folks warranty the resultant Mac, but I'm not sure if they will if you've already taken a soldering iron to the board.

So far, I think that fattening my own Mac was worth it, but I'll let you know if I run into any problems.

Mike Lehman got frustrated with the pokiness of the Macintosh Finder when he was using system-development software, so he decided to do something about it. The result was FastFinder.

Mike is no newcomer to development. Before he formed Tardis Software (2817 Sloat Road, Pebble Beach, CA 93953) to distribute FastFinder, he was director of language development at Digital Research, and he's also the author of Digital Research's Pascal MT+.

To make a long story short, FastFinder drops the Mac's iconic (graphic) approach to displays and substitutes a more traditional, command-oriented interface. When you start up from a disk with FastFinder installed, you get an Enter command: message in an otherwise blank window in the middle of the screen.

One of the things that slows the Macintosh down seems to be the time it takes to calculate such things as the position of the various graphic elements and then show them. The manual claims that FastFinder runs as much as five times faster than Apple's Finder, although when I tried it with the Macintosh 3½-inch drives, FastFinder cut the time only in half.

Where FastFinder really excels is on a hard-disk drive, such as the Corvus. First, you can have up to 12 volumes (disks) on line at once, more than most hard-disk drives allow. Second, and more important, is that FastFinder has no limit on the number of files that can appear in one volume. The Apple Finder (version 1.1), on the other hand, bogged down on me at a grand total of 117 files (including folders). And, yes, you can put FastFinder on a hard disk so that you can start FastFinder up from the hard disk, although I'm not sure if you can do so with all hard disks. We've tested FastFinder with the Lisa (Mac XL), Corvus, Davong, and Hyperdrive hard-disk drives, and it does work with all of them.

If you don't have icons to look at, just how do you select files, erase them, move them around, and otherwise use the system? You have a choice: You can type commands, such as ERASE MY FILENAME, or you can pull down one of the menus at the top of the display and use it to start the command (see figure 1).

The FastFinder commands actually allow you to do a bit more than you can do with the usual Apple Finder—if you're familiar with

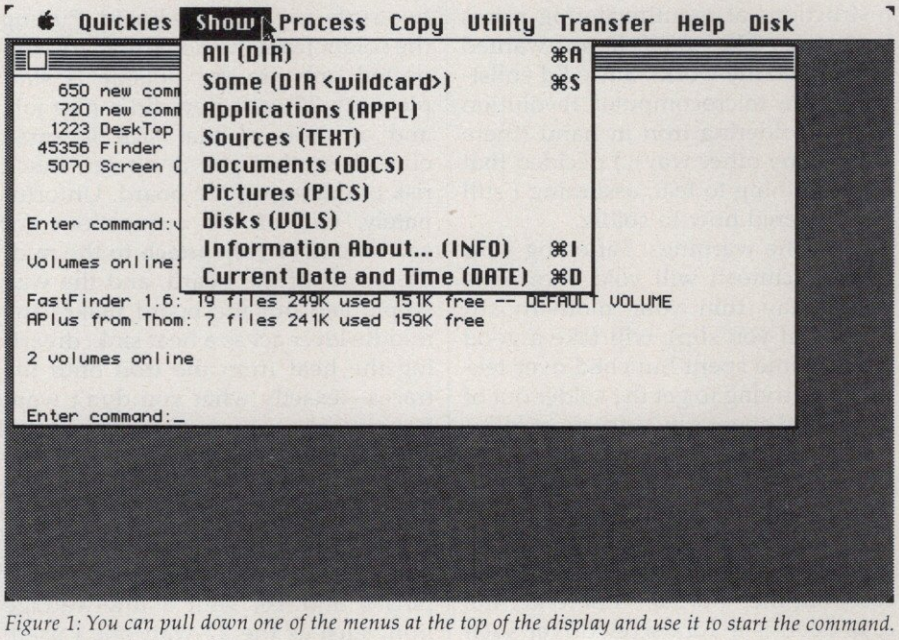


Figure 1: You can pull down one of the menus at the top of the display and use it to start the command.

IT WAS HER EYES...

. . . that tipped me off. They looked out through the fancy fur and perfume and told me something was wrong, dead wrong. I'd seen those eyes somewhere, in some long forgotten place, some dingy nightclub on the south side of Chicago. But here she was, strictly East Side Manhattan, if you catch my drift.

She was askin' me to stick my neck out for the long green, but a nasty feeling made me think twice before I made my move. I had to put those eyes to a face, and fast. The solution was on my desk: MAC PRIVATE EYE.™ One quick call to my inside man at headquarters was all it took. Within seconds he copied the mug shot with his MAC PRIVATE EYE video digitizer, modemed it straight to my Macintosh,™ and put the I.D. on this dame. The $595.00 I spent on that MAC PRIVATE EYE probably saved this flatfoot from some serious trouble. One thing WAS clear, my MAC PRIVATE EYE would never leave me short for important information like maps, graphs, blueprints, photos, security I.D.'s, and a thousand other things I hadn't thought of yet. There was only one question; how did I ever get along without it?

For more information:
I/O Video Inc., 225 Third St.
Cambridge, MA 02142 (617) 547-4141
Dealer and Distributor inquiries welcome.

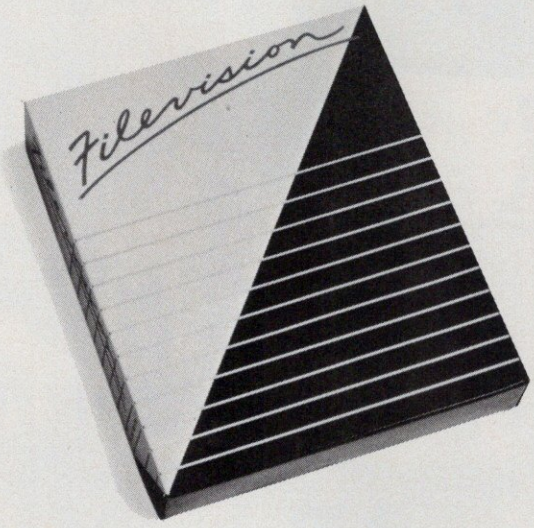
Mac Private eye™

From I/O Video,
for computer owners with vision.

Macintosh is a trademark of Apple Computer Inc.
Mac Private Eye is a trademark of I/O Video Inc.

CIRCLE 141 ON READER SERVICE CARD

Filevision™.
The fine art of filing by pictures.



Now with free pictures.

Filevision is the only visual filing system for Macintosh.™ And it produced some prize winning drawing files in our recent contest. Pictures, data and all.

The winners fill several disks. With business, educational, and entertainment applications. But we can only send you one. Which is why you should call our Filevision Hotline at (800) 554-2469. In California, call (800) 368-3813.

We'll tell you which application templates you can get free, just by sending your Filevision registration card. And we'll tell you where to buy Filevision. Which you should have done already.

Then you would already know why Filevision won honorable mention as "software product of the year" from the editors of *InfoWorld*.

Fortunately, you can still find out. And get prize winning drawing files to boot.

TELOS™
SOFTWARE PRODUCTS
Software for the real world.

Macintosh is a trademark licensed to Apple Computer, Inc. Filevision is a trademark of Telos Software Products. Telos is a trademark of Telos Corporation.

CIRCLE 301 ON READER SERVICE CARD

CP/M or MS-DOS, you'll feel right at home. Here's a quick list of the FastFinder commands:

copy	(copy files)
dir	(show a directory)
erase	(erase files)
rename	(rename files)
do	(perform list of commands)
lock	(lock a file)
unlock	(unlock a file)
novice	(set high protection level)
expert	(set low protection level)
setattr	(set file attributes)
startup	(change start-up file)
print	(print a document file)
terse	(short, concise messages from FastFinder)
verbose	(longer, better messages from FastFinder)
vols	(directory of volumes on line)
info	(see info about files)
date	(show time and date)
search	(look for text in files)
scan	(count bytes, words, lines)
combine	(make two files into one)
compare	(show how two files are different)
type	(display in ASCII the contents of a file)
dump	(display in hex the contents of a file)
list	(prepare a listing file with date)
record	(capture a series of commands you type for later recall)

An impressive list of commands, to say the least.

Why would you want to give up Apple's beautiful pictures for a touch-typing session? If the speed increase in invoking or moving between applications isn't enough, think of the other things FastFinder allows you to do. You can prepare a "script" of commands you want executed in order. I put together a short script that starts up the C compiler, compiles my files, links them, installs the resources, and then prints out listings of all of them with the time and date. Compiling no longer means a lot of pointing and clicking. Yes, you can do some of the same things with the transfer routines in the development-system editor, but not with the same degree of sophistication.

Likewise, the information FastFinder presents in a verbose directory of files (see figure 2) is more enlightening than Apple's. Note that the directory shows the size of the data and resource forks of every file, identifies the file icons and the file types, and gives the application IDs in addition to the usual name, date, and size. During development of new programs, I find this information handy, although in the everyday course of events, I can easily live without this overkill.

FastFinder is not without its faults. I wish that you could *set* the time and date from the command line, instead of just displaying it. If you pull down

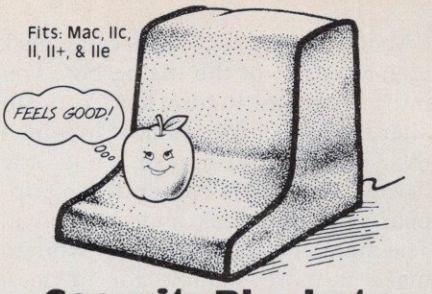
Quickies Show Process Copy Utility Transfer Help Disk

Drive: 2, Volume: FastFinder 1.6

Data	Rsrc	Total	Fnum	Fl	TYPE	APID	Modification Date	File Name
5120	127423	132543	1	31	ZSYS	MACS	11:46:19 21-Nov-84	System
0	17254	17254	6	11	PRES	MACS	01:56:30 20-Nov-84	Imagewriter
0	1280	1280	82	81	APPL	Mike	21:43:39 20-Nov-84	SystemDisk
276	486	762	83	1	TEXT	EDIT	23:01:04 28-Jan-85	Read Me First!
130	0	130	85	1	TEXT	EDIT	13:19:03 21-Nov-84	fastfinder install
160	0	160	86	1	TEXT	EDIT	13:19:47 21-Nov-84	fastfinder install 2
373	486	859	101	1	TEXT	EDIT	01:29:39 18-Jan-85	Rel notes part 2
22	0	22	14	11	CLIP	MACS	01:53:29 18-Jan-85	Clipboard File
0	566	566	81	1	ZSYS	MACS	12:14:46 21-Nov-84	Scrapbook File
2048	0	2048	90	1	ZSYS	MACS	09:03:19 30-Nov-84	Note Pad File
21888	0	21888	99	1	SCRN	NONE	01:59:46 18-Jan-85	startupscreen
436	486	922	100	1	TEXT	EDIT	01:28:35 18-Jan-85	Rel notes part 1
428	486	914	109	1	TEXT	EDIT	01:34:41 18-Jan-85	new commands part 3
284	486	770	94	1	TEXT	EDIT	01:51:48 18-Jan-85	ffinfo
302	348	650	102	1	TEXT	EDIT	01:31:28 18-Jan-85	new commands part 1
372	348	720	103	1	TEXT	EDIT	01:34:40 18-Jan-85	new commands part 2
0	1223	1223	114	40	FNDR	ERIK	07:43:52 14-Jan-04	DeskTop
0	45356	45356	115	11	APPL		12:57:37 28-Jan-85	Finder
5070	0	5070	116	0	PNTG	MPNT	07:44:38 14-Jan-04	Screen 0
8521	0	8521	117	0	PNTG	MPNT	07:45:56 14-Jan-04	Screen 1

Enter command:_

Figure 2: A FastFinder directory shows the size of the data and resource forks of every file, identifies the file icons and file types, and gives the application IDs.

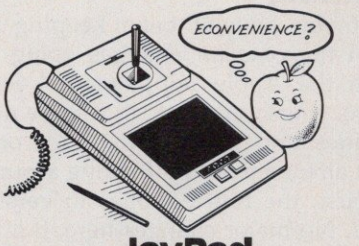


SecurityBlankets™

"softwear for . . . your hardware"

This attractive, sensuously soft velvety cloth cover in gentle earthtones, is designed to protect your Apple Computer & Peripherals.

ITEM	#	APPLICATION
Computer Covers $9.95	101	Apple II, Mon. III, w/Stand & Side Fan
	109	Apple II, Duo Disk, Mon. II & Side Fan
	102	Unicover, designed for Macintosh w/Keyboard
	107	IIc Unicover for Computer, Stand & Mon. IIc
Drive Covers $6.50	103	2 Drive Disk II Stack
	104	Macintosh Add-on Drive Cover
	108	IIc Add-on Drive Cover
Printer Covers $6.95	105	Epson MX, RX-80, Gemini, Okidata
	106	Apple Imagewriter, Epson FX-80



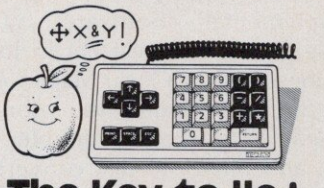
JoyPad "Econvenience"

Joystick/Graphics Pad = Economy/Convenience

Unified design with mode switch, saves money and time – no fiddling with separate controls, cables, and expensive adapters. It is compatible with all series II Apple Computers.

Joystick is self-centering, with release, and has X/Y trim adjustments. Pad comes with stylus and is compatible with Koala software (not included).

Complete JoyPad hardware just $69.



The Key to IIe !

Numerical Keypad + Full 2D Control

Actually better quality & utility than the more expensive programmable or Apple Keypads!

Gives complete 2 Dimensional cursor control to IIe Computers + Print, Space, Escape, full Numerical Keypad with Return. (Sorry, only IIe can utilize this pad.)

The Key to IIe for today's advanced software—at the right price only $69.

30 day money-back guarantee of satisfaction. Visa & Mastercard accepted. Please add $3.00 for shipping & handling. CA Residents please add 6 or 6½% sales tax.
*Ask for free catalog.

AccessoriesPlus™

20695 S. Western Ave., #128, Torrance, CA 90501

(800) 221-6952 Toll-free orderline (outside CA)
CA orders, or for information, (213) 328-1054.

CIRCLE 173 ON READER SERVICE CARD

"About FastFinder," you can't click your way out of the dialog box; you must press the Return key. You can alter the size of the window in which the commands appear, but the "grow" box in the corner doesn't appear until you click and drag on it. The manual could use a bit of work to make it more suitable for novices, and the hard-disk connection could be better described.

All in all, however, FastFinder does pretty much what it claims to and will speed us developers on our way. By the way, FastFinder was written in Consulair C, the product I wrote about last month.

Miscellany

If you haven't been keeping up with the *constant* changes going on with the Apple Supplemental Software, you should note that some new utilities and some updates of ones that already exist are floating around.

First, the font editor is in version 2.02. No major changes here, but it's a step in eradicating a few bugs. Second, RMover (or Resource Mover on some disks) has pretty much been superceded by REdit (Resource Edit). This program finally allows you to do most resource maintenance work in a single batch, with one tool. I'm not sure if Apple is directly distributing these files or not, since I'm not about to pay another $100 just to see what files the company's shipping for the Supplemental Software offering these days. Your best bet in looking for these files is a local Macintosh users' group. I found the aforementioned files plus a font doubler, RAM test, and binary-to-hex converter on disk 5 of the Stanford Macintosh User Group library. At the MacWorld exposition, I noticed that most of the users' groups that exhibited there all had roughly the same files available, albeit on different disks. Check with your local users' group—it's worth the few bucks it takes to join.

While I'm on the subject of things to join, you should take a close look at *MacTutor*, a newsletter for Macintosh programmers (formerly *MacTech*, before a trademark difficulty got in the way; actually, the new name may also bring up trademark questions—I've seen at least two other organizations claiming ownership of the name

```
Resource file #$0020                          Map at $00FD20    Attributes: rcw
'ICN#'  $0080  ..P.T...  Nowhere
'ICN#'  $0081  ..P.T...  Nowhere
'RSC#'  $0000  ..P.T1..  At $00ED8E
'RSC#'  $0001  ....T...  Nowhere
'STR '  $0100  ....T...  Nowhere
'STR '  $0102  ....T...  Nowhere
'STR '  $0104  ..P.T1..  At $00FFDE
'STR#'  $0001  ....T...  Nowhere
'MENU'  $0002  ....T...  Nowhere

DUMP FROM 000000
000000:VN  FF FB 42 4A  FF FF FF FF  00 07 22 F0  00 07 22 F2  ..BJ......"...".
000010:    00 07 22 F4  00 07 22 F6  00 07 22 F8  00 07 22 FA  ..".."..."...".
000020:    00 07 22 FC  00 07 22 FE  00 07 22 38  00 07 23 00  ..".."..."8..#.
000030:    00 07 23 02  00 07 23 02  00 07 23 02  00 07 23 02  ..#...#...#...#.
000040:    00 07 23 02  00 07 23 02  00 07 23 02  00 07 23 02  ..#...#...#...#.
000050:    00 07 23 02  00 07 23 02  00 07 23 02  00 07 23 02  ..#...#...#...#.

DISASSEMBLY FROM 002FB2
002FB2:    _DrawString
002FB4:    PEA      *$002F38
002FB8:    MOVE.L   (A7),-(A7)
002FBA:    MOVE.L   (A7),-(A7)
002FBC:    MOVE.L   (A7),-(A7)
002FBE:    MOVE.L   #$00100010,-(A7)
002FC4:    _FrameRoundRect
002FC6:    MOVE.L   #$00030003,-(A7)
002FCC:    _InsetRect
002FCE:    MOVEA.L  (A5),A0
002FD0:    PEA      $FFE8(A0)
002FD4:    _PenPat
002FD6:    MOVE.W   #$000B,-(A7)
002FDA:    _PenMode
002FDC:    _PaintRect
002FDE:    _PenNormal
002FE0:    MOVE.L   #$FFFDFFFD,-(A7)
```

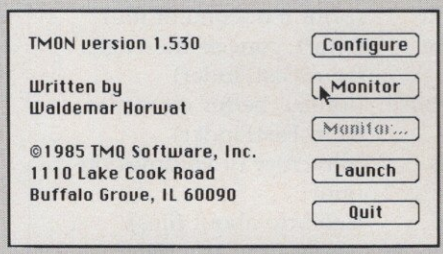


Figure 4: An example of the TMON screen itself

Figure 3: Three printouts of on-screen windows using TMON.

MacTutor). The first issue didn't do much for me, but the subsequent ones have been first class. Columns on C, BASIC, Pascal, Forth, and assembly language all grace the pages of MacTutor. You'll find this newsletter an invaluable source of technical information. Subscriptions are $24 a year (12 issues); MacTutor, P.O. 846, Placentia, CA 92670; (714) 993-9939).

Meanwhile, some of the products I've mentioned in previous columns have been updated. The Softworks C compiler, for instance, has undergone a recent revision. I can't really keep track of all the revisions of software and let you know in a timely fashion when they change, so, starting with this column, if there's a version number for the product I'm looking at, I'll give it in the text. That way you can ask the developer what's new since the version I reviewed.

MacNosy

Hmmm . . . What to say about this product? Well, it certainly isn't for everyone out there in readerland, yet this surprisingly powerful tool can certainly do things other disassemblers I've seen for the Mac can't.

To start with, you'll need a 512K Mac or a Mac XL (Lisa) with at least that much memory running MacWorks. Call up MacNosy, tell it what program (or ROM) to work on, and you'll be greeted with some cryptic (but decipherable) messages.

MacNosy is what I'd have to call a "threaded disassembler," for lack of a better term. MacNosy looks at the code of the program you instruct it to inspect, figuring out how many procedures and instructions it has and where the various procedures call one another; then it substitutes names for as many of the routines and data structures as it can.

From there, you're on your own. What you can do with MacNosy is limited only by your curiosity and intelligence. The documentation, although limited, does a decent job of getting you started. The version I've been using doesn't have all of the eventual features working, but it does have enough to do a decent disassembly of the ROM or any program you might happen to have lying around.

The author of MacNosy, Steve Jasik, seems to have the best understanding of the Macintosh's internal workings of any non-Apple-taught person I've met. I can barely follow

Straight Talk.™
The information software that keeps you on course.

You don't go sailing without the right navigational instruments. And you don't make business decisions without the right information.

Straight Talk and your Macintosh™ give you access to a world of timely information. Fast. So you have the information you need to make informed business decisions.

Here's what it gives you:

- Automatic log-on and log-off to major information services like, Dow Jones News/Retrieval,® The Source℠, and CompuServe.
- The latest business information and financial news, plus airline schedules and fares, an encyclopedia, electronic mail and much more.
- Ability to review, save, edit and copy data received online *after* you hang up.
- Communication with other Macintosh computers via modem or networking.

And at $95, Straight Talk is the least expensive, most diligent electronic know-it-all you'll ever come across.

Straight Talk is the precision instrument designed to make sure your ship comes in.

Special Offer!

For a limited time, order Straight Talk at $95 and get 5 hours of **free time** on Dow Jones News/Retrieval (approximately $100 value). To order, see your local computer dealer* or call:

1-800-257-5114, ask for John Austin.
(In New Jersey, Alaska, Hawaii and Canada, call 1-609-452-1511)

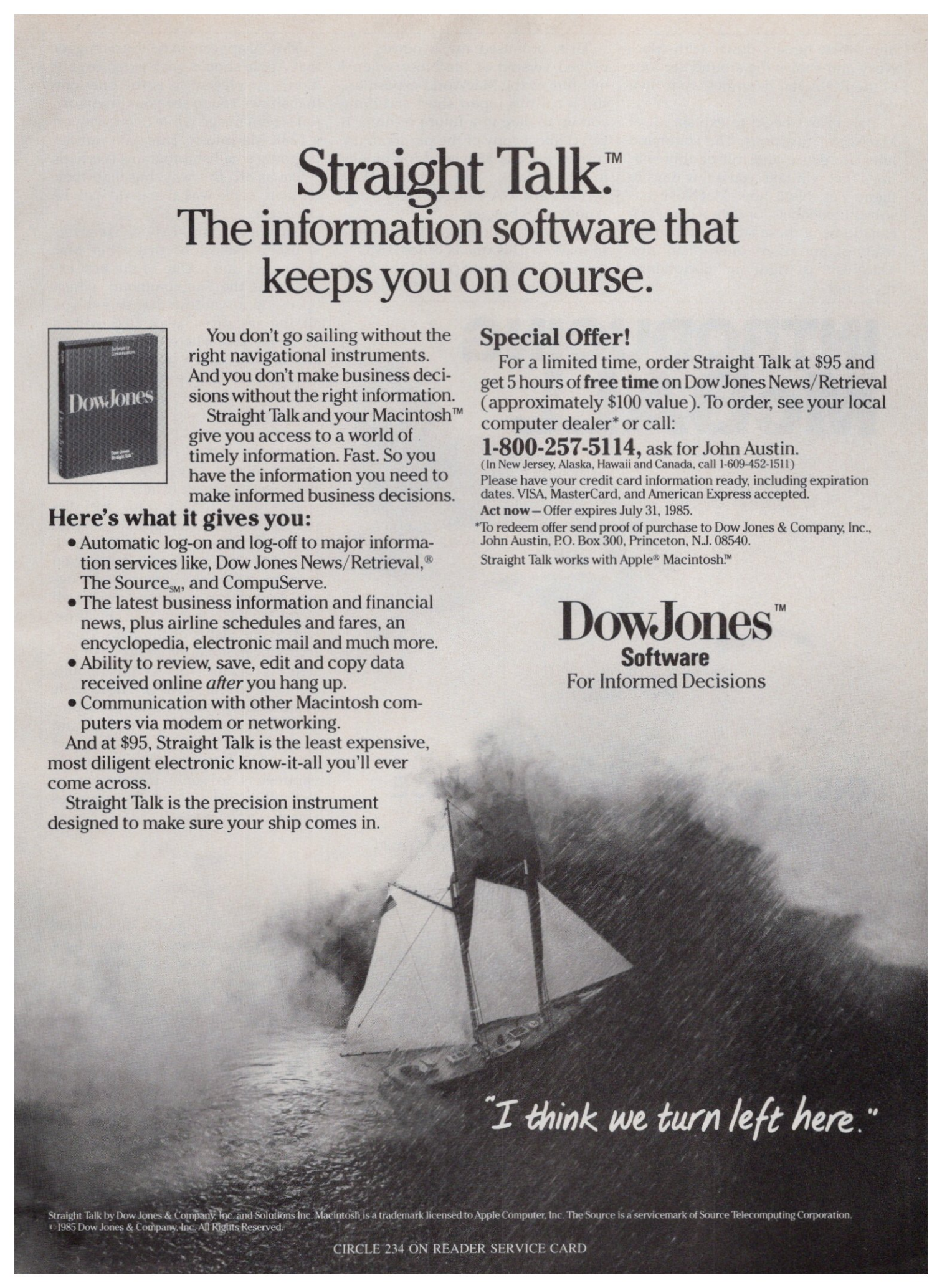
Please have your credit card information ready, including expiration dates. VISA, MasterCard, and American Express accepted.

Act now – Offer expires July 31, 1985.

*To redeem offer send proof of purchase to Dow Jones & Company, Inc., John Austin, P.O. Box 300, Princeton, N.J. 08540.

Straight Talk works with Apple® Macintosh.™

DowJones™
Software
For Informed Decisions



Straight Talk by Dow Jones & Company, Inc. and Solutions Inc. Macintosh is a trademark licensed to Apple Computer, Inc. The Source is a servicemark of Source Telecomputing Corporation.
© 1985 Dow Jones & Company, Inc. All Rights Reserved.

CIRCLE 234 ON READER SERVICE CARD

him when he sits down with MacNosy and shows me around sections of the ROM and describes what they do.

I also can't begin to explain all of MacNosy's functions. The command lines are dense and full of abbreviations that will take you a few days to figure out. Note how MacNosy has substituted labels for data wherever it can. Some of these labels can be misleading, but more often than not, MacNosy is right in deciphering meanings.

Jasik promised me a newer, improved version of MacNosy when I met him at the MacWorld exposition, so I'll cut this report short and bring you up to date in a future column. If you'd like a copy of the program, the current price is $50; send the money to Steve Jasik, 343 Trenton Way, Menlo Park, CA 94025.

Another Debugger

Yet another debugger has made it to market. This one is called TMON, from TMQ Software (1110 Lake Cook Road, Buffalo Grove, IL 60090).

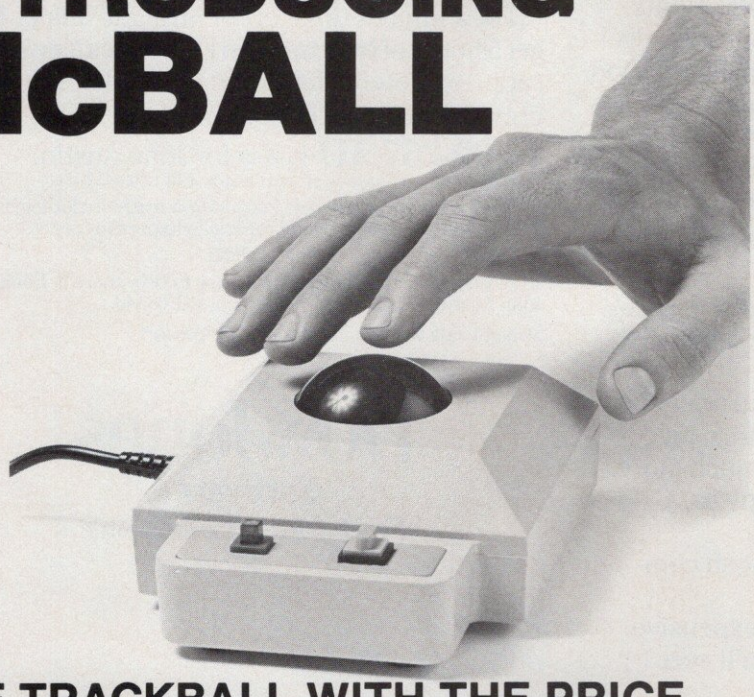
TMON appears to be the debugger that Apple should have given us, but didn't. At present, it is the only one that allows you to see your program's full screen image while debugging on a 128K Macintosh. True, you can debug only smallish programs (perhaps as big as 8K) this way, but that's better than Apple was able to do with its debugger.

More important, TMON has several useful extensions that other Mac debuggers don't. One of the best examples is the File command, which opens up a window that shows you all the resources associated with a given file and where those resources are at any given moment. ("Nowhere" means it is still on the disk and hasn't been moved into memory yet; "on disk" would have been a better name, but most people who write debuggers aren't particularly concerned about clarifying what on-screen terminology means.)

All ROM Toolkit traps are displayed by name, an especially helpful feature when you're using TMON to look at the assembly code for a given memory region. As with most debuggers, you may examine and modify all of the 68000's registers at any time, look at the status of the flags, dump sections of memory in hex, single-step a program, and set breakpoints (up to seven in TMON). These basic abilities allow you to examine a program one instruction at a time and learn exactly what it is doing and when. TMON also lets you change parameters to some instructions to test other values for the routines you're examining.

Figure 3 shows three printouts of on-screen windows I got while using TMON in a recent session. (Figure 4 shows the screen itself—TMON, like most low-level debugging tools, intercepts the Finder's Save screen command, holding onto it until you leave the monitor section of the program, at which time it processes all ⌘ 1–4 keystrokes—an ingenious solution to a problem with many of the Macintosh debugging tools that I have seen.) Note the clear format in each of the windows—even people who do not know assembly language should be able to figure out what each item is.

INTRODUCING McBALL



THE TRACKBALL WITH THE PRICE AND PERFORMANCE EDGE

- With an exclusive DRAG BUTTON™ that eliminates the need to hold a button down as you "mouse around" or roll a trackball.
- With a CLICK BUTTON™ that responds to any software written for the Apple Mouse.
- One hand operation without giving up desk space.

McBall is faster than a mouse and requires only a fraction of the desk space. Use McBall on either side of your Macintosh keyboard, in your lap or hold it in your hand.

$89.95

Model 4000 for the Macintosh, Lisa, IIc and Apple II/II+/IIe (with mouse interface card).
Model 3000 also available for the IBM PC/XT and compatibles.

Order Line:
(415) 964-4464

VISA MasterCard

Mail Orders enclose $89.95 plus $2.00 shipping and handling. Specify Model Number. California residents add 7% sales tax.

McBALL, CLICK BUTTON and DRAG BUTTON are all trademarks of INTERFIRM SYSTEMS CORPORATION. APPLE is a registered trademark of Apple Computer Inc. MACINTOSH is a trademark licensed to Apple Computer Inc.

Dealer Inquiries Invited

Interfirm Systems Corporation
110 Pioneer Way, Suite H
Mountain View, CA 94041

CIRCLE 314 ON READER SERVICE CARD

The MacPublisher™

Only $99.95
CallToday!

VOLUME 1, NO. 6 1985 BOSTON MA. 02132

MULTI-COLUMN TEXT AND MIXED GRAPHICS

MacPublisher transforms Apple Macintosh into a text & graphics editing, layout, and page-makeup system that produces multi-column newsletters, fliers, catalogs, ads, etc. Several MacPublisher articles (and pictures) can be on the desktop at the same time. Articles may be clipped and carried over to other columns or pages. You may cut out of one and paste into another.

The MiniPage is a "What You See is What You Get" representation of a full page layout. Articles on the Dummy Page show as blocks, with numbers of lines & characters, and page, column jumps/continuations.

You may photocopy or photo-offset Imagewriter printouts for very low-cost small-volume publishing. MacPublisher's output can also be printed on Apple's incredible new LaserWriter, or on Allied Linotype's new laser typesetter, giving you a range of print qualities from 72 to 1500 dots per inch! All Macintosh fonts, Styles and Sizes may be set - ragged or justified, condensed or wide, and with the interline spacing (leading) adjusted to the pixel!

MacPublisher is an electronic publishing system - with editing, composition, and reproduction - under the control of your mouse, and it is "integrating software" that lets you combine your best work from all your Macintosh programs into a superb presentation format.

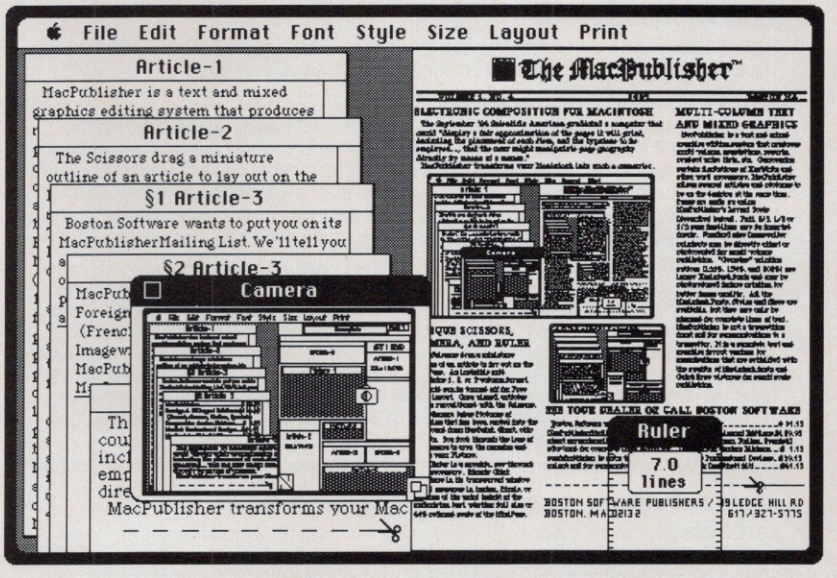
As a customer said, "MacPublisher is what I bought my Mac for!"

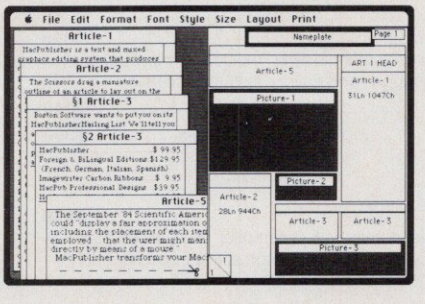
ELECTRONIC PUBLISHING FOR MACINTOSH

"Apple Computer's new laser printer [makes it] possible for individuals with personal computers to become their own typesetters, using computers to lay out and then print pages containing both text and graphic illustrations...It's going to turn the entire [printing] industry upside down" ---------- The New York Times

"MacPublisher, together with Macintosh and the LaserWriter... demonstrate the unique capabilities of MacOffice"---RELease 1.0

"We particularly like [MacPublisher's] integration of editing and page layout functions and the tools available to edit copy to fit a layout."----------Seybold Report on Publishing Systems





THE LAYOUT TOOLS

The Scissors drag a miniature outline of an article to be laid out or repositioned on the MiniPage or Dummy Page. An invisible grid (1, 2, or 3-columns) can be turned off for Free Form layout.

The Camera can take a Picture of anything that has been copied into the Clipboard from MacPaint, MacVision, Thunderscan, clip art, etc. You use the Camera to size, crop the margins, and frame your Picture.

The Ruler is a see-through and movable desk accessory. Simply Click anywhere in its transparent window and it measures inches, cm, pixels, or lines of the point height of the underlying text. Click on the MiniPage, and it cuts the article to fit perfectly in the measured space.

SEE YOUR DEALER OR CALL BOSTON SOFTWARE

Boston Software wants to put you on its MacPublisher Mailing List. We'll tell you about our carbon ribbons to enhance the output of your Imagewriter, clip art for professional newsletters, and MacLock, an improved Mac security kit.

MacPublisher	$ 99.95
Foreign & Bilingual Editions	$129.95
{French, German, Italian, and Spanish}	
MacPublisher Designs	$39.95
MacLock (antitheft kit)	$49.95
Imagewriter Carbon Ribbons	$9.95

BOSTON SOFTWARE PUBLISHERS
BOSTON, MA 02132

19 LEDGE HILL ROAD
617/ 327-5775

MacPublisher runs on 128K or 512K Macintosh, and on Macintosh XL it has an extra-large MiniPage
This ad was produced with MacPublisher and printed on the insanely great Apple LaserWriter.

CIRCLE 116 ON READER SERVICE CARD

The C for the Macintosh and Apple II

FOR THE MACINTOSH

AZTEC C68k is the most powerful, portable, and professional C compiler and software development system for the Apple Macintosh. It is available in three configurations.

AZTEC C68k-c (Commercial System) **$499**

For serious Macintosh developers who want to program in C there is no parallel to AZTEC C68k-c. AZTEC C68k-c produces smaller and faster code in less time than any system benchmarked. The supporting utilities and commands of AZTEC C68k-c create a Macintosh development environment with the power and flexibility needed for producing professional results.

All C features are faithfully supported providing portability with UNIX C and AZTEC C compilers available for the APPLE II, MS DOS, PC DOS, CP/M-86, CP/M-80, TRSDOS, and C64.

Features include: C compiler, 68000 Macro Assembler, modular programming, overlay linker, debuggers, mouse based editor, Z(Vi) editor, SHELL development environment (UNIX was developed to support software development - this environment incorporates the best of UNIX), comprehensive support of the Macintosh including the toolbox to provide straight forward development of Macintosh programs and desk accessories, make, diff, grep, terminal emulator (source), grow (source), desk accessory (source), ramdisk (source), UNIX I/O, MATH, UTILITY, and MACINTOSH run time libraries (source), full support for 512k Mac and Lisa Macworks, 600+ page manual, resource maker, calling C routines from PASCAL, PASCAL from C, and assembler subroutines, no-royalty license.

Manx support includes one year of computer tracked updates and technical telephone support.

AZTEC C68k-d (Developer's System) **$299**

AZTEC C68k-d provides a less expensive development system for programmers on limited budgets. AZTEC C68k-d includes C compiler, 68000 Macro Assembler, Linker, debuggers, editor, toolbox support, run time libraries (object), sample programs (source), and a 600 page manual.

AZTEC C68k-p (Personal System) **$199**
For students and professionals doing serious non-commercial work. Includes C compiler, Linker, run time libraries, sample programs (source), debugger, and editor. Restricted license.

C-TREE Database (Aztec object format) **$149**

C-TREE Database (Object + Source) **$390**

FOR THE APPLE II

AZTEC C65/DEV (Developer's System) **$299**
This C compiler and software development system comes with C compiler, 6502 assembler, SHELL, overlay linker, UNIX I/O, Screen, and Graphics libraries, editor, utilities, and support for ProDos.

AZTEC C65 ..... **$199**
C compiler, 6502 assembler, Linker, libraries, Apple DOS 3.3 support.

AZTEC C65 Personal ..... **$ 99**
C compiler and development system. Restricted license.

MANX

TO ORDER OR FOR INFORMATION CALL OR WRITE:

MANX SOFTWARE SYSTEMS
Box 55 • Shrewsbury, NJ 07701
TX 4995812

CALL:
800-221-0440
201-530-7997 (NJ)

TECH SUPPORT - 201-530-6557

CP/M-80 and CP/M-86 are trademarks of DRI Macintosh and PRO DOS are trademarks of Apple
TRS DOS is a trademark of Tandy UNIX is a trademark of ATT

CIRCLE 189 ON READER SERVICE CARD

TMON's weakness, if it has one, is its manual. The title page does say, "This is a technical manual . . . It is not intended in any way to be a tutorial." That's an understatement, at best. It took me much longer than it should have to figure out how to grab a program and examine it under TMON. Giving commands to the program itself is reasonably simple but enough unlike the usual Macintosh methodology to slow down the occasional debugger. For example, the top line looks like a menu bar but is actually a series of buttons. You can move windows by putting the mouse anywhere in them and dragging up or down (no left or right movement is allowed, since each window takes up the full width of the display). The scroll bars on the right look like Macintosh scroll bars, but they also don't quite work like the normal ones do. All in all, these differences are not important, but they will slow some of you down while you're first exploring the program.

