Under–$100 Word Processors

inCider

The Apple Journal

February 1985, USA $2.95
A CWC/I Publication

Word Processing: Get off to a Fast Start

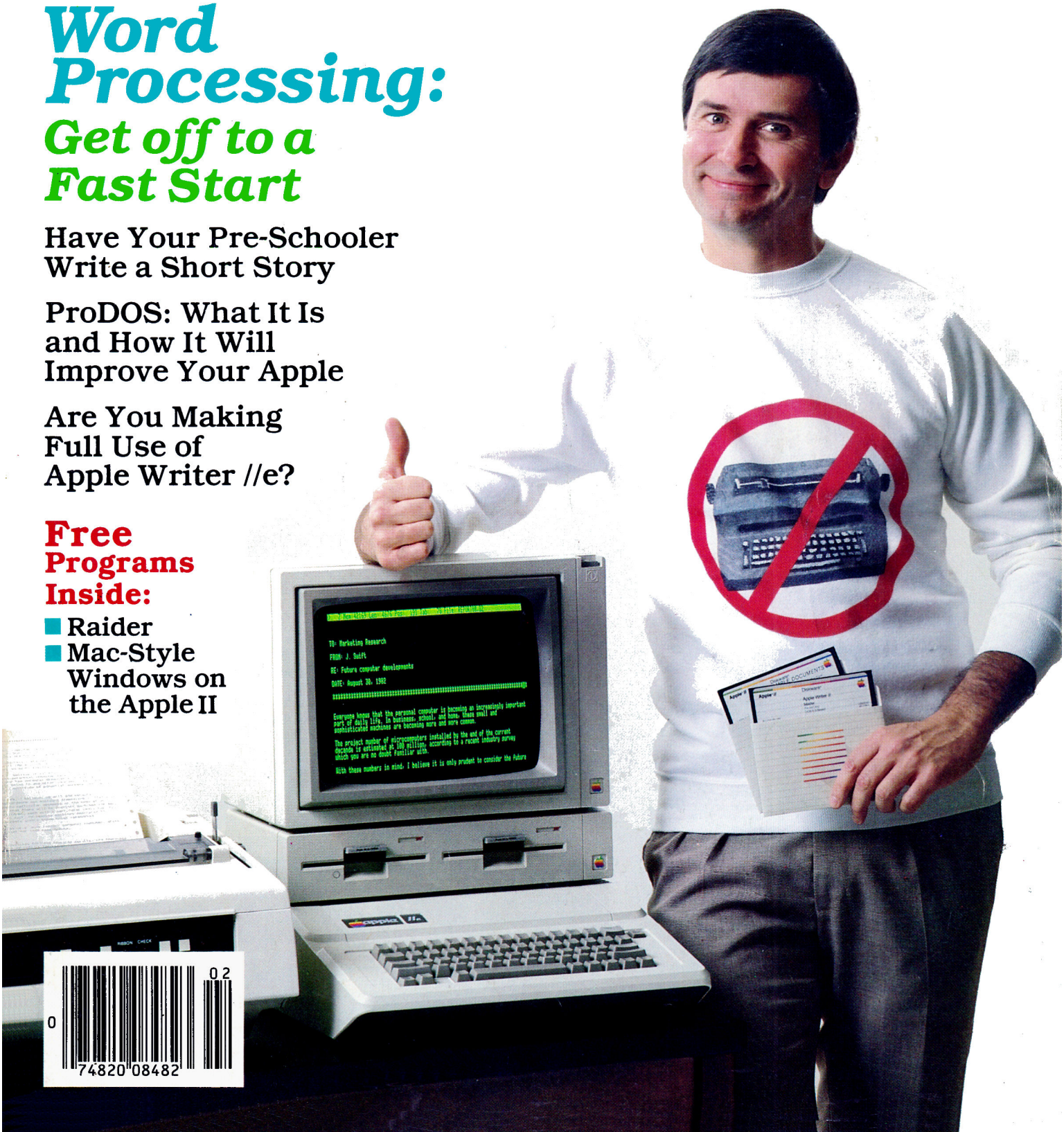
Have Your Pre-Schooler Write a Short Story

ProDOS: What It Is and How It Will Improve Your Apple

Are You Making Full Use of Apple Writer //e?

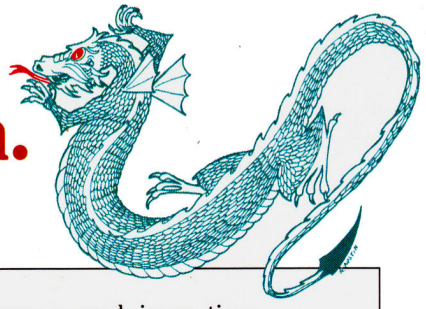
Free Programs Inside:

- Raider
- Mac-Style Windows on the Apple II



0 74820 08482 02

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.

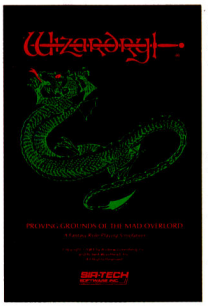
Four years old and still growing, the game is already recognized by critics and game lovers as a classic.

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

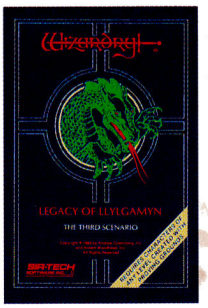


Proving Grounds of the Mad Overlord

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

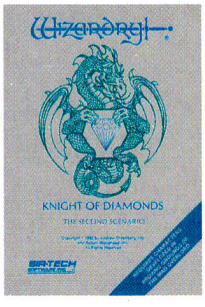


Legacy of Llylgamyn

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

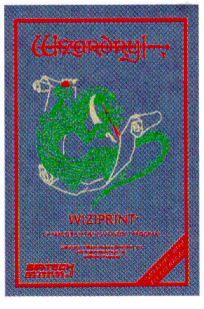


Knight of Diamonds

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.

Circle 218 on Reader Service card.

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**

REACH NEW HORIZONS with CH Products

MACH II and MACH III JOYSTICKS

The second generation MACH II and MACH III Joysticks incorporate a **new slide-switch spring disconnect** feature that **requires no stick deflection** and **new rotary trims** which are **four times more precise**.

Additional features include: "spring centering" or positive true-positioning" modes of operation, electrical trims for each axis, two fire buttons on the deck of the control and a stainless steel ball as the main pivot for added precision and durability. Our MACH III Joystick has an added fire button on the stick handle.

These highly accurate and reliable 360 degree microcomputer cursor controls used for games, business and graphics applications provide more features, greater durability, and longer life cycles. Plug in compatible with Apple II, IIE, IIC, IBM PC, PCjr and TRS-80 Color Computers.
MACH II $44.95/MACH III $54.95

PADDLESTICKS

PADDLESTICKS are a new and unique paddle control design that promises to return the fun and excitement back to paddletype games. They are faster, easier to operate and less fatiguing than conventional type paddles. The PADDLESTICKS operate as a single-axis joystick and are currently plug-in compatible with the Apple II, IIE and IIC personal computers.
$44.95 (pair)

MICRO-TRAK TRACKBALL

The MICRO-TRAK TRACKBALL is the ultimate 360 degree cursor control that is engineered with the latest state-of-the-art technology. The MICRO-TRAK is controlled by two custom designed microprocessors and is 100% digital for higher reliability. The unit plugs into the standard game I/O and is 100% software compatible. It has four switch selectable modes of operation and requires no additional hardware or software. Both the "Positioning Mode" and "Velocity Mode" have a choice of two sensitivity levels. In addition the "Velocity Mode" has an "Auto-Center" feature that returns the cursor to the selected center position to emulate a self-centering joystick. There is also a "Rapid Fire" feature and dual switches for either left or right handed operation. Available November 1984 for Apple II, IIE and IIC personal computers. $99.95

Manufactured in U.S.A.

CH products™

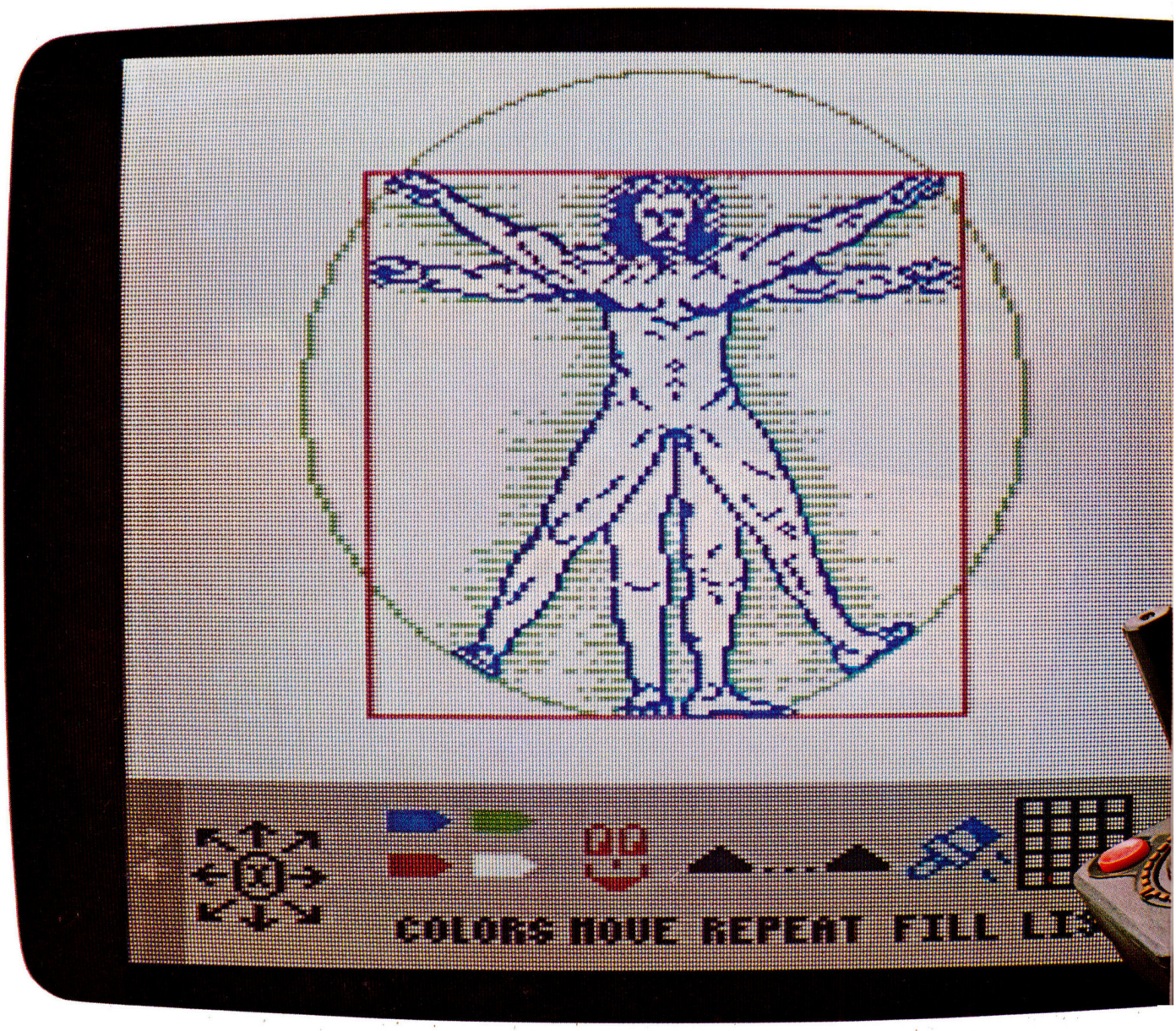
FORMERLY HAYES PRODUCTS

1558 Osage Street
San Marcos, California 92069
(619) 744-8546

Apple II, IIE, IIC, IBM PC, PCjr and TRS-80 are registered trademarks of Apple Computer Inc., International Business Machines and Tandy Corp., respectively.

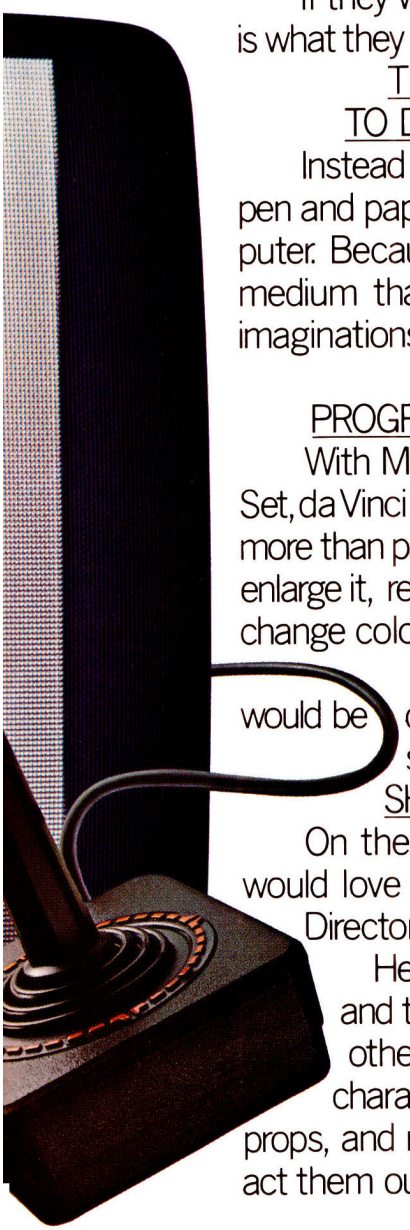
Effective 1/1/85–$139.95

Computer prog
da Vinci, Shakespe
Al Capp would hav



Circle 538 on Reader Service card.

rams for kids that eare, Dickens and ve loved.



If they were starting out today, this is what they could start with. Pixelwerks.

THE OTHER WAY TO DRAW AND WRITE

Instead of a brush and canvas, a pen and paper, they'd create on a computer. Because Pixelwerks is the first medium that can keep up with their imaginations.

MR. PIXEL'S PROGRAMMING PAINT SET

With Mr. Pixel's Programming Paint Set, da Vinci (or any 8-year old) could do more than paint a picture. He could also enlarge it, repeat it, move it around, and change colors. Instantly.

And at the same time, he would be developing his programming skills. Painlessly.

SHOW DIRECTOR

On the other hand, Shakespeare would love to play around with Show Director.

He'd use it to create plots and think up one scene after another, and he'd get a big cast of characters, lots of backgrounds, props, and musical sound effects to act them out.

BANK STREET STORYBOOK

Dickens wouldn't be able to keep his hands off Bank Street StoryBook by George Brackett.

Not only could he write his own story, but he could also illustrate the scenes and characters he sees in his mind.

MR. PIXEL'S CARTOON KIT

Maybe Al Capp wouldn't be satisfied with cartoons that just sit on the page after he tried Mr. Pixel's Cartoon Kit. Because he could make his cartoons come to life by animating them. His characters could move around, and even react to each other.

Every kid has a touch of creative genius buried inside. The job of Pixelwerks is to bring it out, with more features, more options and more flexibility than other programs.

In short, we supply the tools. Kids supply the imagination.

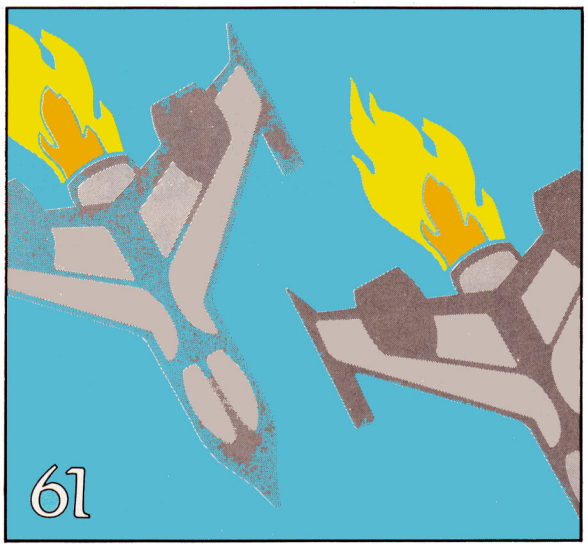
Mindscape

MINDSCAPE INC

For more information, call 1-800-221-9884. In Illinois 1-800-942-7315.

Compatible with Apple,® Commodore® and IBM.® Pixelwerks is published by Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062.

inCider



ARTICLES

Using ProDOS—Part 1: The Multilayered DOS — 33
by Lee Swoboda
Make room for ProDOS, Apple's latest disk operating system. Learn about file structure in the first of our six-part tutorial series.

Word Processing Illuminated — 41
by Bob Ryan
At last, word processing made simple. A layman's guide to the world of computerized typing.

Word Processors for Under $100 — 46
Replacing your typewriter? Check out our budget-conscious list of word processors.

Cracking the Code — 50
by Don Lancaster
Apple Writer's WPL is a powerful secret tool you've probably overlooked. Here's one of its many facets, as explained by a WPL expert.

Doing Windows — 54
by Brian J. Parry ***Free Listing!***
Your Apple II can generate Macintosh-style windowing for help screens and nested menus.

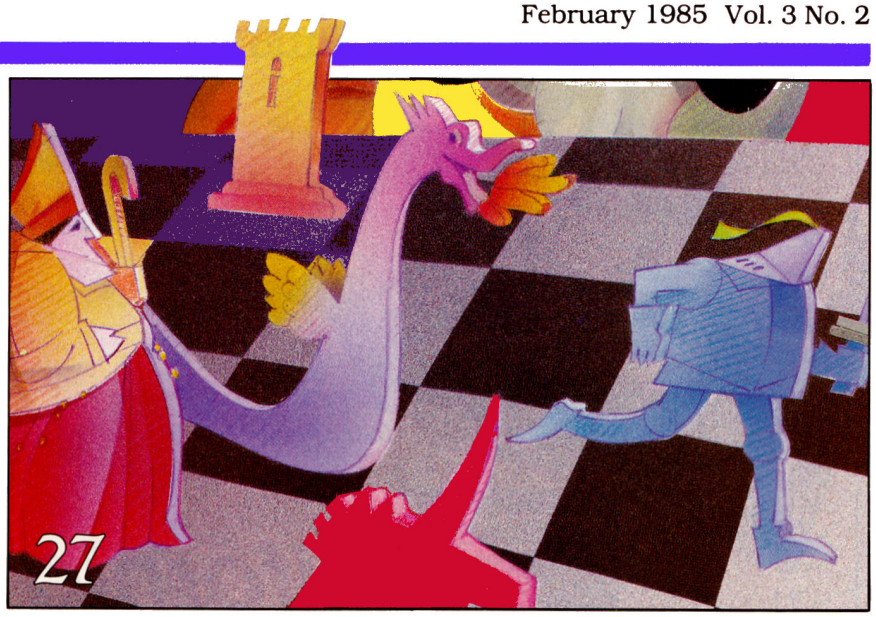
Galactic Invasion — 61
by Tim Wiley ***Free Listing!***
Defend your military base from foreign invaders in Raider, a strategic war game.

The Docile Printer — 75
by James B. Munro ***Free Listing!***
This printer-control program lets your printer know who's boss.

Holding Your Own — 81
by John Uzzolino
An easy, do-it-yourself project: End keyboarder's neck strain by building a handy copyholder.

Templates Boiled Down to Size — 82
by Gregory R. Glau
Set up business boilerplates on your word processor and slash the time it takes to fill out office forms.

February 1985 Vol. 3 No. 2



DEPARTMENTS

Fermentations 6
California Dreamin'

Letters 8

The Cider Press 14
Apple Dentistry; Computer Club Competition; To Compute or Not to Compute?

The Glau Report 17
Moving Language

Child's Play 23
Telling Tales

The Game Reserve 27
Chimerical Chess and Other Pleasures

O'Brien's Journal 67
Apple Ecology: Part II

***inCider*'s inSidious inSolubles** 84
An Applesoft Bug; Print Using

The Applesoft Adviser 87
Strings 'n' Things

Corrections 92

Ask *inCider* 93
Answers to your software and hardware questions

Hints 'n' Techniques 95
In the Driver's Seat; Editing in // Style

Apple Extract 103
Three months of capsule reviews

Software Reviews 106
Spell It!; Management Diagnostic Series; Jane; Investor's Workshop; Gelfling Adventure; ProfitTaker

Hardware Reviews 112
Personal Speech System; The Digital Paintbrush; Calmpute

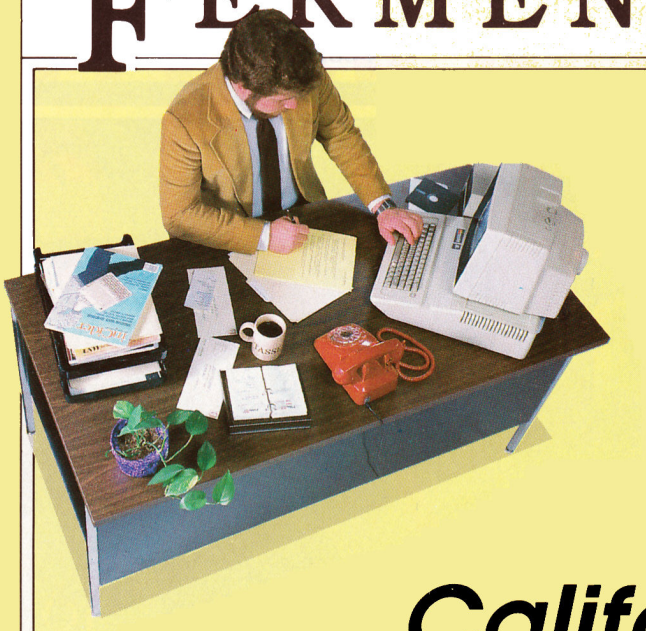
New Software 117

New Products 123

inCider (ISSN #0740–0101) is published monthly by CW Communications/Peterborough, Inc., 80 Pine Street, Peterborough, NH 03458. Phone: (603) 924-9471. Application to mail at second class postage rates is pending at Peterborough, NH, and additional mailing offices. Subscription rates in U.S. are $24.97 for one year. $38.00 for two years and $53.00 for three years. In Canada and Mexico, $27.97—one year only, U.S. funds drawn on a U.S. bank. Nationally distributed by International Circulation Distributors. Foreign subscriptions (surface mail), $44.97—one year only, U.S. funds drawn on a U.S. bank. Foreign subscriptions (air mail), please inquire. All U.S. and Canadian subscription correspondence should be addressed to *inCider*, Subscription Department, P.O Box 911, Farmingdale, NY 11737. Please include your address label with any correspondence. For questions concerning your subscription and to place subscription orders, please call us toll free at 1-800-645-9559 between 9 a.m. and 5 p.m. or write to *inCider*, Subscription Department, PO Box 911, Farmingdale, NY 11737. Postmaster: Send address changes to *inCider*, Subscription Services, P.O. Box 911, Farmingdale, NY 11737. Entire contents copyright 1985 by CW Communications/Peterborough, Inc.

Cover photo by Ed Judice

Downloaded from www.Apple2Online.com



California Dreamin'

Don't hang by your thumbs waiting for this one, but we're laying better than even odds that Apple is sitting on a new computer. Chances are you've already heard of the elusive IIx, a 16-bit marvel rumored to be the newest scion in the Apple II line. We've been tracking the story for about eight months now, and though the scuttlebutt blows hot and cold, our best guess is that where there's smoke, there's fire.

Nose for News

Based on sleuth work we've done in and around Apple headquarters, here's a rundown on the secret machine:

The IIx will be a selectable 8/16-bit machine available in 1986. At its core will be the 65816 MPU, a potent CMOS microprocessor from Western Design Center in Mesa, Arizona. In its 16-bit native mode, this little powerhouse will address up to 16 megabytes of memory, and, in its power-up, 8-bit mode, it'll address 64 kilobytes.

Presumably, compatibility with existing Apple II software will be built into the new computer, though it will be far more than a //e with a new CPU. This machine will probably require a new motherboard and will most likely employ 256K memory chips.

Its fast CPU clock speed, 5.0 MHz, will exceed that of Intel/IBM's 8088. This, coupled with a CPU that addresses 16 *times* the memory of an IBM PC, will make it a strong contender for use in business. One highly-placed source describes the IIx as "A working man's approach to a mainframe."

If the alleged new computer measures up to the conjecture it's generating, we'll see a product that will turn the industry on its ear. Meanwhile, Apple seems content to let the rumors fly. Stay tuned to this magazine for further bulletins.

The Home Front

Just like other Apple owners, we're always looking for new applications for the home. Let's face it, the abundant uses for Apples in business and education give us plenty to write about already. But what can you do with the home-based Apple?

Organizing personal finances, improving information acquisition and management, controlling the home environment and appliances, and home security are only some of the ways Apples are being pressed into service on the home front. If our hunch is correct, many of you are already making your Apples earn their keep. How about sharing what you are doing with the rest of America? Here's how:

Send us a brief description of how you're using your Apple in serious home applications, and we'll publish the best of the ideas in an upcoming issue of *inCider*. We'll pay up to $50, depending on the quality and content, for those we publish. (See, the Apple's paying for itself already.) The focus will be on practical applications other than entertainment and education.

If you've written a program for a home application, we'd like to see that, too. Send a listing printout, along with a brief manuscript and a copy of the program on disk. We'll pay (well) for the programs selected for publication and we'll promptly return any programs not accepted.

So, whether you're using off-the-shelf software or a program you've written yourself, send your entry to:

inCider
Attn: Domestic Affairs Editor
Route 101 and Elm Street
Peterborough, NH 03458

Who knows? We might find enough pieces to build tomorrow's computerized household today.■

by Paul Quinn

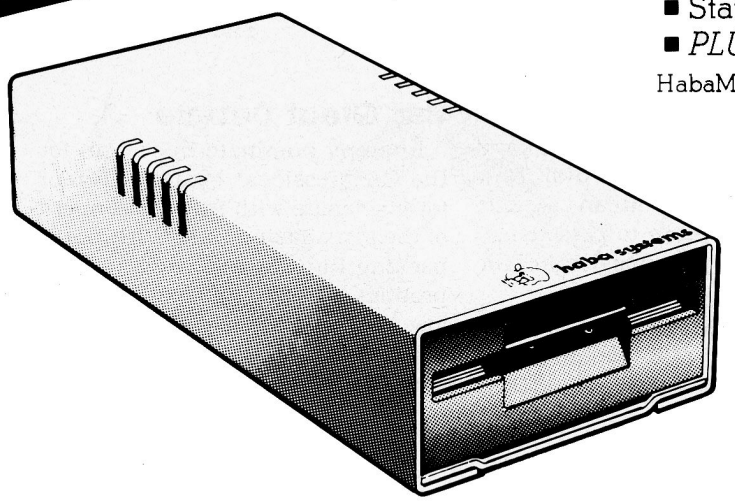
HabaDisk for Apple //c

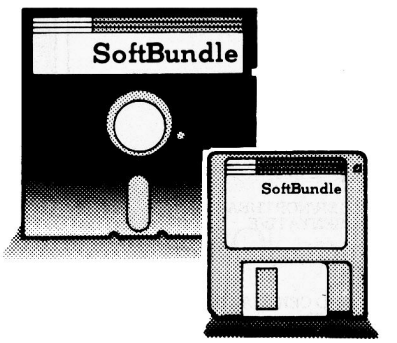
3.5" External Disk Drive with SoftBundle™ Software Package

NOW AVAILABLE!!

- More Than Doubles Storage Capacity - 320K!
- Soon To Be Upgradable to 640K!
- Load Multiple Programs Onto 1 Diskette
- Select Multiple Programs From 1 Menu
- Download AppleWorks™ and ProDOS™ programs
- State-of-the-art 3.5" Media Technology
- *PLUS* Four Top-Notch Software Programs:

HabaMerge ■ HabaTemplates ■ HabaCom ■ HabaDisk Utilities





Ask your Apple Dealer about HabaDisk for Apple //c and other Haba products:

Silent Butler™
Bill-Paying/Check-Writing program for //e and //c that maintains checking and savings accounts, and using exclusive CheckHolder™, automatically prints payments on your existing checks. $69.95

HabaDisk™ for //e and //c
3.5" external drive with SoftBundle software package featuring HabaTemplates, HabaMerge, HabaCom, HabaMemory-Manager™, plus the application for down-loading AppleWorks to 3.5" program disk. $449.95

HabaMerge™
Form Letter/Mailing Label program for AppleWorks™ or /// E-Z Pieces™ that links data base and word processor for letter perfect mail-merges every time. $69.95

HabaTemplates™
54 pre-defined spreadsheet and data base formats for use with AppleWorks or /// E-Z Pieces. Gets you up and working quickly, plus you can modify them to suit your needs. $29.95

Circle 109 on Reader Service card.

hsi **haba systems**

Making apples more tempting than ever.™

15154 Stagg Street • Van Nuys, CA 91405-1025 • (818) 989-5822

HabaMerge, HabaTemplates, HabaDisk, HabaCom, HabaMemoryManager, and /// E-Z Pieces are trademarks of Haba Systems, Inc.
Silent Butler is a trademark of Silent Butler Software. Apple //e, //c and ///, and AppleWorks are trademarks of Apple Computer, Inc.

©1984 Haba Systems, Inc.

*All prices listed are suggested retail. Actual dealer prices may vary.

inCider

inCider editorial offices
80 Pine Street
Peterborough, NH 03458
(603) 924-9471

PUBLISHER
David B. Schissler

EDITOR IN CHIEF
Paul C. Quinn

MANAGING EDITOR
Susan Gubernat

TECHNICAL EDITOR
Robert M. Ryan

SENIOR EDITOR
Peg LePage

REVIEW/NEW PRODUCTS EDITOR
Kerry J. Lanz

EDUCATION EDITOR
Joan Witham

NEWS EDITOR
Cynthia K. Carr

COPY EDITOR
Robin Florence

PROOFREADER
Peter Bjornsen

WEST COAST EDITOR
James Forbes
(415) 328-3470

ADVERTISING

SALES MANAGER/NORTHEAST SALES REPRESENTATIVE
Paul Boulé
(800) 441-4403
(603) 924-7138

SOUTHEAST AND CENTRAL SALES REPRESENTATIVE
Barbara Alvarez
(800) 441-4403

NORTHWEST SALES REPRESENTATIVE
Donna Pomponi
1060 Marsh Road
Menlo Park, CA 94025
(415) 328-3470

SOUTHWEST SALES REPRESENTATIVE
Charles Durham
2082 South East Bristol Street
Santa Ana, CA 92707
(714) 756-1984

ADVERTISING COORDINATOR
Michele Gilmore
(800) 441-4403

DESIGN

ART DIRECTOR
Holly Fuette

PRODUCTION SUPERVISOR
Phyllis Pittet

PRODUCTION ASSISTANT
Cindy Boucher

AD/GRAPHICS PRODUCTION
Fiona Davies

PRODUCTION

PRODUCTION MANAGER
Joyce Pillarella

MANUFACTURING CONSULTANT
Susan Gross

TYPESETTING MANAGER
Dennis Christensen

DARKROOM MANAGER
Nathaniel Haynes

FILM PREPARATION MANAGER
Robert M. Villeneuve

Submissions: We're always looking for first-class manuscripts at *inCider*. We'll consider publication of any material for the Apple. Guidelines for budding authors are available—just address an envelope to yourself and include it with your request. Mail manuscripts, queries, or requests for writers' guides to: *inCider* Editorial Offices, 80 Pine Street, Peterborough, NH 03458.

LETTERS

Saving the Day

I found a problem with the program listing for "Screen Saver" (November 1984, p. 65). Line 610 reads HOME: X = PEEK (Z) + PEEK (Z) + (Z) + PEEK (Z). It should read HOME: X = PEEK (Z) + PEEK (Z) + PEEK (Z) + PEEK (Z).

Kerry J. Lanz asked if there was a way to boot ProDOS without destroying hi-res memory. You may not be able to do that, but you can save it to a ProDOS disk: Save the hi-res picture as described in Mr. Lanz's article, then use ProDOS utilities to copy files from the DOS 3.3 disk to a ProDOS disk. Then, you can use your MousePaint program to personalize the picture and your Imagewriter Kit to print it.

Captain Hugh T. Cook
406 Creach Drive
Warrensburg, MO 64093

//champion

I have just finished reading "//c vs. PCjr" (August 1984, p. 80). Ms. Eisenberg's view of IBM closely resembles Boxer's view of Comrade Napoleon in the book *Animal Farm*: "IBM is always right." This especially showed through when she pooh-poohed Apple's significant advantage in available software and then reiterated her belief in almighty IBM's power in the market. She remarks that Apple's available software is redundant. Obviously, we should all drive the same car, use the same gas, and eat the same food. Here in the New Orleans area, we firmly believe that variety is the spice of life. Why shouldn't this hold true for software also? Every user has different needs, and it may quite easily take four word-processing programs to satisfy the majority of the users' needs.

My boss recently bought a home computer. He decided on an Apple //c because of the availability of quality software and hardware. One look at the PCjr and he said, "Is this one of those game machines for the television?" He didn't give jr a second thought.

I am glad to see that your major thrust will be in the Apple II area. It truly is the most versatile computer for the money on the market today, bar none.

Martin J. Hrovat
Rt. 1 Box 335-J
Lot #109
Slidell, LA 70458

The Great Debate

I hereby nominate Bob Ryan for the Congressional Medal of Honor for his debate with Amee Eisenberg of the *jr* magazine staff! With Apple backing him up with such a great product as the //c, Bob could hardly lose, but he obviously did his homework well. Give the Purple Heart to Amee for dedicating the //c to those of us in the "Pepsi generation" with her dying breath.

I admit I got a good laugh at first reading of Mr. Kitzerow's letter suggesting that Apple build a mainframe. While I think Apple is best to leave the larger computers to the geniuses who built Cray and the VAX, with the research and effort they've put into the MC68000 microprocessor they ought to introduce a good minicomputer in the PDP 11/34 class. It isn't that big of a step from a "loaded" Lisa when you think about it.

John Townsend, Jr.
136 South 20th Street
Terre Haute, IN 47803

Wizfix Details

I noticed some errors in recent changes made to Wizfix. In line 663, one plus sign (+) should be an asterisk (*). Without this correction, once you have dropped an item, it doesn't register on the screen.

```
663 FOR K = B TO 8 : POKE BASE +
    58 + 8*K,PEEK (BASE + 66 + 8*K):
    NEXT : POKE BASE + 122,0
```

In the Wizfix changes in the May

SoftCard squeezes the most juice out of your Apple.

Microsoft® Premium SoftCard™ IIe is the high-performance CP/M® board that really juices the Apple® IIe.

Hard facts on SoftCard.

It has a high speed (6MHz) Z-80 that runs CP/M up to three times faster than lesser boards. Plus 64K memory and 80-column display that fits the IIe auxiliary slot and acts like Apple's own Extended 80-column Card. So it works with CP/M, Apple DOS and ProDOS programs, too.

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

It also has a new low price.

Juicing up the performance of computers is nothing new for us. We invented the SoftCard and make versions for the entire Apple family. We 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 call 206-828-8088) for the name of your nearest Microsoft dealer.

SoftCard is a trademark and Microsoft is a registered trademark of Microsoft Corporation. Apple is a registered trademark of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation. dBASE II is a registered trademark of Ashton-Tate. WordStar is a registered trademark of MicroPro. CP/M is a registered trademark of Digital Research, Inc.

VICE PRESIDENT/GENERAL MANAGER
Debra Wetherbee

VICE PRESIDENT/FINANCE
Roger Murphy

ASSISTANT TO VP/GM
Matt Smith

ASSISTANT TO VP/FINANCE
Dominique Smith

MARKETING MANAGER
Pamela Esty

DIRECTOR OF CIRCULATION
William P. Howard

ASSISTANT CIRCULATION MANAGER
Frank S. Smith

DIRECT & NEWSSTAND SALES MANAGER
Raino Wiren
(800) 343-0728

DIRECTOR OF CREDIT, SALES, AND COLLECTION
William M. Boyer

EXECUTIVE CREATIVE DIRECTOR
Christine Destrempes

DIRECTOR OF PUBLIC RELATIONS
Michele Christian

FOUNDER
Wayne Green

inCider magazine is published monthly by CW Communications/Peterborough, Inc. Entire contents copyright 1985 CW Communications/Peterborough, Inc. No part of this publication may be reprinted, or reproduced by any means, without prior written permission from the publisher. All programs are published for personal use only. All rights reserved.

inCider is a member of the CW Communications/Inc. group, the world's largest publisher of computer-related information. The group publishes 53 computer publications in 24 major countries. Nine million people read one or more of the group's publications each month. Members of the group include: Argentina's *Computerworld/Argentina*; Asia's *The Asian Computerworld*; Australia's *Computerworld Australia, Australian Micro Computerworld, Australian PC World*, and *Directories*; Brazil's *DataNews* and *MicroMundo*; China's *China Computerworld*; Denmark's *Computerworld/Danmark* and *MicroVerden*; Finland's *Mikro*; France's *Le Monde Informatique, Golden* (Apple), and *OPC* (IBM); Germany's *Computerwoche, Microcomputerwelt, PC Welt, Software Markt, CW Edition/Seminar, Computer Business*, and *Commodore Magazine*; Italy's *Computerworld Italia*; Japan's *Computerworld Japan* and *Perso ComWorld*; Mexico's *Computerworld/Mexico* and *CompuMundo*; Netherland's *CW Benelux* and *Micro/Info*; Norway's *Computerworld Norge* and *MikroData*; Saudi Arabia's *Saudi Computerworld*; Spain's *Computerworld/Espana* and *Micro-Sistemas*; Sweden's *ComputerSweden, MikroDatorn, Min Hemdator*, and *Svenska PC World*; the UK's *Computer Management* and *Computer Business Europe*; the U.S.' *Computerworld, HOT CoCo, inCider, InfoWorld, MacWorld, Micro Marketworld, PC World, RUN, 73 Magazine*, and *80 Micro*.

Problems with Advertisers: Send a description of the problem and your current address to *inCider*, Route 101 and Elm Street, Peterborough, NH 03458, attn. Rita Rivard, Customer Service Manager. If urgent, call (800) 441-4403.

Problems with Subscriptions: Send a description of the problem and your current and/or most recent address to: *inCider*, Subscription Department, P.O. Box 911, Farmingdale, NY 11737.

Change of Address: Send an old label or a copy of your old address and new address to: *inCider*, P.O. Box 911, Farmingdale, NY 11737. Please give eight weeks' advance notice.

Microfilm: This publication is available in microform from University Microfilms International. United States address: 300 North Zeeb Road, Dept. P.R., Ann Arbor, MI 48106. Foreign address: 18 Bedford Row, Dept. P.R., London, WC1R4EJ, England.

Dealers: Contact Ginnie Boudrieau, Bulk Sales Manager, *inCider*, Route 101 and Elm Street, Peterborough, NH 03458. Call (800) 343-0728.

Back Issues: Send $3.50, plus $1.00 postage, for each copy to *inCider*, Back Issues Dept., Route 101 and Elm Street, Peterborough, NH 03458. For ten or more copies postage is a blanket $7.50. To order by telephone using VISA, MasterCard or American Express call (800) 258-5473 from outside New Hampshire, or 924-9471, ext. 136, within New Hampshire.

LETTERS

Letters, Alan Popow adds a "(" after the PEEK statement in line 589. The missing parenthesis is in line 586, not line 589.

I'd like to thank Kerry Lanz for "Wizfix" and Alan Popow and William Walters for their helpful changes. They have added a lot of fun to "Wizardry" and "Knight of Diamonds."

Tad Green
14425 N.E. 10th Place
Bellevue, WA 98007

Sorry, Wrong Number

John Granfield attempts to compare the Novation Apple-Cat II and the Hayes Micromodem IIe in his article, "Buying Your First Modem" (August 1984, p. 57). Unfortunately, he has confused the old Hayes Micromodem with the newer Hayes Micromodem IIe. The latter is, in fact, 100 percent self-contained, having shed the external microcoupler box that Granfield refers to.

Also, Mr. Granfield errs in stating that the Micromodem IIe dials exclusively by rotary pulse. The unit can dial via pulse or touch tone by dialing either a P or a T before the telephone number (refer to the Hayes user's manual, page 4-4).

Other than that, congratulations on a fine issue on telecommunications. As an educational telecommunications writer, I perceive that the modem is quickly becoming the most important piece of peripheral equipment that one can add to his or her microcomputer.

Doug Schooler
Ohio State University
College of Education
1459 Brookeville Avenue
Columbus, OH 43229

As a confused neophyte in the realm of telecommunications, I was even more confused by John Granfield's review of the Hayes Micromodem IIe (August 1984, p. 57).

Upon reading the article, I discovered "dialing is exclusively by rotary pulse. . .it cannot be used with long-distance services such as Sprint or MCI." I was disappointed because I would be unable to use a modem with my long-distance service.

Fortunately, I mentioned this to a local dealer who told me that the Micromodem IIe does access touch-tone dialing. I also called Hayes Microcomputer Products and they assured me it does touch-tone dialing.

It's misleading and irritating to find a product review with a blatant error like this. Did Mr. Granfield actually use the product? Did he read the documentation? The fact that the Micromodem IIe does touch-tone dialing is even mentioned in product advertisements as well as on the box it comes in!

Ray Lyon
7200 N.W. Second Avenue
#110
Boca Raton, FL 33431

The inCider *staff and John Granfield apologize for this error. Thank you for notifying us and not letting this slide by. It's good to know our readers are up on things.* —*eds.*

A Little Support

I have a criticism of your software reviews. Software is useless if it does not support the user's printer. All too often, the reviewer fails to take that into account. Frankly, it doesn't matter how good the software is if it doesn't support a printer; data confined to a softly glowing screen is next to useless.

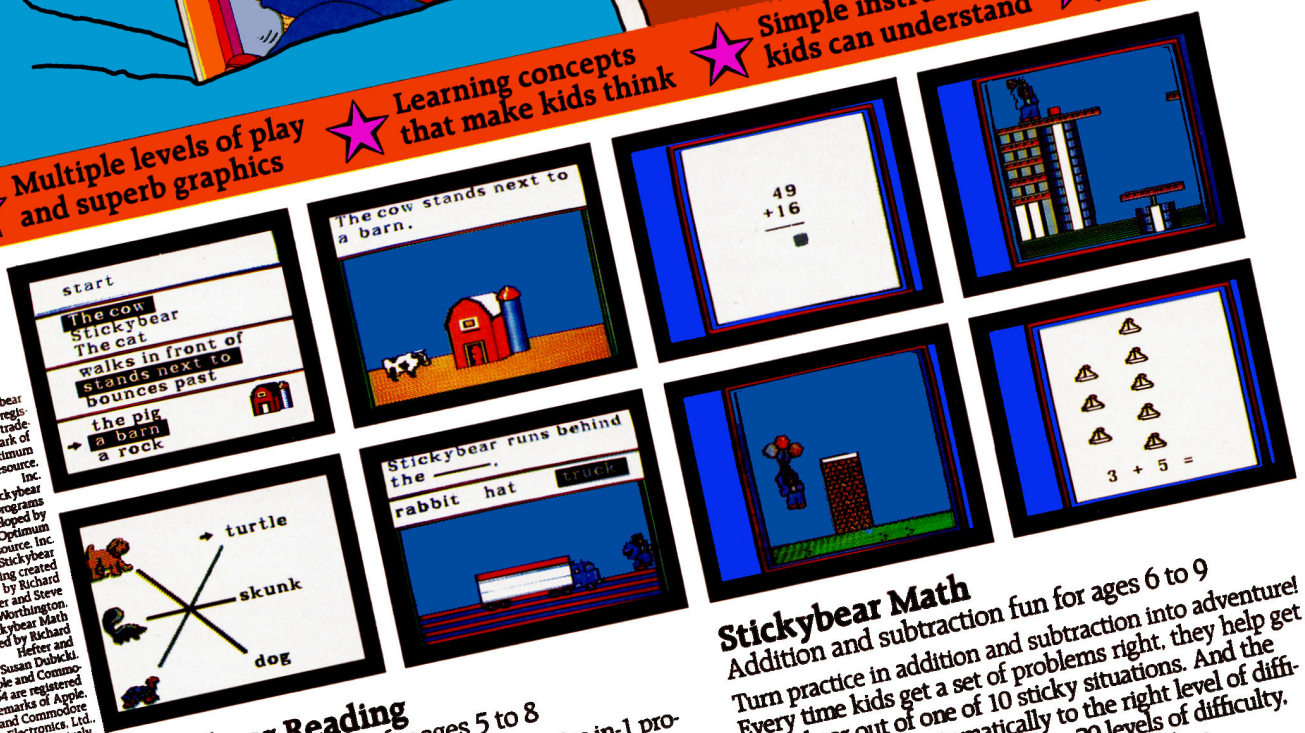
For example, your review of the Print Shop (September 1984, p. 132) strongly implies that a printer other than those specified might work. Such is not the case. Only the printers specified by the publisher will work.

Other reviews in the same issue don't even mention printers. If you scanned the ads in your publication, you would find that there are myriad printers available for the //c, yet a lot of software doesn't consider this. If

Stickybear® is here

with the learning programs everyone's been asking for...

- Multiple levels of play and superb graphics
- Learning concepts that make kids think
- Simple instructions kids can understand
- Outstanding quality and value



Stickybear is a registered trademark of Optimum Resource, Inc. Stickybear programs developed by Optimum Resource, Inc. Stickybear Reading created by Richard Hefter and Steve Worthington. Stickybear Math created by Richard Hefter and Susan Dubicki. Apple and Commodore 64 are registered trademarks of Apple, Inc., and Commodore Electronics, Ltd., respectively.

A/M96AM9

Stickybear Reading

Word and sentence fun for ages 5 to 8

Kids build language skills with this 3-activities-in-1 program as they **Match the Word**, **Find the Word**, or **Build a Sentence**. And **Stickybear Reading** has something totally delightful — animation that turns the words and sentences printed on the screen into real live action! Enough choices for thousands of sentences and hours of fun!

Get these great extras with Stickybear Reading:

- 32-page full-color book
- Stickybear Family poster
- Stickybear Stickers
- Guide

Stickybear Math

Addition and subtraction fun for ages 6 to 9

Turn practice in addition and subtraction into adventure! Every time kids get a set of problems right, they help get Stickybear out of one of 10 sticky situations. And the program adjusts automatically to the right level of difficulty for each user. Program has 20 levels of difficulty, and can set up problems for up to 25 children.

Get these great extras with Stickybear Math:

- Stickybear poster
- Stickybear stickers
- Guide

Now available for use with Apple personal computers. Retail Price: $39.95 each. Available for Commodore 64 in the first quarter of 1985.

Look for our software in finer computer stores everywhere. Or call toll-free 800-852-5000, Dept. AM-9.

Weekly Reader Family Software

A division of Xerox Education Publications
Middletown, CT 06457

Circle 392 on Reader Service card.

Circle 40 on Reader Service card.

SCORE HIGH!

SAT®

GRE®

NEW! ACT

The HBJ Computer Test Preparation Series

This *proven* study method has helped thousands of students score higher on the SAT, GRE, and ACT.

Each package contains: double-sided diskettes, a comprehensive review textbook, and a 50-page User's Manual.

COMPUTER PREPARATION for the SAT® $79.95
Available for: Apple, Atari, Commodore, IBM-PC, IBM-PCjr, and TRS-80.

COMPUTER PREPARATION for the GRE® $89.95
Available for Apple, IBM-PC, and IBM-PCjr.

COMPUTER PREPARATION for the ACT NEW! $89.95
Available for Apple.

ORDER NOW!

Ask for these HBJ programs at your local computer store or bookstore or call

800-543-1918

for major credit card orders.
In CA call collect 619-699-6335.

HARCOURT BRACE JOVANOVICH
HBJ
1250 Sixth Avenue
San Diego, CA 92101

LETTERS

reviews mentioned this, then perhaps the software publishers would make a small effort toward printer support.

How about it, *inCider*? Carry the challenge to them through your reviews and make a lot of Apple owners happier.

Michel Potheau
Box 175
Sherborn, MA 01770

Buyers, beware: It's a jungle in the printer world. Each printer and interface card combination has its own peculiarities. This is an acute problem for graphics programs, since they support only the printers and interfaces specified by the publisher.

For other software, always ask before you buy. The //c is a special case, since its serial port is different from the more common parallel port. We will try to be more specific in our reviews. Meanwhile, how about some industry-wide printer standards? —eds.

September Suggestions

Regarding your September 1984 issue:

In O'Brien's Journal, page 27, the author refers to "an inherent flicker of 60 Hz. . .[of fluorescent lighting]." While the polarity of the current alternates at 60 Hz, fluorescent lighting operating from that current will go on and off 120 times per second. On each cycle, the current will go above ground then below ground and reach ground potential (twice zero crossings). The light is off when the current is at ground, and on when it's either above or below ground.

"Garbage Clearing," page 92, is an unnecessary solution to a misunderstood problem. The author repeatedly states that DOS is somehow responsible for the build-up of disused strings in memory, whereas the problem is in the Applesoft BASIC interpreter. The only thing DOS does with strings during normal program operation is check for a control-D at the beginning of each input or output line; if it finds one, it attempts to execute the text following the control-D as a DOS command as in 100 PRINT CHR$(4);"RUN PROGRAM.

While Viktor Rubenfeld's solution to garbage accumulation is somewhat interesting, Applesoft has a built-in command that eliminates garbage automatically: 100 X= FRE(0). This sets variable X to the amount of remaining free memory and collects the garbage. The line 100 PRINT FRE(0) prints the amount of remaining free memory and collects the garbage.

If any line is placed in a program that is executed frequently when garbage is inclined to form, the garbage will seldom be a problem.

F. Kuechmann
8113 NE 25th Avenue
Vancouver, WA 98665

Integer Defender

As I was reading Ask *inCider* (July 1984, p. 99), I came across Bob Ryan's answer to Jeff Bruno concerning the "dead language" Integer BASIC.

Without doubt, the I-BASIC language is used less than the newer Applesoft, but it isn't dead. There are many good Integer programs around for several good reasons. One is that it's easier to program because it has fun commands like AUTO and POP. It's also a faster BASIC than Applesoft since it uses only integers and does a more complete, up-front parse step. Don't count out good old Integer yet.

As to information sources, here are two that I've seen in the book stores: *Apple Programmer's Handbook* by Paul Irwin and *Apple II User's Guide* by Lon Poole. Both books are about four years old and not too hard to find.

Good luck to Mr. Bruno and others who are interested in Integer.

Forrest Schwengels
14 Floye Avenue
Poquoson, VA 23662

Best Connection

ProModem™ 1200A Apple Card Pack

It's the best 300/1200 baud 212A telephone modem for your Apple® II, II+, and IIe. "Best" because it's the easiest to install and use, provides more useful modem features for your money, and lets you add software capabilities as your needs grow.

We really do mean easy. Just plug the ProModem Card Pack into any expansion slot and connect the telephone cord. On-board intelligent software in ROM includes a simple but powerful terminal program. With a few keystrokes, you'll be "on line" and communicating.

ProModem 1200A offers you the best price-to-performance modem available with Auto-Answer and Auto-Dial, Programmable Intelligent Dialing, Built-in Speaker with Volume Control, Help Commands, Extensive Diagnostics, and more.

And when you need more sophisticated capabilities like Terminal Emulation, you're all set.

The 1200A is fully Hayes compatible. You'll be able to use most of the Apple II communications programs available.

PRICE COMPARISON

PROMETHEUS

(1) ProModem 1200A Apple Card Pack, complete with on-board software and all necessary hardware
List Price: $449

HAYES

(1) Smartmodem 1200 "standalone modem"
(2) Serial Card
(3) RS-232C Cable
(4) Communications Software
Total List Price: $957

Apple is a registered trademark of Apple Computer, Inc

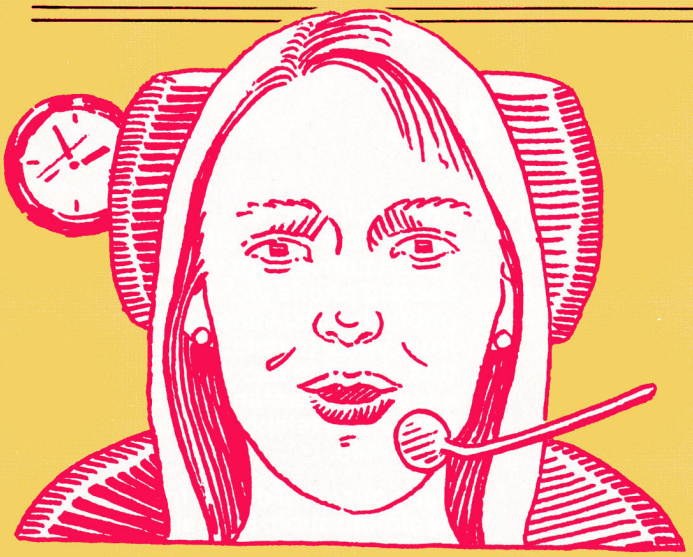
The "Help" Screen and "Auto redial if busy" functions make the 1200A convenient to use. The second phone jack for the telephone handset allows switching from voice to data. You get all of this, ready to use, complete with easy to understand documentation, and a telephone cord for only $449.

See your local dealer for a demonstration. He'll show why ProModem 1200A is your best connection.

Prometheus Products, Inc.
45277 Fremont Blvd.
Fremont, CA 94538
(415) 490-2370

PROMETHEUS®

Circle 268 on Reader Service card.



Open Wide

Flash those pearly whites. Preventive dentistry starts in Dr. Ellis J. Neiburger's office with the aid of four Apple computers—one II and three II Pluses. While the system helps organize the usual "drill-fill-bill" routine, Neiburger also uses an Apple to make his patients relax in the dental chair. His method: suggestive therapeutics—hypnosis to you and me.

Neiburger wrote a hypnosis program to make his patients feel more at ease. Fear, he says, is the main reason why people avoid checkups. And if he can promote a good experience in the dentist's office, so much the better.

The hypnosis program consists of designs on screen—flashing squares of alternating frequency. Since some people are more susceptible to hypnosis than others, Neiburger matches the patient's alpha brain wave pattern to a program frequency after assessing the patient's condition during the first visit.

Neiburger stresses that people are fully conscious and know what is happening while in a hypnotic state. "They're just comfortable," he says.

Hypnosis opens up a new area in dental treatment; it saves time and money. Because no anesthetic is used, a patient can be in and out of the dentist's office almost in the time it takes to say "Brush after every meal." Neiburger says a filling takes only eight minutes with hypnosis. Hypnosis actually lets the dentist charge less for his or her services because it reduces the time spent with each patient.

Another advantage lies in posthypnotic suggestion. Neiburger can suggest that a patient will stop bleeding within three minutes, experience reduced pain and swelling, or simply feel better. Neiburger says 78 percent of his patients have responded successfully to posthypnotic suggestion.

"No one has objected to this type of treatment," Neiburger states. "And the appointment book is always full."

Hold the Line

It's your dime—but that hasn't deterred people from accessing bulletin board systems across the country. Two new bulletin board systems on-line are The Sandhill Bandits' Board and the Helena Apple Bulletin Board.

Based in Southern Pines, North Carolina, The Sandhill Bandits' Board features electronic mail, games, hardware and software reviews, publication reviews, a BBS listing, merchandise section, and programming assistance. The system will include recipes, bit-copy parameters, and a download/upload section in the near future, according to Sandhill Bandit Thomas Blue. Call up the system at (919) 692-5536, 24 hours a day.

Another 24-hour BBS, the Helena Apple Bulletin Board, is devoted primarily to user group information and local advertisers in the Helena, Montana, region. People can post notice of nonprofit events and leave messages for business advertisers, too. The system runs on an Apple //e with a Hayes Micromodem //e (300 baud). Sysop Robert N. Clarkson invites Apple owners to call (406) 442-2046 and passes along the guest password, HAP007 .GUEST.

Let the Contest Begin

Attention Apple Computer Club members: Registration deadline for the 1985 Apple Computer Clubs' Competition is March 15, 1985. Club members can enter two categories: programming or community service. Advisors can compete in the advisor or lesson plans categories. Last year, more than $100,000 was awarded in prizes and travel. Write to Apple Computer Clubs, P.O. Box 948, Lowell, MA 01853, for registration information.

In response to the popularity of Apple computer clubs, Prentice-Hall has developed the Official Apple Computer Clubs Activity Book Series. Three handbooks start off the series: *The Apple Computer Clubs Activities Handbook*, *The Apple Computer Clubs Parents' Guide*, and *The Winning Programs*.

With almost 15,000 Apple computer clubs worldwide, Prentice-Hall selected the series to enhance members' computer skills, help parents and educators guide young computer users, and provide the clubs with various group projects and activities.

edited by Cynthia Carr

Sour Apples?

Listen closely and you'll here grumblings of discontent in the otherwise happy world of computing. Last January, Steven Stroum started Crabapple, Inc., an organization developed in response to high-pressured advertising linked to the home computer market.

When commercials became tinged with fear tactics, Stroum says he felt compelled to take action.

Some commercials implied that "if you don't buy a home computer for your children, you're sentencing them to a remedial life," Stroum explains. "This is a poor way to sell high technology."

Stroum owns up to the parody value in the name, Crabapple, but indicates that the organization is a serious one. Crabapple, Inc., publishes a newsletter, *Living and Computing*, which concentrates on how computers affect today's lifestyles. Among the topics covered are computers and socialization, the computer educational complex, and computers as tutors.

The group intends to challenge claims made by computer manufacturers and advertisers. "There is no legitimate need for home computers insofar as the masses are concerned," Stroum says. He explains that while personal computers are appropriate in higher education and the workplace, the average person doesn't need a home computer to balance a checkbook or store recipes. "After a while, the computer ends up sitting in the closet gathering dust," he states.

"Computers are marvelous tools, but...people should look, stop, and think before they buy," Stroum says. "Some of the purchasing has been fashionable, but ultimately the success or failure of the computer depends on its functionality."

Stroum points out that Crabapple sides with the human aspect of computing: "People are more important [in society] and the individual is more important than the computer."

For more information on Crabapple, Inc., or the *Living and Computing* newsletter, write to Stroum at P.O. Box 3236, Framingham, MA 01701.

Illustrations by Katherine Mahoney

A Helping Hand

Treatment for the mentally disturbed has advanced since the days depicted in *One Flew Over the Cuckoo's Nest.* Altro Health and Rehabilitation Services, Inc., has developed a treatment program for psychiatric patients that trains them to take productive places in the workforce.

The agency's program, COGITO, uses ten Macintosh computers in what the directors call "the first program of its kind."

"COGITO is specifically for the mentally ill," says Barbara Brizdle, a member of the board of directors. "Little research has been done in the area... and we look at it as the opportunity to bring microcomputer technology to meet the challenge in psychiatric treatment."

The program consists of a series of modules designed to test impulse control, concentration, and perception. These tasks, which look like computer games to the average person, vary parameters or skill levels. During an impulse control task, Brizdle explains, two bars, resembling thermometers, move up and down at different speeds. The patient must press the mouse when the bars are of equal length.

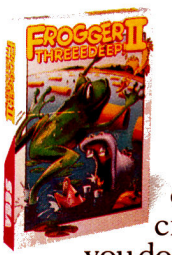
Brizdle says psychiatric patients find the computer intriguing and fun. COGITO uses that interest to help them develop flexibility in their thought and emotional patterns so they may rationally work problems through to conclusion without emotional outbursts.

Work on COGITO began in early 1984, and at press time was still in its beta test stages. Contact Altro Health and Rehabilitation Services, Inc., at 40 East 30th Street, New York, NY 10016, (212) 684-0600, for further details.

Are you making news in the world of Apple computing? Spread the word through The Cider Press, inCider, 80 Pine Street, Peterborough, NH 03458.

SO YOU THINK YOU GOT THE BEST OF FROGGER AND ZAXXON? SORRY.

See, while you've been mastering them, we've been advancing them. Making them even more fun than before. So now we have two new mindblasters.



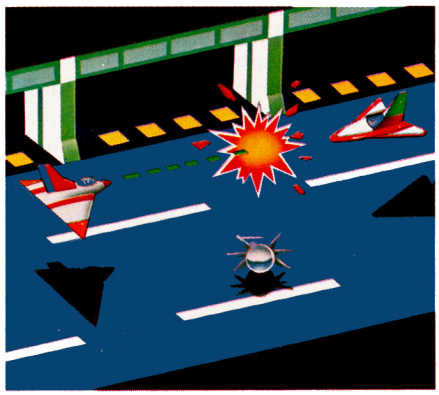
Frogger II Threeee-Deep, a three-screen nightmare. Starting with an undersea battle against deadly creatures and the cruel undercurrent. If you do make it to the surface, it just gets worse. The only hope is to leap into the sky where even more frog-eating monsters lurk.

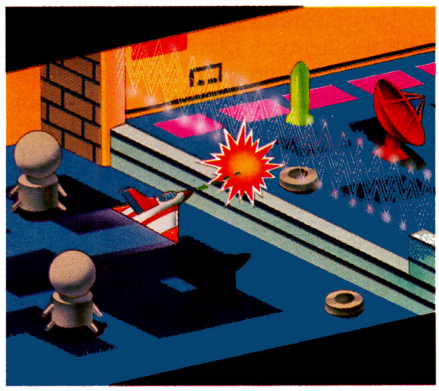
And Super Zaxxon, taking you beyond the outer limits in your space fighter. Tunneling through enemy attack, firing at Zaxxon's forces, dodging mine layers.

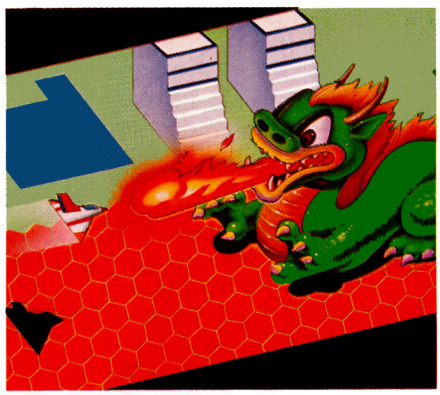
And beyond the last electron barrier, the ultimate test. Zaxxon is now a killer dragon hurtling heat-seeking fireballs.

Hope we haven't scared you. But if Sega doesn't keep you ahead of the game, who will?

Atari 2600	Atari 5200	Atari Computers Cartridge	Atari Computers Diskette	Commodore 64 Cartridge	Commodore 64 Diskette	ColecoVision & ADAM	Apple II's	IBM PC	✓ Sega Enterprises, Inc. ✓ Parker Brothers ✓ HesWare
✓ NEW	✓ NEW	✓ NEW	✓ NEW	✓ NEW	✓ NEW	✓ NEW	✓ NEW	✓ NEW	FROGGER II
		✓ NEW	✓ NEW	✓ NEW	✓ NEW		✓ NEW	✓ NEW	SUPER ZAXXON





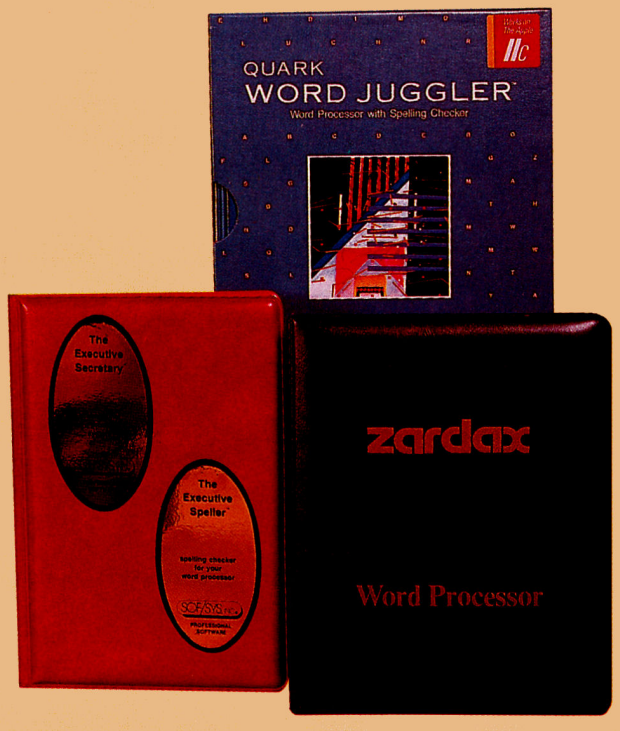


©1985 Sega Enterprises, Inc. FROGGER is a trademark of Sega Enterprises, Inc. THREEEDEEP is a trademark of Parker Brothers. ZAXXON is a trademark of Sega Enterprises, Inc. Game screens are illustrated.

INTRODUCING FROGGER II THREEEDEEP AND SUPER ZAXXON.

Circle 105 on Reader Service card.

Moving Language



Photography: Torsheya Studio

Give your words the special treatment with a word processor that maneuvers screen text handily.

While *word processor* sounds like some imported food machine, the term is technically correct. The software *processes* words, or text, that you enter. It should be able to manipulate text by inserting sentences into the middle of paragraphs, justifying lines, moving blocks of text, and printing the final document the way you want it printed. The software should also let you move around inside your work to change things, and perform the process quickly and easily.

This month I'll examine three word processing programs: Executive Secretary, Word Juggler, and Zardax. All three are in a price category of $150 and up, and should give you much more power and flexibility than less expensive programs. All ask that you enter text as single-spaced lines (without worrying about line spacing or page breaks), and then format printed output using commands. You can't see what your final document looks like unless you use a screen-preview function or print the text.

Reading Up

While the Executive Secretary boasts that its new 102-page indexed manual was done entirely with the program—no typesetter—the original was larger and easier to read. The new manual serves as an unfortunate example of how poor documentation can cripple a decent program. A word processor/spelling checker program has no excuse for errors in its manual; I counted eight typos in Executive Secretary's before I stopped keeping track.

The spelling checker comes with a 15,000-word dictionary, to which you can add 10,000 more words. Unfortunately, the manual doesn't explain the process and devotes only a single page to the spelling checker—an obvious afterthought.

Quark's Word Juggler comes with a 132-page indexed manual and 19 key caps. You're expected to perform a bit of minor surgery on your Apple //e or //c to replace 19 of your old key caps with these new ones. To make the task easier, the package includes a key cap puller and good instructions on how to use it. The commands printed on the caps help you find the one you want

by Gregory R. Glau

faster, and thus make operation easier.

Word Juggler's program disk isn't copyable, but its spelling checker, Lexicheck, is. This system's 50,000-word dictionary lets you add words to the basic word list.

Zardax, the most flexible program, has the best documentation. Its 232-page indexed manual includes tutorial and reference sections ranging from the basics ("This is a disk. . .") to technical specifications for various printers.

The Executive Secretary allows about ten double-spaced pages in memory at one time; Word Juggler lets you have about 15, and Zardax allows about 25.

Writing with Executive Secretary

Executive Secretary can access and use an 80-column card, and it's easy to change your hardware configuration. The program is menu-driven for loading and saving documents. While you're entering and editing text, some commands appear on the screen in abbreviated form—(P)RNT for print and (S)RCH for search.

You can format your text on-screen or with embedded commands; both methods, however, clutter your display with command characters. Since there is no quick reference card, you need the program's on-line help to reference the 61 available commands.

There are a number of good features to this program. When you ask the Executive Secretary to insert text, it blanks out most of the screen but leaves one line at the bottom, so you can see the context you're working in. You learn through a step-by-step tutorial, and can delete (or move) by character, word, or line. The search function, while case-sensitive, starts at the cursor and goes to the end of your text. If it doesn't find a match, it goes to the beginning of the document and searches from there to your present position—a good approach. The Executive Secretary supports underlining, proportional spacing, and even soft hyphenation (telling the printer where to break apart a word at the end of a line). You're allowed as large a header as you need and a one-line footer.

The Executive Secretary comes with a built-in card file (up to 999 cards in each file) and form-letter function, so you can send letters to selected people on your list, or have the system ask for keyboard entry of the information. It even has a simplified terminal program to assist you in sending electronic mail. Text entry is fast and once you learn the program's commands, you can work rapidly with Executive Secretary.

"You can use the guess mode when you don't know the exact spelling of a word. The screen splits and displays similarly spelled words."

Using Word Juggler

Word Juggler's formatting commands, entered directly into your text, are displayed as inverse characters. This approach lets you change your document's format as you write—one section justified, another centered, and so on. There's a lot of flexibility—for example, you can delete by character, word, line, or paragraph—and you can move around the screen and through your document quickly. Character entry is accepted fast; I couldn't type ahead of the program. On-line help answers any questions you may have about some function, and you can stop a process (printing, looking at your screen preview) with the escape key.

You can use Word Juggler either in insert mode, which pushes ahead text in front of the cursor, or in type-over mode, where new characters erase old ones. Being able to switch from one mode to the other is a big advantage.

When you want to delete or move a block of text (about 60 lines maximum), the selected characters are painted as inverse, so you always see exactly what you're deleting or moving. You can instantly display any page and can scroll through your work. To move text with the Executive Secretary, mark the block you wish to move. This isn't quite as good as Word Juggler's method of showing the characters as inverse. Zardax's method lets you put a block of text onto disk and insert it elsewhere, or *pick up* a paragraph and visibly move it up or down through your document.

Word Juggler makes creating form letters easy and can automatically ask for keyboard data entry for names, addresses, and so on. The system also lets you add data from Quick File's and PFS: File's fields into your form letters. Special logic functions (IF. . .THEN. . . ELSE and a Range search) examine the information the program pulls from these data-base programs, so you can select exactly which records you send letters to. You can also access and load DOS text files, as well as text from other Word Juggler files, and insert them into your documents.

Once Word Juggler's spelling checker is loaded, you can use the guess mode when you don't know the exact spelling of a word. The screen splits and displays similarly spelled words; when you spot the one you want, you position the cursor over it and press the return key to enter it into your document.

Working with Zardax

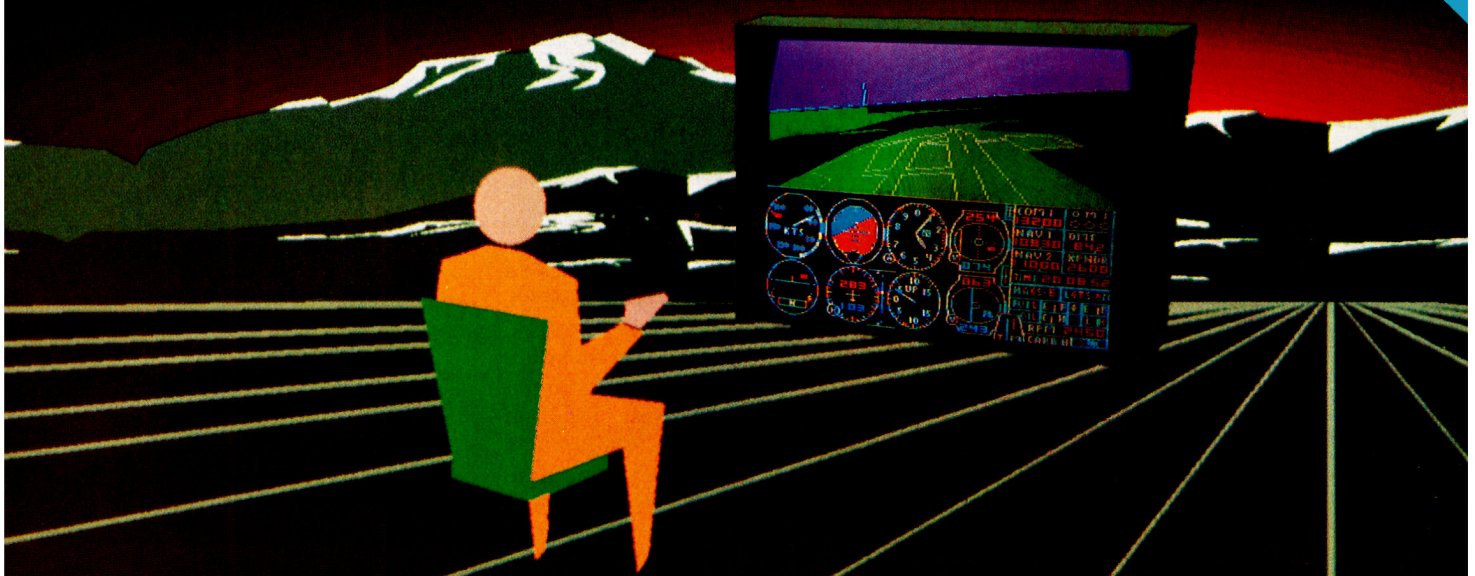
To modify shift keys on older Apples to switch between upper- and lowercase characters, Zardax comes with a clip-on adapter. If your computer has 128K of memory and two disk drives, a print spooler provided with Zardax lets you continue working as you print a document. This system also can link files together for printing.

Zardax's tutorial helps you create a document storage disk on which you place files from the main disk. This isn't a bad idea, but you have to move all 12 files individually. You access Zardax's main system through two menus, and all menu selections are spelled out.

A glossary function lets you assign often-used words or phrases with specific command sequences. Each time you press a specific sequence of keys, the relevant character string appears in your text. Up to 26 glossary items can reside in memory at any one time,

Flight Simulator II

For Apple II+, Apple IIe, & Apple IIc



Put yourself in the pilot's seat of a Piper 181 Cherokee Archer for an awe-inspiring flight over realistic scenery from New York to Los Angeles. High speed color-filled 3D graphics will give you a beautiful panoramic view as you practice takeoffs, landings, and aerobatics. Complete documentation will get you airborne quickly even if you've never flown before. When you think you're ready, you can play the World War I Ace aerial battle game. Flight Simulator II features include ■ animated color 3D graphics ■ day, dusk, and night flying modes ■ over 80 airports in four scenery areas: New York, Chicago, Los Angeles, Seattle, with additional scenery areas available ■ user-variable weather, from clear blue skies to grey cloudy conditions ■ complete flight instrumentation ■ VOR, ILS, ADF, and DME radio equipped ■ navigation facilities and course plotting ■ World War I Ace aerial battle game ■ complete information manual and flight handbook.