This program offers a lot more than what I can fit into this potpourri column, but TMON leaves a few things to be desired: a manual with more tutorial material, quicker ways to move around in memory sections than using the scroll bar or faking the program out with short assembly routines, and perhaps a less convoluted method of getting programs set up for disassembly. Nevertheless, it is the handiest debugger I've seen for Macintosh assembly-languge programmers and worth the effort to learn.

Not Caught Up, But Close Enough

There's still a pile of Macintosh programming information sitting on my desk, but I did put a dent into it this time around.

I've been asked to write about Creative Solutions' version of Forth for the Macintosh, a product that has been used to create many programs for the Mac (including Peachtree's Back to Basics accounting package, of all things). This Forth is probably the best language on the Macintosh at present, so we'll take a close look at it next time. Till then, why not nose around a little with some of the products I've mentioned in this column? ✚

Thom Hogan is editor-in-chief of Business Software *and has written numerous computer-related books, including* InfoWorld's Essential Guide to the Apple II.

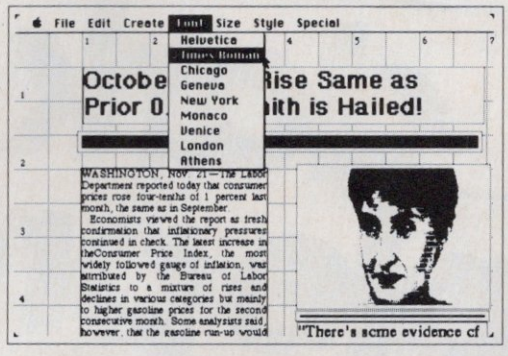
ReadySetGo™
ReadySetGo
ReadySetGo

Interactive page makeup for the Macintosh™

ReadySetGo™ automates the page design and pasteup process, turning the Mac environment into a **professional graphic arts publishing system.** The system overcomes limitations of current Mac programs (such as MacWrite,™ MacPaint™ and MacDraw™) encountered when trying to use those packages for sophisticated page makeup. ReadySetGo is ideal for projects requiring a considerable artistic design component on a page-by-page basis, such as **newsletters, reports, forms, flyers, brochures, ads, resumes, letters, papers, presentations and all page proofing and layout design work.**

Pages are built dynamically from component blocks which may contain **text** or **graphics.** The blocks can be dragged around the page and/or re-sized using the mouse. A ruler shows page dimensions for visual positioning of the blocks but a unique **specification sheet** gives each block's exact design parameters and allows very accurate positioning not possible with the mouse alone.

Text may be keyboarded from scratch or brought in from other Mac programs (such as MacWrite). Either way, the system provides full text editing features with the ability to change font, style and size at any point in the copy. All regular Mac fonts are supported in addition to **real typefaces** such as **Times**™ and **Helvetica.**® **Sizes 1 thru 99 are available for any font!** When text is edited or a text block re-sized, the



display instantly updates to reflect changes and text automatically re-fits the block. Graphics blocks can contain rules, borders, solids or pictures. **Pictures** can be brought in from other programs (such as MacPaint). All graphics automatically scale as their block is re-sized.

Most standard page sizes are supported and a powerful **show page** facility provides a scaled view of the entire page. The show page display can be kept active concurrently with the actual page and is continually updated as work on the page progresses.

Pages may be stored on disk as full documents (layout plus contents) or as "shells" (layout only). The latter facility allows the reuse of page designs or the building of an inventory of layouts for future projects.

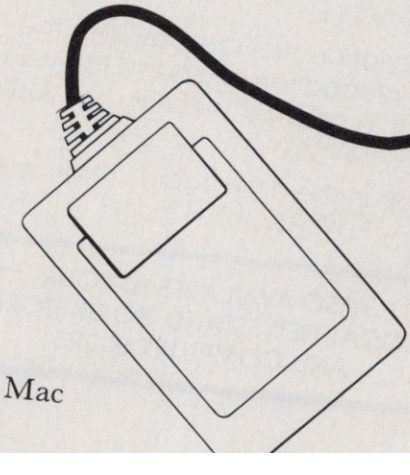
ReadySetGo pages can be printed on the **Imagewriter** or on the **Laser Printer** for superb publication quality output.

Macintosh, MacWrite, MacPaint and MacDraw are trademarks of Apple Computer. ReadySetGo is a trademark of Manhattan Graphics. Times and Helvetica are trademarks of Allied Corporation.

Available Now! $125 from your local dealer or order direct from

Manhattan Graphics
63 Varick Street, New York, NY 10013
12-924-2778
MasterCard & Visa Accepted

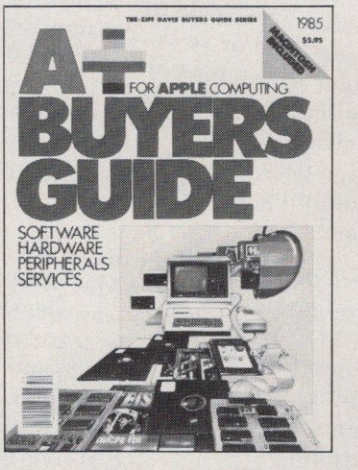
Requires 512K Mac



CIRCLE 288 ON READER SERVICE CARD

don't shop in the dark for apple products!

A+ BUYERS GUIDE is the master directory of hardware, software, peripherals and services available for the Apple II, II+, IIc, *IIe*, III, Lisa and Macintosh! Because A+BUYERS GUIDE is published every six months, it is the most up-to-date sourcebook available to help you with your purchasing decisions!



You'll turn on the light to over 3,500 product listings covering:

- ☐ **SOFTWARE:** Business, Professional, Educational, Personal, Recreational, Programming and other System Software.
- ☐ **HARDWARE:** Compatible Computers, Cards, Monitors, Printers, Plotters, Disk Drives, Mass Storage and Expansion Units, Modems, Game Devices, Light Pens, Voice and Sound-Related Hardware and more!
- ☐ **SERVICES AND ACCESSORIES:** Furniture, Storage Media, Dust Covers, Carrying Cases, Display and Printer Accessories, Stationery, Keyboards and Software Overlays, Security Devices, Literature, On-Line Bulletin Boards, Professional Societies, User Groups and Maintenance, Marketing, Rental, Duplication and Insurance Services, and more!

THIS IS THE ENCYCLOPEDIA OF *EVERY* SIGNIFICANT PRODUCT AND SERVICE AVAILABLE FOR YOUR APPLE!

Each description provides you with the essential information you need to evaluate what each product does *and* what you need to use it!

Don't shop in the dark again...order your copy of A+BUYERS GUIDE *today!*

ALSO AVAILABLE AT YOUR LOCAL NEWSSTAND, BOOKSTORE AND COMPUTER STORE

AN07

A+ BUYERS GUIDE

CN 1914, Morristown, NJ 07960

Please send me A+ BUYERS GUIDE. Enclosed is $7.50 ($5.95* per copy plus $1.55 postage and handling). (Outside USA $9.00 US funds only.) *Residents of CA, CO, CT, DC, FL, IL, MA, MI, MO, NJ and NY add applicable sales tax.

Charge My: ☐ AMEX ☐ Visa ☐ MC

Card No. _____ Exp. Date _____

Mr./Mrs./Ms. _____
print full name

Address _____

City/State/Zip _____

FROM THE PUBLISHERS OF
A+, THE INDEPENDENT GUIDE FOR APPLE COMPUTING

MacTips

Suggestions from our readers

DIFFERENT FONTS FOR DIFFERENT FOOTERS

When you work with the Header option and Footer option in MacWrite, you can use multiple fonts and font sizes. For example, you can design a letterhead with the first line in 14-point bold and the remaining lines in a smaller point size. The automatic page numbering and dating are formatted in the font, style, and point size of the first character in the header. Thus, if you type the word *Page* to precede the automatic page number, the font and style of the two will not be identical.

To solve this problem, simply type a space (one press of the space bar) as the first character in the header. Set the font, size, and style of this space to correspond with the style you desire for the auto date and page numbering. After you've set this first space, the remaining characters can have as many font and style changes as you desire, but the page numbers, time, and dates will always be in the style you set for the first character.

Tom Neudecker
Pittsburgh, PA

MOUSE WASH

After your mouse has scurried across your desktop for several weeks, you may discover that the cursor does not seem responsive. You try to pick up an icon quickly and dump it into the trash can, and the pointer sticks, and stumbles on itself. Chances are your Macintosh is not overheating, nor is the connection from the mouse to the Mac going bad. Your mouse simply needs some tender loving care.

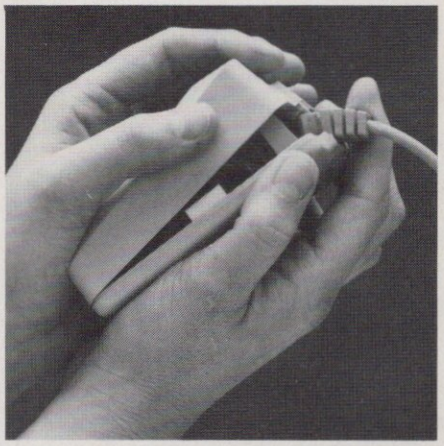
Turn the mouse over, and you will see a rubber ball that allows you to roll the mouse over a surface easily. Further inside the mouse are three cylinders in contact with the rubber ball. As you roll the mouse across a surface, the rubber ball picks up dust and other debris that presses against the three internal cylinders. After the cylinders build up enough lint and debris, the rubber ball no longer rotates smoothly, which causes the cursor or pointer to stick and stumble. To keep your mouse sliding smoothly, you only need to open the mouse and clean the cylinders.

Holding the mouse upside down, remove the rubber ball by turning the black retaining ring counterclockwise until it stops (see figure 1). The marker on the washer should have rotated from the L (lock) to the O (open) position. Turn the mouse right side up again, letting the rubber ball and black retaining ring fall into your hand.

Next, after removing the two Phillips-head retaining screws, gently pull open the case from the cord end while pushing the base of the cord out of its resting place (see figure 2). Now you should be able to see the three cylinders inside the mouse clearly. Attached along the shaft of the two black cylinders are optical wheels that measure the movement of the rubber ball. The third silver cylinder just supports the rubber ball. Do not try to remove the black cylinders for cleaning; the posts holding these cylinder assemblies in are rigid and break easily (see figure 3). Clean all three cylinders with a cotton swab and denatured alcohol. Gently swab each cylinder, rubbing from front to back, removing the residue buildup until the surface is smooth. Remove any lint from the shafts of the black cylinders and clean the rubber ball with a soft, clean, dry cloth.

To reassemble the mouse, make sure the mouse button and spring are correctly seated in the housing, reinsert the base of the cord into the housing, and replace the two retaining screws. Finally, put the rubber ball inside the mouse and lock it into place with the black retaining ring.

A+ Editors



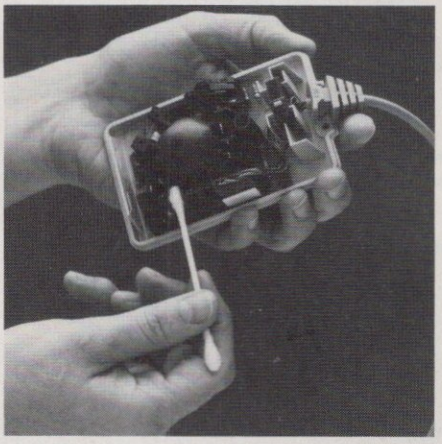


Figure 1 (top): Hold the mouse upside down to remove the rubber ball.
Figure 2 (center): After removing the retaining screws, gently pull open the case.
Figure 3 (bottom): Clean the three cylinders with a cotton swab and denatured alcohol.

HIPPO-C™

The C compilers for the Macintosh™

LEVEL 1

Powerful, expandable, yet affordable:

- A friendly, integrated environment complete with a screen editor, full K&R C compiler, linker, source-level debugger, tutorial, standard C library, and structure definition files.
- Access to over 400 Toolbox routines.
- Convenient access to serial ports and sound channels.
- Over 200 pages of documentation and many sample programs.
- Upgradable to Hippo-C Level 2 for $250.00.
- New version 1.2.
- **$149.95**

LEVEL 2

Professional C development system:

- Allows for the creation of large, stand-alone commercial applications.
- Comes with a screen editor, optimizing K&R C compiler, 68000 assembler, linker, C library, stdio package, full floating-point support (including math and trig functions), and structure definition files.
- "Glue" routines which allow easy access to Macintosh features.
- UNIX™-like shell which includes many powerful commands and utilities.
- Convenient access to over 500 Toolbox routines.
- Documentation, many sample programs, and sources.
- No royalties or license fees.
- You may obtain a non-copy protected disk by signing and returning a form along with $25.00 to Hippopotamus.
- **$399.95**

HIPPO-LOCK™

The Hippo Business Data Security System

- Encrypts all of your important Macintosh files to protect them from curious eyes. Encrypts MacWrite documents, MacPaint pictures, data bases, spreadsheets, data files, application programs, etc.
- Useful for protecting confidential information such as business plans, payroll information, sales projections, employee reviews, management proposals, grades, etc....
- Choose between three levels of security.
- Uses the NBS DES Data Encryption Standard, used widely by major corporations and the U.S. Government.
- **$119.95**

HIPPOPOTAMUS SOFTWARE, INC.

985 University Avenue Suite 12 Los Gatos, CA 95030

408/395-3190

Dealer inquiries welcome. We accept credit cards, checks, and money orders. California residents add local sales tax. Please include $10 for shipping and handling. Export of Hippo-Lock may be limited by law and subject to license. Macintosh is a trademark of Apple Computer, Inc. UNIX is a trademark of AT&T Bell Labs. Hippo-C and Hippo-Lock are trademarks of Hippopotamus Software, Inc. Please allow 1–2 weeks for delivery. Price, availability, and specifications subject to change without notice.

CIRCLE 197 ON READER SERVICE CARD

MacTips

PLOTTING ERROR BARS

Microsoft's Chart is a powerful tool for creating and printing graphs, but it is intended primarily for business uses. It thus lacks several features that are necessary for scientific applications. In particular, Chart does not provide a means for plotting data points with error bars.

Fortunately, you can remedy this deficiency by creating a data table with a spreadsheet or with MacWrite. In the example in figure 4, I constructed a line graph by creating a data table with MacWrite. In the left column are the x values with which the average y values (second column) are associated. The average y value plus the standard deviation are in the third column, and the average y values minus the standard deviation are in the fourth column. Each of these y values is associated with the x value in the first column.

If you create a data table like this one, transfer the data to the clipboard, then run Chart, and follow the directions below, Chart will produce a line graph like the one in figure 5.

To enter data from the clipboard into Chart, go through these steps:

1. Run Chart
2. Data Menu: select Number
   Specify filename
3. Edit Menu: Paste
4. Data Menu: List, select Plots
5. Click on Graph
6. Chart: Main = Line
   Overlay = Line
7. Format: Main ◗ Hi-Lo ON
   Overlay ◗ Hi-Lo ON
   Lines Connecting: OFF
   Markers: OFF
   Include Series . . . 2

A.P. Shepherd
San Antonio, TX

ANIMATION IN MACPAINT

It is possible to create a form of animation with MacPaint. The first step is to draw a rectangle about one half the size of the screen, filled with narrow horizontal or vertical lines.

Next, select the lasso and draw a shape such as the bird in figure 6. Lasso the shape, press the Option key, and move the shape to the right of the rectangle. This procedure gives you a contrasting shape (the Option key leaves the shaded area filled in).

Lasso the second shape and place it on top of the first one, so that the central part overlaps and creates a black area (see figure 7). Next, lasso the doubled figure and copy the shape, using Copy from the Edit menu. Fill the *entire screen* with narrow horizontal or vertical lines. Finally, select Paste from the Edit menu and move the bird shape across the screen (see figure 8). The wings of the doubled bird will flap as you move it.

Thanks to Will Hemmick of Computer Solutions of San Antonio, Texas, who pointed this technique out to me.

Dan Eggleston
Austin, TX

Figure 5: If you create a table like figure 4 and follow the instructions outlined here, Chart will produce a line graph like the one below.

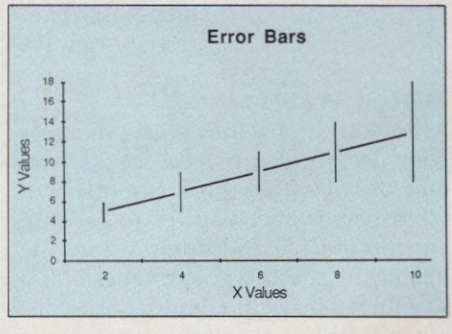


Figure 4: Format for MacWrite data file to put on the clipboard. Select and transfer only data below the line. Note that the number of rows must equal or exceed the number of columns. Tabs separate columns, and a carriage return ends each row.

X-Value	Average	Average + Error	Average -Error
2	5	6	4
4	7	9	5
6	9	11	7
8	11	14	8
10	13	18	8

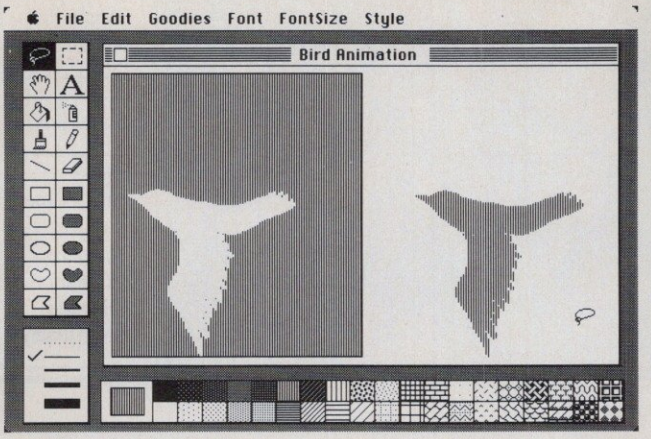


Figure 6: Select the lasso and draw a shape such as this bird.

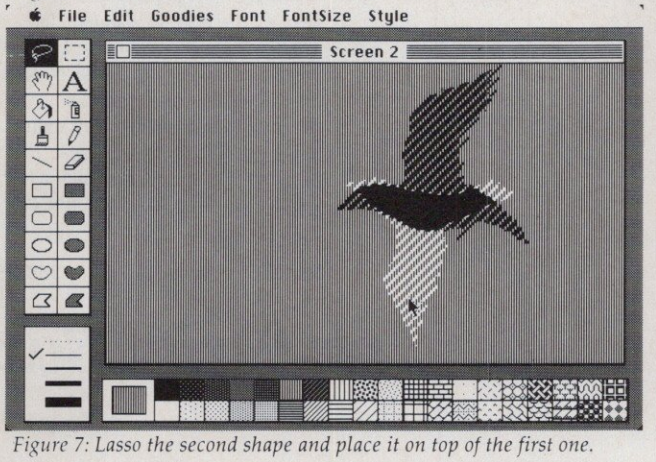


Figure 7: Lasso the second shape and place it on top of the first one.

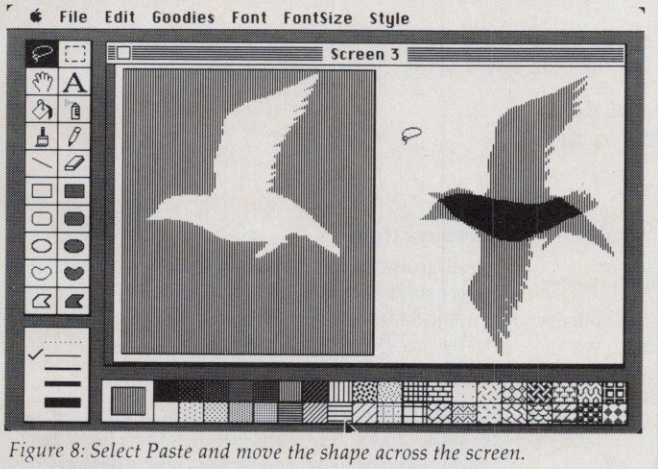


Figure 8: Select Paste and move the shape across the screen.

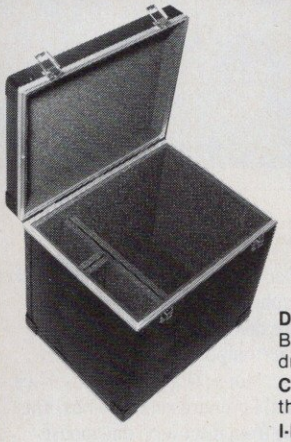
RESTORING CLIPBOARD CONTENTS

You have something important on the clipboard, and you choose Cut to delete a segment of your MacWrite or Word text. The original contents of the clipboard are lost forever, right? Wrong. If you choose Undo, not only will the cut contents be returned to the document, but the clipboard will be restored to its prior state, with the important text back on it again.

WORD DELETE IN MACWRITE

If you double-click on a word in MacWrite, the characters of the word will be highlighted, but neither the leading nor the trailing space will be selected. If you want to delete a selected word, pressing Backspace will erase only the characters, and you have to press Backspace again to get rid of the extra space. But if you choose Cut when you select a word, both the word and one of the spaces will be erased.

MACINTOSH™ OWNERS
HAVE YOUR MAC TO GO



BASKET™ is a hard-sided, foam-lined, plastic, locking carrying case fitted for your main unit, keyboard, mouse, numeric keypad, and line cord.

$100.00

D-BASKET™ holds all that BASKET™ does plus external drive and modem $130.00
C-BASKET™ holds the //c plus the monitor on its stand . . $100.00
I-BASKET™ for the letter-size Imagewriter $100.00

Order from your dealer or directly from

JUSTIN CASE MANUFACTURING CORP.
334 MAIN STREET, PORT WASHINGTON, NY 11050
(516) 883-2299

MACINTOSH is a trademark licensed to Apple Computer Inc.
BASKET is a trademark of Justin Case Manufacturing Corp.

DEALER INQUIRIES INVITED *N.Y.S. residents add sales tax.*

CIRCLE 325 ON READER SERVICE CARD

MacTutor™
(Formerly MacTech)

Vol. 1 No. 4 The Macintosh Programming Journal March 1985

AT LAST!

A no-nonsense, no fluff Journal devoted to programming FOR the Mac, ON the Mac!

Let MacTutor's™ editorial board teach you the Macintosh technology of windows, quickdraw, events, and resources. We have assembled a team of professionals to uncover and explain Mac's secrets.

6 YEARS OF EXPERIENCE IN PC COMPUTER EDUCATION!

YOUR SYMBOL OF EXCELLENCE!

CHECK OUT OUR PROGRAMMING STAFF AND SIGN UP FOR MacTutor™ DELIVERED TO YOUR HOME OR OFFICE EVERY MONTH!

- Assembly Lab by David Smith
- C Workshop by Bob Denny
- Pascal by Chris Derossi
- MacBasic by Dave Kelly
- MacForth by Joerg Langowski

☒ YES! I want to program my Macintosh! Send me a one year subscription.
I enclose $24 US or $36 Overseas.

MacTutor™
P.O. Box 846
Placentia, CA 92670

NAME:
ADDRESS:
CITY, ST, Zip:
PHONE: ( )

© MacTutor™ FOR MORE INFO, CALL: (714) 993-9939 ASK FOR LAURA

CIRCLE 348 ON READER SERVICE CARD

Apple IIc
Serial Port

Serial Box

Parallel Printers
Epson
Okidata
Gemini
Brother
(Letter Quality)

The game for the Macintosh™

Feathers & Space is a Macintosh™ arcade game that takes full advantage of the graphics and sounds of the Mac. Attacking birds stress the defense capabilities of your mother ship and the space outpost. Protect the space outpost or get eaten alive. Mouse ship movements, click activated firing power and keyboard smart bombs. This game also offers defense from discovery; one mouse movement and your boss can't walk in and smart bomb you if you're defending your outpost at work.

Feathers & Space for Macintosh **$34.95**

★ *Feathers & Space*

Add a parallel printer to your IIc

Here's a low cost serial to parallel adapter that comes complete with everything you need to connect your Apple's serial printer port to a standard parallel printer. This unit also allows you to print Epson Graphics. Please specify printer type.

A Serial Box for the Macintosh™ will soon be available. Call for details.

Serial Box for the IIc **$89.95**

★ *Serial Box*

Personalize Your Macintosh™ icons!

Set your icons apart! The icon switcher allows anyone to quickly and easily customize their icons for a more personal, identifiable desktop.

Simple to use:

1. Take any MacPaint™ picture, place it into the Scrapbook and switch it to the icon of your choice.
2. You can also switch an existing icon from one file to another.

If you don't have the time to create your own icons, see about our Icon Libraries; we have both Business and Fun & Games sets available.

Icon Switcher for Macintosh $19.99

★ *Icon Switcher*

Business Icons

Ready to use! Business icons such as office equipment, paper sheets, books, large block letters and numbers, custom folders and many shapes to help you design your own icons. Over 100 to choose from.

Fun & Games Icons

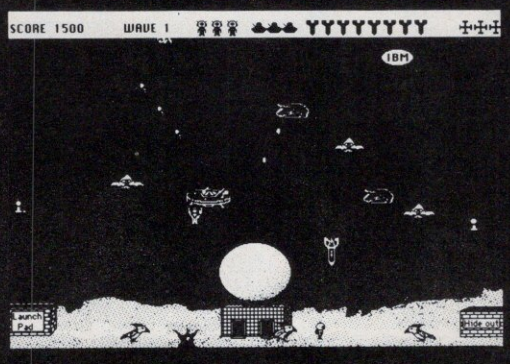
Creative, non-traditional icons for your desktop. For example, a wine glass, garbage can, joker, a lovely lady, an airplane and more! Choose from over a 100 fun icons.

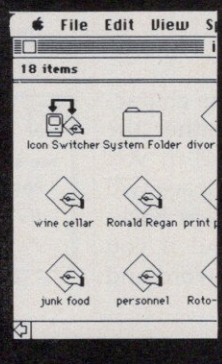
Icon Libraries for Macintosh **$19.99 each**

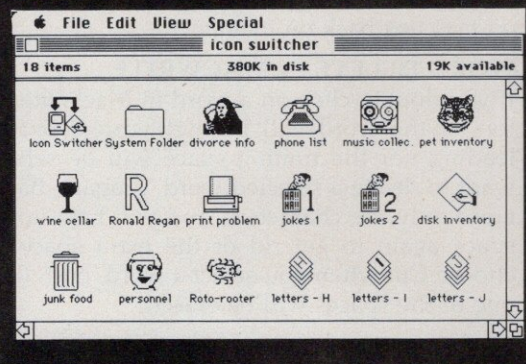
★ *Icon Libraries*

CIRCLE 140 ON READER SERVICE CARD

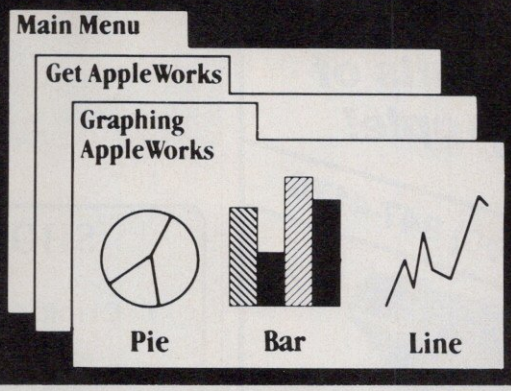
Apple IIc, IIe, AppleWorks and MacPaint are trademarks of Apple Computer, Inc.
GraphWorks and Feathers & Space are trademarks of PBI Software.
Macintosh is a trademark licensed to Apple Computer, Inc.







for the **IIe/IIc**™



GraphWorks adds graphics to AppleWorks™

Visualize data. Print it. Present it. Now you can plot spreadsheet data files as line, bar, stack-bar or pie charts. The program is menu-driven and folder-oriented, so it's as easy to use as AppleWorks!

GraphWorks for the IIe/IIc **$79.95**

★ *GraphWorks*

Five stars for your Apple.

Introducing a selection of new product stars for your Apple Computer from PBI Software.

Add a star and watch your Apple shine!

CIRCLE 143 ON READER SERVICE CARD

To Order:

Call Toll Free: **800-843-5722**
In California: **800-572-2746**
VISA, MasterCard and American Express accepted.

Monday thru Friday 9AM–5PM PST

Information & Dealer inquiries, call: 415-349-8765

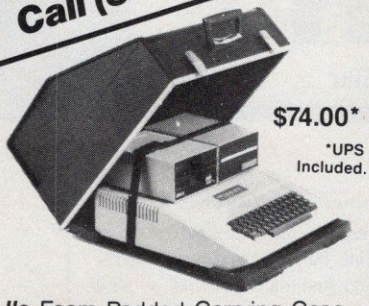
PBI *Software*
A SUBSIDIARY OF ITAT, INC.

1155B-H Chess Drive • Foster City, CA 94404

for the **Macintosh**™

Protect the fruits of apple!

Call (800) 847-4176



$74.00*
*UPS Included.

IIe Foam Padded Carrying Case
with
Removable Cover

Macintosh
Carrying Case
$104.50*

*UPS Shipping Included.

IIc Foam Padded Carrying Case

$179.50*

*UPS Shipping Included.

Call for Complete Computer Case Catalog.

For Fast Service!

MasterCard VISA AMERICAN EXPRESS

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)*

CIRCLE 159 ON READER SERVICE CARD

MacTips

SHORT CUTS FOR FAT BITS

1. Click icon and move it to work area.
2. Press ⌘ key and click mouse to enter Fat Bits.
3. Press / release Option key to toggle between the and while editing and scrolling Fat Bits over large areas.
4. Press ⌘ key and click mouse to return to drawing.

Figure 9: An easy reference guide to FatBits shortcuts.

FATBITS SHORTCUTS FOR MACPAINT USERS

I use the FatBits option in MacPaint quite a bit and thought I'd share with your readers an efficient and speedy system of using FatBits. The chart in figure 9 (above) is an easy reference guide to the shortcuts I use.

By using three adjacent keys with the left hand (Shift, Option, and ⌘), I can constrain, toggle between scrolling and editing, and toggle in and out of FatBits, a method that is much easier than going to the menus.

Dick Roller
Paris, IL

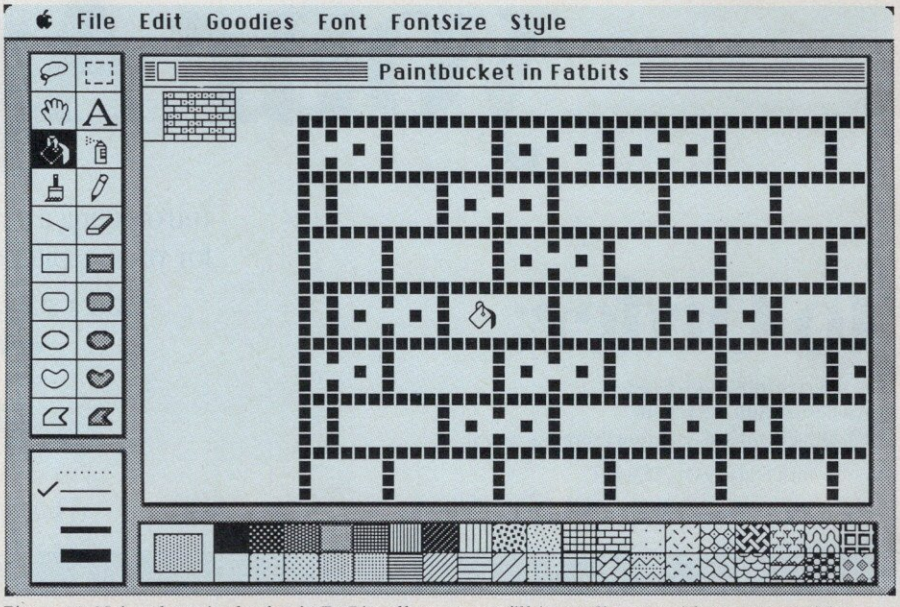


Figure 10: Using the paint bucket in FatBits allows you to fill in small areas with greater precision.

PAINT BUCKET IN FATBITS

If you want to fill in small areas with the paint bucket in MacPaint, it is often difficult to put the spout of the bucket in exactly the right place, and you sometimes end up with pattern spilling into areas where you don't want it. You can use the paint bucket in FatBits, though. The area is magnified, but the bucket remains the same size, so you can place it exactly where you need it (see figure 10). All of the other tools can also be used in FatBits. It is particularly interesting to see the spray can producing its pattern in a magnified form.

E.A. Follows
Victoria, B.C., Canada

A+ Macintosh DIRECTORY

ADVERTISING RATES AND INFORMATION

Standard listings consist of a bold lead line (23 characters maximum); 7 lines of body copy (45 characters per line); 4 lines for company name, address and telephone number. $115 per insertion—3 issue minimum. Additional charge for extra lines and company logos. Prepayment, frequency and multi-title 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

COLOR AND TRANSFER RIBBONS

$9.00 each red, blue, brown, purple, yellow, green or black for Imagewriter and Apple DMP. Transfer graphic design with electric iron to T-shirts and so forth with heat transfer ribbons $12.00 each black. Heat transfer ribbons soon to be offered in colors. Please order in twos, any mix. Check/Visa/MC P.
SHARP COLOR
578 Lynwood La.
Lancaster, OH 43130

IMAGEWRITER CASES

Take your small or wide carriage Imagewriter with you in style. Computote offers weatherproof, padded cases with plenty of room for paper and supplies. Special introductory offer: Imagewriter, Now $55.21, Wide carriage Imagewriter, now $63.71, Macintosh, now $84.95. Visa/MC or COD.
COMPUTOTE
PO Box 953
Naperville, IL 60566
Toll Free 1-(800) 323-2748

DISKPAC 3.5

A unique carrying case for 3½ inch disks. DISKPAC 3.5 organizes and stores up to 6 disks and folds into thirds, making it small enough to fit into a suit pocket or briefcase. The case is made of nylon with velcro closure and comes in black or navy. Custom silkscreening and colors also available. List price $14.95.
edTech
108 N. Cassady Rd.
Columbus, OH 43209
(614) 252-1985

MAC PRODUCTS

Mousepad—$9.95. Mousetrap Poster—$4.95. Mac Trap: The Better Mousetrap—$9.95. Mouse Clean Kit—$11.95. MacVisor—$9.95. Keyboard Extenders—$46.95 clear/$59.95 smoke. MacStand—$39.95 clear, $49.95 smoke. Printer Stand $32.95. Write or phone for free brochure!
PERK COMPANY
150 Commercial St.
Sunnyvale, CA 94086
(408) 735-1807

▸HARDWARE/ PERIPHERALS

MACINTOSH-APPLE IIc

MAC BUFFER eliminates printer delay. 128-256k memory. SERIAL TO PARALLEL CONVERTERS for the IIC allow interconnection of a wide variety of peripherals. Connect of centronics compatible parallel printers, plotters, or a host of other devices. Add buffering and free-up your computer! Prices start at $79.95.
TECHNOLOGIC SYSTEMS
PO Box 44
Raymond, OH 43067
(614) 890-6960

MOUSETRACER

Use your Mac, IIe, or IIc mouse and draw like the pros! Put cartoons, pictures, logos, etc. on the drawing board. Strap your mouse to the Mousetracer and use your favorite graphics program to trace the pictures of your choice. The possibilities are limitless! Send $34.95 + $3 postage and handling (CA residents add $2.10 sales tax) to:
BRIMARK INNOVATIONS
9821 Yolanda Ave.
Northridge, CA 91324

▸PUBLICATIONS

EASY MACPAINT, MACWRITE APPLEWRITER IIe 3.3, III

Learn program or refresh your memory at a glance. Save time! Reference sheets summarize, condense, explain commands. WPL, Apple DM printer codes. MacPaint made clear, hints gathered from many sources. Why pay more? MacPaint/MacWrite send $4.95. AW IIe DOS 3.3 or AW III (final) send $3.95 to:
Self-Help Publications
PO Box 1293
Ashland, OR 97520

▸SOFTWARE/ ACCOUNTING

MAC ACCOUNTING

The advantage of our Accounting, Tax, and Aging programs are beyond the scope of this ad to describe. At $29.50 per program, or all for $75.00, the businessman or the accountant will find flexible accounting at a bargain price! Please call or write for further information.
BAGEANT ACCOUNTING SERVICES
6200 Beach Blvd.
Jacksonville, FL 32216
(904) 398-3003

PAYROLL FOR THE MACINTOSH

Will calc. weekly, bi-wkly, semi-monthly and monthly payroll. Std. deductions calculated + retained for employees w/5 custom deduction acct's. 30 Emply. on 128k, 100 on 512k. Print checks, W-2/W-3, 941 report + much more. Uses 5 method for State w/ holding + needs MS BASIC, free compiled vers. when avail. $495 + ship.
MANUFACTURING SOLUTIONS
3885 Industrial Ave.
Rolling Meadows, IL 60008
(312) 392-3765

▸SOFTWARE/ DENTAL

DENTIVISION® ON MACINTOSH™

Dentists can now, thanks to modifications on the Mac'sSystem, access detailed information including graphics on their patient's files at the press of the mouse. Files are unlimited (subject to memory available on disk). Requirement Filevision™. $24.95 (bank check). Airmail shipping software & manual included. (Filevision™ program not included.)
B. MULLER
P.O. Box 32 Postkantoor Charlottalei
Antwerp 11, Belgium

▸SOFTWARE/ EDUCATIONAL

GRADEBOOK MANAGEMENT

DA POMA GB GradeBook Management for microcomputers—lets a teacher or professor record & calculate grades on a microcomputer. Some of the features are: up to 8 classes per data disk, drop lowest score in a category, trend analysis, & much more! Available for Apple II's, MACINTOSH, & Radio Shack Model 4.
DA POMA INC.
PO Drawer H
Hondo, TX 78861-0240
(512) 426-5932

▸SOFTWARE/ ONE OF A KIND

ENVELOPE ART™

Put a piece of your personality into your mail. MacPaint™ your envelopes & stationery. For yourself, for gifts, or as a creative business idea. Includes blank envelopes, preprinted assortment & disk with sample designs, templates & instructions. Complete kit $29.95 (+ $2.10 tax NY). CK/VISA/MC. Send $3 for preprinted envelope sample only.
ENVELOPE ART™
2669-3 Camelot Rd., P.O. Box 129
Endwell, NY 13760
(607) 754-7317

▸SOFTWARE/ SCIENTIFIC

SCIENTIFIC ANALYSIS PROGRAM

A scientific and numerical analysis package designed to solve linear, nonlinear, complex, real, matrix, definite integrals, polynominals, differential equations and features high-res graphics. It selects the best curve to fit data by least squares or interpolations. It includes two disks and requires BASIC. $38.00.
PCA SOFTWARE
PO Box 1231
Arlington, TX 76010
(817) 860-5498

DAYTON MATH FONTS

The most complete scientific character set for any word processor. Integrals, products, tensor products, sums, etc. 4 levels of subscripting + super-scripting. Tool kits for your own functions. Free updates. Complete Greek character sets, caps and lower case, old + new characters. Ideal for languages. $31.95.
PLUGH, INC.
595 Royal Springs
Springboro, OH 45066
(513) 748-2423

A+ pipeline

II LISA III MAC

▸ FORTIS DX-15XL PRINTER

Fortis is a faster version of Dynax's DX-15 printer. The letter-quality unit with standard Centronics parallel interface and optional tractor feed, emulates Diablo control codes. Features of the printer include a front control panel, optional keyboard, and cassette daisy-wheel and ribbons. *(List Price: $599)*

Requires: Any Apple computer

Dynax, Inc.
6070 Rickenbacker Road
Commerce, CA 90040
(213) 727-1227

CIRCLE READER SERVICE NO. **501**

II III

▸ COMPUTEREYES VIDEO SYSTEM

This video-acquisition system captures full-screen images on Apple's high-resolution display. Its slow-scan device connects between any standard video source and Apple's game I/O socket. Black-and-white images appear within five seconds; gray-scale images are provided by two multiscan modes. Computereyes' applications include pattern recognition, security, quality control, spatial measurement, robotics, artificial intelligence, and industrial controls. Comprehensive software comes with the system. *(List Price: $129.95)*

Requires: Apple II, II Plus, IIe, or III in Emulation mode

Digital Vision, Inc.
14 Oak Street
Suite 2
Needham, MA 02192
(617) 444-9040

CIRCLE READER SERVICE NO. **502**

II III MAC

▸ 2424AD MODEM FROM CTS DATACOMM

The 2424AD is a recent addition to the Companion Modem Series. This 2400-bps, auto-dial, two-wire, full-duplex modem meets CCITT V.22 bis requirements. Synchronous or asynchronous operation is possible at 2400 or 1200 bps. The unit can also fall back to 300-bps asynchronous operation. Automatic dialing is possible with memory storage of up to ten telephone numbers. Other features of the 2424AD include adaptive dialing, line-status detection, and RJ-11C and RS-232C interfacing. *(List Price: $795)*

Requires: Apple II, II Plus, IIe, IIc, III, or Macintosh

CTS Datacomm
6900 Shady Oak Road
Eden Prairie, MN 55344
(612) 941-9100

CIRCLE READER SERVICE NO. **503**

MAC

▸ VIDEO SYSTEMS FOR THE MAC

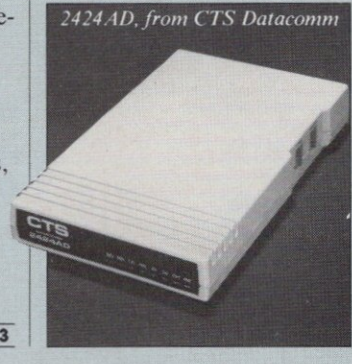
Two new video systems for the Macintosh are available from Professional Data Systems. The Big Mac Monitor system reproduces any Macintosh display, including fine text and high-resolution graphics. Users connect several Monitors in a series when multiple displays are required. Included with the Big Mac display is the PDS External Video Card, which works with the Monitor to provide high-resolution reproduction.