See your dealer . . .

or write or call for more information. For direct orders enclose $49.95 plus $2.00 for shipping and specify UPS or first class mail delivery. American Express, Diner's Club, MasterCard, and Visa accepted.

Order Line: 800 / 637-4983

subLOGIC Corporation
713 Edgebrook Drive
Champaign IL 61820
(217) 359-8482 Telex: 206995

Circle 156 on Reader Service card.

and you're allowed as many glossary files as you need.

While Zardax isn't intended to function like a true data base, a simple mailing list created from it can send form letters to your customers. It's not as easy, though, as Executive Secretary, nor as powerful as Word Juggler.

The manual includes a quick reference card and separate chapter for Franklin Ace 1000 users. Print formatting commands can halt printing at a specific spot, letting you change a daisy wheel to get variety in your type styles. Zardax allows multiple lines in footers or headers.

It's easy and fast to move around inside of or go instantly to the start or end of a Zardax document. A screen preview function lets you see what your text will look like when you get a hard copy. The program provides a New Page command (start a new page after this line), as well as a Conditional Page instruction (if there isn't enough room to print this text on the current page, skip to the next one). Searches up to a 23-character string are performed from the cursor to the end of your document and needn't be case-sensitive.

If you have a modem, the program ZIPP-COMM puts Zardax into terminal mode so you can talk to other computer users, and send and receive documents. This program works at either 300 or 1200 baud and includes good advice on sending files to The Source through Telenet.

Weaknesses

The Executive Secretary's poor manual considerably damages its quality. Menus or command lines come in bits and pieces as you work through the examples, and quite often they aren't explained until much further along. It's almost as if this were the first draft, rather than the final documentation for the consumer.

The program's loading time isn't particularly fast, and a lot of disk access occurs when you change modes. The Executive Secretary does search rapidly, but you're allowed to look for only a 12-character search string.

Word Juggler's manual is generally complete, although some commands could be explained better. For example, the Need instruction checks the availability of lines on the current page needed to complete what you want to print there. If the number is insufficient, the program starts a new page. The concept is good, but the explanation appears at the back of the manual and then it's used as an example before the command is detailed.

The Word Juggler itself is reasonably idiot-proof, but consecutively pressing control-reset several times crashes the program and produces the "helpful" message "SYSTEM FAILURE." Also, when you load a file, your screen asks "PATHNAME?" but inadequately explains the term.

Word Juggler's Find and Replace search, although very fast, is case-sensitive: A lowercase search passes by a word or phrase at the beginning of a sentence. With either the Executive Secretary or Word Juggler, searching for the word "life" finds life, lifetime, lifeline, and so on, unless you leave a space at the end of your search word. However, neither system will then find your word if it's at the end of a sentence.

A true footnote or header function isn't available, but Word Juggler lets you specify the print location of up to ten lines in the margin area. With Lexicheck, you can create specialized dictionaries and use them with the main word list. However, the suggested file names (*.D1/MY.DICT, for example) are certainly not friendly. The word-list entries must also be in alphabetical order, a time-consuming task with a large dictionary.

Zardax doesn't come with a spelling-checker program, nor is one available from the manufacturer. The manual notes that "Many users. . .report good success with the Sensible Speller program. . ."

The program lacks a word-wrap function, which takes words that won't fit on the current line and moves them to the next one. Instead, Zardax breaks the words apart at the end of the line and places the remaining characters on the following line. I find this an amazing shortcoming to what is otherwise an excellent word processor.

The screen preview and printing modes do fix word breaks, but editing a document on screen is difficult. The screen preview procedure is normally very fast and straightforward; however, the program takes a considerable amount of time to show you just a sec-

Product Information

Executive Secretary
Sof/Sys, Inc.
4306 Upton Avenue South
Minneapolis, MN 55410
(612) 929-7104
64K Apple II Plus, with the shift-key modification and an 80-column card. The Executive Secretary will also work in a 40-character mode, but requires a lowercase adapter.
Apple //e or //c
One disk drive
$159.95
$189.95 including Executive Speller

Word Juggler
Quark
2525 West Evans, Suite 220
Denver, CO 80219
(800) 543-7711
(303) 934-2211
Apple //e or //c
One disk drive
$189 including the Lexicheck spelling checker program

Zardax
Action-Research Northwest
11442 Marine View Drive, S.W.
Seattle, WA 98146
(206) 241-1645
48K Apple II Plus
Apple //e or //c
One disk drive
$210
$80 additional for ZIPP-COMM

In a Nutshell

The Executive Secretary is a powerful word processor hampered by a poor manual. The Word Juggler, the easiest of these three programs to use, comes with key caps that show the system commands, so you don't have to remember them. Zardax is the most flexible and complete package and has the best manual—a hard combination to beat.□

tion of the text. When I asked it to display a nonexistent page, it thought for a time, then gave me a flashing cursor with no instructions to press the escape key to clear the screen.

Zardax's 43 print-formatting instructions and 23 editing/moving commands allow a lot of flexibility, but require time and effort to learn. Finally, loading a Zardax file brings you to the end of your text, assuming that you want to add more. In actual practice, I almost always start at the beginning of my work (to reread or edit), and would prefer the program to position me at the start of the document.

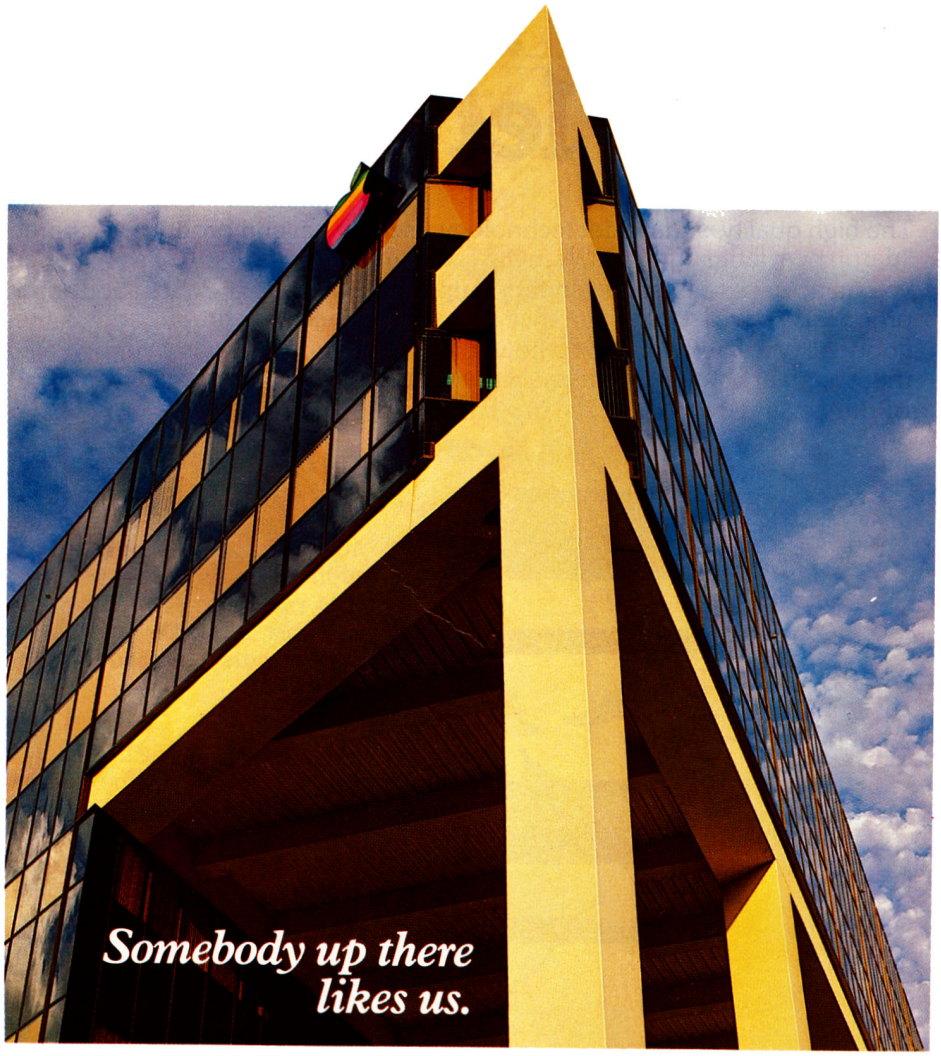
What to Buy

All three are good programs. It's unfortunate that the Executive Secretary suffers from a poor manual as the program itself is more than useful. If you buy it, you get the bonus of a built-in miniature file-handling system (1000 little cards per file) and a decent spelling checker. Know up front, though, that the documentation gives you less information and help than it should.

Of the other two, much depends on how complex a program you need. Word Juggler's replacement key caps make it simple and comfortable to use. Since it interfaces with PFS: File and Quick File, you can use data stored in their files. Even with its simplicity, Word Juggler is a powerful piece of software that won't disappoint you.

Zardax, the most sophisticated and flexible of these three programs, can do about anything your business needs. It does extract a cost in terms of learning all the system commands and how to use them effectively, but its manual is a great help in learning how to use Zardax. If you want to send your text files electronically, ZIPP-COMM is a useful, nearly built-in feature of the package.■

You can write to Greg Glau at P.O. Box 1627, Prescott, AZ 86302.



The people at Apple® should know a good peripheral when they see one. And when they developed ProDOS™ to upgrade the Apple II line, they made it automatically recognize and read Thunderclock.

Not surprising, when you consider Thunderclock's long list of useful applications. In the office, the lab and at home. It starts with time and date stamping disk files and just keeps growing. To automatically accessing data bases, sending electronic mail, timing experiments, controlling your sprinklers and even tracking satellites.

The fact is, the better you are with your Apple, the more useful Thunderclock becomes.

Thunderclock adds a new dimension to all the new ProDOS-based software (like APPLEWORKS™ and WORD JUGGLER IIe™). And gives you access to the time from years down to milliseconds. It comes with a one-year warranty and never misses a tick. On-board batteries keep it running for up to four years before you snap in a new pair.

So if you want to make ProDOS really produce, turn to page 36 in the *Basic Programming With ProDOS* manual. Then get yourself a Thunderclock. You'll see why somebody up there likes us.

See your dealer or contact us today.

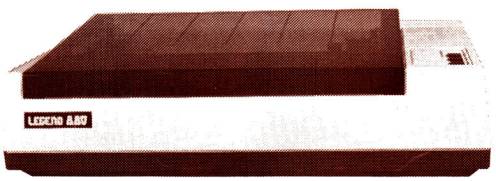
THUNDERWARE, INC.
19G Orinda Way
Orinda, CA 94563
(415) 254-6581

*Apple and the Apple logo are registered trademarks of Apple Computer, Inc.
™ProDOS and APPLEWORKS are trademarks of Apple Computer, Inc.
™WORD JUGGLER IIe is a trademark of Quark Incorporated.

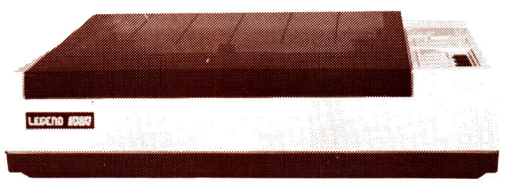
Circle 129 on Reader Service card.

"...Damn near letter quality!"

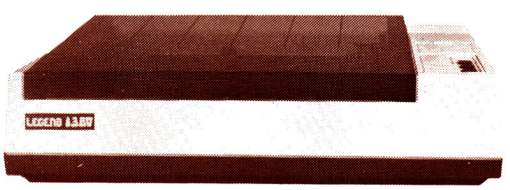
The high quality, square dot technology used by Legend produces a character so clear, so crisp our users tell us it's "damn near letter quality!" We invite comparisons. In fact, we're so confident about our quality we'll be happy to send you an actual sample of legendary output, just for the asking. Legends are perfect for those important reports and proposals as well as regular office correspondence. The graphs and charts you create with Legend are stunningly good! All you have to choose is how fast you want to go. We use a top-quality carbon ribbon common to the world's most popular typewriter that makes each and every character clean and sharp. And we're so sure about the reliability of our Legends we guarantee our print head... for life!



The LEGEND 880 provides over forty fonts, all software-selectable and is rated at 80 cps but purrs along at a comfortable RTS of 104 characters per second. It's designed to work with all popular computers including IBM, most of the IBM-compatibles as well as Apple, TI and Commodore. And all this can be yours today at a really affordable price!



The LEGEND 1080, rated at 100 cps gives you the quality of the 880 at a faster RTS of 140 characters per second. And simple, easy-to-use switch settings bring forty fonts to your fingertips! True Epson compatibility means you can run all the popular software packages including Lotus 1-2-3, Symphony, Framework, Wordstar and more!



The LEGEND 1380 is perfect for high speed, high performance applications. Rated at 130 cps, it produces legendary print quality at an incredible RTS of 163 characters per second. Full IBM graphics compatibility along with downloadable character sets allows you to design your very own fonts and run all of the new IBM graphics software.

Upgrade your printer buffer for only $1.00. For a limited time only you can upgrade the buffer in either your Legend 1080 or Legend 1380. See your dealer for all the details.

For more information about these and the full line of Legendary printers contact Legend Peripheral Products, 6041 Variel Avenue, Woodland Hills, Ca 91367. Telephone (818) 704-9100. Outside CA call toll-free 1-800-321-4484. Telex 662436.

LEGEND PERIPHERAL PRODUCTS

Circle 428 on Reader Service card.

Trademarks—IBM International Business Machines Corporation/Epson-Epson America/Lotus 1-2-3, Symphony/Lotus Development Corporation/Framework-Ashton-Tate/Wordstar-MicroPro Apple-Apple Computer/Commodore-Commodore Business Machines-TI-Texas Instruments
Legend and RTS-Cal Abco, Legend Peripheral Products

Telling Tales

Illustration by Katherine Mahoney

Your child's stories live on in computer printouts.

Word processors and toddlers do mix, and with interesting results.

Of course, most young children can't use even the simplest word processor. Most can't read more than a few words, and many don't yet know the alphabet. Yet, beyond teaching them the alphabet or simple words, your word processor can show your children the power of written words used creatively.

The next time your toddler asks why you're playing with your computer again, invite him or her to tell you a story for you to type in. Suddenly, a child has the power to create a world of real or imagined people and animals. At the end of the tale, have the child title it, then add his or her name as author. Print the story for a keepsake, making extra copies for grandparents.

A few notes of warning: Load the word processor and have it ready *before* you ask your child to tell you the story. Young children have short attention spans and their stories are brief. They could easily finish telling a story before your word processor has finished loading. And they won't wait around for your old computer to get ready.

Don't worry if you aren't a fast typist. The story-telling will probably be marked by pauses. Transcribe as they talk and you can change a few details later.

Don't be surprised at their stories. They may not make much sense to you but don't change anything. And don't be surprised if a story is bloody,

by Michael Seeds

violent, or otherwise unacceptable to you. Children work out important ideas in their heads and many of those ideas are unconventional. You don't need to send *every* story to Grandma, but each story is important and the author's wishes deserve respect.

Don't force story-telling. If your tot doesn't want to tell a story, try again later. If the story is interrupted, save it and invite the author to continue it another day. If the author asks you to make revisions, help—but don't demand revisions. Children should find writing stories a happy experience.

"Toddlers see the computer is just a gizmo that does a job."

Here's a story my 3-year-old told:

An Elephant Story

An elephant went up the mean mountain. Some rats came up and the elephant ran away. The tree blew leaves on them. The bird tree flew birds out of them and jumped and jumped on the back of the elephant. Numbers came up and went up the hill with them but they could not follow.

That is the end of the story.

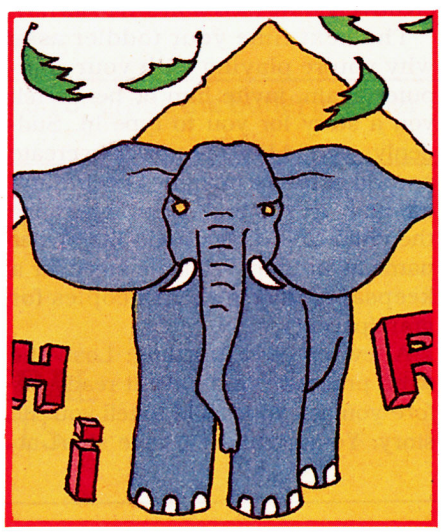
—Katie Seeds

What do such computer stories accomplish? First, toddlers see the computer is just a gizmo that does a job. Our children comprise the first generation to grow up with a computer in the house, and they should learn what it does early in their lives. Unlike many of their elders, they won't see the computer as a threatening monster.

More importantly, your putting their stories onto paper shows them words at work—not just any words, but *their* words. Controlling a part of their world through words is an experience many don't have until grade school, high school, or later.

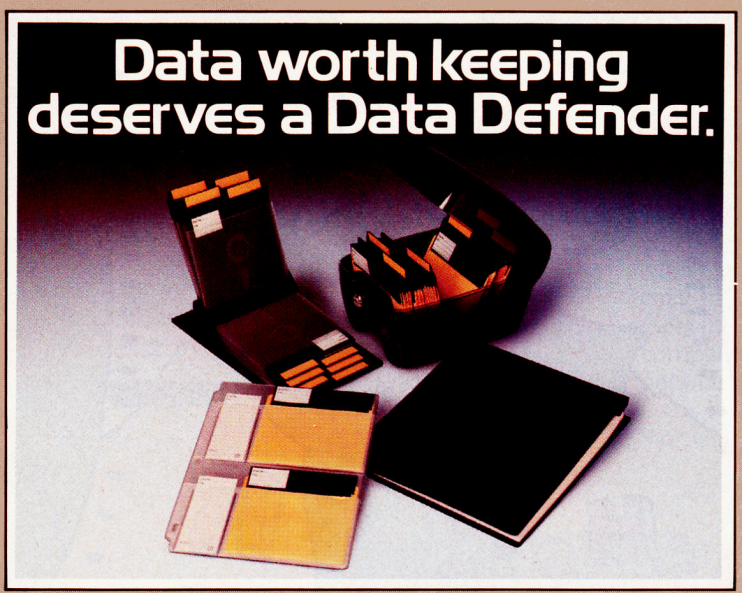
Most important, their stories are their own creations. They are encouraged to be creative using paint and crayons, but, because they are not yet literate, small children aren't usually exposed to the creative world of language. Your word processor puts their stories directly onto paper, quickly, and without erasures, just like the print in books. They can hold their creations and be proud of them. You can, too.■

Address correspondence to Michael Seeds, Franklin and Marshall College, P.O. Box 3003, Lancaster, PA 17604.



Circle 189 on Reader Service card.

Data worth keeping deserves a Data Defender.



Data Defenders by Ring King. They're the finest quality protection you can buy for the information you have stored on 5¼" mini-diskettes and printout.

The Ring King 070 Tray holds 70 mini-diskettes in a tough copolymer shell with security lock. The Ring King Flip File II binder holds 20 mini-diskettes and converts to a desktop index. Ring King Looseleaf Files are punched to fit standard 3-ring binders. Ring King Data Binders hold up to 8" of 9½" x 11" or 14⅞" x 11" unburst printout.

Ask for Ring King Data Defenders at your computer supply dealer. Or send for our free, full-color catalog of computer support products. Write Ring King Visibles, Inc., 2210 Second Avenue, P.O. Box 599, Muscatine, Iowa 52761. For customer service, phone (800) 553-9647, in Iowa (319) 263-8144.

DATA DEFENDER™

Ring King®

Circle 314 on Reader Service card.

One Disk to Go
Everything on it

SOFTYME the Magazine on a Disk. Packed with programs on a double sided floppy. Delivered to you and all the other members of the SOFTYME worldwide network. Imagine receiving SOFTYME every month. A new disk/issue delivered directly to you for about the price of a disk.

SOFTYME is challenging, listable, copyable and ...

SOFTYME'S fun too!

Disk/issues include games, adventure, utilities, pastime, financial, graphics and tutorial programs.

Save software dollars. Gain the network advantage. Be part of the world's fastest growing group of Micro-Enthusiasts.

Byte Into a Diskful this Month!

Order by phone
or use coupon below

Send
7.50 one disk/issue (one month)
21.00 three disk/issues (three months)
30.00 six disk/issues (six months)
48.00 twelve disk/issues (one year)
to: SOFTYME, Box 299
Newport, RI 02840
or call 401-849-4925/4926
Mon.-Sat. 9 am to 10 pm
for M/C or VISA orders

SOFTYME is the registered trademark of Viking Data Based Technologies, Inc.. SOFTYME requires DOS 3.3 and 48K of memory. SOFTYME runs on Apple II and IIe. Apple is the registered trademark of Apple Computer, Inc.

Enter my subscription to SOFTYME the magazine on a disk

Name _____

Address _____

City _____

State _____

Zip _____

☐ Payment Enclosed ☐ VISA ☐ Mastercard

Card No. _____

Exp. Date _____

Add $12.00 per year in foreign countries, except Canada and A.P.O.

SIGNATURE _____

☐ please send my free programmers reference card.

☐ One Month $7.50 ☐ Three Months $21.00 ☐ Six Months $30.00 ☐ One Year 12 Disks $48.00

II+, IIe and IIc compatible

Circle 273 on Reader Service card.

■ **They're all winners:** Apricorn's Apple upgrades are designed and manufactured for trouble-free performance. All of our cards are totally software and hardware compatible, fully burned-in, tested, and socketed. Our comprehensive, illustrated manuals and Lifetime Warranty give you a winning hand, everytime.

■ **Super Serial Imager™:** This powerful new card replaces Apple's own Super Serial Card as the best RS-232 interface available for Apple // computers. In terminal mode, Imager's powerful built in communications firmware contains interrupt support for trouble free operation at 300-1200 baud and beyond with special support of most intelligent modems. In printer mode, it's a full featured graphics interface. Support provides full screen dumps to Apple Imagewriter printers and most serial interfaced graphics printers. Command compatible with graphics card described below.

■ **Graphics Printer Interface:** A potent graphics output card for parallel printers. Pictures and graphs from the hi-res screen as well as snapshots of the 40/80 column text screen are performed with a simple print command. Contains Grappler + command set as subset for software compatibility.

pick a card, any card

APRICORN

7050 Convoy Court,
San Diego, CA 92111
(619) 569-9483

Chimerical Chess And Other Pleasures

Illustration by Phil Geraci

Four challenging new games reward strategy over chance and luck.

with Warden Shiftky

At Warden University (Class of '71) I attended few classes. Instead, I sat around the student lounge developing a taste for Rhinobrau beer and for chess. Little did I know that I was laying the foundations of a career. Chess led to my unquestioned gaming expertise, and the Rhinobrau made hours of term-paper writing less painful.

One thing I noticed about chess: You're in no danger of being body-checked while making a move. This appealed to my craving for a totally nonviolent existence.

Of course chess is a game *about* violence. It simulates three aspects of war: the relative strength of various elements in the battle (expressed by their mobility), strategy, and surprise (all captures are automatic, thus simulating surprise).

Archon

Now imagine a chess game that incorporates a few unusual elements. What if we add magic, and a day/night cycle? Suppose that moving onto an enemy's square initiates combat with an uncertain outcome, rather than automatic capture. Suppose that the outcome of combat depended on your own physical skill, rather than on luck. Suppose, having lost your strongest piece, you could *will* it back to life. Imagine that you can nail down the other player's most powerful piece for several moves. And imagine that some of the pieces can fly, some can teleport, and all are magic. It makes for an interesting, if somewhat bloodthirsty, game of chess. In fact, what you've really got is a game called **Archon**.

When you get past the self-congratulation in the liner notes and read the manual, you find that Archon is a complete reprise of chess, with some interesting twists. As in chess, there are both light and dark sides (**Photo 1**). Yet the battle isn't to checkmate the king or kill off another piece, but to

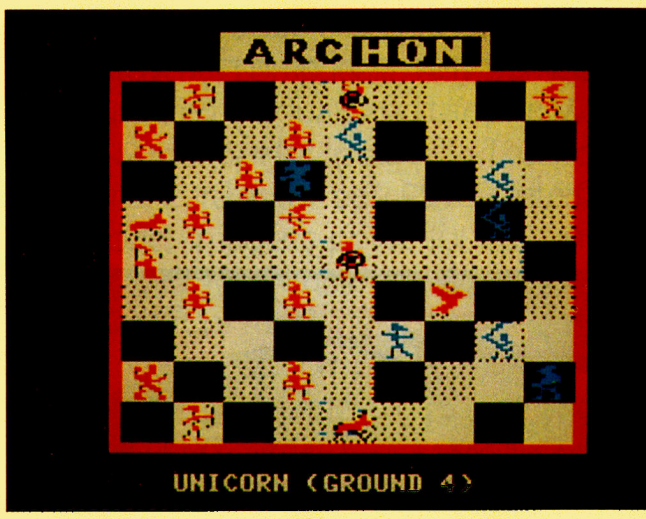


Photo 1. *Game board from Electronic Arts' Archon.*

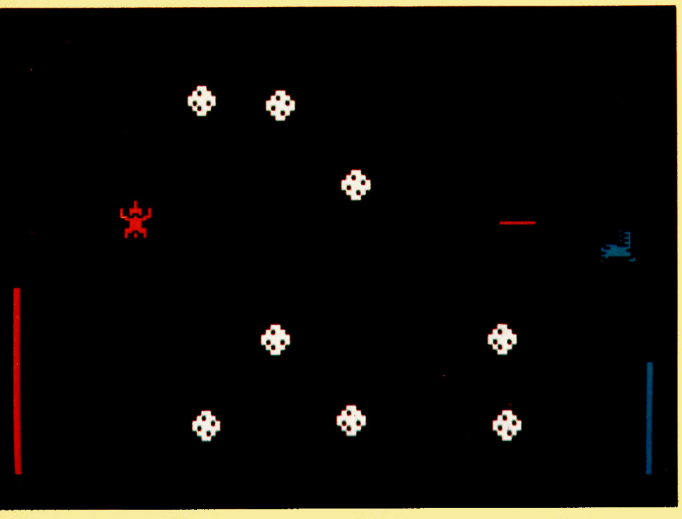


Photo 2. *Two Archon pieces in an arcade-style battle.*

capture five power points on the board. Once one side has occupied all five, the game is over. Theoretically, you can win with only five pieces.

Power points and 28 other squares are subject to gradual luminosity changes from dark to white. The darker half of the cycle benefits black pieces in combat, and the lighter side of the cycle, the light pieces. Clever use of the luminosity rule (and of permanently dark and light squares) can help make up the difference between a weaker piece (such as the knights for the light side and the dark side's goblins) and a stronger piece (like the dark side's banshees and the light side's golems).

The most important pieces on the board are the magic users (each side gets one). Each may cast seven spells during the game. For example, Teleport moves one piece to any non-magic square on the board—super if you want to land a dragon atop a faraway and vulnerable unicorn. An Exchange in that same situation would swap the unicorn for the dragon.

After combat, you can "revive" a critical piece. The light-side player should save the spell for the phoenix. The dark side should use it for the dragon or the shapeshifter. If a crucial piece is injured but not killed, you use the healing spell. Magic users can also summon an elemental spirit of water, fire, air, or earth. This piece will be on the board for one turn only, so select a good target! Another useful spell is Imprison, which locks up an enemy piece for a full luminosity cycle.

Combat is tricky, and requires good arcade skills and a steady hand on the joystick. You can play with keyboard commands, but you won't stand much of a chance in battle against the computer. While you're fumbling for the fire key and the direction key to hurl a missile or energy bolt at your foe (**Photo 2**), the other side will move and aim with computer swiftness. You won't have an edge with a joystick, but you will have at least a fighting chance.

Archon is one of the most relentlessly fascinating games to appear at the Game Reserve in a long time. The graphics are good, the sound effects only so-so, but the play value and challenge are super-high. This game will grab you and keep you for play after play—all this jaded chess player could ever ask for.

Skyfox

One of my favorite pastimes is flying a heavily armed jet plane to smash tanks and alien fighters. On the Game Reserve I get to do that quite a bit—in the comfort of the base lodge and never too far from my beloved Frigidaire. So you can imagine how grateful I was to get a crack at **Skyfox**, a real red-blooded arcade shoot-'em-up.

The setting is an asteroid under enemy attack. The only defense is the Skyfox, an advanced aircraft you pilot with a self-centering joystick. Your weapons are a laser cannon, and both heat-seeking and guided missiles. The enemy commands an unlimited supply of well-armed tanks, planes, and motherships (see **Photo 3**). Best of all, they are nearly impossible to beat.

Even the training scenarios are brutal. Mastering flight and navigation isn't hard, and you can superimpose a graphics window any time for a fix on both your and the enemy's locations. An autopilot takes you right to the action. The weapons are also easy to learn to use. You fire the laser cannon with the joystick button and press the G or H key to arm your missiles, which will hit any nearby target.

But there are so many nearby targets. F-15 pilots in Europe are told that if World War III breaks out, they will be in a "target-rich environment." That's another way of saying they'll be outnumbered. In Skyfox, you're always outnumbered: 20 to one, 30 to one, or even 60 to one. And all these "targets" can shoot back at you. The first few hits won't kill you, but they reduce the effectiveness of your shields. Keep an eye on your cockpit graphics to make sure your shields aren't about to collapse. And keep an eye on that fuel gauge (bear in mind you can land to refuel and rearm).

One of the biggest points in Skyfox's favor is its many scenarios. There are seven training levels, and I suggest you master ALL of them before you try the other games. Eight very challenging game levels feature motherships supplying unlimited enemies. Want to know how tough these scenarios are? Look at a few of the names: Alamo, Advancing Wall, Massive Onslaught, and Cornered. They sure sound tough. They sure ARE tough.

The graphics are superb. A cockpit radar screen is animated flawlessly; the superimposed window for "base

What made over 100,000 Apple II owners fall in love with System Saver?

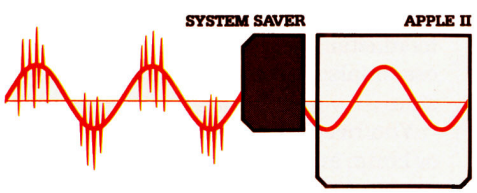
It's the most versatile, most convenient, most useful peripheral ever made for the Apple.®

System Saver® filters out damaging AC line noise and power surges.

70-90% of all microcomputer malfunctions can be traced to power line problems.* Problems your System Saver guards against.

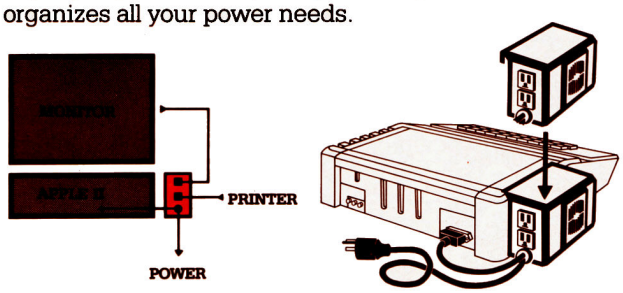
Power line noise can often be interpreted as data. This confuses your computer and produces system errors. Power surges and spikes can cause severe damage to your Apple's delicate circuitry and lead to costly servicing.

System Saver clips surges and spikes at a 130 Volts RMS/175 Volts dc level. A PI type filter attenuates common and transverse mode noise by a minimum of 30 dB from 600 kHz to 20 mHz with a maximum attenuation of 50 dB. You end up with an Apple that's more accurate, more efficient and more reliable.



System Saver makes your Apple more convenient to use.

No more reaching around to the back of your Apple to turn it on. No more fumbling for outlets and cords to plug in your monitor and printer. System Saver organizes all your power needs.

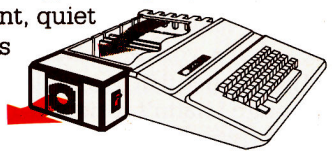


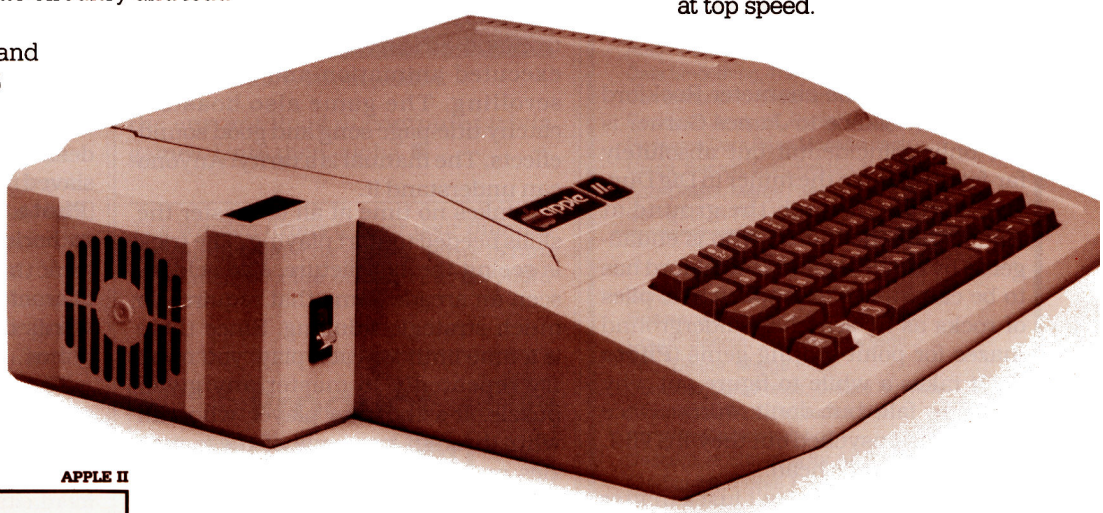
It functions as a multi-outlet power strip with two switched outlets. Plus System Saver offers the ultimate convenience; a front mounted power switch for fingertip control of your entire system.

System Saver lets your Apple keep its cool.

Today's advanced peripheral cards generate heat. In addition, the cards block any natural air flow through the Apple IIe creating high temperature conditions that shorten the life of the Apple and peripheral cards.

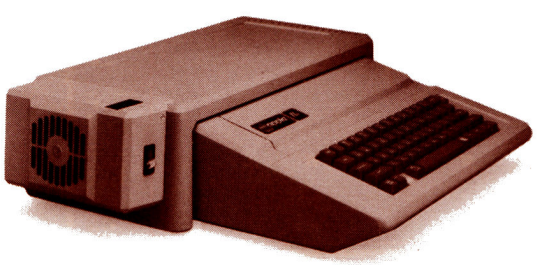
System Saver's efficient, quiet fan draws fresh air across the mother board, over the power supply and out the side ventilation slots. It leaves your Apple cool, calm and running at top speed.





So if you want to keep damaging heat, line noise and power surges out of your system for good, pick up the only peripheral that's in use every second your computer is in use. The System Saver. You'll soon come to think of it as the piece Apple forgot.

Compatible with Apple stand



$89.95 at Apple dealers everywhere.

KENSINGTON MICROWARE

251 Park Avenue South, New York, NY 10010
(212) 475-5200 Telex: 467383 KML NY

*PC Magazine: March 1983.

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

Circle 86 on Reader Service card.

System Saver is a registered trademark of Kensington Microware Ltd.
© 1984 Kensington Microware Ltd. System Saver is patent pending.

computer" readouts is impressive (see **Photo 4**). The out-the-cockpit view is sophisticated and more realistic than you might expect. Terrain rushes beneath you at breathtaking speed. Enemy jets jig and slip to get out of your gunsights, and bursts of enemy fire are realistic. So will be your screams of frustration as you spend hours trying to master this game. Lotsa luck, flyboy!

Boulder Dash

Speaking of frustration—a good way to measure the level of challenge a game poses—have you seen **Bolder Dash** yet? I mentioned it in passing last month. Although I hadn't reviewed it, I'd heard good things about it. Well, a month later finds your Warden a complete slave of this insidiously clever, full-color arcade puzzler. Let me explain why.

You control the character Rockford (any resemblance to James Garner is not only coincidental but absolutely far-fetched). Like the miner in Dig Dug, you burrow through the ground at will. Unlike the miner, who is endangered by single boulders, Rockford has to be careful not to topple whole piles of rocks as he searches underground mazes for point-scoring gems (**Photo 5**). It takes a while to figure out why boulders fall, but don't worry: Once you've got it psyched out they'll STILL fall on Rockford's head.

Getting the jewels isn't just a matter of avoiding falling rocks. Boulder Dash offers 19 levels of mazes and graphics puzzles for you to solve. In each, you must grab the gems without being felled by rocks or gobbled up by subterranean monsters—fireflies and butterflies, for instance. You can do it, but it's not easy.

Sometimes the puzzles seem insoluble. Take Guards, where all the gems are guarded by fireflies. Even if you break into the chambers and grab the gems, there's nothing to stop the monsters from following you. There are hundreds of gems in Greed, but almost no way to get at them without starting a mammoth rock-slide. In Apocalypse, you have to dig a tunnel to connect the deadly butterflies with a green amoeba to turn the amoeba into gems. If it sounds complicated now, just wait until you start playing. This game will keep you guessing.

Boulder Dash's graphics are attractive, and are presented through well-executed animation and simulated scrolling. The game also boasts a catchy title-page song and good sound effects. The manual is a rarity: Anyone can understand it.

It takes no time at all to master the skills needed to start playing. The trick is seeing the big picture. I've seldom seen an arcade game that requires so much strategic thinking. Since there is a time limit for each play, you must try repeatedly to master any given puzzle. It's the rare player who can whiz through even one of these puzzles on the first try. This is a super-tough arcade game. That's why I think you'll like it.

Empire III: Armageddon

Finally, I turn to a role-playing adventure game from Peachtree Software's education catalog: **Empire III: Armageddon**. I won't presume to pass judgment on its educational values except to say that any good adventure game can teach problem-solving and other reasoning skills—and that this is such a game.

Photo 3. *Enemy mothership from the cockpit of Skyfox.*

In Armageddon, you create and control characters that go a-questing to destroy an evil empress who has enslaved the world. You explore a city (**Photo 6**) and a hostile countryside, gathering clues and magic objects, interacting with computer-controlled characters, and working steadily towards the goal of bringing down the tyrant.

There's a provision for saving the game (the Stasis command), and you'll need it. A first-time player will take from three hours to a whole afternoon to master the city and find the bare essentials for exploring the countryside.

You need food, water, tools, a torch or lamp, and, most importantly, weap-

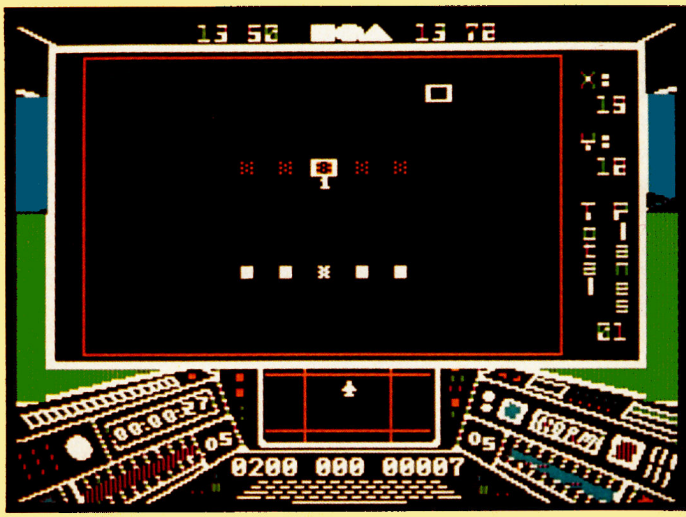


Photo 4. *Skyfox's battle computer gives you strategic help.*

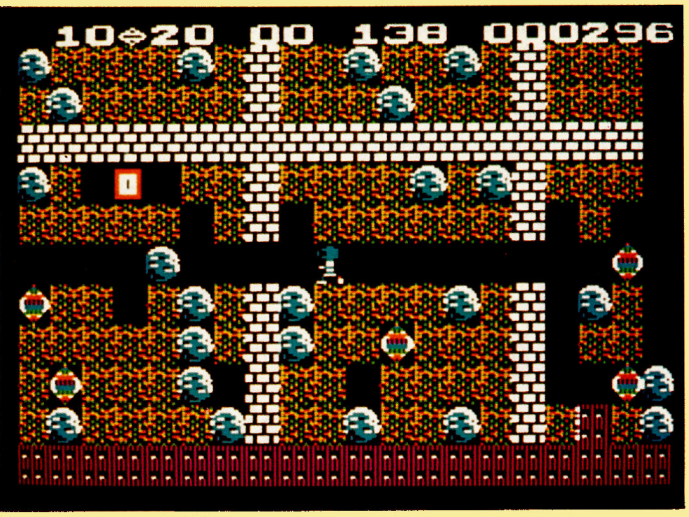


Photo 5. *Rockford seeks jewels and avoids falling boulders.*

Photo 6. *Screen from the illustrated adventure, Armageddon.*

ons. You start with a war chest of 100 gold pieces for purchases. If you have lots of charisma and lots of patience, and if you keep trying, you can talk down the merchants from list price to discount to wholesale to cost. You must bargain if you expect to buy all you need with the money you've got.

Discovery is most of the fun, so I'll resist telling more about what I've found, and the parts of the puzzle I've solved. I can safely say the most important action takes place in the countryside and it's a jungle out there. The forest is full of unfriendly animals to combat. You can spray them with acid or slash them with knives, but whether or not they'll swipe your head off anyway is largely a matter of luck.

Armageddon isn't at the cutting edge of adventure-game technology. The color graphics are as rudimentary as can be.

Syntax is limited strictly to verb/noun combinations like: USE COMPASS and GET MEDALLION. And hitting the space bar repeatedly to clear the command line becomes annoying after a while.

But let's not be picky. This is a tough game that will take you days, even weeks, to solve. Do yourself a favor: Read the manual carefully, especially the "Letters To My Son" section at the end. You just might find some clues and tips to help you.

Next month I'll engage in the momentous task of evaluating the best of the current flood of computer trivia games. Until then, aloha.■

The Warden wants to hear your thumbs-up/thumbs-down on games. Write to him at inCider, *80 Pine Street, Peterborough, NH 03458.*

Product Information

Archon
Skyfox

Electronic Arts
2755 Campus Drive
San Mateo, CA 94403
Any Apple II with joystick
Skyfox needs 64K
Archon needs 48K
$40 each

Boulder Dash

MicroLab
2699 Skokie Valley Road
Highland Park, IL 60035
Any 48K Apple II, joystick
$40

Empire III: Armageddon

Peachtree Software
3445 Peachtree Road, N.E.
Atlanta, GA 30326
Any Apple II, 48K
$32.95

THE STATISTICS SERIES

FLEXIBLE • ACCURATE
EASY-TO-USE

Human Systems Dynamics programs are used by leading universities and medical centers. Any program that doesn't suit your needs can be returned within 10 days for full refund. Designed for use with Apple II 48K, 1 or 2 Disk Drives, 3.3 DOS, ROM Applesoft.

NEW **REGRESS II** $150
Complete Multiple Regression Series
Stepwise, Simultaneous Solutions
Forward, Backward Solutions
Auto Power Polynomial Solutions
Data Smoothing, Transformations
Correlation and Covariance Matrices
Residuals Analysis, Partial Correlation
Research Data Base Management
Count, Search, Sort, Review/Edit
Add, Delete, Merge Files
Curve Fit. Hi-Res X-Y Plot

STATS PLUS $200
Complete General Statistics Package
Research Data Base Management
Count, Search, Sort, Review/Edit
Add, Delete, Merge Files
Compute Data Fields, Create Subfiles
Produce Hi-Res Bargraphs, Plots
1-5 Way Crosstabulation
Descriptive Statistics for All Fields
Chi-Square, Fisher Exact, Signed Ranks
Mann-Whitney, Kruskal-Wallis, Rank Sum
Friedman Anova by Ranks
10 Data Transformations
Frequency Distribution
Correlation Matrix, 2 Way Anova
r, Rho, Tau, Partial Correlation
3 Variable Regression, 3 t-Tests

ANOVA II $150
Complete Analysis of Variance Package
Analysis of Covariance, Randomized Designs
Repeated Measures, Split Plot Designs
1 to 5 Factors, 2 to 36 Levels Per Factor
Equal N or Unequal N, Anova Table
Descriptive Statistics, Marginal Means
Cell Sums of Squares, Data File Creation
Data Review/Edit, Data Transformations
File Combinations, All Interactions Tested
High Resolution Mean Plots, Bargraphs

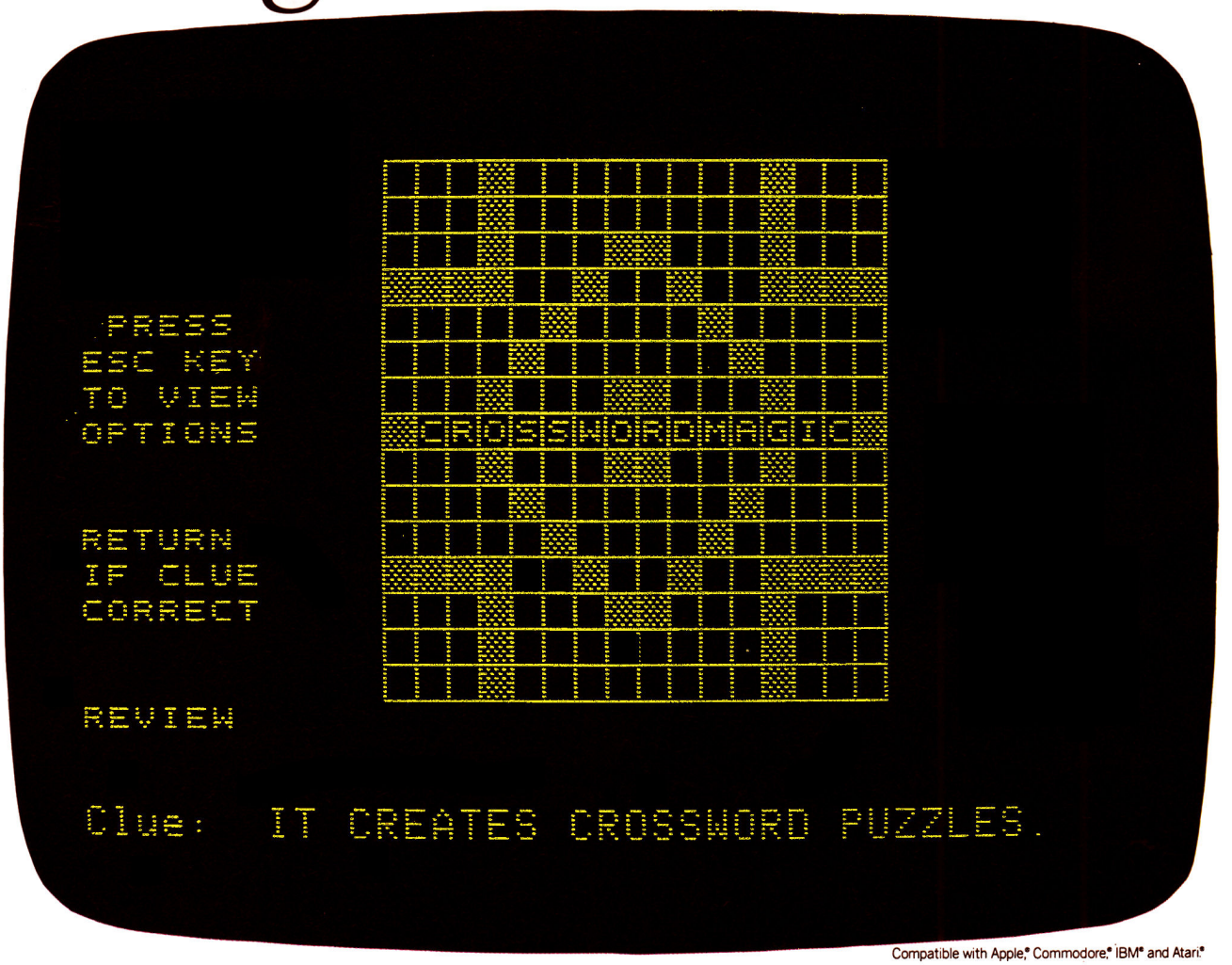
HSD
HUMAN SYSTEMS DYNAMICS

To Order — Call (213) 993-8536
or Write
HUMAN SYSTEMS DYNAMICS
9010 Reseda Blvd. Suite 222
Northridge, CA 91324

VISA
Dealer Inquiries Invited
MasterCard

Circle 539 on Reader Service card.

Only one program lets you create your own crossword, instead of filling in someone else's.



Compatible with Apple,® Commodore,® IBM® and Atari.®

Crossword Magic is just like the crossword puzzles you see in the newspaper. It has the same crossword format. And the same crossword clues.

Yet, it's totally unique. (After all, does it make sense to spend $49.99 for something you get in your newspaper for a few cents?)

Here's the twist.

Crossword Magic lets you create your own puzzles from scratch. Not only is this fun, but it's also educational. You can use it to test yourself and others on any subject. For example, will they remember that a "protozoan with pseudopodia" is an amoeba?

Now *that's* worth $49.99.

Crossword Magic from Mindscape

Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062. For more information, call 1-800-221-9884. In Illinois: 1-800-942-7315. Price listed is manufacturer's suggested retail price.

Using ProDOS Part 1

The Multilayered DOS

The first in our six-part series on Apple's latest DOS focuses on its hierarchical file structure.

by Lee Swoboda

Last year Apple unveiled ProDOS (Professional Disk Operating System), the latest, greatest disk operating system for the venerable Apple II. Although similar to DOS 3.3 on the outside, and upwardly compatible with it, ProDOS represents a major redesign on the inside.

ProDOS is Apple's solution to the deficiencies of DOS 3.3. Among its distinct advantages, ProDOS is up to eight times faster than DOS, can be used with hard disks, and is compatible with SOS, the Apple /// operating system.

Those familiar with events in the Apple world may recognize similarities between the introductions of DOS 3.3 and ProDOS. But ProDOS is a much more radical departure from its predecessor than DOS 3.3 was from 3.2. ProDOS has replaced DOS 3.3 as the standard Apple II operating system and is included with all new Apple disk drives.

In a six-part series, I'll explain the wonders of ProDOS. The topics will include:

1) The ProDOS File Structure
2) Using ProDOS from the Built-in Menus
3) Improved ProDOS Commands
4) New ProDOS Commands
5) Using ProDOS from BASIC
6) Compatibility of ProDOS with DOS 3.3

The series is written for the novice who uses ProDOS as a first disk operating system, as well as for the experienced Apple II computer user who wants to upgrade DOS 3.3. It will stress hands-on instruction to understand how each ProDOS feature works. But first, whether you're a neophyte or an old hand, you'll need some background information.

Getting Down to Basics

ProDOS is a scaled-down version of the Apple /// Sophisticated Operating System (SOS). The SOS and ProDOS floppy disk formats are nearly identical, even to the point of generating exchangeable textfiles. (You cannot, however, swap BASIC programs, because Apple II's Applesoft and Apple ///'s Business BASIC are incompatible.)

When you buy a new Apple disk drive, you automatically get the ProDOS User's Kit, which includes the

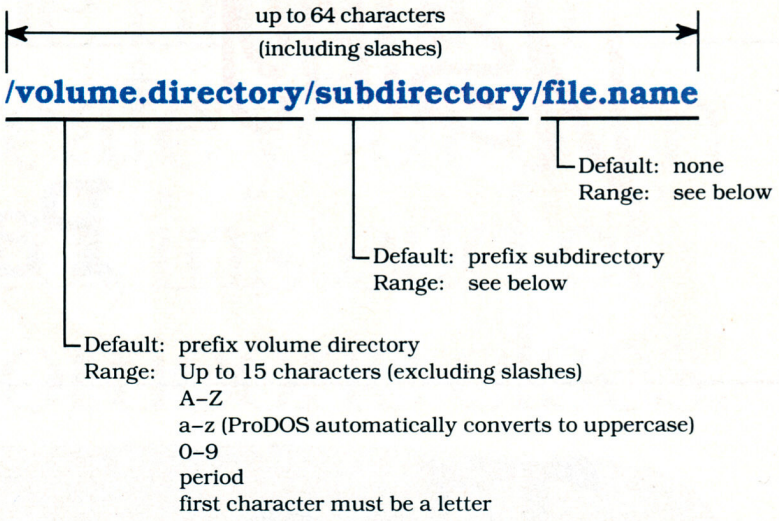
ProDOS User's Manual, the *ProDOS Supplement to the Apple //e Owner's Manual*, and the ProDOS User's Disk.

When you buy a //c, you get ProDOS on the System Utilities disk, and a System Utilities manual. If you already own a II Plus or //e, you can purchase the ProDOS User's Kit (Apple product A2D2010) separately for $40. Unlike the DOS 3.2 to DOS 3.3 conversion, which required changing two integrated circuits on the disk controller card, adding ProDOS to your Apple requires no hardware modifications.

ProDOS requires an Apple //e, a //c, or a 64K Apple II Plus (48K II Plus with a 16K "language" card). According to the *ProDOS Technical Reference Manual*, you may use ProDOS in a 48K Apple II Plus, but Apple doesn't recommend it. If you have a regular Apple II (with integer BASIC in ROM), you can't use ProDOS *even though you have a language card.*

Because ProDOS is a *disk* operating system, you must, of course, have at least one Apple-compatible disk drive. (Two are better.) Be cautious about compatibility, however. Apple's Disk II is a 35-track drive. If you have a "super" drive, which has more tracks, you may be unable to use ProDOS. Ask your dealer if your disk drive can handle ProDOS. If there's any doubt, test ProDOS on your system before you buy, and check the dealer's return policy.

Table 1. *Rules for defining a ProDOS pathname.*



Tree-Structured Files

The most dramatic difference between DOS 3.3 and ProDOS is the latter's tree-structured file system. **Figure 1** illustrates the typical DOS 3.3 file arrangement. Each file has equal status. To use a botanical analogy, all files "grow" like blades of grass out of the disk at ground level. When you catalog a disk, the computer simply lists the files in the order you created them (unless you deleted, then added, some).

ProDOS, however, organizes your files in a hierarchy. To continue our botanical analogy, imagine all the files on a ProDOS volume (floppy or hard disk) as apples on a tree. To pick an apple, you climb up the trunk and then inch out along progressively smaller branches until you reach the fruit. ProDOS follows this concept to organize files. **Figure 2** represents the simplest type of ProDOS directory, and **Figure 3** a more complex one.

The trunk of the tree is the *volume directory*. Just as branches radiate from the trunk, subdirectories and filenames on a disk volume "grow" from the volume directory. To reach a ProDOS file, you must follow a path "up" the volume directory and "along" any subdirectories to the file. This route is called the *pathname*, and consists of a volume directory name, any subdirectory names, and the filename. The entire pathname is analogous to DOS 3.3's filename. To define a file in ProDOS, you need to specify the entire pathname.

For example, you might assign the name PETS to a ProDOS disk that will store information about household animals. Under the categories DOGS and CATS, you could then store the respective information about those species. **Figure 4** shows how your disk would be arranged.

But suppose you wanted to store more detailed information, not just about dogs and cats, but about specific

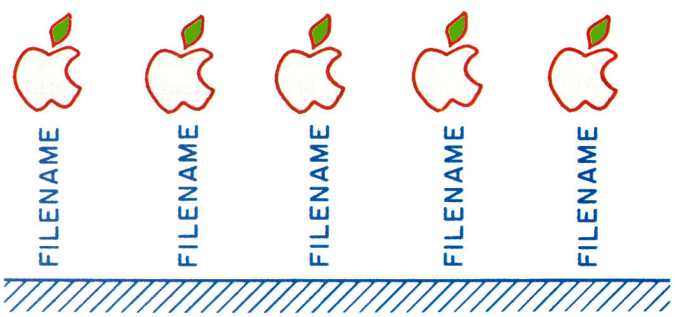


Figure 1. *DOS 3.3 directory.*

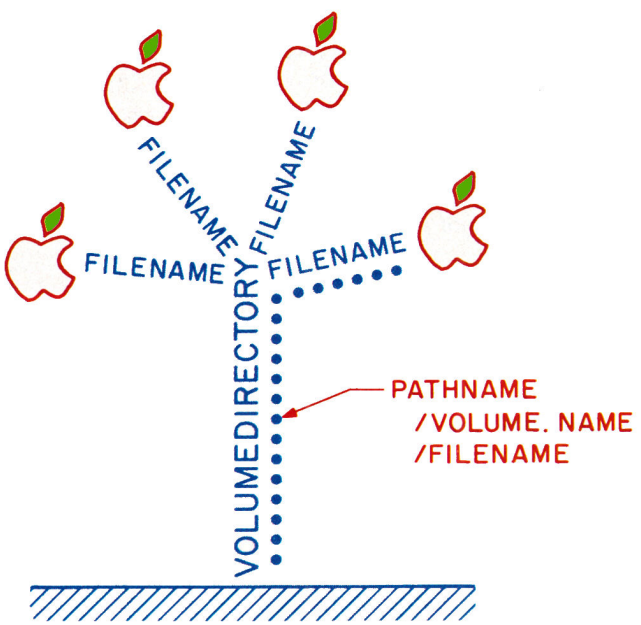


Figure 2. *The hierarchical structure of a ProDOS directory demonstrates how a volume is organized.*

Circle 143 on Reader Service card.

ELEPHANT DISKS
SS/SD 13.95
SS/DD 14.95
DS/DD 18.95

VERBATIM
SS/DD 16.95
DS/DD 22.95
Head Cleaning Kit 5.79

DISKETTE-70 14.95

INSIDE OHIO
1-614-868-5007
YOUR TOLL FREE ACCESS OUTSIDE OHIO
1-800-228-0755
CALL...FOR THE BEST PRICES...
BEST DELIVERY...
We have hundreds of other programs in stock at Fantastic savings.

SILICON EXPRESS

SUPERSAVER SPECIALS...COPY II+ 21.95•ESSENTIAL DATA DUPLICATOR 48.95•BEAGLE BROS. D-CODE 24.95

ABC Alphabet Beasts	22.95
Add'l Fonts & Char	13.95
Addition Magician	22.95
Air-Sim 3	31.95
Algebra I thru IV	ea. 26.95
Algebra V & VI	34.95
Alphabet Zoo	18.95
Alpha Plot	24.95
Amazon	31.95
Apple Mechanic	18.95
Arcade Boot Camp	20.95
Archon	29.95
ASC II Pro	81.95
Axis Assassin	14.95
Bag of Tricks	27.95
Baltic '85	24.95
Bank Street Filer	43.95
Bank Street Mailer	43.95
Bank Street Writer	43.95
Bank Street Speller	45.95
Baron	34.95
Battle for Normandy	27.95
Battle of Shiloh	27.95
Beach Landing	27.95
Beagle Bag	18.95
Beagle Basis	22.95
Beagle Graphics	36.95
Beneath Apple DOS	14.95
Bnth. Apl. Pro DOS	14.95
Beyond Cast. Wolf.	24.95
Blazing paddles	35.95
Bomb Alley	41.95
Bookends	74.95
Bouncing Kamangas	19.95
Broadsides	27.95
Bruce Lee	24.95
Bumble Games	24.95
Bumble Plot	24.95
Calcstar	129.95
Carrier Force	41.95
Captain Goodnight	24.95
Cartels & Cutthroats	27.95
Castle Wolfenstien	19.95
Cat Graphics	20.95
Chshp. Load Runner	23.95
Chess	48.95
Chivalry	34.95
Chop Lifter	24.95
Cogito	23.95
Complete Graphics	55.95
Compu-Math Arthm.	32.95
Compu-Math Decmls.	32.95
Compu-Math Frctns.	32.95
Compu-Read	19.95
Computer Ambush	41.95
Computer Baseball	24.95
Computer Bismark	41.95
Computer Qrtrbck.	27.95
Computer Bal. I or II	27.95
Copy II -	21.95
Cosmic Balance II	25.95
Coveted Mirror	21.95
Creature Creator	27.95
Crossword Magic	33.95
Crypto Cube	27.95
Crypt of Medea	21.95
Cubit	25.95
Cut & Paste	35.95
Cytron Master	27.95
Dallas Quest	24.95
Data Capture	CALL
Datalife Analyzer	24.95
Dazzle Draw	41.95
DB Master	224.95
DB Master Utility Pk	89.95
DB Stat Pack	89.95
D-Code	24.95
Deadline	29.95
Delta Drawing	31.95
Disk Arranger	20.95
DiskQuick	18.95
Disk Repair Kit	20.95
Dollars & Sense	67.95
Dollars & Sense IIC	78.95
DOS Boss	14.95
Double-Take	22.95
Dragonworld	31.95
Drol	24.95
Eagles	27.95
Early Games	19.95
Enchanter	23.95
Epidemic	24.95
Essential Data Dup	48.95
Expedition Amazon	24.95
Facemaker	21.95
Farenheit 451	31.95
Fat Cat	22.95
Fat City	27.95
FCM	69.95
50 Mission Crush	27.95
Fighter Command	41.95
Financial Cookbook	35.95
Flashcalc	69.95
Flex Type	18.95
Fontrix	44.95
Fntpaks 1 thru 10	ea. 11.95
Format II	94.95
Fortress	24.95
Fraction Factory	19.95
Fraction Fever	21.95
Frame-Up	18.95
General Manager II	144.95
Geopolitique 1990	25.95
Germany 1985	38.95
Gertrude's Puzzles	27.95
Gertrude's Secrets	27.95
Glactic Gladiators	27.95
Goren Bridge	51.95
Grandma's House	21.95
Graphics Department	82.95
Graphics Magician	37.95
Graphics Solution	104.95
GPLE	32.95
Guadalcanal	41.95
Hands on BASIC	53.95
Hard Hat Mack	24.95
Hey Diddle Diddle	18.95
Hitchhiker's Guide	26.95
Home Accountant	47.95
Home Cataloger	34.95
Homeword	46.95
Homeword Filer	46.95
Homeword Speller	32.95
Image Printer II	34.95
Infidel	26.95
Infostar	279.95
I.O. Silver	19.95
Juggle's Rainbow	18.95
Karateka	24.95
Key Ingo	23.95
Kids on Keys	18.95
Kid Writer	21.95
Kinder Comp	18.95
Knight of Diamonds	21.95
Knights of the Desert	27.95
King's Quest	34.95
Know Your Apple IIE	17.95
Last Gladiator	14.95
Legacy of Llylgamyn	25.95
List Handler	55.95
Magicalc	99.95
Magic Paint Brush	24.95
Magic Spells	22.95
Magic Window II	93.95
Map Pack	13.95
Mask Parade	27.95
Mastering the GRE	96.95
Mastering the SAT	96.95
Master Type	25.95
Match Maker	19.95
Math Blaster	32.95
Math Maze	27.95
MegaFinder	104.95
MegaWriter	66.95
Merlin	45.95
Mico Cookbook	25.95
Mickey's Space Adv.	27.95
Microgammon II	13.95
Micro Habitats	23.95
Micro Speed Reading	83.95
Millionaire	34.95
Miner 2049er	25.95
Minit Man	19.95
Multiplan	129.95
Most Amazing Thing	25.95
Movie Maker	41.95
Munch-A-Bug	27.95
Murder by the Dozen	34.95
Murder on the Zind.	28.95
Music Construction	28.95
Napoleon's Campaign	41.95
Net Worth	52.95
North Atlantic 86	38.95
Nursery Rhymes	23.95
Objective Kursk	41.95
Old Ironsides	27.95
One-On-One	28.95
Orca/M	69.95
Paper Graphics	34.95
Pattern Maker	26.95
Pensate	20.95
PFS: Access	45.95
PFS: Write	74.95
PFS: File	74.95
PFS: Proof	CALL
PFS: Report	74.95
PFS: Graph	74.95
PFS: Solutions	ea. 14.95
Phi Beta Filer	32.95
Piece of Cake Math	24.95
Pie Man	20.95
Pie Writer	98.95
Picture Builder	27.95
Picture Writer	20.95
Pinball Construction	28.95
Pixit	36.95
Planetfall	23.95
Practicalc II	48.95
President Choice	27.95
Printographer	34.95
Print Shop	34.95
Print Shop Cmpn.	CALL
Prisoner II	22.95
Pro Golf Challenge	24.95
Pronto DOS	18.95
PSAT Word Attack	33.95
P-Term	90.95
Puzzle Mania	23.95
Puzzle Master	24.95
Reading	24.95
Shapes	24.95
Story Machine	21.95
Story Maker	24.95
S.E.U.I.S.	27.95
Sum Ducks	24.95
Super Spd Reading	69.95
Super-Text Pro	119.95
Suspect	26.95
Take 1	44.95
Tax Advantage	44.95
Tax Break Annual	89.95
Tax Break Planner	124.95
Terapin Logo	62.95
Things That Go	23.95
Think Tank	98.95
Three Mile Island	27.95
Tigers in the Snow	27.95
Time is Money	69.95
Tip Disk #1	13.95
Titan Empire	24.95
Trains	CALL
Transitions	34.95
Transylvania	24.95
Trap-A-Zoid	27.95
Triple-Dump	25.95
Tycoon	34.95
Type Attack	20.95
Typefaces	13.95
Typing Tutor II	16.95
Typing Tutor III	33.95
Ultima II	41.95
Ultima III	35.95
Utility City	18.95
Versaform	199.95
Visable 6502	37.95
War in Russia	55.95
Warp Factor	27.95
Wevater's Numbers	27.95
Wilderness	33.95
Winnie the Pooh	27.95
Witness	23.95
Wizardry	31.95
Wizard of Id's Type	24.95
Wizard of Id's Math	24.95
Wizprint	18.95
Word Attack	32.95
Word Challenge	27.95
Word Handler	55.95
Word Spinner	23.95
Wordstar	229.95
Wrdstr w/Starcard	324.95
Write Choice	32.95
Xyphus	24.95
Zaxxon	24.95
Zoom Grafix	32.95
Zork I	23.95
Zork II or III	26.95
Z-Term	104.95

HARDWARE

Alphabits	84.95
Apple Cat II	223.95
Buffrd Grappler +	182.95
Compuserve Starter	27.95
Cricket	125.95
Echo II	90.95
Enhancer II	116.95
Grappler +	99.95
Grappler + (Serial)	89.95
Koala Pd	79.95
Lemon	42.95
Lime	62.95
Mach II II+ Joystick	27.95
Mach II IIe Joystick	31.95
Mach III II+ Joystick	34.95
Mach III IIE Joystick	38.95
Micromodem IIE	223.95
Microsci A2 Drive	CALL
Mockingboard A	89.95
Mockingboard B	77.95
Mockingboard C	157.95
Muppet Pad	55.95
Orange Interface	64.95
PSIO Card	174.95
Quentin Disk Drives	CALL
Soft Vido Switch	26.95
Super Fan II	56.95
Switchpalte	14.95
System Saver Fan	64.95
Ultraplan	118.95
Ultraterm	248.95
Videoterm	177.95
Wildcard 2	102.95

PRINTERS

Gemini-10X	254.95
Gemini-15X	394.95
Delta-10	394.95
Delta-15	548.95
Radix-10	619.95
Radix-15	719.95
Powertype	344.95
Okidata 82A	324.95
Okidata 83A	569.95
Okidata 92p	424.95
Okidata 93P	684.95
Daisywriter	884.95
Juki	424.95
Colored Printer Rbns	CALL

MONITORS

Amdek Color I	274.95
Amdek Color II	428.95
Amdek 300G	134.95
Amdek 300A	148.95

SILICON EXPRESS
4555-11 Groves Road Columbus, Ohio 43232
1-614-868-5007

YOUR ORDER FORM
SILICON EXPRESS
4555-11 Groves Road Columbus, Ohio 43232

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CHARGE CARD # _____ Exp. Date _____

QTY.	DESCRIPTION	PRICE
	SHIPPING	
	TOTAL	

We accept Mastercard & Visa. Personal checks allow 2 weeks. Shipping charges are $2.50 for software & $10.00 for printers & monitors. Ohio residents add 5½% state sales tax. Prices are subject to change without notice.

breeds? You could set up subdirectories named DOG and CAT, rather than just files by those names. Then, you could name files in those subdirectories for different breeds, as shown in **Figure 5**.

If you're *really* serious about pets, you might want to keep information about different varieties within each breed. One way to do this would be to name files that correspond to both the breeds and varieties (**Figure 6**). You could also set up a *second level* subdirectory for breeds, then name the files for the varieties (**Figure 7**).

ProDOS generously provides both these options. If you were dependent upon DOS 3.3 for this exercise, you'd have to lump dogs and cats together (a possibly precarious situation) into one group of files on the disk. (See **Figure 8**.) You could distinguish among dogs, cats, breeds, and varieties only by the filename, but compare **Figure 8** to **Figure 7**. See how much more logical ProDOS's tree-structured file arrangement is?

The Hard Disk Advantage

DOS 3.3's one-level file arrangement is adequate for the relatively small storage capacity of floppy disks. But ProDOS, with its tree-structured file arrangement, can handle the thousands of files stored on hard disks. When you tell ProDOS to set up a subdirectory, it reserves part of the hard disk large enough to store the files in that subdirectory. In effect, ProDOS turns a hard disk into a group of variable-size floppy disks, each of which can be located by naming its subdirectory.

Pathnames

As I mentioned, to define a file in ProDOS, you must name its volume directory, subdirectory(ies), and filename. This sequence of names is called the *pathname*. Just as DOS 3.3 has rules for naming files, ProDOS has rules for defining pathnames. Refer to **Table 1** as you read these rules:

- The pathname must contain all the elements that define the file's location: volume name, subdirectory name(s), and filename.
- These elements must be set off by slashes (/).
- The elements can't contain more than 15 characters each (excluding slashes).
- The first character of each element must be a letter.
- Remaining characters can be letters, numbers, or periods.
- You can use lowercase characters, but ProDOS will convert them to uppercase.

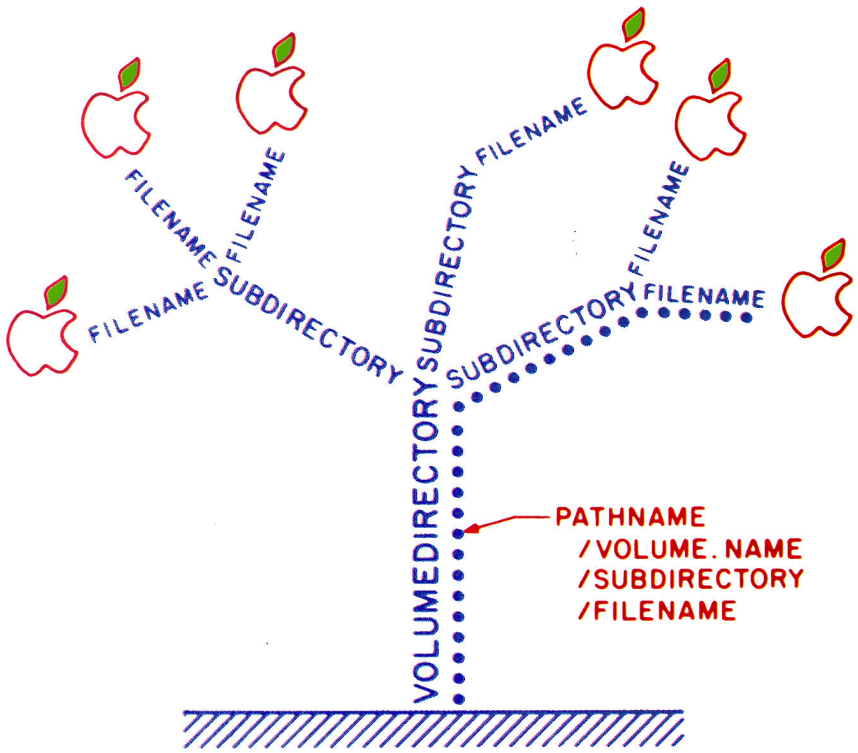


Figure 3. *ProDOS directory represented as a tree.*

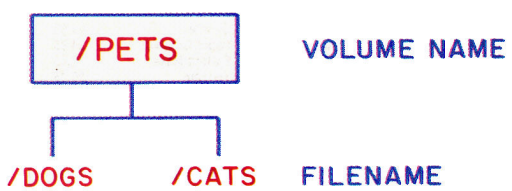


Figure 4. *One-level ProDOS directory.*

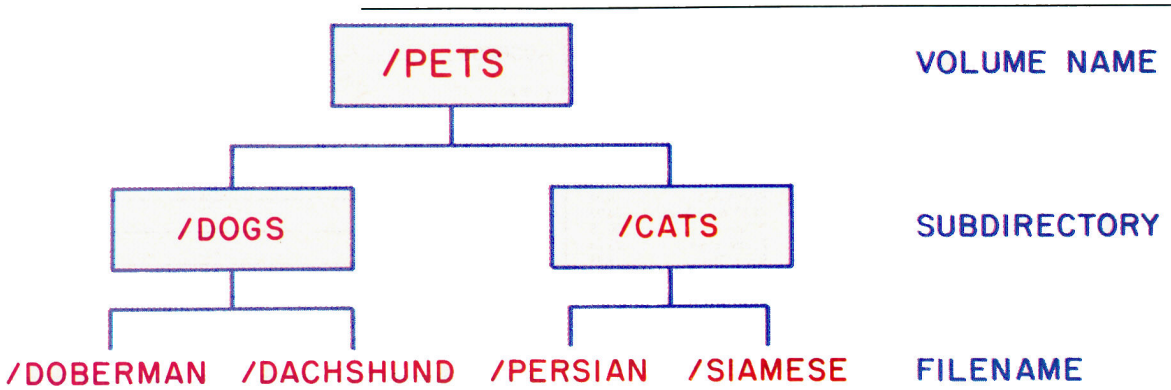


Figure 5. *Two-level ProDOS directory.*

Circle 108 on Reader Service card.