The Project-A-Mac, a giant-screen video system, projects the Mac display on screens up to 20 feet across. The resolution on the screen is the same as the Mac's small-screen resolution. The Project-A-Mac System includes a video projector and the PDS Video Card. *(List Price: Big Mac Monitor, $1995; Project-A-Mac, $4495)*

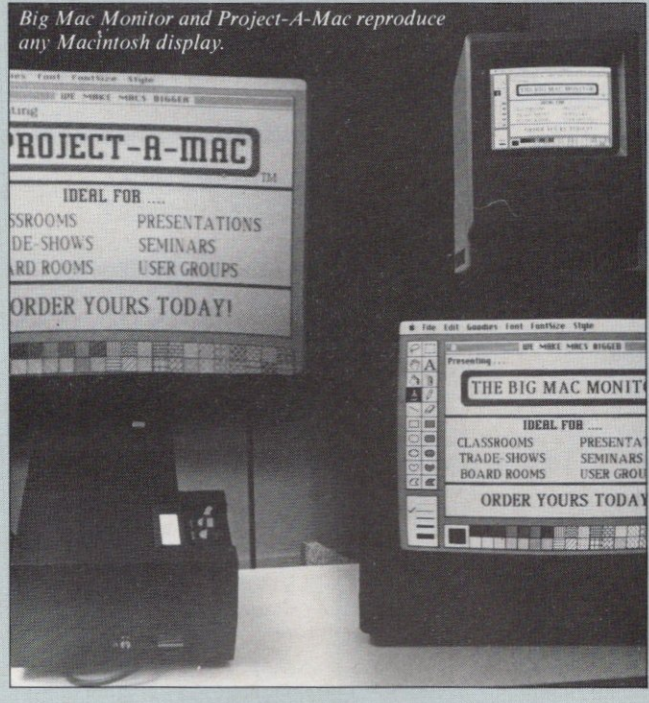
Requires: Macintosh

Professional Data Systems
20 Sunnyside Avenue
Mill Valley, CA 94941
(415) 383-5537

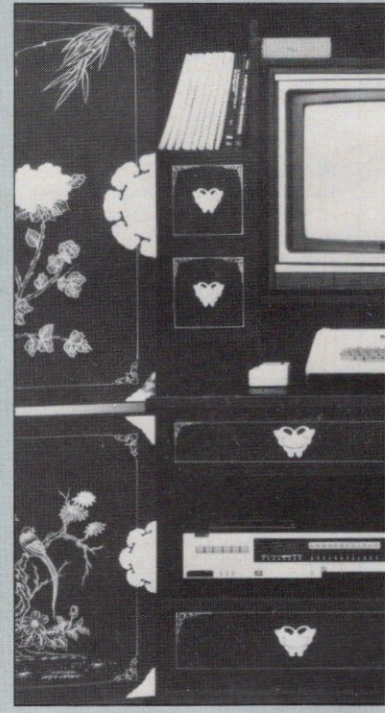
CIRCLE READER SERVICE NO. **504**

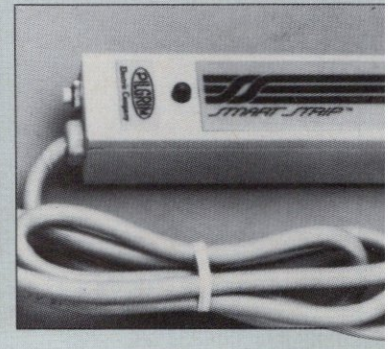


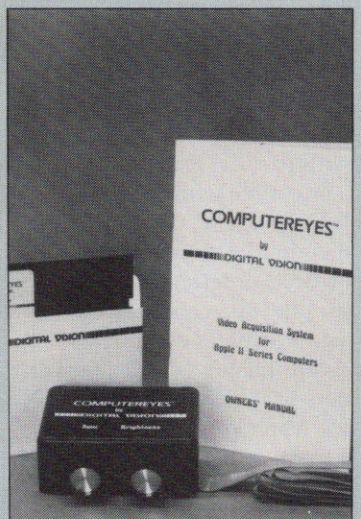
2424AD, from CTS Datacomm



Big Mac Monitor and Project-A-Mac reproduce any Macintosh display.







Computereyes, a video-acquisition system from Digital Vision, Inc.

II SERIES

▸ KEEPING SAFE CHILDREN'S PROGRAM

Keeping Safe is designed to teach children of 5 years and older how to handle potentially dangerous situations. The program projects a variety of encounters ranging from "strangers in cars" to dealing with "people you know." Children learn to make good decisions to help characters Buddy and Sally stay safe in their daily activities.

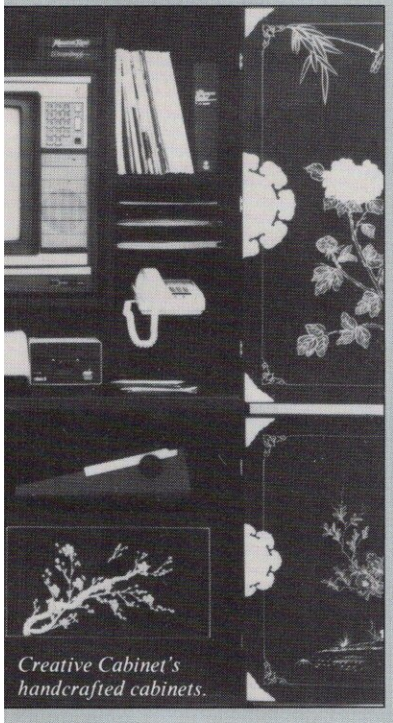
Keeping Safe helps children deal with dangerous situations.

After each answer to a problem, the program provides reinforcing or corrective feedback. The disk also contains an action-packed game called Scuba Scramble. *(List Price: $49.95)*

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

Marshware
A Division of Marshfilm, Inc.
P.O. Box 8082
Shawnee Mission, KS 66208
(800) 821-3303
in AL, HI, or MO (816) 523-1059

CIRCLE READER SERVICE NO. **505**



Creative Cabinet's handcrafted cabinets.

II SERIES LISA III MAC

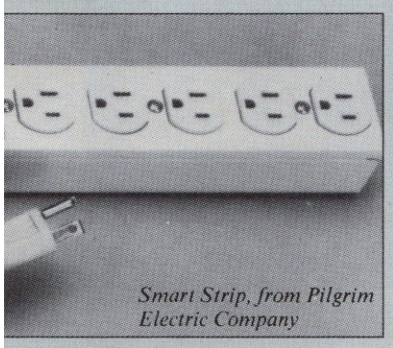
▸ SMART STRIP POWER CONTROLLER

The Smart Strip allows you to control all peripherals on a computer system with a single on/off switch that you can locate on either the monitor, printer, or modem. Smart Strip's first outlet energizes whenever you plug the line cord into a live outlet.

A current-sensing circuit monitors the current through this socket. When the master switch is on and current of more than 0.2 amps flows through the socket, other outlets automatically switch on after a brief time delay. If the master switch is off and a current of less than 0.1 amps flows through the socket, other outlets also turn off. Smart Strips are rated at 15 amps, 125 volts, 60 Hz, 1875 watts continuous duty. *(List Price: Model MS-4 [4 outlets], $95.25; Model MS-6 [6 outlets], $99.50)*

Pilgrim Electric Company
105 Newtown Road
Plainview, NY 11803
(516) 420-8990

CIRCLE READER SERVICE NO. **506**



Smart Strip, from Pilgrim Electric Company

Fortis DX-15XL letter-quality printer, from Dynax, Inc.

II SERIES III MAC LISA

▸ CREATIVE CABINETS

These handcrafted cabinets from the Orient house electronic equipment, with space for your computer, monitor, phone, modem, storage of diskettes (two drawers), VCR, and cassettes. Your computer sits on a typewriter-height, slide-out shelf. The cabinets come in three finishes: camphor burl, teak, and black lacquer; and two models: one with rollaway printer cart and one with extra shelf and drawer space. The cabinet closes when not in use. Its dimensions are 48 × 61½ × 24 inches. *(List Price: $1995–$2295)*

Creative Cabinets
2924 Veranda Drive
Springfield, VA 22152
(703) 455-4958

CIRCLE READER SERVICE NO. **507**

HARDWARE

SUN-NET II FILE SERVER

The Sun-Net II File Server is a network that allows multiple users to write on the same disk volume simultaneously without file degradation. When configured with Sunol's Sun-Mac, it enables up to 31 Macintosh computers to be networked on AppleTalk LAN. These configurations allow IBM PC, Z80's Base CP/M 80, and the Macintosh computers to share the same Mass Storage Unit. It is the first fileserver with the ability to transfer text files between different types of computers. *(List Price: $995)*

Requires: Apple II, II Plus, IIe, IIc, III, Lisa, or Macintosh

Sunol Systems
P.O. Box 1187
Pleasanton, CA 94566
(415) 484-3322

CIRCLE READER SERVICE NO. **508**

THE BIG MAC MONITOR

The Big Mac Monitor reproduces any Macintosh display, including fine text and high-resolution graphics. Users can connect several monitors in series when multiple displays are required. Included with the Big Mac Monitor is the PDS External Video Card, which works with the monitor to provide high-resolution viewing. *(List Price: $1995)*

Requires: Macintosh

Professional Data Systems
20 Sunnyside Avenue
Mill Valley, CA 94941
(415) 383-5537

CIRCLE READER SERVICE NO. **509**

126-MEGABYTE OMNIDRIVE

Corvus Systems, Inc. has developed a 126-megabyte version of OmniDrive for Apple IIe computers. The new OmniDrive features a voice-coil motor instead of a stepper motor and has an access time of 30 milliseconds.

A complete 126-megabyte disk system, which includes a 126-megabyte OmniDrive, a Corvus transporter card, and Constellation II software, includes all the items you need to add 126 megabytes of hard-disk mass storage to your Apple computer and to create a basic Omninet local-area network. *(List Price: $9495)*

Requires: Apple IIe

Corvus Systems, Inc.
2029 O'Toole Avenue
San Jose, CA 95131
(408) 559-7000

CIRCLE READER SERVICE NO. **510**

MOUSETRACER DRAWING AID

Mousetracer is a drafting/drawing aid that includes a specially designed mouse holder. Users can trace hard-copy graphics and artwork onto the computer screen when using a mouse-controlled graphics program.

Mousetracer is fully assembled and includes an instruction manual with 20 copyright-free drawings. *(List Price: $34.95)*

Requires: Apple IIe, IIc, or Macintosh

Village Computer Resources
P.O. Box 155
Lakewood, CA 90714
(213) 421-3412

CIRCLE READER SERVICE NO. **511**

HARDWARE/SOFTWARE

MEGAMAC

A memory upgrade for the Macintosh computer, MegaMac provides a full 1024K memory—512K of core memory and a 512K RAMdisk. The MegaMac board mounts inside the Macintosh and is fully compatible with all Macintosh software. Also available is a MegaRAM software package designed to work with the board. MegaMac is available as a complete system that includes the Macintosh computer. *(List Price: MegaMac, $1595 if exchanged for original 128K motherboard, or $1895; MegaRAM, $90; complete 1024K Macintosh system, $3790)*

MicroGraphics Images Corporation
19612 Kingsbury Street
Chatsworth, CA 91311
(818) 368-3482

CIRCLE READER SERVICE NO. **512**

NEW PRODUCTS FROM PBI SOFTWARE

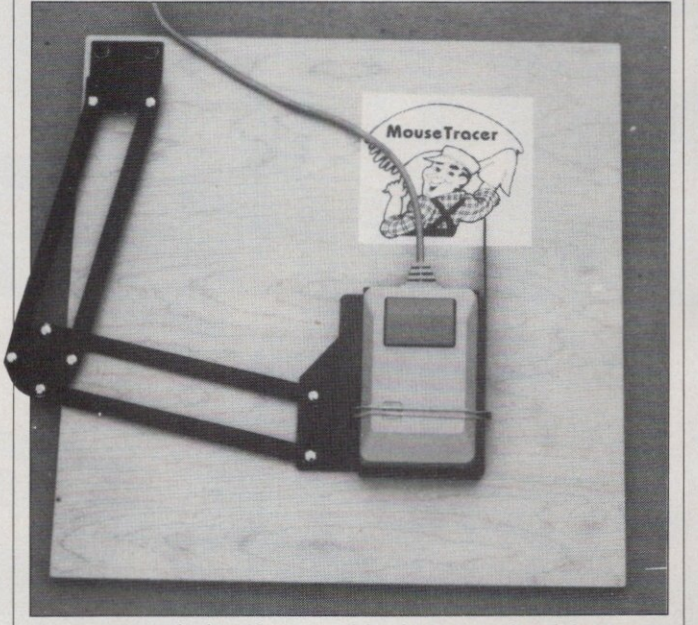
Serial Box, a printer adapter, enables the IIc to work with parallel printers. It is compatible with the Epson RX, MX, FX, Okidata, Gemini, Prowriter, C. Itoh, or Brother letter-quality printers and can interpret some graphics commands.

GraphWorks offers business-graphic capabilities for AppleWorks users. It is a stand-alone ProDOS Apple IIe and IIc program that utilizes the AppleWorks spreadsheet data files and plots them as four graph types: bar, stacked-bar, line, and pie. *(List Price: Serial Box, $89.95; GraphWorks, $79.95)*

Requires: Serial Box requires Apple IIc; GraphWorks requires Apple IIe or IIc

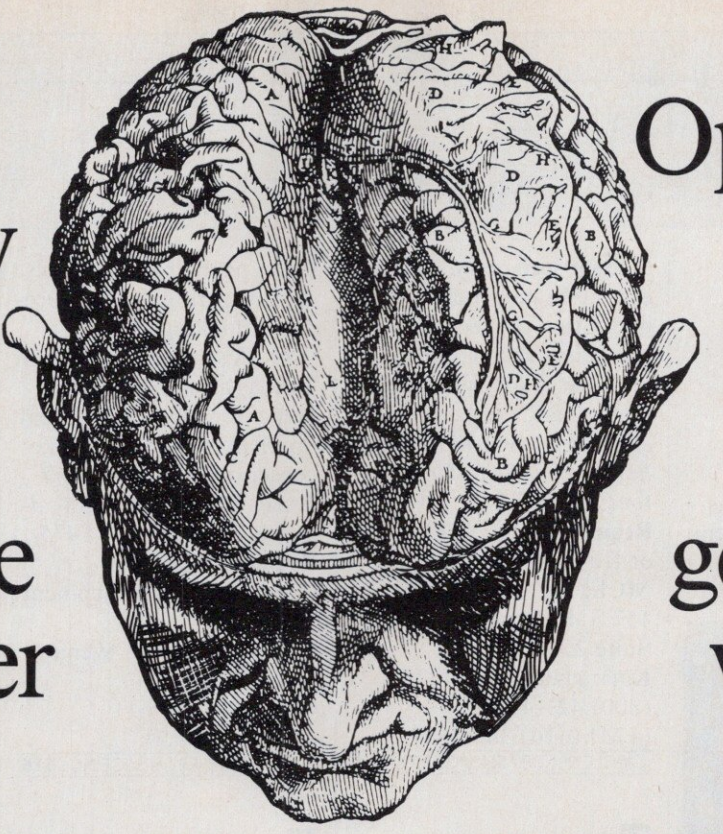
PBI Software
1155B-H Chess Drive
Foster City, CA 94404
(415) 349-8765

CIRCLE READER SERVICE NO. **513**



Mousetracer, a drafting/drawing aid for the Macintosh and the II series, is mounted on a 12 × 12-inch drawing board.

You already own the ultimate computer



Operate it like a genius with...

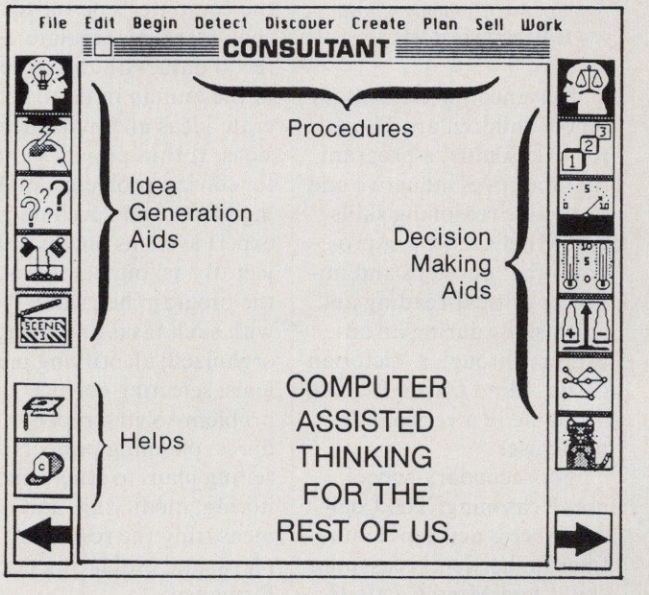
CONSULTANT™

helps you use your whole brain to think and work more productively.

. . .a new concept software program for the Apple® Macintosh™ 128 or 512.

YOU ARE NOT ALONE. Your CONSULTANT™ is always ready to stimulate and supplement your own magnificent mind. CONSULTANT™ helps: detectives solve mysteries, scientists discover principles, engineers create products, generals plan strategies, salespeople develop proposals, executives make decisions, managers supervise, auditors generate reports, lawyers persuade juries, doctors diagnose symptoms, teachers grade exams, writers develop concepts, missionaries make converts, homemakers plan their day and students learn to think. CONSULTANT™ is for any knowledge worker who must solve problems, plan projects, develop expert systems, get results, report their progress and continually grow in their profession.

ALL FOR A SUGGESTED RETAIL PRICE OF $200 THE COST OF A FEW HOURS OF A HUMAN CONSULTANT'S TIME



See your local software dealer or contact us for a free brochure.

ODS, Inc. — Organization Development Software
1605 S. Garden St., Palatine, Illinois 60067
(312) 397-1684

Macintosh is a trademark licensed to Apple Computer, Inc. CONSULTANT is a trademark of ODS, Inc. Copyright 1985, ODS, Inc. All rights reserved.

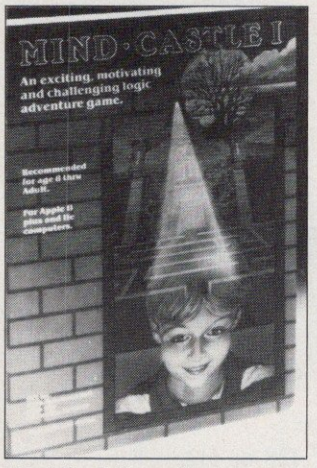
CIRCLE 327 ON READER SERVICE CARD

▶SOFTWARE

II SERIES

▶MCE LOGIC AND REASONING PROGRAMS

MCE (Microcomputer Education Programs) has announced a complete family of logic and reasoning programs for school use.



Mind Castle I, an adventure game, is one of MCE's family of logic and reasoning programs.

Designed for elementary school children are The 4th R—Reasoning, a program that improves inductive and deductive reasoning skills, and Mind Castle I, a program that develops and improves critical-reading and math skills during an adventure through a Victorian castle. Mind Castle I is also available in a version for home use.

For secondary-school use, Reasoning: The Logical Process develops and refines higher-level reasoning skills, and Mind Castle II increases such skills during an adventure in a specter-filled castle.

The Lost R—Reasoning is a program designed to develop reasoning skills necessary for successful learning and daily living. It is suitable for secondary special-education purposes, presenting concepts at a secondary-school interest level but at an elementary reading and conceptual level. *(List Price: $44.95 each; home version of Mind Castle I, $39.95)*

Requires: Apple II Plus, IIe, or IIc

MCE, Inc.
157 S. Kalamazoo Mall
Suite 250
Kalamazoo, MI 49007
(800) 421-4157
in MI (616) 345-8681

CIRCLE READER SERVICE NO. **514**

MAC

▶MAC CONSULTANT

Organization Development Services (ODS) is offering a new program, Consultant, that is designed to enhance the power of the mind. Designed to run on the Macintosh, the software combines the computer's power to accept, store, manipulate, and recall data with the power of the human mind to generate ideas and make decisions. It thus provides a tool for solving problems, making plans, and developing expert systems on any subject. By asking questions, the program helps users with such tasks as getting organized; identifying problems; selecting correct problem-solving procedures; planning projects; selling plans to others; monitoring, modifying, and measuring the results of plans; and evaluating performance.

The company also runs seminars—Think & Work and Team Think & Work—which are designed for individuals and small groups, respectively. With the help of the Consultant software, the seminars train and motivate participants to apply creative, critical, and procedural thinking to their work. A service called Team Tank is also available to help a group work on a real problem or plan and make consensus decisions. *(List Price: Consultant, $200; 3-day public seminar, $475)*

Requires: Macintosh

Organization Development Services, Inc.
444 N. Michigan Avenue
Suite 3650
Chicago, IL 60611
(312) 774-6550

CIRCLE READER SERVICE NO. **515**

MAC

▶EXCEL NUMBER-PROCESSING TOOL

Excel is a powerful number-processing management tool that integrates a spreadsheet function, charting capabilities, a flexible spreadsheet-oriented database, a simple-to-use macro keystroke-saver facility, and the simplicity of the Macintosh interface.

Spreadsheet components include 256 columns by 16,384 rows; the ability to view and reference multiple worksheets on-screen; and the ability to name cell references, numbers, and mathematical expressions, which simplifies and helps organize model-building—for example, models that read Sales = Profit–Cost.

With integrated charting you can change numbers in spreadsheet windows, and the charts in separate windows are updated instantly. An on-screen gallery of 42 predesigned charts allows you to pick the right chart quickly.

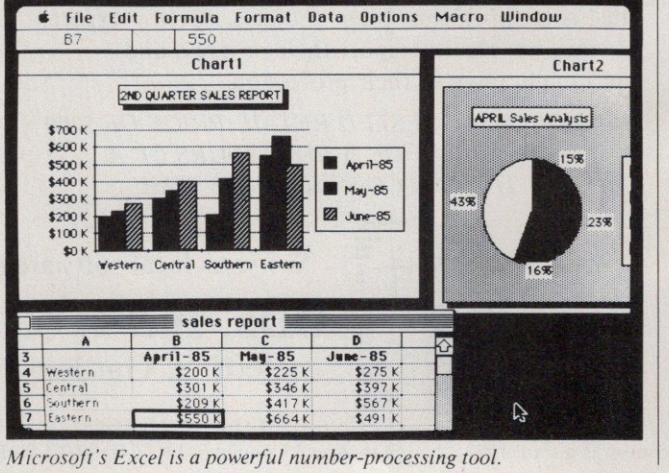
The spreadsheet-oriented database allows you to sort, extract, and display information quickly in a variety of ways.

The built-in keystroke-saving macros allow you to record commonly used sequences and play them back to save time. Advanced capabilities let you define your own mathematical functions. Available August 1, 1985. *(List Price: $395; with Mac Multiplan trade-up, $200; with Mac Multiplan and Chart trade-up, $100)*

Requires: Macintosh 512K or Macintosh XL; external disk drive recommended

Microsoft
10700 Northup Way
Bellevue, WA 98009
(206) 828-8088

CIRCLE READER SERVICE NO. **516**



Microsoft's Excel is a powerful number-processing tool.

PROGRAMS Plus

Visit Our New Showroom: Exit 32 off I-95

Stationhouse Square, 2505 Main Street • Stratford, Connecticut 06497

Corporate and School Purchase Orders Accepted

Mon.-Fri. 9-6; Sat. 10-6

ORDERS ONLY TOLL FREE 1-800-832-3201

Inquiries & Conn. residents call (203) 378-3662 or 378-8293

Up to 50% off retail

MACINTOSH COMPUTERS ..... Call

APPLE //c, //e COMPUTERS ..... Call

LOWEST PRICES ON EPSON PRINTERS ..... Call

Back Up Your Software

	Our Price
E.D.D. III (Best Nibble Copier!)	46.00
CIA Files (Best Disk Utilities!)	48.00
Copy II Plus - Central Point	22.00
Locksmith 5.0 - Omega	68.00
Nibbles Away III	49.00
Copy Master II 128K w/Gr. Dump	99.00
Wildcard II - Central Point	99.00
Replay II - MicroAnalyst	80.00

Macintosh

	Our Price
Back To Basics (MAC)	225.00
Copy II Mac	24.00
DB Master Mac	117.00
Dollars & Sense	89.00
Filevision	117.00
Hayden Ensemble	179.00
Helix	249.00
Home Accountant	61.00
MacLion Database	275.00
MacPublisher	78.00
Mastertype	31.00
Microsoft Basic	90.00
Microsoft Chart	78.00
Microsoft Multiplan	119.00
Microsoft Word	119.00
PFS: File Report Combo	117.00
Ready Set-Go	89.00
Sargon III	31.00
TK! Solver	149.00
Think Tank	81.00
Typing Tutor III	37.00

Entertainment

	Our Price
Seven Cities of Gold	28.00
Murder on the Zinderneuf	26.00
Archon II	28.00
Pinball Construction Set	26.00
One-On-One	28.00
Skyfox	28.00
Miner 2049'er or The Heist	25.00
Wizardry	31.00
Knight Of Diamonds	21.50
Legacy of Llylgamyn	25.00
Return Of Werdna	25.00
Rescue Raiders	22.00
Crypt of Medea	22.00
Wiziprint	16.00
The Quest or Ring Quest	21.80
Expedition Amazon, or Xyphus	21.80
Sword of Kadash	21.80
Millionaire, Squire, or Barron	31.00
Solo Flight or Nato Commander	23.00
Amazon or Dragon World	26.00
Fahrenheit 451 or Shadow Keep	26.00
Flight Simulator II	33.00
Championship Lode Runner	22.00
Choplifter! or Karateka	22.00
Pole Position or Zaxxon	20.00
Bruce Lee	25.00
Spy Hunter, Star Trek, or Tapper	28.00
Buck Rogers or Up 'n' Down	28.00
Kings Quest	31.00
Beyond Castle Wolfenstein	22.00
Ultima III: Exodus	35.00
Sargon III	31.00
Cutthroats, or Seastalker	25.00
Hitchhiker's Guide to The Galaxy	25.00
Deadline, or Starcross	31.00
Witness, Planetfall, or Enchantor	5.00
Infidel or Sorceror	28.00
Zork II, Zork III, or Suspect	28.00
Zork I	25.00
Objective Kursk	25.00
50 Mission Crush	25.00
War in Russia	49.00
Imperium Galactum	25.00
Reforger 88	37.00
Baltic 85	22.00
Questron	31.00
Broadsides	25.00
Geopolitique 1990	25.00
North Atlantic '86	37.00
Battle For Normandy	25.00
Carrier Force	37.00
Germany 1985	37.00
Gulliver's Travels by Windham	20.00
Wizard Of Oz by Windham	20.00

Hobby

	Our Price
Apple Mechanic	17.00
Beagle Basic	20.00
Beagle G.P.L.E.	28.00
Beagle Graphics	33.00
D-Code	23.00
Disk Quick	17.00
Dos Bos	14.00
Double Take	20.00
Fat Cat	20.00
Flex Text	17.00
Frame Up	17.00
I.O. Silver	17.00
Pronto Dos	17.00
Silicon Salad	14.00
Triple Dump	23.00
Typefaces	11.00
Utility City	17.00
Bag of Tricks	25.00
Applesoft Compiler (Microsoft)	109.00
Einstein Compiler	85.00
Compiler Plus (Hayden)	37.00
Lisa V2.6	55.00
Merlin Pro	62.00
Merlin Assembler	39.00
Merlin Combo Pack	68.00
Visible Computer: 6502	32.00
The Graphics Magician	37.00
New Complete Graphics Sys.	49.00
Dazzle Draw	37.00
Pix-it	31.00
Take I	37.00
Blazing Paddles	31.00
Zoom Graphics	31.00
Sideways	37.00
Fontrix	44.00
Font Paks 1-11 ea.	13.00
Printographer	24.00

Blank Media

	Our Price
Elephant SS/DD (10)	12.50
BASF SS/DD (10)	15.50
Maxell SS/DD (10)	16.00
Verbatim SS/DD (10)	17.50
3M SS/DD (10)	18.00
Memorex SS/DD (10)	15.00
Dysan SS/DD (10)	23.00

Business

	Our Price
ADVANCED LOGIC SYSTEMS	
T-Maker	189.00
APPLE	
Access // (//e, //c)	59.00
Apple Works	199.00
Apple Writer // (//e, //c)	125.00
Quickfile (//e, //c)	79.00
APPLIED SOFTWARE TECHNOLOGY	
Versaform	55.00
ARTSCI	
MagiCalc	94.00
Magic Office System	185.00
Magic Window II	94.00
ASHTON TATE	
dBase II	279.00
BPI SYSTEMS (II+or //e)	
GA, AR, AP, PR or INV. ea.	235.00
CONTINENTAL SOFTWARE	
F.C.M./FL	61.00
G/L, A/R, A/P, Payroll ea.	145.00
Home Cataloger	31.00
CREATIVE PERIPHERALS	
Time Trax //e or //c	85.00
Time Trax //c Clock Only	55.00
DECISION SUPPORT	
The Business Accountant	152.00
DOW JONES SOFTWARE	
The Market Analyzer	209.00
The Market Manager	149.00
The Market Microscope	209.00
HAYDEN	
Pie Writer V2.2	95.00
The Writer	35.00
HOWARDSOFT	
Real Estate Analyzer II	155.00
Tax Preparer 1984	169.00
HUMAN EDGE SOFTWARE	
Communications Edge	119.00
Management Edge	149.00
Mind Prober	31.00
Sales Edge	149.00
KENSINGTON MICROWARE	
Format II Enhanced	92.00
LIVING VIDEOTEXT	
Think Tank II+ or //e	88.00
MEGAHAUS	
MegaFinder	99.00
MegaSpell	39.00
MegaWorks	78.00
MegaWriter	65.00
MICROPRO	
Calcstar	49.00
Infostar w/Z-Card	120.00
Wordstar w/Z-Card	169.00
Wordstar Pro w/Z-Card	229.00
PRACTICORP	
Practicalc II	34.00
MICROSOFT	
Microsoft Softcard w/dBase II	329.00
Multiplan	62.00
QUARK	
Word Juggler & Lexicheck	119.00
SENSIBLE SOFTWARE	
Bookends	74.00
Graphics Department	78.00
Report Card	37.00
The Sensible Speller	74.00
SIERRA ON-LINE	
The General Manager II	132.00
The Screenwriter //e	78.00
SILICON VALLEY	
List Handler (II+, //e, //c)	48.00
The Handlers (II+, //e, //c)	103.00
Word Handler II (II+, //e, //c)	48.00
SMITH MICRO SOFTWARE	
Stock Portfolio System	75.00
SOFTWARE ARTS	
TK! Solver	179.00
The VisiCalc Package	115.00
SOFTWARE PUBLISHING	
PFS: File	73.00
PFS: Graph	73.00
PFS: Report	73.00
PFS: Write (//e, //c)	73.00
PFS: Proof (//e, //c)	43.00
PFS: Access (//e, //c)	43.00
STONEWARE	
DB Master Business Team	219.00
DB Master Business Writer	98.00
DB Master Version Four Plus	185.00
DB Master (Corvus)	249.00
VISICORP	
Flashcalc II+, //e, //c	62.00
Visitrend/Visiplot	62.00

Educational Software

	Our Price
APPLE	
Apple Logo // (//e, //c)	82.00
BARON'S	
Computer SAT	54.00
GMAT	54.00
CBS	
Career Planning	55.00
Coast To Coast	28.00
Goren's Bridge	49.00
Mastering the SAT	93.00
Micro Speed Reading	78.00
Success w/Math (ea)	15.50
DAVIDSON & ASSOCIATES	
Classmate	30.00
Math Blaster	30.00
Speed Reader II	42.00
Speed Reader Data A,B,C, or D	15.00
Spell-It	30.00
Word Attack!	30.00
DESIGNWARE	
Grammer Examiner	28.00
Math Maze	24.00
Mission Algebra	28.00
Spellagraph	24.00
Spellakazam	19.00
The Body Transparent	28.00
DLM	
Alligator Mix	21.00
Alphabet Circus	19.00
Demolition Division	21.00
Number Farm	19.00
Spelling Wiz	21.00
EDU-WARE/PEACHTREE	
Algebra 1, 2, 3, or 4	23.00
Algebra 5 or 6	28.00
Compu-Read	17.00
Compu-Math: Arithmetic Skills	29.00
Hands-on BASIC Programming	32.00
Introduction to Counting	25.00
Learning To Read 1,2,3, or 4	25.00
PSAT Word Attack Skills	18.00
SAT Word Attack Skills	18.00
Spelling Bee w/Reading Primer	23.00
Writing Skills 1,2,3 or 4	25.00
EINSTEIN CORP.	
Einstein Memory Trainer	55.00
HARCOURT, BRACE	
Computer SAT	48.00
IMAGE	
Crime & Punishment	25.00
KRELL	
Adventure in Flesh	39.00
Krell Logo	65.00
Krell SAT - Gold	225.00
LEARNING COMPANY	
Addition Magician	22.00
Bumble Plot	24.50
Gertrude's Puzzles	27.50
Juggle's Rainbow	18.75
Magic Spell	22.00
Reader Rabbit	24.50
Robot Odyssey I	30.50
Rocky's Boots	30.50
Word Spinner	22.00
SCARBOROUGH SYSTEMS	
Mastertype's Writing Wizard	49.00
Build A Book About You	26.00
Orig. Boston Computer Diet	52.00
SCHOLASTIC WIZWARE	
Agent U.S.A. or Turtle Tracks	24.50
Operation: Frog	24.50
Story Maker or Story Tree	24.50
SIMON & SCHUSTER	
Discover'g Your Baby-Birth to 2	49.00
Discover'g Your Baby-2 to 5 yrs.	49.00
SPINNAKER	
Aerobics	27.50
Alphabet Zoo	19.00
Delta Drawing	31.00
Fraction Fever	19.00
Grandma's House	19.00
Hey Diddle Diddle	19.00
In Search of	25.00
Kidwriter	19.00
Kindercomp	19.00
Trains	25.00
Snooper Troops 1 or 2	27.50
Sum Ducks	19.00
SPRINGBOARD	
Early Games or Music Maestro	22.00
Fraction Factory or Make a Match	19.00
Rainbow Painter or Puzzle Master	22.00
SUNBURST	
Challenge Math	30.00
Teasers by Tobbs	30.00
The Factory	30.00
The Incredible Laboratory	30.00
TERRAPIN	
Terrapin Logo	61.00
XEROX	
Chivalry	32.00
Explor'g Tables & Graphs 1 or 2	23.00
Pic. Builder	24.75
Stickybear Series (ea.)	24.75

Accessories

	Our Price
ALS Cards	Call
Applied Engineering Cards	Call
Kensington System Saver	64.00
Cool + Time	69.00
Hayes Micromodem //e	139.00
Hayes 300 Baud Smartmodem	139.00
Hayes 1200 Baud Smartmodem	399.00
Novation Apple Cat II	195.00
Novation 212 Apple Cat II	375.00
Pro Modem 1200 (External)	Call
Pro Model 1200A (Internal)	Call
Popcom X-100 (1200 Baud)	Call
ERA 2 by Microcom	355.00
Zoom /Modem //e	129.00
Zoom /Modem //e Plus	159.00
Apricorn 16K Ramcard	68.00
Microsoft Premium Softcard //e	259.00
Microsoft Softcard II	239.00
Extend 80 (Carib. Computer)	115.00
MCT Speed Demon	219.00
Saturn 128K Ram	199.00
Neptune 80 Col. 64K Card	185.00
Accelerator //e	239.00
Videx Videoterm w/SS Inv.	179.00
Videx Ultraterm	245.00
Corvus Hard Disks	Call
Mockingboard A Board	75.00
Mockingboard C Board	135.00
Mockingboard D Board (//c)	135.00
Echo II Plus	95.00
The Cricket (//c)	120.00
S.A.M. Automatic Mouth	69.00
Hayes Mach II Joystick //e	29.00
Hayes Mach III Joystick //e	35.00
Kraft Joystick	32.00
TG Select-A-Port	28.00
Apple Super Serial Card	125.00
SeriAll Interface Card	129.00
Serial Grappler Plus	85.00
Pkaso/U Interface	119.00
Grappler +	85.00
Buffered Grappler +	149.00
Nice Print (Spies Labs)	125.00
Finger Print Plus	99.00
Print-It	135.00
Thunderclock +	109.00
Digital Paintbrush System	175.00
Muppet Learning Keys	45.00
Koala Pad	75.00
Key Tronic Keyboard	245.00
Trackhouse Key Pad	110.00

VISA

MasterCard

For fast delivery send cashier's check, certified check or money order. Personal and company checks allow 3 weeks to clear. Shipping - Software ($2.50 min.) C.O.D. add an additional $1.90. Shipping - Hardware (please call). Alaska, Hawaii, Canada, PO, APO and FPO $5.00 min. Foreign orders - $15.00 min. and 15% of all orders over $100. Mastercard & Visa (include card # and expiration date). Connecticut residents add 7.5% sales tax. We ship same day for most orders. PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All returns must have a return authorization number. Call 203-378-3662 to obtain one before returning goods for replacement. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.
Note: All products are new and include factory warranty, therefore ALL sales are final. Defective hardware or software will be replaced by the same item only. We do not guarranty compatability. Products purchased in error will not be exchanged or replaced.
Advertisement prepared April 1, 1984

Printers

		Our Price
APPLE		
ImageWriter		495.00
ImageWriter (Wide Carriage)		565.00
Scribe Printer		239.00
BROTHER		
HR-35		849.00
CITIZEN		
MSP-10 (160 cps)		339.00
MSP-15 (160 cps)		519.00
MSP-20 (200 cps)		479.00
MSP-25 (200 cps)		649.00
DYNAX		
DX-15XL		379.00
EPSON		
FX-80 +	Call	Call
FX-100 +	For	Call
RX-80 F/T +	Most	Call
RX-100	Recent	Call
LQ-1500	LOW LOW	Call
JX-80	Prices!	Call
LX-80		Call
JUKI		
6100		399.00
6300		769.00
OKIDATA		
Microline 82A		309.00
Microline 83A		579.00
Microline 92S //c/Mac/Lisa		429.00
Microline 92P		359.00
Microline 93P		599.00
Microline 84P		669.00
PANASONIC		
KXP-1090		209.00
KXP-1091		299.00
KXP-1092		399.00
KXP-1093		579.00
PROWRITER (C. Itoh)		
ProWriter 8510 AP		299.00
ProWriter 1550 AP		449.00
ProWriter 7500 AP		219.00
StarWriter A10-30P		479.00
StarWriter F10-40P		869.00
SILVER REED		
EXP-400P		249.00
EXP-500P		309.00
EXP-550P		329.00
EXP-770P		759.00
STAR MICRONICS		
SG-10 (120 cps)		235.00
SG-15 (120 cps)		395.00
SD-10 (160 cps)		349.00
SD-15 (160 cps)		469.00
SR-10 (200 cps)		499.00
SR-15 (200 cps)		609.00
Powertype		329.00
TOSHIBA		
P-1340		599.00
P-1351		1225.00

Disk Drives

	Our Price
APPLE	
Disk II Drive	299.00
Duo Disc w/Acc. Kit	639.00
ProFile (5 Meg) w/Acc. Kit	1135.00
ProFile (10 Meg) w/Acc. Kit	1599.00
Apple //c External Drive	269.00
Macintosh External Drive	399.00
MICRO SCI	
Slimline //e	185.00
Slimline //c	189.00
Micro Sci C2 Controller	59.00
RANA	
Elite I	195.00
Elite II	339.00
Elite III	399.00
Rana Disk Controller	79.00
REMINGTON RAND	
Model 3200 Drive //, //c, //e	Call
QUARK	
QC-10 Hard Disc //e, //c, Mac	1425.00

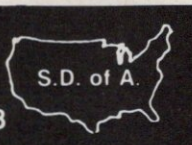
Monitors

	Our Price
AMDEK	
Color 300 (Composite)	239.00
Color 600 (RGB)	419.00
Video 300G Green	125.00
Video 300A Amber	130.00
PANASONIC	
Hi-Res Green	119.00
Hi-Res Amber	125.00
10" Dual Mode Comp. Color	189.00
TEKNICA	
MJ-22 RGB Color	325.00
SANYO	
DM 2112 Green Monitor	85.00
DM 2212 Amber Monitor	85.00
DMC 5500 Color Comp.	245.00
DMC 6500 GR/RGB Color	285.00
TAXAN	
RGB Vision III (Hi-Res)	379.00
210 12" Color (Lo-Res)	264.00
Green (Hi-Res)	120.00
Amber (Hi-Res)	130.00
410-64 RGB-2 Interface	185.00

Home

	Our Price
Home Accountant	43.00
Dollars and Sense (II+, //e)	60.00
Dollars and Sense (//c)	71.00
Monogram Forecast	39.00
The Accountant	60.00
Time is Money	52.00
Money Street	75.00
Networth	48.00
Financial Cookbook	35.00
Cut and Paste	26.00
The Write Choice	27.00
Bank Street Writer	42.00
Bank Street Speller	42.00
Homeword	43.00
Homeword Speller	31.00
Homeword Filer	43.00
ASCII Express Professional	79.00
Softerm II	128.00
Compuserve Starter Kit	25.00
Typing Tutor II	15.80
Typing Tutor III	31.00
Master Type	25.00
Crossword Magic (Mindscape)	37.00
Micro Cookbook (II+, //e)	23.00
Music Construction Set	28.00
Print Shop	29.00
Print Shop Graphics Library	16.00
Turbo Pascal	33.00
Verbatim Drive Analyzer	24.00
Gibson Light Pen	159.00

Software Discounters of America (& Peripherals, too!)