Back-up Your Floppy with Diversi-Copy™

A New Breakthrough

Diversi-Copy will copy unprotected floppy disks faster and more easily than any other copy program.

Don't get burned by a bad disk!

Back-up your disks with Diversi-Copy.

Verifies Every Byte

Diversi-Copy checks every byte written on the disk, so you know your copies are good.

Shows Motor Speed

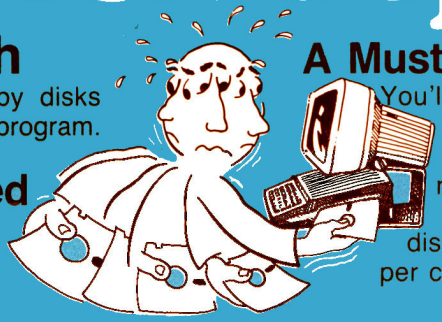
Diversi-Copy displays motor speed on each track while making a copy, eliminating a major source of disk errors.

Formats Data Disks

You can use Diversi-Copy to format data disks for ProDOS, DOS 3.3, Pascal, or CP/M (18 seconds per disk).

Mass Production

Diversi-Copy can mass produce 1 disk every 18-20 seconds, faster than most duplication machines (may require extra 128K card for full disks).



A Must For The Apple //c

You'll be amazed how much easier it is to make back-ups on the new Apple //c. Diversi-Copy makes copies without all those annoying re-insertions of the disks. You'll save over 2 minutes per copy, and save your sanity too!

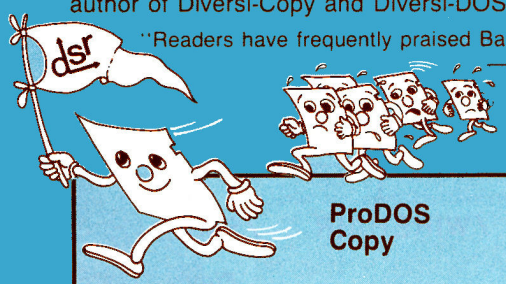
For Unprotected Disks

Diversi-Copy will copy all unprotected Pascal, CP/M, DOS 3.3, and ProDOS disks. It can't copy protected program disks, but it usually will copy data disks produced by these programs. Works on Apple //c, //e or II+ compatible computers.

We Back You Up Too

Mail and telephone support is available from Bill Basham, author of Diversi-Copy and Diversi-DOS.

"Readers have frequently praised Basham's support."
—*Softalk Magazine*



	ProDOS Copy	Diversi-Copy*
1-Drive Copy (50% Full Disk)	172 sec. 18 insertions	36 sec. 2 insertions
1-Drive Copy (100% Full Disk)	172 sec. 18 insertions	44 sec. 4 insertions
2-Drive Copy	80 sec.	33 sec.

* On 128K Apple //e or //c

Also From DSR, Inc.
Diversi-DOS™ Still The Best!

The top-rated DOS 3.3 enhancement program. Speeds up read/write of BASIC, Binary and Text files. DOS mover frees 10K additional memory. Includes new insert/delete mode, improved BASIC listings, keyboard MACROS, wildcard filenames, text file printer, keyboard/print buffers, and MORE! Works on Apple //c, //e, or 64K II+.

RAM Disk Emulator Now Included

Use the extra 64K in the //c or //e extended 80-column card as a high-speed pseudo-disk drive. Also works with most 128K cards in any slot.

24-Hour Toll Free Ordering

800-835-2246 ext. 127 (orders only)
For information, call 815-877-1343.
Disks normally shipped within 24 hours.
Sold by mail-order only.
Price includes 1st class or foreign airmail.
Return in 30 days for full refund if not totally satisfied!
FREE: Dogfight II arcade game, by Bill Basham included on each disk.

NEW: Diversi-DIAL™

Start your own CB-simulator on an Apple with 7 modems. Try our station at 815-877-9521 (300-baud modem).

"More fun than humans should be allowed to have!"

☐ Diversi-Copy ... $30
☐ Diversi-DOS $30

dsr

Diversified Software Research, Inc.
5848 Crampton Court
Rockford, IL 61111

Name: _____

Address: _____

City: _____

State: _____ Zip Code: _____

Visa/MasterCard, C.O.D., or personal check accepted

Card #: _____

Expiration Date: _____

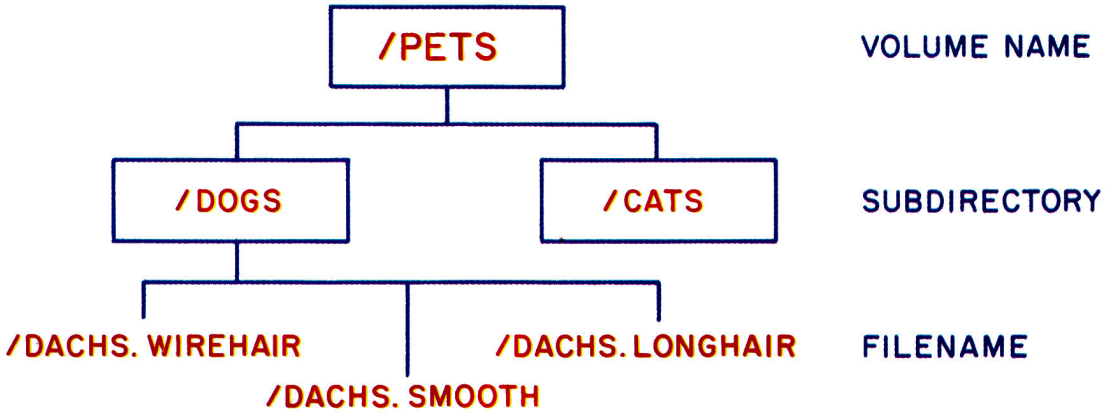


Figure 6. *Two-level ProDOS directory with expanded filenames.*

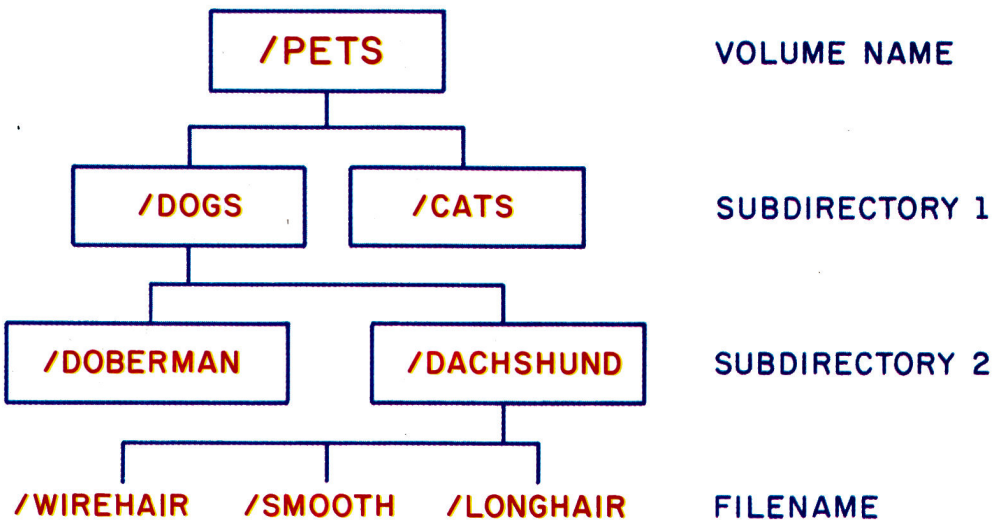


Figure 7. *Three-level ProDOS directory.*

Table 2. *Valid and invalid pathname examples.*

Valid Pathnames	Invalid Pathnames	Violated ProDOS Rule
/USERS.DISK	/APPLE'S.PRODOS	Only punctuation allowed is a period
/MY.OWN.DISK	/APPLE COMPUTER	Spaces not allowed
/LETTER.7.13.84	/3.BLIND.MICE	First character must be a letter
	/APPLE.MACINTOSH .COMPUTER	Fifteen characters maximum

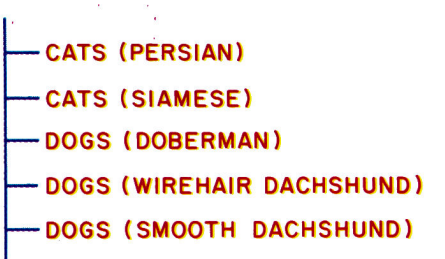


Figure 8. *DOS 3.3 directory.*

- The pathname can't contain more than 64 characters (including slashes).

Refer to **Table 2** for examples of valid and invalid pathnames. **Table 3** summarizes the differences between DOS 3.3 and ProDOS filenames.

If you had to define the entire pathname every time you accessed a file, you would soon tire of typing. To make it easier to use certain files repeatedly, ProDOS allows you to instruct the computer to temporarily remember a part of the pathname called a *prefix*. The computer attaches this prefix to all files you specify until you give it another prefix to remember. For example, if you instructed ProDOS to attach the prefix /PETS/DOGS to a filename, you could access the dog information in **Figure 7** by typing in the breed and variety of dog. If you typed /DACHSHUND/WIREHAIR, ProDOS would attach the prefix to yield the filename /PETS/DOGS/DACHSHUND/WIREHAIR. Or, if you set the prefix to PETS/DOGS/DACHSHUND, you could access the same file with the filename /WIREHAIR.

Table 3. *ProDOS and DOS 3.3 filenames comparison.*

ProDOS Filenames	DOS Filenames
Up to 15 characters	Up to 30 characters
Begin with a letter	Begin with a letter
Numbers, letters, periods only	Any character (including control characters)
No spaces allowed	Spaces allowed

Well, I've "put on the dog" enough for now. Understanding its file structure is the most important step toward understanding ProDOS. Next month, in Part 2, I'll discuss the techniques for using ProDOS from built-in menus. Join me then. ■

Address correspondence to Lee Swoboda c/o Padapple Computer Consulting, 1451 NE Paulson Road, Poulsbo, WA 98370. Representative questions will be answered in future articles in this series or in inCider's *Letters department.*

What you should know about the International Apple Core.

If you're like most Apple users, you don't realize the many benefits of an IAC membership. Or what it can do for you and your computer.

So what's an IAC?

International Apple Core™ is a non-profit organization of Apple users and user groups. We are dedicated to providing education, information and support to users of Apple and Apple-compatible products.

We aren't just for clubs. An individual can enjoy all the special benefits we have been providing user groups since 1979. You may share information on new applications. Or learn the latest on products. Or keep up on Apple events. Even receive specialized training.

If you'd like to join a local user group or contact other Apple enthusiasts, we can help you find them.

A membership That pays you.

As a member of IAC you nearly get paid with what you will save. By joining you will save nearly $20 on our electronic spreadsheet, *IACcalc*™. Not to mention all the other benefits only available to you as a member.

Information, please.

IAC provides many sources of information. Your $30 yearly membership fee brings a 12-issue subscription to *Nibble* magazine devoted to Apple systems and compatibles. *Nibble* features more than $50 worth of ready-to-run Apple programs in each issue. The programs focus on home, business, education and entertainment. *Nibble* also features new products, reviews, tips and techniques for learning more about your Apple and having fun doing it!

You will be eligible to receive the IAC *Disk of the Month*, a subscription to user contributed software. Each disk presents themes like games, education, or a potpourri.

Get an education.

You'll receive many educational benefits from our software programs. Our 3Pak™ series of theme packaged programs includes Educational, Financial, Games and the popular Logo. We have an Applesoft Tutorial and Education disk which is great for children.

Support for your Apple and you.

For as little as $50 annually and no deductible, you can protect your hardware, software and disks for up to $15,000.

Attach-Bios and *CP/M→SOS Converter* are ideal disks for Apple II Pascal and Apple III CP/M® application writers, vendors and users. All documentation is on the disks and no softcard is required to run Converter.

Invite your friends and save.

IAC offers user groups a special package. For $90 your group receives a full year IAC membership and a subscription to Nibble. Included are the Disks of the Month and a listing of other IAC affiliated user groups world wide.

Individually or as a group you can't lose. So fill out the membership coupon below. And don't forget to ask for our product catalog.

The companies we keep.

Here is a list of the corporations that support and sponsor the International Apple Core.

Apple Computer Inc., Cupertino, CA
Brock Software Products, Crystal Lake, IL
Burtronix, Orange, CA
Digital Research, Pacific Grove, CA
East Side Software Co., New York, NY
Educational Software Products, Glencoe, IL
Electronic Arts, San Mateo, CA
General Microcomputer, Inc., Michigan City, IN
Hayes Microcomputer, Norcross, GA
Houston Instrument Division, Austin, TX
Howard D Sams Co. Inc., Indianapolis, IN
M&R Enterprises, Santa Clara, CA
Macworld, San Francisco, CA
Multi-Tech Systems, Inc., New Brighton, MN
Nestar Systems, Inc., Palo Alto, CA
Nibble/microSPARC, Inc., Lincoln, MA
Source Telecomputing, McLean, VA
Sundex Software Corporation, Boulder, CO
Turning Point Software, Watertown, MA
Vagabondo Enterprises, Aptos, CA
Verbatim Corporation, Sunnyvale, CA

Apple, Apple II, Apple III and SOS are registered trademarks of Apple Computer, Inc.
International Apple Core is Licensed by Apple Computer, Inc. to use certain of the latter's trademarks.
IACcalc and 3Pak are trademarks of International Apple Core.
CP/M is a registered trademark of Digital Research.
Nibble is a registered trademark of microSPARC, Inc.

Membership Application

☐ $30 U.S. Individual
☐ $40 Canada & Mexico Individual
☐ $72 International Individual
☐ $90 U.S. User Group Package
☐ $152 International User Group Package

Name _____

Address _____

City _____

State/Zip _____ Country _____

All Memberships Include a 12-Month Subscription to Nibble.

Please allow 6 to 8 weeks for the delivery of your first Nibble.

☐ Payment enclosed (U.S. funds only)
☐ VISA ☐ MasterCard
☐ Please send your product catalog.

Charge Card No.
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Interbank No. ☐☐☐☐ Expiration Date ☐☐ MO ☐☐ DAY ☐☐ YEAR

Signature

INTERNATIONAL APPLE CORE™
908 George Street
Santa Clara, CA 95050

Circle 157 on Reader Service card.

Circle 179 on Reader Service card.

Beagle Bros Apple® Software Report

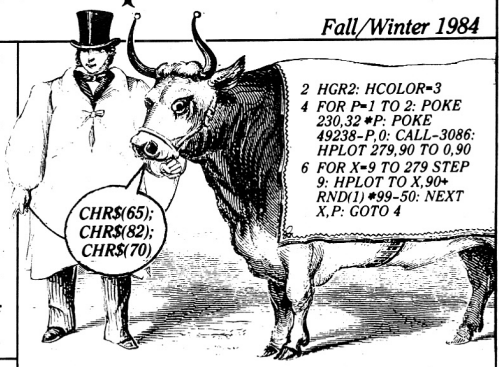
Ad Number 182 — *"All the News That Fits"* — *Fall/Winter 1984*

"How can I make *my* Apple do that?"

The nice thing is you *can* make your Apple do anything you can think of, with just a little help—Beagle Bros software helps make your Apple a more powerful machine, and *you* a better programmer.

BEAGLE BROS, THE UTILITY LEADERS: Beagle Bros' low-priced unprotected disks dominate the Apple Utility bestseller lists. And Beagle disks were recently voted to **FOUR of the TOP-24** spots in *Softalk's* "Most Popular" poll— that's against *all* Apple software publishers in *all* categories.

APPLE SECRETS REVEALED: Since 1980, our authors have been on the lookout for tips and techniques that can be shared with our customers. From our inspectable programs to our informative instructions and Apple Tip Books, you will learn from the experts. Here's a tip you probably won't find in any of Apple's manuals—To reveal the hi-res screen without erasing it, simply type ***CALL-3100*** instead of the awkward "POKE-16297,0: POKE-16304,0: POKE-16300,0". A secret technique? Not any more.



GPLE™

GLOBAL PROGRAM LINE EDITOR

$49.95 (DOS 3.3 *and* ProDOS™, compatible with any version of Apple II)

GPLE makes editing Applesoft program lines a breeze—INSERT & DELETE characters and commands just as you would with a word processor. No more awkward time-consuming "cursor-tracing" to make changes to your Applesoft programs.

SEARCH & REPLACE finds every occurrence of a string or variable in a program. Or change any word to any other. For example, change all X variables to ABC, or all "Horse" strings to "Cow".

GPLE makes every key a "function key". For example, ESC-N can type your name, ESC-1 can Catalog Drive 1; ESC-P can execute a PR#1, etc.

DISKQUIK™

"IN MEMORY" DISK DRIVE

$29.50 (DOS 3.3, requires Apple IIc or 128K IIe)

DiskQuik makes your 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 "CATALOG,S3", and save & load all kinds of files to and from RAM with normal commands. (holds about *half* the data of a disk.)

DiskQuik has many uses. For example, load often-used files into memory when you boot up, so they are always available when you need them.

```
5 INVERSE: PRINT SPC(7): A=A+1-3*(A=3)
8 POKE 2053,A+156: B=B+1: IF B<143 THEN 5
```

BEAGLE BASIC™

APPLESOFT ENHANCER

$34.95 (DOS 3.3, compatible with Apple IIe or 64K II+)

Beagle Basic loads Applesoft into RAM and enhances it by replacing unused cassette commands (Shload, etc.) with *new commands* like ELSE—

IF X=2 THEN PRINT "YES": *ELSE* PRINT "NO"

Plus **HSCRN** reads the color of a hi-res dot for collision testing, **SWAP** exchanges variable values, **TONE** writes music without messy Pokes or Calls, **SCRL** scrolls text in *either* direction.

GOTO and GOSUB may precede variables, as in "GOSUB FIX" or "GOTO 10+X". Replace awkward graphics screen pokes with one-word commands, change your ctrl-G Beep to any tone you want...

Rename Applesoft commands & error messages to anything. For clarification, encryption-protection or even foreign translation. For example:

```
10 POUR X=1 TO 3: ECRIVEZ "BONJOUR": ENSUITE
```

DOUBLE-TAKE™

2-WAY SCROLL/MULTI-UTILITY

$34.95 (DOS 3.3 *and* ProDOS™, compatible with any version of Apple II)

2-WAY SCROLLING: Listings & Disk Catalogs scroll Up *and* Down, making file names and program lines easier and faster to find. Change scroll-direction with the Arrow keys. Machine Language and Hex/Ascii dumps scroll two-ways too.

BETTER LIST FORMAT: Each Applesoft program statement lists on a new line for *FAST* program tracing & de-bugging. Printer-compatible in any column-width—Great for archive printouts.

```
A$="Dogfood"  ←VARIABLE-DISPLAY: prints
X=3.14159       all of a program's strings &
Y=255           variables with current values.

A$: 5 10 150  ←CROSS-REFERENCE: Sorts
X: 10 20 3000   & displays line numbers of
Y: 5 40 55 60   each variable & string.
```

Plus **AUTO-LINE-NUMBER**, hex-dec converter, better renumber-append, program stats, eliminate or redefine the cursor, free space-on-disk...

DOS BOSS™

DOS 3.3 EDITOR

$24.00 (DOS 3.3, compatible with any version of Apple II)

Reword DOS— Change *Catalog* command to *Cat,* or *Syntax Error* to *Oops!,* or anything you want.

PROTECT PROGRAMS: Unauthorized Save-attempt can print "Not Copyable". **List-Prevention** and other useful tips, plus fascinating experiments.

SILICON SALAD™

MULTIPLE UTILITY

$24.95 (DOS 3.3, compatible with any version of Apple II)

100+ great programs: ***Program Splitter*** makes room for hi-res in large programs, ***Disk Scanner*** finds bad sectors, ***DOS-Killer*** adds 2 tracks of disk space, ***2-Track Cat*** allows double files on a disk, ***Text Imprinter*** converts text-screen into hi-res...

Beagle Bros
Micro Software Inc.

The Apple Programmer's Best Friend

BEAGLE BROS, INC.
3990 OLD TOWN AVENUE, SUITE 102C
SAN DIEGO, CALIFORNIA 92110 ***619-296-6400***

The Beagle Bros Catalog

■ *GRAPHICS* ■

❑ **ALPHA PLOT** (II+, IIe, IIc, DOS 3.3) **$39.50**
Normal hi-res (6 colors, 280x192 pixels) drawing and typing on both hi-res pages. Compress pictures to 1/3 disk space.

❑ **APPLE MECHANIC** (II+, IIe, IIc, DOS 3.3) . . **29.50**
Create hi-res shapes for animation with Applesoft's DRAW & XDRAW commands. Put fancy hi-res type in your programs. List & learn demo programs teach you hi-res programming.

❑ **APPLE MECHANIC TYPEFACES . . . 20.00**
26 new editable fonts to be used with Apple Mechanic.

❑ **BEAGLE GRAPHICS** (IIe or 128K IIc, 3.3/Pro) **59.95**
NEW! Double hi-res drawing (16 colors, 560x192 pixels) and typing in many typestyles (all editable). Color fill, cut & paste, 200+ color mixes. 33 new commands for using double-res in your programs. Compress picture data to 1/3 disk space...

❑ **FLEX TYPE** (II+, IIe, IIc, DOS 3.3) **29.50**
Variable-width text (wide/normal/condensed) controllable with normal Applesoft commands. No 80-column card reqd.

❑ **FRAME-UP** (II+, IIe, IIc, DOS 3.3) **29.50**
Make Apple "slide shows". Keyboard controlled or unattended, using your existing hi-res, lo-res and text screens.

❑ **TRIPLE-DUMP** (II+, IIe, IIc, 3.3/Pro) **39.95**
NEW! Transfer any image including double hi-res to your dot matrix printer. Make Giant (8" high characters) Banners too.

■ *ALL-PURPOSE* ■

❑ **DISKQUIK** *(described in this ad)* **29.50**

❑ **FATCAT** (II+, IIe, IIc) **34.95**
NEW! Reads all of your DOS 3.3 and ProDOS file names into one or more Master Catalogs for sorting, searching and printing. Alphabetize file names on disks. Compare any two files.

❑ **PRONTO-DOS** (II+, IIe, IIc, DOS 3.3) **29.50**
Triples the speed of loading and saving. New TYPE command displays text file contents. Move DOS for extra 10K.

■ *PROGRAMMING* ■

❑ **BEAGLE BASIC** *(described in this ad)* **34.95**

❑ **DOS BOSS** *(described in this ad)* **24.00**

❑ **DOUBLE-TAKE** *(described in this ad)* **34.95**

❑ **GPLE** *(described in this ad)* **49.95**

❑ **SILICON SALAD** *(described in this ad)* **24.95**

❑ **TIP DISK #1** (II+, IIe, IIc, DOS 3.3) **20.00**
100 tips on disk from Tip Books 1-4. Fascinating Apple programming techniques. Includes Apple Command Chart.

❑ **UTILITY CITY** (II+, IIe, IIc, DOS 3.3) **29.50**
21 utilities— List-formatter puts each statement on a new line, multi-column catalogs, invisible/trick file names, etc.

■ *GAMES* ■

❑ **BEAGLE BAG** (II+, IIe, IIc) **29.50**
12 games on one disk. Voted to 1983's MOST POPULAR list in *Softalk* poll. The best Apple game bargain on the market.

GOTO your favorite software store. If they are out of a particular Beagle Bros disk, get on their case; they can get it for you immediately from any software distributor.

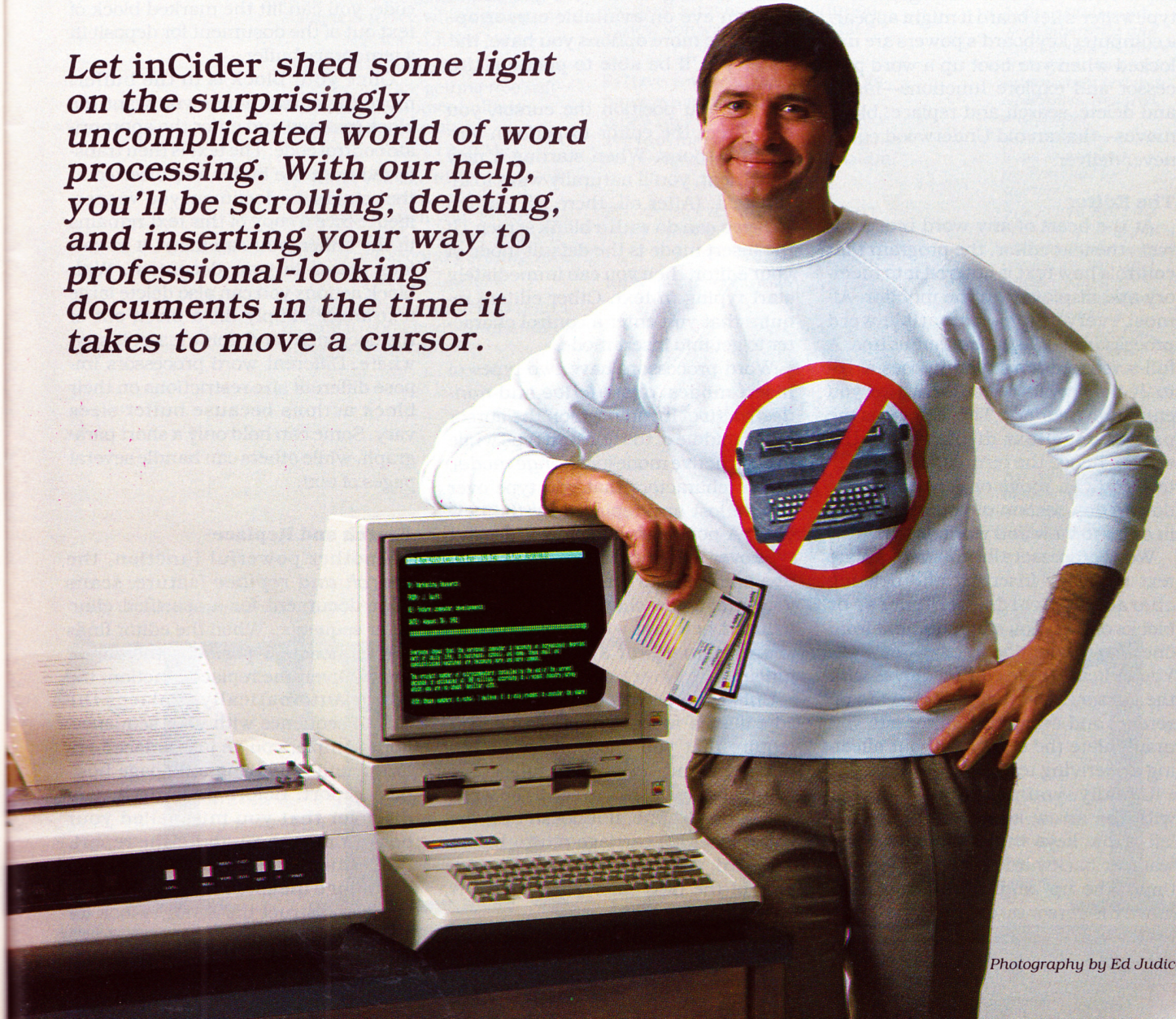
OR buy directly from Beagle Bros by phone or mail. *PHONE:* Visa/MasterCard/COD orders, phone toll free. *MAIL:* Send check or Visa/MC numbers to Beagle Bros. Add $1.50 shipping +6% if Calif. *We ship immediately.*

Toll Free: **1-800-227-3800 ext.1607**
(Orders only, please: Visa/MasterCard or COD.
For product information, phone **619-296-6400.**)

Word Processing Illuminated

by Bob Ryan, inCider staff

Let inCider shed some light on the surprisingly uncomplicated world of word processing. With our help, you'll be scrolling, deleting, and inserting your way to professional-looking documents in the time it takes to move a cursor.



Photography by Ed Judice

Two a.m. You've been typing for hours to meet a morning deadline. Your typewriter carriage is smeared with fossil-like traces of White-out and dusted with eraser crumbs. The room reeks of paper glue—you've been cutting and pasting, reorganizing paragraphs, rearranging sentences. Then, as you're proofreading, the old spelling-rule chant rises up in your brain: "I before E, except after C. . ." and you realize your document is full of "recieves," "acheives," "beleives," and "greives." You begin to *grieve*.

But isn't writing—whether it's a club newsletter, term paper, office memo, or State of the Union address—always fraught with such difficulty? Not necessarily, and especially not in this, the editing stage, when you compose on a word processor. If you've never used a word processor, or have just begun to work on one, you're in for a conversion experience. However analogous to a typewriter's keyboard it might appear, a computer keyboard's powers are unlocked when you boot up a word processor and explore functions—insert and delete, search and replace, block moves—that an old Underwood could never deliver.

"If you've never used a word processor, or have just begun to work on one, you're in for a conversion experience."

The Editor

At the heart of any word processor rests the text editor, the program that controls how text is entered into memory and displayed on the monitor. Almost every Apple-compatible word processor uses a *full-screen editor*. A full-screen editor superimposes a 16- to 24-line "window" onto the text you enter into memory. The window is the part of your text displayed on the screen, hence the term full-screen editor. You can move or *scroll* the window to any section of your document in order to view and work on text.

Word processors let you manipulate text easily by inserting and deleting characters, words, sentences, or blocks of text. You can move text from one area of your document to another. You indicate these editing moves with the *cursor*, a symbol that appears on screen, and every text editor lets you manipulate the cursor without affecting underlying text.

Usually, you position the cursor with the arrow keys. The right- and left-arrow keys move the cursor forward or backward one character at a time. The up- and down-arrow keys move the cursor up or down one line of text. (Word processors that support the Apple II and II Plus often use control keys instead of the up- and down-arrows on the //e and //c.) Most word processors let you move the cursor more than one character or line at a time; some move a word or a sentence at a time and set tabs; others move to the preceding or next window in the text. Many editors jump the cursor to the beginning or the end of the text. When looking for a word processor, keep an eye on available cursor options. The more options you have, the faster you'll be able to position the cursor.

Once you position the cursor, you can direct the editor to perform various functions. When starting a new document, you'll naturally want to insert text. (After all, there isn't much else you can do with a blank screen.) If the insert mode is the default mode of your editor, then you can immediately start typing in text. Other editors require that you enter a control character to get into insert mode.

Word processors have two types of insert modes: *destructive* and *nondestructive*. If you position the cursor in the middle of the text and type while in destructive mode (or *change mode*), all the characters that you type over will be lost and replaced by the new ones. A nondestructive insert doesn't type over text, but pushes the original text one space to the right every time you enter a new character. The ability to insert new text within existing text is one of an editor's most powerful functions.

Unlike a typewriter or a line-oriented editor, a full-screen editor doesn't require that you enter a carriage return at the end of a line. The full-screen editor always checks to see if the word will fit on the line. If it doesn't fit, the editor inserts a carriage return before the word, which forces it to the beginning of the next line. This feature is called *wrap-around*.

Besides providing easy ways to insert and change text, the editor can also delete unwanted text. With the delete function—the opposite of a nondestructive insert—you position the cursor on the character you want deleted and enter the delete command (usually a control code like control-D). The deleted character isn't replaced by a space, but by the character to its right. That is, the characters following the deletion point are shifted one space to the left. Most editors also provide the option to delete a single line or wipe out an entire document.

Block Actions

Editors usually carry out *block actions* to move sections of text. In the most common block action, a *block move*, you earmark the beginning of the block (usually with a control code), then move the cursor to the end of the text area and mark it with another control code. (The codes are different for each editor.) By entering a third code, you can lift the marked block of text out of the document for deposit in a temporary buffer.

Once your block is in the buffer, move the cursor where you want the block inserted and enter the appropriate control code. The text is then transferred from the buffer and inserted at the point in the document you've specified. Since a copy of this text remains in the buffer, you can insert it in various places in your document. With block actions you can also delete large text areas: simply lift a block out of the document and don't insert it anywhere. Different word processors impose different size restrictions on their block actions because buffer sizes vary. Some can hold only a short paragraph, while others can handle several pages of text.

Search and Replace

Another powerful function, the *search and replace* feature, scans your document for a specified character sequence. When the editor finds the sequence, it positions the cursor there. Given the replace function, the editor automatically replaces the search sequence with your sequence. For example, you've just finished entering and modifying a 20-page business report. Before printing it, you discover that you misspelled your boss's name throughout the report. Rather than make corrections as you go through the entire report manually, you can instruct the editor to look for the incorrect spelling and replace it

FIND OUT YOUR INFORMATION QUOTIENT □ 10 EASY QUESTIONS

ZOOM

1) Have you ever needed some information and had no idea where to get it or how to look for it?

☐ Yes ☐ Not Me

2) Have you ever needed research data for a report and needed it quick, just when you didn't have the time or personnel or money to get it? (Or the library was closed?)

☐ Yes ☐ Not Me

3) Would you like to bank electronically, pay your bills automatically on the day they're due, and never need to ask the bank or wait for a statement to see what's going on?

☐ Yes ☐ Not Me

4) Have you ever wondered why other people are getting free software from computer bulletin boards and you're not?

☐ Yes ☐ Not Me

5) Would you like to be your own stockbroker, with access to the same information your broker has, so you could do it better yourself with no one second-guessing you?

☐ Yes ☐ Not Me

6) Have you ever wanted to send a picture to somebody thousands of miles away, instantly?

☐ Yes ☐ Not Me

7) Have you ever wanted to know more about a place you've planned to visit, a new car you like the looks of, a disease you hear your dog has, or a company you might buy stock in? Is there an author you just discovered, a politician appearing on the scene, or a piece of legislation you want to read whole? Do you need the right recipe for a dish you'd like to try cooking, or the weather in Morocco, an update on a soap opera, or a profile on the new Prime Minister of India? Do you want a review of new movies or local restaurants, or a description of new software for your Apple?

☐ Yes ☐ Not Me

8) Have you been using your computer as a replacement for your typewriter or calculator instead of as a tool for rapid communications and a source of instant information?

☐ Yes ☐ Not Me

9) Did you ever wonder why so many other people have modems?

☐ Yes ☐ Not Me

10) Now do you know?

ONLY THE ZOOM/MODEM IIe gives you all the hardware and software you need to go online, in one package:

1) Plug-in 300-baud modem board includes auto-dial in tone or rotary, auto-answer, monitor speaker, 100% Micromodem IIe compatibility, and more.

2) Communications software provides text trapping and disk storage, with DOS and ProDOS compatibility.

3) Over $200 worth of memberships and connect-time for three of the best, most useful information services: Dow Jones, NewsNet, and Delphi.

4) A Directory of 100 ways to use your modem (just for starters!)

5) A ZOOM Hot Line operator, to help you personally, if you have a question you can't answer yourself. ("How do I turn on the modem?" or "How can I find out about five-legged asthropoids?")

6) Suggested Retail Price $179. With Advanced Communications Software $229.

For the name of your nearest Authorized ZOOM Dealer Call 800-631-3116

Circle 190 on Reader Service card.

TEST #1

ZOOM/MODEM IIe □ For the Apple II, II+ and IIe Computers

© 1985 ZOOM Telephonics, Inc., 207 South Street, Boston, MA 02111

with a correct sequence. The editor will make the appropriate changes throughout the document.

Size Limitations

Before you buy a word processor, consider the size of the documents you'll work with. Most inexpensive word processors are memory-limited; they can't produce documents containing more bytes than are left in the system—considering how much space is taken up by DOS and the word processor itself. Some word processors, however, aren't limited by memory. They use *virtual memory*, a technique to create documents larger than the system's available memory allows. This method stores documents on disk and brings into memory only the part of the document you're working on. When you scroll to part of a document that is not in memory, the word processor will scroll the necessary text from disk into memory, and then save the unused text to disk. So, if you want large documents, you need a word processor with virtual memory.

File Handling

All text editors are coupled with a filing system that lets you load, save, and delete documents from data disks. Without this feature, your word processor would be of limited value since you couldn't store and retrieve documents.

You should know how your word processor stores documents, specifically, in what format your files are saved to disk. Most Apple word processors save documents as DOS 3.3 text files. Others, however, save them as DOS 3.3 binary files or as Pascal text files. Of the newer word processors, some store documents as ProDOS text files while others use a proprietary operating system that renders data files unreadable by other programs.

Why is it important to know how a word processor stores documents? Compatibility. Perhaps you want to send a document across the country via your modem. If the document file is in a format your communications software can't read, then you're out of luck. Similarly, you should make sure that your spelling checker can read the type of files your word processor produces. If you intend to enter BASIC programs and text, you must check that the file can be EXECed (DOS or ProDOS text files). Before you buy, make certain the word processor produces files that will work with software you already own.

"Look for a word processor that lets you control your interface or printer directly."

The Format Program

Once you create a document, you need a way to print it out. This is the job of the *format program*, which takes your text and, based on selected commands, prints the document. You can give instructions to the format program through either the print menu or embedded commands.

The Print Menu

With most word processors a print menu helps you determine your hard copy's appearance by setting top, bottom, left, and right margins. It lets you define page length and spacing. Good word processors will also let you specify various justifications: A left-justified document begins lines at the left margin and has a ragged right margin; center justification centers every line; full justification inserts enough space into each line for even margins on both sides.

Print menus also control headers and footers, automatic pagination, and printing pause for inserting single sheets of stationery. More advanced programs handle form letters and printing multiple documents or copies of the same document.

Embedded Commands

Word processors must provide for embedded commands—a sequence of characters entered into the text but not printed out. They instruct the printer to perform a special function.

How does the format program differentiate between regular text and an embedded command? It depends on the word processor but, generally, the format program recognizes certain character sequences as commands. For instance, since a period never appears as the first character in a line, many word-processing programs use a period as a marker for the start of an embedded command in the first column. For example, if the first five characters in a line of Apple Writer text are .LM20, the print format program will move the left margin to column 20.

Embedded commands require the escape or control codes. Superscripts, subscripts, boldface, and underlining are also prompted by embedded commands. If you really want to get your money's worth, look for a word processor that lets you control your interface or printer directly. (See "The Docile Printer," p. 75.) Then, you can use all of your printer's special features, like compressed mode and different fonts. In any event, don't buy a word processor equipped with features your printer doesn't support. Don't pay for features you can't use.

Hardware Considerations

When you do buy a word processor, make sure it will work with your hardware, but there are no tried and true formulas to follow. If you own an Apple II or II Plus, find out if it prints lowercase by using a one-wire, shift-key modification or if the program will support hardware like the Videx Enhancer. Ensure that the program supports your 80-column board. Apple //e and //c owners should know if the word processor supports their machines' special features: 128K, the tab key, and the four arrow keys. Your dealer is your best information source. The second best is the manufacturer of the word-processing software. Make sure your word processor can drive your printer. Most word processors can drive most printers but don't let yours be the exception.

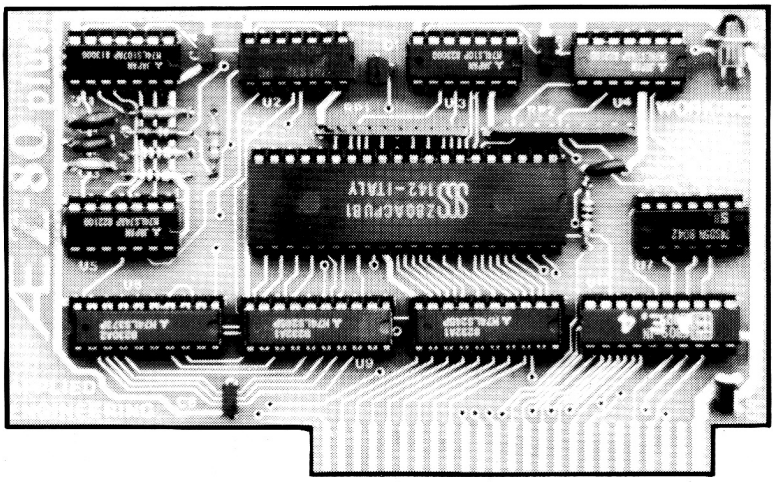
The One for You

For hard-core word processing on an Apple, check out some of the full-featured programs—Apple Writer (see "Cracking the Code," p. 50), Screenwriter, and Zardax. You might also consider a Z80 coprocessor to run WordStar, Peachtext, and a host of powerful CP/M word processors. (These programs work best with full upper/lowercase, 80-column displays, and two disk drives.)

If you don't need a professional word processing system, an inexpensive word processor may be more to your liking. Perfect for memos, letters, book reports, and term papers, these word processors are usually easier to operate than professional systems.

So talk to your friends, read reviews, refer to our buyer's guide (p. 46), and secure demonstrations from your dealer. Once you discover the ease of word processing, you'll never need White-out again.■

Z-80 PLUS
NOW INCLUDES NEW CP/AM 4.0™



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 2.1 (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.
- Executes the full Z-80, 8080 and 8085 instruction set.
- Fully compatible with Microsoft disks (no pre-boot required as with others).
- Does everything the other Z-80 cards do plus supports Z-80 interrupts.
- Specifically designed for High speed operation in the Apple IIe (runs just as fast in the II+ and Franklin).
- Red "CPM Working" LED indicator, the Z-80 Plus does not interfere with non-CP/M programs.
- An on-card ROM eliminates many I.C.'s for a cooler, less power consuming board.
- A semi-custom I.C. and a low parts count allows the Z-80 Plus to fly thru CP/M programs at a very low power level.
- Runs on any Apple II, II+ or IIe with at least 48K memory. Works with any 80 column card, but does not require one.
- The Z-80 Plus will allow you to run: dBase II, Wordstar, Spell Star, Cobol-80, Fortran-80, Peachtree and ALL other CP/M based software.
- Fast Clock: 4MHZ
- Documentation included
- High quality P.C. board, gold plated connector, all I.C.'s in high quality sockets, with mil. spec. components used throughout.
- Three year warranty.

With the Z-80 Plus, you can access the largest body of software in existence. Two computers in one and the advantages of both, all at an unbelievably low price.

APPLIED ENGINEERING
P.O. Box 798
Carrollton, Texas 75006

PRICE $139.00
(214) 492-2027
8 a.m. to 11 p.m. - 7 Days a Week

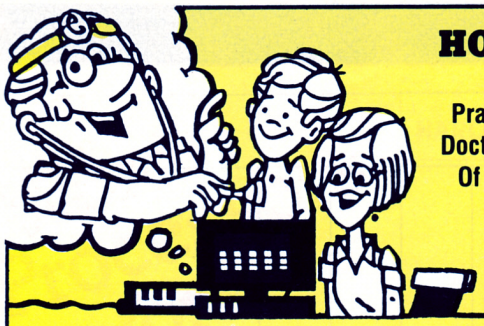
Word Processors for Under $100

	Price	HARDWARE: Memory	HARDWARE: Supports 80-Column Board	FILING SYSTEM: Data Files	FILING SYSTEM: Document Size[8]	EDITING: CURSOR MOVEMENT: Word	EDITING: CURSOR MOVEMENT: Paragraph	EDITING: CURSOR MOVEMENT: Screen/Page	EDITING: CURSOR MOVEMENT: Beginning/End of File	EDITING: CURSOR MOVEMENT: Tabs	EDITING: Block Move/Deletion Size[8]
Bank Street Writer	$69.95	64K	●	DOS 3.3 binary	16K			●[3]	●	●	approx. .5K
CircaScript	$39.95	48K	●[3]	DOS 3.3 binary	30K		●	●[3]	●	●	
Cut & Paste	$50.00	64K[2]	●	Proprietary	27.5K			●	●	●	27.5K
DocuWriter	$89.95	48K	●	DOS 3.3 text	140K	●	●	●	●	●	48K
Gutenberg Junior	$99.95	64K	●	Proprietary	140K	●	●	●	●	●	3.75K
HomeWord	$69.95	64K		DOS 3.3 text	30K[5]	●	●	●	●	●	30K
Magic Slate	$69.95	48K	●	ProDOS text	30K	●	●	●	●	●	30K
MegaWriter	$99.95	64K	●	Pascal text[4]	13K	●	●	●	●	●	7K
Multi-Lingual Word Processor	$99.95	64K		DOS 3.3 text	10K		●	●	●		10K
Pen Pal	$29.95	48K		DOS 3.3 text DOS 3.3 binary	22K[7]				●	●	22K
School Writer II	$40.00	48K		DOS 3.3 binary	30K			●	●		
SkiWriter II	$69.95	48K	●	DOS 3.3 text	28K			●	●	●	28K
Super-Text Professional	$99.00	48K	●	DOS 3.3 text	13K	●	●	●	●	●	13K
Talking[1] Writer	$24.95	64K		DOS 3.3 text	6K						
The Write Choice	$44.95	48K	●	DOS 3.3 text DOS 3.3 binary	30K	●		●	●	●	30K
The Write Stuff	$59.95	64K	●	DOS 3.3 binary	140K	●	●		●	●	140K
The Writer	$39.95	48K	●	DOS 3.3 text DOS 3.3 binary	16K	●		●	●	●	.5K
Word Handler II	$79.95	48K	●	Proprietary	130K	●	●	●		●	130K

1. Needs Echo II voice synthesizer
2. Not for Apple II Plus
3. Part of a screen
4. Can be translated to DOS 3.3 text
5. 90K with 128K RAM
6. 40 columns on the II Plus
7. 32K with 64K RAM
8. K = 1000 characters

EDITING			FORMATTING												
Search/Replace	Help Screens	Maximum Screen Columns	Boldface	Underlining	Superscript/Subscript	Centering	Full Justification	Headers	Footers	Footnotes	Automatic Page Numbering	Multiple Copies	Form Letters	Append Documents	Comments
●	●	80◇	●	●		●					●				Tutorial; AppleMouse.
●	●	80◇	●	●	●	●	●	●			●		●		Mail merge compatible with text.
	●	80						●		●	●	●	●	●	Margins in inches; AppleMouse.
●	●	80	●	●	●	●	●			●	●	●	●	●	Mailing list; AppleMouse.
●		80	●	●	●	●	●	●	●		●		●	●	Two alphabets; proportional print.
●	●	40	●	●	●	●	●	●	●	●	●		●	●	Icon driven; audio tutorial; automatic indent.
●	●	80	●	●	●	●	●	●	●	●	●		●		Large letters.
●		80	●	●	●	●	●	●			●	●	●	●	Mail merge.
●	●	40		●		●	●				●			●	
●	●	40◇	●	●	●	●	●	●			●			●	Utilities for editing Applesoft.
		70				●						●			Keyboard function strip; tutorial.
●	●	80◇	●	●	●	●	●	●			●	●	●	●	Built-in telecommunications program; text merge.
●	●	80	●	●	●	●	●	●	●		●	●			AppleMouse.
	●	40				●	●							●	Speech and large print.
●	●	80	●	●	●	●	●		●		●	●		●	Tutorial; word count; style manuals; AppleMouse.
●	●	70	●	●	●	●	●	●			●		●	●	Automatic save, indent; translates DOS wp files.
●	●	80	●	●	●	●	●	●	●		●		●		Tutorial.
●		80	●	●	●	●	●	●	●		●	●	●	●	

Circle 45 on Reader Service card.



HOME DOC
Written By A Practicing Family Doctor And Fellow Of The American Academy Of Family Physicians

The Computerized Family Health Care Guide

The Program That Even Mom Will Enjoy Using!

HOME DOC IS: ■ Based on many of the Most Common Medical Illnesses and Questions that patients bring to the typical family doctor's office on a daily basis ■ Designed to allow the program user to become an ACTIVE participant in their Health Care ■ A Guideline to improving the Health and Knowledge of You and Your Family ■ Inclusive of medical information for all age groups — Babies thru Seniors ■ Easy to Use

HOME DOC CONTAINS 3 diskettes and requires a 48K Apple II, II+, IIe or IIc with 1 or 2 disk drives and printer (optional). Available soon for IBM-PC and PC-JR.

TWO PROGRAMS IN ONE

I. Educational and "What To Do Information" Sections on:

1. HEALTH RISKS AND STATISTICS
2. FEVER
3. UPPER RESPIRATORY INFECTION - COLDS - COUGH - FLU - ETC.
4. SAFETY AND ACCIDENT PREVENTION
5. GASTROINTESTINAL (DIGESTIVE SYSTEM) DISORDERS -VOMITING - DIARRHEA
6. HEART AND LUNG DISORDERS - STROKE - HIGH BLOOD PRESSURE - SMOKING
7. SEXUAL MATTERS
8. CANCER - EARLY DETECTION AND PREVENTION
9. LIFESTYLE - STRESS - ANXIETY - DEPRESSION
10. MISCELLANEOUS - DIABETES — ACNE - HEADACHES -ARTHRITIS - EXERCISE - ETC.

II. Data Entry and Medical Record Keeping System That Allows You To Keep A Record Of: ■ The Results of Tests and Examinations ■ Immunizations ■ Medications ■ Health Care Related Expenses ■ Office Visits and Advice From Your Doctor ■ Your Personal and Family Medical History ■ Emergency and Health Care Related Names, Addresses and Phone #s ■ All these can be printed out on your printer for more ready access.

See your Local Dealer or Purchase Home Doc Direct

SPECIAL INTRODUCTORY OFFER
REGULARLY $79.95
NOW 49.95 THRU 5/1/85

Enclose Your Check or Money Order to
COMP DOC, INC. 6538 S. Jungfrau
Evergreen, Colorado 80439
CREDIT CARD ORDERS SHIPPED IMMEDIATELY. U.P.S. OR FIRST CLASS MAIL (PLEASE SPECIFY) WITHOUT SHIPPING CHARGES IN THE CONTINENTAL U.S.
Colorado residents add 4% sales tax

For VISA or Mastercard Orders Call Toll Free
MONDAY THRU SATURDAY - 9:00 — 6:00 MST
IN COLORADO CALL (303) 674-3726
1-800-824-2197

WARRANTY AND SUPPORT POLICY INCLUDED ■ DEALER INQUIRES INVITED
HOME DOC COPYRIGHT 1984 BY COMP DOC, INC.
Apple is a registered trademark of Apple Computer, Inc.

Manufacturers' Addresses

Bank Street Writer
Broderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CircaScript
Circadian Software
P.O. Box 1208
Melbourne, FL 32901
(305) 676-5822

Cut & Paste
Electronic Arts
2755 Campus Drive
San Mateo, CA 94403
(415) 571-7171

DocuWriter
CMA Micro Computer
55722 Santa Fe Trail
Yucca Valley, CA 92884
(619) 365-9718

Gutenberg Junior
MicroMation
Yorkdale Place
Suite 406
Toronto, Ontario
Canada M6A 3A1
(416) 781-6675

HomeWord
Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614
(209) 683-6858

Magic Slate
Sunburst Communications
39 Washington Avenue
Box 40
Pleasantville, NY 10570
(914) 769-5030

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

Multi-Lingual Word Processor
Gessler Publishing Company
900 Broadway
Suite 101A
New York, NY 10003
(212) 673-3113

Pen Pal
Howard W. Sams & Company
4300 West 62nd Street
Indianapolis, IN 46268
(317) 298-5400, information
(800) 428-7267, orders

School Writer II
Peak Software
Box 55
Clearfield, UT 84015
(801) 544-3755

SkiWriter II
Prentice-Hall
Box 819
Englewood Cliffs, NJ 07632
(201) 592-2611

Super-Text Professional
Muse Software
347 North Charles Street
Baltimore, MD 21201
(301) 659-7212

Talking Writer
Cross Educational Software
P.O. Box 1536
Ruston, LA 71270
(318) 255-8921

The Write Choice
Roger Wagner Publishing
10761 Woodside Avenue
Suite E
Santee, CA 92071
(619) 562-3670

The Write Stuff
Harper & Row Software
10 East 53rd Street
20th Floor
New York, NY 10022
(212) 207-7492

The Writer
Hayden Software
600 Suffolk Street
Lowell, MA 01854
(800) 631-0856
(617) 937-0200

Word Handler II
Advanced Logic Systems
1195 East Arques Avenue
Sunnyvale, CA 94086
(408) 730-0306

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.

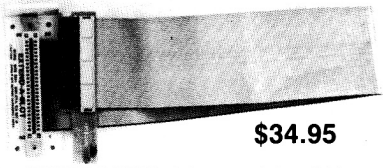
This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers.

- 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.

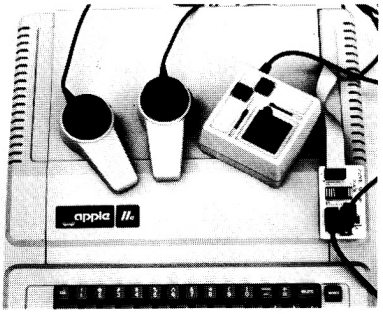
OTHER PRODUCTS

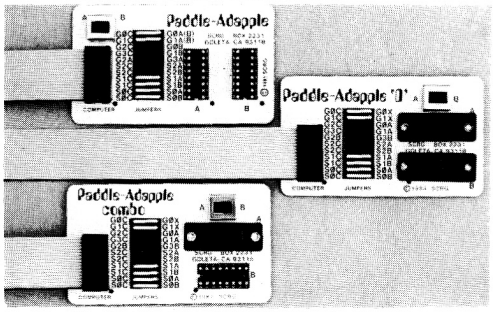
D Manual controller. Gives complete control over the $C000 through $C0FF range in hardware. Can be switched while program is running. $89.50.

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.

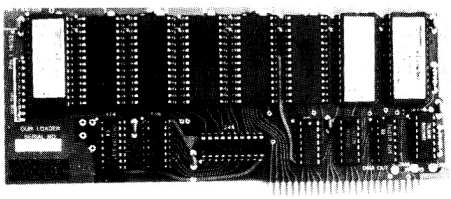
NEW 9-16 Adapter

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.

$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

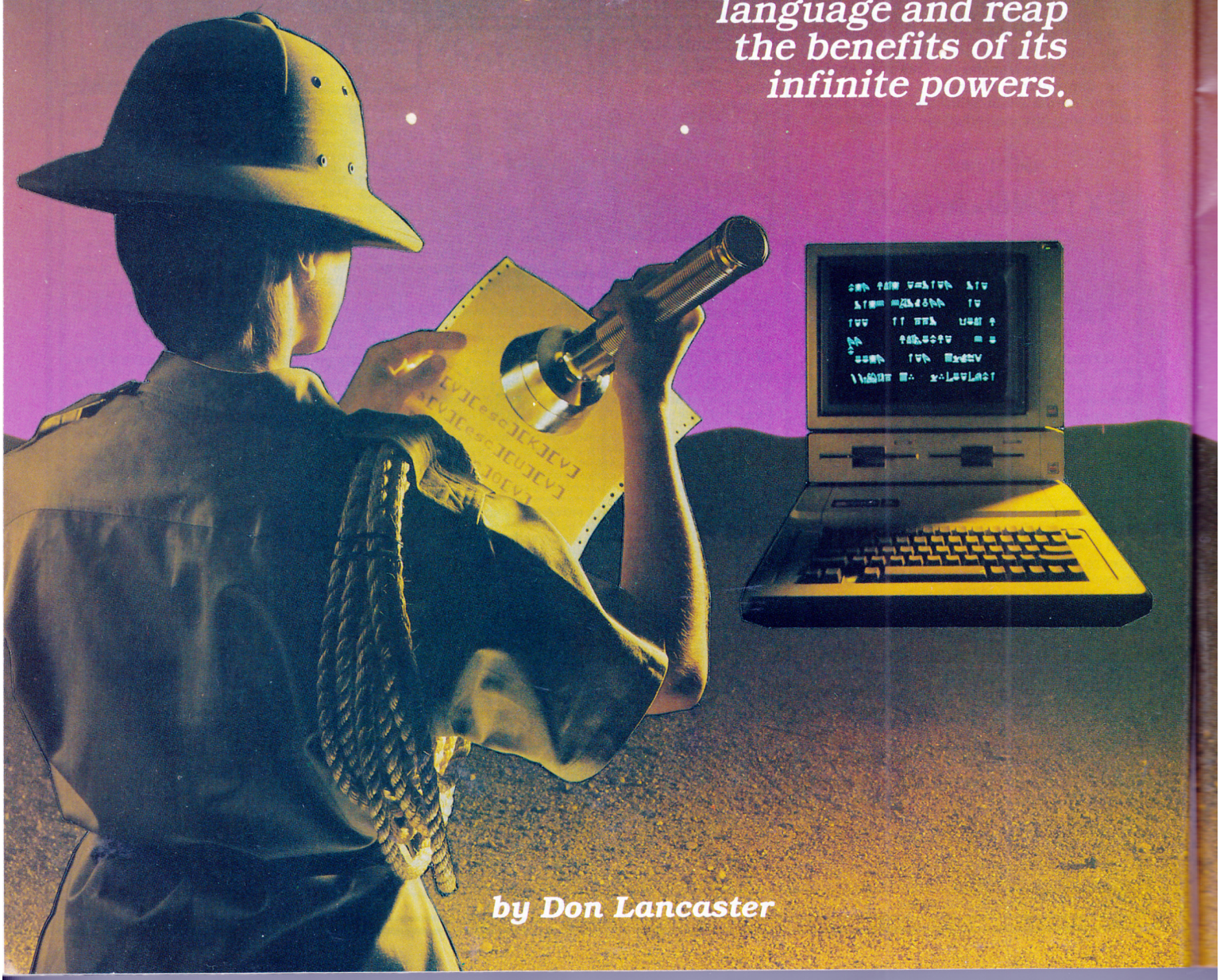
Available at your local dealer or direct from:
So. Calif Research Group
P.O. Box 2231-R
Goleta, CA 93118
(805) 685-1931
TELEX 658340 ATTN: SCRG
Answer Back INTERTEL SNC
VISA, MASTERCARD accepted

SIX MONTH WARRANTY
TEN DAY RETURN PRIVILEGE
TOLL-FREE ORDER LINES
in CA (800) 821-0774
(800) 529-2082

Add $2.50 shipping. $5.00 outside U.S.A.
all other states (Including AK, HI, VI & PR)
Information & technical questions: (805) 685-1931

Cracking the Code

Unravel the mysteries of Apple Writer. Decipher this word-processing language and reap the benefits of its infinite powers.



by Don Lancaster

Photography: Torsheya Studio

Some think it's tricky to learn; others, that its code is arcane. So Apple Writer //e users often avoid tinkering with its WPL (word-processing language). But owning Apple Writer //e and not using WPL is as absurd as keeping a Porsche in the driveway just to listen to its FM radio.

A word-processing language program acts as an executive or supervisory controller. Like a gentleman's gentleman, it carries out detailed instructions methodically from a long list of tasks. Theoretically, since WPL is fully programmable, it makes Apple Writer "infinitely" extendable.

WPL manages everything from the obvious to the exotic—from form letters and mailing lists to a plotter with a photocell "pen" used as a scanning device. Little-known, yet powerful, WPL features can improve Apple Writer //e glossaries.

The Glossary

With a self-prompting glossary, a single keystroke quickly displays a help screen and lets you insert often-used phrases in text files. This beats memorizing obscure keystrokes or hunting for lost documentation. For example, you can enter complimentary closes for letters, and your own and your company's names, into a text file with one keystroke; just define a glossary entry with the needed information and the designated key. To enter the phrase, simply hold down the open-apple key and press the appropriate key.

Conveniently, the glossary treats a closed bracket] as a carriage return. You can have multi-line glossary entries by substituting a] for each carriage return. Separate glossary entries are allotted for uppercase characters, lowercase characters, numbers, control keys, and punctuation symbols except for the /, ?, and *. A glossary could give you over a hundred user-defined keys on-line at any time.

Each glossary is restricted to 2048 characters, but you'll rarely need more room. One amazing feature is that the Apple Writer //e glossary code can call *itself* up to eight times over. So, you can compact similar phrases by combining the words they share. This feature, *glossary nesting*, is analogous to a subroutine's shortening code when accessed from several different places in a program.

WPL creates glossaries one phrase at a time using the control-G command, or writes them all at once as an ordinary text file. You can load or store glossaries from a special glossary buffer through the control-Q E and control-Q F commands.

Figure. *The self-titling and self-prompting word-processing language glossary organizational structure.*

YOURGLOSS 1.0	
Title or Header	The header is a remark or comment, seen only by the programmer. Each line must begin with an *, /, or ?.
Main Glossary	This is the usual glossary, except that you can embed many immediate WPL commands.
Help Screen	A complete help screen, done exactly the way you want your message to appear to the user.
Help Screen Loader	The loader installs the help message to screen on open-apple z. It optionally copies itself to disk on open-apple Z. This loader must follow the help screen.

Table 1. *Apple Writer //e word-processing language commands.*

Command	Description
c[O]as6,d1	Catalogs drive 1 on lowercase c.
C[O]as6,d2	Catalogs drive 2 on uppercase C.
1[P]dowpl.camera ready]	Executes the WPL program, WPL.CAMERA READY on a numeric 1.
6[L]boilerplate 6.0,d2]	Inserts boilerplate module 6 on numeric 6.
7[L]fmod1] [L]fmod2] [L]fmod8	Inserts file modules 1,2,8 on numeric 7.
| [L]#] [L]#] [L]#] [L]#] [L]#] [L]#]	Makes 64 copies of a file on |.
@[P]?]tm0]bm0]lm0]rm255]pm0]pi66]pl66]tl]bl]]	Changes wide-open print constants on @.
#[P]?]tm4]bm4]lm7]rm70]pm6]pi66]pl62]tl]bl]]	Returns to stock print constants on #.
![F]<??????????????????????????????????<<A]	Clears to end of file on !.
/, ?, or *	Adds comment lines to glossary when punctuation begins line.
z[L]GLOSSNAME<startstring<endstring<\]	Provides the tutorial to screen only on lowercase z.
Z[Q]fEGLOSSNAME] [L]EGLOSSNAME<startstring<endstring<\]	Provides the tutorial to screen and a copy of the glossary to the active disk on uppercase Z.

Immediate WPL Execution

From the Apple Writer //e code, you can learn that the WPL and glossary share common routines. You can execute word-processing commands from the glossary just as you'd use a glossary to put a phrase into a text file (see **Table 1**).

Enter a glossary command by typing in a key letter, followed by the entry. For instance, a glossary entry of "zzorch" places "zorch" into your text file every time you press the open-apple and the lowercase z.

The glossary entry c[O]as6,d1] translates as "on lowercase c, catalog the disk in drive 1." Similarly, C[O]as6,d2] says "on uppercase C, catalog the disk in drive 2." The [O] means control-O or select the DOS commands menu.

Using brackets to show control commands is standard in Apple Writer //e and WPL. Throughout the rest of this article and in my tables, brackets indicate a control command. A closing single bracket represents a substitute glossary carriage return. Note that the final] in each command adds the last carriage return that carries out the intended operation. You use fake carriage returns because that glossary entry terminates on a real carriage re-

Continued on page 98.

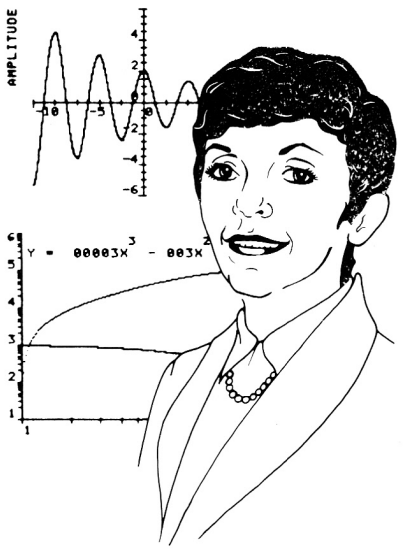
Table 2. *Apple Writer //e-Epson MX-80 formatting glossary with tutorial.*

Epson MX-80 Formatting Glossary	**Open-Apple Formatting Commands**
?	
?	
A[V] [esc]#[V]	(A) ASCII b8 as is
a[V] [esc]>[V]	(a) ASCII b8 one
B[V] [esc]G[V]	(B) bold print on
b[V] [esc]H[V]	(b) bold print off
C[V] [esc] [O] [V]	(C) compressed on
c[V] [esc] [S] [V]	(c) compressed off
D[V] [esc] [N] [V]	(D) doublewide on
d[V] [esc] [T] [V]	(d) doublewide off
E[V] [esc]E[V]	(E) emphasized on
e[V] [esc]F[V]	(e) emphasized off
F[V] [esc]C[V]	(F) fmlngth lines *
f[V] [esc]C[@] [V]	(f) fmlngth inches *
G[V] [esc]L[V]	(G) graphics 960
g[V] [esc]K[V]	(g) graphics 480 *
H[V] [esc]J[V]	(H) height custom *
h[V] [esc]2[V]	(h) height normal
I[V] [esc]4[V]	(I) italics on
i[V] [esc]5[V]	(i) italics off
J[V] [esc]N[V]	(J) jump perf on *
j[V] [esc]O[V]	(j) jump perf off
K[V] [V]	(K) (spare)
k[V] [V]	(k) (spare)
L[V] [esc] = [esc] [J] [V]	(L) linefeed w/rst
l[V] [esc]>[esc] [J] [V]	(l) linefeed only
M[V] [V]	(M) (spare)
m[V] [V]	(m) (spare)
N[V] [G] [V]	(N) noisy bell
n[V] [G] [V]	(n) noisy bell
O[V] [esc]U[@] [V]	(O) two-way print
o[V] [esc]U1[V]	(o) one-way print
P[V] [esc]9[V]	(P) paperout sense
p[V] [esc]8[V]	(p) paperout ignore
Q[V] [V]	(Q) (spare)
q[V] [V]	(q) (spare)
R[V] [esc] = [V]	(R) reset B8 = 1
r[V] [esc]>[V]	(r) reset B8 = 0
S[V] [esc]S[@] [V]	(S) superscript on
s[V] [esc]S1[V]	(s) subscript on
T[V]D[V]	(T) tab set *
t[V]D[V]	(t) tab set *
U[V] [esc] – 1[V]	(U) underline on
u[V] [esc] – [@] [V]	(u) underline off
V[V] [esc]1[V]	(V) very tight 7/72
v[V] [esc]0[V]	(v) very tight 1/8
W[V] [esc]Q[V]	(W) width column *
w[V] [esc]Q[V]	(w) width column *
X[V] [esc]@[V]	(X) off all modes
x[V] [esc]T[V]	(x) off sub/super
Y[V] [V]	(Y) your stuff on
y[V] [V]	(y) your stuff off
^[V] [L] [V]	(^) formfeed
<[V] [H] [V]	(<) backspace
Z[P]nd] [Q]FEGLOSS]	(Z) tutorial + save
[L]EGLOSS< > <ls.)> > <\] [P]yd]	
z[L]EGLOSS< > <ls.)> > <\]	(z) tutorial only

* follow with ASCII value(s). (Refer to Epson user's manual for details.)
Bracket pairs represent control commands. [esc] = escape, [Q] means control-Q.
The line preceding the tutorial screen must have four spaces. Z and z selections must not precede the tutorial or they will find themselves.
80-column tutorial text lines have been split. Entries (A), (H), (O), and (V) go on one line. The dot row is also one continuous line, as is the line starting with *-Follow.

'I like plotting equations with a computer, don't you?"

—Virginia Lawrence, Ph.D.
Chief Executive Officer



If you're like me, you'd rather not plot data by hand. That's why I've made sure that **CALCU-PLOT**™ can plot your data and equations quickly and easily.

CALCU-PLOT™ can graph your equations, their derivatives, and their integrals.

And if you think our equation plots are great, wait until you see our data plots. You can choose linear, semi-log, log-log, or polar coordinates.

CALCU-PLOT™ is the professional equation solver from Human Systems Dynamics, publishers of The Statistics Series. Like the other programs in The Series, **CALCU-PLOT**™ easily performs sophisticated work for professionals at an affordable price.

$150.00

For more information, call me on our toll free number.

HSD
HUMAN SYSTEMS DYNAMICS

To Order—Call
Toll Free (800) 451-3030
In California (818) 993-8536
or Write
HUMAN SYSTEMS DYNAMICS
9010 Reseda Blvd. Suite 222/Dept.C
Northridge, CA 91324
Dealer Inquiries Invited

VISA MasterCard

Doing Windows

Prepare your programs for window displays that don't destroy underlying text.

by Brian J. Parry

You can do windows. On an Apple II, II Plus, or //e in 40-column mode and with a single disk drive, you can achieve the look of concurrency that Mac and Lisa owners take for granted. My assembly-language routine, PORTAL, produces scrolling window overlays up to three levels (stacks) high that let you move as easily among screen texts as you would shuffle papers on your desk.

After you place (PUSH) a window on the screen, text within that window's borders scrolls, while text beneath the window remains intact. When a window is removed (POPed) from the screen, the underlying text reappears. Adding and removing second and third windows yields the same results. **Tables 1** and **2** show the functions of the PUSH and POP routines.

Window dimensions range from three columns by three lines to 40 columns by 23 lines. (Normal screen text is 40 by 24.) Window borders occupy one space around the perimeter, reducing total window text area by two columns and two rows.

You can locate windows anywhere on the screen as long as you observe the following two rules:

- Window width plus the horizontal position where the window begins must be less than 41 columns.
- Window length plus the vertical position where the window begins must be less than 24 lines.

The PORTAL routine will trap any size or range value errors you may make by stopping your program and displaying an illegal quantity error for the line number the error occurred on. The routine also won't let you add or remove more than three windows. When PORTAL detects this type of error, it doesn't stop your program; instead, it bypasses the PUSH or POP command and prints "ERR" twice, rings the Apple's bell twice, and then continues executing your BASIC program. A size/range error halts your program because placing a window or window border outside the text screen ruins part of your program or creates an improper error code. A PUSH/POP error does no harm, and so continues execution to let you see if the rest of the program works.

Creating Windows

Apple II computers already have a built-in scroll window feature—the

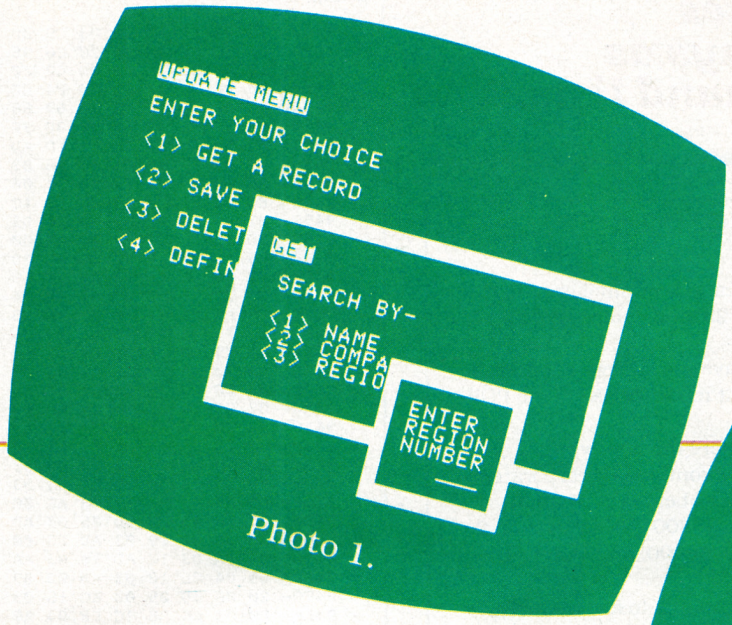


Photo 1.

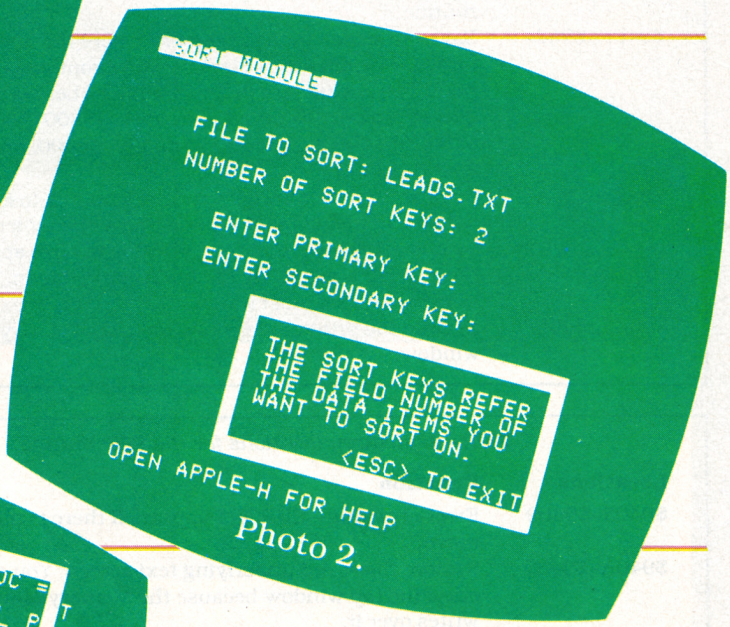


Photo 2.

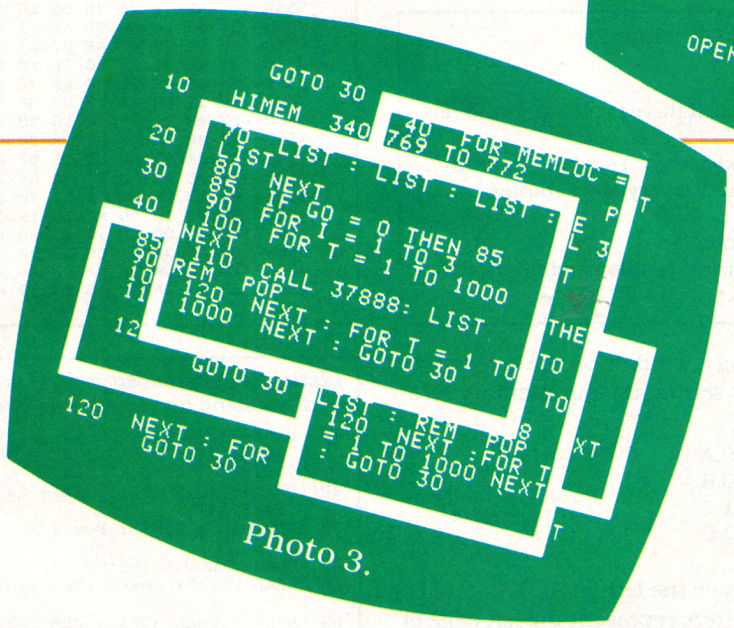


Photo 3.

Photo 1. *Portal creates nested menus like these to give your program a professional appearance. The underlying window contains the main menu and the overlaid window, a subordinate menu.*

Photo 2. *Help screens like these are an excellent supplement to programs. In this example, when you hit either the return or escape key, the help window disappears without destroying any underlying text.*

Photo 3. *The sample program accompanying this article creates three such windows in succession, scrolling the listing through all three. Then, erasing the windows in reverse order (top window first), the program demonstrates that all underlying material, including other windows, is undisturbed.*

entire text screen is a 40 by 24 scroll window. Four consecutive memory locations in the monitor specify the dimensions of the scroll area on the text screen—32, left edge; 33, right edge; 34, top edge; 35, bottom edge. (These are decimal values. A $ prefixes hexadecimal values.) PEEKing at these locations reveals that 32 equals zero, 33 equals 40, 34 equals zero, and 35 equals 24. Notice the similarity between these values and the text screen's row and column dimensions.

POKEing these memory locations with different values confines scrolling to a certain section of the screen. In the immediate mode, type:

```
POKE 33,20:POKE 32,10:POKE 34,5:
  POKE 35,20
```

Then press the return key. Next do a CATALOG or LOAD, and then LIST any program. All scrolling occurs within the specified POKE area.

If you decide to experiment with these locations, make the scroll window smaller than 40 by 24; a larger window can destroy part of a program in memory or confuse your disk drive.

"You'll find uses for window overlays as help screens and command lists."

Table 1. *Memory locations for the PUSH routine.*

Locations	Function
$9494–$94C0	Error-checking routine—windows cannot be smaller than three by three or larger than 40 by 23, and you cannot add or remove more than three windows.
$94C1–$94FE	Housekeeping chores—you must save the current window dimensions, cursor position, and print mode for use in the POP routine.
$94FF–$9524	Save the screen in high memory before the new window is drawn. The monitor's Memory Move routine is incorporated here. The destination memory address begins at location $8800. Screen 1 is saved at location $8800–$8C00, screen 2 at $8C00–$9000, screen 3 at $9000–$9400, and PORTAL at $9400–$9600.
$9525–$95A6	Draw the window borders and set scrolling inside them. Each window border is made by creating a one-by-length or width-by-one scroll area, and then printing inverse spaces inside these small areas. After the borders are drawn, the interior scroll area is set and cleared.
$95A7–$95BC	Restore the print mode you were using before you created a window.

Table 2. *Memory locations for the POP routine.*

Locations	Function
$9403–$9409	Error-checking—ERROR1 appears if there is no window to remove.
$940A–$9435	Restore the saved underlying text screen. You don't have to erase the top window because the Memory Move routine writes over it.
$9437–$9451	Restore the underlying screen boundaries.
$9452–$9465	Restore the cursor's previous vertical position and return execution to you.

None of the damage is permanent, however, and turning your computer off and then on again corrects the problem.

A TEXT command resets the screen to normal after you have POKEd in various values. Any text below the scroll window area was destroyed. PORTAL, however, saves underlying text so that it can be restored when you remove the windows. Furthermore, PORTAL lets you stack more than one window without disturbing any windows underneath.

Using PORTAL

Enter **Listing 1** and type the following:

```
BSAVE PORTAL OBJ,A$9400,L$1CF
```

Then type in your own BASIC program starting with the following line:

```
0 HIMEM:34815:POKE 768,0:PRINT
  CHR$(4);"BLOAD PORTAL OBJ"
```

Placing a window on the screen first involves setting up four memory locations:

```
POKE 769,A
POKE 770,B
POKE 771,C
POKE 772,D
```

Do not type the letters A, B, C, and D. These letters represent the left edge of the window, the window width, the top edge of the window, and the window length, respectively. Replace A with a number from zero to 37, B with a number from three to 40, C with a number from zero to 20, and D with a number from three to 23.

Type CALL 38033 to begin putting the window on the screen; type CALL 37888 to remove it from the screen. See **Listing 2** for a demonstration of adding and removing windows from the screen.

You'll find uses for window overlays as help screens and command lists that are easy to call up and remove from the screen. For further applications ideas, see the screen shots accompanying this article.■

Write to Brian J. Parry at 1115 West Sacramento Avenue #39, Chico, CA 95926.

Listing 1. *PORTAL assembly-language code.*

```
9400- 20 4A FF AD 00 03 C9 00
9408- F0 5C CE 00 03 20 C6 95
9410- A9 00 8D 3C 00 8D 42 00
9418- A9 CF 8D 3E 00 A9 04 8D
9420- 43 00 AD 16 03 18 69 88
9428- 8D 3D 00 18 69 03 8D 3F
9430- 00 A0 00 20 2C FE 18 AD
9438- 16 03 AA 69 04 8D 18 03
9440- A0 00 BD 09 03 99 20 00
9448- EC 18 03 F0 05 E8 C8 4C
9450- 42 94 AE 00 03 BD 05 03
9458- 8D 25 00 20 22 FC A9 00
9460- 85 24 20 3F FF 60 20 2D
9468- FF 20 2D FF 20 3F FF 60
9470- 20 39 FB A2 00 BD 88 94
9478- C9 AA F0 07 20 F0 FD E8
9480- 4C 75 94 A2 35 4C 12 D4
9488- D7 C9 CE C4 CF D7 BA AD
9490- AA 20 4A FF AD 00 03 C9
9498- 03 F0 CB 18 AD 01 03 6D
94A0- 02 03 E9 28 10 CA AD 02
94A8- 03 38 E9 03 30 C2 18 AD
94B0- 03 03 6D 04 03 E9 17 10
94B8- B7 AD 04 03 38 E9 03 30
94C0- AF 20 C6 95 18 AD 03 03
94C8- 6D 04 03 8D 17 03 AE 00
94D0- 03 AD 25 00 9D 05 03 AD
94D8- 32 00 8D 19 03 AD F3 00
94E0- 8D 1A 03 18 AD 16 03 AA
94E8- 69 04 8D 18 03 A0 00 B9
94F0- 20 00 9D 09 03 EC 18 03
94F8- F0 05 C8 E8 4C EF 94 A9
9500- 00 8D 3C 00 8D 42 00 A9
9508- CF 8D 3E 00 A9 04 8D 3D
9510- 00 18 69 03 8D 3F 00 AD
9518- 16 03 18 69 88 8D 43 00
9520- A0 00 20 2C FE 20 80 FE
9528- A9 01 8D 21 00 AD 01 03
9530- 8D 20 00 AD 03 03 8D 22
9538- 00 AD 17 03 8D 23 00 20
9540- 58 FC AE 04 03 20 BD 95
9548- 18 AD 01 03 6D 02 03 AA
9550- CA 8E 20 00 20 58 FC AE
9558- 04 03 20 BD 95 AE 01 03
9560- E8 8E 20 00 AE 02 03 CA
9568- CA 8E 21 00 20 58 FC 20
9570- BD 95 CE 20 00 EE 21 00
9578- EE 21 00 AE 17 03 CA 8E
9580- 22 00 20 58 FC E8 E8 8E
9588- 23 00 AE 02 03 CA 20 BD
9590- 95 CE 21 00 CE 21 00 EE
9598- 20 00 AE 03 03 E8 8E 22
95A0- 00 CE 23 00 CE 23 00 EE
95A8- 00 03 20 58 FC AD 19 03
95B0- 8D 32 00 AD 1A 03 8D F3
95B8- 00 20 3F FF 60 A9 20 20
95C0- F0 FD CA 10 FA 60 AD 00
95C8- 03 0A 0A 8D 16 03 60 AA
```

Listing 2. *A demonstration of adding and removing text screen windows.*

```
10  HIMEM: 34815: POKE 768,0: PRINT
      CHR$ (4);"BLOAD PORTAL OBJ"
    : TEXT : HOME : LIST
20  DATA 0,40,10,10,15,20,0,23,4,
    27,3,14
30  RESTORE : LIST : FOR I = 1 TO
    3
40  FOR MEMLOC = 769 TO 772
50  READ WSIZE: POKE MEMLOC,WSIZE

60  NEXT : CALL 38033: REM  PUSH
70  LIST : LIST : LIST : LIST
80  NEXT
90  FOR I = 1 TO 3
100  FOR T = 1 TO 1000: NEXT
110  CALL 37888: LIST : REM  POP
120  NEXT : FOR T = 1 TO 1000: NEXT
    : GOTO 30
```

Circle 510 on Reader Service card.

Apple® *II+* and *IIe* owners: Don't go to the computer store when you need more computer storage.

Go to the m

BUY THE SIDER:™ 10 MEGABYTES OF FIRST CLASS MASS STORAGE AT A BULK RATE PRICE.

You need more storage for your Apple *II+* or *IIe* than a floppy drive can deliver. And you're about to head down to the local computer store to take a look at a hard disk file. Thinking hard disk, however, means facing some hard facts: It's going to be expensive, and you've heard that the state-of-the-Winchester-art isn't all it could be—especially in terms of reliability.

You and your Apple have a real need: If you're going to compute, you've got to store. But that doesn't mean hiking down to the computer store. Not any longer.

Here's the alternative. First Class Peripherals. *We have the finest, easiest-to-install 10-megabyte Winchester hard disk subsystem in the industry today, bar none. And we have it, direct through the mail to you, for the best price. Period.*

The Sider: Absolutely First Class, Inside And Out.

On the outside, The Sider is a compact, smart-looking complement to your Apple. And inside, that quality look is matched by true quality components.

There's the half-height 10-megabyte Winchester drive, for a start, with field-proven reliability, expansion capability, and offering direct boot from the hard disk. There's the best-selling intelligent controller in the business, with automatic data error detection and correction, internal diagnostics, optimal transfer rate between host and disk, and greater and faster system throughput with less software overhead. There's the steady power supply for day-in, day-out trustworthiness. And all components have been matched, tested and tested again, and designed into a "bookend" casing that doesn't even need a cooling fan.

Want to talk more tech? We could tell you about menu-driven installation, backup and restore utilities, flexible partitioning, FCC Class B approval, a wide range of operating system support and lots more. Suffice it to say that The Sider is a first class engineering achievement as well as a handsome, hard-working sidekick for whatever you and your computer need doing.

From Hotline To Swapline: A First Class Commitment To Support.

Our name is our commitment. We're offering a first class, one-year warranty on The Sider. No hassle. Full documentation. A toll-free hotline to answer any technical or service question you may have. Best of all, if there's any problem—repeat, any—that relates to the manufactured quality of The Sider, send it back and we'll replace it. Fast.

Here's Another First Class Idea: Order Now. 1-(800)-538-1307.

The Sider is going to sell like crazy. It's the right product. And—take a look at the first paragraph again—at the right price. No one else is going to make an offer like this for a long time to come.

So act now. Just fill in the order form or call our toll-free number. Harness the power of your Apple to the price/performance of The Sider. Now there's a team for you!

Apple is a registered trademark of Apple Computer, Inc.

Of Course I Want A First Class Peripheral Like The Sider.

Please send me _____ Sider(s) at $695.00 each. The package will include a half-height 10-megabyte hard disk drive, Apple Interface Adaptor Board, cable, complete software utility and documentation.

I have an Apple *II*+ ☐ *II*e ☐ .

Check/money order for total of $_____ is enclosed.

☐ Charge to my Visa/MasterCard # _____

Expiration Date: _____

Signature: _____

Name _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

First Class Peripherals
2158 Avenue C
P.O. Box 6187
Bethlehem, PA 18001
1-800-538-1307

*Allow 4-6 weeks for delivery. All freight charges have been included.

*California, Nevada and Pennsylvania residents add appropriate sales tax

allbox.

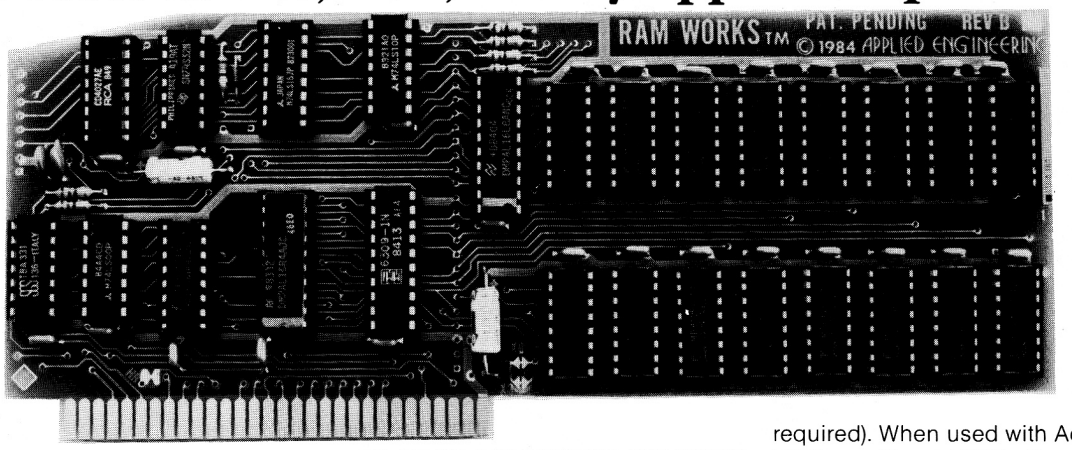
FIRST CLASS PERIPHERALS

2158 Avenue C
P.O. Box 6187
Bethlehem, PA 18001
1-800-538-1307

Circle 508 on Reader Service card.

RAMWORKS™

800K Apple Works Desk Top, 450K Visicalc, 1 Meg Solid State Disk Double Hi-Res, RGB, Totally Apple Compatible!



RAMWORKS™—A card that plugs into the Apple IIe auxiliary slot and functions EXACTLY like Apple's extended 80 column card (in fact, a 128K RAMWORKS™ actually costs less than Apple's 64K extended card) but with RAMWORKS™ you get more memory, 80 column text, a 3-year warranty and most importantly, room to grow without using more slots. A design so advanced there's a patent pending on it. If you have a IIc or an IBM, we suggest you do what everybody does, trade it in on a IIe.

RAMWORKS™ can be purchased in a wide range of sizes and is user upgradeable using either 64K RAMS or the new 256K RAMS. In fact, RAMWORKS™ is the only auxiliary slot card on the market that will allow the new 256K RAMS to be used. If you already have an extended 80 column card, no problem. Just unplug the 64K RAMS and plug them into the RAMWORKS™ for an additional 64K. A RGB option is also available, you can order it with your RAMWORKS™ card or add it on at a later date.

RAMWORKS™ saves you time, money, slots and hassle. You'll have additional memory NOW and in the future.

Ramworks™

64K Installed	$ 179
128K Installed	$ 249
256K Installed	$ 399
512K Installed	$ 649
1 MEG Installed	$1199
RGB Option	$ 129

(May be added later)

LOW COST SOFTWARE OPTIONS

Ram Drive IIe

Ram Drive IIe will give you a high speed solid state disk drive. The Ram Drive IIe software features audio-visual access indicators, easy setup for turnkey operation, and easy menu driven documentation. The program can be modified and is copyable. If you have a 64K RAMWORKS™, Ram Drive IIe will act as half a disk drive. If you have a 128K or larger RAMWORKS™, Ram Drive IIe will act as a full disk drive. Either way, your programs will load and save over 20 times faster. Ram Drive IIe is compatible with APPLESOFT, PRO DOS, DOS 3.3, and PASCAL. The disk also includes a high speed RAMdisk copying program. Ram Drive is another disk drive only 20 times faster. And no whirring, clicking and waiting! **PRICE $29**

CP/M Ram Drive IIe

CP/M Ram Drive IIe is just like the Ram Drive IIe above, only for CP/M.

CP/M Ram Drive IIe runs on any Z-80 card that runs standard CP/M i.e. Applied Engineering Z-80 Plus or Microsoft Soft Card. CP/M Ram Drive will dramatically speed up the operation of most CP/M software because CP/M normally goes to disk fairly often. Fast acting software like dBase II, Wordstar and Turbo Pascal becomes virtually instantaneous when used with CP/M Ram Drive. **PRICE $29**

VC IIe Expander

VC IIe expander gives owners of Visicalc IIe and Advanced Visicalc IIe increased storage. When used with VC IIe you'll get 141K workspace (128K RAMWORKS™ or larger required). When used with Advanced VC IIe you'll get 131K with a 128K RAMWORKS™, 250K with a 256K RAMWORKS™ and 450K with a 512K RAMWORKS™. **PRICE $29**

Apple Works Expand

Although Apple Works is compatible with all sizes of RAMWORKS™, Apple Works only "sees" its first 64K bank giving you a 55K desktop. Our Apple Works expand program will make a modification to Apple Works that simply lets it know you've got more memory, giving you 101K work space. **PRICE $29**

Super Apple Works Expand

This souped-up version of Apple Works expand doesn't stop at a 101K desk top, in fact Super Apple Works Expand figures out how much memory your RAMWORKS™ has to give Apple Works the following desktop sizes:

RAMWORKS™	APPLEWORKS DESKTOP
128K	101K
256K	200K
512K	400K
1 MEG	800K

PRICE $39

AppleWorks can also be put in the RAMWORKS™ card to eliminate disk access, thereby dramatically speeding up the program.

APPLIED ENGINEERING

Send Check or Money Order to
Applied Engineering
P.O. Box 798 Carrollton, TX 75006
Call (214) 492-2027
8 a.m. to 11 p.m. 7 days a week. MasterCard, Visa & C.O.D. Welcome. No extra charge for credit cards. Texas residents add 5⅛% sales tax. Add $10.00 if outside U.S.A.

Galactic Invasion

Raider, your blitzkrieg tactics can overpower the enemy encroaching on your borders.

by Tim Wiley

For decades, large corporations, assuming the role of independent empires, have been battling for control of the vast and profitable reaches of space. Recently, Intelligence has reported the construction of an enemy base on a barren planet bordering your home empire. If completed, the base will threaten the safety of your shipping lines. It must be destroyed quickly or the tide of war will turn.

As a Raider, one of the few extensively trained in border skirmishes, you have been chosen to attack the base. You must strike quickly and efficiently, avoiding unnecessary destruction. Good luck, Captain.

Playing Raider, an Applesoft BASIC program written on a //e with 64K of memory, requires a pair of game paddles or a joystick (a joystick works more easily and simulates flight control), and an opponent. At the start of the game, your superior officer greets

Circle 44 on Reader Service card.

TaxWizard
STOPS
the competition!

COMPARE!

Computer-prepared forms:	Tax Wizard '84/85™	Brand X
Form 1040, 1040A, 1040EZ	yes	
Sch A, B, C, D, E, G, W, SE	yes	
Manual override for unusual tax situations	yes	
4562: Depreciation	yes	
2106: Employee business expense	yes	
2119: Sale of residence	yes	
2441: Child/elderly credit	yes	
3903: Moving Expense	yes	
3468: Investment credit	yes	
4137: Tip income	yes	
4255: Recapture investment credit	yes	
5695: Residential energy credit	yes	
6251: Alternative minimum tax	yes	
Tax-Planning Features		
Auto-linking: change in any form automatically reflected in all others	yes	
Multiple versions on a single disk*	yes	
Multiple users on single disk*	yes	
Ease of Use		
Easy to follow documentation enables new users to get started in minutes	yes	
Complete manual included	yes	
On-screen help	yes	
Help from IRS manual "Instructions for Preparing Form 1040" available on line by line basis*	yes	
Offical IRS Forms and Schedules included	yes	
Suggested retail price	**$64.95**	
Availability: Apple, Macintosh, IBM, CPM (100+ formats) & Commodore 64**	**yes**	

*Not available on Commodore 64 version due to disk capacity limitation.
**Macintosh version includes pull-down menus, mouse interface . . . all the standard MAC features.

Ask for TaxWizard at your local retail store. Don't settle for anything less!

TaxWizard '84/85™
by Gamma Productions, Inc.
817 10th Street, Suite 102
Santa Monica, CA 90403

Distributed by **Software Resource:**
West: 800/851-9010 (CA: 800/851-9009)
East: 800/223-1143 (NJ: 201/390-0999)
South: 800/531-7383 (TX: 713/953-1030)
Nationwide: 800/851-9010
Call for nearest participating computer dealer!

Macintosh is a trademark licensed to Apple Computer, Inc.
Apple, CPM, IBM are registered trademarks of Apple Computer, Inc., Digital Research, Inc., and International Business Machines, Corp.
Commodore 64 is a trademark of Commodore Electronics Ltd.

Listing 1. *Raider.*

```
10  REM         >>> RAIDER <<<
20  REM          BY TIM WILEY
30  REM         APRIL 15, 1984
40  LOMEM: 17056
50  HGR : TEXT : HOME : POKE 232,0: POKE 233,64: PRINT  CHR$ (4)"BLOAD RAI
    DER SHAPES,A16384"
60  GOTO 430
70 LY = 0:LX = (TA * 3.11) + 139: IF LX > 279 THEN LY = LX - 279:LX = 279:
     GOTO 110
80 F = 2
90  IF LX < 0 THEN LY =  ABS (LX):LX = 0
100  SCALE= 3
110  HCOLOR= 0: ROT= FR: DRAW 1 AT FX,FY: HCOLOR= 3: HPLOT 139,184 TO LX,L
    Y: DRAW 1 AT FX,FY
120 H = 1: IF (FR = 120) OR (FR = 130) OR (FR >  = 134 AND FR < 137) THEN
     H = 2
130  HCOLOR= 0: HPLOT 139,184 TO LX,LY: IF  PEEK (234) < H THEN  DRAW 1 AT
    FX,FY: SCALE= 1: HCOLOR= 3: ROT= 0: RETURN
140 X = FX + 8: IF X > 279 THEN X = 279
150  DRAW 1 AT FX,FY: HCOLOR= 3: SCALE= 1: ROT= 0: XDRAW 15 AT X,FY + 9
160 NH = NH + 1: IF NH < 3 THEN HM = HM / 3:T =  INT (( RND (1) * .5 + .75
    ) * (3 + (NH * 2))): XDRAW 15 AT X,FY + 9: RETURN
170 T = 100:HM = HM / 4: XDRAW 15 AT X,FY + 9: RETURN
180  IF FA < 1 THEN LX = 15:LY = 0: GOTO 210
190 X = FA - 45: IF X < 0 THEN LY = 15 + (X * (15 / 45)):LX = 15: GOTO 210
200 LX = 15 - (X * (15 / 45)):LY = 15
210 X = FX:Y = FY + 3: IF X > 279 OR Y > 191 THEN  RETURN
220  IF X + LX > 279 OR Y + LY > 190 THEN  RETURN
230 X = X + LX:Y = Y + LY: DRAW 3 AT X,Y: IF  PEEK (234) = 0 THEN  XDRAW 3
     AT X,Y: GOTO 220
240  HCOLOR= 0: DRAW 3 AT X,Y: HCOLOR= 3
250  FOR XX = 1 TO 6: IF X >  = P(XX) - 4 AND X <  = P(XX) + 19 THEN 280
260  NEXT : RETURN
270  IF EX THEN  HCOLOR= 0: DRAW EX AT ZX,ZY: HCOLOR= 3:EX = 0
280 D(XX,3 - PP) = D(XX,3 - PP) - 1
290  IF D(XX,3 - PP) = 0 THEN  IF EX THEN  HCOLOR= 0: DRAW EX AT ZX,ZY: DRAW
    SH(XX,3 - PP) AT P(XX),190:EX = 10:ZX = P(XX) + 5:ZY = 190: HCOLOR= 3
    : DRAW 10 AT ZX,ZY:S(PP) = S(PP) + SC(XX,3 - PP): RETURN
300  IF D(XX,3 - PP) = 0 THEN  HCOLOR= 0: DRAW SH(XX,3 - PP) AT P(XX),190:
    EX = 10:ZX = P(XX) + 5:ZY = 190: HCOLOR= 3: DRAW 10 AT ZX,ZY:S(PP) =
    S(PP) + SC(XX,3 - PP): RETURN
310  RETURN
320  IF B = 0 THEN  RETURN
330 B = B - 1:BD = 1:BX = FX + 1:BY = FY + 4:BV = 1
340 BV = BV * 1.7: IF BY + BV < 190 THEN 410
350 BD = 0: IF EX THEN  HCOLOR= 0: DRAW EX AT ZX,ZY: HCOLOR= 3:EX = 0
360 BX = BX + (191 - BY) / (BV / 8)
370  IF BX > 279 THEN BX = 279
380 EX = 10:ZX = BX:ZY = 190: DRAW EX AT ZX,ZY
390  FOR XX = 1 TO 6: IF ZX <  = P(XX) - 3 OR ZX >  = P(XX) + 19 THEN  NEXT
    XX: RETURN
400  HCOLOR= 0: DRAW SH(XX,3 - PP) AT P(XX),190: HCOLOR= 3:S(PP) = S(PP) +
    SC(XX,3 - PP):D(XX,3 - PP) = 0: RETURN
410 BX = BX + 8: IF BX > 279 THEN BD = 0: RETURN
420 BY = BY + BV: DRAW 4 AT BX,BY: RETURN
430  GOSUB 920
440  HOME : IF L1 =  INT (L1) THEN A$ = ">> READY PLAYER ONE <<": VTAB 12:
     GOSUB 910: FOR D = 1 TO 1000: NEXT : GOTO 460
450 A$ = ">> READY PLAYER TWO <<": VTAB 12: GOSUB 910: FOR D = 1 TO 1000: NEXT
460  HGR : POKE  - 16302,0: HCOLOR= 3: HPLOT 0,191 TO 279,191
470  HCOLOR= 3: ROT= 0: SCALE= 3: DRAW 2 AT 139,184: SCALE= 1
480  FOR X = 1 TO 6: SCALE= 1: ROT= 0: DRAW SH(X,3 - PP) AT P(X),190: NEXT
    X
490  IF  PEEK ( - 16286) > 127 AND BD = 0 THEN  GOSUB 320
500  IF  PEEK ( - 16287) > 127 THEN  GOSUB 180
510 FA = FR - 121:FA = FA * 6.17647059:FA = FA - 45
520  IF S THEN V1 = 1.5: GOTO 620
530  IF T THEN 620
540  IF  PDL (1) < 105 THEN V1 = 1: GOTO 620
550  IF  PDL (1) < 65 THEN V1 = 2: GOTO 620
560  IF  PDL (1) < 30 THEN V1 = 3: GOTO 620
570  IF  PDL (1) < 5 THEN V1 = 5: GOTO 620
580  IF  PDL (1) > 170 THEN V1 =  - 1: GOTO 620
590  IF  PDL (1) > 220 THEN V1 =  - 2: GOTO 620
600  IF  PDL (1) > 250 THEN V1 =  - 4: GOTO 620
610 V1 = 0
620  IF T THEN V1 = 2
630 VM = VM + V1: IF VM > 20 THEN VM = 20
640  IF VM <  - 15 THEN VM =  - 15
650 S = 0
660  IF  PDL (0) / ( PDL (1) + 1) < .4 THEN S = 1:HM = 0
670  IF S = 0 AND T = 0 THEN HM = 1 +  PDL (0) / 17: IF HM < 5 THEN VM = V
    M + (5 - HM)
680  SCALE= 3: ROT= FR: HCOLOR= 0: DRAW 1 AT FX,FY: HCOLOR= 3:FX = FX + HM
    :FY = FY + VM: IF F THEN F = F - 1
690  IF FX > 279 THEN FX = FX - 279
700  IF FY < 6 THEN FY = 6
710  IF FY > 187 THEN 1260
720 FR = (VM + 13) / 2 + 121:FR =  INT (FR):H = 0: IF (FR = 120) OR (FR =
    130) OR (FR >  = 134 AND FR < 137) THEN H = 1
730  ROT= FR: DRAW 1 AT FX,FY: SCALE= 1: ROT= 0: IF  PEEK (234) > H AND FY
     > 165 THEN 1260
740  IF BD = 1 THEN  HCOLOR= 0: DRAW 4 AT BX,BY: HCOLOR= 3: GOSUB 340
750  IF T THEN T = T - 1
760 KY =  PEEK ( - 16384): POKE  - 16368,0
770  IF KY <  > 160 AND KY <  > 136 AND KY <  > 149 THEN 880
780  HCOLOR= 0: SCALE= 3: ROT= TR: DRAW 2 AT 139,184: HCOLOR= 3: IF KY = 1
    60 AND F = 0 THEN  GOSUB 70: SCALE= 3: ROT= TR: DRAW 2 AT 139,184: GOTO
    880
790  IF KY = 136 THEN 850
800  IF KY = 160 AND F THEN  DRAW 2 AT 139,184: GOTO 880
810 TA = TA + 10: IF TA > 90 THEN TA = 90
```

Listing continued.

you. Then, you must set up your military base (beginning at position 1 on the left of the screen and continuing to position 6 on the right) with several targets—radar, interplanetary missile (IPM), fuel tank, munitions dump, and two buildings. Set the caps-lock key and press the first letter of your choice for each position. Your opponent then sets up another military base following the same procedure.

The targets vary in both importance and damage resistance. The radar, hardest to destroy and therefore worth the most, is vital because it can detect the approach of a large assault force that could destroy the entire base. The next most important target is the missile, which, if destroyed, renders the base harmless. One blast from your fighter's laser cannon destroys the fuel and munitions targets, the least valuable because they are easily replaced and not in demand at this point in the conflict. Buildings, although not worth any points if destroyed, block laser fire and destroy the fighter if it crashes into them.

A final structure, an indestructible, high-power, particle-accelerator defense turret, is always located between positions 2 and 3, and is the only means of defense. The space bar fires the turret, and the left- and right-arrow keys rotate it. The fighter loses altitude each time it is hit, and crashes after three hits. A low-flying fighter crashes sooner, so pull up your craft quickly when hit.

The Battle Rages

After constructing both bases, determine the length of the skirmish, the number of times you can attack each other—between one and 15 rounds (sorties). Three rounds is a quick raid, while ten to 15 rounds is an all-out battle. I prefer about five rounds, allowing barely enough slack to come back from a bad sortie. Press the return key to begin the game. Player 1, who set up his or her base first, controls the fighter, and attacks player 2's base.

Your fighter's armament consists of a Supermax IV laser cannon and three chemical reaction bombs. Button zero fires your laser and button 1 releases one bomb. Lasers are most effective against munition dumps and fuel tanks, although radars and missiles, if hit often enough, can be destroyed by laser fire. Buildings are especially resistant to lasers, but they can still be destroyed by them. One bomb, if it hits, will wipe out any structure.

Paddle 1 controls the fighter's altitude. The fighter climbs with a clockwise rotation, and dives in a counterclockwise motion. Pushing the joystick away from you makes the plane dive; pulling it toward you makes it climb. You must also take momentum into account when diving, since the computer updates the vertical motion instead of just changing it according to the paddle position. After a steep dive, you may find yourself unable to pull up before you crash.

Paddle zero controls the fighter's speed. Rotating it to the right (or moving the joystick to the right) accelerates the fighter. A slow ascent causes the plane to stall. To rectify this, either increase the speed or drop the nose. After a few sorties, mastering the controls becomes easier.

Once your fighter has crashed or is

Circle 231 on Reader Service card.

Apple Owners

KRAFT
Precision Joysticks
Kraft Systems Company, Division of Carlisle Corp.
450 West California Avenue, P.O. Box 1268
Vista, California 92083, Telephone (619) 724-7146
Apple is a registered trademark of Apple Computers, Inc.

MOVING?

Let us know 8 weeks in advance so that you won't miss a single issue of inCider. Attach old label where indicated and print new address in space provided. Also include your mailing label whenever you write concerning your subscription. It helps us serve you promptly. Write to:

inCider®
Subscription Department
PO Box 911
Farmingdale, NY 11737

Extend my subscription one additional year for only $24.97

☐ Payment enclosed ☐ Bill Me

Canada & Mexico $27.97 1 year only, US Funds drawn on US bank. Foreign Surface $44.97 1 year only, U.S. Funds drawn on US banks only.

If you have no label handy, print OLD address here.

AFFIX LABEL

Name _____
Address _____
City _____ *State* _____ *Zip* _____

print new address here:

Name _____
Address _____
City _____ *State* _____ *Zip* _____

inCider Subscription Dept. ● PO Box 911 ● Farmingdale, NY 11737

inCider... your integrated approach to Apple computing.

Having all the essential hardware and software does not necessarily add up to a complete home Apple* system. To make your system whole, you need information to guide you through the complexities of home computing. **inCider** will pull it all together for you.

Child's Play gives you fun programs to introduce your children to computing.

The Glau Report is head to head software evaluations for your business applications.

The Applesoft Adviser guides you step-by-step through BASIC, so you'll program better.

The Apple Clinic saves you money with answers to your maintenance and repair questions.

Hard-hitting reviews help you make every purchase a sound investment.

Plus, you'll get the latest games... new product descriptions...utilities ...and programming tips.

Subscribe today and save 30% off the cover price.

One year of **inCider**...twelve big issues...is only $24.97. That's a savings of 30% off the newsstand price. Just fill out the coupon and return it today with payment enclosed.

To get your first issue faster, call toll free:

1 (800) 258-5473

(In New Hampshire, call 1-924-9471).

Your money-back guarantee: You can cancel your subscription at any time. We'll reimburse you for all undelivered issues—no questions asked.

YES! I want to accomplish more!

Send me 12 issues of **inCider** for $24.97. I'll save 30% off the newsstand price.

☐ Payment Enclosed ☐ Bill me $24.97

Name _____

Address _____

City _____ State _____ Zip _____

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

inCider • PO Box 911 • Farmingdale, NY 11737 352B5

Apple is a registered trademark of Apple Computer Inc.

"You must take momentum into account when diving. After a steep dive, you may find yourself unable to pull up before you crash."

Listing continued.

```
820 X = (TA + 90) / 8.181818 + 53: IF X > 64 THEN X = X - 64
830 TR = X: ROT= TR: DRAW 2 AT 139,184
840  ROT= 0: SCALE= 1: GOTO 880
850 TA = TA - 10: IF TA <  - 90 THEN TA =  - 90
860 X = (TA + 90) / 8.181818 + 53: IF X > 64 THEN X = X - 64
870 TR = X: ROT= TR: DRAW 2 AT 139,184
880  IF EX THEN  HCOLOR= 0: SCALE= 1: ROT= 0: DRAW EX AT ZX,ZY: HCOLOR= 3:
     EX = EX + 1: IF EX > 15 THEN EX = 0: GOTO 900
890  IF EX THEN  DRAW EX AT ZX,ZY
900 KY = 0: SCALE= 1: ROT= 0: GOTO 490
910 H = (20 - ( LEN (A$) / 2)): HTAB H: PRINT A$: RETURN
920  TEXT : HOME : PRINT :A$ = "WELCOME, CAPTAIN.": GOSUB 910: PRINT : PRINT
     "YOU ARE ON A SECRET MISSION,": PRINT "AND A VERY DANGEROUS ONE."
930  PRINT : PRINT "WE HAVE CHOSEN YOU BECAUSE YOU ARE": PRINT "ENLISTED I
     N THE MOST DEMANDING BRANCH": PRINT "OF ALL THE ARMED FORCES..."
940  PRINT :A$ = "YOU ARE A": GOSUB 910: PRINT : PRINT :A$ = ">>> RAIDER <
     <": GOSUB 910
950  FOR D = 1 TO 1000: NEXT : PRINT : PRINT : PRINT "NOW THEN, I ASSUME Y
     OU HAVE READ THE": PRINT "MISSION BRIEFING AND YOU ARE READY TO": PRINT
     "GLORIFY THE EMPIRE THROUGH YOUR SERVICE."
960  PRINT "FIRST, THOUGH, A FEW DETAILS MUST BE": PRINT "TAKEN CARE OF.
      GOOD LUCK.": PRINT
970 A$ = "(PRESS ANY KEY TO START)": GOSUB 910: POKE  - 16368,0
980  IF  PEEK ( - 16384) < 128 THEN 980
990  POKE  - 16368,0
1000 C$ = "RIFMB"
1010  SCALE= 1: HCOLOR= 3: ROT= 0: DIM S(2),D(6,2),SH(6,2),SC(6,2),P(6),OD
     (6,2): FOR P = 1 TO 2
1020 R = 1:I = 1:F = 1:M = 1:B = 2
1030  HOME : FLASH : PRINT "PLAYER "P":": NORMAL : PRINT
1040  PRINT "YOU MUST POSITION 4 STRUCTURES AND": PRINT "2 BUILDINGS ON YO
     UR MILITARY BASE WHICH": PRINT "PLAYER "(3 - P)" WILL ATTACK.": PRINT
1050  PRINT "THE LEFTMOST POSITION IS #1,THE RIGHT #6LOCATE YOUR INSTALLAT
     IONS NOW...": PRINT : PRINT
1060  PRINT "RADAR, IPM, FUEL, MUNITIONS, BUILDING"
1070  PRINT : FOR X = 1 TO 6: PRINT "POSITION #"X": ";
1080  GET A$
1090  FOR XX = 1 TO 5: IF  MID$ (C$,XX,1) = A$ THEN 1110
1100  NEXT XX: GOTO 1080
1110  ON XX GOTO 1120,1140,1160,1180,1200
1120  IF R THEN R = 0:D(X,P) = 4:SC(X,P) = 5:SH(X,P) = 5: PRINT "RADAR": NEXT
     X: NEXT P: GOTO 1220
1130  GOTO 1080
1140  IF I THEN I = 0:D(X,P) = 3:SC(X,P) = 4:SH(X,P) = 6: PRINT "INTERPLAN
     ETARY MISSILE": NEXT X: NEXT P: GOTO 1220
1150  GOTO 1080
1160  IF F THEN F = 0:D(X,P) = 1:SC(X,P) = 2:SH(X,P) = 7: PRINT "FUEL": NEXT
     X: NEXT P: GOTO 1220
1170  GOTO 1080
1180  IF M THEN M = 0:D(X,P) = 1:SC(X,P) = 1:SH(X,P) = 8: PRINT "MUNITIONS
     ": NEXT X: NEXT P: GOTO 1220
1190  GOTO 1080
1200  IF B THEN B = B - 1:D(X,P) = 5:SC(X,P) = 0:SH(X,P) = 9: PRINT "BUILD
     ING": NEXT X: NEXT P: GOTO 1220
1210  GOTO 1080
1220 S(1) = 0:S(2) = 0:B = 3:FX = 1:FY = 20:P(1) = 52:P(2) = 90:P(3) = 164
     :P(4) = 196:P(5) = 228:P(6) = 259
1230  FOR P = 1 TO 2: FOR X = 1 TO 6:O(X,P) = D(X,P): NEXT X: NEXT P
1240  HOME : INPUT "HOW LONG DO YOU WISH THE SKIRMISH TO BE?(# OF TIMES TH
     AT EACH PLAYER CAN ATTACK)";L:L =  INT (L): IF L < 1 THEN 1240
1250 PP = 1: RETURN
1260  SCALE= 1: HCOLOR= 3: HPLOT 0,191 TO 279,191
1270  ROT= 0
1280  FOR X = 10 TO 15: DRAW X AT FX,190: FOR D = 1 TO 65: NEXT D: XDRAW X
      AT FX,190: NEXT X
1290 L1 = L1 + .5: IF L1 < L THEN B = 3:FX = 1:FY = 15: HCOLOR= 0: FOR X =
     1 TO 6: DRAW SH(X,PP) AT P(X),190: NEXT X:PP = 3 - PP: GOTO 1390
1300  TEXT : HOME : PRINT : PRINT "THE SKIRMISH IS OVER.  DESTRUCTION": PRINT
     "COVERS BOTH PLANETS, AND NONE ESCAPED": PRINT "THE HAVOC.": PRINT
1310  PRINT "HOWEVER, ";: IF S(1) > S(2) THEN  PRINT "PLAYER ONE WAS MORE
     EFFICIENT. PLAYER ONE WINS!": GOTO 1340
1320  IF S(2) > S(1) THEN  PRINT "PLAYER TWO WAS MORE EFFICIENT. PLAYER TW
     O WINS!": GOTO 1340
1330  PRINT "BOTH PLAYERS ARE EQUALS": PRINT "AND WILL BE REMEMBERED..."
1340  VTAB 13: PRINT "PLAYER ONE: "S(1);: PRINT  TAB( 20)"PLAYER TWO: "S(2
     )
1350  VTAB 20:A$ = "(PRESS ANY KEY TO CONTINUE)": GOSUB 910
1360  POKE  - 16368,0
1370  IF  PEEK ( - 16384) < 128 THEN 1370
1380  POKE  - 16368,0: CLEAR : GOSUB 1000: GOTO 440
1390  TEXT : HOME : VTAB 11:A$ = ">> SWITCH CONTROLS <<": GOSUB 910: FOR D
      = 1 TO 3000: NEXT :S = 0:T = 0:VM = 0:FR = 0:TR = 0:TA = 0:FA = 0
1400 EX = 0:NH = 0: FOR X = 1 TO 6:D(X,PP) = O(X,PP): NEXT : POKE  - 16368
     ,0:BD = 0: GOTO 440
```

End of listing.

Circle 318 on Reader Service card.

CALL FOR MORE SOFTWARE VALUES AND OUR NEW FREE CATALOG, TOO!!

Koala Pad	80.00
Datalife Analyzer	26.00

Recreation/ Education

Crossword Magic	$36.00
Ring Quest	25.00
Expidit. Amazon	25.00
Xyphus	25.00
Quest	25.00
Transylvania	25.00
The Factory	44.00
Sticky Bear ABC	28.00
Teasers By Tobbs	44.00
Numbers	28.00
Math Blaster	36.00
Word Attack	36.00
Zork I	28.00
Zork II or III	ea. 30.00
Deadline	35.00
Enchanter	28.00
Cut-Throats	28.00
Witness	26.00
Suspect	28.00
Planetfall	28.00
Hitch Hiker Guide	28.00
Mastertype	29.00
Early Games	22.00
Algebra I	29.00
Most Amazing Thing	29.00
Carrier Force	41.00
Wars In Russia	56.00
Objective Kursk	28.00
Questron	35.00
Seven Cities of Gold	30.00
Archon	30.00
One-on-One	30.00
Pinball Construct.	30.00
Sky Fox	30.00
Music Construct.	30.00
Beyond Castlewolf	24.00
Germany 1985	43.00
Barron S.A.T.	63.00
Lode Runner	24.00
Champ. Lode Runner	25.00
Millionaire	36.00
Wizardry	34.00
Knight of Dia.	24.00
Legacy	28.00
Ultima III	43.00
Flight Sim. II	36.00
King's Quest	36.00
Typing Tutor III	36.00
Sargon III	36.00

Hardware/Misc.

Mockingboard w/Speech	$80.00 160.00
System Saver	65.00
Flip'n'file 70	15.00
Library Case 5 colors	2.50
Micromodem IIe	250.00
Mach III Joysticks	39.00
Kraft Joysticks	35.00
Ribbons	call!

Business

Think Tank	$105.00
PFS Access	46.00
PFS File	80.00
PFS Graph	80.00
PFS Proof	46.00
PFS Report	80.00
PFS Write	80.00
Solutions	ea. 14.00
The Accountant	90.00
Multiplan	135.00
Incredible Jack	127.00
Sensible Speller	81.00
T K Solver	210.00
Visicalc "E"	210.00
WordJuggler w/check	155.00
Tax Preparer 1984	175.00
Supercalc	130.00
Supercalc II	200.00
D B Master ver 4	230.00

Utilities

Copy II +	$22.00
Ess. Data. Dup.	49.00
Alpha Plot	25.00
Apple Mechanic	20.00
Beagle Bag	20.00
Beagle Basic	24.00
Beagle Graphics	35.00
Disc Quick	20.00
Dos Boss	16.00
Double Take	23.00
Fat Cat	23.00
Flex Type	20.00
Frame Up	20.00
G.P.L.E.	33.00
Pronto Dos	20.00
Silicon Salad	17.00
Tip Disc #1	14.00
Triple Dump	25.00
Type Faces	14.00
Utility City	20.00
ORC A/M	72.00
Side Ways	37.00
Zoom Graphix	36.00
Terrapin Logo	72.00
ASCII Pro	90.00
Lisa 2.6	58.00
Visible 6502	34.00

Home

Home Accountant	$48.00
Homeword	34.00
Bank Street Writer	46.00
Bank Street Spell	46.00
Dollars & Sence	69.00
Tax Advantage	46.00
Practicalc II	49.00

Graphics

Fontrix	$45.00
Fontpak 1-9	ea. 12.00
Graphics Magician	42.00
Pixit	40.00
Printshop	36.00
Complete Graphics	55.00

Personal checks allow 2 wks. Visa & MasterCard add 3% for handling. Send Card # & exp. date. U.S., A.P.O. & F.P.O. include $3.00 for shipping. C.O.D. add $5.00 + $3.00 for shipping. Printers & monitors add $10.00 + $3.00 for shipping. Ohio res. 5.5% sales tax. We accept purchase orders from qualified organizations. Prices subject to change without notice.

FAS-TRACK COMPUTER PRODUCTS

MasterCard VISA

5360 N. High Street
Columbus, OH 43214
(614) 436-1124

OR TOLL-FREE OUTSIDE OHIO
1-800-272-1600

FREE UPS SHIPPING
NO HIDDEN CHARGES

Dot Matrix

BROTHER/DYNAX
Brother 2044L ..... $ 1039.88
C. ITOH
Prowriter ..... CALL
Prowriter-2 ..... CALL
HotDot ..... CALL
HotDot-2 ..... CALL
EPSON
RX/FX/LQ Series ..... CALL
OKIDATA
Microline 92 ..... 399.88
Microline w/Imagewriter code (IIc, Mac) 499.88
Microlin › 93 ..... 639.88
Microline 84 ..... 739.88
NEC
Pinwriter (80 col) 699.88
Pinwriter (132 col) 929.88
STAR MICRONICS
Gemini 10X 269.88
Gemini 15X 389.88
Delta 10X 369.88
Delta 10X 509.88
Radix 10X ..... CALL
Radix 10X ..... CALL

Letter-Quality

BROTHER/DYNAX
HR/DX-15 ..... $ 399.88
HR-25 ..... 669.88
HR-35 ..... 939.88
C. ITOH
A-10 ..... CALL
F-10/40 ..... CALL
F-10/55 ..... 1379.88
Diablo Series ..... CALL
NEC
2010/2030 ..... 739.88
3510/3530 ..... CALL
7710/7730 ..... CALL
Tractor 359.88
QUME
Sprint 11/40 ..... 1519.88
Sprint 11/55 ..... 1679.88
LetterPro 20 ..... 459.88
SILVER REED
EXP-770 ..... CALL
EXP-550 ..... CALL
770/550 Tractor 129.88
EXP-500 ..... 389.88
EXP-400 ..... 329.88
500/400 Tractor 119.88
STAR MICRONICS
PowerType ..... CALL

Modems

HAYES
Micromodem IIe ..... $ CALL
Smartmodem 300 ..... CALL
Smartmodem 1200 ..... CALL
NOVATION
AppleCat 300 ..... 239.99
AppleCat 300 to 1200 Upgrade Kit 259.88
AppleCat 1200 ..... 449.88
SmartCat+ 349.88

Monitors

AMDEK
300G (gr) ..... $ 144.88
300A (am) 159.88
Color 300 ..... 259.88
ROLAND
DG-121G 144.88
DG-121A 144.88

Apple Peripherals

ALS
CP/M+ (3.0) ..... $ 279.88
Smarterm II 139.88
Dispatcher 74.88
AMT
MicroDrive (½ ht) 179.88
MA SYSTEMS
Printer Card w/cable ... 79.88
MICROSOFT
16K RAMcard ..... CALL
Softcard II (Z-80) ..... CALL
Premium Softcard II (Z-80 & Videx VideoTerm) 459.88
Softcard IIe (Z-80, 80 col & 64K card) 279.88
ORANGE MICRO
Grappler+ 109.88
Buffer Board (16K) 114.88
Buffered Grappler+ ..... CALL
INTERACTIVE STRUC.
Pkasso-U 129.88
QUADRAM
Quad e-Ram IIe) 109.88
RANA SYSTEMS
Elite-1 ..... 219.88
Elite-2 ..... CALL
Elite-3 ..... CALL
Drive Controller Card (ProDOS compatible) ... 84.88
TBL
16K RAMCard 69.88
Drive Controller 69.88
TITAN
Accelerator II 419.88
Memory Cards
32K 154.88
64K 244.88
128K 349.88
Neptune Card ..... CALL
VIDEX
Enhancer II 109.88
PSIO 159.88
VideoTerm 199.88
VideoTerm with 40/80 col. SoftSwitch 219.88
SoftSwitch IIE 29.88
UltraTerm 244.88

Accessories

IDE
Switch Boxes
Parallel, 2-way ..... $ 109.88
Serial, 2-way 109.88
Parallel, 4-way 159.88
Cross Switch 129.88
INLAND
Monitor Stand 39.88
Printer Stand (80) 39.88
Printer Stand (132) 49.88
INNOVATIVE CONCEPTS
Flip-N-File 50 ..... 29.88
KENSINGTON
System Saver ..... CALL
QUADRAM
Microfazer Print Buffers
Parallel-Parallel 8K ... 139.88
64K 184.88
Parallel-Serial 8K 149.88
64K 199.88
Serial-Parallel 8K 149.88
64K 199.88
Serial-Serial 8K 149.88
64K 199.88
TRACE
SoundTrap (80) 129.88
SoundTrap (132) 189.88

TECHNICAL INFORMATION/SALES
(603) 881-9855
TOLL-FREE ORDER DESK
(800) 343-0726
Hours: 9:00 to 5:30 EST, Mon-Fri

- FREE UPS ground shipping on all orders over $50 (under $50 add $2.50 handling)
- MasterCard, VISA, American Express, Diners Club & Carte Blanche credit cards accepted
- No surcharges on credit card orders
- Credit cards are not charged until your order is shipped from our warehouse
- CODs accepted up to $1000 (add $10 for COD handling). Payable with certified check, money order or cash.
- Allow 10 days for shipping from date of order
- All personal checks held 30 days for clearance
- Full manufacturer's warranty on all products sold
- Sorry, no APO/FPO or foreign orders

HIGH TECHNOLOGY AT AFFORDABLE PRICES
THE BOTTOM LINE
Milford, NH 03055-0423 ■ Phone (603) 881-9855

Table. *Line-by-line description of Raider.*

Lines	Function
70–170	Defensive fire sequence
180–260	Laser fire sequence
270–310	Possible explosion and score adjustment
320–370	Bomb-dropping sequence
380–420	Explosion and possible score adjustment
460–480	Screen setup
490–500	Paddle button check
510	Fighter angle determination
520–530	Check if fighter is stalling or was hit by laser fire
540–600	Paddle readings and vertical velocity adjustment
610–670	Check if fighter will stall
680–730	Move fighter, adjust rotation
740	Check if a bomb is falling
750	Check if fighter was hit, reduce timer
760–870	Turret rotation
880–890	Erase, update, and redraw explosion
900	Repeat loop
910	Print centering function
920–990	Introduction to Raider
1000–1250	Game setup
1260–1280	Crash and explosion sequence
1290	End player's turn, check for end of game
1300–1380	Score analysis and end of game
1390–1400	Initialization sequence

shot down, you and your antagonist switch controls. You now are on the defensive and control the turret, and your opponent attacks your base. After each sortie both bases are repaired, and when the skirmish is over, the computer displays both scores and acknowledges the winner.

Typing in the Program

The body of Raider is in **Listing 1**. I followed as many of Gareth Tucker's commandments (Letters, November 1983, p. 12) as I could for easy entry, but speed and efficiency held top priority. The **Table** contains a line-by-line program description.

Listing 2, the shape table for Raider, contains the fighter, turret, laser, bomb, structures, and six different explosions to create a realistic explosion sequence. To prepare the computer to enter the shape table into the system monitor, type CALL – 151. Then type 4000: and enter about five lines of data and press the return key. Then type a colon, enter another five lines, and press the return key until all the code is typed in. You can check your work by typing 4000.4299 and comparing it with **Listing 2**. When you're done typing it in and checking it, type

BSAVE RAIDER SHAPES,A16384,L666

to save the program. Then run Raider and have fun. ■

Contact Tim Wiley at 7 Dewey Road, Lexington, MA 02173.

Listing 2. *Shape table.*

```
4000- 0F 00 20 00 24 00 2A 00
4008- 2F 00 35 00 62 00 AB 00
4010- E3 00 16 01 52 01 67 01
4018- 85 01 A4 01 F6 01 4A 02
4020- 2E 2E 05 00 34 3F 2D 2D
4028- 07 00 2D 2D 2D 05 00 3F
4030- 3F 0C 16 05 00 2D 2D 2D
4038- 2D 2D 2D 3C 3F 3F 3F 3F
4040- 3F 0C 29 2D 2D 2D 2D 1C
4048- 3F 3F 3F 3F 3F 27 21 21
4050- 21 25 3D 23 2D 25 21 21
4058- 31 36 36 17 36 3D 23 17
4060- 05 00 24 24 24 24 24 24
4068- 24 24 2D 35 36 36 36 36
4070- 36 36 36 3E 27 05 20 20
4078- 23 28 20 38 20 28 20 18
4080- 08 2C 2D 2D 35 25 15 1E
4088- 3A 3A 32 2D 2D 3E 3F 37
4090- 36 36 2E 2D 35 3F 3F 36
4098- 2E 2E 2C 2E 20 24 18 08
40A0- 24 3F 2F 09 20 04 18 08
40A8- 1C 04 00 2D 29 2D 29 24
40B0- 24 24 24 24 24 1C 1C 1C
40B8- 3F 17 17 17 36 36 36 36
40C0- 36 2E 21 23 24 21 21 35
40C8- 25 0C 0C 24 1C 1C 27 17
40D0- 17 17 36 0E 0C 25 33 12
40D8- 12 09 29 32 3E 3A 03 38
40E0- 24 00 12 24 24 24 2C 2D
40E8- 2D 2D 2D 2D 2D 2D 2D 35
40F0- 36 36 36 3F 3F 3F 3F 3F
40F8- 3F 3F 3F 27 01 20 24 2D
4100- 3E 2A 2E 21 24 15 0C 36
4108- 2E 21 24 15 0C 36 2E 29
4110- 25 24 3F 36 06 00 24 24
4118- 24 24 24 24 24 2D 2D 2D
4120- 2D 2D 36 36 36 36 36 36
4128- 36 3F 3F 3F 3F 27 08 2D
4130- 24 3F 26 18 08 2D 24 3F
4138- 26 18 08 2D 24 3F 2E 09
4140- 31 2D 24 3F 16 12 36 2D
4148- 24 37 12 3A 36 2E 21 24
4150- 07 00 3F 07 38 20 25 2D
4158- 2C 2D 2E 35 35 37 37 3F
4160- 1C 23 28 2A 29 00 08 3F
4168- 2C 20 23 23 27 0C 2D 28
4170- 2D 2A 15 37 35 3B 32 0E
4178- 3E 3F 18 08 08 24 38 13
4180- 2E 12 2A 05 00 2F 29 1C
4188- 27 27 3F 27 27 2F 28 25
4190- 2D 2D 2D 35 2D 2E 17 37
4198- 3F 37 27 3C 1C 2F 01 08
41A0- 2D 2A 00 1F 3D 2B 18 08
41A8- 28 25 29 05 28 24 21 07
41B0- 38 38 07 38 07 38 3F 3A
41B8- 3A 17 17 36 15 15 2D 2A
41C0- 15 2A 18 08 18 08 25 29
41C8- 0C 3C 33 33 03 38 2B 16
41D0- 3F 1C 0F 18 08 05 08 05
41D8- 18 08 16 0A 29 18 08 18
41E0- 08 2B 16 01 28 15 1E 1B
41E8- 1B 18 08 08 38 3F 0B 1A
41F0- 17 3F 3A 2A 00 1C 3D 2B
41F8- 18 08 18 07 20 29 2A 28
4200- 2D 20 21 3B 17 17 07 18
4208- 28 28 28 05 20 3B 3F 17
4210- 17 37 1A 30 02 28 2A 2D
4218- 09 09 09 12 2A 0D 20 18
4220- 08 23 01 20 39 1B 24 1B
4228- 1C 1F 23 1C 1B 36 1B 16
4230- 1E 33 32 3A 32 2B 09 1A
4238- 0C 0E 04 18 08 08 28 29
4240- 18 08 31 2B 11 12 09 3E
4248- 00 1B 04 18 08 0C 21 18
4250- 38 1B 3B 12 09 04 18 08
4258- 09 16 2A 09 20 38 18 1C
4260- 3B 13 17 1A 16 19 0E 15
4268- 39 18 08 18 08 18 08 18
4270- 08 18 08 1F 1B 32 13 32
4278- 09 09 09 09 09 09 09 04
4280- 18 08 23 03 18 08 17 13
4288- 15 12 12 12 0A 11 1F 1B
4290- 1B 1B 1B 1B 1B 18 08 2B
4298- 00 12
```

Apple Ecology: Part II

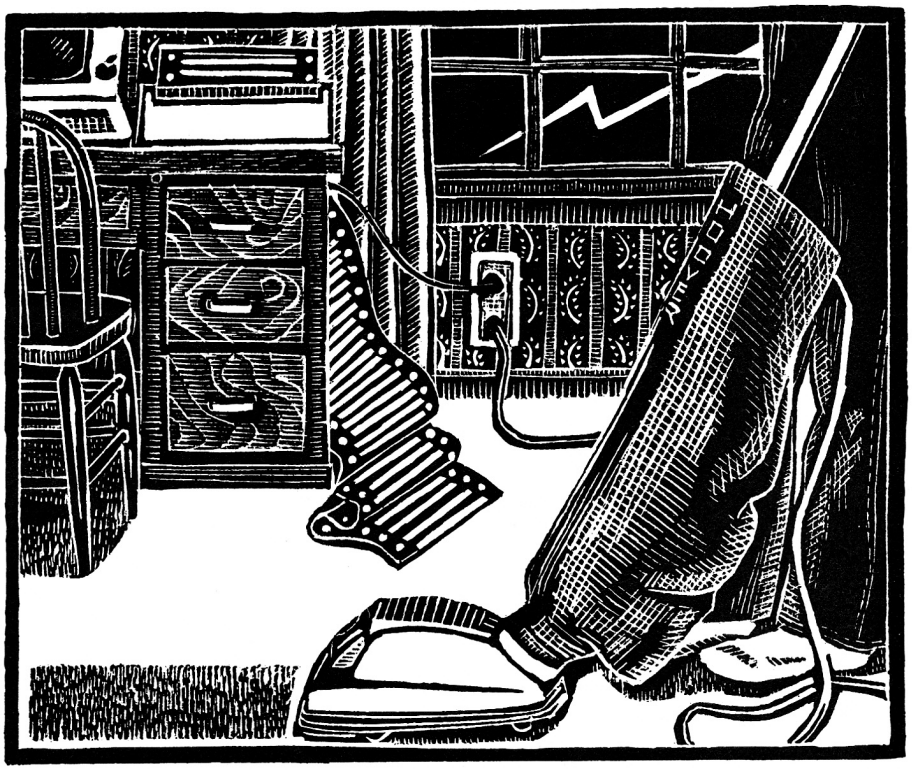


Illustration by Beth Krommes

How will your Apple fare when the lights go out?

Electricity, a cornerstone of our civilization, is, perhaps, second only to fire in importance. Yet, while we take precautions against the unsupervised and uncontrolled uses of fire, we don't give much thought to their counterparts in the electrical world. Last month, I looked at the source of your power woes. This month, let's delve a little deeper and get a perspective on what aids are available to help you guard your Apple from potential disasters that electrical failures and malfunctions can precipitate.

Wasted Days and Wasted Nights

"Bill, the hard disk won't come online. We've tried a few times but it's always the same. It just sits there."

"Can you reformat and restore the old data?"

"No, can't get it to recognize that there's a hard disk there at all. We were in the middle of posting our receivables when the lights browned out for a few seconds. Somewhere in there, as far as the computer's concerned, the hard disk disappeared. Can you come over and check it out?"

"No problem, but get the box ready. It sounds like it's going on a trip to the repair shop. Did you ever get the power accessories we talked about?"

"No, we couldn't get the money approved by purchasing. The office needed a copy machine."

What happens when your computer or hard disk takes a nose dive? Obviously, you must contend with the repair costs. Beyond that, you've lost information and time. If you've backed up the data correctly, it may take only a few hours to reinstall and check it. If you don't, you can be faced with days, possibly weeks, of data entry.

Even if you've checked every power outlet in your home and office with last month's column in one hand and a VOM (volt ohm milliammeter) in the other, you shouldn't feel safe. Electrical conditions can be as unpredictable as the weather.

Spikes, Surges, and Noise

Picture this: You've spent a few hours entering information into your

by Bill O'Brien

Circle 49 on Reader Service card.

The
Master Handicapper™
Series by Professor Jones

EVALUATES FROM RACING FORM!

Age	Gender	Post (Today)
Class	Jockey (Today)	Post (Last)
Condition	Jockey (Last)	Speed
Consistency	Length	Trainer
Earnings	Time of Year	Workouts

And gives you GRAPHIC REPRESENTATION of finish

PROGRAM

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.

PROFESSIONAL HANDICAPPING SYSTEMS

%	%	%
Age 5	Consistency 15	Speed 10
Class 15	Jockey 15	Workouts 0
Condition 10	Trainer 5	Time of Year 0
Earnings 5	Post 10	Consistency 5
100%	Is Everything OK (Y/N)	

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	6) Condition
2) Post Today	7) Running Style
3) Kennel	8) Weight
4) Post Last	9) All new internal weighting
5) Distance	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 analysis™ 299.95

MHH. Master Harness Handicapper™
Professional software designed to provide a thorough analysis of all trotter and pacer races in North America and Canada. Features:

Class	Post Positions	Time Finish
Driver	Track Conditions	Time Last Quarter
Days Since Last	Trainer	Track Rating
Gender	Time ¼	Temp Allowance

$159.95 complete w/integrated Master Bettor™ **$199.95**

PPX. Professor Jones' Football Predictor, Prof. Pix™
Complete Football Analysis with **Data-Base.**

1) Overlays	4) "Over/Under" bets
2) Point Spreads	5) Data Base Stats
3) "Super Plays"	6) Holds "100" teams

Highest percentage of winners 1983

$39.95 complete
$99.95 with Data Base Management

$$ MB. Master Bettor™
A compliment to ALL Master Handicapper programs, includes:

1) Win/Place/Show	4) Trifecta	7) Money Management
2) Quinella	5) Pik Six	8) Odds Analysis
3) Exacta	6) Daily Double	9) and Much More

A perfect program designed to use results from all Master Programs to generate "best bet" **$59.95** complete

Model 100 Portable Systems
TP1-Thoroughbred/Pace™ (24K) **$99.95** complete
DG1-Master Dog Analysis™ (24K) **$99.95** complete

Professor Jones' Basketball Analyzer Complete Program $79.95

Send check / money order / VISA / MasterCard (Include expiration date) to:

Prof. Jones
1114 N. 24th St.
Boise, ID 83702

TELEPHONE
(208) 342-6939

VISA MasterCard

TERMS: FREE SHIPPING ALL SOFTWARE.
Add $6.00 hardware / C.O.D. Add $6.00 / Add 3 weeks personal checks / Add 4.5% ID residents / Add $6.00 outside U.S.A. / Prices subject to change.

BROCHURE AVAILABLE

computer. Now it's time to print out the results. You turn the printer on, swivel back to the computer, and wham! Either the screen has been filled with nonsense, or the keyboard won't respond.

Here's the same situation, but you've already turned all the equipment on, and in the proper order: You hear a far-off peal of thunder. A few seconds later, your printer stops, your computer stops, and everything grinds to a halt.

The third scenario should hit closer to home for many of you. Just before you start printing, you decide your pencil is a little blunt. You jab it into the electric sharpener, bring up a good point, turn back to the computer—and nothing works.

All three situations start off harmlessly enough. Printers, distant thunder, and pencil sharpeners may seem innocuous and unrelated. They're not. In its own way, each can affect electrical voltage.

Thunder follows lightning. When lightning—electricity in natural form—strikes a power line, it can multiply your line voltage 100-fold. Just the static charge from a lightning bolt nearby can place the same spike of electricity in your line.

When first turned on, a printer uses electricity rapidly. At the end of its power-on cycle, the "extra" electricity is pushed back into the power line, a situation analogous to smacking your hand down into a tub of water: The initial wave is large. Its echoes, as the water bounces off the walls of the tub, return to the spot you slapped. These same ripples, or surges, from your typewriter, air conditioner, or any heavy-duty electrical implement play havoc with your wall outlet.

Then the pencil sharpener grinds endlessly away. Its small motor pumps your electrical line full of "noise." These small pulses of power travel right back to the wall outlet and enter anything plugged into it.

A line conditioner (see last month's column), protects your equipment from the ravages of these electrical variations. But as I noted last time, they're expensive, and if you don't need the voltage-regulating characteristics of a line conditioner, you can get the same protection for under $100.

One unit in particular, Curtis Manufacturing's Ruby, can exemplify features you should look for. It dissipates 585,000 watts of power for 100 seconds and offers protection against up to 340 volts of electricity in a breathtaking 1 nanosecond. The fastest memory chips are rated at 100 nanoseconds and typical Apple devices function in the 400-nanosecond range. That's fast protection.

You're covered against spikes of up to 3000 volts and protected against surges of up to 1440 amperes that occur for less than 1/120 of a second (not an unreasonably short period of time).

If electrical noise from pencil sharpeners, vacuums, and the like is the problem, this particular unit will attenuate power-line radio frequency (RFI) or electromotive interference (EMI) between 150 kilohertz (kHz) and 30 megahertz (MHz). CB transmitters tend to peak out at 28 MHz, so even they are kept out of your computer.

This particular unit (Curtis has different models) is advertised at $89.95. Prices for others with more or less the same specifications vary depending on the amount and type of protection they give you. (See the list of suppliers at the end of the column.)

Static

Those small bolts of personal lightning that zap you unexpectedly aren't hazardous. They're manifestations of static, a slight jolt of electricity that can amount to several thousand volts but is rated at low power levels. The power behind a static discharge is rated in thousandths of an amp.

Unfortunately, your Apple works with small voltages at these same low power levels. Suffice it to say that introducing voltage at any point in an electronic circuit other than where it's expected can be hazardous. When that voltage is 500 times larger than the circuit was designed to accept, it's disastrous.

What causes static? Many factors are involved, not the least of which is the weather. Static is most likely to occur on dry days. Your clothing rubbing together as you walk, your feet on a rug, even the contact between you and the cloth chair-cover can turn you into a static storage battery.

As you saw last month, electricity needs a path to ground for a complete circuit. Only when you reach some grounded spot does the static drain off.

All too often the ground connection is your Apple.

Static Prevention

A static problem is obvious, and you can remove it before it removes your computer through the use of a humidifier, anti-static spray, or anti-static mats.

In a normally (comfortably) humid environment, everything, even the air, is conductive and an excellent path to ground. Under such conditions, static has no opportunity to build up; it's constantly drained to ground.

Humidifiers can successfully combat severe static, but they can create their own problems. Mechanical devices, they require a maintenance schedule. Then there's the water: Some models have their own holding tank and must be refilled periodically. Others require their own pipeline. If you've priced a plumber lately, you already know that this may not be a practical approach, especially if your static problem is localized.

On the other end of the cost spectrum are anti-static sprays—chemical combinations in a water medium propelled from an environmentally safe pump sprayer. You douse the general area, including all rugs and chairs.

The drawback to this process is that the cure becomes chronic. One treatment stops static for a while; then you must repeat the procedure. If you happen to sit in a chair before the spray has dried you'll discover that, while it isn't harmful, it *is* uncomfortable.

The more popular solution is an anti-static mat. Available in various sizes, these mats come in two types: The first looks like an ordinary mat. It's composed of an anti-static material, and is the cheaper of the two. As you walk over it, the mat material absorbs any static charge. The other has embedded conductive meshing and a wire that exits the mat and is connected to a suitable source of ground, like the center screw of your wall outlet.

I've found this latter type of mat to be more effective, though you *must* connect the ground wire. In the installations I've done where static problems have persisted, either someone kicked free the ground wire or it was disconnected to move the mat and never reconnected.

Vanishing Voltage

Though you take all of the precautions I've discussed, you can't sit back and savor your well-protected Apple. You must still contend with those insidious disruptions of electrical energy—blackouts.

If your Apple system includes a hard-disk drive and the power fails, the cushion of air used to suspend the read/write head over the disk medium is stopped. When that happens, the head makes a one-point landing on the disk and destroys it. Both disk and all data stored there enter oblivion.

If you're working on some information in memory and the power fails, the data vanishes as well. Without power, you can't exit a software application correctly, and in some cases that may cost you several hours (or weeks) of work.

Most urban computer installations will never know the frenzy of a power failure. The closest they'll usually come is a brownout. But even these dips in the voltage level can fall below what a line conditioner can handle and your system can suffer damage.

The solution to either a no-power condition or an extended brownout is an Uninterruptible Power Supply (UPS). Again, there are two types providing the same results but functioning differently.

Both use a battery as the back-up power source and transform and invert the lower DC voltage into a usable AC output. How they provide the back-up is where they diverge.

One type is a standby system. Your Apple is fed wall power unless or until the UPS notices there isn't any. A switch is automatically thrown inside the unit and the battery becomes the power source.

Switching times are usually about a few thousandths of a second and, for most installations, won't be noticeable. However, unless specifically stated, this type of UPS may not provide surge, spike, and RFI/EMI protection.

The other type is an on-line system. It constantly inverts and transforms the wall power into suitable voltage to keep the battery charged. The battery voltage is then inverted and trans-

Circle 404 on Reader Service card.

SAVE BIG ON COMPUTER PRODUCTS

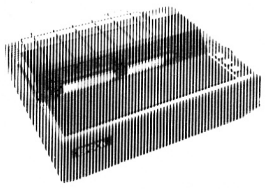
MODEMS
HAYES
Smartmodem 300 190
Smartmodem 12000 470
Smartmodem 1200B 399
Micromodem II E 240
Smartcom II Software (for IBM PC) 90
Cables to Hayes Modems ..... CALL
NOVATION
SmartCat Plus (NEW) ..... CALL
J. Cat 300B direct 99
103 SmartCat 300B Smart 159
103/212 Smart 300/1200 B 379
AppleCat II 300 baud for Apple 200
212 AppleCat 300/1200B for Apple 390
Access 1-2-3 1200B for IBM 379

AMDEK
V300G 12" green 122
V300A 12" amber 145
V310 12" amber (for IBM) 160
Color 300 13" composite 249
Color II+ 13" RGB 425
Color IV 13" RGB analog 740
Monitor Cables
CB 5690 Apple II to Monitor 7
CB 5691 IBM to RGB 19
CB 5692 for TI-99/4A or Commodore 15

QUADRAM
MICROFAZER
QRMP-8 Par/Par 135
QRMSP-8 Ser/Par 139
QRMMSS-8 Ser/Ser 139
QRMPS-8 Par/Ser 139
QUADBOARD (for IBM PC)
QR 5310 (no mem. installed) 210
QR 5364 64K (mem. installed) 270
QR 4064 64K (mem. installed) 270
QR 8201 Quadcolor-1 200
QR 8201 Quadcolor-2 (upgrade kit) 200
QUADLINK
QR 3000 for IBM 475
QR 3010 for Compaq 475
QR 3020 for Columbia 475

AST
Six Pak Plus 250
Mega Plus II 250
1/0 Plus II 125

SAVE 31%-43%
OFF MFR. SUGG. RETAIL PRICES ON
PRINTERS
EPSON • OKIDATA • DIABLO
SCM • DELTA • GEMINI • TTX
RADIX • COMPUTE-MATE
MANNESMANN TALLY



wabash maxell Dysan

DISKETTES
10 — 5¼" Floppy Diskettes

	SS/SD	SS/DD	DS/DD
Wabash	$12.50	$13.50	$15.30
Maxell	NA	16.50	21.50
Dysan	NA	23.00	30.00

10 - 8" floppy diskettes

Dysan	NA	32.00	37.00

CALL FOR QUANTITY PRICING ON
10 OR MORE BOXES OF DISKETTES

HUGE DISCOUNTS all
RIBBONS • DUST COVERS
PAPER • POST CARDS • LABELS
for almost every make and model

HEWLETT-PACKARD
CALCULATORS
HP-11C 56 HP-15C 90
HP-12C 90 HP-16C 90
HP-41CX 245
HP-41CV 168 HP-97 560
all software & accessories too
PORTABLE COMPUTERS
HP-71B 399 HP-75D 799
series 70 software & peripherals discounted too
HP-2225B ThinkJet Printer (HPIL) 375
HP-9114A Disk Drive (HPIL) 600

NEW!