Orders Outside PA—1-800-225-7638
PA Orders — 1-800-223-7784
Customer Service 412-361-5291

- **Free Shipping on orders over $100 in continental USA**
- **No surcharge for VISA/Mastercard**
- **Your card is not charged until we ship**

Our 1st Annual Christmas in July Sale!!!

ACTIVISION
Designer's Pencil ... $25
Ghostbusters ... $25
Space Shuttle ... $25
ARTWORX
Bridge 4.0 ... $16
Strip Poker ... $21
Male Data Disk ... $16
Female Data Disk ... $16
AVALON HILL
Beast War ... $19
B-1 Nuclear Bomber ... $16
Computer Stocks & Bonds ... $19
Legionnaire ... $21
T.A.C. ... $26
Telenguard ... $19
Tournament Golf ... $21
BLUE CHIP
Baron ... $32
Millionaire ... $32
Tycoon ... $32
These Titles Available for MAC ... $37 Ea
BRODERBUND
Bank St. Filer (64K) ... $43
Bank St. Filer (128K) ... $43
Bank St. Mailer (64K) ... $43
Bank St. Mailer (128K) ... $43
Bank St Writer ... $43
Bank St Writer (128K) ... $43
Bank St Speller ... $43
Cyborg (MAC) ... $25
Dazzle Draw (128K) ... $39
Karateka ... $23
Print Shop ... $33
Print Shop Graphics Library ... $19
Print Shop Paper Refill ... $14
Science Tool Kit ... $39
CBS
Adventure Master ... $29
Algebra Series ... Call
America Coast To Coast ... $25
Charles Goren Bridge ... $49
Dinosaur Dig ... $25
Dr. Seuss ... $21
Felony ... $21
Mastering the SAT ... $67
Math Series ... Call
Murder by Dozen ... $23
Sea Voyagers ... $25
CONTINENTAL
Book of Adv. Games ... $16
Home Accountant ... $44
Home Accountant (128K IIe & IIc) ... $44
Home Accountant (MAC) ... $67
DATASOFT
Bruce Lee ... $23
Conan ... $25
Dallas Quest ... $21
Pac Man ... $17
Sands of Egypt ... $17
Zaxxon ... $17
DAVIDSON
Math Blaster ... $33
Speed Reader II ... $43
Spell It ... $33
Word Attack ... $33
ELECTRONIC ARTS
Archon II ... $27
Cut & Paste WP ... $35
Financial Cookbook ... $35
Music Construction Set ... $27
One-on-One ... $27
Pinball Construction Set ... $27
Seven Cities of Gold ... $27
EPYX
Impossible Mission ... $23
Pitstop II ... $25
Summer Games ... $25
Temple of Apshai ... $19
FISHER PRICE
Alpha Build ... $16
Logic Levels ... $16
Up & Add Em ... $16
HAYDEN
Ensemble (MAC) ... $179
Holy Grail ... Call
Holy Grail (MAC) ... Call
Musicworks (MAC) ... $49
SAT (MAC) ... $67
Sargon II ... $16
Sargon III ... $33
Sargon III (MAC) ... $33
Videoworks (MAC) ... $49
Word Challenge II (MAC) ... $25
INFOCOM
Cut Throats ... $25
Deadline ... $33
Enchanter ... $25
Hitchhiker's Guide to the Galaxy ... $25
Infidel ... $29
Planetfall ... $25
Sorcerer ... $29
Suspect ... $29
Witness ... $25
Zork I ... $25
*All titles available for Macintosh at prices listed above
KOALA
Gibson Light Pen ... $149
Muppet Learning Keys (IIe &IIc) ... $49
MacVision ... $249
Tablet w/Painter (IIc) ... $75
LEARNING COMPANY
Addition Magician ... $23
Gertrudes Secrets ... $27
Juggles Rainbow ... $19
Number Stumper ... $25
Reader Rabbit ... $25
Robot Odyssey I ... $33
Word Spinner ... $23
MICROLAB
Death in Caribbean ... $23
Dino Eggs ... $16
Short Circuit ... $16
MICROPROSE
F-15 Strike Eagle ... $23
Nato Commander ... $23
Solo Flight ... $23
MINDSCAPE
Bank St. Story Book ... $26
Crossword Magic ... $33
Mr. Pixel's Cartoon Kit ... $23
Mr. Pixel's Programming Paint Set ... $23
MONOGRAM
Dollars & Sense ... $67
Dollars & Sense (IIc) ... $77
Dollars & Sense(MAC) ... $95
MUSE
Beyond Wolfenstein ... $23
Castle Wolfenstein ... $19
ORIGIN
Ultima III ... $39
PRACTICORP
Practicalc II ... $35
PROFESSIONAL SOFTWARE
Trivia Fever ... $25
Trivia Fever (MAC) ... $25
Trivia Fever Super Sports ... $19
RANDOM HOUSE
Charlie Brown's ABC's ... $25
Peanuts Maze Marathon ... $25
Snoopy's Reading Machine ... $25
SCARBOROUGH
Boston Computer Diet ... $49
Build A Book ... $26
Masterytype ... $25
Masterytype (MAC) ... $29
Make Millions (MAC) ... $33
Net Worth ... $49
SIERRA ON LINE
Homeword ... $43
Homeword w/Speller ... $67
Kings Quest (128K) ... $33
Ultima II ... $39
Ultima II (MAC) ... $39
SIMON & SCHUSTER
Gonzo in Wordrider ... $23
Kermit's Electronic Storymaker ... $23
NY Times Crossword Puzzles 1 ... $16
NY Times Crossword Puzzle 2 ... $16
Typing Tutor III ... $33
Typing Tutor III (MAC) ... $39
SPINNAKER
Alphabet Zoo ... $19
Counting Parade ... $19
Facemaker ... $17
Fraction Fever ... $17
Kidwriter ... $19
Kids on Keys ... $17
Kinder Comp ... $17
Story Machine ... $17
Trains ... $19
SPRINGBOARD
Early Games ... $23
Easy as ABC ... $25
Fraction Factory ... $19
Mask Parade ... $25
Newsroom ... $33
Stickers ... $23
SSI
Battle Normandy ... $25
Carrier Force ... $39
Computer Ambush ... $39
Computer Baseball ... $25
Computer QB ... $25
Galactic Adventures ... $39
Germany 1985 ... $39
Pro Tour Golf ... $25
Questron ... $33
Rails West ... $25
War In Russia ... $53
SUBLOGIC
Flight Simulator II ... $33
TELARIUM
Amazon ... $25
Fahrenheit 451 ... $25
Rendezvous w/Rama ... $25
TIMEWORKS
Evelyn Wood Dynamic Reader ... $47

ACCESSORIES
Anchor Modems ... Call
BASF SS,DD ... $14 Bx
BASF DS,DD ... $19 Bx
Compuserve Starter Kit (5hrs) ... $23 ... 2/39
Disk Case (Holds 50) ... $9
Disk Drive Cleaner ... $9
Dow Jones News Retrieval Kit (5hrs) ... $21
Rana Elite One ... $187
Sakata 13" Color Monitor ... Call

P.O. BOX 278-DEPT AP-WILDWOOD, PA 15091

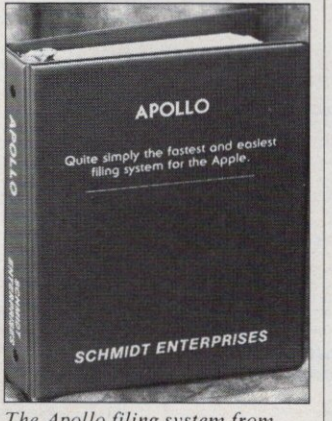
*Ordering and Terms: Orders with cashier check or money order shipped immediately. Personal/company checks, allow 3 weeks clearance. No C.O.D.'s. **Shipping: Continental U.S.A.**—Orders under $100 add $3; **free shipping on orders over $100.** PA residents add 6% sales tax. **AK, HI, FPO-APO**—add $5 on all orders. Sorry—no International orders. Defective merchandise will be replaced with same merchandise. Other returns subject to a 15% restocking charge—NO CREDITS! Return must have authorization number (412) 361-5291. Prices subject to change without notice.

CIRCLE 155 ON READER SERVICE CARD

II SERIES

▶ APOLLO FILING SYSTEM

A fast and easy-to-use filing system, Apollo also has database, spreadsheet, and form-generation abilities. The program's file form can be of any length and can have any number of fields. Users can retrieve, print, remove, or transfer files or



The Apollo filing system from Schmidt Enterprises

groups of files almost instantaneously. Any field can contain a formula, and files can be sorted alphabetically by any field, in either ascending or descending order. The program has an on-screen Help menu and comes with a manual, tutorial, and sample data disk. *(List Price: $120)*

Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive
Schmidt Enterprises
15841 Leadwell Street
Van Nuys, CA 91406
(818) 994-4060

CIRCLE READER SERVICE NO. **522**

II SERIES

▶ SOLO FLIGHT SIMULATOR

The flight simulator Solo Flight is now available in a version for Apple II computers. The program features 3-D graphics and is suitable for both novice and expert pilots. It provides realistic takeoffs, landings, and navigation under both visual and instrument flight rules among 21 different airports. Simulation options include touch-and-go landings, full cockpit instrumentation, dual VOR navigation radios, instrument landing system (ILS), multiple air-navigation maps, and emergency-procedure practice. *(List Price: $34.95)*

Requires: Apple II, II Plus, IIe, or IIc
MicroProse Software
120 Lakefront Drive
Hunt Valley, MD 21030
(301) 667-1151

CIRCLE READER SERVICE NO. **523**

MAC

▶ TURBOCHARGER FOR THE 512

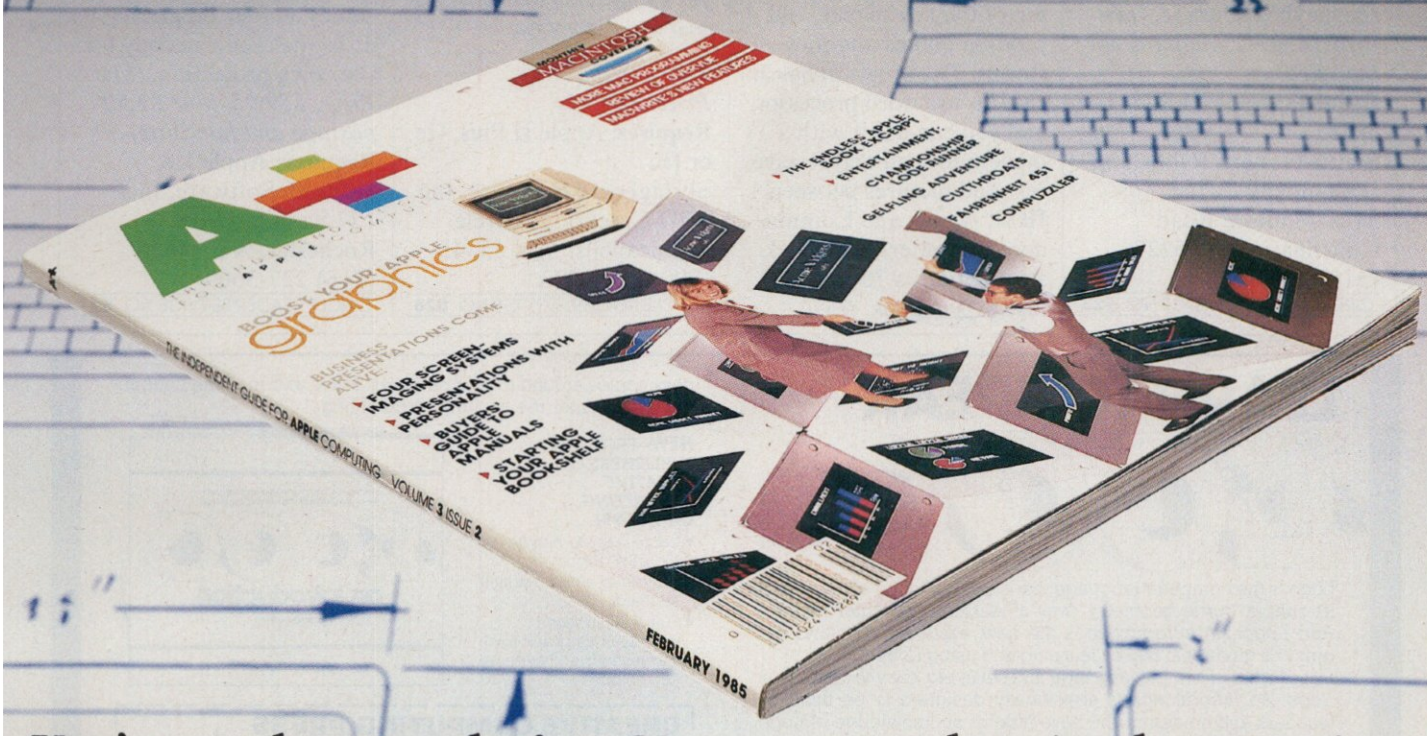
TurboCharger increases the speed of the Macintosh's floppy-disk access by keeping critical areas of the disk in RAM. When installed on a Macintosh 512 start-up disk, TurboCharger software works automatically. As the system's use progresses, the software analyzes disk usage and buffers critical areas of the disk in RAM to increase performance.

TurboCharger works with copy-protected software and with large programs. It is compatible with many Macintosh software programs including MacWrite, MacPaint, Multiplan, Chart, and Word. *(List Price: $95)*

Requires: Macintosh 512
Nevins Microsystems, Inc.
210 Fifth Avenue
New York, NY 10010
(212) 563-1910

CIRCLE READER SERVICE NO. **524**

100% APPLE COMPATIBLE



You've made your choice. Now you need an Apple magazine.

A+ The #1 Apple Magazine.

Every software package and peripheral...every professional, educational and recreational application... every article and tutorial...every book review and excerpt...in every monthly issue of **A+**... is completely compatible with Apple II Series and Macintosh computers.

To subscribe, call toll-free 800-852-5200 or use the attached order card and tell us how much you want to save on **A+**

Save 20% — 1 year only $19.97

Save 26% —2 years only $36.97

Savings based on full one-year (12 issues) subscription price of $24.97.

A+ It's the right choice for every Apple user.

SERIES

▸ MICROTYPE, THE WONDERFUL WORLD OF PAWS

Microtype, recently released from South-Western Publishing Company, instructs students in keyboarding techniques. Graphics and skill games lead students through a series of lessons designed to teach, then reinforce, correct keyboard usage. *(List Price: $39.95; backups not included)*

Requires: Apple II Plus, IIe, or IIc

South-Western Publishing Company
5101 Madison Road
Cincinnati, OH 45227
(513) 271-8811

CIRCLE READER SERVICE NO. **525**

SERIES

▸ THE NEWSROOM PACKAGE

Designed to stimulate creativity in journalists of all ages, The Newsroom lets you design, produce, and print your own newspaper for family, clubs, schools, or businesses. You can choose from a library of more than 600 pieces of clip art, create distinctive banners for the top of the newspaper, and position photos and move stories. The program has an easy-to-use word processor, and you can use it with a modem to send and receive text and pictures between IBM, Apple, and Commodore computers. The package includes a 75-page instruction book. *(List Price: $49.95)*

The Newsroom lets you design and print your own newspaper.

Requires: Apple II Plus, IIe, or IIc

Springboard Software, Inc.
7807 Creekridge Circle
Minneapolis, MN 55345
(800) 328-1223

CIRCLE READER SERVICE NO. **526**

SERIES

▸ HILDRETH ACCOUNT MANAGER SYSTEM

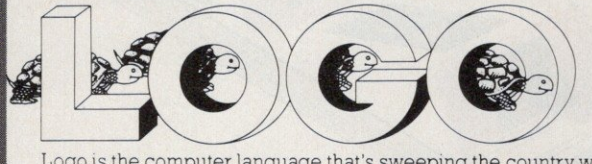
The Hildreth Account Manager System (HAMS) for Apple IIe computers enables you to custom-design your account structure to suit any home or small-business application and can also reconcile credit-card statements, as well as checkbooks. The system comes on four program disks that you can copy for your own protection. *(List Price: $59.95, plus $2.50 postage and handling)*

Requires: Apple IIe

Hildreth Software, Inc.
127 Sannita Drive
Rochester, NY 14626
(716) 227-3609

CIRCLE READER SERVICE NO. **527**

LEARN TO SPEAK



Logo is the computer language that's sweeping the country with its simple "turtle geometry" way of learning computer literacy. And *Logo: An Introduction* is the new, easy-to-understand beginner's guide that makes learning and using Logo fun!

Written in simple language and set in big, easy-to-read type, *Logo: An Introduction* is specifically designed to be used by teachers and students who have little or no knowledge of Logo or computers.

Logo: An Introduction helps computer novices with:

- △ Creating simple shapes with the turtle and combining them to make more complex geometric forms
- △ Learning about "soft" and "hard" saves (temporary and permanent computer memory)
- △ Playing with symmetry and curves
- △ Learning about arithmetic, logic and Cartesian coordinates
- △ Using the idea of recursion—making a simple command repeat itself to perform more complex functions
- △ Experimenting with words and sentences

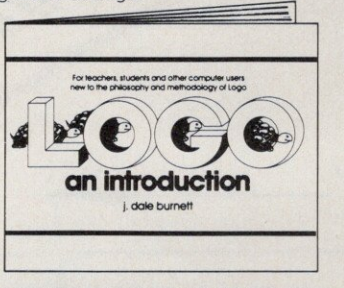
—and more!

Logo: An Introduction doesn't bog you down or scare your students with complex technical details the way instruction manuals do. Instead, this book is written in an open-ended, exploratory style that captures the flexible spirit and freedom of Logo.

Use *Logo: An Introduction* as a supplement to your programming manual, as a sourcebook of ideas, as a primer on how to exploit the potential of this powerful language, and as a treasurehouse of suggestions for experiments with Logo. *Logo: an Introduction* is one book that belongs in your classroom or computer lab—and at only $7.95, it's easy to order more than one, and pass copies around to your students. Fill in and mail the coupon today, and enter the exciting world of Logo!

NEW—FROM THE PUBLISHERS OF *CREATIVE COMPUTING*
Only $7.95!

- Large, easy-to-handle 11" x 8½" format.
- Written by a professional educator.
- Full of illustrations, examples, hints and tips, suggestions and explanatory notes.



CREATIVE COMPUTING PRESS
Dept. NS1H,39 East Hanover Avenue, Morris Plains, NJ 07950

Please send me _____ copies of *Logo: An Introduction* at $7.95, plus $1.50* shipping and handling, each. **#12L**

☐ **PAYMENT ENCLOSED** $_____ (CA, NJ and NY State residents add applicable sales tax.)

☐ **CHARGE MY:**
☐ American Express ☐ MasterCard ☐ Visa
(Charge orders $10 minimum)

Card No. _____ Exp. Date _____

Signature _____

Mr./Mrs./Ms. _____
(please print full name)

School/Institution _____

Address _____

City/State/Zip _____

*Outside USA add $3.00 shipping and handling. Shipped airmail only.

☐ Check here to receive FREE catalog of computing books, magazines and guides.

For faster service, PHONE TOLL FREE: 800-631-8112.
(In NJ only: 201-540-0445.)
Also available at your local bookstore or computer store.

BY THE YEAR 2000, THE WORLD MAY CATCH UP WITH THE WAY COMPUSERVE'S ELECTRONIC MALL™ LETS YOU SHOP TODAY.

Presenting the computer shopping service that delivers discount prices, name-brand merchandise, and in-depth product information.

To make your computer even more useful, join CompuServe and shop in our Electronic Mall. Easy enough for beginners, it's open 24 hours a day, 7 days a week. And it offers a wide range of goods and services from nationally known stores and businesses including Bloomingdale's, Waldenbooks, American Express and Commodore.

CompuServe's Electronic Mall™ lets you shop at your convenience in all these departments:

The Auto Shop, Book Bazaar, Financial Mart, Leisure Center, Merchandise Mart, Newsstand, On-line Connection, Personal Computer Store, Record Emporium, Specialty Boutique and Travel Agency.

Take the CompuServe Electronic Mall 15-Minute Comparison Test.

What you can do in 15 minutes shopping the Electronic Mall way.

- Access descriptions of the latest in computer printers, for instance.
- Pick one and enter the order command.
- Check complete descriptions of places to stay on your next vacation.
- Pick several and request travel brochures.
- Access a department store catalog and pick out a wine rack, tools, toys...anything!
- Place your order.

What you can do in 15 minutes shopping the old way.

- Round up the family and get in the car.

The Electronic Mall—A Valuable Addition to the Vast World of CompuServe.

CompuServe Information Services bring you information, entertainment, personal communications and more.

You can access CompuServe with almost any computer and modem, terminal or communicating word processor.

To buy a CompuServe Subscription Kit, see your nearest computer dealer. To receive our informative brochure, or to order direct, call or write:

CompuServe

Information Services, P.O. Box 20212,
5000 Arlington Centre Blvd., Columbus, OH 43220

800-848-8199

In Ohio call 614-457-0802

The Electronic Mall™ is a service of CompuServe Inc. and L. M. Berry & Company. CIRCLE 271 ON READER SERVICE CARD An H & R Block Company

kyan

PASCAL For the Apple

kyan pascal is the most complete package available for learning and using the Pascal language. And now, it's available for the Apple II family of computers.

kyan pascal is easy to use, lightning fast, and loaded with features. It's a full Pascal implementation. It compiles and runs many times faster than other Pascal compilers.

kyan pascal features:

- Optimized Machine Code Compiler;
- Built-In Full Screen Text Editor;
- String-Handling, Chaining, Include File, and Other Powerful Extensions;
- Random Access Files and Full Graphics Support;
- Built-In Assembler (Allows Full Hardware Control);
- 13-Digit Arithmetic Precision; and,
- Tutorial Manual with Sample Programs.

kyan pascal requires 64K of memory and a single disk drive. No additional hardware is necessary. And, it comes with kyan's MONEY BACK GUARANTEE... **If not completely satisfied, return it within 15 days for a full refund.**

kyan pascal for the Apple **$69.95**

(Add $4.50/copy for handling. $12.00 outside North America. California residents add $4.55/copy for sales tax)

Send Check/Money Order to: ***kyan software,*** Dept. K
Call: (415) 775-2923 1850 Union St., Ste. 183
MC/Visa Accepted San Francisco, CA 94123

CIRCLE 161 ON READER SERVICE CARD

FREE CP/M BOARD FOR APPLE II, II Plus, IIe

Purchase WordStar, the world's most popular word processing program for the Special Sale price of just $164.95. You save 50%. Plus BroadReach will give you absolutely free an Appli-Card CP/M board. Now the world of CP/M with over 2,000 available programs can be yours. A total savings of over $500.00.

WordStar Version 3.3 Features:

- Simultaneous editing and printing
- Page break display
- Automatic word wrap
- Right-margin justification
- Special print effects

Appli-Card CP/M Board Version 2.0 Features:

- 6 MHz Z-80B Processor - THIS ONE IS FAST.
- 64K RAM - Use it as a RAM disc under Apple DOS
- 70 column Hi-Res Capability - (80 column card not needed)
- CP/M version 2.2 included - Runs over 2,000 programs
- Unconditional 1-year warranty
- Pre-installed for Apple II Plus & IIe

Quantities are Limited...

HURRY! Special Sale Ends June 30.

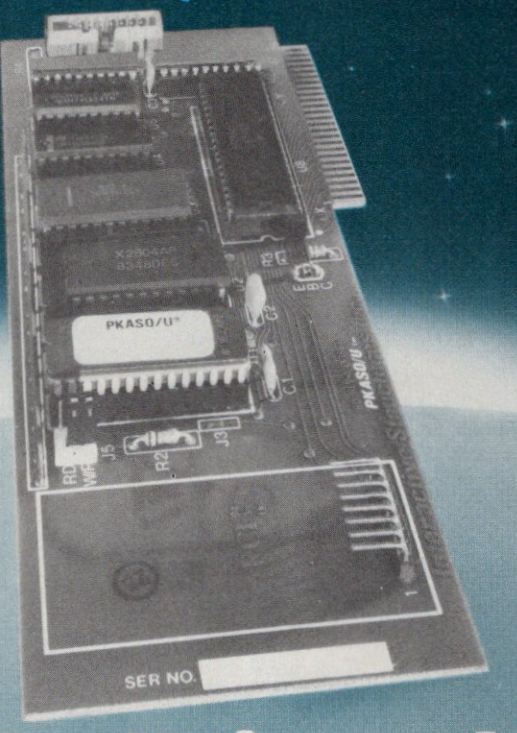
ORDER TOLL FREE VISA/MASTERCARD 1-800-682-2000

or send $164.95 plus $8.95 shipping and handling (Washington State residents add $13.74 sales tax). to: **BROADREACH 505 Industry Drive • Seattle, WA 98188**

Apple is a registered trademark of Apple Computer Company. CP/M is a registered trademark of Digital Research, Inc. WordStar is a registered trademark of MicroPro International Corporation. Appli-Card is a registered trademark of Personal Computer Products, Inc.

CIRCLE 331 ON READER SERVICE CARD

PKASO/U®



The Universal Printer Interface

Apple II, *IIe*, *III* and Apple compatible.

- Universal for virtually all standard parallel printers.
- Famous for Graphics (LoRes, HiRes, SuperRes) (Logo Compatible)
- Terrific for text (even rotates spreadsheets to print sidewards)

One set of commands for all printers. **One** command changes character sizes. Create your own printing fonts, alphabets and symbols . . . bold face, underline, italics, subscript and superscript, HiRes Zooming.

PLUS:

FREE Utility and Demonstration Software Disk. CLEAR, comprehensive user documentation. PKASO/U . . . for all the reasons you need an interface.

Contact us for a list of Authorized Dealers near you.

Interactive Structures, Inc.
146 Montgomery Avenue
Bala Cynwyd, PA 19004
Telephone: (215) 667-1713

CIRCLE 274 ON READER SERVICE CARD

ORANGE YOU GLAD THERE ARE SO MANY GRAPE THINGS TO DO WITH AN APPLE?

Introducing The Apple Computer Clubs Activities Handbook, Winning Programs, and Parents' Guide

For centuries, the apple has made history. Adam and Eve bit into one, and look what they learned! A certain William Tell thought apples were good for target practice. Isaac Newton had a better idea: a bonk from an apple helped him figure out gravity.

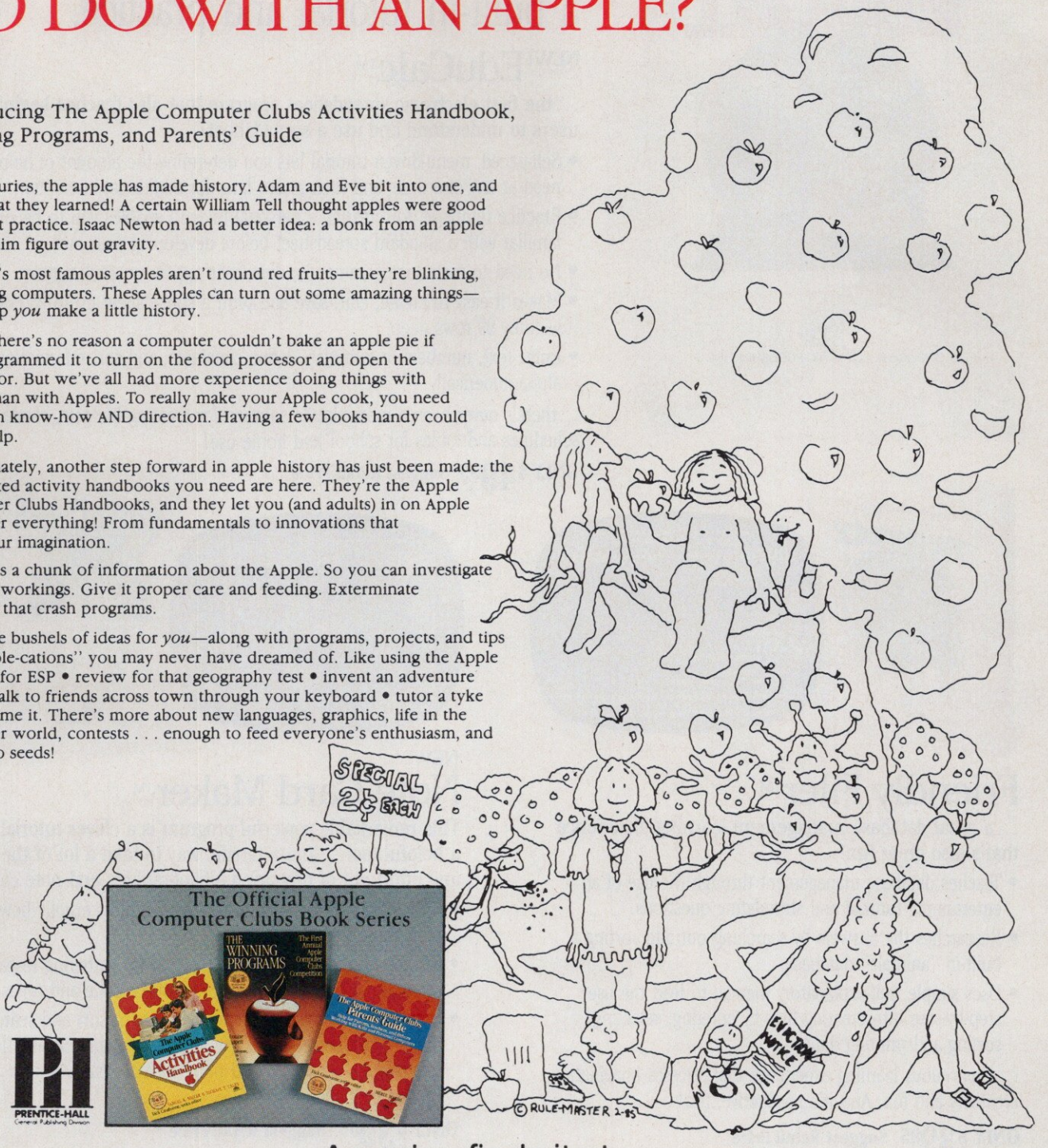
Today's most famous apples aren't round red fruits—they're blinking, humming computers. These Apples can turn out some amazing things—even help *you* make a little history.

Hey, there's no reason a computer couldn't bake an apple pie if you programmed it to turn on the food processor and open the oven door. But we've all had more experience doing things with apples than with Apples. To really make your Apple cook, you need high-tech know-how AND direction. Having a few books handy could really help.

Fortunately, another step forward in apple history has just been made: the fact-packed activity handbooks you need are here. They're the Apple Computer Clubs Handbooks, and they let you (and adults) in on Apple computer everything! From fundamentals to innovations that whet your imagination.

There's a chunk of information about the Apple. So you can investigate its inner workings. Give it proper care and feeding. Exterminate the bugs that crash programs.

There are bushels of ideas for *you*—along with programs, projects, and tips for "Apple-cations" you may never have dreamed of. Like using the Apple to • test for ESP • review for that geography test • invent an adventure game • talk to friends across town through your keyboard • tutor a tyke • you name it. There's more about new languages, graphics, life in the computer world, contests . . . enough to feed everyone's enthusiasm, and look—no seeds!



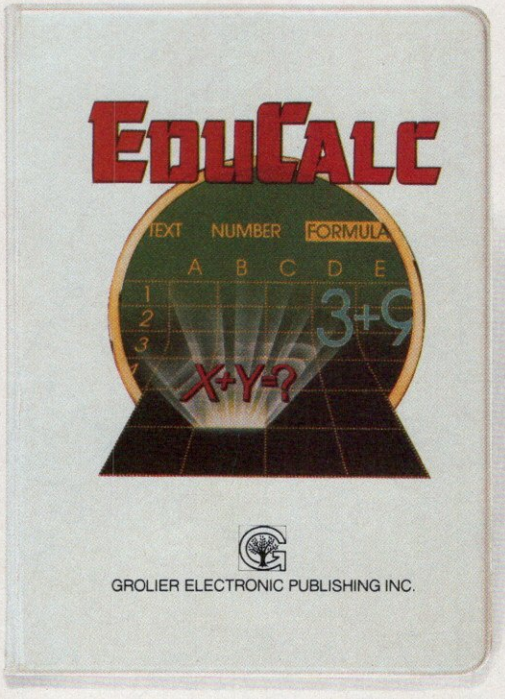
America finds it at

Waldenbooks®

Books • Audio • Video • Magazines • Software • Book Clubs • Special Services

CIRCLE 104 ON READER SERVICE CARD

Modern Tools for Modern Minds...



Grolier presents the first and only series of productivity tools with a built-in tutorial and practice.

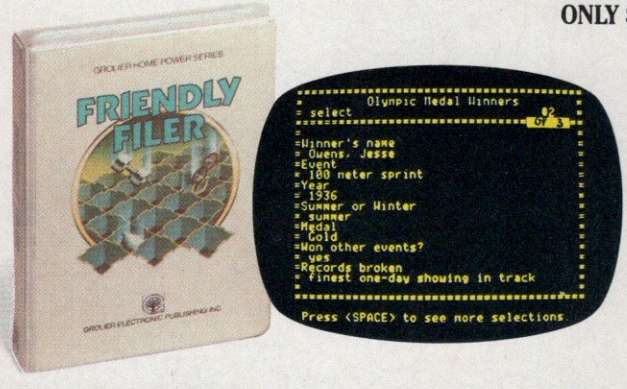
NEW! EduCalc™

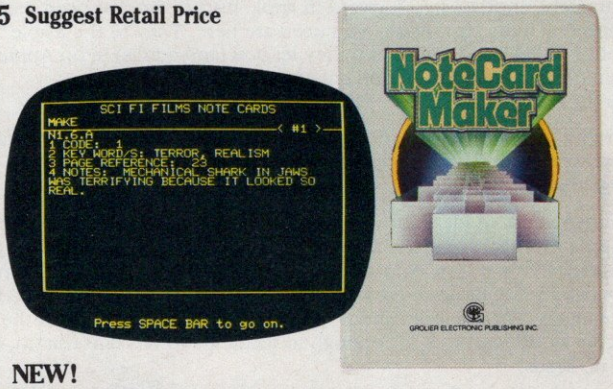
...the first electronic spreadsheet program that also teaches beginning users to understand and use a spreadsheet!

- Self-paced, menu-driven tutorial lets you determine the amount of help you need at any one time, and then return later for additional instruction.
- Practice template, for creating a personal budget, enables you to become familiar with a standard spreadsheet before developing your own.
- No need to memorize commands; directions appear on each screen.
- Makes it easy to create, edit, save and print a spreadsheet up to 26 columns wide by 99 rows deep.
- Enter text, numbers or formulas, define constants, and sort information alphanumerically.

...there's never been a more simple solution for creating budgets, charts, schedules and tables for school and home use!

ONLY $49.95 Suggest Retail Price





Friendly Filer™

...a great database management learning experience that's also great fun!

- Teaches database management through the use of an entertaining tutorial and stimulating questions.
- Researches the answers by searching out and sorting a built-in "animals" database.
- Uses simple, self-explanatory menus, to lead the user step-by-step into creating files by entering, selecting, sorting and printing data.