SHARP CALCULATORS
EL 5100 43
EL 5500 T 70
EL 512 T 28

SHARP COMPUTERS
pc 1250A 80
pc 1260 ..... CALL
pc 1261 ..... CALL
pc 1500A 160
PRINTERS DISCOUNTED TOO

CABLES – INTERFACES
accessories for Computer Printers
GRAPPLER PLUS 105
16K BUFFFERED GRAPPLER 165
Apple Dumpling GX 65
Cardco G 65
CB5609 8 ft. Par. Cable for IBM 20
CB5622 10 ft. 36 x 36 Parallel 32
CB5629 10 ft. 25 x 25 RS-232 25
CB5618 6 ft. TI-99/4A parallel cable 25
CB5620 6 ft. par. TRS80 mod. I-III-IV 22
ALL OTHER CABLES ..... CALL

CALL TOLL FREE 800-621-1269 EXCEPT Illinois, Alaska, Hawaii

Corp. Accts. Invited. Min. Ord. $15.00. Mastercard or Visa by mail or phone. Mail Cashier's Check, Mon. Ord., Pers. Check (2 wks. to clr.) Add $4.00 1st item [AK, HI, P.R., Canada add $10.00 first item] $1.00 ea. add'l shpg. & handl. Shipments to IL address add 7% tax. Prices subj. to change. WRITE for free catalog. RETURN POLICY: Defectives Only: Most products replaced within 30 days of purchase with identical merchandise only. Computer and large peripherals replaced only when defective on arrival (within 3 work days of delivery). Other problems covered by mfr. warranty. ALL ELEK-TEK MERCHANDISE IS BRAND NEW, FIRST QUALITY AND COMPLETE.

ELEK-TEK, inc. 6557 N. Lincoln Ave., Chicago, IL 60645 (312) 631-7800 (312) 677-7660

formed into AC for the computer. The battery is the primary source of electrical power. No switching is needed. So you're guaranteed relatively clean and stable voltage. But the double conversion (wall AC to battery to AC) usually makes these units more expensive. A 1KVA (1000 watts) standby UPS might cost $1400; an equivalent on-line system, four times as much.

Neither one is meant to keep your Apple running indefinitely during a blackout. What they do is provide a bail-out period during which you can stop what you're doing and exit the system correctly. After that, shut everything off and wait for the power to return.

Operating times can vary from 20 minutes to an hour, depending on the UPS's power rating and the amount of current your system draws. An Apple with a hard disk will require a 250–300-watt UPS. Keeping your printer on a UPS is also a wise—and often overlooked—practice. If you're printing when the power fails, your computer can lock up. Although you've assured it of power, when the printer stops in the middle of its work, your Apple may not let it do anything. If your data is all in memory, the UPS on the Apple is useless. You'll have to reset the computer to recover. Of course, depending on the printer, that can boost the UPS's power requirement into the 500–700-watt range.

Recap

None of the equipment that I've discussed in these last two columns is necessarily a solution. Rather, they represent preventive steps you can take to treat the results of a problem. If your problem is severe, then, like putting a Band-Aid on a wound that won't heal, you're only fooling yourself. And before your Apple disappears in a puff of smoke, you should contact an expert—whether that's your local power company representative (yes, they can be helpful) or a licensed electrician (the adjective is the key word). You must deal with electrical problems at their cause. And since the voltage in your wall outlet can be lethal, let people who know what they're doing handle it.

IN THE NEWS

As you read this, Sorcim/IUS should be announcing a new product for the Apple //c. The IUS (as in EasyWriter) part of the name should be familiar to you, though the significance of the Sorcim name may be mysterious. They manufacture Supercalc electronic spreadsheet software for CP/M and MS/PC-DOS computers. Or at least that *was* the limit of the program's utility.

Its introduction on the Apple //c adds a new dimension both to the Apple and to businesses using Supercalc. The person on the go no longer needs to spend $2000–$3000 for a transportable computer that will also run the product.

A one-drive Apple //c with a monitor will do the job fine. When you bring work back to the office, download the spreadsheet data to the CP/M or MS/PC-DOS computer with any communications program that supports MODE (8-bit) data transfer. Of course, you can just swap disks if you're using a //c in the office as well.

The beta version here at Futility Base is one step before a final, release copy, so some of the features could still be modified. Some things shouldn't change. It requires the 80-column and extended-memory features of the //c, as well as the 65C02 processor—not currently available on the Apple //e, which uses the standard 6502 (non-CMOS) version of the chip.

The working size of the spreadsheet (as opposed to the number of physical columns and rows) is 64K. That's larger than most 8-bit, but not as large as many 16-bit machines, can handle. From the looks of the version I have, it's a Supercalc 2 variant. There are no graphing abilities, as are available in the later Supercalc 3 release. Utilities are provided to import VisiCalc and AppleWorks files into Supercalc.

And it runs under ProDOS with formatting capabilities and full subdirectory support. That means the single-drive Apple //c is more than adequate to handle the insert/reinsert process for the correct ProDOS data and program volumes.

The version I have is *not* copy-protected. If it remains that way through its final release (all of the other versions are unprotected) then it will be a boon to QC-10 and other hard disk owners. I'll keep my fingers crossed on that one.

Before the //e owners in the audience become depressed, there is good news. There's nothing, in theory anyway, that says you can't put a 65C02 in your computer. There are some other considerations, though—like screen handling—that must be accounted for, but stay tuned for a full review and better details.

/RAM

Brace the doors and clamp down the shutters: There's a storm of controversy arising over an all-too-easily uttered quote from my November column. The offending verbiage was to the effect that Apple has abandoned the /RAM virtual disk area in ProDOS 1.02. Well, rest easy. It's still there, but it's not exactly the same.

Let's take a moment to recap. When Apple upgraded its Apple II series to the //e, added ProDOS as its primary operating system and gave it 128K memory capacity, several things happened. You no longer needed a language card, since the main logic board had a full 64K of RAM. You had an additional 64K of memory available with an add-on card. And, because the 8-bit 6502 processor can only address a maximum of 64K at one time, if you had the extra memory you really could do nothing with it. At that time, Apple offered no programs that could take advantage of the added RAM.

There was no sense having the memory if you couldn't use it, so Apple added a virtual disk facility to ProDOS 1.00. If you booted the ProDOS disk and went through the Volume utilities, you could see that, no matter how many disk drives you really had, the utilities reported that you had one more—/RAM. Apple took the auxiliary RAM area and converted it into a high-speed electronic disk drive.

This was excellent. Even though the /RAM area was only 120 blocks large (512 bytes per block), it was a great place from which to run programs or handle data. Everything moved *fast*. The only hitch was that if you didn't create data files or programs in the /RAM area, you had to use the ProDOS File utilities to transfer them there. (The File utilities are a breeze to use, so that was no problem.)

At the same time, Apple was working on the //c. When it was finally re-

Circle 362 on Reader Service card.

EASTCOAST SOFTWARE

ecs... inflation-fighting prices.

No hidden charges! No credit card fees!

APPLE

CAT #		LIST	SALE
0080	Adam & Eve Paddles	39.95	27.50
1298	Adventure Writer	70.00	53.85
0560	Algebra I	39.95	27.60
0723	Algebra V & VI (2-Disk)	49.95	34.50
1142	Alien Addition (Home)	34.00	23.55
0013	Alpha Plot	39.50	27.25
2598	Alphabet Zoo	29.95	20.70
0434	Apple Cat 2 Modem	319.00	244.95
0151	Apple Mechanic	29.50	20.35
0490	Apple Users Guide 2/2E	17.95	14.50
1580	Applesoft Compiler Plus	59.95	41.50
0309	Applewriter 2 Pre-Boot	24.00	16.95
1446	Back to Basics Acct. 2E	195.00	123.75
0042	Bag of Tricks	39.95	27.65
1685	Bank Street Filer	69.95	48.35
0501	Bank Street Writer	69.95	48.35
1204	Bank St. Writer 2C/E-128K	69.95	48.35
0211	Barron's Computer Sat	89.95	62.30
0277	Battle For Normandy	39.95	27.65
0278	Beagle Bag	29.50	20.35
0126	Beagle Basic	34.95	24.20
1192	Beagle Graphics	59.95	41.50
0658	Beneath Apple DOS	19.95	13.85
1395	Beneath Apple Prodos	19.95	14.95
1136	Beyond Castle Wolfenstein	34.95	24.20
0111	Book of Apple Software '85	24.95	16.00
0096	Bookends	125.00	86.40
1375	BPI General Acct. 2 E	395.00	263.35
2599	Broadsides	39.95	27.70
1682	Buffered Grappler+ (16K)	239.00	178.00
0448	Bumble Games	39.95	27.65
2805	Business Accountant 2/2E	255.00	196.15
0228	Castle Wolfenstein	29.95	20.70
0459	Cat Graphics	34.95	26.65
0734	CDEX How to Use Apple IIE	59.95	41.50
0733	CDEX Visicalc Training	59.95	41.50
1417	Charles Brown's ABC's	39.95	27.65
0386	Chess	69.95	48.35
2612	Chivalry	49.95	34.60
1432	Codewriter	200.00	141.05
0740	Compu-Math/Arith. Skills	49.95	34.50
0654	Compu-Read	29.95	20.70
0734	Compu-Spell System	29.95	20.70
0416	Compuserve Starter Kit	39.95	24.35
1138	Computer Sat (Harcourt)	79.95	62.85
1731	Copy 2 Plus	39.95	25.65
2910	Cut & Paste	50.00	38.50
1265	DB Master Version 4	350.00	242.35
0052	Deadline	49.95	34.50
0189	Decathalon	29.95	20.70
0630	Delta Drawing	39.95	27.65
1143	Demolition Division (Home)	34.00	23.55
1166	Disk Bank (50)	19.95	11.00
1722	Disk Boxes (5 Color Coded)	25.00	12.50
2866	Disk Drive Ext. Cable	19.75	16.70
2833	Disk Quik	29.50	20.45
1205	Dollars & Sense-2C	119.95	83.05
0409	Dollars & Sense	100.00	69.25
0216	DOS Boss	24.00	16.60
0983	Double Take	34.95	24.15
2600	Eagles	39.95	27.70
0360	Early Games Young Children	29.95	20.75
1384	Echo 2 Speech Synthesizer	149.95	125.60
0661	Elementary Apple	14.95	10.35
0092	Elephant Disks SS/DD (10)	20.55	18.20
1137	Elephant Disks SS/SD (10)	34.00	17.95
0107	Epson Mx-80 Ribbon	14.00	6.30
0029	Essential Data Duplicator	79.95	52.00
0314	EZ Port II	34.95	24.20

CAT #		LIST	SALE
0280	Facemaker	34.95	24.20
1182	Fat Cat	34.95	24.20
0850	Flashcalc	99.00	68.55
0553	Flex Text	29.50	20.35
2821	Flight Simulator II	49.95	38.05
2918	Flip & File W/Lock (50)	39.95	23.85
1440	Flip-N-File (50 Disks)	19.95	11.30
2796	Fontrix	75.00	64.10
1427	Format II Enhanced	150.00	103.85
0554	Frame-Up	29.50	20.35
1127	Game Show	39.95	27.65
0046	General Manager II	229.95	158.90
0533	Geopolitique 1990	39.95	27.65
0573	Gertrude's Puzzles	44.95	31.15
2843	Global PLE/Beagle Bros.	49.95	34.60
0043	Graphics Magician	59.95	41.40
1530	Grammer Examiner	44.95	31.10
0094	Grappler +	175.00	110.80
2902	Hardhat Mac	35.00	26.95
2816	Hayes Joystick Mach 2	44.95	31.15
2817	Hayes Joystick Mach 2-E	44.95	31.15
2883	Hayes Joystick Mach 3	54.95	38.05
2880	Hayes Joystick Mach 3-E	54.95	38.05
1437	Head Cleaning Kit	29.95	17.30
0197	Home Accountant	74.95	48.05
1364	Home Accounant 2C/E-128K	74.95	48.05
2804	Home Word	69.95	48.60
1684	Home To Pgrm. In Applesoft	49.95	34.60
1589	In Search Of Amazing Thing	39.95	27.60
0449	Juggles Rainbow	29.95	20.75
1442	Kindercomp	29.95	20.70
0003	Knight Of Diamonds	34.95	24.20
1693	Koala Graph Tablet-Apple	124.95	83.50
2954	Krell Logo	89.95	76.95
2972	Labels - 1" White (1000)	9.95	6.75
2890	Learning Bridge Made Easy	79.95	53.35
1463	Legacy of Llylgamyn	39.95	27.65
0050	Letter Perfect	149.95	103.60
0403	Lisa 2.6	79.95	61.75
0310	List Handler	79.95	53.35
0806	Locksmith 5.0	99.95	71.55
0982	Lode Runner	34.95	24.15
0194	Magic Window 2	150.00	103.85
0192	Master Type	39.95	27.65
0089	Maxell MD1 Disk-SS/DD (10)	46.50	21.55
2901	Memorymaster 2E/64K Exp.	169.00	140.85
2147	Micro Cook-Appetizers-2E	12.00	8.50
2146	Micro Cook-Soups/Salads-2E	12.00	8.50
0437	Micro Cookbook	40.00	27.65
2148	Micro Cookbook IIE	40.00	27.65
0692	Microline 92-P Printer	599.00	CALL
1509	Microline Ribbon	3.20	2.20
2958	Microline Tractor Feed	65.00	54.00
2802	Micromodem IIE W/Smartcom I	329.00	246.75
1294	Micro-Sci 2C Disk Drive	299.00	248.75
1316	Micro-Sci A2 Disk Drive	345.00	237.15
1347	Millionaire	59.95	41.50
1135	Minus Mission (Home)	34.00	23.55
1124	Mockingboard	129.00	105.50
0774	Mockinboard with Speech	195.00	162.50
1400	Moptown Hotel	39.95	27.65
0580	Multiplan (Apple DOS)	195.00	135.00
1341	Murder on the Zinderneuf	40.00	30.75
2903	Music Const. Set	40.00	30.75
0101	NEC 1215 Color Monitor	399.00	333.35
0273	NEC 8023 Ribbon	10.00	6.65
0423	Nibble's Away II	69.95	53.25
2908	One On One	40.00	30.75
0563	Paddle-Adapple Combo	29.95	26.90
0568	Paper Graphics	49.95	34.60
2893	Para' Printer Ext. Cable 6'	34.95	21.80
0635	Parallel Interface W/Cable	139.50	62.85
1418	Peanuts Picture Puzzlers	39.95	27.65
0616	Personal Touch	89.00	70.55
0088	PFS Access-2E/2C	70.00	48.50
1413	PFS File IIE	125.00	85.95
1415	PFS Graph IIE	125.00	85.95
1414	PFS Report IIE	125.00	85.95
0372	PFS Solutions/Ledger 2E	20.00	13.85
2809	PFS Write IIE	125.00	85.95
0495	Pie Writer 2.2 (40/80)	149.95	103.85
2907	Pinball Const. Set. (E.A.)	40.00	30.75
0659	Power of Visicalc	14.95	10.35
0584	Preschool IQ Builder 1	23.95	16.60
1196	Printshop	49.95	34.60
0349	Pro Blackjack — K. Uston	69.95	48.45
0461	Pronto DOS	29.95	20.35
1279	Prowriter Nylon Ribbon	10.00	6.65
0047	Quest	34.95	24.20
2111	Ramcard 16K (MPC)	99.00	60.25
0634	Ramcard 16K Microtek	129.00	71.55
0955	Ramcard 16K Prometheus	99.00	56.55
1386	Ramcard 16K Wizard	95.00	62.85
0140	Ramcard 16K-Microsoft	99.95	75.00
0771	RF Modulator-Internal	39.00	19.40
1450	Rhymes & Riddles	29.95	20.70
0503	Riteman Plus Printer	399.00	312.80
0574	Rocky's Boots	49.95	34.60
0561	Sat Word Attack Skills	49.00	33.90
0133	Screenwriter II	129.95	89.00
0041	Sensible Speller IV	125.00	86.50

CAT #		LIST	SALE
1206	Sensible Speller-Pro DOS	25.00	86.50
0447	Sideways	60.00	40.00
0400	Silicon Salad	24.95	17.25
1340	Sky Fox	40.00	30.75
1373	Smartmodem 2C W/Smartcom I	399.00	265.60
1416	Smith Corona TP1 Ribbon	7.95	6.35
0465	Snooper Troops I	44.95	31.15
0271	Software Automouth	124.95	86.35
0250	Spellagraph	39.95	27.65
1291	Spellicopter	39.95	27.65
0631	Spelling Bee Games	39.95	27.70
2906	Standing Stones	40.00	30.75
1277	Starwriter Film Ribbon	5.50	4.50
0435	Step-By-Step	99.95	69.20
1447	Step-By-Step II	99.95	69.20
0100	Sticky Bear A B C	39.95	27.65
0099	Sticky Bear Numbers	39.95	27.65
0292	Story Machine	34.95	24.20
1326	Sundog	40.00	30.75
1374	Sup'r Mod — Universal	69.95	53.05
1445	Supertext Pro (40/80)	99.00	68.55
0524	Switch-A-Slot	179.50	161.10
0001	System Saver	89.95	69.20
1259	Taxan 12 in Amber Monitor	189.00	138.65
1258	Taxan 12 in Green Monitor	179.00	131.60
1528	Taxan Color Mntr. W/Audio	399.00	305.50
0236	Terrapin Logo	99.95	69.20
0137	TG Game Paddles	39.95	27.65
0136	TG Joystick W/Toggle	59.95	41.50
1330	TG Joystick W/Toggle IIE	64.95	45.00
1730	The Accountant	99.00	64.10
2597	The Accountant — V Calc. Infc.	20.00	15.40
0844	Think Tank/E	150.00	103.85
2897	Thunderclock Plus	150.00	121.80
2899	Time Master II	129.00	107.50
0462	Tip Disk #1	20.00	13.85
1193	Triple Dump	39.95	27.65
0544	Typefaces	20.00	13.85
0155	Typing Tutor 2	24.95	17.30
1237	Typing Tutor 3	49.95	34.60
2836	Ultima 3 (Exodus)	54.95	40.00
0559	Ultraterm	379.00	284.30
0062	Utility City	29.50	20.35
2992	Verbatim DS/DD (10)	46.50	25.90
1721	Verbatim SS/DD Hardpack	35.00	23.35
0093	Verbatim SS/DD Softpack	34.00	18.00
0063	Versaform	389.00	263.00
0648	Videoterm W/SS & Inverse	319.00	247.05
2900	Viewmaster 80 Column	169.00	140.80
2152	Visible Computer-6502	49.95	32.70
0422	Visicalc Pre-Boot	49.00	33.95
1480	Wico Analog-Joystick	49.95	38.40
0145	Wizard & Princess	32.95	22.75
0144	Wizardry	49.95	34.60
1532	Wizprint	24.95	17.30
0284	Word Handlers Pkg.	169.95	117.65
1223	Word Juggler/C	189.90	157.50
0342	Word Juggler IIE W/Leixcheck	189.00	157.50
1336	Z Engine With CP/M 2.2	199.00	166.65
0249	Z-80 Plus Board	139.00	115.85
0521	Zaxxon	39.95	27.60
0296	Zork I	39.95	27.60
0141	Zork II	44.95	29.95
0379	Zork III	44.95	29.95

MACINTOSH

0656	Chart (MAC)	125.00	86.55
0523	Da Vinci — Building	49.95	34.60
1151	Dollars & Sense	149.95	103.80
1362	Financial Cookbook	50.00	38.50
1082	Graphics Magician	49.95	34.60
1388	Habadex	199.00	134.70
1099	Helix	395.00	273.45
1083	Home Accountant	99.95	64.10
1207	Main Street Filer	249.95	173.05
1322	Megafiler	195.00	132.00
2787	Memorex 3.5-In Disks (10)	60.00	44.40
0627	Microsoft Basic (MAC)	150.00	103.85
0655	Multiplan (MAC)	195.00	135.00
0076	Murder by the Dozen	34.95	24.20
1078	PTS File	125.00	85.95
1077	PFS Report	125.00	85.95
1363	Pinball Construction Set	40.00	30.75
0869	Sales Edge	250.00	166.70
1244	Sargon III	49.95	34.60
1239	Typing Tutor 3	49.95	34.60
1223	Copy 2 Mac	39.95	25.65

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

VISA

(717) 533-8125

MasterCard

800-233-3237

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 November, 1984

leased, they shipped it with ProDOS 1.02, a version change over the current 1.01 ProDOS being used on the Apple //e.

Something very surprising happened. When you booted the new ProDOS utilities, there was no /RAM any more. It was gone. "What's that occupying my /RAM area?" some Apple owners now asked. "ProDOS Utilities!" was the reply.

Starting with version 1.02, ProDOS's utilities now loaded into the auxiliary RAM area, effectively blocking the creation of /RAM. After all, the virtual disk and the programs couldn't occupy the same space. But when you exited the utilities and entered ProDOS BASIC (a new name for a slightly enhanced Applesoft), /RAM was automatically created. In fact, if you type CAT /RAM you are shown an empty area with available space.

ProDOS Paradox

That's where the paradox comes in. One of the few ways to get programs and data into /RAM is with ProDOS's File utilities. But you can't run the utilities because they overwrite /RAM—a Catch-22. Add to that Apple's double hi-res graphics destroying a portion of /RAM, and you have the basis for my humble statement about Apple abandoning its /RAM offspring.

All isn't lost. There are several ways to get around this apparent problem and still have a functioning virtual disk. However, most of the solutions rely on the good nature and graces of programmers. In the long run, it's they who will decide if it lives or dies. While they're trying to work things out on their own, there are a few ways you can get over the RAM hump. I owe a deep debt of gratitude to Ken Kashmarek for working out the details.

Apple is supporting anyone who wants to develop a /RAM application as part of his or her software. In fact, they have issued ProDOS Technical Note #8 (for developers) that explains a new convention for maintaining /RAM with even greater than 64K space—if the hardware is installed in the system.

From Applesoft, you can LOAD or BLOAD files and then SAVE or BSAVE them into the /RAM area. You can also create a small Applesoft program to transfer Text files. All of this can be neatly wrapped up in an EXEC file for automatic execution when you first boot the disk.

The other side of the auxiliary RAM spectrum is the way most programs are now handling it. Rather than try to preserve /RAM, they use the additional memory for work space. If you caught the note at the beginning about the 6502's memory limitations, you might wonder how they do that.

Programs like AppleWorks or Magicalc swap memory segments from the auxiliary area in and out of the allotted 64K as they need them. They do all of that without your noticing it (hopefully) and without creating any other problems. Considering the limited space available in a 60K /RAM (about 44K if the double hi-res area is in use), that seems the sanest approach to take.

That doesn't mean you can't add your own version of a virtual disk. Several companies, like Synetix, Applied Engineering, and Legend Industries (which was one of the first suppliers of additional RAM technology for the Apple II Plus), sell and support extended memory cards. Legend's board will handle up to one megabyte of memory. They incorporate this memory into the Apple by using DOS or ProDOS modifications that change the way the operating system looks at the additional memory.

But this method isn't without its own problems. A reader recently wrote in about a problem he was having with a MicroSci larger capacity disk drive and a C language compiler. In order to recognize the extended capacity of the disk drive, MicroSci makes some alterations (called "hooks") to the operating system. Unfortunately, so did the C compiler. Even worse was the fact that they both used the same area in memory to make those changes. Every time the reader ran the compiler, it disconnected his drive.

That's another reason I find it difficult to accept /RAM as a practical offering. Even if you've augmented it with additional memory, there is literally no way to tell (if the documentation doesn't announce it) whether or not some other hook will dislocate it *and* dislocate all of the work you've kept in it at the same time.

At this point, there are just too many variables to make a virtual disk on the Apple a viable item. Considering that most of the software developers have opted to ignore it as well and make better use of the memory, I think that's a reasonable conclusion.

So, for all of you who wrote in saying that /RAM was still alive and living in both the Apple //e and //c, I say yes, it is. But then, they still sell 8-track stereo tape players and, if you look hard enough, quadraphonic stereo systems. The underlying question is one of usefulness.

I'll leave you an option. If you're using a virtual disk, you have an opportunity to change my mind. Tell me who makes the RAM card (if it's not an Apple product), which operating system (DOS, ProDOS, CP/M) you're using it with, what you have to do to initialize it, how you transfer information into and out of it, and why you do (or don't) like it. Likewise, if you've stretched your Apple's memory beyond the boundaries of 6502 competence, tell me about it.

Mashed Bits

Thanks again to Ken Kashmarek for also pointing out that Apple has been offering free updates to Apple //e owners with REV. A main logic boards. Your dealer will swap the new REV. B boards into your older REV. A machine at no charge.

Keep in mind that if you're an Apple //c owner with an early machine and you've been having difficulty with serial communication, there's also a free update in your future. Apparently there were problems with some of the early //c serial circuits on its main logic board. Contact your dealer for details. ■

Write to Bill O'Brien at P.O. Box 1010A, Fort Lee, NJ 07024. Or call him up on CompuServe. His user ID is 74216,1215.

Computer and Accessories Turn-on Checklist:

Printer
Modem
Monitor
Externally powered disk drives
Computer

When shutting off equipment, reverse the order. Do *not* turn all equipment on or off at the same time from a single master switch.

Product Information

Static Mats

Akro
P.O. Box 8650
Canton, OH 44711
(216) 456-4543

Astec Company
P.O. Box 1965
South Hackensack,
NJ 07606
(201) 343-0013

INMAC
2465 Augustine Drive
Santa Clara, CA 95051
(408) 727-1970

Ludlow Composites
2100 Commerce Drive
Freemont, OH 43420
(419) 332-5531

Radio Shack
300 One Tandy Center
Fort Worth, TX 76102
(800) 233-5333

Tenex
1850 East Estes Avenue
Elk Grove Village, IL 60007
(312) 439-4020

3M
Dept. DR83-26, Box 33600
St. Paul, MN 55133
(612) 733-9420

United Technical Products
960 Turnpike Street
P.O. Box 200
Canton, MA 02021
(617) 821-1752

UPS Systems

BITS Power Systems, Inc.
11020 Audelia Road
Suite B114
Dallas, TX 75243
(214) 340-1208

Computer Power
124 West Main Street
High Bridge, NJ 08829
(201) 735-8000

Cuesta Systems
3440 Roberto Court
San Luis Obispo, CA 93401
(805) 541-4160

Dorlen Products
7424 West Layton Avenue
Greenfield, WI 53220
(414) 282-4840

General Interface Systems
12919 Alcosta
San Ramon, CA 94583
(415) 838-2683

General Power Systems
1400 North Baxter
Anaheim, CA 92806
(714) 956-9321

Innovations in Control
409 Reynolds Circle
San Jose, CA 95112
(408) 298-7218

Kalglo Electronics
6584 Ruch Road
East Allen Township
Bethlehem, PA 18017
(215) 837-0700

Nova Electric Mfg.
263 Hillside Avenue
Nutley, NJ 07110
(201) 661-3434

Panamax
150 Mitchell Boulevard
San Rafael, CA 94903
(415) 472-5547
(800) 472-5555

Para Systems
11425 Mathis Street
Dallas, TX 75234
(214) 869-1688

Power General
152 Will Drive
Canton, MA 02021
(617) 828-6216

Qubie
4809 Calle Alto
Camarillo, CA 93010
(805) 987-9741

RH Electronics
566 Ireland Drive
Buellton, CA 93427
(805) 688-2047

RTE Deltec
2727 Kurtz Street
San Diego, CA 92110
(619) 291-4211

S.A.F.T. America
711 Industrial Boulevard
Valdosta, GA 31601
(912) 247-2331

Sola Electric
1717 Busse Road
Elk Grove Village, IL 60007
(312) 439-2800

Sun Research, Inc.
Old Bay Road
Box 210
New Durham, NH 03855
(603) 859-7110

Topaz
9192 Topaz Way
San Diego, CA 92123
(619) 279-0831

Surge Protectors

ADC/Magnetic Controls
4900 West 78th Street
Bloomington, MN 55435
(612) 835-6800

Alpha Delta
Communications
P.O. Box 571
Centerville, OH 45459
(513) 435-4772

Amtek Systems
1400 South Sherman
Richardson, TX 75081
(214) 238-5300

Computer Accessories
7696 Formula Place
San Diego, CA 92121
(619) 695-3773

Curtis Manufacturing
305 Union Street
Peterborough, NH 03458
(603) 924-7803

Computer Power

General Power Systems

INMAC

Panamax

RTE Deltec

Radio Shack

S.A.F.T. America

Sola Electric

(See above for addresses and phone numbers)

Circle 24 on Reader Service card.

New From

APPLEWARE, INC.

Improved Programs • Lower Prices
Expanded Selection

One-Of-A-Kind Apple User's Group Disk Program Library Service

Featuring: 60 State-of-the Art packed disks (Up to 40 programs per disk) not available from any other service, including, at no extra cost:

- **Guaranteed fully operable**
- **Completely copyable & listable**
- **3 kinds of documentation**
- **No duplications**
- **Toll free member hotline**
- **5 year disk replacement guarantee**
- **Any single disk (30 or more programs) for $19.95 each, less than 70¢ per program.**

BUY ONE-AT-A-TIME
or

The entire disk library @50% off, for 1500 + Program Files Plus a FREE bonus of 40 blank disk sides, if ordered direct from this ad.

MEMBERSHIP-ADDITIONAL DISCOUNTS

Members are entitled to an additional 15% discount above and beyond other discounts. Simply send a one-time membership fee (WITH NO ANNUAL DUES!) of $15 Domestic, $28 Foreign, (INSTITUTIONS FREE). Fees include perpetual updates, a monster catalog and eventual access to 1500 + programs; guaranteed, tried, true, and tested.

All categories included, for any age group or skill level.

Recognized purchase orders gladly accepted

Join 92,000 other Appleware enthusiasts spanning 31 countries!

MasterCard VISA

Program disks operable on Apple II, II +, IIe, IIc, III Emul., Clones, Franklin and IBM Quad Link.

For orders only call now 1-800-327-8664
Or write: Appleware, Inc. 6400 Hayes Street Hollywood, FL 33024

PROGRAMS Plus

429 Honeyspot Road • 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

Back Up Your Software

	Our Price
E.D.D. III (Best Nibble Copier!)	49.00
CIA Files (Best Disk Utilities!)	49.00
Copy II Plus - Central Point	22.00
Locksmith 5.0 - Omega	69.00
Copy Master II 128K w/Gr. Dump	109.00
Wildcard II - Central Point	99.00
Replay II - MicroAnalyst	80.00

Macintosh

	Our Price
Copy II Mac	25.00
DB Master Mac	128.00
Dollars & Sense	95.00
Filevision	125.00
Helix	249.00
Home Accountant	62.00
Mastertype	31.00
Microsoft Basic	98.00
Microsoft Chart	80.00
Microsoft Multiplan	125.00
Microsoft Word	125.00
PFS: File Report Combo	125.00
Sargon III	31.00
TK! Solver	175.00
Think Tank	82.00
Typing Tutor III	31.00

Entertainment

	Our Price
ELECTRONIC ARTS	
Pinball Construction Set	29.00
One-On-One	29.00
Skyfox	29.00
Archon	29.00
Seven Cities of Gold	29.00
Murder on the Zinderneuf	29.00
Amazon by Trillium	29.00
Dragon World by Trillium	29.00
Shadowkeep by Trillium	29.00
Kings Quest	32.00
Trivia Fever	28.00
Flight Simulator II	35.00
Championship Lode Runner	23.00
Choplifter!	23.00
Beyond Castle Wolfenstein	23.00
Ultima III: Exodus	36.00
Sargon III	32.00
Summer Games	29.00
Millionaire, Squire, or Barron	34.00
Ring Quest	22.00
Expedition Amazon	22.00
Xyphus	22.00
Wizardry	32.00
Knight of Diamonds	22.00
Legacy of Llylgamyn	26.00
Return of Werdna	26.00
Rescue Raiders	22.00
Wiziprint	17.00
Cutthroats	25.00
Hitchhiker's Guide to the Galaxy	25.00
Seastalker	25.00
Deadline	31.00
Starcross	31.00
Suspended	31.00
Witness	25.00
Planetfall	25.00
Enchanter	25.00
Infidel	28.00
Sorcerer	28.00
Zork I	25.00
Zork II or III	28.00
Objective Kursk	26.00
50 Mission Crush	26.00
War in Russia	52.00
Imperium Galactum	26.00
Reforger 88	39.00
Baltic 85	23.00
Questron	33.00
Ringside Seat	26.00
Pro Tour Golf	26.00
Broadsides	26.00
Geopolitique 1990	26.00
North Atlantic '86	39.00
Germany 1985	39.00

Hobby

	Our Price
Fat Cat	22.50
Beagle Graphics	37.50
Triple Dump	25.50
Silicon Salad	16.00
Disk Quick	19.00
Beagle G.P.L.E.	32.00
Beagle Basic	22.50
Double Take	22.50
Pronto Dos	19.00
Typefaces	13.00
Frame Up	19.00
Flex Text	19.00
Apple Mechanic	19.00
Tip Disk	13.00
Alpha Plot	25.00
Dos Bos	15.50
Utility City	19.00
Bag of Tricks	26.00
Applesoft Compiler (Microsoft)	110.00
Einstein Compiler	89.00
Compiler Plus (Hayden)	42.00
Orca/M	65.00
Lisa V2.6	57.00
Merlin Assembler	42.00
Merlin Combo Pack	74.00
Visible Computer: 6502	32.00
The Graphics Magician	38.00
New Complete Graphics System	50.00
Dazzle Draw	39.00
Pix-It	32.00
Take I	39.00
Blazing Paddles	32.00
Zoom Graphics	33.00
Sideways	39.00
Fontrix	45.00
Font Pak 1, 2, 3, 4, 5	14.00
Printographer	25.00

Blank Media

	Our Price
Elephant SS/DD (10)	17.00
BASF SS/DD (10)	17.00
Fuji SS/DD (10)	17.00
Verbatim SS/DD (10)	19.75
Maxell SS/DD (10)	19.75
Memorex SS/DD (10)	20.25
3M SS/DD (10)	20.25
Generic SS/DD (100)	145.00

Business

	Our Price
ADVANCED LOGIC SYSTEMS	
T-Maker	195.00
APPLE	
Apple Works	215.00
Apple Writer // (//e, //c)	128.00
Quick File (//e, //c)	79.00
Access // (//e, //c)	65.00
APPLIED SOFTWARE TECHNOLOGY	
Versaform	180.00
ARTSCI	
Magic Office System	189.00
Magic Window II	94.00
MagiCalc	94.00
ASHTON TATE	
dBase II	285.00
Friday	195.00
BPI SYSTEMS (II+or //e)	
GA, AR, AP, PR or INV. ea.	249.00
CONTINENTAL SOFTWARE	
The Tax Advantage	43.00
F.C.M./FL	62.00
G/L, A/R, A/P, Payroll ea.	145.00
Home Cataloger	31.00
CREATIVE PERIPHERALS	
Time Trax	69.00
DECISION SUPPORT	
The Business Accountant	152.00
DOW JONES SOFTWARE	
The Market Analyzer	219.00
Market Manager	189.00
HAYDEN	
Pie Writer V2.2	95.00
HOWARDSOFT	
Tax Preparer 1984	172.00
Real Estate Analyzer II	155.00
HUMAN EDGE SOFTWARE	
Mind Prober	32.00
Management Edge	169.00
Negotiation Edge	169.00
Sales Edge	169.00
KENSINGTON MICROWARE	
Format II Enhanced	93.00
LIVING VIDEOTEXT	
Think Tank II+ or //e	92.00
MEGAHAUS	
MegaWorks	92.00
MICROPRO	
Wordstar	219.00
Infostar	259.00
Calcstar	110.00
Wordstar w/Z-Card	269.00
PRACTICORP	
Practicalc II	45.00
MICROSOFT	
Multiplan	95.00
A.L.D.S.	79.00
QUARK	
Word Juggler Lexicheck //e	129.00
Catalyst //e	119.00
Terminus //e	72.00
SENSIBLE SOFTWARE	
The Sensible Speller	78.00
Bookends	78.00
Report Card	37.00
Graphics Department	78.00
SIERRA ON-LINE	
The General Manager II	135.00
The Screenwriter //e	79.00
SILICON VALLEY	
The Word Handler II (II+, //e, //c)	49.00
The List Handler (II+, //e, //c)	49.00
The Handlers (II+, //e, //c)	105.00
SOFTWARE PUBLISHING	
PFS: File	74.00
PFS: Graph	74.00
PFS: Report	74.00
PFS: Write (//e, //c)	74.00
PFS: Proof (//e, //c)	45.00
PFS: Access (//e, //c)	45.00
STONEWARE	
DB Master Version Four Plus	219.00
DB Master Utility 1 or 2	79.00
DB Master (Corvus)	319.00
SUNDEX	
Certified Personal Accountant	71.00
Certified Personal Investor	71.00
VISICORP	
Flashcalc II+, //e, //c	65.00
Advanced VisiCalc //e	199.00
VisiTerm	65.00
Visischedule	98.00
Visitrend/Visiplot	65.00

Educational Software

	Our Price
APPLE	
Apple Logo // (//e, //c)	85.00
BARON'S	
Computer SAT	56.00
BPI	
BPI Speed Reading II+	61.00
CBS	
Mastering the SAT	95.00
Mastering the GRE	95.00
Success w/Math (ea.)	16.00
Goren's Bridge	50.00
Micro Speed Reading	79.00
DAVIDSON & ASSOCIATES	
Speed Reader II	43.00
Word Attack!	31.00
Math Blaster	31.00
Spell-It	31.00
DESIGNWARE	
Math Maze	25.00
Spellakazamr	25.00
States & Traits	29.00
Million Algebra	29.00
DLM	
Spelling Wiz	22.00
Demolition Division	22.00
Alligator Mix	22.00
Number Farm	20.00
Alphabet Circus	20.00
EDU-WARE/PEACHTREE	
PSAT Word Attack Skills	32.00
SAT Word Attack Skills	32.00
Spelling Bee w/Reading Primer	25.00
Spelling Bee Games	21.00
Compu-Read	18.00
Compu-Math: Arithmetic	32.00
Compu-Math: Fractions	32.00
Compu-Math: Decimals	32.00
Algebra 1, 2, 3, or 4	25.00
Algebra 5 or 6	32.00
Hands-on BASIC Programming	50.00
EINSTEIN CORP.	
Einstein Memory Trainer	56.00
HARCOURT, BRACE	
Computer SAT	49.00
LEARNING COMPANY	
Robot Odyssey I	31.00
Bumble Games	25.00
Bumble Plot	25.00
Gertrude's Puzzles	28.00
Gertrude's Secrets	28.00
Rocky's Boots	31.00
Word Spinner	22.00
Addition Magician	22.00
Reader Rabbit	25.00
MICROLAB	
English SAT	21.00
Math SAT	21.00
Constitution Tutor	21.00
SCARBOROUGH SYSTEMS	
Pattern Maker	25.00
Phi Beta Filer	25.00
Run for the Money	31.00
SCHOLASTIC WIZWARE	
Fact and Fiction Tool Kit	25.00
Story Tree	25.00
Turtle Tracks	25.00
SPINNAKER	
Trains	25.00
Grandma's House	21.00
President's Choice	25.00
Kidwriter	21.00
Fraction Fever	21.00
Snooper Troops 1 or 2	28.00
In Search of	25.00
Kindercomp	19.00
Alphabet Zoo	19.00
Hey Diddle Diddle	19.00
Facemaker	21.00
Delta Drawing	31.00
SPRINGBOARD	
Early Games	22.00
Make a Match	19.00
Music Maestro	22.00
Fraction Factory	19.00
SUNBURST	
The Factory	30.00
Teasers by Tobbs	30.00
The Incredible Laboratory	30.00
Challenge Math	30.00
TERRAPIN	
Terrapin Logo	62.00
XEROX	
Stickybear ABC	25.00
Stickybear Numbers	25.00
Stickybear Shapes	25.00
Stickybear Opposites	25.00
Stickybear Reading	25.00
Stickybear Math	25.00

Accessories

	Our Price
Kensington System Saver	65.00
Cool+Time	69.00
Hayes Micromodem //e	229.00
Hayes 1200 Baud Smartmodem	489.00
Novation Apple Cat'll	199.00
Novation 212 Apple Cat II	379.00
Pro Modem 1200	339.00
ERA 2 by Microcom	385.00
Networker (Zoom Telefonics)	99.00
Networker/Netmaster Combo	140.00
Microsoft 16K Ramcard	68.00
Microsoft Premium System //e	295.00
ALS Cards	Call
Applied Engineering Cards	Call
Videx Videoterm w/SS Inv.	199.00
Videx Ultraterm	245.00
Videx Keyboard Enhancer	99.00
Saturn 128K Ram	215.00
Neptune 80 Col. 64K Card	185.00
Extend 80 (Caribbean Computer)	115.00
Accelerator //e	255.00
Corvus Hard Disks	Call
Synetix Supersprite	299.00
Mockingboard A Board	79.00
Mockingboard C Board	145.00
Echo II Speech Synthesizer	99.00
The Cricket (//c)	135.00
S.A.M. Automatic Mouth	69.00
Hayes Mach II Joystick //e	33.00
Hayes Mach III Joystick //e	41.00
Kraft Joystick	35.00
TG Select-A-Port	28.00
SeriAll Interface Card	129.00
Apple Super Serial Card	129.00
Pkaso/U Interface	119.00
Grappler+	99.00
Buffered Grappler+	149.00
Nice Print (Spies Labs)	129.00
Finger Print	105.00
Print-It	149.00
Thunderclock+	110.00
Digital Paintbrush Sys.	215.00
Muppet Learning Keys	49.00
Koala Pad	79.00
Key Tronic Keyboard	249.00
Trackhouse Key Pad	112.00
Elephant Trunk	20.00
Flip & File (50)	25.00

VISA

master charge

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 $1.75. 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.
Advertisement prepared November 19, 1984

Printers

	Our Price
APPLE	
ImageWriter	495.00
ImageWriter (Wide Carriage)	575.00
Scribe Printer	249.00
BROTHER	
HR-25	675.00
HR-35	929.00
DYNAX	
DX-15	399.00
EPSON	
RX-80	229.00
RX-80 F/T	299.00
RX-100	415.00
FX-80	419.00
FX-100	599.00
LQ-1500	1039.00
IDS	
Prism 80 (Basic)	1065.00
Prism 80 (Full)	1435.00
Prism 132 (Basic)	1225.00
Prism 132 (Full)	1655.00
P-480 Microprism	425.00
JUKI	
6100	425.00
OKIDATA	
Microline 82A	310.00
Microline 83A	439.00
Microline 92P	385.00
Microline 93P	609.00
Microline 84P	699.00
PANASONIC	
KPX-1090	239.00
KPX-1091	299.00
KPX-1092	449.00
PROWRITER (C. Itoh)	
ProWriter 8510 AP	329.00
ProWriter 1550 AP	529.00
ProWriter 8510 SP	465.00
StarWriter A10-20P	529.00
SILVER REED	
EXP-400P	299.00
EXP-500P	369.00
EXP-550P	429.00
STAR MICRONICS	
Gemini 10X	259.00
Gemini 15X	379.00
Delta 10	356.00
Delta 15	499.00
Powertype	345.00
TOSHIBA	
P-1340	749.00
P-1351	1299.00

Disk Drives

	Our Price
APPLE	
Disk II Drive	299.00
Duo Disc w/Acc. Kit	669.00
ProFile w/Acc. Kit	1135.00
MICRO SCI	
A2 143K	195.00
A20 164K (New!)	165.00
A80 328K (New!)	335.00
Micro Sci C2 Controller	65.00
RANA	
Elite I	229.00
Elite II	359.00
Elite III	429.00
Rana Disk Controller	80.00
QUENTIN	
AP 100A Full Height	199.00
AP 105A Slim Line	210.00
AP 110A Twin Pak	415.00

Monitors

	Our Price
AMDEK	
Color 300 (Composite)	245.00
Color 600 (RGB)	435.00
Video 300G Green	135.00
Video 300A Amber	149.00
PANASONIC	
Hi—Res Green	155.00
Hi—Res Amber	159.00
10" Dual Mode Comp. Color	259.00
TEKNICA	
MJ-22 RGB Color	425.00
SAKATA	
SC-100 Color	245.00
SC-200 RGB Color	455.00
SG-1000 Green	95.00
SA-1000 Amber	105.00
STS-1 Stand	35.00
TAXAN	
RGB Vision III (Hi-Res)	399.00
210 13" Color (Lo-Res)	264.00
Green (Hi-Res)	120.00
Amber (Hi-Res)	130.00
410-64 RGB-2 Interface	185.00

Home

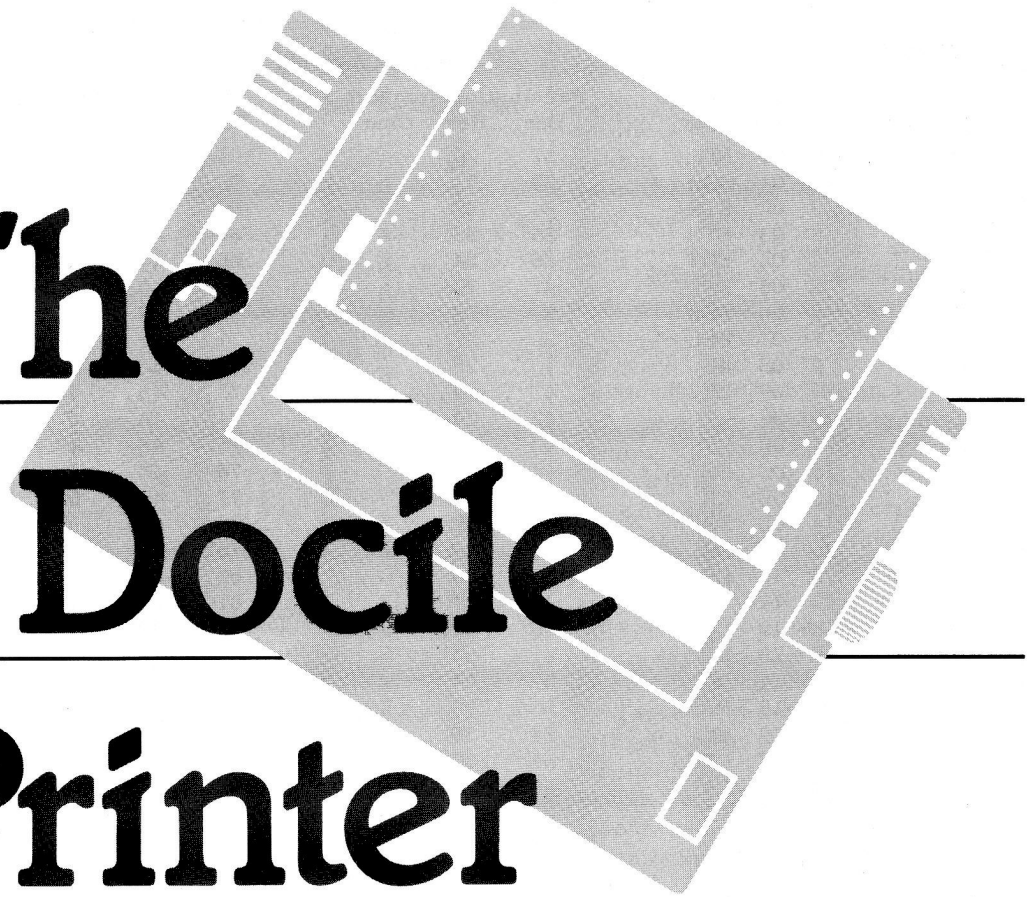
	Our Price
Home Accountant	46.00
Dollars and Sense (II+, //e)	65.00
Dollars and Sense (//c)	75.00
The Accountant	61.00
Time is Money	64.00
Money Street	75.00
Networth	50.00
Financial Cookbook	36.00
Cut and Paste	36.00
The Write Choice	28.00
Bank Street Writer	44.00
Bank Street Speller	44.00
Homeword	43.00
Homeword Speller	31.00
Homeword Filer	43.00
ASCII Express Professional	81.00
Softerm II	129.00
Typing Tutor II	17.00
Typing Tutor III	31.00
Wiz Type	21.00
Master Type	25.00
Crossword Magic	32.00
Micro Cookbook (II+, //e)	24.00
Music Construction Set	29.00
Print Shop	31.00
Print Shop Paper Refill	10.00
Turbo Pascal	36.00
Verbatim Drive Analyzer	24.00
Gibson Light Pen	159.00

For items not listed just call. If we don't have it, we can get it.

Visit Our Showroom: Exit 31 off I-95

Circle 521 on Reader Service card.

The Docile Printer



Discover your printer's secrets. Make it obey all your commands.

by James B. Munro

Today's full-feature printers are technical marvels. Yet their manuals' explanations of anything beyond the default condition range from mediocre to awful. It may take you months of diligent effort to understand a printer's special features when its manual assumes you have a broad technical background.

This article explains how printers work and how you can use features like print styles and margin controls. Then, a short, fundamental BASIC program illustrates the correct methodology and syntax for writing a printer-control program for your Apple.

Table 1. *Illustration of a few ASCII commands.*

		ASCII Commands		
Feature	**Decimal**	**Control**	**Character**	**Hexadecimal**
Compressed	15	O	SI	0F
Expanded on	27 87 1	-	ESC W 1	1B 57 01
Right margin	27 81 n	-	ESC Q n	1B 51 ??

HOW PRINTERS WORK

Learning *how* a printer works is the first step in gaining control of your printer. ROM (read-only memory) chips in the printer contain permanent programs that control the printer and establish the following default features: character width (pitch), print style (font), print quality, special features, paper feed (spacing), form format (margins), paper-movement controls, and graphics. (Graphics, however, are beyond the scope of this article.) These programs also provide ways to change the default features either by changing inaccessible DIP (dual in-line package) switches or through software control.

The printer's RAM (random access memory) stores specific commands the computer sends to the printer. Unlike the permanent information stored in ROM, a new instruction in RAM disappears when you turn off the power to the printer (not the computer) or when the printer receives another command that specifically cancels it. The original default features are reestablished every time you turn on the printer; commands configure the printer to use your selected combination of features (plus any default fea-

Table 2. *Table of ASCII codes.*

ASCII Character Set

Ctrl	Control Codes Dec	Hex	Char	Punctuation/Numbers Dec	Hex	Char	Capital Letters Dec	Hex	Char	Lowercase Letters Dec	Hex	Char
@	0	00	NUL	32	20	space	64	40	@	96	60	
A	1	01	SOH	33	21	!	65	41	A	97	61	a
B	2	02	STX	34	22	"	66	42	B	98	62	b
C	3	03	ETX	35	23	#	67	43	C	99	63	c
D	4	04	EOT	36	24	$	68	44	D	100	64	d
E	5	05	ENQ	37	25	%	69	45	E	101	65	e
F	6	06	ACK	38	26	&	70	46	F	102	66	f
G	7	07	BEL	39	27	'	71	47	G	103	67	g
H	8	08	BS	40	28	(	72	48	H	104	68	h
I	9	09	HT	41	29	)	73	49	I	105	69	i
J	10	0A	LF	42	2A	*	74	4A	J	106	6A	j
K	11	0B	VT	43	2B	+	75	4B	K	107	6B	k
L	12	0C	FF	44	2C	,	76	4C	L	108	6C	l
M	13	0D	CR	45	2D	-	77	4D	M	109	6D	m
N	14	0E	SO	46	2E	.	78	4E	N	110	6E	n
O	15	0F	SI	47	2F	/	79	4F	O	111	6F	o
P	16	10	DLE	48	30	0	80	50	P	112	70	p
Q	17	11	DC1	49	31	1	81	51	Q	113	71	q
R	18	12	DC2	50	32	2	82	52	R	114	72	r
S	19	13	DC3	51	33	3	83	53	S	115	73	s
T	20	14	DC4	52	34	4	84	54	T	116	74	t
U	21	15	NAK	53	35	5	85	55	U	117	75	u
V	22	16	SYN	54	36	6	86	56	V	118	76	v
W	23	17	ETB	55	37	7	87	57	W	119	77	w
X	24	18	CAN	56	38	8	88	58	X	120	78	x
Y	25	19	EM	57	39	9	89	59	Y	121	79	y
Z	26	1A	SUB	58	3A	:	90	5A	Z	122	7A	z
ESC	27	1B	ESC	59	3B	;	91	5B	[	123	7B	{
\	28	1C	FS	60	3C	<	92	5C	\	124	7C	|
shift-M	29	1D	GS	61	3D	=	93	5D	]	125	7D	}
shift-N	30	1E	RS	62	3E	>	94	5E	^	126	7E	~
shift-hyphen	31	1F	US	63	3F	?	95	5F	_	127	7F	DEL

Circle 25 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 II, II+, //e ② or "look-alike" is for business or pleasure, you'll want the ability to pause and take snapshots of your screen displays and then continue from exactly where you paused, all at the touch of a button - games, business data, menus, educational instructions, graphics - even CP/M ③. PRINT-IT! will print your screen at any time no matter what program you're running, as well as perform every function you expect of an intelligent printer card.

PRINT-IT! supports:

- Graphics - Low, high, double low, and double high resolution • Text - 40 column as well as Apple //e and Videx ④ 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 Texprint. ①
Qualified educational and dealer discounts available.

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.

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

Table 3. *Printer feature ASCII command chart. Create your own chart using your printer's features.*

Character Pitch	Decimal	Character	Control	Hexadecimal
Letter quality on	27 120 1	ESC x 1	-	1B 58 01
Draft quality on	27 120 0	ESC x 0	-	1B 58 00
Pica 10 cpi	27 80	ESC P	-	1B 50
Elite 12 cpi*	27 77	ESC M	-	1B 4D
Emphasized on	27 69	ESC E	-	1B 45
Emphasized off	27 70	ESC F	-	1B 46
Proportional on*	27 112 1	ESC p 1	-	1B 70 01
Proportional off*	27 112 0	ESC p 0	-	1B 70 00
Compressed 16.9 on	15	SI	O	0F
Compressed 16.9 off	18	DC2	R	12
Expanded cpi/2 on	27 87 1	ESC W 1	-	1B 57 01
Expanded cpi/2 off	27 87 0	ESC W 0	-	1B 57 00
Expanded 1 line on	14	SO	N	0E
Expanded I line off	20	DC4	T	14
Print Style				
Italics on	27 52	ESC 4	-	1B 34
Italics off	27 53	ESC 5	-	1B 35
Superscript on	27 83 0	ESC S 0	-	1B 53 00
Subscript on	27 83 1	ESC S 1	-	1B 53 01
Both scripts off	27 84 27 72	ESC T ESC H	-	1B 54 1B 47
Print Quality				
Double strike on	27 71	ESC G	-	1B 47
Double strike off	27 72	ESC H	-	1B 48
Unidirectional on	27 85 1	ESC U 1	-	1B 55 01
Bidirectional on	27 85 0	ESC U 0	-	1B 55 00
Underlined on	27 45 1	ESC - 1	-	1B 2D 01
Underlined off	27 45 0	ESC - 0	-	1B 2D 00
Paper Feed				
Lines/inch 6	27 50	ESC 2	-	1B 32
Lines/inch 8	27 48	ESC 0	-	1B 30
Lines/inch 10 (7/72)	27 49	ESC 1	-	1B 31
Lines/inch n/72	27 65 n	ESC A n	-	1B 41 ??
Lines/inch n/216	27 51 n	ESC 3 n	-	1B 33 ??
Form Formats				
Form length—inches	27 67 0 n	ESC C 0 n	-	1B 43 00 ??
Form length—lines	27 67 n	ESC C n	-	1B 43 ??
Skip perforation on	27 78 n	ESC N n	-	1B 4E ??
Skip perforation off	27 79	ESC O	-	1B 4F
Right margin	27 81 n	ESC Q n	-	1B 51 ??
Left margin*	27 108 n	ESC l n	-	1B 6C ??
Vertical tabs*	27 66 n..n 0	ESC B n..n NUL	-	1B 42 ?? 00
Horizontal tabs	27 68 n..n 0	ESC D n..n NUL	-	1B 44 ?? 00
Paper Movement Controls				
Form feed	12	FF	L	0C
Line feed	10	LF	J	0A
Carriage return	13	CR	M	0D
Back space	8	BS	H	08
Horizontal tab	9	HT	I	09
Vertical tab	11	VT	K	0B
Ignore paper out	27 56	ESC 8	-	1B 38
Enable paper out	27 57	ESC 9	-	1B 39

*Available on models FX-80/100; letter/draft on LQ-1500 only

tures not specifically changed) only until the printer receives a new command sequence.

Printer Command Signals

To select printer features other than the default values, you must know their command signals and how to send them. The computer sending the signal through your software program, the interface card, and the printer's ROM must work harmoniously with these command signals for the printer to perform as expected.

Although the industry has no set standards for which command represents which feature, all printer manufacturers have agreed to use command signals based on ASCII (American Standard Code for Information Interchange) codes. The purpose of ASCII is to make sure that every computer, printer, interface, or modem uses the same electronic signal to represent the same character or key. Each device can then communicate with the others, and you can communicate with the machines through the keyboard.

At least five types of ASCII notation are commonly used to describe those signals: words, ASCII character symbols, decimal symbols, control-code symbols, and hexadecimal symbols. Hex symbols are the numbers zero through 255 written in base 16 notation, a form used in machine-language and assembly-language programs.

Most of the commands used to select printer features consist of one, two, or three ASCII signals sent sequentially in a string. Some printers use up to six parts per command. See **Table 1** for an illustration of some commands.

Table 2 presents an ASCII character set more clearly than tables found in many user's manuals. To conserve keyboard space, some keys perform more than one function. ASCII standards actually provide for 255 distinct signals, but Apple computers can only send values of zero through 127.

Control codes (CTRL) exist only for decimal values zero through 31. They are an especially useful form of printer command since you can send them directly from the keyboard by holding down the control key while also pressing another key. From within programs, they are sent using a decimal form, for example, PRINT CHR$(15) for compressed pitch.

Control codes don't usually print anything on the screen or on paper; instead, they activate switches in the printer to perform printer functions like setting margins or choosing fonts or pitches. Escape codes are handled differently. The escape key, CHR$(27), regards any key-press signal following it as a command.

Every key or combination of keys is assigned a command it will send or a character it will display or print. Each key press sends out a specific electronic signal. If the output is directed to the screen, the corresponding character symbol is displayed there. If the output is directed to the printer slot or port, the character is printed on the paper or the printer obeys the specified control or escape code.

By enclosing ASCII character symbols other than control codes within quotation marks—PRINT CHR$(27) "W1"—you can use them in a BASIC program. (ESC must be handled as

Program listing. *TYPE (Tame Your Printer Easily).*

```
2  REM  TYPE - TAME YOUR PRINTER EASILY (APPLESOFT BASIC VERSION)
5  REM   WRITTEN BY JAMES B. MUNRO BOX 205 YOUNGSTOWN NY 14174
10  TEXT : HOME : REM  CLEAR SCREEN (IBM= CLS)
20 D$ =  CHR$ (4): REM  CTRL D THE DOS COMMAND (IBM OMIT LINE)
30 S = 1: REM  S = SLOT # FOR PRINTER INTERFACE (IBM OMIT)
2000  REM  BUILD A SCREEN MENU OF PRINTER FEATURES
2005  HOME : REM  (IBM= CLS)
2009  REM  IBM EXAMPLE = LOC 5,1 : PRINT " 3": LOC 5,4 : PRINT "CO
    MPRESSED ON";
2010  VTAB 1: HTAB 8: PRINT "TAME YOUR PRINTER PROGRAM";
2035  VTAB 5: HTAB 1: INVERSE : PRINT " 3";: NORMAL : HTAB 4: PRINT
    "COMPRESSED ON";
2040  VTAB 6: HTAB 1: INVERSE : PRINT " 4";: NORMAL : HTAB 4: PRINT
    "EXPANDED ON";
2045  VTAB 6: HTAB 20: INVERSE : PRINT "43";: NORMAL : HTAB 23: PRINT
    "RIGHT MARGIN";
2325  VTAB 21: HTAB 1: INVERSE : PRINT "99";: NORMAL : HTAB 4: PRINT
    "PRINT TEST";
2330  VTAB 21: HTAB 17: INVERSE : PRINT "50";: NORMAL : HTAB 20: PRINT
    "EXIT TO BASIC";
2375  VTAB 22: HTAB 1: INVERSE : INPUT "MAKE SELECTION..TYPE  #  <
    RETURN>";B: NORMAL
2400  REM  PRINTER COMMAND DRIVER SECTION
2405  PRINT D$;"PR#";S: REM  DIRECT OUTPUT TO THE PRINTER (IBM OMI
    T)
2415  REM  IBM USES LPRINT AS IN IF B = 3 THEN LPRINT CHR$(15)
2420  IF B = 3 THEN  PRINT  CHR$ (15): REM  COMPRESSED COMMAND IN
    DECIMAL NOTATION
2425  IF B = 4 THEN  PRINT  CHR$ (27) CHR$ (87) CHR$ (1): REM  EXP
    ANDED COMMAND
2545  IF B = 43 THEN 2700: REM  GOTO RIGHT MARGIN ROUTINE
2560  IF B = 50 THEN  PRINT D$;"PR#0": HOME : END : REM  DIRECT OU
    TPUT TO SCREEN END
2565  IF B = 99 THEN 40000: REM  GOTO LINE 40000 FOR PRINT TEST
2570  PRINT D$;"PR#0": REM  REDIRECT OUTPUT TO THE SCREEN :REM IBM
     OMIT LINE
2575  GOTO 2000: REM  RETURN FOR MORE FEATURE SELECTIONS
2700  REM  RIGHT MARGIN SIDE ROUTINE
2705  GOSUB 4000: VTAB 16: HTAB 20: PRINT "SET RIGHT MARGIN";
2710  VTAB 17: HTAB 20: PRINT "AT COLUMN NUMBER ?";
2715  VTAB 18: HTAB 20: PRINT "PICA=2-80 ELITE=3-96";
2720  VTAB 19: HTAB 20: PRINT "COMPRESS=4-137";
2725  VTAB 20: HTAB 35: INPUT CC
2730  PRINT D$;"PR#";S: REM  DIRECT OUTPUT TO PRINTER (IBM OMIT)
2735  PRINT  CHR$ (27) CHR$ (81) CHR$ (CC): REM  RIGHT MARGIN COMM
    AND (IBM LPRINT)
2740  GOTO 2570: REM  RETURN TO MAIN PROGRAM
4000  REM  SUB ROUTINE FOR REPEATED USE IN SIDE ROUTINES
4005  PRINT D$;"PR#0": REM  DIRECT OUTPUT TO THE SCREEN (IBM OMIT)
4010  VTAB 12: HTAB 24: INVERSE : PRINT "MAKE CHOICE";
4015  VTAB 20: HTAB 23: PRINT "TYPE  #  -->";: NORMAL : RETURN
40000  REM  PRINT TEST SECTION
40010  PRINT D$;"PR#";S: REM  DIRECT OUTPUT TO PRINTER (IBM OMIT)
40015  REM  IBM SUBSTITUTE LPRINT for PRINT
40020  PRINT "IF BUILDERS BUILT BUILDINGS"
40025  PRINT "THE WAY PROGRAMMERS WROTE PROGRAMS
40030  PRINT "THEN THE FIRST WOODPECKER"
40035  PRINT "WOULD DESTROY CIVILIZATION"
40040  PRINT D$;"PR#0": REM  DIRECT OUTPUT TO SCREEN (IBM OMIT)
40050  GOTO 2000: REM  RETURN FOR MORE FEATURE SELECTIONSSAVE TYPE
     PROGRAM
```

CHR$(27).) Decimal symbols are used in BASIC programs by writing them as CHR$(27)CHR$(87)CHR$(1).

If your computer uses standard BASIC commands, type PRINT CHR$(65) and then press the return key. You should see the letter A on the screen. Replace 65 with any decimal number from 33 to 127 and see what happens. Now type PRINT ASC ("A"). The screen should display 65. Get the idea?

Before you can begin to make full use of your printer's features, you have to know its commands. I suggest that you rule a large sheet of paper into five columns and list the printer features down the left column, grouping them according to categories. (See **Table 3** for an example using Epson printers.) Note that many features have both ON and OFF commands. Label the remaining columns decimal, control, character, and hexadecimal.

Now, look up each printer feature in the user's manual and write the commands in the correct column. Some manuals give all four notations. If yours doesn't, use **Table 2** to retrieve the missing information.

Caution: Sometimes notations in descriptions such as ESC 87 1 mix decimal and ASCII values. ESC is decimal 27, 87 is a decimal number, and 1 could be decimal 1 or ASCII 1 (decimal 49). You can always determine the intent by double checking the decimal or hexadecimal version. Watch for important punctuation marks in printer codes (quotation marks, for example).

Some sophisticated interface cards also use printer-control commands. When conflicts arise between the printer and the interface values, the interface always wins. So for future reference you may want to add interface commands at the bottom of your printer command chart.

Word Processors and Spreadsheets

Most spreadsheet programs let you send printer commands as part of the Print option, and good word processors let you embed print commands within the text you're writing. Most word processors even let you create a glossary or disk file of these print commands for recall later.

The correct ASCII notation to use with these programs may be obscure or poorly explained in the manuals, but setting up a command chart and then experimenting with it should help. The following examples show how to embed printer commands in some popular programs:

- VisiCalc lets you select features through its Setup string (/PP"). For example, to print your spreadsheet in expanded mode type in ^H followed by the hexadecimal notation for the command being sent—^H1B5701 for ESC W 1, as **Table 3** indicates. You can send only one command at a time, but you can send commands as often as you like. Entering the lower-right coordinate finishes the sequence.
- Peachtext 5000 lets you embed DEC commands by typing BACKSLASH OUT27,87,1 for ESC W 1. (Peachtext 5000 requires CP/M to run on Apples.)
- AppleWriter II embeds ESC W 1 with: control-V, escape key twice, W, control-A, and control-V. Unfamiliar symbols appear on your screen, but the printer accepts the input.

APPLYING PRINTER CONCEPTS

My Applesoft BASIC **Program listing**, TYPE (Tame Your Printer Easily), illustrates how to write a program that quickly configures your printer with chosen features you select. The BASICs used with the IBM/XT and the Commodore 64 use the same principles; program remarks indicate any differences for the IBM version.

Substituting your printer's commands, type in the program and save it. Then, turn on the printer and run the program to display the available printer selection features. Typing 99 and pressing the return key makes your printer print its default features. The sequence 3 99 4 99 50, pressing the return key after each number, prints samples illustrating default, compressed, and expanded compressed.

Table 4. Line descriptions for TYPE program.

Lines	Description
10	Sets text mode and clears screen.
20	Assigns D$ the value of CHR$(4)—control-D, the Apple DOS command.
30	Assigns the variable S the number of the slot containing printer interface card (usually slot 1).
2000–2330	Create a menu of features (using VTAB and HTAB commands for neatness' sake).
2375	Prompts you to type in the number for the feature you want, then assigns it to variable B.
2405	Directs output from Apple to printer by interface card in slot S.
2420–2565	Send printer commands after output has been directed to proper slot number.
2570	Redirects output to screen (counterpart to line 2405).
2575	Returns to screen menu for additional printer feature selections.
40000–40050	Print out a sample then return to screen menu.

Turn the printer's power switch off, then on, and run the program again, this time selecting expanded mode. After making another print test, you get a fourth print sample—expanded default character width.

Type 50 and press the return key to exit the program. You can now boot any program you want, but don't turn your printer's power off. If you do, the features you selected will disappear. Also, if the printer is not selected, or if the interface card is not in slot S, then the program will hang up. (In commercial programs, error-trapping subroutines are built in to prevent this.)

Program Notes

Starting at line 2050 in the **Listing** and using the printer feature command chart you created (refer to my sample in **Table 3**), you can easily design a screen listing all the features you want to use. (For program line descriptions, see **Table 4**.)

Note that line 2405 illustrates one of the more foolproof ways of directing output from your Apple to the printer: via the interface card located in slot S. If your printer interface is always in slot 1, you can type PR#1 or omit the DOS command D$ and just use 2405 PR#1. However, these two alternatives eventually present problems (for example, when using a Get command).

Lines 2420 and 2425 illustrate the correct syntax for sending printer commands after output has been directed to the proper slot number. PRINT CHR$(27)"ESC W 1" using ASCII form of notation is equally correct syntax for line 2425. (It isn't necessary to use semicolons between commands as some user's manuals suggest.)

Look at your printer feature command chart for the correct code to activate your printer's features. Using decimal notation, substitute these values for the ones shown in the **Listing**. Continue adding lines of code starting at line 2430. The value of B for each code is the same number assigned to it in the screen menu. Line 2575 simply sends the program back to the screen menu so you can make additional printer feature selections.

To avoid multiple keystrokes, you can put a series of frequently used feature commands into a string. For example, if your setup is compressed, unidirection, doublestrike on, skip perforations six lines, then define the screen menu as SPREADSHEET ## and establish a single printer driver command that contains each of the commands in sequence, with no spaces between them.

Lines 40000–40040 print out a sample on your printer and then return you to the screen menu. The print test is reached when you type 99 as your selection in line 2375.

Many printer features require that you define exactly what you want. Lines 2700–2740 illustrate how to handle this using the right margin as an example. I suggest you adapt this format and syntax for this type of feature starting at line numbers 2800, 2900, and so on, until you have covered each feature you want to use. Lines 4000–4015 can be used as a subroutine.

Summary

This configuration program can save you time and a lot of frustration when you want an entire document printed with the same set of feature selections. You can incorporate these principles into any BASIC program to obtain the print results you want. ■

Write to James B. Munro at 240 Mary's Lane, Youngstown, NY 14174.

Circle 161 on Reader Service card.

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 Storage & Carrying Case
(Call Toll Free for information)

Call for Complete Computer Case Catalog.

Apple • Amdek • IBM • Epson
Compaq • DEC • Franklin • HP
Okidata • Televideo • TI • Zenith
and more!

Fiberbilt will custom-make cases for any computer model!

For Fast Service! MasterCard VISA AMERICAN EXPRESS

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

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

Circle 310 on Reader Service card.

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

Sega Spy Hunter	29.90
Sega Tapper	29.90
Sega Congo Bongo	29.90
Sorcerer	29.00
Cutthroats	27.00
Zork I, II, III	23.90
Suspect	27.00
Deadline	29.90
Planetfall	26.00
Enchanter	26.00
Infidel	29.00
Hitchhiker's Guide	23.90
Ultima III	35.90
Lode Runner	23.90
Choplifter	23.90
Spare Change	23.90
50 Mission Crush	27.00
Objective Kursk	25.90
President Elect	25.90
Questron	34.90
Rails West	25.90
Battle for Normandy	25.90
Fortress	22.90
Pro Tour Golf	25.90
Ring Side Seat	25.90
Cosmic Balance II	25.90
Computer Baseball	25.90
Geopolitique 1990	25.90
Epidemic	22.90
North Atlantic 86	38.90
Germany 1985	38.90
War in Russia	57.00
Flight Simulator II	34.00
Night Mission Pinball	22.90
Wizardry I	31.90
Wizardry II (Night of Diamonds)	21.90
Wizardry III (Legacy of Llylgamyn)	25.90
Wizprint	17.00
Rendezvous with Rama	27.50
Shadow Keep	27.50
Amazon	27.50
Zaxxon	24.90
Pooyan	20.90
Expedition Amazon	22.00
The Quest	22.00
Coveted Mirror	21.90
Xyphus	22.00
Transylvania	22.00
Frogger	22.90
Championship Boxing	19.90
8Cs Quest for Tires	21.90
The Dark Crystal	25.90
Wizard of Id Touch Type	19.90
Fax	19.90
Summer Games	27.90
Stellar 7	23.90
Ken Uston's Blackjack	45.90
Caverns of Frietag	19.90
Castle Wolfenstein	19.90
Beyond Castle Wolfenstein	19.00
Millionaire	37.00
Baron	37.00
Tycoon	37.00
Spitfire Simulator	25.90
Air Sim III	26.90
Bruce Lee	24.00
Sargon III	31.90
Miner 2049er	24.40
Death in the Caribbean	21.90
The Heist	24.40
Critical Mass	26.90
How about a nice game of Chess	21.90
Mask of the Sun	27.50
Hard Hat Mack	24.90
The Last Gladiator	14.90
Pinball Const. Set	28.90
Music Const. Set	28.90
The Standing Stone	28.90
One-on-One	28.90
Archon	28.90
Skyfox	28.90
Seven Cities of Gold	28.90
Murder on the Zinderneuf	28.90
Sundog	31.90

Blank Media

Elephant SS/DD	16.00
Elephant DS/DD	21.00
Verbatim SS/DD	19.00
Verbatim DS/DD	26.00
Memorex SS/DD	18.00
Memorex (Mac 3½")	36.00
BASF SS/DD	17.00
Maxell SS/DD	19.00

Educational

APPLE Logo II	84.90
BARRONS Computer SAT	55.00
CBS	
Mastering the SAT	94.00
Murder by the Dozen	21.90
DAVIDSON AND ASSOCIATES	
Speed Reader II	43.00
Word Attack	30.00
Math Blaster	30.00
DESIGNWARE	
Spellicopter	24.50
Crypto Cube	24.50
Creature Creator	24.50
DLM	
Alien Addition	21.75
Medior Multiplication	21.75
Demolition Division	21.75
Alligator Mix	21.75
Dragon Mix	21.75
EDU-WARE (PEACHTREE)	
Compu-Read	17.90
Compu-Math	31.90
SAT Word Attack Skills	31.90
PSAT Word Attack Skills	31.90
Spelling B w/Reading Primer.	24.90
Algebra 1 2 3 or 4	24.50
Algebra 5 & 6	31.90
Hands on Basic	49.90
Fractions	31.90
Decimals	31.90
HARCOURT BRACE JOVANOVICH	
SAT	49.00
GRE Test	59.90
HAYDEN SOFTWARE	
Micro Math (Add-Sub)	20.90
Micro Math (Multi-Div)	20.90
LEARNING COMPANY	
Rocky's Boots	30.75
Number Stumper	25.90
Robot Odyssey	30.75
Reader Rabbit	25.90
Magic Spell	22.90
Juggle's Rainbow	18.90
Bumble Games	24.90
Bumble Plot	24.90
Gertrude's Puzzles	27.90
Gertrude's Secrets	27.90
MECA	
Basic Building Blocks	49.90
The Running Program	49.90
MICROLAB English SAT	20.90
Math SAT	20.90
PROGRAM DESIGN	
The New Step by Step	73.90
Step By Step II	73.90
Step By Step III	73.90
SCARBOROUGH SYSTEMS	
Songwriter & Picturewriter	25.00
Phi Beta Philer	24.90
Master Type	24.90
SCHOLASTIC WIZWARE	
Fact & Fiction Tool Kit IIc	24.90
Microzine (1-6)	ea. 24.90
Story Tree	24.90
Turtle Tracks	24.90
SPINNAKER SOFTWARE	
Fraction Fever	19.00
Trains	21.90
Facemaker	19.00
Snooper Troops 1 & 2	27.90
Story Machine	21.90
Kindercomp	19.00
Delta Drawing	31.00
Kids on Keys	19.00
Alphabet Zoo	19.00
Hey Diddle Diddle	17.90
In Search of	25.00
Aerobics	27.90
Grandma's House	19.00
Kidwriter	19.00
SPRINGBOARD	
Early Games For Young Children	19.90
Matchmaker	19.00
Piece of Cake	19.90
Fraction Factory	19.00
SUNBURST	
The Factory	31.90
Teasers by Tobbs	31.90
TERRAPIN Logo	61.90
XEROX	
Sticky Bear ABC	24.90
Sticky Bear Numbers	24.90
Sticky Bear Bop	24.90
Sticky Bear Opposites	24.90
Sticky Bear Shapes	24.90

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	285.00
BPI	
General Accounting	247.00
GL, AR, AP, PR or INV	247.00
CONTINENTAL	
Home Accountant	44.00
Tax Advantage	42.90
FCM/FL	61.90
G/L, A/R, A/P	149.00
DOW JONES SOFTWARE	
The Market Analyzer	218.00
Market Manager	188.00
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	91.00
MEGAHAUS	
MegaFinder	104.90
MegaSpell	44.90
MegaWorks	Call
MegaWriter	66.90
MICROPRO	
Wordstar	217.00
Calcstar	110.00
Wordstar W/Z Card	255.00
MICROSOFT Multiplan	75.00
PEACHTREE Peach Calc	91.90
QUARK	
Lexicheck/Word Juggler IIe	120.00
SENSIBLE SOFTWARE	
Sensible Speller	74.00
Bookends	74.00
Report Card	41.00
SIERRA ON-LINE	
The General Manager II	133.00
Homeword	43.00
ScreenWriter IIe	78.00
SILICON VALLEY	
The Handlers Package	104.90
List Handler	46.90
The Word Handler II	46.90
SOFTWARE ARTS	
Visicalc Package	120.00
SOFTWARE PUBLISHING	
PFS: Access	Call
PFS: Write	74.00
PFS: File	74.00
PFS: Graph	74.00
PFS: Report	74.00
STONEWARE	
DB Master 4 Plus	215.00
VISICORP	
Visitrend/Visiplot	62.00

MacIntosh

PFS: File	74.00
PFS: Report	74.00
PFS: File/Report	120.00
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	120.00
Microsoft Basic	90.00
Microsoft Chart	75.00
Microsoft Word	120.00
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	175.00

Printers

APPLE	
Imagewriter (10 & 15")	Call
BROTHER	
HR-25	655.00
HR-35	875.00
DAISY WRITER 2000	Call
DIABLO	
620 (RS-232C)	850.00
630 (PC)	1,785.00
Ink Jet Printer	1,150.00
DYNAX DX-15	399.00
EPSON	
FX-80	409.00
FX-100	580.00
RX-80F/T	299.00
RX-100	400.00
LQ-1500	1,000.00
NEC INFO SYSTEMS	
N2030	680.00
N3530	1,255.00
P2T	665.00
JUKI 6100	410.00
MANNENSMANN TALLY	
MT-160L	605.00
MT-180L	795.00
MT-Spirit	295.00
OKIDATA	
Microline 82A	325.00
Microline 83A	565.00
Microline 92P	385.00
Microline 93P	610.00
PANASONIC	
KXP 1090	285.00
KXP 1091	315.00
KXP 1092	465.00
KXP 1093	679.00
PROWRITER	
8510AP	325.00
1550AP	525.00
8510SP	460.00
Starwriter A10-20P	490.00
Daisywheel A10-20S	505.00
QUME Printers	Call
SILVER REED	
EXP400P	325.00
EXP500P	380.00
EXP550P	440.00
EXP770P	860.00
STAR MICRONICS	
Gemini 10X	260.00
Gemini 15X	395.00
Radix 10 (200 CPS)	620.00
Radix 15 (200 CPS)	720.00
Delta 10	380.00
Delta 15	510.00
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	195.00
Slimline IIe	220.00
Slimline IIc	220.00
Micro SCI Controller	64.00
QUENTIN	
AP 100A Full Height	198.00
AP 105 Slimline	210.00
AP 110A Twin Pack	415.00
RANA	
Elite I	235.00
Elite II	365.00
Elite III	435.00

Monitors

AMDEK	
Color 300	258.00
Color 500	395.00
Color 600	425.00
Video 300G Green	135.00
Video 300A Amber	147.00
DVM II or III	130.00
BMC	
Color Plus Monitor	239.00
BM12 AOW Green	95.00
PANASONIC	
TR 120 Green	189.00
TR 120 Amber	189.00
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)	135.00
210 13" Color (Lo-Res)	275.00
RGB Vision III	419.00
410-64 RGB-2 Interface	199.00

Specials

EDD III	48.00
Locksmith 5.0	68.00
CIA Files	48.00
Back It Up III	52.00
Copy II+	25.00
Wildcard II	99.00
Dollars & Sense/Mac	87.90
Copy Master II	Call
Copy Mac	29.00
Megaworks	Call

Home/Accessories

Pixit	34.00
Take One	41.00
Apple Mechanic	18.50
Beagle Basic	22.90
Beagle Graphics	35.50
Disk Quick	18.50
Doss Boss	14.90
Double Take	21.50
Fat Cat	22.90
Flex Type	18.90
Frame Up	18.90
GPLE	30.00
Pronto Doss	18.50
Silicon Salad	15.90
Triple Dump	25.90
Type Faces	12.50
Utility City	18.90
Zoom Graphics	32.00
Visible 6502	32.00
Crossword Magic	31.00
Einstein Compiler	88.00
Einstein Memory Trainer	55.00
Turbo Pascal	35.00
Net Worth	49.00
Bank Street Writer	43.00
Bank Street Speller	43.00
Bank Street Filer	Call
Print Shop	30.00
Graphics Library	17.50
Digital Paint Brush	215.00
Flying Colors w/Printout	55.00
Time Trax	68.00
DATA TRANSFORMS Fontrix	44.90
Font Paks 1-9	ea. 14.00
The Accountant	62.90
Cut & Paste	35.90
Financial Cookbook	35.90
FUNK Sideways	37.00
Orca/M	63.00
Compiler Plus (Hayden)	38.00
LAZERWARE Lisa V 2.6	56.00
MECA Managing Your Money	129.90
Applesoft Compiler	110.00
Typing Tutor II	15.90
Typing Tutor III	31.00
Dollars & Sense	61.00
Dollars & Sense IIc	72.00
The Graphics Magician	37.00
New Complete Graphics System	49.00
Paper Graphics	31.00
Cat Graphics	22.00
QUALITY Bag of Tricks	26.00
Merlin	41.00
Merlin Pro	45.90
Merlin Combo	69.00
SOFTRONICS Softerm II	131.00
TURNING POINT Time is Money	63.00
ASCII Pro	81.00
Micro Cookbook II/IIe	23.50
CPM Gold Card (Digital)	248.00
Hayes Mach II	30.00
Hayes Mach III	35.00
Kraft Joystick	34.00
TG Joystick	Call
TG Select-A-Port	28.00
Micromodem IIe/w SC I	222.00
1200 Baud Modem	485.00
KENSINGTON System Saver	64.00
KEYTRONICS Keyboards	245.00
Koala Pad	75.00
Muppet Learning Keys	48.00
The Gibson Light Pen	165.00
MCT Speed Demon	225.00
Ram Card	68.00
Soft Card	230.00
Premium Softcard IIe	298.00
Apple Cat II	198.00
212 Apple Cat II	399.00
ORANGE MICRO Grappler plus	99.00
Buffered Grappler	165.00
PICASSO w/interface	119.00
PROMETHIUS Pro Modem 1200	335.00
PROMETHIUS Internal IIe/II+	305.00
SATURN 128K Ram Card	345.00
Accelerator IIe	Call
Popcorn Modem (1200)	Call
Nice Print	145.00
The Cricket	125.00
Echo II	95.00
Mockingboard "A"	79.00
Mockingboard "B"	79.00
Mockingboard "C"	145.00
Mockingboard "D"	145.00
TEXTPRINT Print It	159.00
THIRDWARE Fingerprint	105.00
Flip N File 50	20.00
Elephant Trunk	20.00
Compu Serve Starter Kit	28.00
Head Cleaning Kit	20.00
Key Pad (Trackhouse)	110.00
Thunderclock Plus	109.00
Ultraterm	249.00
Videoterm	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

Holding Your Own

In six simple steps, build this convenient copyholder and type in listings with ease.

By *John Uzzolino*

Building your own copyholder to use when writing letters or keying in other documents on your word processor can represent your first step toward an ergonomically designed work station. You'll avoid eye- and neck-strain and save substantially over the cost of an electric copyholder ($175).

My 17-year-old son, Frank, designed this portable stand from mat board left over from a school project.

You probably have most of the following materials in your home. Chances are the mat board is the minimum size sold in your local art store, so use the remainder to make another copyholder. Extra copyholders make great gifts for friends or relatives who own microcomputers.

Here is what you need: a 32-by-40-by-1/16-inch mat board, a roll of clear tape, a hobby knife or sharp cutting tool, a ruler, and a pencil.

The copyholder's design and construction are simple; in just six easy steps, you'll build your own in no time.

1) Draw a 9-inch-by-20-inch rectangle on the mat board. Cut out this rectangle with a hobby knife or sharp cutting tool.

2) Measure 7½ inches along the rectangle's 9-inch edge. Score the face side with your knife. Measure 1 inch from the opposite 9-inch edge and score the back side.

3) Bend the 7½-inch side down and the 1-inch edge up.

4) From the mat board, cut out a 1-inch-by-10½-inch strip. From the 1-inch side, measure 3/8 inch and notch out two 1/8-by-1/4-inch slots.

5) On the 7½-inch-by-9-inch rectangle, opposite the bent edge, cut out a slot (see the **Figure**) 3/4 inch in from the 7½-inch side.

6) Slip the shape in step 5 into the slot on the 7½-inch side. Tape the other end at the bottom near the 1-inch bend.

And there you have it, your own copyholder as it appears in the **Photo**. No need to have a cluttered desk again. You'll wonder why you didn't think of it sooner. ■

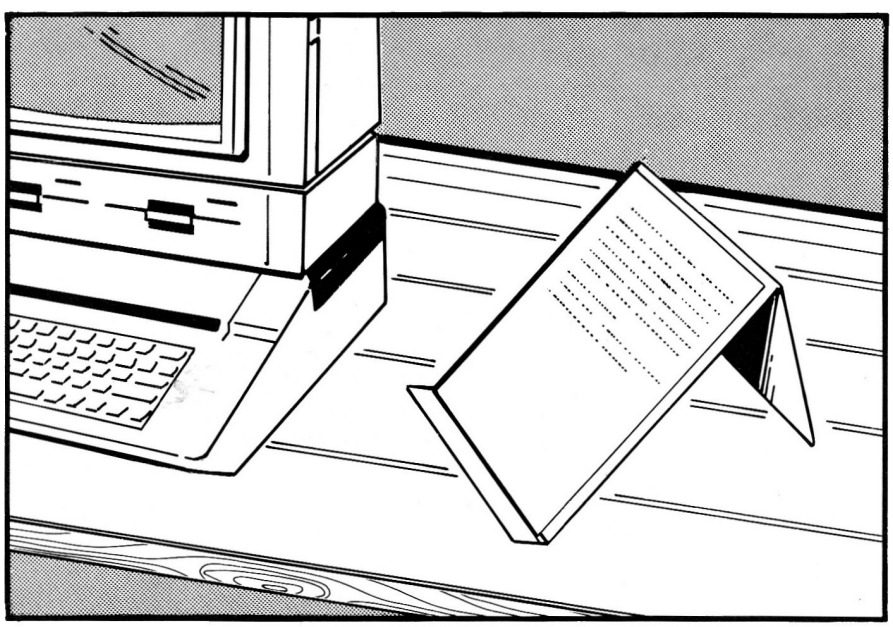
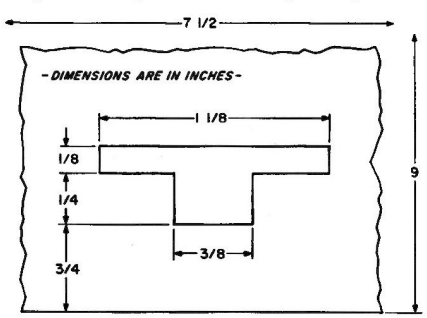


Photo. *The finished copyholder.*

Figure. *Shape dimensions for step 5.*



John and Frank Uzzolino live at 2237 New York Avenue, Westfield, NJ 07090.

Templates, Boiled Down to Size

Don't get steamed over the office paper chase. Let business boilerplates do the work for you.

by Gregory R. Glau

From a business perspective, word processors save time, improve the look of letters and contracts (say goodbye to typos), and perhaps best of all, eliminate the usual drudgery of the paper shuffle.

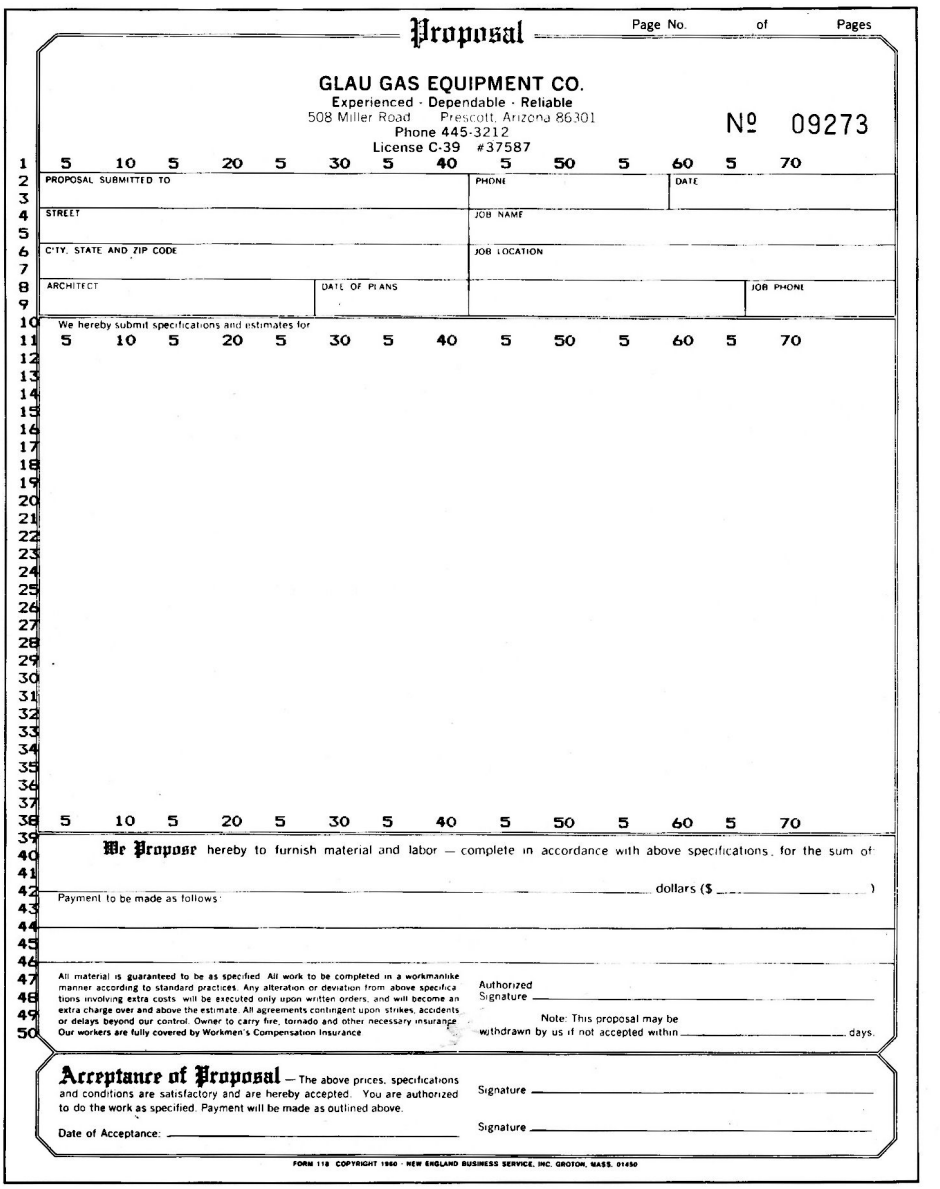
Part of the secret is that you can keep templates of business forms on disk: blank letterhead, bid forms, specification sheets, contracts, sales letters.

When we started, I liked the idea of boilerplate paragraphs—just save the paragraphs and insert them into documents as required. While that's fine for long documents, for single-page formats it's more effective (and much easier) to save the entire document and then change the names and prices that correspond to a specific job.

If you decide to use a template, determine where you want printed items (like your customer's name, address, and job cost) to appear. Put a copy of the form into your printer and use your word processor to print row and column designations directly on the form. This makes it easy to see where everything should go.

I can align the top of any of our many forms with a specific spot on the printer. For each form, we printed out where the rows and columns appeared. (See the **Figure** for an exam-

Figure. *Business proposal with printed row and column designations.*



Proposal Page No. of Pages

GLAU GAS EQUIPMENT CO.
Experienced · Dependable · Reliable
508 Miller Road Prescott, Arizona 86301
Phone 445-3212
License C-39 #37587

№ 09273

1 5 10 5 20 5 30 5 40 5 50 5 60 5 70
2 PROPOSAL SUBMITTED TO | PHONE | DATE
3
4 STREET | JOB NAME
5
6 CITY, STATE AND ZIP CODE | JOB LOCATION
7
8 ARCHITECT | DATE OF PLANS | JOB PHONE
9
10 We hereby submit specifications and estimates for
11 5 10 5 20 5 30 5 40 5 50 5 60 5 70
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38 5 10 5 20 5 30 5 40 5 50 5 60 5 70
39
40 We Propose hereby to furnish material and labor — complete in accordance with above specifications, for the sum of:
41
42 _____ dollars ($ _____)
43 Payment to be made as follows:
44
45
46
47 All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.
48 Authorized Signature _____
49 Note: This proposal may be withdrawn by us if not accepted within _____ days.
50

Acceptance of Proposal — The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance: _____

Signature _____

FORM 118 COPYRIGHT 1980 - NEW ENGLAND BUSINESS SERVICE, INC. GROTON, MASS. 01450

ple of our proposal form, imprinted with row and column designations.)

It's easy to determine where the customer's name should be printed, where the main text should start, and so on. On the form in the **Figure**, for example, the customer's name should start at row 3, column 15 and his phone number at row 3, column 45.

Our standardized proposal details what work we'll include in the bid. We sell furnaces, so we have one boilerplate bid form that says we'll install X furnace at Y size along with ductwork, registers, grills, and thermostat. Ninety percent of the bid remains constant from job to job; the only variables are the prospect's name, address, phone, date, price, and perhaps the brand name and furnace size.

Once you have a template for each business operation stored on disk, it's fast and easy to put the form on screen and change information to reflect the specific job you're working on. Then just print out the "customized" form for a prospective client.■

For more information on business templates, see "Account For Yourself," December 1984, p. 84. —eds.

Write to Gregory R. Glau at P.O. Box 1627, 508 Miller Road, Prescott, AZ 86302.

---

inCider's inSidious inSolubles

In the infamous world of Alice in CompuLot, an inSoluble is a simple BASIC program that seems to be correct, though submerged within are oddities that even Alice has never encountered. If you're new to our column just type in the listing, follow the simple rules, type RUN, and hope for the best. If your typing was accurate you won't see SYNTAX ERR, but what you will see isn't what you'd expect. If you'd like to submit an inSoluble of your own creation, you'll find *inCider* pays $20 when your puzzle is published.

Rules for inSidious inSolubles

1. An inSoluble is a BASIC Applesoft program. Any POKEd machine-language subroutines and CALLs to that subroutine are correct.
2. The program must accomplish something. In other words, when it's run it should produce some kind of a result.
3. The program should not generate an error message. If it does, check your typing.
4. A short explanation describes what the program is supposed to do and may contain clues to the problem.
5. The program can use common peripherals such as disk, printer, or modem. DOS 3.3 or ProDOS commands are acceptable.
6. More than one error can appear in the program.

When submitting your puzzles, remember to provide the solution, and please include an SASE if you want a reply to your entry before it appears within these pages. The shorter the inSoluble, the better—but we like programs that do something useful.

An Applesoft Bug

Now that you've carefully read the rules, you'll find that the first problem for Alice, An Applesoft Bug, disregards the third rule. "But," you say, "the error is trapped by the ONERR command of line 100." Yes, it's supposed to work that way but, alas, things are seldom what they seem. This problem from James Kudebeh of Kirksville, Missouri, uses the VERIFY command to check for files on your disk. It's straightforward, simple, and should pose no problems. Logically and syntactically nothing is wrong with this program, however.... One hint: Get out the books.

Listing 1. *An Applesoft Bug.*

```
10  REM AN APPLESOFT BUG
20  TEXT : HOME :D$ =  CHR$ (4)
30  INPUT "ENTER FILE NAME ";F$
40  IF F$ = "END" THEN  END
50  GOSUB 100
60  PRINT : GOTO 30
100  ONERR  GOTO 140
110  PRINT D$;"VERIFY";F$
120  PRINT F$;" IS PRESENT ON THI
     S DISK"
130  GOTO 150
140  PRINT F$;" IS NOT PRESENT ON
      THIS DISK"
150  POKE 216,0
160  RETURN
```

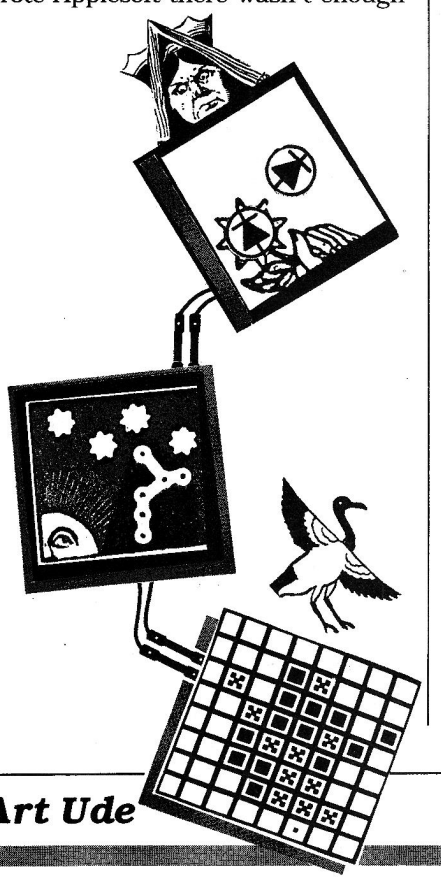
Print Using

The way I heard it, when whiz kids wrote Applesoft there wasn't enough memory available on the chips to add all the graphics commands and still retain all the usual BASIC statements. Something had to go. Least missed, so the designers thought, would be IF...THEN...ELSE and PRINT USING. Thus, a multitude of fixes and short routines substitute for these commands, the PRINT USING routines being the most numerous.

Alice's second inSoluble combines ideas from Michael Phillips of Clearwater, Florida, and Don Smith of Kelowna, British Columbia. The program Print Using right justifies numbers and fills in the decimal portion of the column of figures with zeros for dollar formatting. The format is set to accept ten digits, including the decimal point and the cents. This is controlled by the variable L in line 20 and can be changed to meet your needs. I think you'll like this routine, but first try it with various figures (for example, 23.45, 2.45, .45, and 1.1). ■

Send your inSolubles to Art Ude c/o inCider, *80 Pine Street, Peterborough, NH 03458.*

Solutions on page 97.



Listing 2. *Print Using.*

```
10  REM  PRINT USING
20  HOME : PRINT  TAB( 12)"X TO E
    XIT": PRINT :L = 10: ONERR  GOTO
    130
30  INPUT "AMOUNT: ";AMT:ZE$ = ""
    : POKE 37, PEEK (37) - 1: CALL
     - 958
40 AMT = AMT * 100
50 DM = AMT -  INT (AMT)
60  IF DM =  > .5 THEN AMT = AMT +
    1
70  IF  LEN ( STR$ (AMT)) > L THEN
     FOR I = 1 TO 3: PRINT  CHR$
    (7);: NEXT : GOTO 30
80 AMT =  INT (AMT) / 100
90 DM = AMT -  INT (AMT): IF DM =
    0 THEN ZE$ = ".00": GOTO 110

100 DM = DM * 10:DM = DM -  INT (
    DM): IF DM = 0 THEN ZE$ = "0
    "
110  FOR I = 0 TO L -  LEN ( STR$
    (AMT)) -  LEN (ZE$): PRINT "
     ";: NEXT
120  PRINT AMT;ZE$: GOTO 30
130  END
```

by Art Ude

Circle 17 on Reader Service card.

THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM

CONROY-LA POINTE℠

LOW PRICES TO PROFESSIONALS WHO KNOW WHAT THEY WANT AND KNOW HOW TO USE IT!

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

ALL MAIL: Conroy-LaPointe, Inc. 12060 SW Garden Place, Portland, OR 97223

CASH-n-CARRY COMPUTER STORES, INC.——SEE BELOW

HARDWARE for your APPLE

COMPUTERS

SYSTEMS **IN STOCK** **CALL**

LIMITED WARRANTY—100% Parts & Labor for 90 days by us.

DISK DRIVES

	LIST	OUR
★**CENTRAL PT.**, Filer, Utility & Apple DOS	$ 20	$ 15
★**MICRO-SCI**, A2, 143K Disk Drive	$ 345	$ 199
A2 Controller Card	$ 100	$ 79
1/2 Ht. Disk Drive (IIe)	$ 269	$ 195
1/2 Ht. Disk Drive (IIc)	$ 299	$ 209
TEAC TEAC, T40, Direct Drive, 163K	$ 349	$ 239
Controller Card by ComX	$ 110	$ 49
1/2 HIGH TEAC, T80, Double Sided, 326K	$ 449	$ 329
TEAC, Controller Card	$ 85	$ 59
Rana Elite 1, 163K, 40 Track	$ 379	$ 239
Elite 2, 326K, 80 Track	$ 649	$ 389
Elite 3, 652K, 160 Track	$ 849	$ 499
Elite Controller	$ 145	$ 89
Video Tech, 1/2 Ht. Disk Drive	$ 225	$ 149

RAM EXPANSION

★**ComX**, 80 col. +64K RAM, for IIe, 1 Yr. Wty		$ 199	$ 99
★ RAM Card, 1 Yr. Wty. (II+)	16K	$ 179	$ 39
★**Microsoft**, RAM Card (II+)	16K	$ 100	$ 69
★**Titan/Saturn** RAM Card 128K (II+)		$ 599	$ 329
Other RAM Cards & Software in Stock			CALL

VIDEO CARDS

★**ComX**, 80 col. +64K RAM (IIe) 1 yr. wty.	$ 199	$ 99
★**Videx**, VideoTerm 80 col. (+ or e)	$ 279	$ 175
★ UltraTerm (+ or e)	$ 379	$ 229
★ Soft Video Switch (II+)	$ 35	$ 22
★ Enhancer II (II+)	$ 149	$ 95
★ Function Strip (II+)	$ 39	$ 25
We Have Full Videx Line. Call.	*Up to 35% off.*	

MISCELLANEOUS

ASTAR, RF Modulator, to use TV	$ 35	$ 25
★**CCS**, Serial Interface 7711 (Set BAUD)	$ 150	$ 95
★**CPS/Eastside**, Wild Card 2 (copier, +or e)	$ 140	$ 99
Chalkboard, Power Pad (Requires Kit)	$ 100	$ 73
Digital Research, CP/M Gold Card (w/64K)	$ 495	$ 359
★ 64K to 192K Gold Card Expanson	$ 325	$ 239
Kensington, System Saver Fan	$ 90	$ 65
Key Tronic, KB200 Keyboard (II+)	$ 298	$ 219
Koala, Touch Tablet w/Micro Illustrator	$ 125	$ 75
Programmer's Guide	$ 15	$ 12
Kraft, Joystick (II/II+)	$ 65	$ 49
Game Paddles (II/II+)	$ 50	$ 39
M&R, Sup R fan (II+ only)	$ 50	$ 30

MISCELLANEOUS

★**Microsoft**, Z80 Softcard (+ or e)	$ 345	$ 235
Z80 Softcard Premium (IIe)	$ 395	$ 275
★**Orange Micro**, Grappler Plus (e or +)	$ 149	$ 99
16K Buffer Board for Grappler Plus	$ 175	$ 99
Buffered Grappler Plus, 16K	$ 239	$ 159
2 Chip Set for Buffered Grappler	$ 28	$ 12
Paymar, Lower Case Chip, Rev. 7 (II+)	$ 50	$ 19
★**PCPI**, Applicard, 64K w/128K Ext.	$ 595	$ 395
Applicard 6MHz, 14 features	$ 375	$ 275
RH Electronics, Super Fan II	$ 75	$ 59
★**Titan/Saturn**, Accelerator IIe	$ 599	$ 399
Trackhouse, Numeric Key Pad	$ 149	$ 94
Transend/SSM, AIOII, Serial/Para I/F	$ 225	$ 169
TG, Tracball or Select-A-Port	$ 40	$ 26
Joystick	$ 45	$ 29
Game Paddles	$ 35	$ 23
★**Videx**, PSIO I/F Card	$ 229	$ 145

Macintosh

ATI, MacCoach	$ 75	$ 49
Bluechip, Millionaire	$ 60	$ 39
Central Point, Copy II MAC	$ 40	$ 30
Continental Software, Home Accountant	$ 100	$ 65
Creative Solutions, MacForth Level I	$ 149	$ 95
Dow Jones, Straightalk NEW	$ 79	$ 50
Electronic Arts, Pinball Construction	$ 40	$ 29
Hayden, Sargon III	$ 50	$ 33
Human Edge, Sales or Mgmt. Edge, ea.	$ 250	$ 159
Infocom, Full Line in Stock		CALL
Kensington, Swivel	$ 25	$ 21
Starter Pak	$ 90	$ 60
Surge Suppressor	$ 50	$ 35
Living Videotext, Think Tank	$ 145	$ 85
Main Street, Filer or Writer, ea.	$ 199	$ 125
Maxell, Diskettes, SS/SD, 3½", 10 pak	$ 60	$ 35
Megahaus, Megafiler	$ 195	$ 125
Microsoft, Chart	$ 125	$ 94
Word or File or Multiplan, each	$ 195	$ 129
Mirage Concepts, Trivia	$ 50	$ 32
Monogram, Dollars & $ense	$ 150	$ 95
Novation, Smartcat Plus Modem w/soft	$ 499	$ 379
Penguin, Transylvania	$ 35	$ 24
Graphics Magician	$ 50	$ 32
Prometheus, ProModem 1200 w/cable&soft	$ 495	$ 350
Scarborough/Lightning, Mastertype	$ 35	$ 19
Simon & Schuster, Typing Tutor III	$ 50	$ 33
Softw. Pub., PFS: File or PFS: Report, ea.	$ 125	$ 79
PFS: File & Report	$ 195	$ 125
Stoneware, DB Master	$ 195	$ 125
Telos, File Vision	$ 195	$ 125
T/Maker, Clickart	$ 50	$ 32
Videx, Vegas	$ 60	$ 34

SOFTWARE for your APPLE

BUSINESS & TRAINING

★**ALS/Silicon Valley**, Word Handler	$ 80	$ 39
★ List Handler	$ 80	$ 39
★ Handler Pak, (Word, List Spell)	$ 130	$ 85
★**Applied Soft Tech.**, VersaForm	$ 389	$ 249
Arktronics, Jane w/Mouse (II+ or IIe)	$ 295	$ 195
Jane w/o Mouse (IIc)	$ 179	$ 119
Artsci, Magic Window II	$ 150	$ 99
Magic Words	$ 70	$ 48
★**Ashton-Tate**, dBase II (Req CP/M 80)	$ 495	$ 269
BPI, Job Cost	$ 595	$ 375
AR, AP, PR or INV, each	$ 395	$ 249
★**Broderbund**, Print Shop	$ 50	$ 34
★ Bank Street Speller	$ 70	$ 45
★ Bank Street Writer (specify 11+, e, c)	$ 70	$ 45
★ Bank St. Combo (Writer & Speller)	$ 140	$ 85
Continental, GL, AR, AP or PR, each	$ 250	$ 165
★ Home Accountant	$ 75	$ 49
CDEX, for Visicalc, Multiplan, Apple IIe, each	$ 60	$ 40
Dow Jones, Market Analyzer	$ 350	$ 219
Market Manager	$ 300	$ 189
Market Microscope	$ 349	$ 219
Fox & Geller, Quickcode or dGraph, ea.	$ 295	$ 195
dUtility (for dBase II)	$ 99	$ 65
Hayden, Pie Writer (vers. 2.2)	$ 150	$ 89
★**Howard Soft**, Tax Preparer, 1984	$ 250	$ 185
Human Edge, Sales Edge or Management	$ 250	$ 165
Knoware, Knoware	$ 95	$ 64
Living Videotext, ThinkTank	$ 150	$ 99
LJK, Letter Perfect w/Mail Merge	$ 150	$ 99
Meca, Managing Your Money	$ 200	$ 125
Micro Pro, (all require Z80-CP/M Card)		
★ WordStar™	$ 350	$ 189
★ WordStar w/Starcard	$ 495	$ 265
★ WordStar Professional, 4 Pak	$ 495	$ 265
★ MailMerge, SpellStar, or StarIndex, ea.	$ 99	$ 54
★ InfoStar and StarCard	$ 595	$ 295
Microsoft, Multi-Plan (Apple DOS or CP/M)	$ 195	$ 129
★**Osborne/ComX**, (Disk and Book) (Stat., Bus. & Math)		
Some Common Basic Programs (75 ea.)	$ 100	$ 49
Practical Basic Programs (40 ea.)	$ 100	$ 49
Peachtree, Requires CP/M & MBasic, 64K		
Series 40 GL & AR & AP, all 3	$ 395	$ 239
Professional Softw., Trivia Fever	$ 40	$ 25
★**Quark**, Word Juggler & Lexicheck (IIe)	$ 189	$ 129
Sensible, Sen. Speller or Bookends, ea.	$ 125	$ 79
Sierra/On-Line, The Dictionary	$ 100	$ 69
Gen. Manager II	$ 230	$ 155
ScreenWriter II, 2 Pak w/Dict.	$ 130	$ 89
Homeword	$ 50	$ 45
Software Arts, TK!Solver (for IIe or IIc)	$ 299	$ 199
Software Publishing, (specify + or e)		
PFS:File, PFS:Graph, PFS:Report, each	$ 125	$ 79
PFS: Write (IIe)	$ 125	$ 79
PFS: Proof	$ 70	$ 48
Stoneware, DB Master Version 4.0	$ 350	$ 225
DB Utility Pak I or II	$ 129	$ 82
VisiCorp, Full Line In Stock		CALL

UTILITY & SYSTEM

Beagle, GPLE or Alpha Plot, each	$ 35	$ 27
Ap. Mechanic, Disquick or Pronto DOS, ea.	$ 30	$ 19
Full Beagle line in stock		CALL
Borland, Turbo Pascal	$ 55	$ 35
Central Point, Copy II Plus (bit copier)	$ 40	$ 25
Einstein/Alison, Compiler	$ 129	$ 95
Epson, Graphics Dump	$ 15	$ 9
Funk Software, Sideways	$ 60	$ 40
Hayes, Terminal Prog. for Smartmodem	$ 100	$ 65
★**Insoft**, GraFORTH II by Paul Lutus	$ 90	$ 65
Microsoft, Full Line in Stock		CALL
Omega, Locksmith	$ 100	$ 75
Penguin, Complete Graphics System II	$ 80	$ 54
Graphics Magician	$ 60	$ 41
Phoenix, Zoom Grafix	$ 40	$ 34
Quality, Bag of Tricks	$ 40	$ 29
United SWI, ASCII Express-The Pro	$ 130	$ 87
Utilico, Essential Data Duplicator III	$ 80	$ 49

HOME & EDUCATIONAL

Barrons, Study Program for SAT	$ 90	$ 60
Beagle Bros., Full line in Stock		CALL
Bluechip, Millionaire	$ 60	$ 32
Broderbund, Print Shop	$ 50	34
CBS, Large Inventory in stock		CALL
★**Continental**, Home Accountant	$ 75	$ 49
Davidson, Full line in stock		CALL
Dow Jones, Home Budget	$ 95	$ 69
Edu-Ware, Large Inventory in Stock, CALL		40% off list
Electronic Arts, Full line in stock		CALL
Harcourt, Computer Prep for SAT	$ 80	$ 49
Knoware, Knoware	$ 95	$ 64
Koala, Full line in stock, CALL		35% off list
Learning Co., Large Inventory in Stock, CALL		35% off list
Microsoft, Typing Tutor II	$ 25	$ 17
Monogram, Dollars & $ense or S.A.M., ea.	$ 100	$ 59
Scarborough/Lightning, Mastertype	$ 40	$ 27
Simon & Schuster, Typing Tutor III	$ 50	$ 33
Sub Logic, Flight Simulator II	$ 50	$ 25
Terrapin, Logo	$ 99	$ 65

GAMES

Atari, Large Inventory in stock		CALL
Broderbund, Full line in stock		CALL
Datasoft, Aztec or Zaxxon, each	$ 40	$ 27
Electronic Arts, Sky Fox or Pinball	$ 40	$ 29
Hayden, Sargon III (Chess)	$ 50	$ 34
Infocom, Zork I, Zork II, Zork III, ea.	$ 40	$ 27
★**Insoft**, 3 Games, Zarg/Spider Raid/Grapple	$ 82	$ 25
Muse, Castle or Beyond Castle Wolfenstein	$ 35	$ 23
Origin, Ultima III	$ 60	$ 40
Penguin, Transylvania	$ 35	$ 24
Professional, Trivia Fever	$ 40	$ 25
Sierra/On-Line, Ultima II	$ 60	$ 40
Sir-Tech, Wizardry	$ 50	$ 35
Spinnaker, Full line in stock, CALL		35% off list
Sub Logic, Flight Simulator II	$ 50	$ 35
Night Mission Pinball	$ 35	$ 22

DISKETTES

★ CONROY-LAPOINTE™ DISKETTES

We guarantee these top quality products with the Conroy-LaPointe name. 5 YEAR LIMITED WARRANTY.

10 ea. SS/SD, 35 Track (Apple, etc.)	$ 14
100 ea. SS/SD, 35 Track (Apple, etc.)	$ 120
1000 ea. SS/SD, 35 Track (Apple, etc.)	$ 999

	LIST	OUR
CDC, 10 ea SS/DD, 40T (Apple, IBM)	$ 550	$ 195
10 ea SS/DD, 40T (Apple, IBM)	$ 55	$ 21
DYSAN, 10 ea SS/DD (Apple, etc.)	$ 40	$ 27
MAXELL, 10 ea, SS/DD, 3½"(MAC)	$ 60	$ 35
10 each, MD1, SS/DD	$ 55	$ 19
10 each, MD2, DS/DD	$ 75	$ 26
MEMOREX, 10 ea, SS/SD, 3½" (MAC)	$ 65	$ 37
VERBATIM, 10 each, MD515-01, SS/DD	$ 49	$ 27
10 each, MD34, DS/DD	$ 84	$ 32
10 each, 3½", SS/DD (MAC)	$ 65	$ 35

GENERIK™ DISKETTES AS LOW AS $1

W/Jackets, no labels, top quality. 90 day warranty

NO HASSLE MONEY BACK GUARANTEE ON GENERIKS

100 ea., SS/SD, 35 Track (Apple, Atari)	$ 415	$ 85
250 ea., SS/SD, 35 Track (Apple, Atari)	$1038	$ 229
1000 ea., SS/SD, 35 Track (Apple, Atari)	$4150	$ 750

MODEMS

HAYES, IBM-PC Smartmodem 1200B	$ 599	$ 409
IBM-PC Smartcom II Software	$ 149	$ 99
Micromodem IIe w/Smartcom	$ 329	$ 239
KENSINGTON, Modem 1200	$ 595	$ 385
NOVATION, 103/212 Smart Cat	$ 595	$ 415
SmartCat Plus w/software (MAC)	$ 499	$ 379
ACCESS 1-2-3 (1200B+Crosstalk XVI)	$ 595	$ 369
Apple Cat II 300 BAUD	$ 389	$ 249
212 Apple Cat, 1200 BAUD	$ 725	$ 559
Cat	$ 189	$ 139
J-Cat	$ 149	$ 104
212 Auto Cat	$ 695	$ 579
PROMETHEUS, ProModem 1200 (MAC)	$ 495	$ 350
ProModem 1200B (IBM)	$ 399	$ 289

MONITORS

★**AMDEK**, Color Series		
Color 300 Comp/Audio	$ 349	$ 259
Color 500 Comp/VCR/RGB/Audio	$ 525	$ 395
Color 600 Hi Res, RGB /Audio	$ 649	$ 495
Color 700 Ultra Hi Res, RGB	$ 749	$ 595
12" Green, #300G	$ 179	$ 119
12" Amber, #300A	$ 199	$ 149
12" Amber, #310A for IBM-PC	$ 230	$ 159
13", Color IV, RGB, 720Hx400V, (IBM)	$ 795	$ 685
★**ZENITH**, 12" Amber, ZVM122	$ 159	$ 95
12" Green, ZVM123	$ 200	$ 89
12" Amber, ZVM124	$ 200	$ 139
12" Color, ZVM135	$ 599	$ 469

PRINTERS

DOT MATRIX:

	LIST	OUR
EPSON, JX80—Color Printer, 160 cps		
LQ1500, 200 & 67 cps	$1395	InStock
RX80—100 cps	$ 269	InStock
RX80—F/T	$ 369	InStock
RX100—100 cps, 136 col., pin&fr.	$ 499	InStock
FX80—160 cps	$ 699	InStock
FX100—160 cps	$ 895	InStock
★**MANNESMANN** Spirit—80 col., 80cps	$ 399	$ 299
TALLY, 160—80 col., 160cps	$ 798	$ 568
180—132 col., 160cps	$1098	$ 778
OKIDATA, 82A—80 col., 120 cps, para.	$ 349	$ 319
83A—132 col., 120 cps, para.	$ 749	$ 599
84—136 col, 200 cps, para.	$1395	$1095
92—80 col., 160 cps, para.	$ 499	$ 399
93—136 col., 160 cps, para.	$ 799	$ 649
2410P—Pacemark, 350cps, para	$2995	$1995
★**STAR MIC.**, Gemini 10"X, 120cps, 18"	$ 499	$ 269
Gemini 15"X, 120cps, 15"	$ 549	$ 419
TOSHIBA,		
1340—144 cps (LQ) & 54 cps (DQ) NEW	$ 995	$ 795
1351—100 cps	$1895	$1375
TTX, TTXpress, portable/handheld, 40cps	$ 229	$ 129

LETTER QUALITY:

★**JUKI**, 6300—40cps, para	$ 995	$ 795
★**JUKI**, 6100—18cps, para, 3 pitch	$ 599	$ 449
★**TTX**, 1014—13cps, para. &Ser., pin &fnct, 3p.	$ 499	$ 365
1114—same as 1014 w/T/F, 2 col. &prop.	$ 599	$ 439

PRINTER INTERFACES & BUFFERS

	LIST	OUR
ARBO, IBM-PC to Para Printer Cable	$ 60	$ 30
EPSON, Parallel Interface for LQ1500	$ 100	$ 79
Serial Interface Board	$ 130	$ 105
MPC, Apple II /F & Cable for Epson & Gemini	$ 95	$ 59
OKIDATA, Plug 'n Play, Tractors, Okigraph, ea.	$ 50	$ 42
ORANGE MICRO, Grappler Plus for Apple	$ 149	$ 99
Buffered Grappler Plus, 16K	$ 239	$ 159
PRACTICAL, Microbuff In-Line 64K, para.	$ 349	$ 259
Microbuff In-Line 64K, ser.	$ 349	$ 259
STAR MICRO, Serial Interface & Cable	$ 92	$ 79

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	$ 60	$ 29
Lime	$ 90	$ 45
Orange	$ 140	$ 66
Peach	$ 98	$ 39
INNOVATIVE, Flip-n-File 10 (diskette holder)	$ 7	$ 4
Flip-n-File 50 (diskette holder)	$ 22	$ 15
Kensington, Masterpiece (IBM)	$ 140	$ 95
PC Saver™ Line Cord w/filter (IBM)	$ 50	$ 35
Remote Control (IBM)	$ 180	$ 115
System Saver Fan (Apple)	$ 90	$ 69
NETWORX, Wiretree, 4 outlet, w/filter & surge	$ 70	$ 35
PERFECT DATA, Head Cleaning Kit	$ 16	$ 12

ORDERING INFORMATION AND TERMS: **MAIL TO: 12060 SW Garden Place, Portland, OR 97223** —— include your telephone number, double 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—we immediately honor. Personal and other company checks—allow 20 days to clear. Prices reflect 3% cash discount; so ADD 3% to above prices for VISA, MasterCard or American Express. Add **SIH CHARGES:** U.S. Mainland, 3% ($5 minimum) for standard UPS ground; UPS Blue, 6% ($10 minimum); for U.S. Postal, APO or FPO, 12% ($15 minimum). Hawaii—UPS Blue. For Alaska or Canada—UPS in some areas only, all others Postal—call or write, or specify Postal. Foreign orders except Canada, 18% ($25 minimum). Monitors by Postal or to foreign countries, 30% ($50 minimum). Orders received with insufficient SIH charges 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.** Call before returning goods for repair or replacement. **ORDER DESK HOURS—6AM to 6PM PST, Monday through Friday, Saturday 10 to 4.** (6AM here is 9AM in New York.)

OUR REFERENCES: We have been in computers and electronics since 1958, a computer dealer since 1978 and in computer mail order since 1980. Banks: 1st Interstate Bank, (503) 643-4678. We belong to the Chamber of Commerce (503) 228-9411, and Direct Marketing Association or call Dunn and Bradstreet if you are a subscriber. EconoRAM™, Fastrak™, and Generik™ are trademarks of ComX Corporation. PC MasterCard™ and SofRAM™ are trademarks of Magnum Computer.

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.**

CREDIT CARD APPLICATION FORM

Please send me a Conroy-LaPointe credit card application form. I understand there is no 3% charge on Conroy-LaPointe credit card purchases. Minimum initial purchase is $400. **# NN14**

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

NAME _____

ADDRESS _____

CITY _____ STATE ____ ZIP ____

OUR AD #NN14

MasterCard VISA American Express Card

MEMBER Direct Marketing Association

NO SALES TAX

National Order Desk **TOLL FREE (800) 547-1289**

OREGON ONLY (800) 451-5151

Foreign & Portland (503) 620-9877

HOT LINE Information on your order (503) 620-9878 WEEKDAYS ONLY

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

Announcing the only big computer show devoted entirely to one little computer.

If you own, lease, sell, distribute, service, use or are thinking of buying a Macintosh, this show is a must!

If any new entry in the personal computer field deserves a show of its own, it's the amazing Macintosh™ from Apple® Computer. This is the little box of dynamite that's turning both the business and home computer markets upside down. And now there's an exciting three-day show where you can learn everything there is to know about the Macintosh—Macworld Exposition, sponsored by Macworld Magazine.

Get your hands on a Mac!

At the Macworld Expo, there'll be literally hundreds of Mac's on the floor for users or potential users to work with. Take them for a test drive. Compare them with other computers you may use. Test the Mac's peripherals and software against the competition. The Macworld Expo is a genuine "hands-on festival."

Get the latest Mac market info!

This is the first and only conference program that will bring you in contact with the people who best understand the far-reaching effects the Macintosh will have in business, schools and at home. We'll feature up-to-the-minute topics about the Mac, its peripherals, software and applications. Software experts will be on hand at our free software clinic to guide users to the right programs. Plus, there'll be scores of exhibitors demonstrating Mac-related products.

Get your tickets early!

Because the Macworld Exposition is the very first Mac-specific show ever, excitement is building fast! Watch this magazine and your local papers for special admission coupons and complete show information. And join us February 21-23 in San Francisco!

SPONSORED BY
MACWORLD MAGAZINE
BROOKS HALL
SAN FRANCISCO
FEBRUARY 21-23, 1985

MACWORLD EXPOSITION®
SAN FRANCISCO

The Macworld Exposition is produced by World Expo Co. and managed by Mitch Hall Associates. For further information, call Mitch Hall Associates at 617-329-7466 or 617-329-8091. Macworld Exposition is a registered trademark of World Expo Co., Inc. ™ signifies company's trademark ® signifies company's registered trademark.

Strings 'n' Things

Computer graphics have been among the major attractions of microcomputers since their first appearance. They enhance most games and many business and educational programs. Yet all too often enhanced display techniques for text are completely overlooked.

BASIC provides numerous string functions you can use to manipulate text in intriguing ways. This month I will describe these string functions and present some short algorithms and sample programs for making your text screens "come alive."

Dividing Strings

Applesoft BASIC provides three functions that divide a string into blocks of characters: LEFT$( ), RIGHT$( ), and MID$( ). As with most BASIC functions, the parentheses enclose one or more variables or constants, called arguments, that identify the string the function is to work on.

LEFT$( ) copies a specified number of characters from the left end of the object string. For example, the following program will copy the first eight characters from the beginning of the object string, A$, assign those characters to B$, and display GEORGE W on the screen:

```
10 A$ = "GEORGE WASHINGTON
   CARVER"
20 B$ = LEFT$( A$, 8)
30 PRINT B$
```

Line 20 demonstrates the syntax for the LEFT$( ) function. Note the two arguments, separated by a comma. The first argument, which must be a string variable or constant, identifies the string to be operated on. The second argument—a number, numeric variable, or expression that evaluates to a numeric result—tells just how many characters to copy out, starting at the left. You could read line 20 as, "Copy the leftmost eight characters from A$ and assign them to B$."

The RIGHT$( ) function works the same way, but at the opposite end of the object string. It also requires two

Listing 1. *String Search Subroutine. Lines 5500–5530 in this program illustrate the use of the string search subroutine. The subroutine requires that the object string be assigned to ZZ$ and the substring to Z$. The subroutine returns J, the character count from the start of the object string to the first character of the substring.*

```
1  REM  A DEMONSTRATION OF THE
2  REM  SUBSTRING SEARCH ROUTINE
10  HOME :CT = 0:J = 0
20  INPUT "ENTER ANY STRING OF CHARACTERS.....";A
    $
30  PRINT : PRINT "NOW ENTER THE SUBSTRING THAT YOU WI
    SH"
40  INPUT "TO SEARCH FOR...";B$
50 ZZ$ = A$:Z$ = B$
60  GOSUB 5500
70  IF Z = 0 AND CT = 0 THEN  PRINT B$" IS NOT IN ": PRINT
    A$".": GOTO 190
80  IF Z = 0 THEN 190
90 CT = CT + 1:J = J + Z
100  PRINT "OCCURRENCE # "CT" OF "B$" IN"
110  PRINT "    "A$
120  PRINT "    BEGINS AT CHARACTER "J".": PRINT
130  IF ( LEN (ZZ$) - Z) <  LEN (Z$) THEN 190
140  INPUT "PRESS <RETURN> TO CONTINUE...";X$: PRINT
150 ZZ$ =  RIGHT$ (ZZ$, LEN (ZZ$) - Z)
160  GOTO 60
190  END
5491  REM  **********************
5492  REM   SUBSTRING SEARCH
5493  REM      ROUTINE; REQUIRES
5494  REM      OBJECT STRING ZZ$
5495  REM       SEARCH STRING Z$
5496  REM       USES I INTERNALLY
5497  REM       RETURNS Z, THE
5498  REM       LOCATION OF Z$
5499  REM       IN ZZ$.
5500 Z = 0: IF  LEN (Z$) = 0 THEN Z$ = " "
5510  FOR I = 1 TO  LEN (ZZ$)
5520  IF  MID$ (ZZ$,I, LEN (Z$)) = Z$ THEN Z = I:I =  LEN
    (ZZ$)
5530  NEXT I: RETURN
```

by Dan Bishop

arguments, the string being operated on and the number of characters to be copied. The character count begins at the far right. Add the following lines to the three you already have and rerun the program:

```
40 C$ = RIGHT$( A$, 8)
50 PRINT C$
60 PRINT A$
```

Line 50 will display N CARVER. Note that blank spaces within the string are included in the character count. Line 40 could be read, "Copy the eight rightmost characters from A$ and assign them to C$." I included line 60 to demonstrate that the value of A$ is still intact, even after the two copying operations.

By now you have probably guessed that the MID$( ) function copies characters from the middle of a string. MID$( ) requires three arguments, a string and two numeric expressions, all separated by commas. The first number tells the computer where to begin copying characters (counting from the left), and the second number specifies the number of characters to be copied. So if you add:

```
70 D$ = MID$( A$, 8, 4)
80 PRINT D$
```

to the previous program lines, line 80 will display WASH.

Searching for Substrings

MID$( ) enables you to search through a given string for a specific character or group of characters, or substring. Some BASICs have a special function, INSTR( ), for this, but Applesoft does not. You can, however, duplicate INSTR( ) by using MID$( ) within a loop if you know the lengths of the object string and search string.

This is possible because Applesoft does include the BASIC LEN( ) function that determines the length of a string. Only one argument is needed with LEN( ), the string whose length you wish to determine. Add lines 90 and 100 to your developing program:

```
90 L = LEN(A$)
100 PRINT L
```

When you run the program now, the number 24, the total number of characters (including spaces) in A$, will appear on the screen.

Listing 1 demonstrates the algorithm needed to duplicate the INSTR( ) function of other BASICs. Lines 5500 to 5530 search for the first occurrence of the given character or substring in the object string and return a number, Z, that corresponds to the character count from the beginning of the object string to the first character of the substring. If a matching character is not found, Z returns a value of zero.

To use the string search subroutine, you must assign the object string to ZZ$ and the substring to Z$. Then type GOSUB 5500. Line 5500 tests to see if Z$ has a value. If not, it is automatically assigned a single blank space, and the subroutine returns the location of the first blank space in the object string.

Listing 1 uses the subroutine again after each find in order to search for further occurrences of the substring. To make this possible, each time through, the RIGHT$( ) function in line 120 assigns the unsearched portion of the object string to ZZ$. All the while, CT maintains a count of the number of times the substring is found in the object string.

Listing 2 is a simple subroutine that uses these functions to reverse

Circle 361 on Reader Service card.

THE ULTIMATE APPLE BACKUP UTILITIES

COPY II PLUS

This is the most widely used backup program for the Apple and was rated as "one of the best buys of the year" by Incider Magazine. Its simple menu puts nearly every disk command at your fingertips. The manual with more than 70 pages, describes protection schemes, and our Backup Book™ lists simple instructions for backing up over 300 popular programs. The Backup Book is up-dated quarterly and available to COPY II PLUS owners for only $3.00. Best of all—COPY II PLUS is still only . . .

$39.95
(Plus $3 Shipping & Handling)

WILDCARD 2

WILDCARD 2 was recently said to be "the simplest to use of all copycards" by Peelings II Magazine. Making backups of your total load software is as easy as pressing the button, inserting a blank disk, and hitting the return key twice. WILDCARD 2 copies 48K, 64K, 128K software, and unlike other cards is always ready to go. No preloading software into the card or special, preformatted disks are required. Your backups can be run with or without the card in place and can be transcribed to hard disks.

ONLY
$139.95
(Plus $3 Shipping & Handling)

Available at your local dealer or direct from:

CENTRAL POINT Software, Inc.

9700 S.W. Capitol Highway, #100/Portland, OR 97219
(503) 244-5782 MasterCard VISA **WELCOME**
(Prepayment Required)

Backup Utilities Also Available For
IBM PC, MACINTOSH, and COMMODORE 64

These products are provided for the purpose of enabling you to make archival backups only.

the order of words in a string. The string, N$, must contain two words separated by a blank space (such as a first and last name). The subroutine loops through the string from right to left to locate the blank space before the last word. It then assigns the two separate words to AN$ and BN$ and recombines them into NM$. They end up in reverse order, separated by a comma. Because most applications that involve sorting records by name work by last name, transposing N$ into NM$ can be a useful operation.

Listing 3 takes a string, assigned to ZZ$, and displays it on the screen as a horizontally scrolling message. The message appears at the right edge of the screen and scrolls across on a single line. The effect is similar to a news marquee on a city building.

Positioning Text

Applesoft BASIC gives you complete control over where a text display appears on the screen. As you know, HOME places the cursor in the upper-left corner of the screen. A PRINT command displays text and produces an automatic line feed. If the printed text is already on the bottom line of the screen, the whole display scrolls up, with the top line disappearing from view.

Sometimes you may not want an automatic line feed. In those cases, if you make the last character in the PRINT statement a semicolon, Applesoft will not issue a line feed and the next PRINT statement will begin printing on the same line.

You can use the HTAB and VTAB functions to pinpoint a position on the screen for printing to begin. Imagine the screen as a grid of 40 columns and 24 rows. To center the phrase HI THERE by beginning it at row 12, column 16, you could use the following command:

```
HTAB 16: VTAB 12: PRINT "HI THERE";
```

Not only will the phrase appear in the middle, but any other text already in row 12 will remain unchanged.

You can use the VTAB function as a one-line subroutine to erase a row of text on the screen. Set V equal to the line number (from 1 to 24) you want erased and issue a GOSUB command to a line containing the following:

```
VTAB V:HTAB 1:PRINT SPC(40);:
  RETURN
```

"Windowing capability has been designed into your Apple."

A variation on this subroutine appears in **Listing 3**, which will blank out any block on the screen, leaving text surrounding the block untouched. Your program must assign values to four variables before using the subroutine. RS and RN are the starting row and number of rows for the block to be cleared, while CS and CN are the starting column and number of columns to be cleared.

The subroutine checks to be sure that the HTAB and VTAB values assigned by the subroutine are allowed values. VTAB may range from 1 to 24, HTAB from 0 to 255 (with 0 interpreted as 266). However, for meaningful application only values between 1 and 40 are acceptable.

Circle 163 on Reader Service card.

FREE! SHIPPING

YOUR APPLE NEEDS WORK FORCE II. T.M.

A collection of 6 new ultra-friendly programs.

1. **THE LOAN ANALYZER:** Compute loan and mortgage amortizations, balloon payments, total interest paid, daily percentage rates, and periodic payment amounts. 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. Easy to use 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, monthly, and annually. Calculate increases or decreases by amount or percent. Printout provides a great way to present pay raises to employees.

"I found the programs a joy of ease, completely understandable and with a price that is hard to resist. Most families with an Apple (II, II+, IIe, IIc, III) should make this part of their personal library. It could be a valuable, indispensible tool at your (and my) level of finance.
B.R. Cursor
The San Francisco Independent
July 4th, 1984

"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..."
Gregg Glau
InCider
June 1984

Compatible with Apple IIc, IIe, II+, II and III (in emulation mode).

ALL ORDERS SHIPPED IMMEDIATELY

ALL SIX ONLY $34.95

Copyable
Listable
Affordable
Insist on it!

Apple is the trademark of Apple Computers Inc.

☐ Please send me WORK FORCE II at $34.95.
☐ check or money order. ☐ VISA ☐ MC ☐ AE ☐ COD (add $3.00 for COD)
Arizona residents add 6% Sales Tax. Oversea's add $4.00.

Card # _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Signature _____ Valid From____ to____

Name _____ Phone_____

Address_____

City/State/Zip _____

Core Concepts
P.O. Box 24157 Tempe, AZ 85282
(602) 968-3756
DEALER INQUIRIES INVITED

Listing 2. *Name Reversal. This program accepts a "first-name last-name" string combination as N$ and produces NM$ for the reverse, "last-name, first-name", format. It also produces AN$ and BN$, containing only the first name and the last name from N$, respectively.*

```
1  REM  A USEFUL APPLICATION
2  REM  OF STRING FUNCTIONS
3  REM  TO SEPARATE FIRST &
4  REM  LAST NAME INPUT N$
5  REM  INTO FIRST NAME AN$
6  REM  LAST NAME BN$,
7  REM  AND REVERSE ORDER NM$
10  HOME
20  PRINT "PLEASE ENTER YOUR FIRST AND LAST NAME:"
30  INPUT "AND PRESS <RETURN>. ";N$
40  GOSUB 2000
50  PRINT
60  PRINT "I'M HAPPY TO MEET YOU, "AN$"!"
70  PRINT "I KNEW A "BN$" IN CHICAGO ONCE."
80  PRINT
90  PRINT "YOUR NAME IS BEING FILED UNDER "
100  PRINT "     "NM$" ."
110  END
2000 J = 0: FOR I =  LEN (N$) TO 1 STEP  - 1
2010  IF  MID$ (N$,I,1) = " " THEN J =  LEN (N$) - I +
     1:I = 1
2020  NEXT I
2030  IF J = 0 THEN AN$ = N$:BN$ = N$:NM$ = N$: GOTO 2
     070
2040 AN$ =  LEFT$ (N$, LEN (N$) - J)
2050 BN$ =  RIGHT$ (N$,J - 1)
2060 NM$ = BN$ + ", " + AN$
2070  RETURN
```

Listing 3. *Horizontal Scrolling Line Display. The subroutine in this program accepts any message line as ZZ$ and displays the line in a horizontal scrolling format, running right to left across the screen.*

```
1  REM  HORIZONTAL SCROLLING
2  REM  LINE DISPLAY
10  HOME
20  PRINT "ENTER YOUR MESSAGE LINE..."
30  INPUT A$
40  PRINT
50  PRINT "WHAT DISPLAY LINE DO YOU WISH TO USE?"
60  INPUT "(1 - 24)...";Z
70  HOME :ZZ$ = A$: GOSUB 5600
80  END
5591  REM  SCROLLING MESSAGE
5592  REM  SUBROUTINE.  DISPLAYS
5593  REM  ZZ$ ON LINE Z
5594  REM  AS A MESSAGE STRIP
5595  REM  SCROLLING FROM RIGHT
5596  REM  TO LEFT AND OFF.
5600 H = 1: VTAB Z
5610 ZZ$ = ZZ$ + "
          ": REM  40 BLANKS ADDED
5620  FOR J = 1 TO  LEN (ZZ$)
5630  HTAB 40 - H
5640  PRINT  MID$ (ZZ$,J - H + 1,H);
5650 H = H + 1: IF H > 39 THEN H = 39
5660  HTAB 1
5670  FOR I = 1 TO 100: NEXT I
5680  NEXT J
5690  RETURN
```

There are times when you will need to move the cursor (and thus the next print position) a certain number of columns or rows from its present position. If you know, as you are writing the program, what the point of origin will be, just specify an HTAB and VTAB to the desired location. If the cursor's position is not known beforehand, you can incorporate PEEK commands into your program to determine its position. The command CR = PEEK(37) + 1 will determine the row number, and CC = PEEK(36) + 1 will determine the column number, because RAM locations 36 and 37 contain the cursor's row and column locations, respectively. (The 1 is added since the values in memory reference a 0–39 column and 0–23 row screen.) Now, to move down three rows and left 10 columns, you could use the following line in your program:

```
VTAB CR + 3: HTAB CC - 10
```

Be sure that the numeric expressions will evaluate to allowed values for the VTAB and HTAB functions.

Text Windows

There is currently much enthusiasm about "windows," the superimposition of portions of screens on each other. Some degree of windowing capability, accessible through Applesoft, has been designed into your Apple, though it isn't often referred to or used.

The window is the "active" area of the display. When you first turn your computer on, the window is identical with the full screen, having a left margin of 0, display width of 40, top margin of 0, and bottom margin of 23. These values are stored in the computer's memory at locations 32, 33, 34, and 35, respectively. These values can be changed by POKEing acceptable alternatives into the memory locations.

Use care to assign only acceptable values to these locations. For example, the left margin should be no larger than 39, the bottom margin shouldn't exceed 23, the top margin should always be less than the bottom, the width should lie between 1 and 40, and the sum of the left margin value plus the print width should not exceed 40.

When you set a window, HOME drives the cursor to the upper-left corner of the window and clears the area specified, leaving the rest of the screen unchanged. PRINT commands dis-

play, wrap, and scroll information only within the window.

HTAB also functions only within the window. If you set a left margin of six screen columns, screen column 7 becomes column 1 in the window.

VTAB, however, always uses the full screen for reference. If you use POKE 34, 12 and POKE 35, 18 to set top and bottom margins to rows 13 and 19, respectively, then be sure to keep VTAB commands between 14 and 18 to stay within the defined window.

You can make a title print down the left edge of the screen by defining a text window with a left margin of 0 and a width of 1. Then type HOME and print your title. The window width will allow only a single character on each line, so automatic wraparound will print your title in a vertical bar. Then set the left margin to 3 and print width to 38 to create a new window for printing text. **Listing 4** contains an example of this technique.

Special Effects

Your Apple has two built-in switches, accessible through Applesoft, for displaying text in modes other than the normal green on black. One is triggered by typing FLASH, and blinks every character on and off. To cancel the flashing, type either NORMAL or INVERSE.

The other switch, triggered by typing INVERSE, displays every character in black on a green background. To cancel the inverse mode, type NORMAL or FLASH. Although some people like to work with entire displays in inverse mode (usually referred to as "reverse video"), I feel the increased glare makes eye fatigue more of a problem.

These special effects can be used in imaginative ways to heighten the appearance of any display. For example, suppose a line in a program menu read:

```
A  ADD NEW CLIENT TO FILE
```

where A is the key to be pressed to make that selection. Now suppose you want A to flash, ADD to be inversed, and the remainder of the line to be normal. The following lines would do the trick:

```
FLASH:PRINT"A";
INVERSE:PRINT" ADD";
NORMAL:PRINT" NEW CLIENT
   TO FILE."
```

For frequent use, you could define a subroutine that would automatically set up the flashing, inverse, and normal pattern. Such a subroutine would look like this:

```
5599 REM MENU DISPLAY SUBROUTINE
5600 FLASH:PRINT LEFT$(MD$,1);
5610 INVERSE:PRINT MID$(MD$,2,MD);
5620 NORMAL:PRINT MID$(MD$,MD + 2)
5630 RETURN
```

The string value is assigned to MD$, and the number of characters at the beginning of the string to be inversed is assigned to MD. A GOSUB 5600 in the program will display the line as specified. Note that the MID$( ) function in line 5620 uses only one numeric argument. In such cases the computer automatically displays all the rest of the string.

With the INVERSE function, you can draw horizontal lines and vertical bars on your screen by merely printing blank spaces in reverse video. For example:

```
VTAB 10:INVERSE:PRINT SPC(40);:
   NORMAL
```

will display a horizontal bar across the screen at row 10.

Conclusion

The functions described in this column represent only a few examples of the Applesoft text display techniques available to you. Experiment to discover the variety of possibilities and to learn how to use them effectively in your programs. ■

Write to Dan Bishop at Custom Comp, P.O. Box 429, Buena Vista, CO 81211.

Listing 4. *Displaying a Vertical Message. The title line in this short program is displayed vertically by PRINTing it in a one-column window. The text is then displayed in a new window that leaves the title line in the margin.*

```
1  REM  USE OF WIDOWS TO SETUP
2  REM  A VERTICAL PRINT BAR
10  HOME
20  POKE 32,0: POKE 33,1
25  INVERSE
30  PRINT "THE GETTYSBURG ADDRESS"
40  POKE 32,39
50  PRINT "  BY ABRAHAM LINCOLN"
60  POKE 32,3: POKE 33,36
65  HOME : NORMAL
70  FOR I = 1 TO 23
80  PRINT "FOUR SCORE AND SEVEN YEARS AGO, OUR"
90  NEXT I
100  POKE 34,8: POKE 35,16
110  HOME : INVERSE
120  FOR I = 1 TO 8
130  PRINT " OUR FATHERS BROUGHT FORTH ON THIS "
140  NEXT I
200  POKE 34,10: POKE 35,13
210  HOME : FLASH
220  FOR I = 1 TO 3
230  PRINT "       CONTINENT A NEW NATION       "
240  NEXT I
250  NORMAL
260  POKE 32,0: POKE 33,40
270  POKE 34,0: POKE 35,23
280  GOTO 280
```

Circle 56 on Reader Service card.

AMPERGRAPH

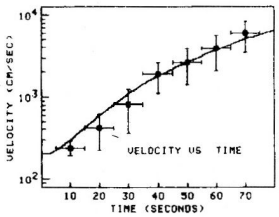
AMPERGRAPH is a powerful, easy-to-use relocatable graphics utility for the Apple II +/e/c. AMPERGRAPH adds twenty-two Applesoft commands that allow effortless generation of professional-looking plots of scientific or financial data. All of the necessary scaling and screen formatting is accomplished with just a few, simple Applesoft lines.

Unlike most other plotting systems for the Apple II which are stand-alone systems, the AMPERGRAPH utility provides extended BASIC graphics language macros that you can use directly in your own Applesoft programs. The additional commands are &SCALE, &LIMIT, &AXES, &GRID, &FRAME, &LOG X, &LOG Y, &LABEL AXES, &LABEL, &VLABEL, &CENTER LABEL, &CENTER VLABEL, &DRAW, &PENUP, &CROSS, &OPEN SQUARE, &CLOSED SQUARE, &OPEN CIRCLE, &CLOSED CIRCLE, &ERROR BARS, &DUMP (to dump the graph on a Silentype printer) and &*DUMP (to link with AMERDUMP, see below).

$45.00

SAMPLE AMPERGRAPH PROGRAM LISTING:

```
10 &SCALE, 0, 80, 80, 13000
15 LX$ = "TIME (SECONDS)":LY$ = "VELOCITY
   (CM/SEC)"
20 &LOG Y: &LABEL AXES, 10, 10
25 LABEL$ = "VELOCITY VS. TIME":&LABEL, 30,
   200
30 FOR T = 0 TO 80:&DRAW, T, 150 + T12:NEXT T
35 FOR T = 10 TO 70 STEP 10
40 &CLOSED SQUARE, T,
   (150 + T12)*(.8 + .4*RND(3) )
45 &ERROR BARS, 5, T12/2
50 NEXT T:&DUMP
```



AMPERDUMP

AMPERDUMP is a high-resolution graphics dump utility which can be used either in menu-driven mode, or directly from your Applesoft program, with, or without AMPERGRAPH. The following printers will work with AMPERDUMP: Apple Dot Matrix, Imagewriter; Epson; Gemini; NEC PC-8023A-C; C. Itoh 1550, 8510A/B, 8600; Toshiba 1340, 1350. AMPERDUMP offers many features which are not available in other graphics dump routines:

* Horizontal magnifications: 3 to 12, depending on printer.
* Vertical magnifications: 2 to 9, depending on printer.
* Horizontal and vertical magnifications can be specified independently.
* Normal / Inverse dumps
* Fast
* Adjustable horizontal tab
* Easy to use
* Compatible with AMPERGRAPH
* Relocatable

$40.00

The AMPERGRAPH and AMPERDUMP graphics utilities require an Apple II +/e/c. The AMPERDUMP utility requires one of the following interface cards: Epson, Apple, Grappler, Interactive Structures, Mountain Computer, Epson Type2, Tymac, or Microbuffer II, Tackler, Microtek, Printerlink, Super Serial.

AMPERGRAPH and AMPERDUMP are available from your dealer or order direct. Include $2.00 for shipping and handling; Wisconsin residents add 5% sales tax.

madWest SOFTWARE
2014 Chamberlain Ave.
Madison, WI 53705
MasterCard 608-238-4875 VISA

Corrections

In "Build a Better MousePaint" (December 1984), the line descriptions for lines 180–380 and lines 500–550 of the Table on page 71 were reversed.

The final sequence of line 200 in the "Grape Gobbler" (August 1984) Program listing on page 70 should read (KY% = 218 AND HP% = 135 AND VP = 144).