...a marvelous learning experience that stresses imagination, creativity and fun. And it's productive, too!

ONLY $39.95 Suggest Retail Price

NEW!

Note Card Maker™

This remarkably powerful program is a clever tutorial... a helpful tool...and a terrific way to take a lot of the time and effort out of preparing bibliographies and note cards.

- Interactive, self-paced tutorial demonstrates exactly how to prepare note cards.
- Provides user with a standard format for gathering research information, including key word, source code and notes.
- Uses the database management facility to sort and search for data...then incorporates the word processing capabilities to reorganize, select, edit and print-out note cards in any desired sequence.

ONLY $39.95 Suggest Retail Price

Available for the Apple® II family of computers. Also available for the Commodore 64™ and IBM® PC and PCjr. in Fall 1985.

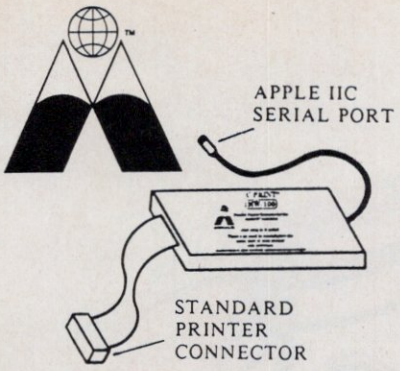
See your computer software dealer today. Or call Grolier Electronic Publishing Toll-Free. 800-858-8858.

Grolier Electronic Publishing, Inc.

SHERMAN TURNPIKE, DANBURY, CONNECTICUT, 06816 • (800) 858-8858

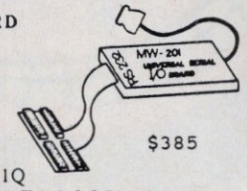
EduCalc, Friendly Filer and Note Card Maker are registered trademarks of Grolier Electronic Publishing, Inc. Apple is a registered trademark of Apple Computer Inc. Commodore is a registered trademark of Commodore Business Machines, Inc. IBM is a registered trademark of International Business Machines, Inc.

CIRCLE 169 ON READER SERVICE CARD



MW-100 232-C SERIAL TO CENTRONICS PARALLEL PRINTER INTERFACE $99
FOR ALL MAJOR CENTRONICS PRINTERS
INTERFACES THE APPLE IIC TO STANDARD PARALLEL PRINTERS

MW-201 UNIVERSAL SERIAL I/O BOARD WITH RS-232 INTERFACE
16 EIGHT BIT ANALOG INPUTS
14 HI VOLTAGE/CURRENT OUTPUTS
ONE ANALOG OUTPUT
APPLE-IBM-KAYPRO- COMPATIBLE
TALKS TO ANY SERIAL RS-232 PORT
MICROPROCESSOR CONTROLLED - 6511Q
AUTO BAUD RATE SEEKING - AUTO DATA LOGGING



$385

Micro R & D, Inc.
3333 South Wadsworth Blvd., #A104
Lakewood, Colorado 80227
(303) 985-4077
(303) 985-1473

CIRCLE 311 ON READER SERVICE CARD

---

inTOUCH

Announcing inTouch.
A remarkable communications program for Macintosh.

Impressive power. Point and Click simplicity.
inTouch transfers information between Macintosh and most other computers with three industry-standard protocols and baud rates to 19,200. Programmable function keys and CCL (Communications Command Language) let you tailor inTouch to your situation and automate repetitive tasks. Plus, inTouch emulates most popular terminals, including Televideo and VT-100. Get inTouch. And you will be.

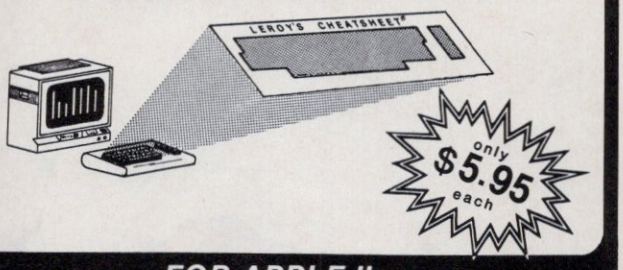
inTouch communications program for Macintosh. $149.95.
Software Masters, 3330 Hillcroft, Suite BB, Houston, Texas 77057
(713) 266-5771.

Software Masters™

CIRCLE 196 ON READER SERVICE CARD

LEROY'S CHEATSHEET®

APPLE *IIe* KEYBOARD OVERLAYS



FOR APPLE IIe

LEROY'S CHEATSHEETS **are plastic laminated keyboard overlays designed for use with popular software and hardware for *APPLE* computers.**

These *DIE-CUT* overlays are designed to fit over the keyboard surrounding the keys with commands and controls grouped together for easy references.

LEROY'S CHEATSHEETS®

make life easier for you

APPLE *IIe* KEYBOARD OVERLAYS

- ☐ BLANKS (set of 3)
- ☐ FLIGHT SIMULATOR II
- ☐ LOGO (Terrapin)
- ☐ GRAPPLER + with PRINT SHOP
- ☐ EPSON RX & FX 80 &100
- ☐ GEMINI 10X & 15X PRINTER
- ☐ OKIDATA MICROLINE 92 & 93 PRINTER

NOW AVAILABLE FOR APPLE *IIe* (45 AVAILABLE FOR COMMODORE)

A+6

Qty.___ X $5.95 $_____
*Shipping & handling $ 1.00
6% sales tax (PA residents only) $_____
TOTAL U.S. FUNDS $_____
NO COD's PLEASE

*SHIPPING AND TERMS: US and Canada $1.00 per order. Foreign orders $3.00. Cash, certified check or money order. Phone orders are Visa and Mastercard only. No COD's.

Dealer inquiries welcome

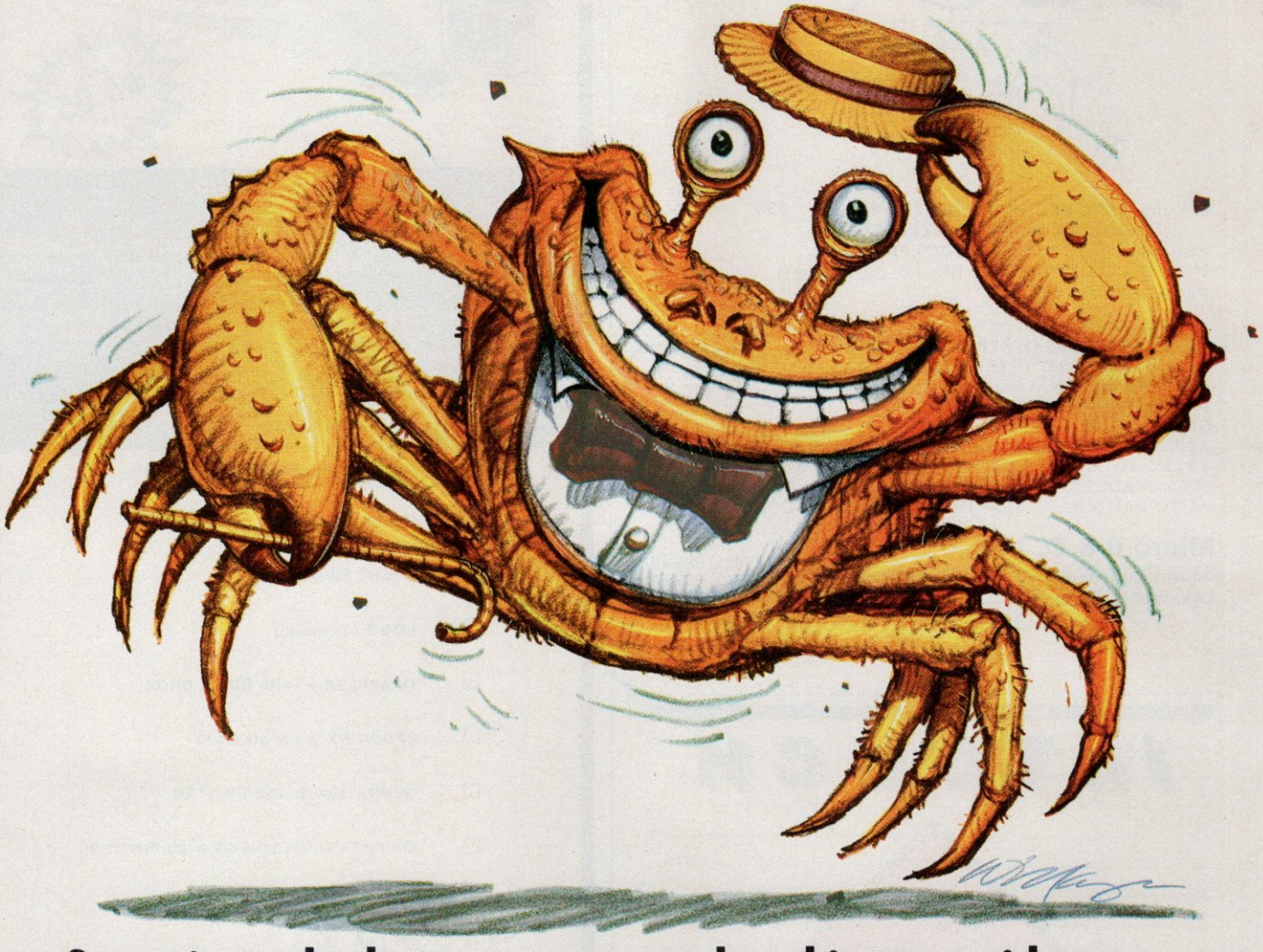
Name _____
Address _____
City _____ State _____ Zip _____

CHEATSHEET PRODUCTS **inc**
P.O. Box 111368 Pittsburgh PA 15238
(412) 781-1551

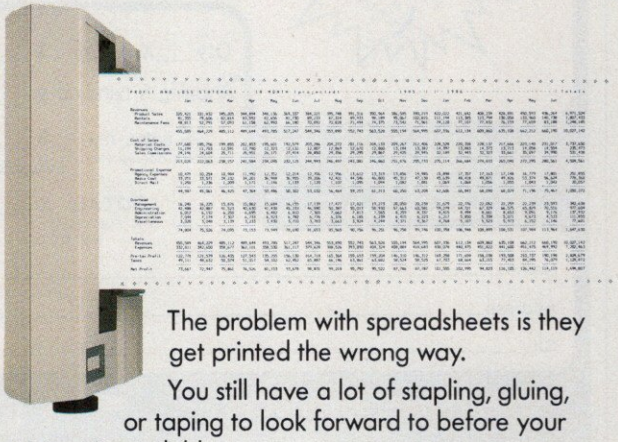
☐ Charge My VISA or Master Card NUMBER
EXPIRATION DATE

. . . OR SEE YOUR LOCAL DEALER !

CIRCLE 138 ON READER SERVICE CARD



Sometimes the best way to get ahead is to go sideways.



The problem with spreadsheets is they get printed the wrong way.

You still have a lot of stapling, gluing, or taping to look forward to before your printout is readable.

To really get ahead, go Sideways.™

Sideways is the clever software program that prints your spreadsheets—you guessed it—sideways. So your spreadsheet columns need never fall off the edge of your printer paper again.

With Sideways on your side, no spreadsheet you invent with Lotus 1-2-3,® Symphony,™ VisiCalc,® Multiplan,® or SuperCalc™ is too wide! And it's just as powerful an ally when you're creating far-into-the-future schedules and pert charts. So for a presentable printout, get rid of that glue stick and scotch tape—put your best foot forward and go Sideways.

You can go Sideways today with an IBM® PC or an Apple® II, and over a dozen different printers, including Epson,® Okidata, IBM,® Apple,® C. Itoh and Mannesmann Tally. Ask for Sideways at your local ComputerLand,® Entre, or other computer store. Or mail a $60 check to Funk Software, P.O. Box 1290, Cambridge, MA 02238. Or call 617-497-6339. MC/Visa accepted.

SIDEWAYS™

SIDEWAYS PRINTS SPREADSHEETS SIDEWAYS.

CIRCLE 154 ON READER SERVICE CARD

MAC LISA

▶ QUEST FOR SMALL BUSINESS

Quest For Small Business, the first integrated small-business package designed specifically for the Macintosh, consists of five modules: General Ledger, Accounts Receivable, Accounts Payable, Inventory, and Payroll Tracking. Each module, except Payroll Tracking, interfaces with the others. One application can update the files in other modules, if needed. File size is limited only to the available disk space. *(List Price: $1800)*

Requires: Macintosh or Lisa or Mac XL with MacWorks, external disk drive

Applied Logic Systems, Inc.
2614 North 29th Avenue
Phoenix, AZ 85009
(602) 272-9355
CIRCLE READER SERVICE NO. **533**

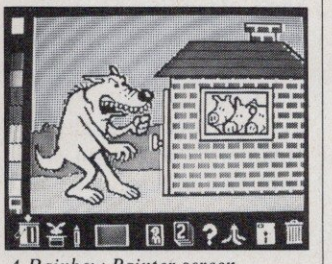
II SERIES

▶ RAINBOW PAINTER DESIGN PACKAGE

Rainbow Painter lets amateur to expert artists develop their creativity by experimenting with color and design. Designed for ages 4 and up, the program offers thousands of colors and patterns and 50 drawing tools. The software also has a Mirror icon that enables users to mirror everything they draw either vertically, horizontally, or both. *(List Price: $34.95)*

Requires: Apple II, II Plus, IIe, or IIc; 48K RAM

Springboard Software, Inc.
7807 Creekridge Circle
Minneapolis, MN 55435
(612) 944-3912
CIRCLE READER SERVICE NO. **534**



A Rainbow Painter screen

MAC

▶ P/C PRIVACY FOR MACINTOSH

Encryption software called P/C Privacy: Personal/Confidential is now available in a version that meets Macintosh standards. The program encrypts files from MacWrite, MacPaint, and other programs, creating ASCII files and so offering users privacy on their disks or over electronic mail. Users control the encryption process by using a keyword that can exceed 100 characters and which they can change at any time. Decryption restores all original file characteristics including charts, graphs, and fonts. Users can telecommunicate encrypted files. *(List Price: $140)*

Requires: Macintosh

MCTel, Inc.
Three Bala Plaza East
Suite 505
Bala Cynwyd, PA 19004
(215) 668-0983
CIRCLE READER SERVICE NO. **535**

MacLink

...the "intelligent" link between your Macintosh and the IBM PC

MacLink allows you to translate spreadsheet and word-processing files between the Macintosh and the IBM PC...easily and quickly.

Now you can translate spreadsheets between Lotus on the PC and Multiplan on the Mac...including formulas, column formats, and functions.

And MacLink allows you to transfer any other type of file between the two machines as well...including binary, comma-delimited, DIF, SYLK, and text files.

MacLink's integrated communications and unique translators work via modems or with an optional PC to Mac cable.

Unique PC ◆◆ Mac Translators!

And you can translate documents between Wordstar or Multimate on the PC and MacWrite on the Mac...including margin settings, paragraphing, columns, and print styles.

The cost is just $125: This includes the MacLink manual, and a MacLink disk for both the PC and the Mac.

DataViz, Inc.-16 Winfield Street-Norwalk, CT 06855
(203) 866-4944

Trademarks: IBM, Lotus, Macintosh, MacWrite, Multimate, Multiplan, Wordstar

CIRCLE 333 ON READER SERVICE CARD

Professional Handicapping Systems *by Professor Jones*

GLD. Thoroughbred "Gold" Edition™
A "Full" featured thoroughbred analysis designed for the professional and serious novice. **$159.95** complete

EGLD. Enhanced "Gold" Edition™
"Gold" Edition with complete Master Bettor™ system integrated onto the same disk. This powerful program will transfer all horses and scores to the bet analysis with a "single keystroke." (Master Bettor™ included) **$199.95** complete

GLTD. Limited "Gold"™
Enables **Professional Handicappers** to assign specific values to the racing variables "they" feel are important. Create program weight based on a particular track and fine tune it for **maximum** win percentage. This program is designed for "ease of use". The user needs **no programming experience.**
(contains Integrated Bettor™) **$299.95** complete

GD. Gold Dog Analysis™
The only professional dog handicapper on the market, includes:
1) Speed 2) Post Today 3) Kennel 4) Post Last 5) Distance 6) Condition 7) Running Style 8) Weight 9) All new internal weighting 10) NEW class indicator
If you are near a greyhound track, you can't afford not to use this program.
$149.95 complete (with integrated Master Bettor™) **$199.95**
Limited Dog™ $299.95

PPX. Professor Jones' Football Predictor, Prof. Pix™
Complete Football Analysis with **Data-Base.**
1) Overlays 2) Point Spreads 3) "Super Plays" 4) "Over/Under" bets 5) Data Base Stats 6) Holds "100" teams
Highest percentage of winners 1984
$49.95 complete **$99.95** with Data Base Management

MHH. Master Harness Handicapper™
Professional software designed to provide a thorough analysis of all trotter and pacer races in North America and Canada.
$159.95 complete with integrated Master Bettor™ **$199.95**

NBA. Basketball™
This data base managed analysis will provide the user with "ALL" betting situations while storing relevant information on the disk.
$99.95 complete w/Manual **$129.95** NBA/College Version

LOT. LOTTERY ANALYSIS™
Statistical comparison program designed to detech subtle patterns in winning lottery number.
$79.95 complete w/Manual **$99.95** with Lotto

BROCHURE AVAILABLE

IBM™ APPLE™ TRS-80™ CPM™ COMMODORE™

Prof. Jones
1940 W. State St.
Boise, ID 83702

VISA MasterCard

48 HR. FREE SHIPPING

CALL 208-342-6939

TERMS: FREE SHIPPING ALL SOFTWARE. Add $6.00 hardware / $6.00 C.O.D. / UPS Blue $6.00 / Out of Country $9.00 / ID Residents 4% / 3 weeks personal checks / Cash price only, add 2% Visa, MC / Prices subject to change.

CIRCLE 148 ON READER SERVICE CARD

II SERIES MAC

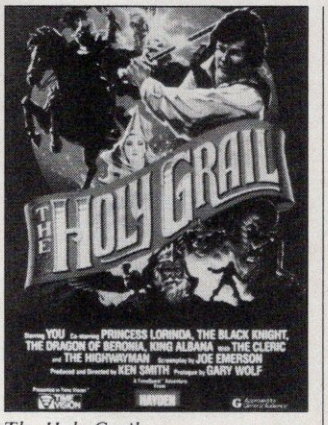
▸ HAYDEN SOFTWARE GAMES

Several new games are now available from Hayden Software. Three interactive-fiction adventures—The Holy Grail, Inca, and the Computer Novel Construction Set—are the first offerings in the TimeQuest Adventure series, in which players participate in an adventure where events occur and characters move independently of player action.

In the Holy Grail, the player is the central character in a search for the legendary goblet used during The Last Supper. The game, however, is set in medieval times, and players encounter knights, kings, and countrymen; do battle with a fierce dragon; rescue a fair princess; and more.

In Inca, players must find the missing jewel from the Golden Sun Medallion, believed to have been worn by Atahualpa, last king of the Incas. To reach Peru, players travel on a tramp steamer owned by an evil captain and face various hazards, such as shark-infested waters, steamy jungles, and native headhunters. They must also solve six ancient Incan puzzles.

The Computer Novel Construction Set is a do-it-yourself tool kit that provides a framework that players can use to write their own adventure games.



The Holy Grail

Using menus and windows, players can create landscapes, room descriptions, travel paths, characters, and real-time events.

Hayden has also added Perplexx, a Scrabble-like word game, to its Hayden Classics series of computer versions of board games. To play Perplexx, you compete against LEXX, the program's 90,000-word lexicon, to build words that intersect horizontally or vertically with words already on the screen's board. The game offers eight levels of difficulty. *(List Price: TimeQuest Adventures, $49.95 each; Perplexx, $39.95)*

Requires: Holy Grail, Inca, and Construction Set—Apple IIe or IIc, 128K RAM; Perplexx—Macintosh

Hayden Software Company, Inc.
600 Suffolk Street
Lowell, MA 01854
(617) 937-0200

CIRCLE READER SERVICE NO. **536**

DISK COPYING

Whether you need 50 disks or thousands, we have years of experience in creating the highest quality copies. Reasonable prices—fast turnaround. Call today for our free booklet on software duplication and packaging.

BLANK DISKS

Can you tell a good disk from a great one? We can, because we copy thousands each day. We'll tell you which brand is best for your system. Call today—and get great prices, too!

Call ALF first
1-800-321-4668
in Colorado (303) 234-0871

ALF Products • Denver, CO

Memo to Apple® users

SUBJECT:
Put 8 Apples on the Storage Module and take 42 big (mega) bytes

METHOD:
Using the NEW SPACE COAST SYSTEMS PRODUCTS illustrated.

RELEVANT DATA:

- SCS Storage Module mass storage system for Apple II, IIe and III's hold 10, 21 and 42 MB. 21 MB system is qualified as Apple part #A3M0108. Uses RODIME 5¼" Winchester hard disk drives.
- SCS Multiuser Disk Server for Apple II, IIe, and Apple III. Supports 8 Apples — 16 with additional channel card. Apple #A3M0109.
- SCS High Speed Tape Streamer Backup Module stores 42 MB on tape in 9½ minutes.

CONCLUSION:
Order through Apple dealer or get more information by enclosing business card with this memo and send to:

Space Coast Systems, Inc.
301 S. Washington Ave., P.O. Drawer 2767 AP
Titusville, FL 32781
305-268-0872 • Telex 701506

CIRCLE 135 ON READER SERVICE CARD

Apple Owners: Increase your Display up to 455% and Get The Big Picture!

B18 L: COMPUTER EXPENSE

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
BILLINGS:												
PRODUCT A	16907	19259	17459	21623	25928	32179	45071	21093	23769	23225	15227	18269
PRODUCT B	6777	3018	5477	6088	7100	12330	15290	6375	6687	3310	8010	4537
PRODUCT C	36235	32527	29892	30133	31828	31018	32688	34358	34651	36454	37010	42459
TOTAL	59919	54804	52828	57844	64848	75527	93049	61826	65107	62989	60247	65265
CASH RECEIVED	48523	43257	45928	51433	65965	80564	96210	69835	79702	75964	73358	75700
CASH PAID OUT:												
AUTO TRAVEL	110	110	110	110	110	110	110	110	110	110	110	110
INSURANCE	300	-	-	300	-	-	300	-	-	300	-	-
INTEREST	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
INVENTORY COST	41943	30363	36900	40491	45394	52869	32567	21639	22787	22046	21006	22843
ENTERTAINMENT	310	310	310	310	310	310	310	310	310	310	310	310
PAYROLL COST	10200	10200	10200	10200	10200	10200	10200	10200	10200	10200	10200	10200
COMPUTER EXPENSE	-	-	-	-	379	-	-	-	-	-	-	-
RENT	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
TELEPHONE	500	500	500	500	500	500	500	500	500	500	500	500
UTILITIES	375	375	375	375	375	375	375	375	375	375	375	375
TOTAL EXPENSES	56768	52808	51585	55316	60298	67394	47392	36164	37312	36871	35611	37368
NET CASH FLOW	-8245	-9631	-5577	-3883	5667	13170	48818	33671	42390	39093	37747	38412
CASH BALANCE:												
BEG. OF MONTH	100000	91755	82124	76547	72665	78332	91502	140320	173991	216380	255473	293220
END OF MONTH	91755	82124	76547	72665	78332	91502	140320	173991	216380	255473	293220	331632

40-Columns → **80-Columns** → **UltraTerm** →

What you see is what you get. It's an old saying, but never more true than with the limited screen displays of most computers. Too often we have to continually jump back and forth to see all the information we are working with. UltraTerm solves this problem.

UltraTerm is the best video card for the Apple IIe and standard Apple computers. Eight different screen formats allow you to tailor the display to your needs. From the 128 column by 32 rows shown above (ideal for spreadsheets), to 80 columns by 48 rows, or even 160 columns by 24 rows, UltraTerm expands your view.

Best of all, the UltraTerm is fully compatible with the Videoterm, the best selling and most widely supported 80-column card for standard Apple computers. UltraTerm is supported by many popular programs. MultiPlan, Word Juggler IIe, WordStar, FlashCalc, and SuperCalc are just a few of the programs that support UltraTerm. Additionally, with optional pre-boots, AppleWorks, VisiCalc, and AppleWriter II can be used as well.

UltraTerm is now available in two forms: one for standard video monitors such as the Apple monitor II, and another with easy-on-the-eyes high quality character set for monitors that support interlace video (with high persistence phosphor).

UltraTerm for standard video monitors
New Low Price—$299.00
High Quality Display UltraTerm

Suggested Retail Price—$379.00
(as shown above)

Videx INC. TM

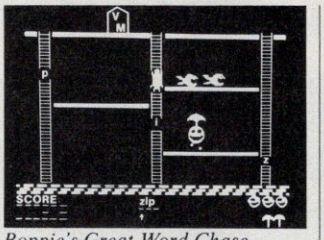
1105 NE Circle Blvd., Corvallis, OR 97330
503-758-0521
CIRCLE 142 ON READER SERVICE CARD

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

II SERIES

▶ BOPPIE'S GREAT WORD CHASE

Boppie's Great Word Chase is an arcade-type game of word recognition, word creation, and spelling that is designed for one or two players. The program features Boppie, a roly-poly smiling character, whom players move up and down ladders and around obstacles in order to gather letters and build words. While they gather letters, players must also protect Boppie from the "snappers" that chase him. The program has 256 words built in and offers eight levels of difficulty. Options allow players to select speed of play,



Boppie's Great Word Chase

sound, and on-screen instructions, and an editing option allows them to create up to 32 words at each level of play. *(List Price: $29.95)*

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

DLM, Inc.
One DLM Park
Allen, TX 75002
(800) 527-4747
in TX (800) 442-4711

CIRCLE READER SERVICE NO. **528**

MAC

▶ MAC TRANSFER CUSTOM SERVICE

Southeastern Software offers a custom service that transfers VisiCalc spreadsheet templates to Macintosh Multiplan, preserving all formulas and references from the original. This service eliminates rekeying the data into Multiplan.

Another service transfers all fields and records from databases created with AppleWorks to Microsoft File on the Macintosh.

The number of files to be transferred and the length of each file determines the cost of each service.

Requires: Macintosh

Southeastern Software
7743 Briarwood Drive
New Orleans, LA 70128
(504) 246-8438

CIRCLE READER SERVICE NO. **529**

II SERIES

▶ SUBJECT-VERB AGREEMENT

Microcomputer Workshops has announced a new program, Subject-Verb Agreement, for use in schools. A free backup disk accompanies each disk purchased. *(List Price: $49.95)*

Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

Microcomputer Workshops
225 Westchester Avenue
Port Chester, NY 10573
(914) 937-5440

CIRCLE READER SERVICE NO. **530**

wabash®
DATATECH
DISKETTES

WARRANTED INTEGRITY
INCREDIBLE VALUE

•LIFETIME WARRANTY • 100% CERTIFIED ERROR FREE
•SATISFACTION GUARANTEED

VALUE PRICED

5¼" Diskettes with Hub Rings.
★ *Per Diskette — Quantities of 50 or More Boxed.*

Single Side, Single Density	$ .99
Single Side, Double Density	$1.20
Double Side, Double Density	$1.45
Reversible, Double Density	$1.99
Double Side, Double Density, 96TPI	$2.45

Bulk Diskettes with Envelopes — Deduct 5¢ per Diskette.
10% Surcharge for Quantities Less Than 50 Diskettes.

NEW

IBM PC/AT Compat.		$3.75
3.5 Inch Diskettes	Single Side, Double Density	$2.99
	Double Side, Double Density	$4.99

ORDER NOW

VISA
C.O.D.
MasterCard
(Michigan Residents Add 4% Sales Tax)
Shipping and Handling $4.00 per 100 or Fraction Thereof
Continental U.S.A.

pd™ Precision Data Products
P.O. Box 8367, Grand Rapids, MI 49508-0332
(616) 452-3457 • Michigan 1-800-632-2468
Outside Michigan 1-800-258-0028

CIRCLE 228 ON READER SERVICE CARD

IT'S LIKE
DISKETTES FOR 99¢ EACH!

21™ diskettes

- 100% more capacity than Single Side Diskettes
- For use in ANY 5¼ Disk Drive
- Just turn it over to use the other side
- Both sides are certified 100% Error Free
- 5 Year Guarantee

• MADE IN U.S.A. • TOTAL SEAM BONDING
• TYVEK JACKETS, REINFORCED HUB RINGS
• EXCEEDS INDUSTRY TECHNICAL SPECIFICATIONS

only $19.80* for 10 disks (20 sides)
call for quantity discounts

*On all orders add $2. for postage & handling ($5 Foreign). Florida res. add 5% Sales Tax.

ORDER TODAY
MasterCard VISA

SATISFACTION GUARANTEED
OR YOUR MONEY BACK!

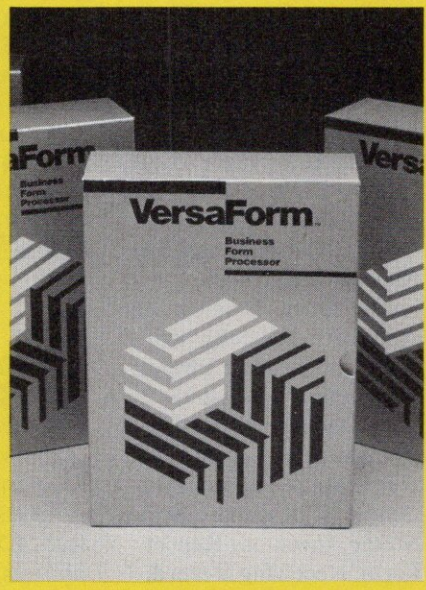
TOLL FREE 1-800-642-2536
FLORIDA 305-493-8355
or send check or money order to:

nibble notch®
computer products
4211 NW 75th Terrace • Dept.232 Lauderhill, FL 33319

CIRCLE 237 ON READER SERVICE CARD

INCREDIBLE DATABASE VALUE

VersaForm is ideal for business because it's based on the way you do business now — your own forms and ledgers.



Powerful, Flexible, Versatile — This is a FULL DATABASE at a Fantastically Low Price!

Everyone knows how effective a database can be. But until now, they've either been powerful but hard to use, or just simple personal filing systems.

Now VersaForm has made the database both powerful AND easy to use. Because it's based on your own knowledge of business forms, you can tailor it to your own needs. And because it's a full-featured database, it can do the jobs that lightweights just can't handle.

Proven In Thousands of Offices

For over 3 years, VersaForm has been used by manufacturers, bankers, doctors, farmers, and many others. It's THE program for serious business tasks such as invoicing, inventory, and purchasing — in fact, for whatever you've been doing using paper forms and ledgers.

VersaForm can:

- Prevent errors by checking entries before accepting them, according to rules you set up. Saves on operator training!
- Save time by doing calculations automatically.
- Print on existing pre-printed forms — yours or the government's.
- Sort on any item, indexed or not.
- Store up to 4,000 characters in each record, up to 4,000,000 bytes per file.
- Produce the reports you need to manage your business.

30 Day/1 Year Guarantee

- If you're not fully satisfied with VersaForm, return it within 30 days and we'll refund your money.
- Upgrade to our multi-file system, VersaForm XL, within one year, and get Full Credit for the price!

We've SLASHED our prices so you can get to know VersaForm! But hurry — these low prices won't last forever!

BONUS OFFER

Order now and receive your choice of Application Templates for only $24.95 each (regularly up to $49.95) — or two for just $44.95! Choose from Invoicing, Purchase Orders, Mailing List, Check Writing, Cash Receipts, or Expense Journal.

Compare at over $300.
Now just $69

Multi-File version $99 (IBM PC Only)
Note: Prices subject to change after 60 days.

VISA MasterCard

Credit card members can order by phone.
Toll-Free: 1-800-538-8157 x: 880
In California,
Toll-Free: 1-800-672-3470 x: 880

APPLIED SOFTWARE TECHNOLOGY
1350 DELL AVE. STE. #206
CAMPBELL, CA 95008
(408) 370-2662

Applied Software Technology
1350 Dell Ave., Ste. #206 Dept. A6, Campbell, CA 95008
Yes! RUSH me VersaForm for the IBM PC ($69) ___
* Apple II (+,e,c) ($69) ___ *
VersaForm XL (MULTI-FILE) for the IBM PC ($99) ___ *
Your application templates sound GREAT! I understand they cost just $24.95 each, or $44.95 for two. Send me the ones I've checked:
Invoicing ___ Purchase Orders ___ Expense Journal ___
Check Writer ___ Mailing List ___ Cash Receipts ___
Enclose check or money order with coupon. Include $4.50 for U.S. postage and handling, $7.00 for C.O.D. California residents add 6.5% tax.
___ My check or money order is enclosed.
Charge my: ___ MasterCard ___ Visa ___ C.O.D.
Acct. No.: ___ Expires: ___
PLEASE PRINT CLEARLY
Name ___
Address ___
City ___ State ___ Zip ___
Phone ___ Sign here ___
* APPLE II — 64K, 2 DRIVES.
IBM — 2 DRIVES OR HARD DISK. 128K for VersaForm, 196K for XL.

CIRCLE 123 ON READER SERVICE CARD

MAC

▸ SOFTFORMS FOR THE MAC

Artsci has released a form-generating program for use with the Macintosh computer and MacPaint. SoftForms can produce 22 forms, either customized with corporate logos or individually personalized, that are suitable for both business and personal use. The package includes the following forms: Employment Application, Weekly Reminder, Customer Invoice, Time and Materials Invoice, Monthly Calendar, Things-to-Do List, Credit Application, Payment Reminder, Call Report, Speed Memo, Inventory Report Form, Receiving Record, Credit Card Recordkeeper, Bank Account Recordkeeper, Balance Checkbook Form, SpeedGram, and three-column accounting and graph paper. *(List Price: $39.95)*

Requires: Macintosh

Artsci, Inc.
5547 Satsuma Avenue
North Hollywood, CA 91601
(818) 985-5763

CIRCLE READER SERVICE NO. **542**

MAC

▸ EPSTART VERSION 2.0

Epstart 2.0, a new version of the Macintosh-system-file printer controller, supports Epson MX-, RX-, LX-, and LQ-series printers, as well as the FX- and JX-series the previous version supported. It produces text and graphics from all applications that follow Macintosh printing standards, including MacPaint, MacWrite, Multiplan, and Microsoft BASIC. Single-color printing on the JX-80 color printer and letter-quality printing on the LQ-1500 are available through the Print Adjustment Accessory, included with Epstart. This accessory allows users to add extra density to Macintosh high-quality printing and also provides access to special features available on some Epson printers. *(List Price: $45)*

Epstart Version 2.0, a new printer controller for the Macintosh from SoftStyle, Inc.

Requires: Macintosh

SoftStyle, Inc.
7192 Kalanianaole Highway, Suite 205
Honolulu, HI 96825
(808) 396-6368

CIRCLE READER SERVICE NO. **543**

TELEMAX, INC. ENHANCEMENT PRODUCTS

WE turn Apples and Franklins into gold, with a little alchemy and lots of engineering.

RGB COLOR BOARDS

Apple II, II+, IIe; Franklin ACE 1000, 1200, 100 (color or monochrome)

THE COLORMASTER

The new video board that provides RGB (red/green/blue) video signals for crisp, vivid displays of color graphics and text, with exceptional resolution and color quality, is now available.

Can be used with 80 column text, so both color graphics and text are displayed on **one** RGB monitor. **Text can be displayed in anyone of 8 colors, software selectable.** A text **mode enhancement circuit improves resolution and readibility.** Board plugs into **slot 7** and comes with **4'** cable for signal output. **Optional monitor connector,** wired to cable is available (specify RGB monitor make and model).

For the Apple II or II+, the optional **VSS-80 softswitch or VSP-80 switchplate** can be used to interface **Videx Videoterm, Ultraterm, ALS Smarterm, Viewmaster 80, Viewmax** or other similar boards. For **Franklin** computers, the **VSP-80** is available to implement this feature.

For further information contact your computer dealer/distributor or: **TELEMAX, Inc.**
Computer and Video Products
P.O. Box 339
Warrington, PA 18976
(215) 343-3000

Apple® is registered by Apple Computer, Inc.
Franklin® is registered by Franklin Computer, Inc.

Prices & Specifications are subject to change without notice

THE KALEIDOSCOPE II

Has the same specs. as the COLORMASTER, with the following added features:
Each line of 24 lines of text can be independently set to any one of 8 colors, on anyone of 8 colors of background. 2 page memory. Software provided.

Signal output: RED, GREEN, BLUE, Sync., both composite and H&V. Levels are TTL, both + and −; other outputs: ±5 VDC, +12 VDC. Signals are American Standard. European version is available. Universal RGB monitor compatibility.

ORDERING INFORMATION:

APPLE II, II+, IIe (Specify Model)	Price
Colormaster	$139.00
Kaleidoscope II	$199.00
Softswitch	$45.00
Switchplate	$30.00

FRANKLIN Ace 100, 1000, 1200 (Specify Revision)	Price
Colormaster	$169.00
Kaleidoscope II	$219.00
Switchplate	$30.00

Monitor connector, wired to cable: $15.00

Add $3.00 shipping via UPS Air
Add $6.00 for C.O.D. shipments, UPS Air
Credit Cards Not Accepted.

TOLL FREE: 950-1088
Wait for tone, then dial **TELEMAX**
(TOUCH TONE ONLY)

RGB-APPLE IIC

The Peacock CM2C RGB Video Interface. Enjoy the brilliant, crisp, vivid displays of color graphics and text that are obtainable from the Apple IIC Computer when used with the Telemax **Peacock CM2C Features:** A stand alone module, one end plugs into the Apple IIC Video Port, the other end plugs into your RGB Monitor. 14 combinations of foreground and background colors in text mode are user selectable. Text mode enhancement circuits improve resolution and readibility of 80 column displays. Operation is software independent. A 3.5 ft. monitor cable is supplied. Comes ready to operate, with complete instructions. (Specify make and model monitor.)

$199.

Chipmaster IC Tester Interface card. MOD. ICT-2. Tests 14, 16, 18, 20 pin devices. Displays results on video monitor. Card plugs into any slot. Comes with test socket, software diskette, instructions. Ideal for service shops, labs, schools.

$229.00

CIRCLE 350 ON READER SERVICE CARD

What every Apple II+ and IIe user should ask before buying the "Sider" 10 MB hard disk:

When a company offers a superior quality 10 megabyte Winchester hard disk for only $695, it's bound to raise a few eyebrows...and a lot of questions. The fact is, you're probably already wondering "Can I really get a 10 megabyte hard disk that's *reliable* for only $695?" The answer is: ABSOLUTELY...when you choose the Sider from First Class Peripherals.

What's so great about the Sider?

For starters, the Sider lets you boot your ***Apple II+*** or ***IIe*** directly off the hard disk—unlike some other Winchester subsystems. Rebooting is also trouble-free. And the disk is partitionable, allowing you to allocate space to four operating systems on the same disk. The Sider supports: Apple DOS 3.3; Pro DOS™; Apple Pascal; and CP/M®

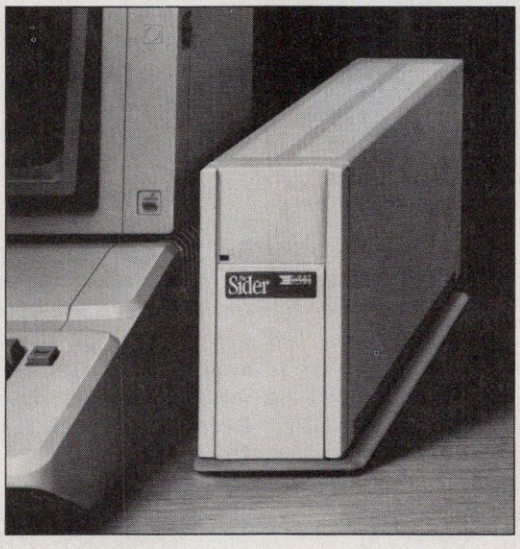
What's more, a small "footprint" lets you incorporate the compact Sider into your existing computer set-up with ease.