In "The Compleat Text File Primer, Part 7," the Program listing beginning on page 82 is missing two embedded control-D commands. Lines 2050 and 12740 should read:

```
2050 PRINT CHR$(4)"MAXFILES 1"
12740 PRINT CHR$(1) CHR$(13)
        D$"CLOSE"
```

Michael Seeds has some changes for people who want to run a couple of his Child's Play programs with ProDOS instead of DOS 3.3. For "Kidword" (October 1984) modify the statements that transfer output to and from the printer. To do this, add the following lines to the Program listing on page 32:

```
40049 S = 1
40179 S = 0
```

and change the following lines:

```
40050 PRINT CHR$(4)"PR#";S
40180 PRINT CHR$(4)"PR#";S
```

"Dino Math" (November 1984) also requires modification to run under ProDOS. In the article, you're advised to save the shape table under SHAPE:DINO. While this is fine for DOS 3.3, it's an illegal filename under ProDOS which doesn't permit a colon in the pathname. With ProDOS, save the shape table on page 34 as SHAPE.DINO and change line 550 in the Applesoft listing on page 33 to:

```
550 PRINT CHR$(4);"BLOAD
      SHAPE.DINO"
```

Because of ProDOS' increasing popularity, we've directed our authors to make sure their programs run under both DOS and ProDOS.

It has been brought to our attention that an article in our October 1984 issue and two articles in our November 1984 issue made improper reference to the trademark DUNGEONS & DRAGONS. Please note that DUNGEONS & DRAGONS is a federally registered trademark owned by TSR, Inc.

"A Bug in AppleWorks" (November 1984, p. 109) contains an error in the last paragraph. The terms "escape, control-A" and "escape, control-@" are incorrect and should read "escape – control-A" and "escape – control-@." Hit the escape key, followed by the minus sign. Then hold down the control key and press the A or @ key.

Circle 281 on Reader Service card.

TERMEXEL

"TermExec does a lot for the money." InCider

A total communications resource, TermExec lets you talk with any other phone-accessible computer...mainframes, information services, or micro-based Bulletin Board systems.

A lot for $95.00 with our money-back guarantee. American Express, Visa & Mastercard accepted. Write or call today for more information and our free brochure.

Quinsept, Inc.
P. O. Box 216, Dept. IC
Lexington, MA 02173 / (617) 641-2930
Bulletin Board (617) 863-0282

ASK INCIDER

Send your questions about Apples or Apple computing to Ask inCider, *80 Pine Street, Peterborough, NH 03458.*

Sounds of Silence

Dear *inCider*:

I bought an Apple //c last month and I've been trying to do some programming. I've hit only one snag—sounds. I've looked in all kinds of books and magazines on how to make sounds with the Apple, but I've come up empty. Can you help me out?

Shawn Keith
3919 Colbrook Road
Anderson, IN 46011

Dear Shawn:

Your Apple can only make one sound. To hear it, run the program:

```
10 X = PEEK(-16336)
```

That little click you hear isn't much to listen to, but it's the basis of all Apple sounds. Other sounds on the Apple, except those created with add-on synthesizer boards, are generated by clicking the speaker at different rates and durations. To hear how a sound is built from the basic click, add this line to your program:

```
20 GOTO 10
```

This isn't much, but it demonstrates what you can do with the basic click. We've published sound generating programs in inCider. *Check Fudge It! (September 1984, p. 109) for some wild sounds you can use in your own programs.* inCider *also ran music generation programs in February, July, and December 1984. You can learn a lot from seeing how other people generate sounds on the Apple.*

Don't give up on programming books. Most contain at least a short section on producing Apple sounds.

Dynabook

Dear *inCider*:

A while ago, I read that computers like my Apple //e could possibly retrieve information from an encyclopedia found on a disk. Can you tell me how I can take advantage of this?

Nelson Chou
16549 Sioux Lane
Gaithersburg, MD 20878

Dear Nelson:

The technology you describe involves using a laser disk that can store gigabytes (billions of bytes) of memory on a single platter. These disks can store volumes of information and make it available quickly. Don't look for this technology in the near future, but when it comes, it'll revolutionize personal computing.

Rounding Runaround

Dear *inCider*:

I write interactive programs for my chemistry classes and have come across an interesting problem with Applesoft. Let me illustrate with the following program:

```
 5 HOME
10 INPUT "A = ";A
20 INPUT "B = ";B
30 INPUT "C = ";C
40 IF C = A - B THEN GOTO 70
50 PRINT "A = ";A,"B = ";B,"C = ";C
60 PRINT "A - B <>";A - B: GOTO 80
70 PRINT "A - B = C"
80 END
```

If I enter A = 4, B = 2, and C = 2, the statement at line 40 sends control to line 70, as it should. The problem comes with some decimal values. When I enter A = .56, B = .45, and C = .11, the program doesn't jump to line 70. Instead, it executes lines 50 and 60 and prints a value of .11 for the expression A - B!

I get around this problem by using line 40:

```
40 IF ABS (C - A + B) < .0001 THEN
   GOTO 70
```

My fix works, but could you tell me what is there in the Apple II series that causes this violation of logic?

William Simonsen
2304 Barrington Woods Road
Palatine, IL 60074

Dear William:

The problem you describe isn't specific to Apple computers but is endemic to computing. Computers work in base 2, while humans work in base 10. When you enter a base 10 number, the computer translates it into the base 2 equivalent. The problem is that there isn't always an equivalence between base 10 and base 2. Some rational base 10 numbers don't have a rational base 2 counterpart, so the computer translates the number into a base 2 value that approximates the original base 10 value.

In your example, one of the decimal values didn't translate directly into a base 2 equivalent. Consequently, the statement in line 40 detected that .11 wasn't exactly equivalent to the base 2 difference between .56 and .45 and didn't jump to line 70. The reason that .11 was printed in line 60 is that the Apple works with greater precision internally than with its output. In effect, Applesoft rounded off the answer to .11 when it output A - B. Internally, the number is slightly different from .11.

Your fix is a common one. The number of decimal places you use in your fudge factor (.0001) determines the precision of your result.

In Search Of. . .

Dear *inCider*:

I saw a program called Disk Library that keeps track of disks. It was copyrighted in 1981 by Modular Media. I can't find a distributor for this program or the address of Modular Media. Can you help me?

Joe M. Norwood
3044 Kushton Drive
Windsor, Ontario
Canada N8K 1M4

Dear Joe:

Sorry, Joe, but I came up empty. If any reader knows the whereabouts of Modular Media, please drop me a line.

by Bob Ryan, inCider staff

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!

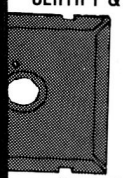
- LOCKS OUT ProDOS & DOS 3.3 FLAWS
- SAVES STATUS REPORT ONTO DISK
- AUTOMATIC ProDOS/ 3.3 FORMATTING
- CREATE 40 trk DISKS & SYSTEM MASTER
- RECORDS TEST DATE onto disk
- NOT COPYPROTECTED

FREE CERTIFIX BONUS PROGRAMS

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

Prevent Data Loss!

CERTIFY & FIX every disk with CERTIFIX!

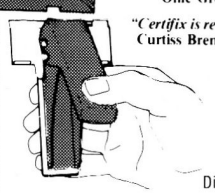


"I'll be using (Certifix) many times. Everyone should have one..."
Carl Costa - Hayward, CA

"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

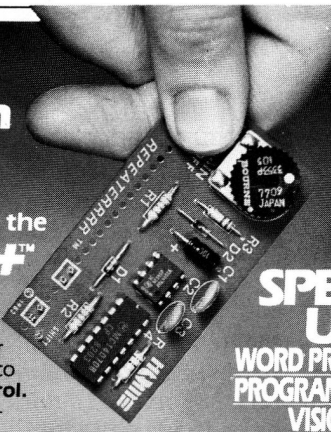
1-800-227-3800

24 Hours a Day
Orders only
Ext. 30
Dealers Invited

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

Circle 229 on Reader Service card.

UPGRADE
get *IIe* features on your apple II



up to 5 keyboard features with the
REPEATERRRR+™

Auto Repeat: Invaluable. Repeats any keypress, including control characters for scrolling, rubout, etc. **Adjustable delay** to match your typing touch. **ON/OFF control.**

High Speed Cursor: Makes Apple's REPT key a speed control to double the repeat rate of any keypress. Zip through text or across a VisiCalc spreadsheet to get there fast. A must for 80 column displays.

New option for the REPEATERRRR:
SHIFT-key Modification: SHIFT as you should. Get the "standardized" connection (SHIFT-key to Game I/O) while leaving the Game I/O open with our plug-in connector. Supported by most popular word processors (Apple Writer II, Word Handler, Screen Writer II, etc.) and many other programs. Works only with certain software and/or most 80 column boards.

Easy installation. Open top and plug onto 25-pin connector between keyboard and encoder board (fits Rev .7 or later).

REPEATERRRR
without SHIFT-key modification **$27.95**

REPEATERRRR+
with SHIFT-key modification **$37.95**

SPEED UP
WORD PROCESSING
PROGRAM EDITING
VISICALC

TO ORDER: Ask your local dealer or order direct.

Add $2 per order shipping/handling ($5 foreign). Ohio orders add 6.5% sales tax. Check, MasterCard VISA (incl. card no. & exp. date). 30 day trial — full refund if not satisfied. One year warranty.

HOME
HIGH ORDER MICRO ELECTRONICS CORP.
17 RIVER ST. CHAGRIN FALLS OHIO 44022
PHONE 216-247-3110

Trademarks: Apple/Apple Computer, Inc., Screen Writer II/Sierra On-Line, Inc., Word Handler/Silicon Valley Systems Inc., VisiCalc/VisiCorp.

CLASSIFIEDS

CLASSIFIED INFORMATION

Reach more than 110,000 Apple owners with an **inCider** classified ad.

Sections include:

- Entertainment • Education
- Home Productivity • Business
- Utilities • Hardware • Books
- Services • Wanted • Trade or Swap

Personal ads, **$50** (10 lines) per issue; commercial ads, **$100** per issue (minimum 3 issues). **Pre-payment only.**
Ad includes a bold lead line, 10 lines of copy including company name, address, and phone number. **$15** for additional lines; **$75** additional for company logo.
Send typewritten copy with instructions to:

inCider Classifieds
CW Communications/Peterborough
Rte. 101 and Elm Street
Peterborough, NH 03458
Or call: Michele Gilmore
1-800-441-4403

inCider

In the Driver's Seat

If you're a Visiplot devotee who needs plots of different sizes, this printer driver is the one for you. MENU VP.DRIVER works with any smart graphics interface card that uses control-I G sequence to initiate a graphics dump. A menu within Visiplot selects printer options. The program was tested with the Grappler, Microbuffer, and Graphitti interface cards.

Follow these steps to install MENU VP.DRIVER and see the Visiplot manual's appendix for renaming instructions:

1) Rename VISIPLOT.DRIVER using the DOS rename command so you can keep your current printer driver.
2) Put a copy of MENU VP.DRIVER on the Visiplot program disk using the System Master FID program.
3) Use the DOS rename command to rename MENU VP.DRIVER to VISIPLOT.DRIVER, as in step 1.

Visiplot runs as usual until you're ready to print a plot. After you enter the printer slot, the driver menu will replace Visiplot's normal menu. Refer to the **Table** for a list of the available options.

Once the plot has been printed, the printer driver returns to the Visiplot menu. With this menu driver, you can select different printer options and never leave Visiplot to install a new driver. Note that not all printer-interface card combinations will print an emphasized plot. If you have the Graphitti card, you must press the escape key twice after printing concludes to return to the Visiplot menu.

The menu driver automatically issues a form feed when you select a double-sized plot. You can print up to three normal-sized, non-rotated plots on a single sheet of paper. Issue a manual form feed when printing in any of the normal-sized modes.

Modifications

Don't hesitate to try other options, such as inverse, in place of my selections. A word of caution: Keep the length of any printer driver to a minimum. The longest driver supplied with the Visiplot program was 487 bytes. ■

Write to Michael Salzman at Route 5, Box 582, Shreveport, LA 71107.

Program listing. *BSAVE MENU VP. DRIVER,A$98C3,L$147.*

```
98C3- 00 0D 02 D8 98
98C8- 00 00 00 04 07 00 00 00
98D0- 00 00 00 00 00 A9 14 85
98D8- 25 20 22 FC A2 00 BD E9
98E0- 98 F0 76 20 F0 FD E8 D0
98E8- F5 BC B1 BE A0 CE CF D2
98F0- CD C1 CC A0 A0 BC B2 BE
98F8- A0 CE C5 A0 A0 BC B3 BE
9900- A0 CE D2 A0 A0 BC B4 BE
9908- A0 CE D2 C5 A0 A0 A0 A0
9910- A0 BC B5 BE A0 C4 CF D5
9918- C2 CC C5 A0 A0 BC B6 BE
9920- A0 C4 C5 A0 A0 BC B7 BE
9928- A0 C4 D2 A0 A0 BC B8 BE
9930- A0 C4 D2 C5 A0 A0 A0 A0
9938- A0 BC B9 BE A0 CE CF CE
9940- C5 A0 A0 AD AD A0 A0 D7
9948- C8 C9 C3 C8 BF A0 A0 A0
9950- A0 A0 A0 A0 A0 A0 A0 8D
9958- 00 A9 14 85 24 A9 16 85
9960- 25 20 22 FC 20 0C FD AA
9968- C9 BA B0 04 C9 B1 B0 05
9970- 20 DD FB 50 E4 C9 B9 F0
9978- 4B C9 B5 90 13 A9 14 85
9980- 25 A9 8A 20 ED FD A9 8A
9988- 20 ED FD A9 8A 20 ED FD
9990- A9 14 85 25 A9 8A 20 ED
9998- FD A9 89 20 ED FD A9 C7
99A0- 20 ED FD 8A C9 B1 F0 2F
99A8- C9 B2 F0 26 C9 B3 F0 16
99B0- C9 B4 F0 19 C9 B5 F0 37
99B8- C9 B6 F0 2E C9 B7 F0 1E
99C0- C9 B8 F0 21 F0 38 A9 D2
99C8- 20 ED FD 50 0A A9 D2 20
99D0- ED FD A9 C5 20 ED FD A9
99D8- 8D 20 ED FD 50 20 A9 D2
99E0- 20 ED FD 50 0A A9 D2 20
99E8- ED FD A9 C5 20 ED FD A9
99F0- C4 20 ED FD A9 8D 20 ED
99F8- FD A9 8C 20 ED FD A9 F0
9A00- 85 36 A9 FD 85 37 20 EA
9A08- 03 60
```

Table. *MENU VP.DRIVER's available options.*

Option	Description
Normal	Normal sized plot
NE	Normal, emphasized plot
NR	Normal, rotated plot
NRE	Normal, rotated, emphasized plot
Double	Double sized plot
DE	Double, emphasized plot
DR	Double, rotated plot
DRE	Double, rotated, emphasized plot
NONE	Return to Visiplot's menu

Circle 77 on Reader Service card.

COMPUTER T'SHIRTS
FOR HOME, SCHOOL, AND OFFICE!

Made In U.S.A.

The **ULTIMATE** Software!
Command instant attention!
A **MUST** for all computer lovers!
BRIGHT GREEN (L.C.D.) LETTERS
CUSTOM SILKSCREENED ON 50/50 BLEND
— HIGH TECH DESIGN! —
Five popular styles to choose from.
Order Today! Only $8.95 ppd.
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) 233-4933

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

992 ©cnc

by Michael Salzman

Editing in // Style

by W.M. Miller, Jr.

All Apples are *not* created equal. Try editing in BASIC on the II Plus and then on the //e. The procedures aren't the same—a fact not mentioned in the owner's manual.

Editing in BASIC on Apple II computers, awkward at best, accounts for the success of many enhanced editing utility programs. New Apple users seek outside references to learn anything substantial about BASIC. If the guide is //e-specific, the odds are in their favor, but II Plus veterans may have problems.

Essential to editing on the Apple II series are pure cursor moves—moves that change only the cursor's position. Activate these cursor moves with the escape key. For pure cursor moves on any Apple, use A for right, B for left, C for down, and D for up, but press the escape key before each cursor move.

The //e follows this procedure without a hitch, but a far more convenient method is available on the II Plus. After you press the escape key, press K for right, J for left, M for down, or I for up. The computer stays in escape mode until you press a key other than one of these four. While fine for the II Plus, this method causes problems on the //e.

Editing on the II Plus

For example, assume you have the following line of BASIC to edit:

```
210 A$(X) = STR$ (A(X))
```

Once this line is in the program, you realize A$(X) should have been T$(X) and A(X) should have been T(X). Type LIST 210 to list the line, then press the escape key. Using the I, J, K, and M keys, place the cursor over the 2 in the line number. Continue to press the right-arrow key until the cursor is on the first A. (Note: You must hit the right-arrow key two times before the cursor moves.) Press T and then the right-arrow key until the cursor is on the second A. Press T again. Tap the right-arrow key until the cursor passes the last character in the line and hit the return key. List the line again, and you'll see the corrected line; the two A's changed to T's.

The //e Version

If you follow the same procedure on the //e, the line may *appear* edited, but when you list the line you'll see that the original line didn't change. With the //e, you'll have to hit the first letter to be changed two times before it takes. Now try the II Plus editing procedure to change the two X's to Y's. This time, when you press the return key the message SYNTAX ERROR appears. Listing the line shows that, once again, the editing didn't work. On the //e, pure cursor moves can also be controlled by the four arrow keys, but you'll get the same results: The editing doesn't work and sometimes you'll receive a syntax error message.

What's the Problem?

The arrow keys on the //e can be used as pure cursor moving keys and that accounts for the editing problem. The solution is in knowing when you're in escape mode and when you're not. On the II Plus, you remain in escape mode after you press the escape key *and* continue to use the I, J, K, and M keys. To cancel escape mode, press a different key.

The right-arrow key on the II Plus *isn't* a pure cursor moving key, so if you press it while in escape mode the computer will negate escape mode. Characters are copied into memory as the cursor passes over them. On the //e, the right-arrow key *is* a pure cursor moving key. Thus, pressing it while in the escape mode only moves the cursor to the right.

Now you can see what happened when we tried to use II Plus editing methods on the //e. In changing the A's to T's (after placing the cursor on the 2 of the line number with pure cursor moves), the right-arrow key operated as a pure cursor moving key to position the cursor past the line number *without* copying it into memory. Pressing the T took the computer out of escape mode. From this point, editing occurred normally. The computer saw the statement:

```
T$(X) = STR$(T(X))
```

The syntax is correct, so you didn't get an error message, but your editing inadvertently eliminated the line number, so line 210 was not changed. Consider the second alteration (changing the X's to Y's) where the first character registered in the computer was the Y typed to replace the X. The rest of the statement registered correctly, and the computer saw the line:

```
Y) = STR$(A(Y))
```

Naturally, the SYNTAX ERROR message appeared.

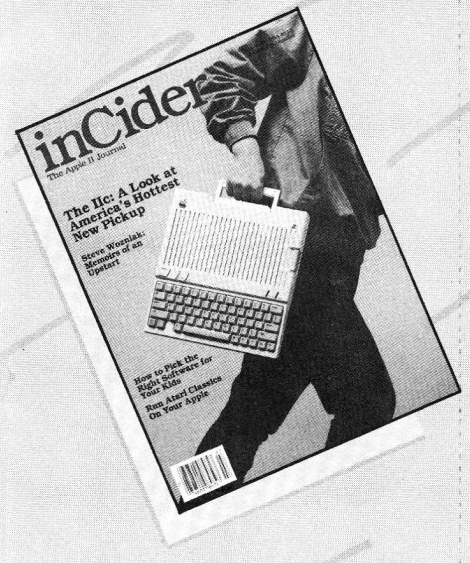
For proper editing with the //e, leave the escape mode at the right time:

1) Press the escape key.
2) Use either the I, J, K, M keys, or the arrow keys to place the cursor over the first digit of the line number (the 2 in the example).
3) At this point (and here is the difference) get out of escape mode before you press the right-arrow key. Use the space bar to get out of escape mode, then press the right-arrow key to advance to the point you need to edit.
4) Type the correction and continue to the end of the line.
5) Press return, and the statement appears in its correctly edited form.

The same principle works for more complex editing, like inserting text. Just follow the general rule. Stay in escape mode while you move the cursor without taking other action, and leave the escape mode by pressing the space bar before you move the right-arrow key to copy characters into memory. ■

Address correspondence to W.M. Miller, Jr., at 6744 Ransome Drive, Baltimore, MD 21207.

SAVE 30% ON 12 ISSUES OF



inCider

YES!

Send me 12 issues of inCider for $24.97.
I'll save 30% off the newsstand price.

☐ **Payment Enclosed**
Please make checks payable to inCider.
☐ **Bill me**

Name _____
Address _____
City _____ **State** ___ **Zip** ____

Canada & Mexico $27.97, 1 year only US funds drawn on US bank.
Foreign Surface $44.97, 1 year only, US funds drawn on US bank.
Foreign Airmail please inquire. Please allow 6-8 weeks for delivery.

352B5W

YES!

Send me 12 issues of inCider for $24.97.
I'll save 30% off the newsstand price.

☐ **Payment Enclosed**
Please make checks payable to inCider.
☐ **Bill me**

Name _____
Address _____
City _____ **State** ___ **Zip** ____

Canada & Mexico $27.97, 1 year only US funds drawn on US bank.
Foreign Surface $44.97, 1 year only, US funds drawn on US bank.
Foreign Airmail please inquire. Please allow 6-8 weeks for delivery.

352B5W

YES!

Send me 12 issues of inCider for $24.97.
I'll save 30% off the newsstand price.

☐ **Payment Enclosed**
Please make checks payable to inCider.
☐ **Bill me**

Name _____
Address _____
City _____ **State** ___ **Zip** ____

Canada & Mexico $27.97, 1 year only US funds drawn on US bank.
Foreign Surface $44.97, 1 year only, US funds drawn on US bank.
Foreign Airmail please inquire. Please allow 6-8 weeks for delivery.

352B5W

CW COMMUNICATIONS/PETERBOROUGH

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

First Class Permit No. 73 Peterborough, NH 03458

POSTAGE WILL BE PAID BY ADDRESSEE

CW Communications/Peterborough
inCider
P.O. Box 911
Farmingdale, NY 11737

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

First Class Permit No. 73 Peterborough, NH 03458

POSTAGE WILL BE PAID BY ADDRESSEE

CW Communications/Peterborough
inCider
P.O. Box 911
Farmingdale, NY 11737

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

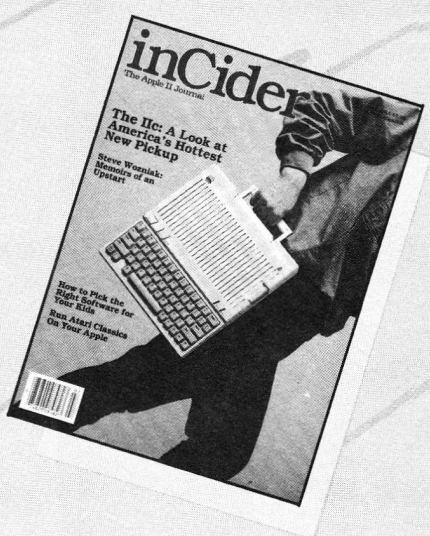
BUSINESS REPLY CARD

First Class Permit No. 73 Peterborough, NH 03458

POSTAGE WILL BE PAID BY ADDRESSEE

CW Communications/Peterborough
inCider
P.O. Box 911
Farmingdale, NY 11737

SAVE 30% ON 12 ISSUES OF



inCider.

CW COMMUNICATIONS/PETERBOROUGH

From page 84.

Solutions to inSidious inSolubles

Solution to An Applesoft Bug

This program runs correctly upon execution as long as the programs being verified are on the disk. If the file being verified is not on the disk, a RETURN WITHOUT GOSUB error occurs on line 160. It seems that DOS loses its stack pointer when an error occurs, and so forgets it was executing a GOSUB command. The solution: Keep ONERR commands out of GOSUB routines or use a short machine-language program that is called whenever an error occurs. This program restores the stack pointer and can be found in the *Applesoft BASIC Programming Reference Manual* for the II Plus on page 136.

Add the following lines to the program:

```
15  GOSUB 200
145 CALL ER
200 ER = 768
210 FOR L = ER TO ER + 9
220 READ I
230 POKE L,I
240 NEXT
250 RETURN
260 DATA 104,168,104,166,223,154,
    72,152,72,96
```

Solution to Print Using

The Applesoft Floating Point software is the culprit here. Line 100 takes the decimal portion of AMT, multiplies it by ten, and subtracts the integer portion from it. If the least significant digit of AMT is in the tenth's place, the result should be zero and ZE$ should be defined as zero. However, when the integer of DM is subtracted from DM, Applesoft comes up with a strange result. Put a PRINT DM just before the last instruction in line 100 and run it to see the problem. The solution is to treat AMT as a string.

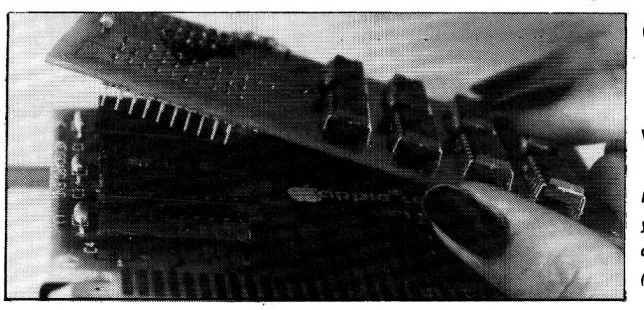
Change line 100 to:

```
100 IF MID$ ( STR$ (AMT), LEN ( STR$
    (AMT)) - 1,1) = "." THEN ZE$ =
    "0"
```

Circle 172 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)

OR CALL:
1-800-821-0208
(OUTSIDE FLORIDA)

CARIBBEAN COMPUTER SALES, INC.
221 EAST OSCEOLA - SUITE 110
STUART, FL 33494 (305) 287-3336

Circle 123 on Reader Service card.

IF YOU CAN'T TYPE, YOU CAN'T COMPUTE

Your computer productivity is directly proportional to your speed at the keyboard. That's why *Typing Tutor III™ with Letter Invaders™*:

☐ Automatically adjusts to your abilities and progress;

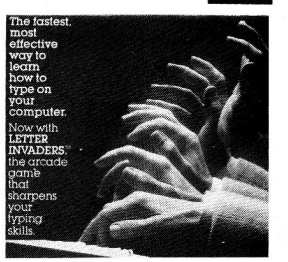
☐ Tests words, numbers, and full keyboard, as well as through a standard speed test;

☐ Features *Letter Invaders,* an arcade-style game that lets you take an entertaining break while sharpening your typing skills at the same time.

Called "the most miraculous of programs" by **The Whole Earth Software Catalog.**

Available for the IBM PC, Apple II/II+/IIe/IIc, Apple Macintosh, and Commodore 64 wherever software is sold.

Typing Tutor III™



BY KRIYA SYSTEMS,™ INC.

SIMON & SCHUSTER

Typing Tutor III, Letter Invaders, and Kriya Systems, Inc. are trademarks owned by and licensed from Kriya Systems, Inc.

Simon & Schuster
1230 Avenue of the Americas
New York, NY 10020

Circle 146 on Reader Service card

GOLEM COMPUTERS

★★★★★★★★★★★★★★★★★★★★★★★★

APPLE SOFTWARE/HARDWARE AT SUPER SAVINGS

★★★★★★★★★★★★★★★★★★★★★★★★

PLACE ORDERS TOLL FREE
1-800-345-8112
PA 1-800-662-2444

	LIST PRICE	GOLEM PRICE
HARDWARE SPECIALS		
MICROMODEM IIE/SMARTCOM (HAYES)		233.00
SMARTMODEM 1200 RS-232 (HAYES)		448.20
212 APPLE CAT (NOVATION)		377.50
KOALA GRAPHIC TABLET W/SFT (KOALA)		82.50
GRAPLER + (ORANGE MICRO)		100.20
MACH III W/FIRE BUTTON (CH PRODUCTS)		36.00
TAXAN 210 12" COMPOSIT/RGB MONITOR (TAXAN)		250.00
GEMINI 10X PRINTER (STAR MICRONIKS)		265.00
DISK DRIVE SLIM IIC (MICROSCI)		199.00
EDUCATION		
MASTERTYPE	39.95	26.36
MIND PROBE	49.95	32.94
TYPING TUTOR III	49.95	32.97
MATH BLASTER	49.95	32.97
GRAMMAR EXAMINER	44.95	29.66
ROBOT ODYSSEY I	49.95	32.97
UTILITIES		
SIDEWAYS	60.00	40.00
GLOBAL PROGRAM LINE EDITOR	49.95	33.07
BASIC INTERPRETER (MAC)	150.00	99.00
CROSSTALK	195.00	128.70
ASCII EXPRESS PROFESSIONAL	129.95	85.97
PRINT SHOP	49.95	32.97
APPLE MECHANIC	29.50	19.47
HOME		
DOLLARS & SENSE	100.00	62.00
HOME ACCOUNTANT	74.95	45.70
CROSSWORD MAGIC	49.95	33.97
MICRO COOKBOOK	40.00	26.40
MEMORY TRAYNER	89.95	59.36
JANE W/MOUSE 64K	295.00	194.70
WORD PROCESSING		
BANK STREET WRITER	69.95	46.97
BANK STREET SPELLER	69.95	46.97
HOMEWORD	69.95	46.97
SENSIBLE SPELLER IV	125.00	82.50
MAGIC WINDOW II	149.95	98.96
PFS:WRITE (IIe)	125.00	80.00
BUSINESS		
PFS:FILE, REPORT, GRAPH	ea. 125.00	80.00
PFS:FILE, REPORT, (MAC) BUNDLED	195.00	128.70
CHART (MAC)	125.00	80.00
FILEVISION (MAC)	195.00	128.70
BPI AP, AR, INV, PAYROLL, GL	ea. 395.00	257.00
MULTIPLAN	195.00	128.70
THINK-TANK	150.00	99.00
STRATEGY		
FLIGHT SIMULATOR II	49.95	34.97
SARGON III	49.95	32.97
MILLIONAIRE	49.95	32.97
ADVENTURE		
DEATH IN THE CARIBBEAN	35.00	23.00
ZORK II, III	ea. 39.95	28.00
QUEST, TRANSYLVANIA	ea. 34.95	23.07
DEADLINE, SUSPECT	ea. 49.95	32.97
CUT THROATS, ENCHANTER	ea. 39.95	26.36
ARCADE		
LODE RUNNER	34.95	23.07
DIG DUG	34.95	23.07
SUMMER GAMES	40.00	26.40
CRISIS MOUNTAIN	35.00	23.10
MINER 2049er	40.00	26.40
ARCADE BOOT CAMP	29.95	19.97
FANTASY		
ULTIMA II, III	ea. 59.95	39.56
WIZARDRY	49.95	32.97
TIME ZONE	99.95	59.95
LEGACY OF LLYLGAMYN	39.95	26.37

ALL ITEMS SUBJECT TO AVAILABILITY
PRICES SUBJECT TO CHANGE WITHOUT NOTICE

★★★★★★★★★★★★★★★★★★★★★★★★

To order call toll free or send check or money order. VISA/MC, C.O.D. orders welcome. Personal and company checks allow 10 working days to clear. Specify if to backorder or to send refund. California residents add 6% sales tax. Include phone number with order. Shipping and handling: All shipments U.P.S. if possible. Continental U.S. add $2.00 for 1 to 3 items, 4 to 6 items add $4.00. APO, FPO Alaska, Hawaii and Canada add $2.00 per item. 2nd day air add $3.00. All hardware purchases are prepaid or VISA/MC; shipped U.P.S. - include 5% for shipping & handling. Foreign orders add 10% and include check drawn on U.S. bank. C.O.D. orders add $1.65. Mail orders to:

GOLEM COMPUTERS
P.O. BOX 6698
WESTLAKE VILLAGE, CA 91359

Apple is a trademark of Apple Computers Inc.

Continued from page 52.

turn. Fake carriage returns force multi-line glossary entries.

You can execute a single WPL program with one keystroke. The glossary entry of 1[P]dowpl.camera ready] says "on numeric 1, execute the WPL program WPL.CAMERA READY." You can't, however, execute a series of WPL programs on a single glossary command. The reason: [P]do only loads a WPL program and sets a flag. It doesn't actually run the WPL routine. The WPL program won't begin until the glossary is finished.

So something like a[P]doWPL.1] [P]doWPL.2] will load the program WPL.1 and set the WPL activity flag. Then, it will load the program WPL.2, and will overwrite WPL.1. Finally, when the glossary is finished, control will transfer to WPL.2. Only the second program runs in this instance, since WPL can't start until the glossary is done.

Cloning Files

One of my favorite Apple Writer //e tricks appears in **Table 1**. With one keystroke, you can transform a single file into 64 identical files. You use the control-L# load from file command to copy the file to itself six times, doubling its length each time—especially handy when printing disk labels, return addresses, and the like.

Table 1 also shows how to insert a lengthy boilerplate into your text files. A single glossary keystroke loads as many individual files as you like. This table also explains how to change print constants with a single keystroke. You'll need to reset them, particularly if the printer fouled up the works in the middle of a document.

Apple Writer //e's .pd8 print-to-disk option affords you many tricks. After writing to disk, you don't want additional margin padding, since you're in a "what you see is what you get" mode. To print a formatted file, use a set of "wide-open" print constants. The disk image then goes to your printer, modem, or phototypesetter.

The last example in **Table 1** lets you clear to the end of your document. Be sure your data direction is set to > before using this command.

Glossary Restrictions

Keep the following guidelines in mind to distinguish whether a glossary entry goes directly into the text file, executes immediately, or embeds a command:

1) If the glossary entry has no control commands, the phrase goes directly into the text file. An L goes into the text file as an uppercase letter.

2) Stand-alone control characters direct the glossary to perform an immediate WPL action. So, [L] attempts an immediate load.

3) Control commands preceded and followed by the verbatim control-V will be embedded directly into the text file. The sequence [V][L][V], therefore, embeds a control-L into the text file.

4) The glossary doesn't recognize WPL variables. Thus, an (x) prints as exactly that, rather than substituting the numeric value for the WPL x variable. The same rule holds for strings $A–$D.

5) While the glossary can't substitute WPL variables in the text file, it can change, set, or define them. WPL behaves in just the opposite manner. WPL will, of course, substitute numerics on its own (x), (y), and (z) variables as well as strings on its $A, $B, $C, and $D strings, but it only recognizes the] as a closing bracket.

6) The [P]do command doesn't execute a WPL program. It merely loads the program and sets the WPL activity flag. One glossary entry can run only one WPL program. If you try to run several WPL programs with one glossary key, only the *last* WPL routine will be executed after overwriting the previous ones.

Titling and Self-Prompting

Use these "immediate" WPL execution tricks to build titled and self-prompting glossaries. (See the **Figure**.) To start, carefully organize your glossary. A titled, self-prompting glossary comprises four parts: title, main glossary, help screen, and help-screen loader.

A glossary key of ? or * is filtered as a glossary *define* or *purge* command. Typing in <open-apple>-/ retrieves the main help menu, rather than a / (slash) glossary entry. So, any glossary line that starts with ?, /, or * will never be accessed but can be used as a comment or remark line. **Table 1** summarizes this rule: To add comments to your glossary, start each comment line with ?, /, or *.

You already know how to use the main glossary when you don't require titling or self-prompting. Now you know you can add powerful new features to your glossaries by using immediate WPL commands; simply mix phrases and commands.

One obvious route toward creating a self-prompting glossary is to use glos-

Table 3. *Apple Writer //e-Diablo 630 formatting glossary with tutorial.*

Diablo 630 Formatting Glossary	Open-Apple Formatting Commands
?	
?	
A[V] [esc] [K] [V]	(A) absolute VTAB*
a[V] [esc] [U] [V]	(a) absolute HTAB*
B[V] [esc]O[V]	(B) bold print on
b[V] [esc]&[V]	(b) bold print off
C[V] [esc] = [V]	(C) centering on
c[V] [esc]X[V]	(c) centering off
D[V] [esc]$[V]	(D) dash hyphen on
d[V] [esc]X[V]	(d) dash hyphen off
E[V] [esc]0[V]	(E) west margin set
e[V] [esc]9[V]	(e) east margin set
F[V] [esc]A[V]	(F) funny ribbon on
f[V] [esc]B[V]	(f) black ribbon on
G[V] [esc]3[V]	(G) graphics on
g[V] [esc]4[V]	(g) graphics off
H[V] [K] [V]	(H) vertical tab
h[V] [tab] [V]	(h) horizontal tab
I[V] [esc]%[V]	(I) improve quality
i[V] [esc]N[V]	(i) normal quality
J[V] [esc]M[V]	(J) justify on
j[V] [esc]X[V]	(j) justify off
K[V] [esc] [Q] [V]	(K) kerning set *
k[V] [esc]X[V]	(k) kill v margin
L[V] [esc] [L] [V]	(L) lines/page set *
l[V] [esc] [H] [V]	(l) little backspace
M[V] [esc]^[V]	(M) motion VMI **
m[V] [esc]_[V]	(m) motion HMI **
N[V] [esc]T[V]	(N) north margin
n[V] [esc]S[V]	(n) south margin
O[V] [esc]D[V]	(O) offset hl up
o[V] [esc]U[V]	(o) offset hl down
P[V] [esc]P[V]	(P) proportional on
p[V] [esc]Q[V]	(p) proportional off
Q[V] [esc]7[V]	(Q) quit printing
q[V] [esc]X[V]	(q) quit wp modes
R[V] [esc]/[V]	(R) reverse <-on
r[V] [esc]\[V]	(r) reverse <-off
S[V] [esc]W[V]	(S) shadow on
s[V] [esc]&[V]	(s) shadow off
T[V] [esc] – [V]	(T) tab vertical set
t[V] [esc]1[V]	(t) tab horizontal set
U[V] [esc]E[V]	(U) underline on
u[V] [esc]R[V]	(u) underline off
V[V] [esc] [J] [V]	(V) vertical up
v[V] [J] [V]	(v) vertical down
W[V] [esc]Z[V]	(W) wheel spoke $7F
w[V] [esc]Y[V]	(w) wheel spoke $20
X[V] [esc]2[V]	(X) clear tabs
x[V] [esc]S[V]	(x) clear HMI
Y[V] [V]	(Y) your stuff on
y[V] [V]	(y) your stuff off
^[V] [L] [V]	(^) formfeed
<[V] [H] [V]	(<) backspace
.[V] [esc]Q[esc]1[H] [tab] [V]	(.) dots start
.[V] [esc]P[V]	(.) dots end
Z[P]nd] [Q]FDGLOSS]	(Z) tutorial + copy
[L]DGLOSS< > < – 1)> > <\] [P]yd]	
z[L]DGLOSS< > < – 1)> > <\]	(z) tutorial only

* follow with ASCII value

** follow with ASCII value – 1

Bracket pairs represent control commands. [esc] = escape, [Q] means control-Q. The line preceding the tutorial screen must have four spaces. Z and z selections must not precede the tutorial or they will find themselves.

80-column tutorial text lines have been split. Entries (A), (H), (O), and (V) go on one line. The dot row is also one continuous line.

Circle 427 on Reader Service card

Not Piracy...

Read Hardcore COMPUTIST & get step-by-step instructions on how to move your uncopyable software to normal disks so you can:

- Make backups for your expensive software more easily
- Move programs from floppy to hard disk
- Add custom modifications such as fast DOS to speed up LOADs & SAVEs

Also get: Adventure Tips, Advanced Playing Techniques (APT's), parameters, and more...

Just Good Sense!

If you're a vigorous Apple computist you can't afford to be without us any longer!

Subscription Rates
Please check one of the following:

☐ U.S.	$25
☐ Canada, APO/FPO, 1st Class	$34
☐ Mexico	$39
☐ Foreign Airmail	$60
☐ Foreign Surface Mail	$40
☐ SAMPLE, U.S.	$3.50
☐ SAMPLE, foreign	$4.50

☐ Yes, start my subscription now.

Name _____

Address _____

City _____ St _____ Zip _____

Country _____

Visa/MC _____ - _____ - _____ - _____ Exp _____

Signature _____

Send to: Hardcore COMPUTIST, POB 44549J, Tacoma, WA 98444
US funds only.

CLASSIFIEDS

CLASSIFIED INFORMATION

Reach more than 110,000 Apple owners with an **inCider** classified ad. Sections include:

- Entertainment
- Education
- Home Productivity
- Business
- Utilities
- Hardware
- Services
- Wanted
- Trade or Swap

Personal ads, **$50** (10 lines) per issue; commercial ads, **$100** per issue (minimum 3 issues). **Pre-payment only**. Ad includes a bold lead line, 10 lines of copy including company name, address, and phone number. **$15** for additional lines; **$75** additional for company logo.
Send typewritten copy with instructions to:

inCider Classifieds
CWC/ Peterborough
Rte. 101 and
Elm Street
Peterborough, NH
03458
Or call: Michele Gilmore
1-800-441-4403, Ext. 159

inCider

"Not using WPL is as absurd as keeping a Porsche just to listen to its FM radio."

sary commands to enter a long help screen. But this has serious disadvantages: Entering a full screen from the glossary can take as long as 30 seconds; while placing the screen, you alter your text file; when you finish with the help screen, you somehow have to undo it to change text files back to their original form.

Instead, let's get sneaky.

A glossary is a text file so it's likely to be on disk. Why not load the glossary directly to the screen, put down a help message at the end, and let the rest scroll by? Better yet, tack a help screen onto the end of your glossary. Then load the help screen directly out of the glossary text file, and key on delimiters at the beginning and end of the help screen. This takes only three seconds, doesn't disturb your working text file, and exits instantly on a carriage return.

Although the help screen is displayed exactly as you want it to appear, it may gobble up a thousand characters or so from your glossary. Usually, the space is available. If not, you can shorten your help screen.

The Help Screen Loader

The upgraded glossary has two loaders, keying on lowercase and uppercase Z. The lowercase z loader loads your glossary text file directly to screen, with a *start string* at the beginning of the screen image and an *end string* at the end of the screen image.

You'll use the lowercase z loader more often; it's the faster of the two. Unfortunately, it works only if you have a copy of the current glossary in your active drive.

If you just switched disks or drives, you may not have a copy of the glossary in the active drive. This is where the uppercase Z loader comes in. By pressing Z, a copy of the current glossary is saved to the active drive and this new glossary image is then loaded to the screen.

The help screen loader must *follow* the help screen. If not, the help screen loader will find its own delimiters instead of those in the help screen. A little advice: Use Z for a new disk but z all other times: z takes three seconds; Z, nearly ten.

Minor restrictions limit your tutorial help screen. All glossary entries, except the loaders, must precede the help screen. The help screen's length must comprise no more than 23 lines. No screen line can start with z or Z as its first character.

Clumsy typing could enter any first character on a screen line not previously defined as a "real" glossary entry into your text file.

With most longer glossaries, this screen-line-as-glossary-entry problem never shows up. If it bothers you, put a box of stars around the help screen or start each help screen line with a space and define the space as an often-used glossary entry or as an immediate return.

Titling Glossaries

Titling a glossary makes life easier for you, the programmer, because you can identify each glossary version, thereby avoiding changes made to the wrong glossary. Self-prompting a glossary makes it easier on you or the viewer, because of a one-key tutorial help screen. It means never looking up the magic keystrokes on a lost sheet of paper, never memorizing seldom-used glossary commands, and never using dozens of keystrokes when one will do.

Two examples of titled and self-prompting glossaries are shown in **Tables 2** and **3** along with their respective open-apple formatting commands. These glossaries let you tap the fancy commands of an intelligent printer, like the Epson MX-80 or the Diablo 630.

The first glossary (**Table 2**) is for an Epson MX-80. Note how each control character to be embedded in your text file is bracketed by a pair of control-Vs. Also, notice how the loader follows the help screen. The glossary name is EGLOSS. The start string is a carriage return followed by five spaces, and the end string is ls.) followed by a carriage return. The reverse slash says to load to screen only.

EGLOSS works best on a third backup copy of Apple Writer //e, patched to embed null characters and to prevent justified "shortlines." (Contact the author for free patches.)

Table 3 shows a self-prompting

glossary for the Diablo 630 capable of micro-justification and proportional spacing.

This time, the glossary file name is DGLOSS, but the start string and end string remain the same. Each glossary action is keyed to a letter that is easy to remember. Uppercase letters give directions like on, up, more, above, or right. For example, S turns shadow printing on, while s shuts it back down. J starts micro-justification; j turns it off.

Once again, a z from the glossary calls the full help screen, while Z gives a tutorial help screen and saves a new glossary copy to the active drive.

Dot Commands

Printing part of a line in full micro-justification, switching out for a group of dots or spaces, and then switching back in for aligned columns of micro-justified text is a delicate maneuver you often need for bills or statements. The *dots start* command exits you from micro-justification, begins letter spacing, and carefully eliminates any extraneous spacing, so the dots or spaces are aligned vertically. The *dots end* command resumes full micro-justification, aligning dots in vertical columns.

After you use these dot commands, some columns may be out of line by whole letter-spaced characters. Simply add or remove dots or spaces to bring any offenders in line.

You can match the glossary to your needs. For example, I also use the numeric keys to format micro-justification and proportional spacing, handle a camera-ready double-whapping trick, and much more. Although specific to my needs, they're available separately.

Other printers will need their own glossaries. While EGLOSS is a good starting point for most dot-matrix printers, DGLOSS is better for daisy wheels. You'll have to change individual commands and features after studying the printer's manuals.

An AGLOSS for the Apple daisy-wheel printer and an IGLOSS for the Imagewriter printer are also available from the author. ■

For help with Apple Writer //e, you can write to Don Lancaster at Synergetics, 746 First Street, Box 809, Thatcher, AZ 85552. Or call him at (602) 428-4073 between 8 a.m. and 5 p.m. Mountain Standard Time. This is a free service offered by Don Lancaster and the Gila Valley Apple Growers Association.

COMPUTERS

Apple IIe's & IIc's call

MONITORS			
Amdek 300A	159.95	Amdek Color 600 RGB	**449.95**
Amdek Color 300	**279.95**	Taxan Color 210	**279.95**
MODEMS			
Hayes Smart 300 IIc	**239.95**	MicroCom ERA 2	369.95
Hayes Smart 1200	**459.95**	Prometheus Pro 1200	389.95
Hayes Micro IIe w/sc	**229.95**	Prometheus Pro 1200 A	359.95
PERIPHERAL CARDS & ACCESSORIES			
ALS Z-Engine 2.2	159.95	Premium Pack IIe	299.95
ALS Z80 CP/M 3.0+	289.95	Premium IIe w/d:base	369.95
AST Multi I/O	**Call**	***Street***	
Curtis		ECHO II+	99.95
Diamond	**34.95**	Cricket IIc	139.95
Emerald	**44.95**	Alphabits	99.95
Ruby	**64.95**	TG Joysticks	34.95
Sapphire	**44.95**	***Titan***	
Hayes Mach 3's	**39.95**	Accellorator II/IIe	**249.95**
Koala		64k Ram II/IIe	**159.95**
Graphics Pad	79.95	128k Ram II/IIe	**199.95**
Gibson Light Pen	189.95	Neptune 64k+80	199.95
Kensington Sys. Sav.	64.95	Neptune 128k+80	299.95
Kraft Joysticks	39.95	Neptune 192k+80	339.95
Microsoft		Ultraterm	269.95
Z80 Soft+6mhz	**279.95**		
GRAPHIC INTERFACES & BUFFERS			
Fingerprint	119.95	Grappler w/16k	159.95
Print-It	169.95	Grappler w/64k	209.95
Grappler+	119.95	Quadram 64k Fazer p/p	194.95
Grappler+RS232	89.95	Quadram 128k Fazer p/p	274.95
PRINTERS DOT MATRIX			
Apple Imagewriter	499.95	Epson FX 100	599.95
Apple Scribe	239.95	Epson JX 80 Color	599.95
Citizen MSP 10 160	**359.95**	Gemini 10X	279.95
Citizen MSP 15 160	**549.95**	Gemini Delta 10	369.95
Citizen MSP 20 200	**549.95**	Gemini Delta 15	479.95
Citizen MSP 20 200	**689.95**	Okidata Color	**Call**
C.ITOH 8510	349.95	Okidata 182	**Call**
Epson LQ 1500	1039.95	Okidata 92	399.95
Epson RX 80	229.95	Okidata 92 Image	469.95
Epson RX 80 F/T	319.95	Okidata 93	599.95
Epson RX 100	419.95	Okidata 84	699.95
Epson FX 80	419.95	Toshiba P1340	729.95
PRINTERS LETTER QUALITY			
DW 2000 33cps 48k	829.95	Silver Reed 400 12cps	299.95
Dynax DX 15XL 21cps	399.95	Silver Reed 500 14cps	359.95
Dynax DX 25 23cps	639.95	Silver Reed 550 17cps	429.95
NEC 2010/2030	699.95	PowerType 17cps	359.95

SOFTWARE FOR IIe & IIc

Word Processing		Bruce Lee	**29.95**
Bank Street Writer	49.95	Cat Graphics	**24.95**
Bank Street Speller	49.95	Champ Lode Runner	29.95
Bank Street Filer	**49.95**	Choplifter	29.95
Bank Street Mailer	**49.95**	Comp. Graphic Sys.	**59.95**
Dictionary	**69.95**	Conan	**Call**
Format II Enh.	**99.95**	Crosswork Magic	39.95
Habamerge	**49.95**	Cutthroats	**29.95**
Habatemplates	**19.95**	Data Capture	45.95
Homeword	49.95	Dazzle Draw	35.95
Homeword Filer	**69.95**	Deadline	34.95
Homeword Speller	39.95	Delta Draw	**34.95**
Megaworks	**Call**	Electronic Arts	**Call**
Megawriter	**69.95**	Epyx Baseball	**Call**
Megaspell	**42.95**	Exp. Amazon	24.95
PFS:Write	79.95	Exodux Ultima III	45.95
Sensible Speller IV	79.95	Facemaker	**24.95**

SOFTWARE FOR IIe & IIc

Screenwriter Pro	84.95	Flight Simulator II	39.95
The Write Stuff	**39.95**	Gertrudes Secret	**29.95**
Business & Personal		Graphics Magician	42.95
Appleworks	219.95	Hitchhikers Guide	**27.95**
Arrays		Kindercomp	**22.95**
GL, AR, AP, PR (ea)	**159.95**	Kings Quest	34.95
ASCII Exp. Pro	94.95	Koala M Keys	**49.95**
Beagle		Magic Paintbrush	**24.95**
Mechanic	**20.95**	Master Type	29.95
GPLE	**30.95**	Math Blaster	39.95
Graphics	**40.95**	Micro Cookbook	29.95
Triple Dump	**30.95**	Microsoft T Tutor 2	19.95
Fat Cat	**25.95**	Mind Prober	**34.95**
Bag	**20.95**	Minit Man	**19.95**
Boland T Pascal	**39.95**	Moptown Parade	**29.95**
Bookends	**79.95**	Night Pinball	**24.95**
Crosstalk	129.95	Objective Kursk	29.95
d:Base II	**279.95**	Paper Graphics	
DB Master V4.0+	**229.95**	1,2 (ea)	**39.95**
Dollars & Cents	**69.95**	Planetfall	**35.95**
Dollars & Cents IIc	**79.95**	President's Choice	**29.95**
DJ Inv/Eval.	99.95	Print Shop	39.95
DJ Market Anal.	**229.95**	Print Shop GL	**19.95**
DJ Investors Wks. IIC	99.95	Robot Odessy	34.95
DJ Spreadsheet Lnk.	**159.95**	Rocky's Boot	**35.95**
DJ Microscope	**229.95**	Sargon III	39.95
Flashcalc	**69.95**	Seastalker	29.95
Fox d Utility	**69.95**	Sideways	42.95
General Mgn.	**149.95**	Simon Sch. T Tutor 3	39.95
Home Acct. En.	**49.95**	Sorcerer	**35.95**
Knoware	**69.95**	Speed Reader II	39.95
Megafinder	**99.95**	Spell It	**35.95**
Multiplan	**134.95**	SSI Baseball	**29.95**
Net Worth	59.95	SSI Golf	**29.95**
PFS:File	79.95	Story Machine	24.95
PFS:Report	79.95	Stellar 7	**19.95**
PFS:Graph	79.95	Suspect	**34.95**
PFS:Access	79.95	Terrapin Logo	69.95
TK Solver	**179.95**	Trivia Fever	**27.95**
Think Tank	**99.95**	Word Attack	39.95
Home Acct. En.	54.95	Wizardry 1	**34.95**
Tax Advantage	49.95	Wizardry 2	**24.95**
Visicalc Pkg.	**114.95**	Wizardry 3	**27.95**
Zoom Graphics	**69.95**	Xyphus	24.95
Home * Educational * Entertainment		Zaxxon	24.95
		Zork 1,2,3 (ea)	29.95
Alphabet Zoo	19.95	***Books***	
Aerobics	**34.95**	Bag of Tricks	**29.95**
Apple Logo	89.95	Beneath Apple DOS	**18.95**
Arcade B Camp	**19.95**	Understanding	
Aztec	**29.95**	the Apple	**19.95**
Beagle Diskquick	19.95	Invisiclues	**9.95**
Beagle Apple Mechanic	19.95	Master PFS:	**14.95**
Beyond Castle Wolf.	29.95	6502 Assembly	**19.95**

MACINTOSH SECTION

Apple		Kensington 300	**99.95**
Mac 128K	**Call**	Microcom 300/1200	469.95
Mac 512K	**Call**	Novation 300/1200	399.95
Mac Drive	429.95	Prometheus 300/1200	399.95
Mac # Pad	89.95	***Tecmar***	
Kensington		5mb Rem.	1519.95
Mac Surge	**39.95**	10mb Fixed	1519.95
Mac Swivel	**25.95**	***Disks***	
Mac Disk	**25.95**	Memorex (10)	39.95
Mac Modem	**99.95**	BASF (5)	19.95
Mac Modems		Flip & File	25.95

BUSINESS COMPUTERS OF PETERBOROUGH
Gollan Co., Inc.

FREE SHIPPING CONTINENTAL USA/UPS ONLY
APO/FPO WELCOME

MasterCard VISA

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

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

QUESTIONS 603-924-9406

Circle 16 on Reader Service card.

Software That Works For Generations

6 Types of Charts and Sheets
Indices
User Fields
Notes, Footnotes and Sources
No Limits
Adapts to Your Hardware
Comprehensive
Easy to Use

And Much, Much More

Send for brochure and sample printouts.

Family Roots includes detailed manual and 2 full diskettes of programs for your Apple II, IBM PC, Commodore 64 and CP/M.*

Other genealogy software also available.

Price $185. Satisfaction Guaranteed.

American Express, Visa & Mastercard Accepted

* Trademarks for Apple Computer, Inc., International Business Machines, CBM, Inc., & Digital Research.

Family Roots™

QUINSEPT, INC.
P.O. Box 216, Lexington, MA 02173
(617) 641-2930

Circle 223 on Reader Service card.

LET THE KITCHEN PLANNER™ DO IT!

In less than 5 minutes, the **Kitchen Planner** will help you create and print up to 14 days of balanced meals, **PLUS...**it will prepare a shopping list for you.

★ **EASY TO USE** ★ **FLEXIBLE** ★
★ **SAVES TIME** ★

- **Creates 1 to 14 day menus, single meals or single items from up to 200 of your favorite meal items.**
- **The only program available that composes balanced meals and lets you change them!**
- **Compact, usable printout.**
- **Clear, Concise User's Manual.**
- **Add or change any meal item or ingredient in the database with ease.**
- **Reference your favorite cookbooks and recipes.**

TESTED AND GUARANTEED
Send Check or Money Order to:
SAV-SOFT PRODUCTS
P.O. Box 24898
San Jose, CA 95154
$29.95
(add $1.50 handling; in CA add 6½%)
VISA,MC call : (408) 978-1048
48 K Apple II, II+, IIe, 1 disk, printer
Apple is a trademark of Apple Computer, Inc.

Circle 43 on Reader Service card.

HOGWASH SOFTWARE CO.
Proudly announces

INCOME AVERAGING 1984

. . . a new **TAX** software package to save you time, money and much frustration.

Over **6,500,000** taxpayers chose to try income averaging in 1981 with an average savings of **$578.**

They did it the hard way. Why do it that way when YOU can use our inexpensive package to handle this potentially lucrative calculation without pain?

This package will SAVE you TIME by permitting you to

- skip detailed study of killer tax regulations,
- collect and enter all necessary data systematically, and
- automatically perform all manner of tedious calculations.

Not only that, but our package will handle the calculations for **THREE** tax years—1984, 1983 and 1982. Thus you can still take advantage of more favorable rules in two earlier years. (Form 1040X included in package.)

Drafted by a lawyer, this program is IT if you are thinking about income averaging for tax year 1984, or previous tax years! This package is **COMPLETE** and helps you with the really grim part of completing Schedule G—unlike some that claim to "do" income averaging (Ha!) but leave the hard part to you.

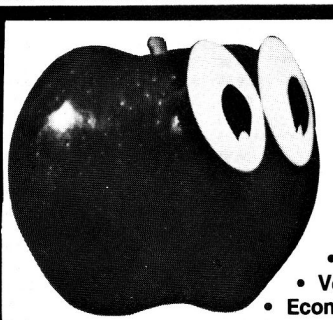
Works on **IBM PC,** and **APPLE II** family with 48K. One or two disk drives; printer optional (supports NEC 8023, Okidata 92/93, maybe others). Documentation and all necessary forms provided. A mere ☞ **$50.00** ☜ (tax deductible, of course). All recent tax changes incorporated. Updates at minimal cost. Every customer a potential **distributor.**

Write or call us now (collect) to order your copy:

HOGWASH SOFTWARE CO.
P.O. Box 5101
Arlington, VA 22205
703/237-7424.

MASTERCARD and VISA. Check accepted.
Money back guarantee.

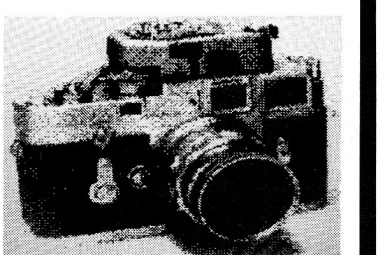
Circle 204 on Reader Service card.



LET YOUR APPLE SEE THE WORLD!

The DS-65 Digisector® opens up a whole new world for your Apple II. Your computer can now be a part of the action, taking pictures to amuse your friends, watching your house while you're away, taking computer portraits . . . the applications abound! The DS-65 is a random access video digitizer. It converts a TV camera's output into digital information your computer can process. The DS-65 features:

- **High Resolution** — a 256 × 256 picture element scan
- **Precision** — 64 levels of grey scale
- **Versatility** — Accepts either NTSC or industrial video input
- **Economy** — A professional tool priced for the hobbyist



HI-RES PICTURE USING THE DS-65 AND PICTURE SCANNER SOFTWARE

The DS-65 is an intelligent peripheral card with on-board software in 2708 EPROM. Check these software features:

- Full screen scans directly to Apple Hi-Res screen
- Easy random access digitizing by Basic programs
- Line-scan digitizing for reading charts or tracking objects
- Utility functions for clearing and copying the Hi-Res screen

Use the DS-65 for precision security systems; computer portraiture; robotics; fast to slow scan conversion; moving target indicators; reading UPC codes, musical scores and paper tape and more! **GIVE YOUR APPLE THE GIFT OF SIGHT!** DS-65 Price: $349.95
RCA 1500 Series Camera w/6:1 zoom lens Price: $399.90/Combination Price: $729.95

ADDITIONAL SOFTWARE FOR THE DS-65

— Picture Scanner: An applications tool for processing video images for display on the Hi-Res screen. A variety of dithering algorithms are provided, for compressing the digitized image into the Hi-Res screen and simulating grey scales. Price: $39.95

— Superscan: Enables you to enhance the DS-65's Hi-Res pictures with colors! Choose from 21 different colors and assign them to grey scale values, modify pictures, zoom, enhance contrast, etc. Includes print routines for Anadex 9500 or 9501; Epson MX-80GFT and MX-100; and IDS 460 Paper Tiger*. Written for The Micro Works by Magna Soft. Price: $79.95

*Paper Tiger is a trademark of Integral Data Systems, Inc.

THE MICRO WORKS

Now for IBM PC!

California Residents add 6% Tax **Mastercard/Visa Accepted**

P.O. BOX 1110 DEL MAR, CA 92014 619-942-2400

APPLE EXTRACT

A reprise of the reviews that have appeared in inCider *in the last three months. Prices subject to change without notice.*

★★★★	Superlative
★★★	Above average
★★	Good
★	Not recommended
	Stay away

Software

Bank Street Speller
★★
Broderbund Software, 17 Paul Drive, San Rafael, CA 94903
Spelling checker, December '84.
A companion to Bank Street Writer, this program provides a 30,000-word dictionary that checks the spelling in your word-processed documents. $69.95.

Beyond Castle Wolfenstein
★★★
Muse Software, 347 North Charles Street, Baltimore, MD 21201
Arcade, November '84.
In this absorbing arcade-adventure game, you must penetrate the Fuehrerbunker and eliminate the archenemy of democracy. A winner. $34.95.

Counters
★★★
Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570
Education, December '84.
A package for preschoolers that introduces rudimentary math skills. $55.

Data Spectrum
★★★
Advanced Business Computing, 1580 North Northwest Highway, Park Ridge, IL 60068
Data base, November '84.
An easy-to-learn data-base manager that is an excellent choice for small- and medium-sized businesses. $239.

Documax
★★★
Signum Microsystems, 120 Mountain Avenue, Bloomfield, CT 06002
File Manager, November '84.
Documax is a valuable tool for examining and organizing text files created by a word-processing system. $99.95.

El-Ixir
★★★★
Isoft, P.O. Box 10762, Stanford, CA 94305
Strategy game, November '84.
One of the best games to come out for the Apple this year. As easy to learn as it is fun to play. $29.95.

Financial Cookbook
★★★
Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403
Home finance, December '84.
The worksheets included in this package let you answer "what if" questions on your personal finances. $50.

FlashCalc
★★★
Paladin Software Corp. (formerly VisiCorp), 2895 Zanker Road, San Jose, CA 95134
Spreadsheet, January '85.
Although it has a slightly smaller worksheet than VisiCalc, this ProDOS-based program is faster and more versatile than its venerable predecessor. $99.

The Graphics Department
★★★
Sensible Software, 24011 Seneca, Oak Park, MI 48237
Business graphics, January '85.
With data entered via the keyboard or a DIF file, this program will create the charts and graphs you need to complete a professional presentation. $124.95.

How About a Nice Game of Chess?
★★
Odesta, 3186 Doolittle Drive, Northbrook, IL 60062
Chess simulation, December '84.
Not only a program that plays chess, but one that teaches the game. Not the strongest chess playing program on the market, but a good choice for beginners. $34.95.

How to Operate the Apple //e
★★
FlipTrack Learning Systems, 999 Main Street, Glen Ellyn, IL 60137
Training, January '85.
This six-hour, cassette-based training course introduces the fundamentals of Apple computing. $57 for DOS 3.3 version, $39.95 for ProDOS.

Knoware
★
Knoware, 301 Vassar Street, Cambridge, MA 02139
Training, December '84.
A series of games that introduces you to various types of applications software. $95.

Learning with Fuzzywomp
★★
Sierra On-Line, 36575 Mudge Range Road, Coarsegold, CA 93614
Education, November '84.
Four different games teach 3- to 6-year-olds the rudiments of counting and number recognition. $29.95.

MathMaze
★★★
DesignWare, 185 Berry Street, San Francisco, CA 94107
Education, December '84.
Fun games help youngsters master the four basic arithmetic operations. $39.95.

Multigraph
★★★
Micro Lab, 2699 Skokie Valley Road, Highland Park, IL 60035
Business graphics, December '84.
A useful tool for creating line, bar, and scatter graphs with your Apple. $150.

Music Construction Set
★★★★
Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403
Music, December '84.
A great program that lets you compose and play music on your Apple computer. Can also be used with a Mockingboard. $40.

M-ss-ng L-nks
★★★
Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570
Educational game, December '84.
Fill in the blank letters in passages from children's literature. A fun exercise in language skills. $39.95.

Number Farm
★★★
DLM, 1 DLM Park, Allen, TX 75002
Education, December '84.
Old McDonald helps preschool youngsters learn to count. $29.95.

Omnis 2
★ ★ ★
Organizational Software Corp., 2655 Campus Drive, Suite 150, San Mateo, CA 94403
Data base, January '85.
A mid-range data-base manager that has some powerful search, form-letter, and report capabilities. $195.

Pascal Utility Pack
★ ★ ★
Mach 2 Software, 106 Fairfax Building, 43rd and Locust Streets, Philadelphia, PA 19104
Utility, January '85.
This package of utilities for UCSD Pascal gives you access to lo-res graphics, special I/O functions, and many other functions normally beyond the reach of Apple Pascal programmers. $24.95.

People Management
★
CBS Software, 1 Fawcett Place, Greenwich, CT 06386
Training, December '84.
This package helps you develop the skills you need to manage people. $79.95.

Person-to-Person
★ ★ ★
Trutec Software, 1700 Solano Avenue, Berkeley, CA 94707
Communications, November '84.
A quick and easy communications software package. It includes an address and phone number data base. $69.95.

Picture Writer
★ ★
Scarborough Systems, 25 North Broadway, Tarrytown, NY 10591
Graphics, November '84.
A drawing program for youngsters aged 4 to 14. Requires a joystick or a KoalaPad. $39.95.

The Return of Heracles
★ ★ ★
Quality Software, 21601 Marilla Street, Chatsworth, CA 91311
Adventure, November '84.
You assume the identity of an ancient Greek hero in this new fantasy role-playing adventure. Succeed, and you too can become a hero of song and story. $32.95.

Seastalker
★ ★ ★ ★
Infocom, 55 Wheeler Street, Cambridge, MA 02138
Adventure game, December '84.
Another winner from Infocom, this aquatic adventure is a great introduction to the world of text adventures. $39.95.

Songwriter
★ ★ ★
Scarborough Systems, 25 North Broadway, Tarrytown, NY 10591
Music, November '84.
Songwriter lets children and adults compose their own melodies and play them on the Apple. $39.95.

Story Maker
★ ★ ★
Scholastic Software, 730 Broadway, New York, NY 10003
Education, January '85.
This program lets you write and edit a story, and illustrate it with pictures provided on disk. Designed for young authors aged 8 and up. $39.95.

Sweet Shoppe
★ ★ ★
Eric Software Publishing, 1713 Tulare, Fresno, CA 93721
Education, January '85.
By using a joystick for all input, this basic number-skills package is designed for children who have yet to master the computer keyboard. $39.95.

Time Tunnels
★ ★ ★
Reston Publishing Company, 11480 Sunset Hills Road, Reston, VA 22090
Arcade, November '84.
It's you against the mutants in this fast-action, hi-res arcade game. Joystick required. $25.

Word Challenge
★ ★ ★
Hayden Software, 600 Suffolk Street, Lowell, MA 01853
Game, November '84.
The best word game available for the Apple. This game provides hours of challenging fun. $39.95.

The Write Stuff
★ ★
Harper & Row Publishers, 10 East 53rd Street, New York, NY 10022
Word processor, December '84.
A word processor that uses virtual memory to create larger documents than you can with some of its low-cost cousins. $59.95.

Xyphus
★ ★
Penguin Software, P.O. Box 311, Geneva, IL 60134
Adventure game, January '85.
A good introduction to the fantasy/role-playing genre. If you're befuddled by Wizardry, try Xyphus first. $34.95.

Circle 60 on Reader Service card.

TAXES MADE EASY with TaxVision™

Use Multiplan to do your taxes fast and easy!

TaxVision is an *integrated set of templates* that operates under Multiplan, the powerful, best selling spreadsheet program. Each template represents an IRS form or schedule that prints in an approved format. You can even modify and expand TaxVision yourself!

TaxVision supports 23 Forms and Schedules: 1040, 2106, 2119, 2210, 2441, 3468, 3903, 4562, 4684, 4797, 5695, 6251, 6252, A, B, C, D, E, F, G, R, SE & W.

COMPARABLE TAX PROGRAMS cost $180 to $250. You can own BOTH Multiplan AND Tax-Vision for the same cost. We think you will agree: You get a lot more for your money with TaxVision.

TaxVision (tax deductible) ..... $89 *
Multiplan (save $30 off list price) ..... $95 *
Both for only ..... $174 *
Other Spreadsheet Products ..... CALL *
* Add $4.50 P&H. CA res. add 6% sales tax. Specify APPLE, IBM, TRS-80 or CP/M.

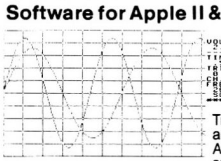
FOR INFORMATION AND ORDERS, WRITE OR CALL:
VISION INFORMATION PRODUCTS, INC.
5500 Atherton St., Suite 306
Long Beach, California 90815
(213) 431-5284
Multiplan, APPLE, IBM, TRS-80 and CP/M are trademarks of Microsoft, Apple Computers, IBM, Tandy Corp and Digital Research, resp.

DEALER INQUIRIES INVITED

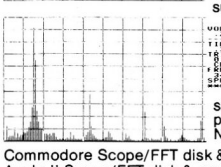
Circle 542 on Reader Service card.

Fast ANALOG I/O BOARD
For Apple II, Commodore 64, TRS 80 Color, Timex, and others. Connects to CPU bus. 8 channels A/D & 8 channels D/A. 1.6 µS A/D convert time. 8 bit res. Easy to program. Box & cable available. **$220.**

Software for Apple II & Commodore:



SCOPE Dual trace. 256 samples taken at rates from 3 to 72000 Hz Trigger & cursor. Disk and printer utilities. Averaging. Usable subroutines.



F.F.T. 128 spectrum lines. Displays 0 Hz to ½ sample freq. Mag & phase done in 1 sec! Needs CPM card.

Commodore Scope/FFT disk & manual.... **$85.**
Apple II Scope/FFT disk & manual..... **$100.**
Timex Scope/FFT Eprom Card..... **$85.**
Please call or write for **FREE BROCHURE.**

Computer Continuum
75 Southgate Ave., Suite 6
Daly City, CA 94015 (415) 755-1978

Circle 67 on Reader Service card.

D BASE II®
is now 2-3 times faster on your Apple II, IIe with our easy to use CP/M† Speedup System!

®trademark, ©Ashton Tate.
†trademark of Digital Research.

STELLATION TWO
The Lobero Building P.O. Box 2342
Santa Barbara, Ca. 93120
(805) 966-1140

Hardware

ALF AD8088 Processor Card
★★★★
ALF Products, 1315-F Nelson Street, Denver, CO 80215
Coprocessor, December '84.
Speed up math functions on the Apple and develop software for MS-DOS machines with this 8088 coprocessor card. A companion card in the works will permit you to read MS-DOS disks. $345.

Centronics H80
★★
Centronics Data Computer, 1 Wall Street, Hudson, NH 03051
Printer, November '84.
The company that set the standard in parallel printer interfaces has produced a quality dot-matrix printer of its own. $699.

Cricket
★★★
Street Electronics, 1140 Mark Avenue, Carpinteria, CA 93013
Speech synthesizer, December '84.
A ProDOS-based speech/music generator for the //c. It also includes a clock, and can work with 128K //e computers that have a Super Serial Card. $179.95.

DuoDisk
★★★
Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014
Disk drive, December '84.
The DuoDisk consists of two low-profile disk drives in a single, integrated package. Works with DOS and ProDOS on the Apple II, II Plus, and //e. $729.

Era 2
★★★
Microcom, 1400A Providence Highway, Norwood, MA 02062
Modem, December '84.
A modem and software combination that supports 110-, 300-, and 1200-baud communications. A powerful package. $499.

Gibson Light Pen
★★
Koala Technologies, 3100 Patrick Henry Drive, Santa Clara, CA 95050
Graphics, November '84.
A complete graphics system that includes painting, drawing, animation, and music, using a light pen. $249.

JX-80
★★★
Epson America, 3415 Kashiwa Street, Torrance, CA 90505
Printer, January '85.
The JX-80 is a dot-matrix printer that provides 160 cps (characters per second) speed, programmable characters, proportional spacing, and seven colors (with 80 different shades). $800.

McMill 68000
★★
Stellation Two, P.O. Box 2342, Santa Barbara, CA 93120
Coprocessor, January '85.
If you want to learn how to program the MC68000 microprocessor, the McMill 68000 board will provide you with the tools you need. $229 ($299 with assembler).

Pro 100 Keyboard
★★
Amkey, 220 Ballardvale Street, Wilmington, MA 01887
Keyboard, November '84.
A replacement keyboard for Apple II and II Plus computers. Includes function keys and a numeric keypad. $295.

RGB Interface
★★★
Video-7, 12340 Saratoga Sunnyvale Road, Saratoga, CA 95070
Monitor interface, December '84.
With this device, you can hook your Apple //c to an RGB monitor. Includes a nifty demonstration/utility disk. $199.95.

Soundmaster II
★★
Kearsarge Industries, 12310 Pinecrest Road, Reston, VA 22091
Sound synthesizer, November '84.
A very good product for enhancing the sound capabilities of your Apple. It isn't yet supported by third-party software vendors. $119.95.

Voice Box III
★★
The Alien Group, 27 West 23rd Street, New York, NY 10010
Speech synthesizer, January '85.
This is a very good speech synthesizer, but hampered by poorly produced documentation. $129.

Circle 168 on Reader Service card.