In addition, with the Sider, you not only pay far less for the subsystem, you also save money on installation. Because, unlike other 10 MB systems that require the purchase of expensive "extras," the Sider is *plug and play*. Everything you need is provided, including cables, host adaptor, installation software and manual.

What makes it so reliable?

To start, the Sider is manufactured, and sold exclusively, by First Class Peripherals, an innovative computer company which is backed by Xebec. The computer industry's leading manufacturer of disk controllers, Xebec has over a decade of experience serving customers like IBM, Toshiba, Texas Instruments and Hewlett Packard. It's this kind of expertise that helps assure the Sider's performance.

Special design features further enhance reliability. The Sider's controller is the field-proven, industry standard Xebec S1410A. And Xebec's 3200 drive tester, the toughest in the industry, ensures that the Sider will operate reliably. One more assurance of the $695 Sider's quality: it's UL Approved and FCC Class B rated.



"Only $695?"

But why is it only $695?

You pay less for the Sider than for other 10 MB hard disks simply because you're paying for the superior quality components inside the unit, not for a lot of retail overhead costs. Since First Class Peripherals sells direct, you avoid dealer and distribution expenses, and pay only for the product.

What about a guarantee?

Like many experienced Apple users, you may be reluctant to buy a hard disk priced at only $695 without first seeing for yourself how it performs. That's why First Class Peripherals offers you a reassuring, money-back guarantee that eliminates any risk on your part. Simply order the Sider and use it for 15 days. Then, if you're not entirely satisfied, return it and receive a full refund—no questions asked.

The Sider also comes with a full one-year limited warranty. Plus, there's a convenient, toll-free hotline you can call anytime you have a technical or service question, or need help.

Don't delay. Order the Sider now.

To receive the Sider 10 megabyte Winchester hard disk subsystem for only $695, simply order using the coupon below. For faster service, order by phone and charge to your VISA, MasterCard or American Express. (You can also call us if you have any questions or technical concerns about the Sider. We'll see you get the help you need.) Call toll-free:

1 800 538-1307
Extension 201

☐ Yes, please send me the Sider, including half-height 10 megabyte Winchester hard disk drive, Apple adaptor board, cable, complete installation software and documentation.

I prefer to pay as follows:

☐ I've enclosed my check or money order for $695* + $15 shipping and handling, payable to First Class Peripherals.

☐ Please bill the following credit card account for $695* + $15 shipping and handling:

☐ VISA ☐ MasterCard ☐ American Express

Card # *Exp. Date*

Signature

Name

Address

City

State *Zip*

Telephone (area code)

Mail to:

FIRST PERIPHERALS CLASS

3579 Highway 50 East
Carson City, NV 89701

201

* Residents of CA, NV and PA, please add appropriate sales tax.

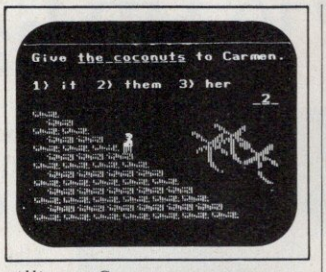
Apple and Pro DOS are trademarks of Apple Computer, Inc.
CP/M is a registered trademark of Digital Research, Inc.

CIRCLE 105 ON READER SERVICE CARD

SERIES

ALLIGATOR LANGUAGE GAMES

Alligator Games is a set of tutorial and practice games designed to teach students the parts of speech. Students answer questions about noun-pronoun substitution, pronoun-verb agreement, preposition usage, adjective/adverb usage, and verbs and verb forms. When they answer correctly, an animated "warrior" climbs, one step at a time, up a pyramid to escape from an alligator pit below. When students answer incorrectly, their warrior descends two steps on the pyramid, and the program displays the correct answer. The program's easy-to-use



Alligator Games uses a game format to teach students the parts of speech.

system keeps track of students' names and scores, and teachers can create their own pyramid of questions. *(List Price: $59.95)*
Requires: Apple II Plus, IIe, or IIc
Educational Activities, Inc.
P.O. Box 392
Freeport, NY 11520
(516) 223-4666
CIRCLE READER SERVICE NO. **539**

SERIES

DISCOVER: A SCIENCE EXPERIMENT

Discover simulates a laboratory for the problem-solving study of alien creatures. Students take charge of the lab to discover conditions necessary for the survival of eight aliens, analyzing known conditions such as food type, pattern of movement, and color. Students formulate and test hypotheses to determine the ideal atmosphere for these life forms. *(List Price: $55)*
Requires: Apple II, II Plus, IIe, or IIc
Sunburst
39 Washington Avenue
Pleasantville, NY 10570
(914) 769-5030
CIRCLE READER SERVICE NO. **540**

SERIES

THE LEHRWARE SOUNDS LIBRARY

Designed for use with the AlphaSyntauri Computer Music System, The LehrWare Sounds Library contains ten Preset Masters that each contain ten instruments. Available sounds include orchestral strings, orchestral winds, exotic instruments, natural sounds such as birds, voices, and sounds that use FM synthesis. *(List Price: $75)*
Requires: Apple II, II Plus, or IIe; AlphaSyntauri system
LehrWare
31 Maple Avenue, Suite 1
Cambridge, MA 02139
(617) 497-7522
CIRCLE READER SERVICE NO. **541**

MAKE YOUR OWN PRINT SHOP™ GRAPHICS!

It's as easy as Apple Pie with the PS GRAPHIC MAKER. Now you can convert any high-resolution picture into a "Print Shop™" graphic in only seconds. PS GRAPHIC MAKER comes complete on a non-protected disk with printed documentation. Plus we've added over 60 new graphics that are ready-to-use. Order SP01 for only $2.50.

DO YOUR APPLESOFT BASIC PROGRAMS LOOK LIKE SPAGHETTI?

If so, you need "Amper Clamper". "Amper Clamper" is a collection of machine language utilities which you can use with your Applesoft BASIC programs to add missing instructions like SORT, ARRAY SEARCH, INPUT ANYTHING, FAST STRING READ and twenty more. Not only will your programs be easier to understand, but they'll also run faster. "Amper Clamper" comes on a non-protected disk and includes complete documentation. Order SP02 for only $2.50.

PUBLIC DOMAIN SOFTWARE FOR ONLY $2.50

The Big Red Apple Club has a large library of over 3000 public domain programs which are available for only $2.50 per disk. Each disk contains 20 to 30 programs. This price includes all shipping and handling fees. Send for your free catalog and information on how you can join the Big Red Apple Club. Membership is only $12.00 a year which entitles you to twelve issues of our monthly newsletter, a free sample copy of Disk.of.the.Month and access to our group purchase specials on blank diskettes, ribbons, hardware and software products (you save up to 40%).

BIG RED APPLE CLUB

1105 South 13th, Suite 103
Norfolk, NE 68701

Print Shop ia a registered trademark of Broderbund Software, Inc

402 (379)-4680 Phone Orders are Welcome! MC & VISA accepted.

CIRCLE 113 ON READER SERVICE CARD

Power Problems?

SURGES! SPIKES! RFI/EMI! DIPS! SAGS! BLACKOUTS! BROWNOUTS!

AEGIS™. . . Power Conditioning Equipment . . . THE SOLUTION
Protects From Damaging Voltage Surges, Lost Data, & Costly Down Time

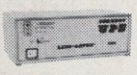
SPIKE-SPIKER®
Transient Voltage Suppressors & Noise Filters
Eleven Models — All Models Rated 120V, 15A

Deluxe Power Console—2-stage transient absorber; dual 5-stage filter; common & differential mode protection; nano seconds response; clamping at 150V; 8 individually switched sockets; fused; main switch; 7' cord and status lite. **$89.95.**

Quad Power Console—6-stage transient absorber; dual 5-stage filter; common & differential mode protection; pico second response; clamping at 131V; four outlets; fused, master switch; 7' cord and status light. **$75.95**

Mini II—*Direct AC Plug-In;* 2-stage transient absorber; dual 3-stage filter; common & differential mode protection; nano second response; clamping at 150V; two outlets and status lite. **$44.95**

LINE-SAVER™
Standby Uninterruptible Power System
—Clean Reliable Power System—



Model LS-240—240 watts—VA capacity—**$495.00**
Model LS-480—480 watts—VA capacity—**$795.00**

Back-up time: 11 min. full load, 27 min. ½ load, 43 min. ⅓ load; multiple-AC outlets, 3-staged transient protection; 4-staged RFI/EMI filter; sealed rechargeable internal battery; master control switch; test switch; external fuses; detachable 6' cord; external DC connectors for mobil use and extended hold-up time; many more exclusive features.

Call or write for free literature.
Dealer inquires invited.

INSTANT ORDER LINE
800-524-0400 TWX 501-651-2101
IN PENNA. 215-837-0700

KALGLO®
6584 Ruch Rd., Dept. I
Bethlehem, PA 18017

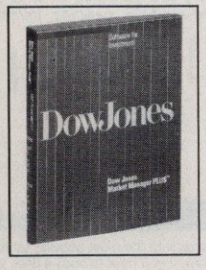
PA Res. add 6% sales tax; for COD add $3.00 + shipping & handling. All pre-paid SPIKE-SPIKER orders, freight allowed. All LINE-SAVER orders add $10.00 shipping & handling.

REPS-TERRITORIES AVAIL

CIRCLE 326 ON READER SERVICE CARD

Market Manager PLUS.™

The investment software that helps you stay ahead of the odds.



In today's dynamic market, staying ahead of the odds means staying on top of your investments—making sure you have the right information at the right time to manage your portfolio effectively.

Market Manager PLUS offers portfolio management for the active investor. By linking you with Dow Jones News/Retrieval,® it provides comprehensive automatic updating and reports.

Here's what it gives you:

- Automatic portfolio valuation updates.
- Automatic dividend distribution.
- Automatic stock-split routines.
- Automatic bond and treasury bill maturity alerts.
- Automatic option expiration and stock long-term alerts.
- Interest and dividend tax reports.
- Holdings reports by portfolio and security symbol.
- Plus much more.

Market Manager PLUS gives you easy access to the portfolio information you need to make informed investment decisions.

Demonstration disk. Just $5.*

We've prepared a demo disk to show you how easy it is to manage investment portfolios. Learn how you can stay ahead of the odds, call:

1-800-345-8500, extension 48.
(Alaska, Hawaii and foreign call, 1-215-789-7008 ext 48.)

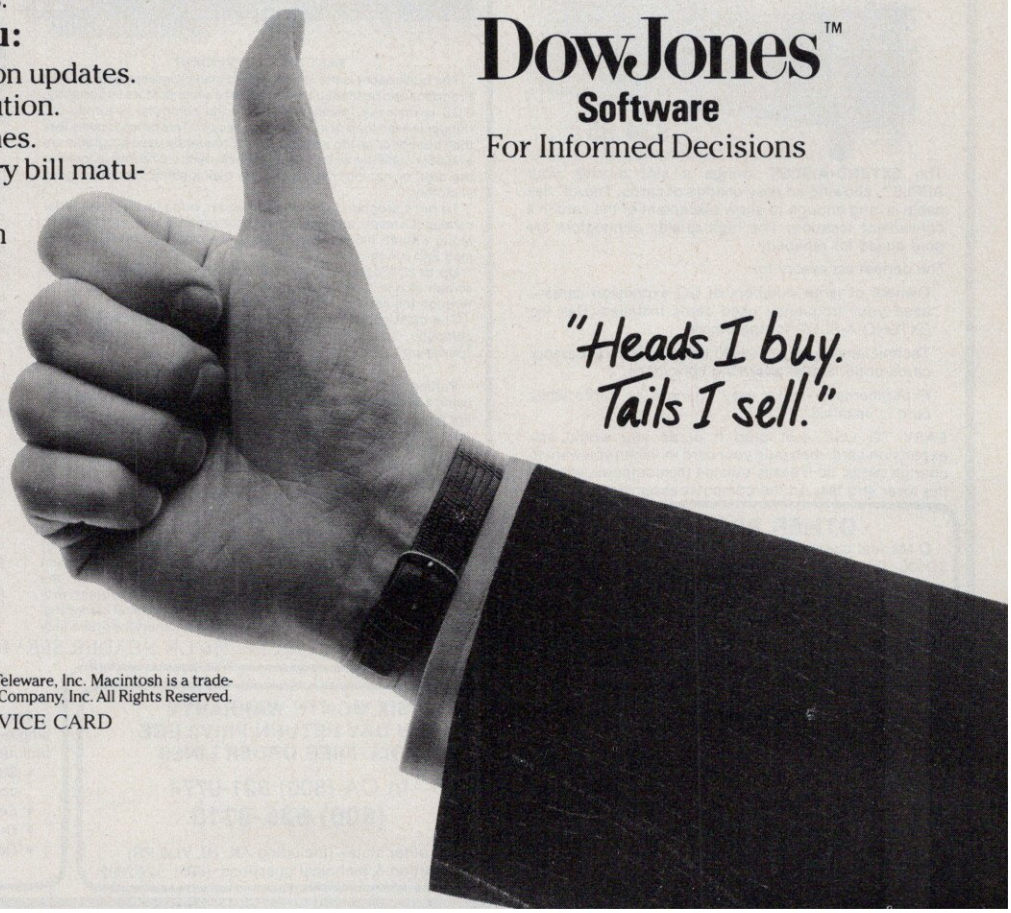
Have your credit card information ready, including expiration date. VISA, MasterCard, and American Express accepted.

Act now—Offer expires July 31, 1985.

*Please add $2.50 for shipping and handling.

Market Manager PLUS works with IBM® PC, IBM XT and Apple® Macintosh.™

DowJones™
Software
For Informed Decisions



"Heads I buy. Tails I sell."

Market Manager PLUS by Dow Jones & Company, Inc. and Teleware, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. ©1985 Dow Jones & Company, Inc. All Rights Reserved.

CIRCLE 225 ON READER SERVICE CARD

SCRG PRODUCTS FOR THE APPLE COMPUTER

SWITCH-A-SLOT

$179.50

The **SWITCH-A-SLOT** is an expansion chassis, which allows the user to plug in up to four peripheral cards at one time. One of these cards is selected for use, and only that card draws power.

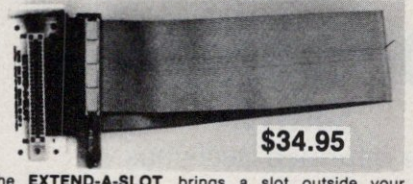
This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers.

- Allows up to four peripheral cards to be plugged into one peripheral slot.
- User selects desired card by front panel rotary switch.
- Only selected card draws power.
- Plugs into any peripheral slot.
- Saves wear and tear on delicate connectors.
- 18" cable connects Switch-a-slot to computer.

New—resistive terminations for better response

SWITCH-A-SLOT and EXTEND-A-SLOT work well with all slow to medium speed cards, such as Modems, Printers, Clock, 80 Column, Music, etc. They are not recommended for high speed data transfer devices such as disk drive controllers, alternate processor, and memory cards. These products may be incompatible with some alternate processor cards.

EXTEND-A-SLOT



$34.95

The **EXTEND-A-SLOT** brings a slot outside your APPLE™, allowing an easy change of cards. The 18" flex cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability.

The perfect accessory for:

Owners of large numbers of I/O expansion cards—keep your frequently used cards installed. Use the EXTEND-A-SLOT for the others.

Technicians—easy access to test points on accessory cards under actual operating conditions.

Experimenters—make easy changes to cards while card is installed.

EASY TO USE—just plug it in as you would any expansion card, then plug your card in. When you want to change cards, do it easily outside the computer, without the wear and tear on the computer expansion slot.

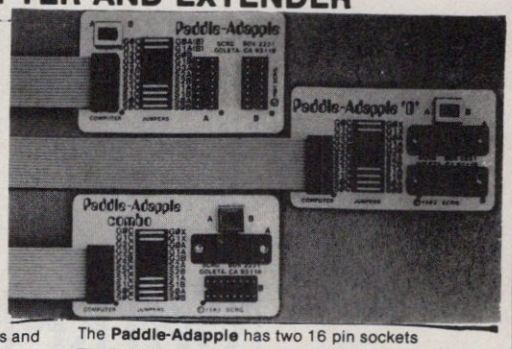
OTHER PRODUCTS

D Manual controller. Gives complete control over the $C000 through $C0FF range in hardware. Can be switched while program is running. $89.50.

MAGIC KEYBOARD (for][or][+ only). Re-encodes the keyboard to give alternate keyboards, such as DVORAK, ASK, 10-KEY, HEXIDECIMAL KEYPAD, etc. $49.50.

Paddle-Adapple

GAME I/O ADAPTER AND EXTENDER



- Works with all Apple compatible joysticks, paddles and other I/O devices.
- Select one of two devices or . . .
- Use 4 paddles simultaneously.
- Unique "Jumpers" socket allows you to configure to meet your needs.
- BPI™ users can have BPI™ device and paddles plugged in simultaneously. (**Paddle-Adapple** and **Paddle-Adapple Combo** only).
- Gives you four push-button inputs.
- Supports shift key modification.
- Exchange X & Y joystick axis.
- Small and compact — adheres to computer with supplied foam tape.
- All Strobes, annunciators and power available on all 16 pin connectors.
- Supplied with 18" cable.

$29.95

The **Paddle-Adapple** has two 16 pin sockets

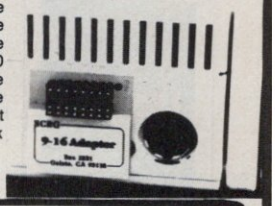
The **Paddle-Adapple "D"** works with the subminiature D connectors.

The **Paddle-Adapple Combo** has one 16 pin socket and one subminiature D connector.

NEW 9-16 Adapter

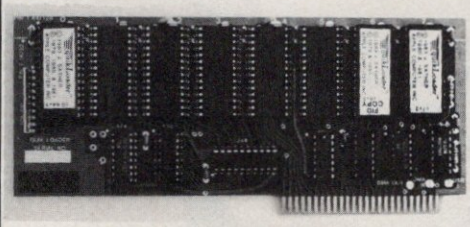
For Apple / /e and / /c

This product permits the use of most 16-pin I/O devices with the APPLE //c or //e. By plugging this adapter into the sub-miniature 'D' connector, you can plug in a 16-pin device, such as the Paddle-Adapple, paddles, joystick, KOALA PAD™, etc. The only limitations are those devices that use the annunciators or the C040 strobe, such as the POWER PAD™. Please note that the //c does not support four joystick inputs.



$14.95

quikLoader™



FAST AND CONVENIENT

The quikLoader is the *fastest* way to load programs. **BAR NONE!** Programs can be loaded in fractions of a second. More importantly, DOS is instantly loaded every time the computer is turned on. Integer is even loaded in the language card. This process takes less than a second, saving valuable time. Frequently used programs are available *instantly* when you need them, without having to look for the disk, or hoping that the lengthy disk loading procedure goes smoothly.

To run a program from the quikLoader, bring up the quikLoader catalog (Q-reset), and the names of the programs will be displayed, along with an index letter. Pressing the index letter will instantly load and run the program.

Up to 23 programs on the quikLoader can be displayed on the screen at one time. If you have more programs, you may scroll through the catalog in either direction.

The quikLoader is **ideal** for applications requiring a dedicated computer. Your program can be automatically loaded and run at "power-up".

PROGRAMMING EPROMS

Putting your own programs on the quikLoader is easily done, using a separate EPROM programmer such as the **PROmGRAMER.** For APPLESOFT, INTEGER, or single machine language files, no programming knowledge is necessary. You **will** need experience if you want to save copy-protected or complex programs. The amount of experience necessary depends on the complexity of the program.

COMMERCIAL PROGRAMS

If you have a program that is valuable, it will become **more** valuable when it is instantly available to you. We are actively seeking licenses from software publishers to allow their popular programs to be made available for the quikLoader. Independent authors are encouraged to write programs suitable for the quikLoader. If the author wishes, we will market the program (with appropiate royalties), or the author can take care of all marketing. In either case, we will make known to our customers the availability of these programs.

We start your library of programs with the most popular utilities on the card, FID and COPYA. Now, if you have to copy a disk, you don't have to search for the master disk. You can start copying within 3 seconds after turning on the computer.

We are currently licensed to sell several very popular programs on EPROM. **DOUBLE—TAKE** by BEAGLE BROS., and **COPY][PLUS** by CENTRAL POINT SOFTWARE. The introductory price for DOUBLE—TAKE is $45.00. This includes the program exactly the same as you would buy it at your dealer for $34.95 (including disk and documentation), and a programmed 27128 EPROM (worth about $25.00). COPY][PLUS cost $65.00. This includes the original program (worth $39.95) and **two** programmed 27128's.

Other programs available directly from us or the publishers are, **BARKOVITCH I/O TRACER AND SINGLE STEP TRACE, MICRO/TYPOGRAPHER** from **TIDBIT SOFTWARE, ECHO** speech synthesizer software from **STREET ELECTRONICS,** and **MERLIN** assembler, from **ROGER WAGNER PUBLISHING.** More commercial programs are now in the works.

MEMORY CAPACITY

The quikLoader has eight sockets for EPROMs. These sockets can accommodate standard EPROMs from 2716 to 27512. These types can be freely intermixed. The memory capacity of the quikLoader depends on the EPROMS used. For example, the 2716 can hold 2K of programs, and the 27512 can hold 64K. (Frankly, the current costs of the 27512 is prohibitive,but should come down drastically in the next year.) At this writing, the least cost-per-bit is provided by the 2764, which can hold an 8K program. Using these "chips", the quikLoader becomes a 64K ROM. Using larger capacity EPROMs allows it to become a 128K, 256K, or even a 512K card. If more memory capacity is needed, the quikLoader operating system supports multiple quikLoaders.

INCREASED DISK CAPACITY

Since DOS is loaded from the quikLoader every time the computer is turned on, it is not necessary to take up valuable disk space with DOS. This will give you more than 5% additional space for programs and data on your disks.

ABOUT THE DESIGNER

The quikLoader was designed by Jim Sather, author of UNDERSTANDING THE APPLE][(forward by Steve Wozniak), published by QUALITY SOFTWARE (21601 Marilla Street, Chatsworth, CA 91311 (818) 709-1721).

SYSTEM REQUIREMENTS

The quikLoader plugs into any slot of the APPLE][+ or //e. If used in a][+, a slightly modified 16K memory card is required in slot 0. A disk drive is required to save data.

DOS, INTEGER BASIC, FID, and COPYA are copyrighted programs of APPLE COMPUTER, INC. licensed to Southern California Research Group to distribute for use only in combination with quikLoader.

CIRCLE 246 ON READER SERVICE CARD

$179.50

PROmGRAMER™

The **PROmGRAMER** will read or program any of the standard single-volt EPROMS from the 2708 to the 27512. Features include:

- Slot independent operation for the APPLE // family of computers.
- Zero insertion force sockets accepts 24 or 28 pin devices.
- Disk based software allows easy customization of software.
- Complete instructions for loading software into quikLoader.

$149.50

Available at your local dealer or direct from:

So. Calif Research Group
P.O. Box 593-A
Moorpark, CA 93021
(805) 529-2082
TELEX 658340 ATTN: SCRG
Answer Back INTERTEL SNC
VISA, MASTERCARD accepted

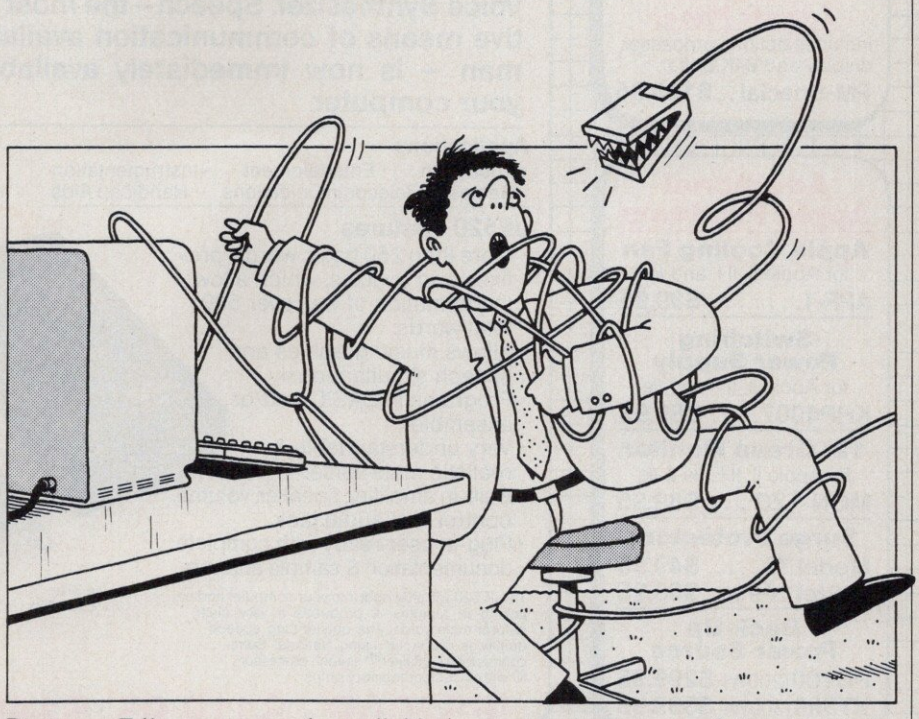
Add $2.50 for shipping. Outside U.S. and Canada, $5.00, for surface, $10.00 Air; except Switch-A-Slot, $25.00 Air.

SIX MONTH WARRANTY
TEN DAY RETURN PRIVILEGE
TOLL-FREE ORDER LINES

in CA (800) 821-0774
(800) 635-8310

all other states (Including AK, HI, VI & PR)
Information & technical questions: (805) 529-2082

RESCUE SQUAD
BY MICHAEL CALLERY
Questions from our readers



APPLEWRITER 2.0 PRINTING PROBLEM

Q. *I recently exchanged my AppleWriter II for the ProDOS-based AppleWriter 2.0 and I am having trouble printing. With the older version, my files printed fine. The new version, however, prints a lot of extra spaces, as if it did not honor the margin settings. I have a Gemini 10X printer and a Grafstar interface card on my Apple IIe. Any suggestions?*

A. Several readers have written us about similar problems with Epson printers and Grappler interface cards. Apparently the Apple Writer printer drivers were rewritten for release 2.0 and contained a few glitches. Not all printer/interface-card combinations experience this problem, but if yours does, your authorized Apple dealer should have a printer-configuration disk that will fix the bugs. Dealers that don't have this disk can get it from Apple technical support.

Incidentally, similar problems have crept into AppleWorks. If you are having problems printing and/or the printer prints strange characters at the top of pages, you should check with your dealer for a similar remedy.

NEW SYSTEM FONTS

Q. *I am tired of Chicago as the system font on my Macintosh. I have Apple's Through the Looking Glass, and I like the font used for system messages with that disk. How can I change the system font?*

A. Macintosh fonts have assigned numbers; the system font is always font 0. Normally, Chicago occupies that slot.

You can change it easily, however, if you have one of Apple's resource utilities. These utilities, RMover and Resource Editor, were made available to developers and to those who purchased the software supplement to *Inside Macintosh*. The utilities are widely available to users through local users' groups.

First, use Apple's Font Mover utility to be sure the system file on your boot disk contains the font you want to use.

To change the system font, you must assign the current system font to an unused number and assign the desired font the number 0. This action takes the name of the font. The actual font, however, is stored in font resource 12, so you must also reassign font resource 12 to another number and your desired font must get resource number 12. You assign font-resource numbers with the following formula: font number × 128 + point size. Thus, font number 1 in 12 point is stored in font resource 140 (1 × 128+12). Font names are always stored with a point size of 0.

For your own sanity, you should work on a backup disk until you are sure you have successfully altered the system font. Then transfer your new system onto your application disk. For more information, keep your eyes on *A+*. We'll be covering Macintosh fonts in a future issue.

APPLE IIIe?

Q. *I have an Apple III and am frustrated by the limitations of the Apple II Emulation mode. Does a way exist to get a full 64K Apple II into my Apple III?*

A. A new product from Titan Technologies may solve your problem. The Titan III Plus II is an interface card that provides the extra 16K necessary for the bank-switched or language-card RAM. Used with Titan's Apple II Emulation diskette, it lets the Apple III run 64K Apple II programs. The board is also available with an extra 64K or 128K to use as a fast RAMdisk or for "extended bank switching," much like Titan's extra-capacity RAM cards for Apple II computers. Titan Technol-

CHRIS REED

APPLE* MODEMS *by Prometheus*

New 300/1200 Baud 212A Telephone Modem for your Apple II, II+ and *IIe*. Just plug in — Hayes compatible!

PM1200A . . . $299.95

MAC PAC *for your Macintosh*

Includes: ProModem 1200 external modem, cable and software.

MAC PAC . . . $369.95

OPTION SPECIAL! *Lowest Price!*

Includes options processor, display and 64K buffer.

PM-Special . . $169.95

Additional Apple Products

Apple Cooling Fan
for Apple II, II+ and *IIe*
APF-1. . . . . $39.95

Switching Power Supply
for Apple II, II+ and *IIe*
KHP4007. . . . $59.95

12" Green Monitor
for Apple II, II+, *IIe* & *IIc*
MON-12G . . . $89.95

Surge Protectors
Model 75 . . . . . $49.95
Model 100 . . . . $69.95

Back-Up Power Source
PC200 (200W) **$299.95**
XT300 (300W) **$399.95**

Mail Order Electronics - Worldwide
Jameco ELECTRONICS
Serving the Computer Enthusiast Since 1974

QUALITY COMPUTER PRODUCTS FOR APPLE II, II+, *IIe*, *IIc* and Macintosh*

VOICE SYNTHESIZER FOR APPLE II, II+ AND *IIe*

Add speech capability to your Apple II, II+ and *IIe* computer with JAMECO's JE520 Voice Synthesizer. Speech—the most effective means of communication available to man — is now immediately available for your computer.

Applications
• Education • Entertainment • Instrumentation
• Games • Telecommunications • Handicap Aids

JE520 Features
- More than 250 basic words, prefixes and suffixes, which allow the formation of well over 500 total words.
- Allows music graphics and speech simultaneously.
- Programs in BASIC and/or assembler.
- Very understandable & realistic male voice.
- Built-in amplifier, speaker, volume control and audio jack.
- Plug-in user-ready with complete documentation & sample software.

Case Size: 7¼"Lx3¼"Wx1⅜"H

The JE520 will plug right into your computer and be talking in minutes. It produces a very clear, natural male voice. The outstanding speech quality is produced using National Semiconductor's Digitalker™ speech processor IC with 4 custom memory chips.

JE520AP. . $119.95 ~~$149.95~~

APPLE™ Compatible 5¼" Disk Drive and Controller Card

• Uses Shugart SA390 mechanics • 143K formatted storage • Color matches Apple Computer • Works with Apple Controller or other Apple-compatible controllers (ACC-1) • Complete with connector — just plug into your disk controller card • 35 tracks • Size: 6"W x 3½"H x 8-9/16"D • Wt.: 4¼ lbs.

ADD-514 (Disk Drive) **$149.95**

ACC-1 (Controller Card) **$49.95**

APPLE™ Compatible 5¼" Half-Ht. Disk Drive

• Uses Chinon Pinch-type mechanics • 163K unformatted • 35 tracks • Super quiet • Works with Apple Controllers or other compatibles (ACC-1) above • Complete with connector — just plug into your controller • Size: 5¾"W x 1⅝"H x 8"D • Wt.: 4 lbs.

ADD-12. . . . $159.95

APPLE™ *IIc* Compatible 5¼" Half-Ht. Disk Drive

• Same specs as ADD-12 (above) except no controller necessary.

ADD-IIc. $169.95

NEW!

80-Column plus 64K RAM for your APPLE *IIe**

Now you can double the memory capacity and get an 80-column display format for your APPLE *IIe** computer at an affordable price. Just plug the JE864 card into your APPLE* and expand your display to 80 characters per line. Perfect for word processing. The JE864 also features 64K bytes of additional memory to allow programming not possible with standard APPLE *IIe** computers. Complete documentation included.

Board: High density board design squeezes 64K bytes of RAM onto a 2½" x 4½" board • Fully tested to assure proper operation.

Uses: Word processing — displays 1000 more characters per screen • Extra memory allows running of extremely large programs • Ultra High Resolution Graphics capability.

JE864. . . . . $79.95

APPLE Keyboard and Case for Apple II and II+*

Special Functions!

KEYBOARD (KB-A68):
• 68 Keys • 15-Key Keypad • Direct connection with 16-pin ribbon connector • Special functions on number keys, including cursor controls, color demo, and one-touch disk catalog • Metal baseplate for durability (with 6 mounting holes) • Color (keys): white/grey • Size: 14½"L x 5½"W x 1½"H

CASE (EAEC-1):
• Accommodates KB-A68 • Pop-up lid for easy access • Fits power supply and motherboard too • Size: 15½"W x 18"D x 4¼"H

Part No.	Description	Price
KB-EA1	Apple Keyboard and Case.	$134.95
KB-A68	68-Key Apple Keyboard only.	$ 79.95
EAEC-1	Expanded Apple Enclosure Case only.	$ 59.95

Numeric/Auxiliary Keypad for your APPLE *IIe** *Visi Calc Users!*

The JE614 is a newly introduced numeric/auxiliary keypad for the APPLE *IIe.** It offers the flexibility of a 10-key pad and the convenience of 23 directly accessible functions. Screen manipulating functions make word processing a snap and cursor controls make the keypad ideal for VisiCalc** users. The JE614 Keypad is housed in a durable metal enclosure and is color-coordinated with your APPLE *IIe* computer. Operation of the keypad can begin within minutes from unpacking. Special functions include: Home, Clear, Clear to End of Screen, Scroll-Up, Scroll-Down, Tab, Delete, Left, Right, Up and Down. Each key has auto-repeat. Size: 5⅞" L x 4-3/16" W x 1¼" to 2½" Slope.

JE614. . . . . $49.95

$10.00 Min. Order - U.S. Funds Only
Calif. Residents Add 6½% Sales Tax
Shipping - Add 5% plus $1.50 Ins.
Send S.A.S.E. for Monthly Sales Flyer!

Send $1.00 Postage for your *FREE 1985 JAMECO CATALOG*
Prices Subject to Change

MasterCard VISA

Mail Order Electronics - Worldwide
Jameco ELECTRONICS

1355 SHOREWAY ROAD
BELMONT, CALIFORNIA 94002

Phone Orders Welcome (415) 592-8097
Telex No. 176043

6/85

CIRCLE 279 ON READER SERVICE CARD

*APPLE, APPLE II, II+, *IIe*, *IIc* and Macintosh are registered trademarks of APPLE Computers.
**VisiCalc is a registered trademark of Visi Corp. Inc.

CONVERSE WITH YOUR COMPUTER

AT LAST! A FULL IMPLEMENTATION of the original ELIZA program is now available to run on your Apple computer!

Created at MIT in 1966, ELIZA has become the world's most celebrated artificial intelligence demonstration program. ELIZA is a non-directive psychotherapist who analyzes each statement as you type it in and then responds with her own comment or question—and her remarks are often amazingly appropriate!

Designed to run on a large mainframe, ELIZA has never before been available to personal computer users except in greatly stripped down versions lacking the sophistication which made the original program so fascinating.

Now, our new Apple version possessing the **FULL** power and range of expression of the original is being offered at the introductory price of only $25. And if you want to find out how she does it (or teach her to do more) we will include the complete **SOURCE PROGRAM** for only $20 additional.

Order your copy of ELIZA today and you'll never again wonder how to respond when you hear someone say, "Okay, let's see what this computer of yours can actually do!"

READ WHAT THE EXPERTS SAY ABOUT OUR VERSION OF ELIZA:

"Much more than a mere game...You'll be impressed with ELIZA...A convincing demonstration of Artificial Intelligence." —*PC MAGAZINE*

"Delightful entertainment...An ideal medium for showing off your system." —*MICROCOMPUTING MAGAZINE*

"ELIZA is an astounding piece of software...A fascinating program to use and study." —*BARON'S MICROCOMPUTER REPORTS*

"ELIZA is a great way to introduce your friends to computers...A very funny party game." —*PETER A. McWILLIAMS*

"ELIZA is an exceptional program, one that's fun to use, shows off your machine, and has great historical interest." —*POPULAR COMPUTING MAGAZINE*

"This version of ELIZA is the best we have seen. As a party game, it is unmatched." —*HOME APPLICATIONS FOR THE C-64*

ELIZA IS AVAILABLE IN THE FOLLOWING FORMATS:

1. Protected Version $25
   (Protected Version can be run but not listed or modified)
2. Un-protected Applesoft BASIC Source Version $45
   (Source Version can be listed and modified as well as run)

Both versions include a six page user manual and will run on Apple II, Apple II+, Apple IIe and Apple IIc.

Source Version also available for Macintosh if you have Microsoft BASIC.

Please add $2.00 shipping and handling to all orders
(California residents please add 6½% sales tax)

ARTIFICIAL INTELLIGENCE RESEARCH GROUP
921 North La Jolla Avenue, Dept. A
Los Angeles, CA 90046
(213) 656-7368 (213) 654-2214
MC, VISA and checks accepted

CIRCLE 294 ON READER SERVICE CARD

Imagewriter™ Owners

Congratulations, you own the professional-quality printer good enough for Apple™ to call their own. It is a printer whose software support is unrivaled. Vilberg Brothers Computing, Inc. has produced software to *improve* your Imagewriter's image. It includes 24 character fonts and the software to download them to your Imagewriter or Apple DMP™. These characters, since they are downloaded, can be used by *ANY* Apple II program --- from AppleWorks™ to Visicalc™ And they don't slow down printing speed!!!

Match your characters to your task.
Use Cyber for program listings, Typewriter for formal papers, and Script for personal notes. Use Bold to get attention, Super/Sub-script and Greek for scientific manuscripts, and Fat Face for notes to your friends. If our 24 character sets do not contain the image you need then convert character sets from Applesoft Tool Kit™, Beagle Brothers, Higher Text II™ or Penguin's Fonts using the Utilities. Still need more character sets? Then use the Utilities' font editor to create those characters you need.

Want to know more?
Read the review in Softalk (Feb 84). They called it *"excellent"* and described one of our Imagewriter fonts as *"near letter quality"*. Creative Computing (April 84) thought so highly of the DMP Utilities they called them *"a necessity"*. Find out for yourself. Circle the reader's service card and we'll send you an actual print sample. Then you can see the many images your Imagewriter can convey.

Vilberg Brothers Computing, Inc.
PO Box 4576, Madison, WI 53711-4576
(608) 274-6433

DMP Utilities costs $50. (WI res add $2.50 sales tax)
Apple, AppleWorks, Imagewriter, Applesoft Toolkit, and Apple DMP are trademarks of Apple Computer, Inc.
Higher Text II is a trademark of Synnergistic Software.
Visicalc is a trademark of Visi-corp.

CIRCLE 244 ON READER SERVICE CARD

ogies informs us that another product, the Titan III Plus IIe interface card, may be available by the time you read this. The III Plus IIe card will offer full Apple IIe capabilities for your Apple III. For more information, contact Titan Technologies, 310 West Ann Street, Ann Arbor, MI 48104.

▶ PRINTING UNDER ProDOS

Q. *I'm having trouble when I use my printer from within a BASIC program running under ProDOS. Sometimes I get garbage on the screen, sometimes I seem to lose DOS, sometimes garbage appears on my listings. What's wrong?*

A. You could be doing one of several things wrong. Older Apple programs (before Apple's own 80-column card) use PR#0 to return printing to the screen after use of the printer. If you started printing from the 80-Column Active mode, you must turn off the printer with PR#3, *not* PR#0. This procedure may solve your problem.

Further, within programs you should issue PR# as a DOS command. Although PR# is an Applesoft command, the way that Apple DOS works demands that you use the command as a DOS command in a program. Do this by preceding the PR# with PRINT CHR$(4) as in

```
100 PRINT CHR$(4)"PR#1"
```

Both of these comments also apply to DOS 3.3.

▶ DELETING MAC FILES

Q. *When using MacPaint, I have run out of space on my storage disk and have not had a blank disk to insert. Is there any way I can delete a file while inside an application so that I can save my current image?*

A. Macintosh applications could provide this function, but most do not. If you have unwanted files, use the Save As command to save them to a file that you no longer want. The Mac will respond with a dialog box asking you whether you want to replace the disk file. Clicking on the Yes box will effectively delete the old file and replace it with the new. If you are a member of a Mac users' group, your group library probably has a set of desk accessories that can provide this function, as well as many other useful file-oriented functions. You need only install the desk accessory with the Desk Accessory Mover, also available from your users' group. Because you can use desk accessories within any Mac application, we highly recommend this approach.

DeSmet C

MACINTOSH™ DEVELOPMENT PACKAGE **$150** Includes Shipping

Runs on 128K and 512K Macintosh
- Produces FINDER/SHELL applications
- Dynamic OVERLAY support

Full K&R C Compiler
- Native Code Compiler
- In-line **asm** directive
- IEEE S/W Floating Point

Assembler, Linker, and Librarian

Machine Code Debugger

Source Code Editor

"SHELL" Interface
- Environmental Variables
- Wild-Card Expansion
- Many Built-in Functions
- Command History
- Runs Any Application

>120 Function STDIO Library

>450 Function Macintosh ROM Library

360 Page Manual

RAM Disk

Macintosh is a trademark licensed to Apple Computer, Inc.

☐ Please Send Information.
☐ Send Macintosh Development Package
Check # _____ Enclosed

SHIP TO:

ZIP

CWARE CORPORATION
P.O. BOX C
Sunnyvale, CA 94087
(408) 720-9696

All orders shipped UPS surface. California residents add sales tax. Canada shipping add $5, elsewhere add $15. Checks must be on U.S. Bank and in U.S. Dollars. Call 9 a.m.–1 p.m. to CHARGE by **VISA/MC/AMEX.**

Street Address: 505 W. Olive, #767, Sunnyvale, CA 94086

CIRCLE 334 ON READER SERVICE CARD

Computer Discount Products

Monthly Mail-Order Listing For Apple, IBM & Macintosh Users

Retail Showrooms In California:
San Jose • San Mateo • San Francisco

SINCE 1977

WE PAY SHIPPING*
Get The Details Below!!

Printers & Monitors

EPSON FX80	499.99
RX 80	329.99
PRINCETON HX-12 RGB	459.99
TAXAN #115 12" Green	119.99
#116 12" Amber	129.99
USI Pi 4 20mhz Amber	99.99

MOCKINGBOARD

Sound Board	79.99
Speech Chips	79.99
Sound AND Speech IIe	145.99
Sound AND Speech IIc	145.99

HARDWARE

Ap	CDP 16K Ram Card	39.99
Ap	Parallel Interface w/Cable	39.99
Ap	DAN PAYMAR Lower Case 1	25.99
Ap	Lower Case 2, Rev 7	19.99
Ap	EXTENDED 80 Col. Card-IIe	129.99
Ap	KENSINGTON System Saver	65.00
Ap	MICRO-SCI A-2 Drive	194.99
Ap	ORANGE MICRO Grappler +	94.99
Ap	Buffered Grappler	149.99
Ap	Buffer Board	79.99
Ap	THUNDERCLOCK	109.99
Ap	TITAN Accelerator IIe	249.99
Ap	Neptune 64K	199.99

VIDEO 7 – Apple

RGB Adapter IIc	149.99
RGB 80/64 IIe	189.99
Slot 7 RGB II + /e	109.99
Mappler Connector	39.99

EDUCATIONAL

DLM

Ap	Alien Addition/Minus Mission	ea22.99
Ap	Alligator Mix	22.99
Ap	Division/Multiplication	ea22.99
Ap	Dragon Mix	22.99
Ap	Spelling Wiz/Verb Viper	ea22.99
Ap	Word Invasion/Word Radar	ea22.99

LEARNING COMPANY

Ap	Bumble Games/Plot	ea25.99
Ap	Gertrudes Puzzle/Secret	ea27.99
Ap	Rockys Boot/Robot Odyssey	ea31.99
Ap/IBM	Addition Magician	23.99
Ap/IBM	Magic Spell/Number Stump.	ea25.99
Ap/IBM	Moptown Hotel/Parade	ea25.99
Ap/IBM	Reader Rabbit	27.99
Ap/IBM	Word Spinner	24.99

PEACHTREE

Ap	Algebra I-IV	ea25.99
Ap	Algebra V & VI	ea32.99

SPINNAKER

Ap	Grandmas House	19.99
Ap	Kids On Keys	19.99
Ap	Kidwriter	21.99
Ap	Rhymes & Riddles	19.99
Ap	Sum Ducks	24.99
Ap	Trains	21.99
Ap/IBM	Alphabet Zoo	19.99
Ap/IBM	Delta Drawing	34.99
Ap/IBM	Facemaker/Fraction Fever	ea19.99
Ap/IBM	Diddle Diddle/Kindercomp	ea19.99
Ap/IBM	Presidents Choice	25.99
Ap/IBM	Snooper Troops I or II	ea27.99
Ap/IBM	Story Machine	24.99

COLLEGE BOUND – Apple

BARONS SAT	59.99
CBS Mastering SAT	94.99
PEACHTREE SAT/PSAT	ea34.99

CROSSWORD MAGIC 39.99

UTILITIES & ENHANCEMENTS

Ap	BEAGLE Graphics	35.99
Ap	Dos Boss	15.99
Ap	Fat Cat	21.99
Ap	GPLE	29.99
Ap	Triple Dump/D/Code	ea29.99
Ap	BRODERBUND Dazzle Draw	41.99
Ap	Graphics Library	17.99
Ap	Print Shop	34.99
Ap	CENTRAL POINT CopyII +	25.99
Ap	Wildcard II	99.99
Ap	FONTRIX	49.99
Ap	FINGERPRINT For Epson	44.99
Ap	KOALA Touch Pad	74.99
Ap	MERLIN	44.99
Ap/IBM	COPY II Program	25.99
Ap/IBM	TURBO PASCAL	41.99

VIDEX – Apple

Enhancer II	99.99
Function Strip	31.99
Hard Switch	14.99
PSIO	144.99
Soft Switch	25.99
Ultraterm	239.99
Videoterm w/SS & Inv	179.99
PREBOOTS Apple Writer	14.99
Apple Writer for Ultraterm	23.99
Visicalc	39.99
Visicalc for Ultraterm	54.99

ENTERTAINMENT

Ap	BEAGLE I.O. Silver – *NEW!*	21.99
Ap	DECATHLON	23.99
Ap	MASTERTYPE	31.99
Ap	NIGHT MISSION PINBALL	22.99
Ap	SIR TECH Knight of Diamond	21.99
Ap	Legacy of Llylgamyn	24.99
Ap	Wizardry	31.99
Ap	Wiziprint	17.99
Ap	WIZPLUS	23.99
Ap	ULTIMA III	34.99
IBM	GATO	29.99
IBM	MASTERTYPE	34.99
IBM	SIR TECH Wizardry	34.99
Ap/IBM	CHAMP. LODERUNNER	24.99
Ap/IBM	ELECTRONIC ARTS Archon	29.99
Ap/IBM	Music Set/Pinball Set	ea29.99
Ap/IBM	One On One/Sky Fox	ea29.99
Ap/IBM	Seven Cities of Gold	29.99
Ap/IBM	FLIGHT SIMULATOR	35.99
Ap/IBM	SARGON III	31.99
Ap/IBM	SIERRA ON LINE Frogger	24.99
Ap/IBM	WINDHAM Below The Root	18.99
Ap/IBM	Swiss Family Robinson	18.99

TRILLIUM ea27.99

Now Telarium
Amazon, Rama, Shadowkeep
Fahrenheit & Dragonworld

INFOCOM

APPLE–IBM–MACINTOSH

CUTTHROATS/ENCHANTER	ea25.99
DEADLINE/SUSPENDED	ea29.99
INFIDEL/SORCERER	ea28.99
PLANETFALL/SEASTALKER	ea26.99
WITNESS/ZORK I	ea27.99
ZORK II/ZORK III	ea29.99

HITCHHIKERS GUIDE 26.99

DISKETTES

MAXELL 5¼ SS 10/100	19.99/189.
MEMOREX 3½ SS 10/100	41.99/399.
MEMOREX 5¼ SS 10/100	18.99/179.
FLIP-FILE Holds 50-5¼	14.99
MEDIA MATE Holds 30-3½	11.99

MACINTOSH

BRODERBUND Loderunner	27.99
COPY II MAC	24.99
HOME ACCOUNTANT	69.99
MAC FUN	32.99
MAC VEGAS	34.99
MAC VISION	399.99
MEDIA MATE Holds 30-3½"	9.99
MEMOREX 3½" Diskettes	34.99
MICROSOFT Basic	94.99
Chart	74.99
File/Multiplan	ea129.99
MONOGRAM Dollars & Sense	99.99
Forecast	49.99
PFS File/Report	ea79.99

INFOCOM FOR MAC! – See Separate Box!

APPLICATION – Home & Business

Ap	ASCII Express	99.99
Ap	CONTINENTAL Hm. Acct.	44.99
Ap	Tax Advantage	39.99
Ap	MICROPRO CalcStar	69.99
Ap	DataStar	204.99
Ap	InfoStar w/CPM	174.99
Ap	MailMerge	69.99
Ap	MONOGRAM Forecast	39.99
Ap	Dollars & Sense IIe	69.99
Ap	Dollars & Sense IIc	89.99
Ap	PFS Rept, File, Graph, Write	ea79.99
IBM	ASCII Express Pro	139.99
IBM	ASHTON-TATE dBase II	289.99
IBM	dBase III	389.99
IBM	Framework	389.99
IBM	CONTINENTAL FCM	71.99
IBM	Home Accountant +	84.99
IBM	Tax Advantage	45.99
IBM	CROSSTALK	139.99
IBM	MONOGRAM Dollars & Sense	109.99
IBM	PFS Rept, File, Graph, Write	ea89.99
Ap/IBM	MICRO COOKBOOK	32.99
Ap/IBM	MICROSOFT MULTIPLAN	149.99

MODEMS

HAYES 300 Baud	209.99
Micromodem IIe	239.99
NOVATION Applecat II 300 Bd.	198.99
Expansion Module	29.99
J Cat	104.99

WORD PROCESSING

Ap	BANK STREET IIe	44.99
Ap	For IIc	49.99
Ap	Bank Street Speller	44.99
Ap	KENSINGTON Format II	99.99
Ap	MICROPRO Wordstar – CPM	245.99
Ap	WordStar Pro-CPM	349.99
Ap	Pro Options Pak	139.99
Ap	SENSIBLE SPELLER	89.99
Ap	SIERRA HomeWord	49.99
Ap	HomeWord Speller	34.99

ALL SOFTWARE SHIPPED FREIGHT FREE*
No Charge For Credit Cards
Guaranteed Fair Pricing

ORDER #A-6

Computer Discount Products

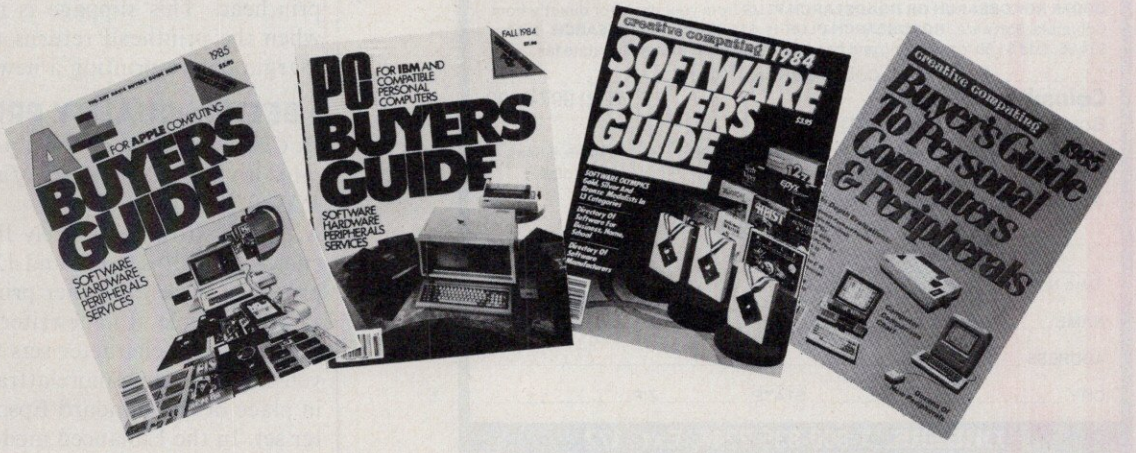
860 So. Winchester Bl., San Jose, CA 95128

(408) 985-0400 FROM 8AM PST

Purchase Order Prices Differ – Call First • Prices Subject To Change • Software Sales Final
Please Allow Time For Personal Checks To Clear – ★ We Reserve The Right To Charge For Freight On Orders Less Than $100
U.S. Mail – $10 Minimum Chg. • Hardware Shipping – $CALL

CIRCLE 290 ON READER SERVICE CARD

THE WORLD'S MOST COMPLETE REFERENCE AND SOURCEBOOKS FOR MICROCOMPUTERS!



If you own or use a microcomputer, and you're in the market for new software, peripherals, and add-ons, you need current information that will help you make the right decisions at the right prices.

If you're new to microcomputing, you need a guidebook that will help you understand what's available on the market and what services will help you choose the right system at the right price.

No matter who you are, you need the guides and sourcebooks that both experts and beginners turn to—*you need a Ziff-Davis Computer Buyers Guide!*

A+ BUYERS GUIDE

For the most complete and current listing of over 3,000 software, hardware, peripherals, services and organizations for the Apple II series, III, Lisa and Macintosh! Published twice a year so it's always timely, A+ BUYERS GUIDE is the definitive source for Apple computing needs and services. $5.95.

PC BUYERS GUIDE

This is the reference guide for all IBM PC, PCXT, PCjr, PCAT and compatible owners and users. Published every 3 months, there is no other guide as complete or timely as PC BUYERS GUIDE! Updated quarterly to reflect the newest changes and innovations in IBM PC technology, PC BUYERS GUIDE brings you full listings on products, software, services, add-ons and compatibility requirements. $7.95

CREATIVE COMPUTING SOFTWARE BUYER'S GUIDE

A comprehensive buyer's guide to the leading software and application packages for Apple, Atari, Commodore, TRS-80, and IBM microcomputers. Complete listings, compatibility specifications and performance reviews covering over 1,000 business, education, personal and recreational programs and packages. $3.95

FOR FASTER SERVICE
PHONE TOLL FREE 1-800-631-8112
(In NJ only 1-201-540-0445)

CREATIVE COMPUTING BUYER'S GUIDE TO PERSONAL COMPUTERS AND PERIPHERALS

If you want to buy your first system or expand your current system, don't make a decision without consulting this buyer's guide! You'll be provided with complete reviews on the leading microcomputers and peripherals on sale today. Compiled by the editors of CREATIVE COMPUTING, the #1 magazine of computer software, applications and evaluations. $3.95

From the publishers of A+, PC, PC TECH JOURNAL, PC WEEK and CREATIVE COMPUTING.

ZIFF-DAVIS PUBLISHING COMPANY

DEPT. AN08, 39 EAST HANOVER AVENUE, MORRIS PLAINS, NJ 07950

Please send me the Buyers Guide listed below:

Title	Qty.	Price Each	Postage Handling	Total Price
A+ BUYERS GUIDE		$5.95*	$1.55	
PC BUYERS GUIDE		$7.95*	$1.55	
CREATIVE COMPUTING SOFTWARE BUYER'S GUIDE		$3.95**	$1.00	
CREATIVE COMPUTING BUYER'S GUIDE TO PERSONAL COMPUTERS & PERIPHERALS		$3.95**	$1.00	

Please add applicable sales tax: Total Amount

*Residents of CA, CO, CT, DC, FL, IL, MA, MI, MO, NJ and NY State. **Residents of CA, NJ and NY State.

Payment Enclosed $_____ (Outside USA add $1.50 per order.)

Charge My: ($10 minimum) ☐ American Express ☐ Visa ☐ MasterCard

Card No._____ Exp. Date_____

Mr/Mrs/Ms._____
print full name

Address_____

City/State/Zip_____

COMPUTER ROAD ATLAS

TAKE TRIPS WITH COMPUTER LISTINGS SHOWING THE BEST ROUTE

ROADSEARCH MAP

ROADSEARCH IS A COMPUTERIZED ROAD ATLAS that helps you plan trips. Enter the departing city and the destination city. **ROADSEARCH** computes the shortest route or other routes more suitable to your needs. Printout includes detailed driving directions, mileage, time, fuel and more.

ROADSEARCH contains a roadmap of 487 cities/road junctions and 70,000 road miles. **ROADSEARCH-PLUS** (extra cost) also contains a **ROADMAP DEVELOPMENT SYSTEM** which lets you customize your roadmap. **ROADSEARCH—PLUS** lets you add up to 269 towns, road junctions, roads or shortcuts for local or interstate travel.

EASY TO USE. Back-up copies allowed. Specify Apple II or Commodore-64. All Columbia Software carries a **15 DAY MONEYBACK GUARANTEE.**

STOP USING THE "OLD FASHIONED" METHOD of tracing routes on a map. It is tedious, time consuming, and inaccurate. Use your computer to plan your next route. The printed output will help you navigate.

ORDER ROADSEARCH OR ROADSEARCH-PLUS from your dealer or directly from Columbia Software. **ROADSEARCH-PLUS** is $74.95 and **ROADSEARCH** is only $34.95. Add $1.50 for shipping and handling. MD residents add 5% state tax.

MAIL COUPON OR CALL TODAY

Columbia Software (301) 997-3100
Box 2235W, Columbia, MD 21045

Please send me ( ) **ROADSEARCH-PLUS** for $74.95 ( ) **ROADSEARCH** for $34.95 for ( ) Apple II(64K) ( ) C-64 disk

Add $1.50 shipping. If I am not satisfied, I may return it for a full refund.

( ) check ( ) Master Charge ( ) VISA

Card Number Expiration Date

NAME

ADDRESS

CITY STATE ZIP

ORDERS: 1-800-835-2246, Ext. 172

CIRCLE 238 ON READER SERVICE CARD

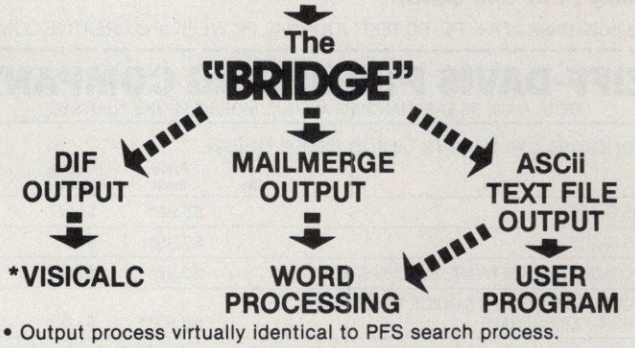
PFS Apple II, II+ & IIe users we offer an

enhancement

with the

"BRIDGE"

PFS Data File



- Output process virtually identical to PFS search process.
- May be extracted on a single disk system.
- Requires Apple II* DOS 3.3 with 1 or 2 disk.

only $59.95 Dealers Inquiries Invited

smi
Sun Microsystems Inc.
P.O. Box 1388
Ft. Lauderdale, FL 33302
(305) 486-6115

• Add $2.00 for COD orders • Add $5.00 Overseas
• Manual only for $6.00 • Florida Residents add 5% Sales Tax

*Visicalc, Trademark of Visicorp; Apple II, Trademark of Apple Computer, Inc.; PFS, Trademark of Software Publishing Corp.

CIRCLE 336 ON READER SERVICE CARD

▸ PRINT SHOP DIRECTION

Q. *I have an Apple IIe, Epson FX-80 printer, and Quadram APIC interface card. When I use Brøderbund's Print Shop, the Epson prints in one direction only. Can I make the Epson print bidirectionally to speed up printing?*

A. No, and you really don't want it to. Brøderbund intentionally set the graphics-dump portion of its program to print unidirectionally in order to obtain better graphics registration. Graphics printed bidirectionally show slippage between the passes of the printhead. This slippage is minimized when the printhead returns to the left margin before printing a new line.

▸ BETTER-QUALITY PRINT

Q. *Can you advise me on a program to improve the print quality of my Epson RX-80? I own an Apple IIc.*

A. Your hardware severely limits your choices. The Epson FX and JX series of printers (as well as other printers such as the Apple Imagewriter) feature downloadable character sets that allow you to substitute a more attractive font in place of the standard Epson character set. In the Enhanced mode, some of these fonts look excellent.

If you had an Apple IIe, you could add a new interface card such as the one from Spies Laboratories. This card takes the ASCII characters being sent to it for printing and converts them to graphics dots (from ROM on the card) before sending it to the printer. Because the printer is in the Graphics mode, printing is slower but prettier.

On the software side, SoftCraft's Fancy Font can coax even your RX-80 into producing high-quality output by translating your text into graphics, much as the Spies interface does. The program works only with CP/M. (A CP/M card for the IIc is available from Applied Engineering, Carrollton, TX 75006, (214) 492-2027.)

If your application really requires high-quality output, we'd recommend purchasing an inexpensive letter-quality printer. Most letter-quality printers under $500 are very slow (fewer than 20 characters per second) but produce excellent output. Another option would be to sell your RX-80 and buy a printer with downloadable character sets, or, even better, one of the new high-density dot-matrix printers such as the Epson LQ-1500 or Toshiba 1340. +

Please send your questions and problems to Rescue Squad, A+, 11 Davis Drive, Belmont, CA 94002.

MAIL ORDER PRICES!

A NEW KIND OF COMPUTER STORE
WE DISCOUNT EVERYTHING!

Hayes

SMARTMODEM 300
SMARTCOM I IIc....169.95
1200 SMARTMODEM..399.95
1200 B (IBM).....379.95
MICROMODEM IIe....159.95

2400 SMARTMODEM 599.95
APPLEWORKS.....209.95
ASCII PRO IBM..119.95 AP..89.95
BANK STREET WRITER IIc...39.95
DB MASTER IV+ APPLE 189.95
DAZZLE DRAW 39.95

Titan TECHNOLOGIES, INC

ACCELERATOR II+, IIe 229.95
128K RAMCARD APPLE 199.95
III + II CARD (AP III) 299.95
RUN ALL II+ SOFTWARE ON YOUR III
INCL 128K RAM, II+ JOYSTICK PORT &
RAMDISK SOFTWARE

★ DANA SUPER FAN 29.95
SURGE SUPPRESSOR, 2 GR. OUTLETS,
FRONT SWITCH FOR APPLE II, II+, IIe

D BASE II APPLE.....199.95
BANK ST. WRITER II+, IIe ...49.95
BANK STREET SPELLER.....49.95
FLIGHT SIMULATOR II 36.95
HITCHHIKER'S GUIDE AP/IBM.29.95
TAKE 1 .....44.95
KARATEKA.....26.95
MATH BLASTER 34.95
NEWSROOM.....34.95
NORTON UTILITIES 3.0.....69.95
SIDEWAYS IBM, AP 44.95
TYPING TUTOR III AP/IBM ...36.95

FONTRIX:

FONTPAKS 1 THRU 11 EA ...19.95
FONTRIX (APPLE) 69.95
FONTRIX (IBM) 99.95

HOME ACCOUNTANT MAC ...69.95
APPLE..49.95 IBM..89.95
MEGAWORKS SPELL CHCK & MAIL
MERGE FOR APPLWRKS...89.95
MANAGING YOUR MONEY...109.95
LOCKSMITH 5.0 .....79.95
MIND PROBE AP, IBM.....29.95
TURBO PASCAL AP/IBM 39.95
FORMAT II 99.95

HARDWARE

IIc MOUSE 49.95
½ HGT DRIVE II+, IIe 149.95
½ HGT DRIVE IIc.....159.95
PROMOTHEUS 1200A 329.95
PADDLE ADAPPLE.....26.95
APPLE CAT II.....199.95
CH MACH II JOYSTICKS 39.95
KOALA PAD APPLE 77.95

Æ APPLIED ENGINEERING

Z-80+ 129.95
TIMEMASTER 109.95
★ RAM WORKS ★
IIe 80 COL CARD EXPANDS AN APPLE
UP TO 1 MEG AND APPLEWORKS
UP TO 800K.....from 159.95
Z-80 C (CP/M IIc).....139.95
Z-RAM IIc 256K.....359.95
512K.....499.95

RF MODULATOR.....24.95
SYSTEM SAVER FAN.....64.95
THUNDERCLOCK 109.95
PROMODEM 1200.....299.95

GRAPPLER+ 79.95
BUFFERED GRAPPLER 64K... 139.95
AFTER MFG'S $20 REBATE

PRINTER SALE

HR 15 XL, 17 CPS.....369.95
EPSON FX 100+.....569.95
EPSON FX 80 FT+ 359.95
GEMINI SG 10 .....239.95
OKIDATA 192 (AP, IBM) ...359.95
OKI 192 (IIc, LISA, MAC) ...449.95
OKIDATA 193 (AP, IBM) ...499.95
OKIDATA 182.....229.95
PANASONIC 1091.....269.95
C ITOH PROWRITER
8510 120 CPS 299.95
8510+ 120 CPS NLQ....319.95
SILVER REED #550 L.Q....419.95
★ PRINTER STAND WITH SLOT ★
WIDE...26.95 REG...19.95

Videx ULTRATERM

40-80-96-132-160 COL
SPECIAL LOW PRICE 189.95

APPLEWORKS II+...39.95
NEW APPLEWORKS PREBOOT DISK
REQUIRES 64K & VIDEX 80 COL CARD

APRICORN 16K CARD.....69.95

BECAUSE HARDWARE AND SOFTWARE PRICES ARE CHANGING SO RAPIDLY, WE URGE YOU TO CALL FOR OUR VERY LOWEST CURRENT PRICES!

WE APPRECIATE YOUR BUSINESS and will do everything we can to make you happy.

TERMS: F.O.B., Westminster, CA. We accept VISA, Mastercard, Cash, Money Orders, Checks, Certified Checks are better. Purchase Orders (2% 10-Net 15). Add 2% for bank cards & P.O.'s. Ask about our return policy. Prices are subject to change and hopefully will go down. Subject to stock on hand. Unless otherwise noted, all prices are Apple.

Apple is a registered trademark of Apple Computer.

MICROSOFT.

PREMIUM SOFTCARD 249.95
MULTIPLAN AP DOS.....69.95
ALL FOUR PIECES 399.95
MAC CHART 79.95
MULTIPLAN 119.95
MAC WORD.....119.95
MAC FILE.....119.95
FLIGHT SIMULATOR 36.95
MAC BASIC 99.95

SOURCE 39.95
DISK NOTCHER 12.95
DISKETTE CASE 80-100 .....12.95
COMPUSERVE.....22.95
COMPUTER PAPER 4.95

pfs:

EACH (IBM) 79.95
FILE (AP) 69.95
GRAPH (AP) 69.95
REPORT (AP) ...69.95
WRITE (IIe, IIc).69.95
PAK: FILE/REPORT (MAC)...149.95
FILE/WRITE/MAIL LST (IIe)..139.95
FILE/WRITE. MAIL LST (IBM).149.95

PRINT SHOP ...32.95
PRINT SHOP REFILLS.....11.95
GRAPHICS LIBRARY.....19.95

MAC THE KNIFE I..... 29.95
BARRON'S SAT.....69.95
EDD III 55.95
TIME TRAX.....79.95
TAX ADVANTAGE (AP, IBM) ...44.95
BARRON'S SAT AP/IBM 69.95

Lotus 1-2-3 PC & PC JR. 279.95

SYMPHONY.399.95
SPY VS. SPY 24.95
VOLKSWRITER DELUXE 169.95
WORD ATTACK 34.95

— DOLLARS & $ENSE —

APPLE II+, IIe 69.95
MAC...99.95 IIc 59.95
IBM W/FORECAST 109.95
FORECAST MAC..59.95 AP..49.95

CROSSWORD MAGIC.....44.95
COPY II (AP, IBM OR MAC) 29.95
WORD JUGGLER.....149.95
WIZARDRY IV.....34.95
SPEED READER II.....44.95
SENSIBLE SPELLER 64.95
TRIVIA FEVER 27.95
31 PROGS FOR THE MAC....29.95

GARDEN OF EDEN COMPUTERS

16485 Magnolia, Westminster, CA 92683
½ Block North of the 405 Freeway
Mon-Fri 10-6:30 Sat 10-5
CLOSED SUNDAYS & TUESDAYS

800-762-3227
OUTSIDE CALIFORNIA ONLY

6/85 714-841-4994

800-331-0045
INSIDE CALIFORNIA

CIRCLE 265 ON READER SERVICE CARD

A+ DIRECTORY

RATES AND INFORMATION

Listings are grouped by category and consist of a bold lead line (23 characters maximum), 7 lines of ad copy (45 characters per line), plus 4 lines of company name, address and telephone number.

Listings are published only on a 3 issue basis at $150. per issue ($450. total). Additional lines are available @ $15.00 per line. Copy will have a set format and remain the same for all 3 months. Enhance the appearance of your ad by including your Logo at an additional cost of $110. per issue ($330. minimum extra charge). Pre-payment is required by check, money order, or American Express, Diners Club, MasterCard, Visa credit cards. Closing Date 1st of 2nd month preceding cover date.

Send copy and remittance to A+, APPLE DIRECTORY, 5th FLOOR, 1 PARK AVENUE, NEW YORK, NY 10016. Call (212) 503-5115 to place an order. Call (212) 503-5426 for additional information or assistance.

▸ACCESSORIES/ SUPPLIES

THE DISK TREE

A new type of computer work station accessory—THE DISK TREE—provides rapid access to 5¼ and 8 inch diskettes. Each polystyrene DISK TREE holds 20 diskettes, separated to give a clear view of the labels. For more information, send $1.00 refundable on order. Price $9.95 +; $1.50 shipping + handling.
COLUMBUS CLASSIC GIFTS
3692 W. N. Woodlake Dr.
Columbus, IN 47201

▸APPLE III

APPLE III IS FOR ME

We have formed a central clearing house to pool Apple III software and hardware so that you, the devoted Apple III user, can conveniently locate needed products. All items are sold at substantial discounts. To order list, send $1.00 to cover postage and handling or pick up a copy at your local AIM dealer today.
ASSOCIATION OF INDEPENDENT
MICRODEALERS (AIM)
3016 N. Sterling Ave.
Peoria, IL 61604

▸BUSINESS OPPORTUNITIES

Personal Computer Owners
CAN EARN $1,000 TO $5,000
monthly selling simple services performed by their computer. Work at home–in spare time. Get free list of 100 best services to offer. Write:
C.I.L.B.A.
P.O. Box 60369
San Diego, CA 92106-8369

▸HARDWARE/ COMMUNICATIONS

CABLE TV

Jerrold equipment including new Jerrold Tri-Mode System, Hamlin, SB-3, N-12 Mini-Code, Zenith, Z-Tac and more. All products enable you to pick-up most cable stations. Best prices around! For information, send $1.00 plus SASE or call (312) 434-6788.
SWENSENS ELECTONICS
6839 So. Maplewood
Chicago, IL 60629
NO ILLINOIS ORDERS ACCEPTED!

▸HARDWARE/ PERIPHERALS

APPLE IIc INTERFACE

Now use your Apple IIc with a parallel printer. Our SP-3 receives at BAUD rates from 300 to 19200, all switch selectable. It has a 6ft. cable and connection for another printer. $74.95 when powered by printer. $79.95 with wall transformer, plus $2 shipping. Dealers inquiries invited.
CNR ENGINEERING
PO Box 492
Piscataway, NJ 08854
(201) 752-0144

CP/M FOR APPLE IIc

New, two CP/M packages for Apple IIc! Z80 hardware plugs inside case, can execute Z80 and 8080 codes. Compatible with all CP/M software, guaranteed for one year. $119 Z80 package includes CP/M 2.2 RAMDRIVE disk emulation and copy software. $230 package includes CP/M+ (3.0) operating system.
PRECISION SOFTWARE
6514 North Fresno Street
Milwaukee, Wisconsin 53224
(414) 353-1666

▸HARDWARE/ POWER PROTECTION

MODEM PROTECTION-TELGUARD

Don't risk static discharge or lightning damaging your modem. TELGUARD protects modems against brief high voltage surges. Powerline surge suppressors do not protect against telephone lines; you need TELGUARD. Easy to install. To order TELGUARD, call toll free 1(800)237-6360, ext 307. $18.95 + $2 S/H (FL 1(800)282-1152, ext. 307). CIS 70436, 1611.
MICROSAVE
PO Box 1236
Kernersville, NC 27285
(919) 993-4391

▸PUBLICATIONS

APPLE DMP USERS IT'S HERE

Here's the book you've been waiting for. How to program your Dot Matrix printer New 100 page manual gives all printer commands in Applesoft BASIC. Great for beginners. Detailed instructions, examples, and glossary, plus 16 ready-to-run programs. $9.95 ppd. Money-back guarantee. FREE details. For image writer, too.
TIMBERLINE PRESS
P.O. Box 211326
Denver, CO 80221

NEW! MINUTE MANUALS for

The Dot Matrix Printer	$12.95
PFS: File/Report/Graph/Write	$12.95
Apple Writer (all versions)	$ 9.95

Learn quickly and easily basic and advanced procedures for your printer and software. Step by step instructions, many helpful hints. Send check, MO, Visa/MC + $2 shipping to:
MinuteWare
P.O. Box 2392
Columbia, MD 21045
(301) 995-1166

▸SOFTWARE/ BUSINESS

DIRECT MAIL II

Have a word with your Data Base! A Mail Merge that selects data from your Visifile, PFS, General Manager, DB Master or DIF file and merges it into any format built with your text processor. Fast processing. Easy to use. Builds mailing lists. Performance guaranteed. Apple II+/IIe compatible. $99.95 plus shpg.
VENTURE SOFTWARE INC.
Box 6502-A
Nashua, NH 03063
(603) 889-2556

THE PRINT MASTER

is the COMPLETE printing disk for APPLE! Prints business (or personal) checks, mailing labels (1 or 2 across), mailing lists, addresses, envelopes and more all from file data! Has powerful sorting features, very quick set-up, menu driven throughout. Only $34.50! Ask your dealer or write to:
SOFT-BYTE
PO Box 5701 F. Park
Dayton, OH 45405

▸SOFTWARE/ BUSINESS PROJECT MANAGEMENT

PROJECT PLANNER

Turn sketchy ideas into actual projects & draw project graphs (in color), schedule & control projects, analyze alternatives with the powerful Critical Path Method. Uniquely visual & intuitive. Available for Apple II/II+/IIe/IIC. DemoKit $10. Complete product with attractive manual $195. VISA/MC. Dealer inquiries invited.
APPLITECH SOFTWARE, INC.
381 Harvard St.
Cambridge, MA 02183
(617) 497-8268

▸SOFTWARE/ COMMUNICATIONS

BULLETIN BOARD SOFTWARE

"A.B.B.S 5.0" the leading Apple BBS can turn your II/+/e/c into an online system of unique conferences for your own business, club or hobby. Use most 300/1200 modems, & standard phone lines. Dial-up 703-471-0610 for an ABBS demo. SPRING SPECIAL: $159—complete system. For orders VISA/MC or info, write or call:
SOFTWARE SORCERY INC.
8375 Leesburg Pike, Suite 427A
Vienna, VA 22180
(703) 471-0572

▸SOFTWARE/ DEV TOOLS

APPLE II CROSS ASSEMBLERS

Our cross assemblers permit microprocessor software development using Apple II, II+, IIe, and IIc systems. We currently have 4 cross assemblers supporting the following: 8080/85, 8048, 8051, and 68000. Each has a built-in editor and allows for complete access to DOS 3.3. Includes disk and manual. From $60.00.
ALLEN SYSTEMS
2151 Fairfax Rd.
Columbus, OH 43221
(614) 488-7122

A+ DIRECTORY

SOFTWARE/ DEVELOPERS

SOFTWARE DEVELOPERS
Software consultant looking for programs that run on standard Apple II and Macintosh PC's.
- Rental business management and inventory.
- Librarian software
- Dining room/meeting room scheduling.

Send details and asking price to:
DATAMARK INFORMATION SYSTEMS
Route 2, Box 31B
Pocahontas, IL 62275
(618) 654-3698

SOFTWARE/ EDUCATIONAL

TEACHERS!
THE ASSISTANT TEACHER Handles almost every aspect of test preparation, administration, grading, analysis, curving, averaging and reporting. Includes word processor, optical scanner support, much more! Extremely flexible and easy to use. Satisfaction guaranteed. $150.00: Manual $10.00.
OVERDRIVE COMPUTER CORPORATION
1562 Moorings Dr.
Reston, VA 22090
(703) 471-0959

STOP GRADING TESTS!
Let the ASSISTANT TEACHER handle that chore. It will prepare, print administer, & automatically grade your tests, & will record, curve, & analyze all of your course grades. Reports in any format! Includes word processor, optical scanner support, & much more. Only $150. Manual alone $10.
OVERDRIVE COMPUTER CORPORATION
1562 Moorings Dr.
Reston, VA 22090
(703) 471-0959

EDUCATIONAL SOFTWARE
"I thought home educational software would be dull ... but I wanted to help my child. Then I discovered your wonderful catalog with top educational software that was really fun for both of us. We really enjoy working together on our computer now. Thanks for being so knowledgeable and caring in your selections." Write or call for your own free catalog.
MY CHILD'S DESTINY
70 Grant Avenue, Dept. 1451
San Francisco, CA 94120
(415) 861-3157

SOFTWARE/ ENGINEERING

BEAM ANALYSIS PROGRAM
This DOS 3.3 program rapidly and accurately calculates the reaction and shear forces, moments, slopes and deflections in beams. Perfect for engrs., students, designers etc. Program guides user through input of data. Only $50.00: send check or MO; NY add 4%. Money back guarantee. 48k Apple II+, IIe, IIc.
SYLCA CORPORATION
33-47 14th Street, Dept. A
Long Island City, NY 11106

SOFTWARE/ GAMES

RENT SOFTWARE FOR APPLE
WE RENT and SELL a large selection of game, educational and utility programs. Club Membership costs only $50 (Renewal $15/yr). Rental Period 45 Days. Most Game Rentals Only $4. No Deposits Required as long as Rentals Don't Exceed $8. For Full Details Send $1 to:
DELSON'S COMPUCLUB
19801 Vanowen St.
Canoga Park, Ca 91306
(818) 887-5260

WIZARDRY IV AND BEYOND
Why wait for Sir-tech? Conquer the WIZI-gods today! Create your very own death-dealing dungeon w/heating pools, elevators, chutes, pits, etc. Stock it with your pet-monsters, tantalizing treasure chests. & magical armor & weapons. The first COMPLETE scenario editor ever offered to the public. Why settle for just hint sheets/books? Buy Wizards Workbench! Introductory offer: only $34.99!! (Send check or M.O. now.)
MAGICSOFT
529 Farragut Place, Dept. A1
Danville, CA 94526
(415) 820-0711

ULTIMA IV AND BEYOND
Why wait for Lord British? Conquer the EXO-gods today! Create your very own perilous planet. Complete with mountains, oceans, lakes, towns, castles, & dungeons. Stock it with menacing monsters, merciful mortals, & devious demons. Probe Exodus from the INSIDE! Our popular "LAVALITE WORLD" scenario included FREE! Whether you want to conquer a new world or create one, Exodus Construction Set is for you! The ONLY complete U3 editor! Send $28.50 check or MO today!
MAGICSOFT
529 Farragut Place, Dept. A1
Danville, CA 94526
(415) 820-0711

EAMON ADVENTURES
Choose from units 1, 2, 3, 4 or brand new #5. Each with 18 adventures & utilities on 9 disks for $35. 2 units/$60. 3/$85. 4/$110. All 90 advs/$135. Sample adv./$5. Also Adventure Disk—a monthly double sided disk with hints/solutions to all types of advs. Included: a NEW Eamon adv. per issue. $9 to start, then $6/mo. or $69.95/yr.
ADVENTURE DISK
Box 216
Mercer Island, WA 98040
(206) 232-8272

ADVENTURE HINT BOOKS
Lost in the maze? Stuck in the swamp? Help is here! We publish all the famous original ADVENTURE HELPERS hint books WITH MAPS—by America's top adventure game expert—for every adventure game, old & new. Send want lists ($6 per game, postpaid) or write for free catalog—send SASE. Phone anytime.
ADVENTURE HELPERS–Dept. JS
360 West Pleasentview Ave.
Hackensack, NJ 07601
(201) 646-9168

PSYCHOSPHERE
Interactive space text adventure game. Truly an experience for the enthusiast. As the puzzles are solved, an exciting story of galactic evil unfolds. The mind is essential to defeat the ancient aliens. Who are the PSYCHONIANS, THRALL, and The WATCHERS? Apple II, IIe, IIc, 64K and single disk drive.
SOFTWARE UNLIMITED
PO Box 6361
Clearwater, FL 33518
(813) 797-7815

WAR, WIZARDRY AND ULTIMA
With Ultimore & Wizimore adventures, boredom is over. Explore new places, fight new foes. Wiz fans have SCARLET BROTHERHOOD, for use w/proving grounds. OUR ULTIMORE adventures are famous for their creativity. Choose from DIVIDED WORLD, EGYPT, SPACESHIP CRASH & others. Both kinds $20, any 3 for $50. Free catalog!
BACKSTREET SOFTWARE
7929 Townsend Ave., Dept. A+
Des Moines, IA 50322
(515) 278-2503

SOFTWARE/ GENERAL

SOFTWARE EMPORIUM!
3 big reasons to buy software from Soft Source-R Inc.
1. Top Apple Programs
2. Games, educational, small business (20-40% off)
3. Free shipping!

Write for free brochure
THE SOFT SOURCE-R INC.
P.O. Box 2931 Dept. H
Joliet, IL 60434

SOFTWARE/ GRAPHICS

PASCAL PROGRAMMERS
Pascal based programs for Apple II series. Full color character set editor, $15.00. Full color graphics editor (plus above), $35.00. animator uses 128K add-on memory card to store and show HUNDREDS of pictures (plus above), $50. Fully compatible with Pascal and Turtle graphics. Send for free descriptions.
MICRO-DATA of CHAPEL HILL
PO Box 92
Chapel Hill, NC 27514
(919) 967-2764

SOFTWARE/ HOBBIES

THE GARDENER'S ASSISTANT
Have your Apple II+, IIe, or IIC layout your garden, and suggest plant/harvest dates and quantities to buy and plant. Select from over 50 vegetables or add your own. Garden layout is produced on your screen where you may use commands to modify the layout. Optional printer output. Garden(s) may be saved to disk. Apple II with one disk drive $39.95. (Also available for IBM PC and Commodore 64).
SHANNON SOFTWARE, LTD.
PO Box 6126
Falls Church, VA 22046
(703) 573-9274

SOFTWARE/ONE OF A KIND

TEST/IMPROVE YOUR ESP
ESPWARE will test and improve your extra-sensory capabilities with numbers, colors, and shapes, rates and records your abilities in remote viewing, clairvoyance, telepathy and psychokinesis. Very easy to use. For Apple II/II+/c/e & compatibles. Send $34.95 plus $2 P&H. (CA res add $2.25 sales tax) to:
JMG ASSOCIATES
762 Knoll Dr.
San Carlos, CA 94070

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 6½%.
SAV-SOFT PRODUCTS
PO Box 24898
San Jose, Calif. 95154
(408) 978-1048

A+ DIRECTORY

FULL SERVICE CHECKING

Relax now because your checkbook is in order! G.D.S. Checking Account System makes it easy! Know where your $2 go when you categorize check, print/display deposits, check entries and categories. Transfer to/from category, running balance, even reconciled! Easy to use Menu driven. Apple IIe, 64K, DOS/Applesoft, 1-2 disk dr., parr. printer. $48.95. For more information or to order, write:
GLEN DAVID SYSTEMS CO.
PO Box 420043
Houston, TX 77242

SOFTWARE/ REAL ESTATE

PROPERTY MANAGEMENT

Software for rental income producing properties. Provides cash flow analysis, records expenditures on each unit, and accumulates cost for tax purposes. Prints cash flow report and Summary of Operations report. Provides depreciation and amortization schedules and print outs of each report.
TOMAR PRODUCTIONS
P.O. Box 740871, Dept. A
Dallas, TX 75374
(214) 750-1212

SOFTWARE/ SCIENTIFIC

DATA ACQUISITION SYSTEM

The ISAAC 41-A and 91-A data acquisition and control systems turn your Apple II+ and IIe into a scientific or industrial workstation. Systems offer modular expansion: 4 to 512 channels of A/D, 4 to 16 channels of D/A, 16 to 128 binary I/O lines. ISAAC LabSoft makes programming easy with real time data acquisition and graphics extensions to Applesoft.

ISAAC™

CYBORG CORPORATION DEP. P-4
55 Chapel Street
Newton, MA 02158
(617) 964-9020

STATISTICAL ANALYSIS

AIDA: Apple Interactive Data Analysis. For professional survey or other statistical research. Full range of analysis, from descriptive stats through multiple regression. Handles data transformation, weighting, missing data. Up to 4,000 cases and 254 variables per file. DOS 3.3 and SOS versions. $235.
ACTION-RESEARCH N.W.
11442 Marine View Dr., SW
Seattle, WA 98148
(206) 241-1645

SOFTWARE/WORD PROCESSING

FORM LETTERS; MAILING LISTS AND LABELS

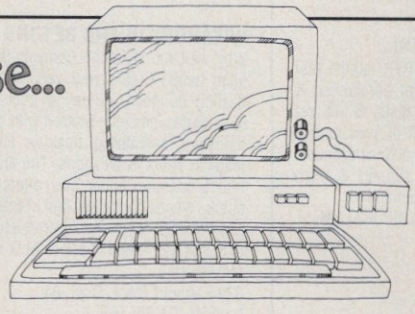
generated quickly and easily with COMPANION Word Processing program: Menu-driven, simple to use. Runs on IIe or IIc. Requires Apple Writer II. $29.95 + $1.00 postage. Calif. residents add 6% sales tax. Specify DOS 3.3 or ProDOS version. MC-VISA.
COMPANION SOFTWARE
1956 McCollum Street
San Luis Obispo, CA 93401
(805) 544-4984-Evenings

SOFTWARE/ SECURITY

PROTECT YOUR PRODUCTS

SENTRY is a sophisticated easy-to-use disk duplicating system that provides both effective "in memory" protection and state-of-the-art protection against unauthorized nibble copy programs. If the end user tries to interrupt the protected program with RESET or CONTROL-C with the intention of listing, cataloging, or saving, then the protected program is automatically cleared from memory before it can be "captured." SENTRY includes a manual with programming suggestions to increase security. (List price $250). Requires: Apple's DOS 3.3 operating system, 48K RAM, two disk drives.
SENSIBLE SOFTWARE, INC.
210 S. Woodward, Suite 229
Birmingham, MI 48011
(3132) 258-5566

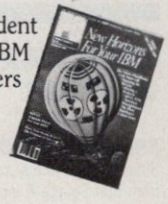
If You Work With One Of These... ...You May Be Entitled To A Corporate Discount On One Of These.



Creative Computing. The #1 Magazine of Computer Applications and Software

A+, The Independent Guide for Apple Computing

PC, The Independent Guide to IBM Personal Computers



PC Tech Journal, The Magazine for IBM PC Experts

SAVE UP TO 50% WITH THE ZIFF-DAVIS CORPORATE SUBSCRIPTION PROGRAM

Complete and mail this coupon, or for faster service, call Daniel Rosensweig collect at 212-503-5354.

THE MORE YOU ORDER THE MORE YOU SAVE!

ZD ZIFF-DAVIS Corporate Subscription Program
One Park Avenue, 4th Floor
New York, NY 10016
Attn: Daniel Rosensweig

☐ YES, I want more information on saving money through the ZIFF-DAVIS Corporate Subscription Plan.
☐ Please have Dan Rosensweig call me at: AM06

(_____)_____

Name_____ Title_____

Company_____

Address_____

City_____ State_____ Zip_____

A+ MART

SUPER Z-80 CARD

- Compatible with all CPIM software.
- Executes Z-80, 8080, 8085 instruction sets and supports Z-80 interrupts.
- Runs on Apple II, II+ or IIe with or without an 80 column card.
- Low power consumption with fast clock.

BEST OF ALL THE PRICE IS $89.95

SUPER RAM CARD

- 64K upgradable to 128K
- 80 col. built in
- Fully apple compatible
- Supports DOS 3.3, PASCAL, Pro Dos and CP/M
- Can be used as an electronic disk drive

Super Ram 64K upgradable —$149.95
Super Ram 128K —$229.95

All boards are made in the USA and carry up to a 7 year warranty C.O.D. or send check or money order to

TRICON INDUSTRIES INC.
3000 W. MacArthur Blvd. 6th Floor
Santa Ana, CA 92704
(714) 966-6711

CIRCLE 600 ON READER SERVICE CARD

BUY DIRECT AND SAVE
FULLY APPLE COMPATIBLE

Disk Controller for 2 Drives	$ 39.00
Epson Printer Card (Parallel) w/cables	$ 39.00
Graphic Printer Card w/Cable (Grappler + comp)	$ 54.00
Micro Buffer Printer Graphic Card w/32K	$109.00
RS232 Serial Card	$ 54.00
Super Serial Card w/Cable & Manual	$ 90.00
16K RAM Language Card w/Cable	$ 48.00
128K RAM Card w/Manual & Software (Titan, Saturn comp)	$160.00
Z-80 CP/M Card	$ 48.00
80 Column Card w/Inverse (videx comp)	$ 68.00
Autoterm 80 Col w/Softswitch, Inverse (videx comp)	$ 78.00
80 Column Apple IIe	$ 48.00
80 Column w/64K Apple IIe	$ 78.00
Eprom Writer Card (2716, 2732, 2764)	$ 68.00
Diskette Box w/Lock & Key, Holds 100	$ 16.00
Surge Suppressor Power Center w/6 outlets	$ 21.00
System Saver Fan w/2 outlets, lighted switch Surge/Filter	$ 34.00
Monitor Stand w/Tilt & Swivel	$ 18.00
Disk Notcher w/Guide, Square Cut (doubles disk)	$ 10.00
Joy Stick-all Metal, Heavy Duty, Fine Tuning, self centering II/II+ $25.00 IIe/IIc	$26.00
Switching Power Supply - 5A	$ 55.00
Slim Disk Drive-Direct DRive w/Elec Sensor Super Quiet 1 Yr. Warranty - APPLE II/IIe	$175.00
IIc	$185.00
RF MOD w/Sound $18.00 w/o Sound	$ 12.00

Shipping & Handling: Under $100.00-10% - Over $100 - 5%

COMPUTER SUPPLY
P.O. BOX 164, VALLEY STREAM, N.Y. 11582
(516) 239-1855 Hours: M - F 9-6 EST

CIRCLE 611 ON READER SERVICE CARD

Introducing Wizard Operating System II

Wizard Systems

Imagine an operating system that...

- magically expands your storage area on the disk to 139K
- includes its own text editor
- is so simple the program serves as its own manual
- allows economical one sector file storage
- and does it all with one key commands

Apple II, Apple II+, Apple IIc, Apple IIe

Wizard Systems, RR 1, Box 246
Bloomfield, IN 47424
Phone — 812 825 7802

CIRCLE 606 ON READER SERVICE CARD

THIS AD IS TOO SMALL

To give you more than a hint of how much we can help you be more successful with FRP games—but we'll try!

ALL WIZARDRY (R) PLAYERS NEED THE WIZSYSTEM (tm): Huge new manual with complete charts, great tips, step by step help. IBM ($10), Apple (all 3 games $15). SUPERIOR maps $5 (Sc. 1, 2 or 3). All $13.50 (IBM), $25 (Apple). The WIZMASTER (tm) disk prints/modifies characters from all 3 games AND is but $17.50! All above + WIZINEWS (tm) only $47.50 (Apple), $37.50 (IBM). Ask about Scenario 4!

ULTIMA FANS NOW HAVE QUALITY HELP with the ULTISYSTEM (tm)! Manual includes powerful tips, full charts, maps for both II and III—Only $15! The ULTIMASTER (tm) disk alters/prints for II and III, $17.50 (Apple, IBM, C-84). Both only $27.50, with WIZINEWS (tm) $35! Game IV soon!

ALL FANTASY/ADVENTURE PLAYERS NEED THE WIZINEWS (tm) quarterly! THE source for news, articles, gossip, tips, interviews, reviews of your favorite computer games! Subscribe: $10/4 issues, Sample $3.

GAME MASTER'S GUIDES (tm) help you creatively design and run FRP games FAST! GM I: Combat tables/Dice/Random Functions/8 more Utilities AND STORAGE for 219 Monsters, 51 Characters, 51 Treasures! GM II: Generate Troops (I-20K+); Races, Tournaments, Towns, Tricks, More! GM III: Create NEW Characters and Monsters each with Name, all Stats/Items! Warring Armies, more! Disks for Apple, IBM, C-84 $25 each, 2 for $47.50, all 3 only $70!

GM ADVENTURE I: RAPMORTH'S HOLLOW; Exciting new concept in computer aided group FRP games! Complete with maps and detailed manual, its creative depth, richness & ease of use will add a new dimension to your gaming enjoyment! Disk for apple, $35. New scenarios, computers soon!

Available at quality dealers or from Nichols sevices. Free support! Add 5% of cost + $1.50 for S&H to US & APO. Payment: check, MO, COD, VISA/MC (US funds only-no cash).

nichols services
6901 Buckeye Way, Columbus, GA 31904
(404) 323-9227

CIRCLE 601 ON READER SERVICE CARD

---

maxell
PERSONAL COMPUTER PRODUCTS

The floppy disks that meet or exceed every standard of quality.

MD1-D 5¼" SINGLE SIDE DOUBLE DENSITY SOFT SECTOR **$1.69**

MD2-D 5¼" DOUBLE SIDE DOUBLE DENSITY SOFT SECTOR **$2.29**

SOLD IN BOXES OF TEN ONLY

tremendous selection of software books, accessories and supplies
UP TO **50%** OFF!

Software for Apple

AFC Express Pro	89	Think Tank Apple	87
dBase II	299	Think Tank Mac	89
Multiplan Macintosh	129	Wordstar	189
PFS File/Report Mac	119	Wordstar Pro Pac	249

ABOVE SOFTWARE AVAILABLE IN OTHER FORMATS. CALL FOR AVAILABILITY AND PRICE.

Minimum shipping and handling $2.00. California residents add 6% sales tax. Prices subject to change without notice. Write for our free catalog.

ABC data products
3311 ADAMS AVE, SAN DIEGO, CA 92116
619-283-5488 ☎ 800-854-1555

CIRCLE 605 ON READER SERVICE CARD

McMill

The affordable & expandable 68000 software development system for your Apple II, IIe!

STELLATION TWO

P.O. Box 2342
Santa Barbara, CA 93120
805 569-3132

NEW! *Lower Prices!!*

wabash®

six-year warranteed

DISKETTES!

$13.90/box (10)

5¼" single -side, single-density; double-density add $2/box. Add $3 per order shipping. *In Illinois add 7% sales tax.*

Library Case-$1.50 (with disk purchase)
Immediate shipment on VISA, MasterCard or Money order; add 14 days for personal checks.

CALL TOLL FREE
(800) 222-1248
In Illinois Call (312) 882-8315

DEALERS! SCHOOLS! USER GROUPS!
Call for our volume discount prices!

DIGITAL IMAGES
1185 Tower, Schaumburg IL 60195

CIRCLE 607 ON READER SERVICE CARD

NOW USE BOTH SIDES
OF YOUR DISKETTE!

5¼" DISKETTE HOLE PUNCH

NO GUESSWORK
WITH DEPTH GUIDE
and EDGE GUIDE

PUNCH OUT IS ALWAYS IN THE RIGHT POSITION

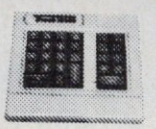
Available for IMMEDIATE Shipment

only **$9.50** add $1.50 shipping

NPS **N.P.S. Inc.**
Dept. K
(215) 884-6010
1138 BOXWOOD RD JENKINTOWN, PA 19046
A 24 HR ANSWERING MACHINE

CIRCLE 602 ON READER SERVICE CARD

IIE KEYPAD



Our keypad features 4 programmable keys, 4 math function keys (+,-,/,*), and 4 cursor keys, plus delete and return. ***All this for only 149.00.*** Non programmable models available for the IIe & II+ for **only 129.00 plus 2.50 shipping.**

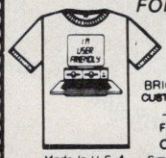
APPLETECH
9817 "N" Bissonnet
Houston, Texas 77036
(713) 271-0143

CIRCLE 610 ON READER SERVICE CARD

A+ MART

COMPUTER T'SHIRTS

FOR HOME, SCHOOL, AND OFFICE!



The **ULTIMATE** Software! A **MUST** for all computer levers!

BRIGHT GREEN (LCD) LETTERS
CUSTOM SILKSCREENED ON 50/50 BLEND
— HIGH TECH DESIGN! —
Five popular styles to choose from
Order Today! Only $8.95 ppd
Made in U.S.A. Simply select Shirt# and Color# below

LET'S SEEK, PEEK & POKE (#1) White #1 Pink #2 Blue #3
TAKE A BYTE OUT OF ME (#2) Green #4 Grey #5 Red #6
I'M USER FRIENDLY (#3) Black #7
HAPPINESS IS A PROGRAM THAT WORKS (#4)
I ♥ COMPUTERS (#5) SIZES S—M—L XL

— — — — — — — — CUT — — — — — — — —

Please send me:
Shirt# ____ Color# ____ Size ____ / Shirt# ____ Color# ____ Size ____
Use additional sheet if necessary

COMPUTER NOVELTY CORP
P O BOX 2964
FREEPORT, TEXAS 77541
Enclose $8.95 ppd each Tx Res 6% tax

or (409) 233-4833

NAME _____

ADDRESS _____

CITY _____ STATE ____ ZIP _____

©CNC
3492

CIRCLE 603 ON READER SERVICE CARD

Low, Low Prices Apple Peripherals

5A Switching Power Supply	$59.95
Z80 CP/M Card	$49.95
80-Column Card W/Soft Sw. & Inverse	$69.95
Parallel Printer Card	$59.95
Numeric Keypad for Apple IIe	$99.95
The FunPad - Graphic Tablet + Joystick	$69.95
High Quality Joystick	$16.95

FREE CATALOG

Hundreds of MONEY SAVING Software, Hardware and Accessories for your

APPLE II/IIe

BETTER PRODUCTS, INC.
765 S. State College Blvd., Suite E
Fullerton, CA 92631
Tel: (714) 526-7923
Please add 5% for shipping and insurance.

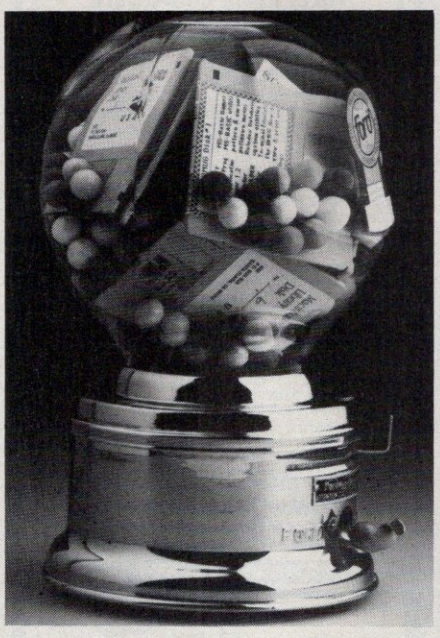
CIRCLE 604 ON READER SERVICE CARD

THE $3.95 PERIPHERAL THAT CAN SAVE YOU HUNDREDS OF DOLLARS

Before you shop, consult the CREATIVE COMPUTING 1985 BUYER'S GUIDE TO PERSONAL COMPUTERS & PERIPHERALS—the complete hardware sourcebook with in-depth product listings, comparative charts and evaluations of hundreds of new microcomputers and peripherals. It will connect you to the best values in new computer equipment.

Available at your local newsstand and computer store.

COMING UP



Public-Domain Software for the Mac

AppleWorks in the Home and Office

Hardware:
Ink-Jet Printers

Software:
Messaging Systems

IIe Enhancements

Programming:
PostScript, Part II

Tutorial:
ProDOS, Part III

Entertainment:
USAdventure
Plato's Cave
Solo Flight
Karateka
Cyborg

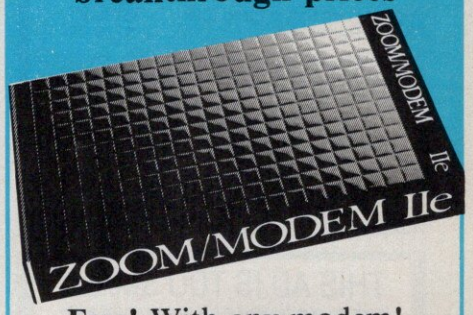
Macintosh Family:
Microsoft BASIC 2.0 Tutorial

A Mouse Menagerie

Macintosh Typography, Part I

ZOOM MODEM SALE!

All the Hardware and Software you need at breakthrough prices



Free! With any modem! $200 worth of database subscriptions and connect time
(Dow Jones, NewsNet or Delphi)

ZOOM/NETWORKER

Apple/ZOOM Starter Modem **$99** reg. $129

- Plug in modem card for the AppleII, II+, and IIe
- ZOOM Communications Software on Disk - DOS and ProDOS Compatible
- Made in USA - 1 year warranty

Also available with ZOOM Advanced Communications, Netmaster Software for file transfer with auto-error correction, text editing, more ..... **$149** (reg. $179)

ZOOM/MODEM IIe

Advanced AppleModem **$179** (why pay $329)

- Plug-in Modem card for the Apple II, II+, and IIe.
- Auto-dial/Auto-answer
- Hayes Micromodem IIe/Smartcom Compatible
- ZOOM Communications Software on disk
- Made in USA - 2 year warranty

Also available with ZOOM Advanced Communications, Netmaster Software. **$229**

Send check, money order or M/C VISA # with expiration date to:

The BACH Company
760 San Antonio Rd.
Palo Alto, CA 94303

Call TOLL FREE 800-227-8292,
In CA call 415-424-0800

CIRCLE 269 ON READER SERVICE CARD

INDEX TO ADVERTISERS

READER SERVICE NO.	ADVERTISERS	PAGE
173	Accessories Plus	147
*	ALF Products	178
328	AlphaCom	63
259	Alpha Logic Business Systems	12
332	American People Link	78
*	Applied Engineering	13
*	Applied Engineering	53
*	Applied Engineering	77
*	Applied Engineering	91
123	Applied Software Technology	181
294	Artificial Intelligence	189
212	Assimilation Process	104
121	Association of Independent Microdealers	100
323	AST Research	103
269	Bach Company	198
156	Baudville	16
249	Beagle Brothers	92-93
113	Big Red Apple Club	184
116	Boston Software Publishing	151
331	Broadreach	172
*	Business Computers of Peterborough	47
306	The Byte General	74
296	C. Itoh Digital Products	132
149	Caribbean Computer Sales, Inc.	76
292	CDA Computer Sales	41
185	Central Point Software	36
184	Central Point Software	137
138	Cheatsheet Products	175
128	Checkmate Technologies	94
340	Coit Valley Computers	90
238	Columbia Software	192
291	Comark, Inc.	144
303	Companion Software	62
271	Compuserve	171
163	Computer Cover Company	119
290	Computer Discount Products	190
343	Computer Learning Center	52
331	Computer Liquidation Associates	172
129	Conroy-La Pointe and Computer Exchange	19
236	Core Concepts	75
276	Corvus Systems, Inc.	130
334	C-Ware	189
250	Data Tech Corp.	84
333	Dataviz	177
337	Davidson & Associates Inc.	40
171	Demco Electronics	62
102	Dennison Computer Supplies	10
225	Dow Jones Software	185
234	Dow Jones Software	149
329	East Coast Software	67
278	Expertelligence	118
159	Fiberbilt	160
105	First Class Peripherals	183
*	Forethought	120-121
154	Funk Software	176
265	Garden of Eden	193
169	Grolier Electronic Publishing, Inc.	174
*	H & E Computronics	C-2
216	Hanzon	135
166	Hayes Microcomputer Products, Inc.	126-127
130	Hayes Microcomputer Products, Inc.	6-7
197	Hippopotamus Software	156
*	HowardSoft	C-3
224	Infocom	85
136	Infax	102
324	Interactive Microware	200
274	Interactive Structures	172
141	I/O Video	145
124	Iomega Corporation	125
335	I.Q. Technologies	24
279	Jameco Electronics	188
167	JDR Microdevices	44
325	Justin Case	157
326	Kalglo Electronics	184
134	Kensington Microware	45
161	Kyan	172
287	Legend Industries, Ltd.	200
145	Mac Tutor	157
288	Manhattan Graphics Corp.	153
181	Mannesman Tally	81
189	Manx Software Systems	152
219	Micro Analyst	138
115	Micro City	110
311	Micro R&D	175
320	Microsoft	128-129
319	Microsoft	112-113
321	Microsoft	64
175	Microsoft	142
*	Microware Distributors	100
339	Mousetrak	76
263	Nibble Notch	72
237	Nibble Notch	180
125	Nonagon Software	18
330	Northeastern Software	22
252	Orange Micro	83
327	Organizational Development Software	165
*	Paladin Software	30-31
140	PBI Software	158
143	PBI Software	159
315	PC Network	140-141
318	Peachtree Software	39
*	Penguin Software	8
346	Pirates Harbor	69
150	PM Software	82
228	Precision Data Products	180
106	Precision Software	38
104	Prentice Hall	173
148	Professor Jones	177
299	Program Plus	167
122	Prometheus Products	101
165	Pro/Pac	200
139	Quadram Corporation	97
223	Quorum International Unlimited	54
118	R.C. Systems	66
342	Real Data	131
344	Russ Systems	90
206	Scarborough Systems, Inc.	38
101	Sensible Software	46
103	Sensible Software	46
345	Sensible Software	36
227	Sensible Software	96
347	Sierra-On-Line, Inc.	61
341	Signal Computer Consultants	95
231	Silicon Express	46
260	Sir Tech	86
114	Soft Design	C-4
343	Soft Key Publishing	52
177	Softech Microsystems	117
164	Softronics	80
221	Softstyle, Inc.	139
312	Softstyle, Inc.	137
313	Softstyle, Inc.	135
155	Software Discounters of America	168
196	Software Masters	175
316	Software Service	95
179	Sorcim/SysMicro Software	37
246	Southern California Research Group	186
135	Space Coast Systems	178
107	Spectralgraphics Software	200
109	Spectralgraphics Software	20
233	Spectrum Holobyte	114
211	Star Micronics	98-99
187	Street Electronics	5
110	Sublogic	4
336	Sun Microsystems	192
310	Synergy Products	134
267	Systems Control	115
314	Systems Interfirm	150
250	TeamMate	84
350	Telemax	182
301	Telos Software Products	146
*	Texprint	70
255	Track House	88
190	Utilico Software	89
183	Video-7	109
195	Video-7	1
142	Videx, Inc.	179
117	Viking Data Based Technologies, Inc.	21
244	Vilberg Brothers	189
136	Vufax	102
193	Warner Software	136
338	Wico Consumer Division	55
349	Zimco	73

The Legend E' Card For Your Apple //e

64K to 1 Megabyte
RGB Video
16 Levels of Gray Video
730K Appleworks Desk Top

NOW ALL ON ONE CARD!!!

Turning Apples into Legends since 1981.

CALL or WRITE:

LEGEND INDUSTRIES, INC.
2220 Scott Lake Rd.
Pontiac, MI 48054

(313) 674-0953

CIRCLE 287 ON READER SERVICE CARD

Set Up Your *DOT MATRIX PRINTER* With a Touch of a KEY!

PCP™ PRINTER CONTROL PROGRAM

No longer do you have to enter long "set up strings" to take advantage of your DOT MATRIX PRINTER's capabilities. Just select from the MENU...let your computer do the rest! Condensed Characters, Double Strike Printing, Emphasized Characters, Special Line Spacing, and more! Comes complete with PROGRAM DISKETTE and OPERATING MANUAL. Includes information on how to program your printer in Basic, VisiCalc®, Applewriter. PCP is a very handy utility program you will use again and again!

EPSON PRINTER CONTROL PROGRAM

PRINTER OPTIONS

A	CONDENSED	G	6 LINES/INCH
B	DOUBLE WIDTH	H	8 LINES/INCH
C	ITALICS	I	10 LINES/INCH
D	HALF SIZE	J	SPECIAL SPACING
E	EMPHASIZED	K	UNIDIRECTIONAL
F	DOUBLE STRIKE	L	BIDIRECTIONAL

SOME COMBINATIONS

M	EMPHASIZED DOUBLESTRIKE
N	DOUBLEWIDE EMPHASIZED
O	DOUBLEWIDE EMPHASIZED DOUBLESTRIKE
P	CONDENSED DOUBLEWIDE
Q	CONDENSED DOUBLEWIDE DOUBLESTRIKE
R	CONDENSED DOUBLESTRIKE
S	CONDENSED HALF SIZE
T	RETURN TO STANDARD SETTINGS

TYPE LETTER, PRESS RETURN (0 ENDS)

VERSIONS:
Apple II, II+, IIe and III WITH
Apple DMP & Imagewriter
Epson MX*, RX & FX Printers
C.Itoh Prowriter I & II
NEC PC8023A
Okidata 82A, 83A, 92, 93 & 84
Gemini Star 10, 10X & 15

THIS IS WHAT THE EPSON MX VERSION MENU LOOKS LIKE

Be sure to specify BOTH microcomputer and printer to obtain correct version.

PRO/PAC
14925-A Memorial Drive, Dept. B
Houston, Texas 77079
(713) 496-1179

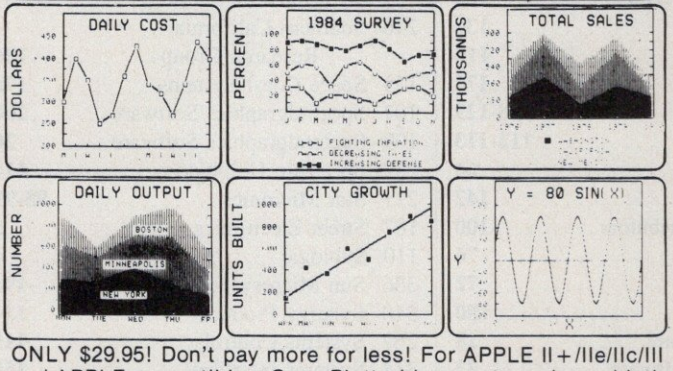
* Requires Graftrax Plus™ For Full Features

ONLY $29.95
plus $2.00 shipping and handling USA
VISA and MasterCard Credit Cards
See Your Dealer or Write or Call Us!

APPLE® is a registered trademark of Apple Computer, Inc.

CIRCLE 165 ON READER SERVICE CARD

CurvePlotter!

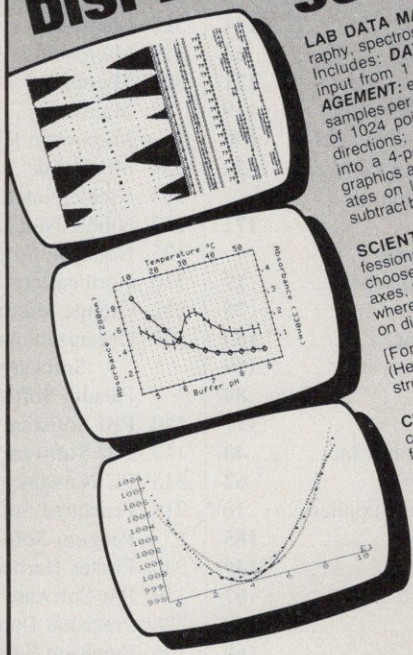


ONLY $29.95! Don't pay more for less! For APPLE II+/IIe/IIc/III and APPLE-compatibles. CurvePlotter! is an extremely sophisticated chart program. It plots line charts, area charts, best-fit trend charts, and mathematical functions. Up to 100 keyboard-entered data points may be entered, stored to disk, and plotted on screen or printer. Data may be edited at any time. All labelling and scaling is automatic or user-defined. The LINE CHART, AREA CHART, and TREND CHART programs permit numerical entry versus month, year, day, or any other horizontal label the user wishes. These programs also permit entry of x-y numerical data pairs, which is perfectly suited for scientific work. The TREND CHART program is an indispensible business and scientific tool. It finds the "best fit" to a set of data, and then draws the best straight line among the data. Also on the CurvePlotter! disk is our unsurpassed SCIENCE/MATH CHART program. Just type in any mathematical function you can think of and this program will plot it!

Send a check or purchase order for $29.95 to SPECTRAL GRAPHICS SOFTWARE, 6333 Pacific Avenue, Suite 256-A, Stockton, California 95207. We ship immediately! Satisfaction or your money will be immediately refunded (really). Call (209) 463-7309 for C.O.D. orders. CurvePlotter! is not sold in most stores.

CIRCLE 107 ON READER SERVICE CARD

APPLE*II DATA ACQUISITION DISPLAY & PLOTTING SOFTWARE



LAB DATA MANAGER software for chromatography, spectroscopy and many other applications. Includes: **DATA ACQUISITION:** samples A/D input from 1 to 16 channels; **MEMORY MANAGEMENT:** extra RAM cards can store up to 32K samples per channel; **FAST DISPLAY:** 4 data sets of 1024 points with zoom and scrolling in 4 directions; **STRIPCHARTS:** turns your printer into a 4-pen chart recorder that prints both graphics and text; **DATA PROCESSING:** operates on large data sets; e.g., differentiate, subtract baseline, integrate peaks. **$250**

SCIENTIFIC PLOTTER — Draws professional-looking graphs of your data. You choose data format, length and position of axes, 20 symbols, error bars, labels anywhere in 4 orientations. Includes 5 demos on disk plus 30-page manual **$25**

[For DIF file or plotter adaptations (Hewlett-Packard, Apple, Houston Instrument) add $25 for each option.]

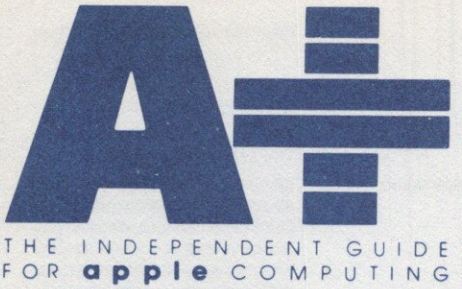
CURVE FITTER — Select the best curve to fit your data. Scale, transform, average, smooth, interpolate (3 types). LEAST SQUARES fit (3 types). Evaluate unknowns from fitted curve. Includes 5 demos on disk with 33-page manual . . **$35**

ORDERING INFO — Add $2.50 shipping on all U.S. orders. VISA or MASTERCARD orders accepted.
*Trademark of Apple Computer, Inc.

Write, call or Telex for our latest catalog!

INTERACTIVE MICROWARE, INC.
P.O. Box 139, Dept. 209, State College, PA 16804
Phone: (814) 238-8294 • Telex: 705250

CIRCLE 324 ON READER SERVICE CARD



Void after August 31, 1985

| | | |

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

P.O. Box 7715
Philadelphia, PA 19101

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

P.O. Box 7715
Philadelphia, PA 19101

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 the mid-year tax planning supplement, HowardSoft's Tax Preparer lets you predict the year's taxes using actual 1984 tax tables. 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.

HowardSoft.™
The software investment you can count on.

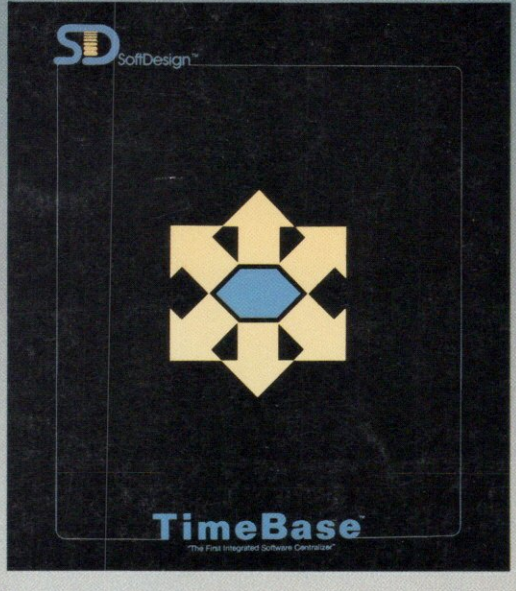
8008 Girard Avenue, Suite 310,
La Jolla, CA 92037 • (619) 454-0121

IBM is a trademark of International Business Machines Corporation. Apple is a trademark of Apple Computer Inc. HowardSoft, Tax Preparer and Real Estate Analyzer are trademarks of Howard Software Services.

TimeBase™

An interactive time and information management system for Macintosh

Baseball & Hotdogs
Stocks & Bonds
Bogie & Bacall . . .
Time & Information



TimeBase™ manages your two greatest assets – time and information – in a whole new way. It allows you to create and maintain unlimited schedules with a powerful **Time Manager** that thinks, and acts, like a database! Interact documents and files from another application with any schedule you have created. "Link" letters, records, reports or any other type of file directly to your schedule. Put information where you need it, when you need it. TimeBase also integrates its own **Database** and **Project Manager.** The Database is called the File Cabinet, and its only limit is the amount of disk space you have available. The Project Manager tracks deadlines and events quickly and easily. TimeBase even comes with a variety of **Forms & Letters** that can be reproduced and used in your business. So if managing your two greatest assets – time and information – has become the chore of managing stacks of paper and mounds of disks … let TimeBase do it for you.

SoftDesign™

14145 S.W. 142 Avenue, Miami, Florida 33186 (305) 253-5521

Macintosh is a trademark licensed to Apple Computer Inc. SoftDesign, TimeBase and TMP are registered trademarks of SoftDesign.

CIRCLE 114 ON READER SERVICE CARD