RS232C Computer compatible Paper Tape Transmitter/Model 612

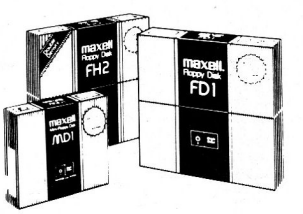
Stops and starts on character at all speeds, uses manual control or X-on, X-off 90-260 volt, 50-60 Hz power. 50-9600 baud, up to 150 char/sec synchronous or asynchronous; gated internal or external clock, RS 232C, current loop or parallel output, reads 5-8 level tape, 7-11 frames per character, even or odd parity. Desk top or rack mount.

Addmaster Corporation, 415 Junipero Serra Drive, San Gabriel, CA 91776, (818) 285-1121, Telex 674770 Addmaster SGAB.

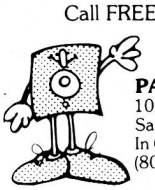
Circle 31 on Reader Service card.

Maxell Floppy Disks

The Mini-Disks with maximum quality.



Dealer inquiries invited. C.O.D's accepted.
Call FREE (800) 235-4137.



PACIFIC EXCHANGES
100 Foothill Blvd., San Luis San Luis Obispo, CA 93401.
In Cal. call (800) 592-5935 or (805)543-1037.

Circle 389 on Reader Service card.

HOW DO YOU HIRE A SALESMAN?

Now for the first time you can evaluate salespeople scientifically and take the risk out of hiring salesmen. Millions of dollars are made by companies who have hired top notch sales people. How is your sales team doing? Here is a diagnostic test that determines the quality of sales people. The 200 questions evaluate 16 areas of sales ability and personality. A 3 page print-out is produced that clearly profiles the prospective employee and gives a clear evaluation of their sales ability. Complete with 3 program disks, a special DATA disk, and clear, easy to follow documentation. $400.

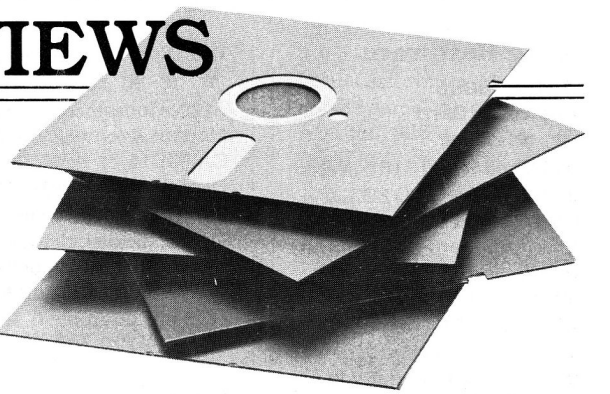
ALSO AVAILABLE FROM PSYCHOLOGICAL PSOFTWARE

NEVER FAT AGAIN	49.50
THE PUPPET	30.00
ON BECOMING A HERO	39.50
PERSONALITY PROFILE	39.50
INTIMACY, THE ART OF COMMUNICATION	39.50
STRESS MANAGEMENT	39.50
ASSERTIVENESS TRAINING	39.50
THE DREAM MACHINE	49.50

ALL PROGRAMS FOR THE APPLE II+, IIe, IIc. Check or money order must accompany your order (no credit cards, please). Add $1.50 for shipping on any size order. From California add 6% sales tax.

PSYCHOLOGICAL PSOFTWARE CORPORATION
4757 Sun Valley Road • Del Mar, California 92014
(619) 481-4182

SOFTWARE REVIEWS



inCider's Ratings

★★★★ Superlative
★★★ Above average
★★ Good
★ Not recommended
Stay away

Spell It!

Davidson & Associates
6069 Groveoak Place
Rancho Palos Verdes, CA 90274

Spelling games
$49.95

★★★

Spell It!, much like the traditional spelling bee, injects excitement into the tedious task of memorizing lists of vocabulary words. Students from the elementary grades to high schoolers studying for college-entrance exams can benefit from the program, which combines four individual modules: See It!, Practice It!, Unscramble It!, and Spelling Frog.

The Spell It! package contains program and data disks and a 65-page manual, the last 40 pages of which duplicate the words on the data disk. The first 25 pages, however, are thorough and helpful in explaining program options and how to use the editor to create word lists.

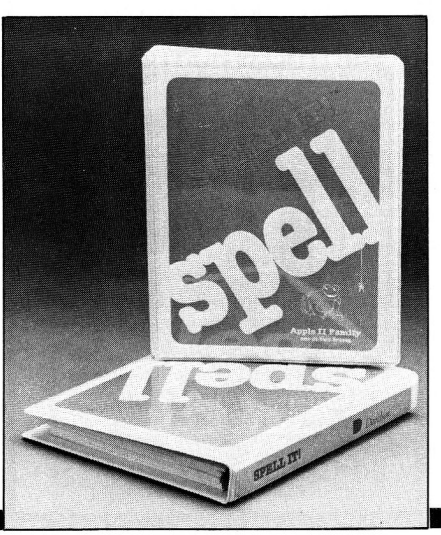
The program begins by asking the student to make several choices regarding presentation. He or she may choose regular or bold print, whether or not to use the sound effects, and the word list difficulty level (novice, intermediate, advanced, champion, or grand master).

The documentation advises students, when working with a new word list, to begin with See It!, which is really the core module of the whole program. See It! displays a correctly spelled word at the top of the screen. (If the word contains more than one syllable, it is broken into syllables on a subsequent line). Then the student must fill in the vacant space in a context sentence using the new word.

In the Practice It! activity, a word flashes on the screen, and the student must type it as it appeared. The student controls the length of time a word is displayed, from a quarter-second (very fast) to five seconds (an eternity).

In both the See It! and Practice It! modules, the student receives a score based on the number of words spelled correctly on the first try, and then can retake the missed words. (This is the extent of Spell It!'s scoring and tracking capabilities, which limits its usefulness in a classroom.)

Unscramble It! is a challenging game for one or two players. The screen is divided into nine boxes, A through I. When you choose a box, it fills with color, and the computer presents a scrambled word to decipher. As the student types, letters from the scrambled word at the top of the screen are inserted into the box. If the student types the word correctly, the box flashes and points are awarded. Bonus points can be earned depending on the pattern of correct answers, so some strategy is involved.



The Spelling Frog module is an arcade-like finale that reinforces learning from the other modules. With direction from the student, the animated amphibian leaps to gobble up correctly spelled words from among choices that include similar, but misspelled, words.

Though Spell It! comes with a data disk of "the 1000 most frequently misspelled words," it also features a simple-to-use, yet powerful, screen editor that allows the teacher or parent to create new word lists or change the old ones. Lists of five to 20 words can be created.

By providing four very different learning activities, Spell It! attempts to accommodate varying learning styles. It puts the student in control, allowing him or her to choose the most attractive activity. Hitting the escape key enables the user to leave an activity at any time and pick another activity or word list, without rebooting the program. These features, combined with provision for creating and editing word lists, makes Spell It! a valuable program for teachers and parents to aid and motivate individual students. ■

Paul DiBara
Rockland, MA

Management Diagnostic Series

Thoughtware
2699 South Bayshore Drive
Coconut Grove, FL 33133

Management training series
Ten volumes for any Apple II
$350–$450 each

★

George Steinbrenner isn't the only one searching for the perfect manager. Corporate leaders everywhere are constantly on the lookout for people who can use time effectively, set goals, manage stress, motivate others, delegate responsibility, conduct productive meetings, and, in general, get the job done.

The breed, however, is rare, a fact that keeps corporate headhunters in business and the Yankees in the headlines. Occasionally, though, individuals possessing these characteristics are already within the fold, needing only to be discovered, enlightened, and motivated as to the specific techniques and strategies that make for effective management.

With this in mind, Thoughtware of Coconut Grove, Florida, has created the Management Diagnostic and Management Training Series, a ten-volume set of computer-based evaluation and training programs designed to assess and improve one's knowledge and application of management methods. Three of the ten volumes cover management diagnostics, and the remaining seven, management training. System requirements are any Apple II, monitor, and one disk drive; a printer is optional.

The first volume in the series is "Assessing Personal Management Skills. Version 2.0" (although the disk labels read Version 1), which consists of three disks and a manual bristling with worksheets, follow-up exercises, and recommended readings. Each disk contains a separate unit: "Managing People to Achieve Results," "Applying Management Methods," and "Increasing Your Own Effectiveness."

After booting, you enter your name and step into the shade of the "Thoughtree" (pronounced *thought tree*), something the manufacturer defines as a ". . .graphic approach to understanding and accessing the contents of the program," but which the rest of us call an organizational chart, that is, interconnected boxes with numbers in them. Call it what you will, it gets you into the program. Your choices are Instructions and Program Description, the Unit itself, or Exit. The first choice, or unit one, consists of subunits assessing Leadership, Motivation, Teamwork, and Feedback. Under Leadership, two sub-subunits, Style and Strategy, are offered; the subunit Motivation breaks down into Motivational Factors and Motivating Subordinates.

Thoughtware's Management and Training Diagnostics series.

You make your choice, and the assessment begins with a discussion of basic management principles. Effective management, for example, requires you to be a competent leader, a motivator, a team builder, and feedback provider. Next, you are presented with a series of statements and asked for your response. Following this, you receive a brief on-screen evaluation: "Genghis, you have a high concern for task and a low concern for people. The most effective leader is one who combines concern for task with concern for people. It seems you would benefit from further work on increasing your concern for people."

This discussion-response-evaluation method does not vary greatly throughout the rest of the volume. Along the way you sit in on meetings, assess strategies, and compare your responses to a national sampling of managers and subordinates. Occasionally, you encounter genuinely thought-provoking questions: "In surveys conducted nationwide. . .managers typically rate themselves higher than their subordinates rate them. How do you think your subordinates would rate your performance as a leader? Why do you think managers rate themselves higher?" I wouldn't want to be anywhere near the water cooler when that one comes up!

The program's strength lies in its versatility. Well-designed and easy to operate, it can be used at various levels of an organization, either by itself or as a supplement to existing management-training programs. Another plus is that material learned at the keyboard is immediately applied to the individual's specific job situation. Follow-up exercises and action plans for improvement also contribute to the program's long-term usefulness.

Graphics quality is inconsistent, however, ranging from full-screen hires images of talking heads, to the kind of silhouette figures and three-dimensional bar graphs often seen in annual reports and sales meeting slide shows.

My main criticism concerns the program's speed: it's painfully slow. After you enter your name and press the return key, it takes more than 25 seconds for the screen to change. Screen wipes occur at a snail's pace, and the program returns to disk almost every time you press a key—unacceptable for a program costing $350.

Another problem is the length of time required to print your results. The display on screen-page 54 says it takes approximately ten minutes to print the results of unit one's seven brief assessments. I assume that's for a dot-matrix printer, as it took a full 13 minutes with my letter-quality Transtar 120. That's a serious flaw, for it's likely to inhibit one from exercising this valuable option. ■

Wayne J. Sassano
Wethersfield, CT

Jane

Arktronics
113 South Fourth Avenue
Ann Arbor, MI 48104

Word processor, spreadsheet, and list manager
Any Apple II, 64K
$179
$295 with a custom mouse for the //e

★★

Jane is dubbed an (here's that magic word) *integrated* program, but the fact is, Jane is very plain. It combines word-processing, spreadsheet, and mailing-label functions, but unfortunately some limitations built into each section handicap Jane's performance in the real world.

Like the Macintosh computer, Jane's functions are directed by selecting icons, such as a typewriter icon to choose word processing. To use Jane then, you need a mouse, a joystick, or a KoalaPad.

Jane's 236-page manual is easy to understand and includes many helpful illustrations. A 59-page tutorial details each of Jane's three major applications. The program comes with three color-coded disks: its main program disk, a sample data disk, and a help disk.

Jane lets you use "windows" (up to four at any time); you can enlarge or reduce the windows and move them around on your screen. You can cut (with a scissors icon) or copy (a camera icon) information from one application and then put the information (a paste jar icon) into another application. The icons make it easy to move things from one spot to another in the same document, too.

A stop sign icon is always on your screen, and when selected, the stop function closes all the windows and saves your current file. Disk functions (to lock or rename a file, for instance) are also all completed through the use of icons.

Jane processes words, lists, and spreadsheets.

Janewrite

Jane's word processor is a bit better than average. It boasts that it prints what you see on the screen, and to some degree that's correct. The system can handle up to 25 pages of text in memory at one time, and the icons make it easy to set margins and other page information. Text editing and insertion are simple.

The major drawback of Jane's word-processing function is its use of Apple's hi-res graphics for text characters. They are not as clear as those produced by word processors that use an 80-column card. If you type in data in standard-sized characters, you can't see the entire text on the screen. When you reach the right edge of your text, the program hesitates and rewrites your screen display. This distracting delay slows text entry and can cause character loss. You can avoid this by switching to smaller characters that are, nonetheless, hard on the old eyes.

Once you reach the bottom of your working area, Jane rewrites the screen as you finish each line. The visual chaos confuses the mind as well as the eye. On a better note, the program lets you search and replace and justify your text. It also shows on-screen underlining, boldface, and sub- or superscripts.

Janecalc

Janecalc is a miniature spreadsheet: only 19 columns wide by 24 rows high for a total of 456 cells. (A standard spreadsheet like VisiCalc provides more than *16,000* cells.)

Usually a spreadsheet takes on new dimensions with a mouse, but with Janecalc I learned that a mouse isn't necessarily helpful. When you reach a boundary on your worksheet, this program rewrites the screen to match your new location. Any speed you gained with the mouse is lost. Another problem is that Janecalc doesn't highlight your current cell, so it's difficult to determine exactly at what you're pointing. I also tried the program with a joystick and found it an exercise in frustration. If you buy Jane, use a mouse.

Jane's spreadsheet includes only a few functions: sum, average, count, minimum, and maximum. Data or text can spill into following cells—useful for labels and other text information. You can't vary the column widths or adjust the formats of your numbers.

One of the more powerful spreadsheet functions missing from Jane is *replication*, which lets you enter a formula in one cell and then replicate (or copy) it into a range of cells. With Janecalc, you must construct your worksheets one cell at a time.

Janelist

The mailing-list program comes with two preset formats: one for business records and another that duplicates a personal address book. You can create your own designs for your filing "cards," too. Each card can have up to 250 characters of information; an in-

dividual field can hold up to 25.

Janelist is below average as a mailing-label generator, because you can't select the labels you want to print, such as all labels from one state. When you ask for hard copies, it prints every label.

Janelist does allow a screen search. Its search function isn't case-sensitive and lets you use two different types of wild cards to find partial matches. Each search pattern is an AND search: you can search on more than one field, but all criteria must match for Janelist to find the data. Once it finds a match, it displays the card. Janelist must figure that once it finds one card, that's the only card you'll want to locate, since, to continue the search, you must retype your criteria and ask the program to continue looking.

Changing or editing your information is easy, and Janelist can sort its cards on any field you select.

If you try to enter more information into a field than the program expects, it won't accept the extra data (good) but doesn't beep to let you know (bad).

Worth Buying?

Jane is integrated in the sense that data can be transferred from one part of the system to another. In most cases, you'll send information *from* the spreadsheet or mailing-list program *to* the word processor. (It's unlikely that you'd enter much text into your spreadsheet or send a letter to your address book.) I suppose you might write a letter and want to save the name and address in the filing system, but by the time you select the text that you want to move, "take a photo" of it, load Janelist, and "paste" in the data, you could have done it by hand—perhaps twice.

Because the spreadsheet and mailing-list sections of the program hold most of the data that you'll want to move, those functions should be powerful. And that's precisely where Jane runs into problems: The spreadsheet is only marginally more functional than a hand calculator, and by the time you ask the mailing-label application to search for and find an address and send it along to the word processor, it would have been faster (and almost as easy) to flip through a card file. This is an example of the kind of task a computer can perform, but not necessarily better than you could do by hand or on paper.

Jane is worthwhile for home use, where you may want to transfer some calculations into a letter or if you'd like to have an electronic address list. But there simply isn't enough power in the system for any business applications that require true integrated strength. ■

Gregory R. Glau
Prescott, AZ

Investor's Workshop

Dow Jones & Company
P.O. Box 300
Princeton, NJ 08540

Investment manager
Modem recommended
$149

★★★

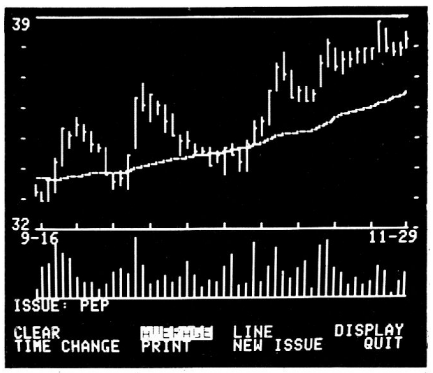
Investor's Workshop, a new release from Dow Jones and recognized by Apple Computer as a featured product for the //c, is impressive software that performs three relevant tasks for investors: portfolio management, stock charting, and terminal program emulation. The program also works perfectly with the Apple II Plus and Apple //e computers, with either one or two drives.

Basically the Investor's Workshop updates the value of your portfolio automatically (from Dow Jones News/Retrieval or your own information), generates reports of profits and losses, charts stocks for analysis, and accesses Dow Jones News/Retrieval for business news and general information.

In keeping with the Apple //c theory of simplicity, the Investor's Workshop manual is designed to help you master the program as quickly as possible; it consists of six concise sections.

Suggested hardware includes one or two disk drives, modem, and printer. An Apple Modem or Hayes Smartmodem are the only ones that can be dialed automatically by the program. You need an Apple Imagewriter to print stock charts with an Apple //c, but any printer with an intelligent interface will print charts with an Apple II Plus or //e.

The package comes with only one program disk, the Investor's Workshop System Master Disk. The disk



Workshop's chart of stock volume, price, and average.

isn't copy-protected—a rarity for Dow Jones software—so backups aren't a problem. You must supply two blank disks for use as a "portfolio" disk and a "text" disk.

All portfolio transactions are recorded in a master list on your portfolio disk. The disk holds (1) up to 80 transactions and (2) data for charting up to 25 stocks for a total of up to 80 symbols.

The "new transaction" menu option lets you enter new purchases, short sales, or non-security assets. All new transactions are considered "open," until they are closed with an offsetting transaction.

When entering a new transaction, you are prompted for the symbol, type of security, buy or short sale, number of shares, date of purchase, total cost, commissions, dividends, and the expiration date if you are dealing with a bond or option. A single-character I.D. can be entered to name the portfolio.

"Low price," one of two optional entries, lets you set a target *below* the current price that will be indicated in a report when the security falls below this level. This is helpful for setting stop-loss orders. The "high price" option does the same thing with a target price *above* the current price.

The Charting mode lets you construct high, low, close, and volume bar charts with stock data collected from Dow Jones News/Retrieval or data you enter yourself. The portfolio disk is used when charting stocks. Once a chart is constructed, you can plot moving averages and trend lines for further analysis.

The Investor's Workshop is compatible with the Dow Jones Market Analyzer, a popular stock-charting program.

The Market Analyzer disk, however, must never have held more than 25 stock histories. If your Market Analyzer data disks meet this requirement, it will save you the time and expense of setting up a new stock data base. Also, the Investor's Workshop plots charts much faster than the Market Analyzer, although it isn't capable of performing such complex technical analysis.

The EZ Terminal mode lets you access all the data bases at Dow Jones News/Retrieval. The data received is called "text" and can be saved to disk for future viewing and printing. This helps to keep access charges to a minimum. Data that comes from Dow Jones in 40 columns can be reformatted if your Apple has an 80-column display. The "text" disk is used in the EZ Terminal mode.

The Investor's Workshop offers great value for $149, which is less than half the price of an average Dow Jones software package. If the bottom line is "buy" or "sell," then buy.■

Richard Fuccillo
Groton, MA

Gelfling Adventure

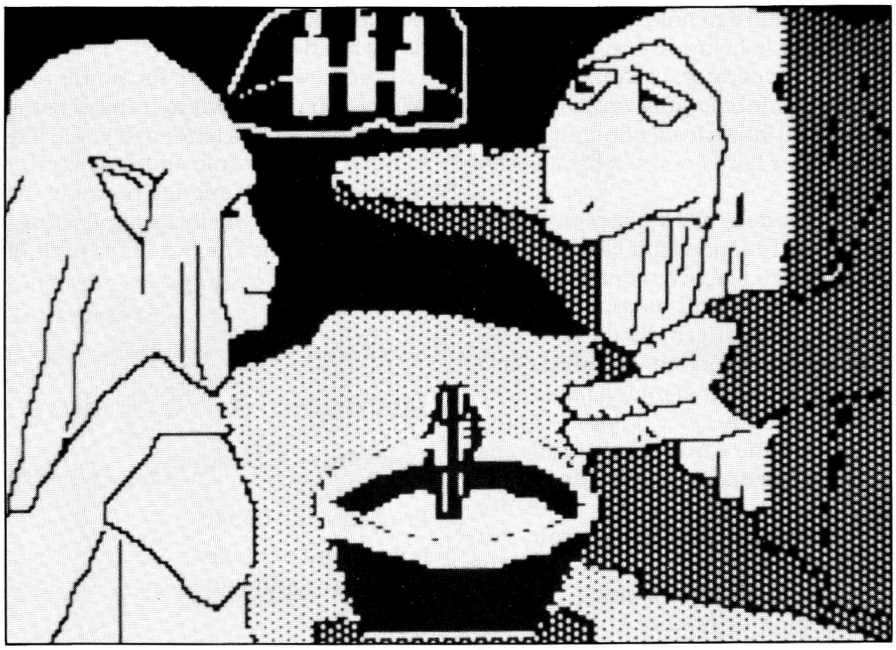
Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614

Illustrated adventure
$50

★★

Perhaps you're familiar with the world of the Dark Crystal from its appearance in movie theaters and as a computer game a year or so ago. Gelfling Adventure is a less complex version of the game for young players. The child takes the role of the hero Jen, whose task it is to locate a missing shard of crystal rock stolen long ago by the captors of his people, and by restoring the shard to free his people from domination.

One of the big differences between Gelfling Adventure and Dark Crystal is that in the junior version it's not necessary to type in commands. All the player must do is press the space bar to move the flashing cursor to choose an option, then press return. There are also fewer objects to find in Gelfling Adventure. Sounds simple enough, you say? Simple, yes—but educational, too.



Follow Jen in Gelfling Adventure.

Gelfling Adventure furthers children's reading skills and encourages them to remember details, such as whom and what to avoid, whom to trust, and whom to turn to for help. Also, the technique of making choices to issue commands encourages youngsters to ask themselves, "I wonder what would happen if. . .?" and to draw conclusions.

Sierra understands that some children find map-making difficult, so they've included an illustrated map of the world of the Dark Crystal. A compass decal the parent or teacher can stick on the monitor near the screen complements the map.

Also included in the package is a Gelfling Glossary that describes the various creatures and objects Jen and the young player will find along the way. It comes in handy as a preview or when the child can't remember whether the creature that has just appeared is good or evil.

Gelfling Adventure does have a couple of drawbacks. One is that you can't save a game to resume it later. Also, sometimes if you move in the wrong direction, you are immediately captured by hidden guards and the game ends abruptly. Then rebooting and starting all over again is the only recourse. If this happens once, it's no problem, but after four or five times it gets annoying. Of course, the trick is to remember where the guards lurk, but it takes time for a youngster to get the hang of that.

Aside from these two shortcomings, Gelfling Adventure is an enjoyable as well as educational game. I would recommend it for the 9–12 age range. Younger children are not likely to have the thinking skills required, and older ones will want more challenge.■

Linda Beaulieu
Ansonia, CT

ProfitTaker

Investment Growth Corporation
Suite 4
1430 West Busch Boulevard
Tampa, FL 33612

Commodities trading
$795

★★★

Unless you understand the commercial significance of pork bellies, the Japanese yen, or sugar #11, you may want to skip this review. ProfitTaker is a highly sophisticated, tightly planned software package for the serious commodities trader. It is a fair investment in itself, but the value of incorporating the experience of Louis B. Mendelsohn into your system can-

not be overestimated—he is a widely respected expert in the use of computers for trading in financial markets, with a definite skew toward the arcane art of commodities trading.

Investment Growth Corporation has approached the subject by providing, in fact, two programs. The first, ProfitTaker, can be purchased alone (Apple hard-disk version $895, floppy $795), or the second package adds a program called ProfitAnalyst (hard-disk version $1795, floppy $1495).

Since access to an on-line data base is always useful for any stock market trading, the publishers recommend use of Commodity Systems (Boca Raton, Florida), a supplier of commodity performance data. While CSI's data can be ordered and received by mail, it also has an on-line service for microcomputer owners, accessed by using the communications program Quicktrieve, which CSI also supplies. ProfitTaker and ProfitAnalyst don't support direct communications, but are designed to look for data disks created under Quicktrieve. (Manual entry is, of course, also possible.)

The base program, ProfitTaker, has a comprehensive tutorial that explains how the program will be used—but if you don't understand commodities trading, don't expect this tutorial to teach it. Unlike some programs (admittedly in less complex areas), ProfitTaker assumes that you know the business. By page 6 of the tutorial you are presented with such jargon as "oscillators of short and long term directional indicators" and "momentum timing filter." This is not a criticism, but a warning to newcomers: Get your education on the art of commodities trading elsewhere, and then ProfitTaker will be able to help you.

With ProfitTaker, you can introduce into the analysis your own particular trading style, a factor missing from the so-called "black box" software, which in effect says "buy" or "sell" but excludes you from the underlying theories and principles involved.

But that is not the important reason for the personalization possible in ProfitTaker. One of the critical factors in commodity trading is one's "intestinal fortitude." Each trader's ability to handle risk, pressure, *and* financial losses is different, and any program with parameters set for one style and attitude could not possibly suit everyone. Mendelsohn has recognized this, and as the manual warns, some of the technical indicators in the program must be modified to suit the individual, as they may "involve trading performance that might be unacceptable to you."

"Access to an on-line data base is always useful for any stock market trading."

The way to test (or perhaps even establish) your own trading style, by actually experiencing the possible results, is to use ProfitAnalyst, the other program offered by Investment Growth Corporation. It gives you the opportunity to test suppositions, theories, and even hunches on actual historical data. It can test and compare your particular trading system with the real world.

These programs are excellent, and they certainly come from an organization that has all the credentials for at least presenting the right tools for an investor. Yet for software of this importance and price, there is no excuse for a dot-matrix, mimeographed manual full of errors in spelling and grammar. The program is copy-protected with a hardware chip that goes in the paddle port of the Apple, and the publisher has been kind enough to allow the futures investor/game-freak to branch the port so that the paddles or joystick can coexist with the coded chip.

Until someone introduces a category of commodities called "rare chips" or "data bases," this reviewer probably won't attempt futures trading. But I do find comfort—borne out by discussions with people who do trade futures—in the fact that the Investment Growth Corporation packages can be of great help in managing and planning for investments in this volatile market. ■

Archie Mason
Stamford, CT

Circle 6 on Reader Service card.

EDUCATIONAL SOFTWARE!

$1.00 credit for phone orders over $100.00

We specialize in Educational Software. We also carry a full line of business, recreational and utility software.

All of our software is discounted, most discounted at least 26%.

	LIST	SPECIAL
LANGUAGE ARTS		
Alphabet Circus	29.95	21.66
Crossword Magic	49.95	35.96
Fact or Fiction Tool Kit	39.95	28.56
Grammar Examiner	44.95	32.26
Reader Rabbit	39.95	28.56
Snoopy's Skywriter Scrambler	39.95	28.56
Speed Reader II	69.95	50.76
Spell It!	49.95	35.96
That's My Story	59.95	43.36
Webster: The Word Game	29.95	21.66
Word Attack!	49.95	35.96
Word Spinner	34.95	25.86
Writing Skills I	39.95	28.56
MATH		
Addition Magician	34.95	25.86
Algebra Arcade	49.95	35.96
Early Games	34.95	25.86
Fraction Action	39.95	28.56
Fraction Factory	29.95	21.66
Math Blaster	49.95	35.96
Mission: Algebra	44.95	32.26
Sweet Shoppe	39.95	28.56

Ask for FREE price list

Educators: ask for special educational catalog

OTHER		
Agent USA	39.95	28.56
Bank Street Speller	69.95	50.76
Bank Street Writer	69.95	50.76
Dinosaur Dig	49.95	35.96
Financial Cookbook	50 00	35.96
Master Type	49.95	35.96
Operation Frog	39.95	28.56
Peanuts Maze Marathon	39.95	28.56
Robot Odyssey	49.95	35.96
Rocky's Boots	49.95	35.96
SAT (Krell - Gold)	299.95	249.96
States & Traits	44.95	32.26
Terrapin Logo	99.95	71.96
The Print Shop	49.95	35.96
Tranquility Base	29.95	21.66
UTILITIES		
Ess. Data Dup (EDD)	79.95	58.16
Gibson Light Pen	249.95	194.96
Koala Pad	124.95	90.46
Locksmith 5.0	99.95	77.96
Muppet Learning Keys	79.95	58.16
Think Tank (II+ or IIe)	150.00	108.96
Wildcard 2	139.95	110.19
MACINTOSH		
D.B. Master	195.00	139.00
Dollars & Sense	149.95	108.00
Helix	395.00	285.00
Microsoft Word	195.00	139.00
Suspects	44.95	32.26

We Accept School Purchase Orders.

BYTES & PIECES

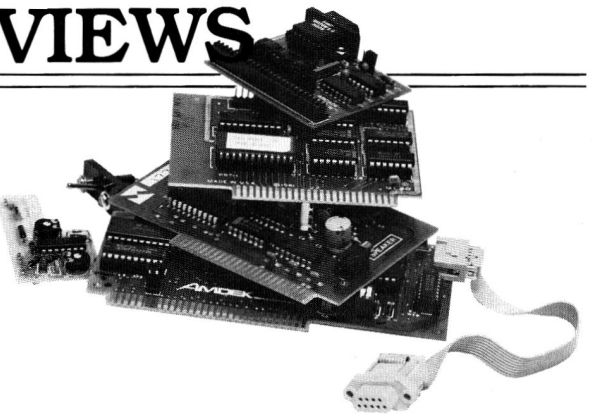
Apple & Macintosh are trademarks of Apple Computer, Inc.

C.O.D. • M.O. • Cert. Checks • School P.O. • VISA • MasterCard • Checks Allow 2 Weeks • N.Y.S. Res. Add Sales Tax • US Orders Under $150. Add $2.50 P & H • All Canadian, US Funds $3.00 P & H • Foreign, Charges Only, Min. P & H $7.00

Source TCP 637, Compuserve 72135 1710

Box 525, Dept. J
East Setauket, N.Y. 11733
(516) 751-2535

HARDWARE REVIEWS



inCider's Ratings

★★★★ Superlative
★★★ Above average
★★ Good
★ Not recommended
Stay away

Personal Speech System

Votrax
500 Stephenson Highway
Troy, MI 48084

Speech synthesizer
$395

★★

You don't have to wait for the 21st century to take advantage of speech synthesis. Votrax has designed Personal Speech System, a better, more powerful device than its earlier release, Type 'n' Talk. But the Personal Speech System doesn't come with software. You must write your own or run commercial programs that output to a printer.

An Apple II, or any computer with RS-232 serial or Centronics-type parallel ports, can easily hook up to the system. Just choose the right cable and you're in business.

Standard features include a parallel and a serial interface card, a 3500-character buffer, and an internal speaker. The rear panel sports an external speaker jack, a 5-pin DIN power connector, an on/off button, and eight configuration DIP switches. The Personal Speech System measures 12¼ inches by 5¼ inches and weighs a mere 2½ pounds. It's actually portable!

The Personal Speech System operates according to the *synthesis-by-rule* method, which offers greater flexibility than other speech synthesis techniques because of its unlimited vocabulary. The only drawback is that synthesis-by-rule often produces less understandable speech output than other methods.

The Spoken Word

For speech data, the Personal Speech System accepts text or phonetic input. Inflection, amplitude, and rate of verbalization can be controlled independently. Non-speech functions include music, sound effects (white noise is possible), customized alarms, and a programmable clock.

For the Personal Speech System to speak, it requires text programmed like output to a printer:

```
10 PR#1
20 PRINT "Votrax does it right."
30 PRINT "It took him two hours to write
   this program."
```

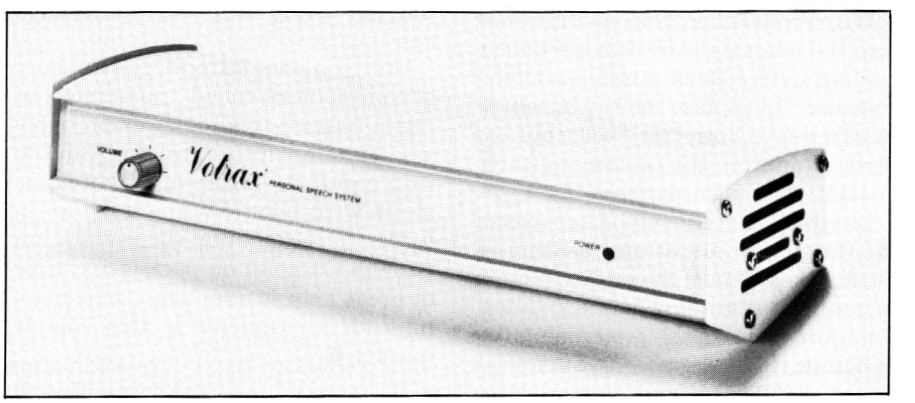
The Personal Speech System also "verbalizes" games such as Pirate Adventure and Voodoo Castle for a new dimension to adventuring.

The SC-01 synthesis chip can generate 64 phonemes, the building blocks of language. Input the phonetic sequences as standard ASCII characters. Approximately 1400 English words and their phonetic equivalents reside in the speech dictionary. Couple this with the phoneme-ASCII table and you're set. Phonemes permit crisper speech and (usually) faster response than straight ASCII text, since the data doesn't have to be translated prior to output.

Non-alphabetic, printable ASCII characters, such as the tilde, question mark, and exclamation point, serve as command and control characters. The system treats others ($, &, %) as spoken punctuation marks.

Skilled use of the inflection, rate, and amplitude commands fine tunes the verbal output. All it takes is a little practice.

Other commands in the voice and in the music generator change the data transmission rate (in predetermined



The Personal Speech System improves your Apple's vocabulary.

steps) from 75 to 9600 baud, create an amplitude envelope for non-speech generation, and alter filter settings to generate various sound and voice effects. You can define the attack and decay rates, as well as the sustain and release levels of the three channels, independently with the envelope feature. There's even an attack delay option.

With only a few keystrokes, you can load and execute the exception word table. Prompts (toned-down alarms), noise generation, and tempo are other easy-to-master features made more flexible by the wait (delay execution) command.

The Personal Speech System is a misleading moniker because it can generate musical tones, too. Far superior to the Apple's meager bleeps and blips, the Personal Speech System chimes in with 96 notes from three independent sound channels.

Documentation

A vinyl, three-ring manual contains system particulars, operating commands, and instructions. A separate quick reference card and Phonetic Speech Dictionary are also included. The manual, though generally well-organized and informative, does, however, offer pitfalls to first-time users. The non-speech output examples are listed with creating speech by programming in BASIC, but nowhere is this stated. You must remember to include PRINT commands and both sets of quotes whenever you want audible output.

The manual also doesn't specify which serial and parallel cards the system interfaces with. According to Votrax, the unit won't work with all cards, even after you adjust the DIP switches. The best thing to do is ask the dealer to demonstrate the system (with the same card you use) before purchase. (Good news: The standard Apple parallel printer card works just fine.)

Informative appendices include adjusted spelling examples (elocution exceptions), a phoneme conversion chart, error code listings, a musical note chart, cable wiring diagrams, DIP switch settings, and BASIC programming examples. Default settings, Z-80 memory and input/output maps, and a hex-to-decimal conversion listing comprise the remaining tables.

Other hardware devices can create more lifelike speech than the Personal Speech System, but they cost ten times as much. Considering affordability and performance, the Personal Speech System is unbeatable. ■

Ted Salamone
Bridgeport, CT

The Digital Paintbrush

Computer Colorworks
3030 Bridgeway
Sausalito, CA 94965

Graphics package
$299

★★★

The Digital Paintbrush is an innovative and easy-to-use graphics design package based around a unique hardware interface. Powerful enough for software developers and business people, the system is also affordable enough to appeal to hobbyists.

An alternative to complex graphing commands, the special electronic "pen" lets you draw graphics freehand, displaying the image on the screen. Two nylon cords connect the pen to the 8-by-11½-inch Digital Paintbrush module. The other end of each cord attaches to an internal, spring-loaded wheel, keeping the tension on the cord light at all times. Sensors inside the module monitor the position of the pen as it moves across the drawing area in front of the main unit, and then pass this information along to the computer.

A single cable, fed through the back panel of the computer and attached to an internal joystick/paddle port, connects the Digital Paintbrush to the Apple. Unfortunately, the cable's connector is too large to fit through the joystick openings on the back of some //e's and must be routed through the opposite end of the case.

The Digital Paintbrush includes utility programs dedicated to the production, storage, and display of graphics images. The heart of the system is the graphics design program itself, which liberally uses selection menus and icons. In its simplest form, the program lets you draw as you would with pencil and paper. Pressing the pen down activates a small internal switch and initializes drawing. A second switch mounted on the side of the pen brings the command menu into and out of view as desired.

When you want to get a bit fancier, menu selections let you change the size and shape of your electronic "brush," or choose a drawing color from solid colors or mixed color patterns. Going further, you can produce rectangles and circles of almost any size, and fill the finished shape with any of the available colors or patterns. Additional features produce a straight line between two points, generate curves from a series of points (especially helpful in constructing graphs and charts), and display an on-screen grid size while creating a picture to help keep proportions correct.

Though easy to learn and use, the system nevertheless has several limitations. For example, you can trace a drawing by placing the original under a clip and following the edges with the pen, but this technique is far from precise. Small details on a drawing are almost impossible to follow accurately. Part of the problem stems from the cords being mounted about ¼ inch above the tip of the pen; any change in the pen's angle can cause distortion in the drawing.

In addition, the excessive downward pressure required to activate the pen tears thin paper. I found it easier and more precise to follow a drawing's on-screen progress rather than rely on the pen's physical position.

Special Features

Perhaps the most unique part of the Digital Paintbrush system is its telephone graphics program. By using two Apple computers equipped with modems and connected through telephone lines, interactive drawing is possible: Changes made on one end of the line are reflected on the other end as well, a useful application particularly in field engineering, where changes in design can be discussed and graphically depicted over the telephone. Another application, a real-time record of the drawing process, re-creates the exact steps used in making or modifying a drawing.

The Digital Paintbrush package includes utility programs on disk. One routine determines the area of an en-

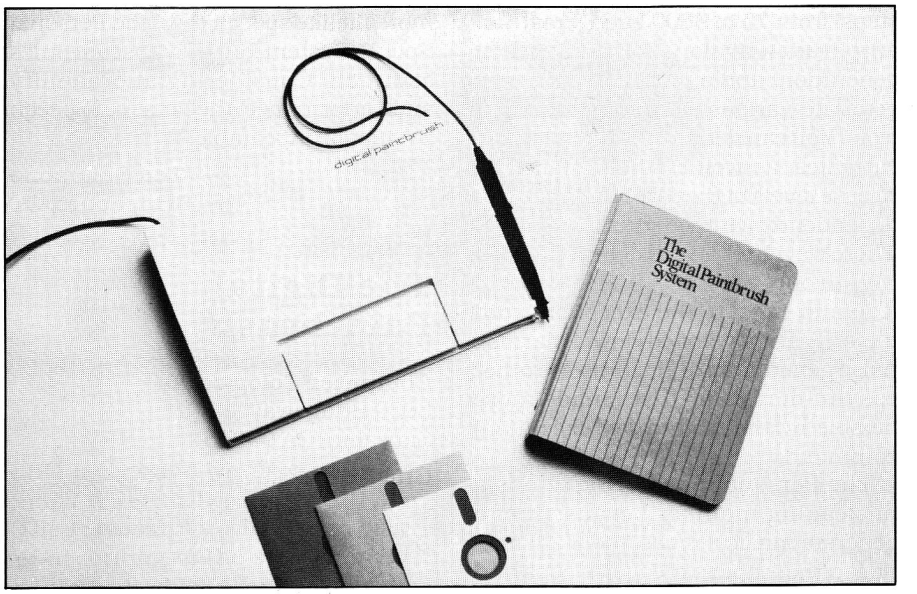
closed shape calculated in a unit of measurement you specify. This is useful in job estimation and statistical analysis. A second routine, the Graph Grabber, lets the Digital Paintbrush load and process illustrations created by PFS:Graph.

The Digital Paintbrush system supports 35 of the most popular printers, over 25 different interface cards, and includes a print utility program that can print your finished graph as hard copy even with a standard printer interface. It also displays images one after another, individually or sequentially, like a slide show, with each image staying on screen from three to 99 seconds.

The system also features a selection of font styles for use within the graphics design program, including a complete set of icons. Finally, the package includes several files of ready-to-use images that can be used in graphics designs.

The documentation included with this system is quite thorough and professionally produced. Serving as an instruction and reference manual, the 8-by-9-inch binder is informative and easy to follow. It contains chapters devoted to each part of the system and a very helpful section about designing effective business presentations. ■

W. Charles Doherty
South Dartmouth, MA



The Digital Paintbrush combines graphics with telecommunications.

Calmpute

HesWare
150 North Hill Drive
Brisbane, CA 94005

Biofeedback monitor
Apple II Plus, //e, //c
$99.95

★★★

Personal computers have never been more personal. Calmpute, a hardware/software biofeedback program, claims you can learn how to reduce tension by monitoring your own stress levels and following the program's suggested exercises. In essence, you can be privy to the methods behind that so-called "art" of relaxing.

The Calmpute package contains the user manual, program disk, and an external GSR (galvanic skin response) monitor. The only additional items you'll need are a 9-volt battery to power the sensor, your Apple, and, of course, yourself.

The manual presents an overview of biofeedback and the melding of computer technology with this science. It clearly and concisely explains how the body's nervous system works and responds to stress. In addition, it fully explains all of the programs contained on the disk, how to implement them, some useful tips on getting the most out of your sessions, and other pertinent information.

The key to the package is the GSR monitor. This intriguing little piece of hardware is a palm-sized plastic unit with two indented metal strips on which you place your fingers (a piece of elastic keeps the unit comfortably positioned on your hand). The 9-volt transistor battery goes inside the monitor. A cable, which runs from the unit to the Apple's joystick socket, transmits the fingers' "responses" to the computer. The human body commonly reacts to stress by variations in sweat-gland activity and pore size. These variations change the electrical resistance characteristics of the skin, and this is exactly what the GSR monitors. The computer measures and evaluates the fluctuations and levels of resistance, processes the information, and displays the results on the screen.

If the GSR is Calmpute's heart, then the eight selections from the main menu are its soul: instructions, introduction to biofeedback, physical stress test, psychological stress test, relaxation/stress management, calm-scope, calm-bar, and calm-prix.

The on-screen instructions refresh your memory and negate the need for constantly referring to the manual. At the title page of each program segment you can opt to view or bypass relevant instructions. (I really must give this program an A + for user-friendliness.)

The physical stress test provides you with a good idea of how muscular tension, physical performance, and relaxation ability affect your overall stress level. This test's activities include image relaxation, muscle flex and breathing, post-stress relaxation, and relaxation reaction time. The physical stress test should be taken in sequence without interruptions for the most accurate evaluation of your performance, and you should refrain from trying to interpret the results while actually taking the test. At its completion, a graph displays your results.

The psychological stress test illustrates how mental factors can affect your GSR arousal level, as well as indicating psychological conditioning or automatic reactions that will affect you. Besides providing meaningful insight into your psychological stress makeup, it can be fun if taken in a lighter vein. The word association section, for example, that measures emotional reactions to certain words, sug-

gests distinct possibilities as a party game, as well as giving you an oft-times-surprising look at your own psychological profile.

The stress management program provides a thorough outline of strategies that enable you to relax deeply and rapidly. Several techniques are offered, and as everyone's emotional composition is different, you're encouraged to experiment to find out which is the most effective for you.

Both the calm-scope and calm-bar segments of the program are visual plotting aids that let you see a hi-res representation of your stress levels. Several controls are provided for adjusting the sensitivity of the GSR sensor: toggling the audio on or off, centering the image, and toggling verbal relaxation instructions on or off.

The calm-scope produces a graph of your stress/relaxation levels instantaneously and shows your immediate response to persons, things, and events around you.

The calm-bar is represented by a rising and falling column that is proportionate to your stress/relaxation levels over a period of time. You can select this period to be five minutes or more.

The calm-prix is a novel segment of the program that takes on the scenario of an arcade-style auto race. The objective is to complete the course without hitting the potholes or going off the road, and this is one game where it's truly a case of mind over matter. One hand controls the cursor keys, which affect the direction of your surrogate race car, while the other hand is hooked up to the GSR sensor, which controls the *speed* of the car. It works like this: when you are calm, the car goes faster; the faster the car goes, the more difficult it is to stay on the course; the more difficult it is to stay on the course, the more tense you become; and so on. It's a vicious cycle, but it is fun.

Virtually every medical professional cites stress and hypertension as leading causes of health problems. Calmpute may not be the solution to all of your stress problems, but it certainly won't add to them—and just the joy of using a program that doesn't require lightning-fast reflexes or heavy-duty thinking is quite therapeutic in itself. ■

Tom Benford
Bricktown, NJ

Circle 208 on Reader Service card.

UP TO 66% OFF
On Computer Products

TOP QUALITY APPLE COMPATIBLE
DISK DRIVES

Super 5 Direct Slim Drive **$185**
AP-100-A Two-In-One (Alps Mechanism) **$369**
AP-100-C Slim Line (Alps Mechanism) **$185**
AP-50 Full Height (Shugart SA390 Mechanism) **$159**
NEW Super 5 Direct Slim Drive for Apple //c **$195**

	List Price	Our Price
HARDWARE FOR APPLE		
16K Ram Card for Apple II, II+	$ 79	$ 42
Z-80 Card for Apple 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
Switching Power Supply (Direct Plug-in to II+)	110	64
Computer Case Similar to Apple II+	149	59
Replacement Keyboard	159	69
Computer Case with Built-in Numeric Keypad	329	139
RF Modulator	49	19
Power Strip with Surge Protection and 6 Outlets	59	20
ADVANCED LOGIC SYSTEMS		
CP/M Card	399	299
Z Card II	169	139
Z Engine (Universal Z-80)	199	149
Smarterm II (80 Col for II+)	179	149
CH PRODUCTS (HAYES PRODUCTS)		
Mach II Joystick for Apple II+	39	35
Mach III with Fire Button for II+	49	42
Paddlestick for II+	49	35
Mach II Joystick for Apple //e	44	38
Mach III with Fire Button for //e	54	45
Paddlestick for //e	44	35
CALIFORNIA COMPUTER SYSTEMS		
Clock/Calendar	120	95
711 Async Serial Interface for Printer & Modem	135	110
CHALKBOARD		
Power Pad for II, II+ and //e	99	79
Starter Kit	49	39
DIGITAL RESEARCH		
Gold Card CP/M 64K	495	269
Gold Card CP/M 192K	775	449
INTERACTIVE STRUCTURES		
Pkaso Card, Universal	175	135
Shuffle Buffer Par/Par (32K)	349	289
KENSINGTON MICROWARE		
System Saver Fan	89	69
KOALA TECHNOLOGIES		
Koala Pad with Micro Illustrator	124	75
Muppet Learning Keys w/Software for //e & //c	79	55
MICROSOFT		
SoftCard Premium System for II+	695	529
Premium SoftCard //e	395	289
Ram Card	100	79
MICROTEK		
Dumpling-GX	89	79
64K Ram Card	199	159
128K Ram Card	299	229
Magnum-80 80 Col Card for II+	199	159
Magnum 80me (80 Col, 64K) for //e	139	119
MPC PERIPHERALS		
64K Ram Card +80 Cols for //e	289	149
ORANGE MICRO		
Grappler +	175	115
Buffered Grappler + (16K buffer)	239	165

	List Price	Our Price
PERSONAL COMPUTER PRODUCTS		
Appli-Card 6MHz/64K Memory (Apple II, //e)	$375	$275
PRACTICAL PERIPHERALS		
16K Microbuffer II (Specify printer)	199	149
32K Microbuffer II (Specify printer)	219	169
GraphiCard (with 6' parallel cable)	99	79
Pro Clock	159	129
QUADRAM		
eRam 80 - 80 Col., 64K for Apple //e	135	119
SWEET MICRO SYSTEMS		
Mockingboard A (Stereo Music)	124	92
Mockingboard B (Speech Chip)	124	92
Mockingboard C (A + B)	219	155
TG PRODUCTS		
Select-a-Port for II, //e	49	39
TITAN SYSTEMS (SATURN SYSTEMS)		
64K Ram Card for II & //e	349	169
128K Ram Card for II & //e	499	229
128K + 80 Columns for Apple //e	399	299
Accelerator //e (for II, II+ and //e)	599	269
TRACK HOUSE		
Programmable 10-Key Numeric Keypad for Apple //e	199	149
10-Key Non-Programmable Keypad (Specify II+ or //e)	149	119
VIDEX		
Ultraterm	379	269
Videoterm 80 Column Board	279	189
80 Columns + Soft Switch + Inverse Video	319	239
Visicalc Preboot	49	45
Apple Writer II Preboot	24	19
Ultraterm Visicalc Preboot	69	54
Ultraterm Applewriter Preboot	29	24

	List Price	Our Price
PRINTERS		
BROTHER		
HR-15P	599	449
HR-25P	995	719
EPSON		
All Printer Models		CALL
MANNESMAN TALLY		
Spirit 80	399	269
MT-160L, Tractor, 80 Columns	798	589
MT-180L, Tractor, 132 Columns	1,098	739
NEC HOME ELECTRONICS		
15LQ-P Letter Quality	699	549
PC 8027 Dot Matrix	499	419
OKIDATA		
All Printer Models		CALL
RITEMAN		
Riteman Plus (120 CPS)	399	279
SILVER REED		
EXP-400 Letter Quality 13 CPS	399	289
EXP-500 Letter Quality 16 CPS	549	359
EXP-550 Letter Quality 19 CPS	649	459
STAR MICRONICS		
Gemini 10X	399	269
Gemini 15X	549	399
Radix 10 Near Letter Quality	849	539
Radix 15 Near Letter Quality	995	629
Powertype Letter Quality (18 CPS)	499	369

	List Price	Our Price
TRANSTAR		
T315 Color Printer	$599	$449
MONITORS		
AMDEK		
V300 Green (12" Hi/Res)	179	139
V300A Amber (12" Hi/Res)	199	149
Color 300 (13" Lo/Res Composite)	399	279
NEC		
JB 1201MA 12" Hi/Res Green	179	149
JB 1205 12" Hi/Res Amber	210	159
TAXAN		
12" Hi Res Amber	180	139
12" Hi Res Green	170	129
MODEMS		
HAYES		
Smartmodem 300	289	199
Smartmodem 1200	699	479
Micromodem //e with Smartcomm I	329	239
NOVATION		
J-CAT	149	99
Apple CAT II	389	199
212 Apple CAT Upgrade	389	240
212 Apple CAT System	599	409
PROMETHEUS		
Promodem 1200 Stand-alone	495	379
FOR APPLE //c AND MACINTOSH		
DISCWASHER		
Printer Port Adapter for //c	130	99
KENSINGTON		
Maccessories: Starter Pack	90	69
Maccessories: Portable Modem	140	109
MEGAHAUS		
MegaFiler	195	155
MegaMerge	125	99
MICROSOFT		
Chart for Mac	125	89
Multiplan for Mac	195	135
MITSUBA		
Super 5 Direct Slim Drive for //c	369	195
PROMETHEUS		
Promodem 1200 w/Mac Pac for Macintosh	549	389
Promodem 1200 w/Cable for //c	509	379
SWEET MICRO SYSTEMS		
Mockingboard D for //c	229	169
***We keep on top of all the new products coming out for Apple //c and Macintosh. Give us a call if you don't see what you need!**		
DISKETTES & DISK HOLDERS		
AMARAY		
MediaMate (Holds 50 5¼" Diskettes)	$24.95	$18.95
MediaMate (Holds 50 3½" Diskettes)	24.95	18.95
MAXELL		
SS DD Box of 10	38.70	18.95
VERBATIM		
SS DD Box of 10	49.00	19.95
Disk Drive Analyzer (Specify IBM or Apple)	39.95	29.95
Disk Drive Head Cleaning Kit	10.95	8.95

Call for most recent LOW LOW prices!
To order or for FREE catalog, phone
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. School purchase orders accepted. 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

VISA

Circle 8 on Reader Service card.

UNINTERRUPTIBLE POWER SYSTEMS BY SUN RESEARCH

For complete protection from **Blackout, Brownout, Surge** and **Spike** specify a **MAYDAY** Uninterruptible Power System by **SUN RESEARCH**.

Eliminate costly downtime and lost data caused by those momentary power losses. Protect your software and hardware from damage caused by sudden drops in line voltage. Isolate your computer system completely from the AC wall circuit with a **MAYDAY** continuous (On-Line) Uninterruptible Power System. Give all your components clean 60Hz sine wave power for efficient operation at a price you can afford.

MAYDAY™ UNINTERRUPTIBLE POWER SYSTEMS BY SUN RESEARCH

Available in 150, 300, 600, 1000 and 1500 VA Capacities.

Call 1-603-859-7110

MAYDAY™ Division
SUN RESEARCH, INC.
Old Bay Road
Box 210
New Durham, N.H. 03855

Circle 264 on Reader Service card.

NOW AVAILABLE AT YOUR LOCAL COMPUTER STORE

YOUR DISKS

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.

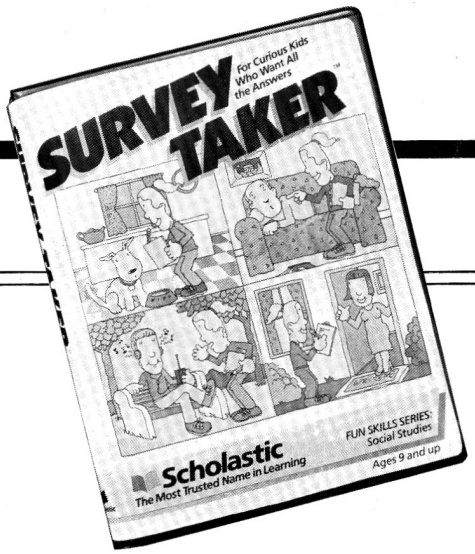
EDD allows you to easily and quickly make back up copies of your "uncopyable" Apple disks. ■ Since EDD has been preset to copy the widest range of copy-protections possible, you just simply boot up EDD, put the disk you want to copy in one disk drive and a blank disk in the other (EDD will work using 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

NEW SOFTWARE



Children plan and poll with Survey Taker.

New Software for Kids

Children plan and interpret surveys using **Survey Taker** ($24.95). Your only clues are vowels to decipher **Mystery Sentences** ($39.95), a game of analysis and logic. Team up with **Kids at Work** ($24.95), an animated graphics program, to draw city and country scenes. These new products work with any Apple II and come from Scholastic, 730 Broadway, New York, NY 10003. Reader Service number is 456.

Critical Planning

Plan, organize, schedule, and monitor any project like an expert with **Project Planner**. Using Critical Path Analysis, Planner organizes your data and generates schedules and flowcharts. The program works on any 64K Apple II, needs two disk drives, and costs $150. An enhanced 128K version is also available. Contact Applitech Software, 381 Harvard Street, Cambridge, MA 02138. Mark Reader Service number 454.

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

Behind the Mask

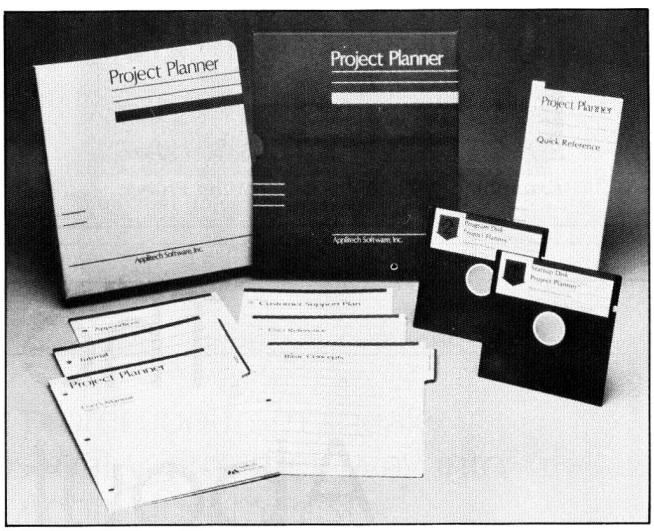
Kids use their family Apple and **Mask Parade** ($39.95) to design masks, jewelry, hats, badges, and accessories. Icon-style menus help children create a costume that can be printed and colored. This double-sided disk is from Springboard Software, 7807 Creekridge Circle, Minneapolis, MN 55435, or check off number 463 on the Reader Service card.

Braille Translator

Now anyone can generate braille with an Apple and a braille printer. **Braille-Talk** will translate any text file into the proper form for braille printers. The program supports many voice synthesizers, so the menu and input can be spoken. This product costs $95, and is published by Computer Aids, 4929 South Lafayette Street, Fort Wayne, IN 46806. Use Reader Service number 466.

Karate on Computer

You are the star in your own karate movie called **Karateka**. This arcade-style game features a series of screens and villains as the plot progresses. The game runs on any Apple II, requires a joystick, and is priced at $34.95. For gripping details, contact Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. Reader Service card is 462.

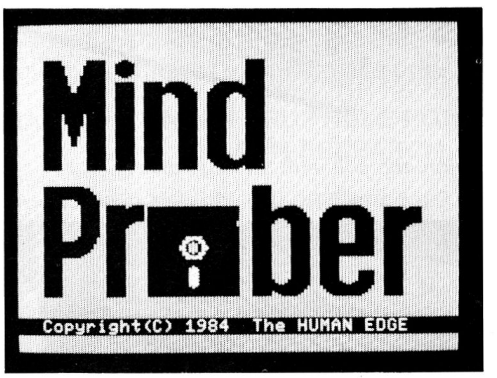


Project Planner combines ideas with critical schedules.

With Mask Parade, kids make their own costumes.

edited by Kerry J. Lanz

Solve a mystery aboard the Zinderneuf.



Examine hidden motives with Mind Prober.

Graphics Mystery

There's been a **Murder on the Zinderneuf**. If you don't find the killer before you land in New York, you'll lose your reputation as a world-class detective. Search rooms, question passengers, solve the crime. This hi-res mystery runs on any 48K Apple II and is different each time you play. A ticket aboard costs $40 at Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. Use number 458 on the Reader Service card.

Psych Out the Boss

Through a series of questions, the **Mind Prober** ($49.95) helps you examine your relationships and conversations with people. Then, based on what you convey about someone, Prober prints out a report on the strengths, weaknesses, and motivations of that person. For revealing details, write Human Edge Software, 2445 Faber Place, Palo Alto, CA 94303, number 469 on the Reader Service card.

New Adventure Technology

King's Quest taps all the potential of your new Apple. This illustrated adventure requires an Apple //c or //e with 128K. It features fully animated, three-dimensional, double hi-res graphics. Commands are complete sentences, directional control is by joystick, and puzzles have several solutions. For $49.95, you get two disks, manual, and card of commands. Quest is from Sierra On-Line, Coarsegold, CA 93614. Reader Service number is 470.

The Truth About inCider

You probably already know that **inCider** is one of the fastest-growing Apple*-specific magazines on the market today.

What you might *not* know is that there are over 1.2 million Apple computer owners out there. And, many of them buy their copies of **inCider** at dealerships like yours every month. They might even be buying it from your competitors. . .

The remarkable success Apple has enjoyed shows no signs of slowing. As a result, **inCider**'s continued growth is assured—and so is yours, as an **inCider** dealer.

We make it easy for you to sell **inCider**. We give you:

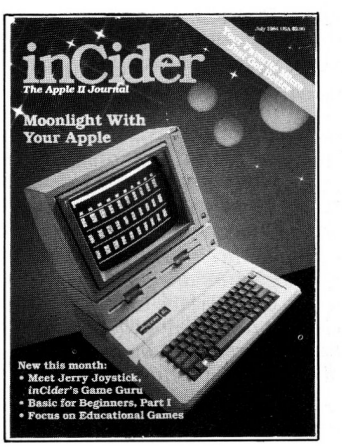
- liberal dealer discounts
- four month, full–refund returns
- a toll-free number for customer service
- a colorful poster to spur sales

To place your order, call our Direct Sales Department today, at

1-800-343-0728

or write to

inCider
Direct Sales Department
80 Pine Street,
Peterborough, NH 03458



*Apple is a registered trademark of Apple Computer Inc.

Playing on Words

If you spend Sunday with the crossword puzzle, take home **Compuzzler** ($39.95) where up to four players compete on a 15-by-15 crossword puzzle. **Double Crostics** ($39.95) simulates another favorite crossword style. **Trivia** ($49.95) challenges up to ten players with 3600 questions. Each double-sided disk runs on any Apple II and is produced by Uptown Software, 310 Franklin Street, Suite 339, Boston, MA 02110. Reader Service number is 450.

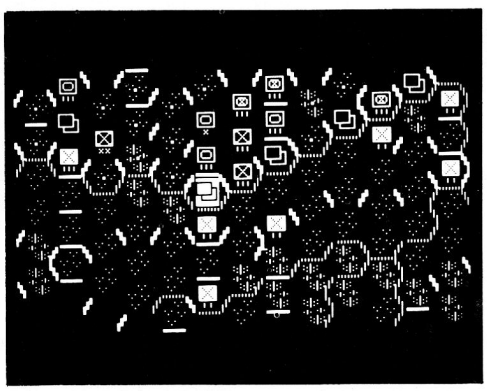
Footnote Processor

Add footnotes, index, and table of contents to any document with **Executive Footnoter** ($69.95). The program works on files created by many common word processors and adds the formatting required for formal papers. For details, contact Sof/Sys, 4306 Upton Avenue South, Minneapolis, MN 55410, or check off number 468 on the Reader Service card.

Wide-Ranging Simulations

Avid strategists relive the Battle of the Bulge with **Breakthrough in the Ardennes** ($59.95). With **Imperium Galactum** ($39.95) you design a legion of starships to explore 50 solar systems. Run your own World Series between any teams in the world with **Computer Baseball** ($39.95). These simulations run on any Apple II. For information, write to Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94043. The Reader Service number is 455.

Compuzzler challenges crossword buffs.



Map from Breakthrough in the Ardennes.

Circle 353 on Reader Service card.

Best protection from sneaky typos that worm their way into your Apple documents!

THE SENSIBLE SPELLER™

won't let misspellings get away!

This unique software program, a virtual electronic dictionary, catches spelling mistakes in your writings. It actually displays misspelled words in context, suggests the correct spelling, and allows immediate replacement of misspelled words with correct ones. It derives its huge, 80,000-word vocabulary...which is all on disk...directly from the official Random House Dictionary.

Sensible Speller is friendly and fast, taking only a minute or two to correct a ten-page document. It provides room on disk to add thousands of your own words. It is compatible with nearly all Apple word processor programs* and runs on all Apple //c, //e, II+, and Apple-compatible computers.

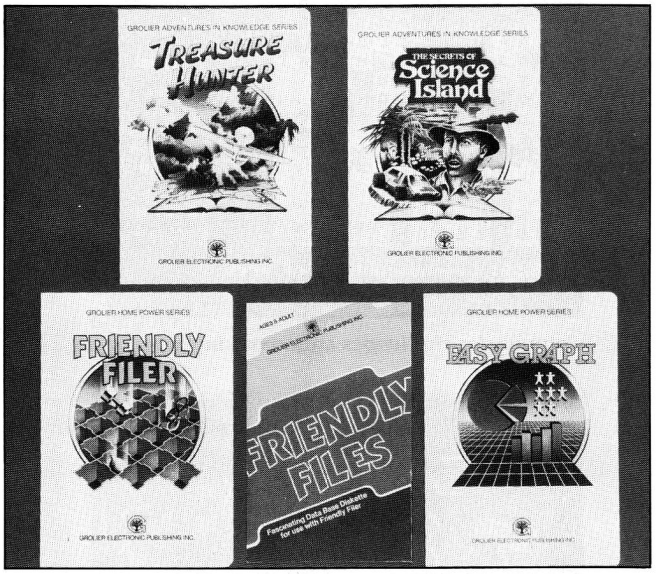
Sensible Speller is available for $125 in either the "IV"* or ProDOS version at your dealer or you may order it direct, enclosing $1.25 for shipping. Visa/MasterCard/Check/COD welcome! And...send for a free brochure on all Sensible Software products.

NEW! Sensible Speller now available for Macintosh!

Sensible Software, Inc.®

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

*It works with all the following word processors, with owners of trademarks indicated in parentheses: DOS 3.2 & DOS 3.3-AppleWorks & Apple-Writer, all versions (Apple Computer, Inc.); Bank Street Writer (Brodebund); Format II (Kensington Microware); HomeWord & Screen Writer (Sierra On-Line Inc.); Word Handler (Silicon Valley Systems); CP/M-Wordstar (Digital Research Corp.-Micropro International); PFS: WRITE (Software Publishing, Inc.); and others. All features are not available with CP/M, PFS: WRITE & Word Handler. Macintosh is a trademark of Apple Computer, Inc.



Grolier introduces productivity tools and adventure games.

Software for the Environment

Outdoor Orienteering ($39) is a hi-res simulation of compass use and map reading. The relationship between fish and their ecosystem is simulated in **Fish & Fishing** ($49). For $39, **Forest Succession** simulates the growth cycle of forests. Safety comes first in **Hunter Education**, priced at $49. These work on the whole Apple II family and come from Yaker Environmental Systems, P.O. Box 18, Stanton, NJ 08885. Reader Service number is 467.

Counting for You

The Accountant boasts fast and easy figures. Able to store over 4000 transactions on a single disk, this system balances accounts, monitors checks and deposits, and prints reports. For $120, you get the manual and a disk that runs on the entire Apple II family. This information is from Schmidt Enterprises, 15841 Leadwell Street, Van Nuys, CA 91406. Circle Reader Service number 457.

Work and Play from Grolier

Children gain computer experience with the **Friendly Filer** data-base manager, and the **Easy Graph** graphing program. Two challenging adventures combine software with a paperback book in **Secrets of Science Island** and **Treasure Hunter**. Each program runs on any Apple II with 64K, costs $39.95, and is published by Grolier Electronic Publishing, 95 Madison Avenue, New York, NY 10016. Reader Service number is 452.

Nutritious Bytes

Try these new software titles for better living through computers. **Heartware** ($50) compares your favorite recipes with any dietary restrictions you have and suggests alternate ingredients. There are two versions of **Balancing Act** ($65 and $299) to help you design a personalized weight-loss program. For information, write to Soft Bite, P.O. Box 1484, East Lansing, MI 48823. Reader Service number is 464.

Murder, They Say

Halloween is perfect for mischief and for Infocom's new mystery, **Suspect**. The costume ball you're covering for your newspaper becomes the scene for murder. As prime suspect, you have to clear yourself, solve the crime, and get the story back to your chief. This advanced-level text adventure ($44.95) works on any Apple II. The culprit is Infocom, 55 Wheeler Street, Cambridge, MA 02138. Circle number 451 on the Reader Service card.

Parenting with Computers

Your Apple and **Discover Your Child** can help with child-rearing by evaluating skills and behavior. Two versions are available, Birth to Two Years and Two Through Five Years, for $69.95 each. They also organize records and memories of your child's early years. Compatible with any Apple II, they come from The BHT Group, 883 Stierlin Road, Building B-200, Mountain View, CA 94043. Use number 453 on the Reader Service card.

More Work for AppleWorks

With **MegaWorks**, you combine word-processing and spreadsheet files created by AppleWorks and merge them with a mailing list. It also examines the files with a 40,000-word spelling checker. MegaWorks costs $125, runs on the Apple //c and //e, and requires AppleWorks. Contact Megahaus Corporation, 5703 Oberlin Drive, San Diego, CA 92121. The Reader Service number is 459.

How Do You Spell Help?

Poor spellers get relief with **Spell-A-Vision**, a set of eight disks for any Apple II. Each of its 8000 words is used in a sentence that defines or describes the word. The set works on any Apple II and costs $19.95 per disk or $150 for the complete series. For more information, write Cross Educational Software, P.O. Box 1536, Ruston, LA 71270. Reader Service number is 461.

Adventures in History

Three expert-level illustrated adventures teach as well as entertain. **Kukulcan** puts you in the culture of the Aztecs in 1519. Greek mythology comes alive in **The Elysian Fields**. Battle the greatest villains of history while trying to escape from **Lucifer's Realm**. These work on any Apple II and cost $34.95 each from American Eagle Software, P.O. Box 46080, Lincolnwood, IL 60646. Mark number 465 on the Reader Service card.

New from CBS

Stand back for a stampede of programs from CBS Software. **Adventure Master**'s two disks ($44.95) let you author your own text adventure. Chart weather and make your own predictions using **Forecast** ($49.95). If finding words in random letters is your game, **Pathwords** ($34.95) is for you. These run on the entire Apple II family and are published by CBS Software, One Fawcett Place, Greenwich, CT 06836, or use number 460 on the Reader Service card.

CLASSIFIEDS

Business

THE FASTEST & EASIEST

Compare "THE ACCOUNTANT" (ours) to the "CONTINENTAL" (theirs). THE ACCOUNTANT is 30 times faster and allows 4000 transactions per disk! Help menus, on-screen summaries and unlimited accounts and categories. Dealers inquire! Retail $120.00

SCHMIDT ENTERPRISES
15841 Leadwell St.
Van Nuys, CA 91406
(818) 994-4060

LOSING MONEY?

Let The Cheap Accountant get your money back. Control your runaway receivables & improve cash flow with this simple system. Print professional invoices, statements, aged trial balances & exception reports. Complete documentation provided. Requires an Apple II + and 48K. Send $29.95 + $1.50 (NJ Res. + 6% Sales Tax) to:

THE TKR COMPANY
99 Garden St.
Dumont, NJ 07628

TAX WORK—QUICK & EASY!

E-Z Federal income tax programs for Apple. 48K, 1 or 2 drives. Forms and Schedules 1040, A, B, C, D, E, G, SE, W, 2210, 2441, 4562 & worksheets for $35 ppd. For info., write to:

CROWELL SOFTWARE CO.
5820 Bristlecone Ct.
St. Louis, MO 63129

DATA & INFO EXCHANGE

On line games against the computer, On line Shopping at great discounts, over 400 downloads for the Apple and hundreds for other computers in 9 libraries. Hundreds for other types of computers. Hundreds of text files in 9 libraries. 20 bulletin boards. System in 300/1200 baud Membership fee: $25.00 yr. No hr. rates.

AMERICAN NETWORKS
P.O. Box 218
Westwego, LA 70094
Modem 504-436-7236
Voice 504-436-7236
Visa/Mastercharge accepted

THE DISK LABELLER

A powerful program for AUTOMATIC printing of disk labels showing FILES, DOS—sec free & used. Built-in default & escape functions, auto config. for printer slots & drives. Completely MENU driven. Req. no doc. Includes 300 5 in. labels. Req. 64K Apple II, II+, IIe, IIc, disk dr., printer. Only $59.95 + $3 ship. NY res. add sales tax.

Practical Software Ltd.
Dept. ST
Box 64
Pomona, NY 10970
(914) 425-1158

Games

ADVENTURERS!

Complete maps & coded clues for your favorite adventure games. All SIERRA ON-LINE, all PENGUIN, also Mask of Sun, Serp. Star, Sherw. Forest, Death in Carib., Masquerade, Sands of Egypt, Blade of Blackpoole, Gruds, $4/ea., 3 sets $10. Also Datamost's Vol. I & II adventure clues, $9.95 + $1.50 s&h each. Ask about discount software.

ASK ALICE
Box 198
Guilford, CT 06437

PICK THAT TUNE

Like the famous TV game show. Up to 10 players try to identify 100 famous tunes. Players may either bid or play "Stop the Music" where players are assigned unique keys on the keyboard. The first one to recognize the tune and press their key gets to guess the tune. Sixteen game variations. Saves top ten scores. 48K Apple II, II + , //e or //c, 1 disk. $29.95. Check, money order, VISA or MC (713) 937-6410.
Texas residents add 6.125% sales tax.

SWEARINGEN SOFTWARE
6312 W. Little York #197
Houston, TX 77088

$3 ADVENTURE HINT BOOKS

Coded clues, solutions, maps: Any Zork, Enchanter, Planetfall, Witness, Infidel, Deadline, Starcross, Original Adventure, Masquerade, Sherwood Forest, The Quest, Coveted Mirror, Transylvania, Wizard and Princess, Mask of Sun, Serpent's Star, Ulysses, Mystery House, Death Caribbean, Dark Crystal. Clues, solution-Ultima III. Any Wizardry scenario maps.

ASPEN APPLE SOFTWARE
Box 1962
Boulder, CO 80306

EXODUS LIVES!

Finished *ULTIMA III?* Visiting Montor West too often? Is Exotic armour not exotic any more? ULTIMORE ADVENTURES to the rescue!! Revitalize *ULTIMA III* with new scenarios, cities, castles, dungeons, and lands to explore. Choose from *DIVIDED WORLD, SLAVELORDS, SPACESHIP CRASH* & others. $20 each, 3 for $50. Free catalog.

BACKSTREET SOFTWARE
7929 Townsend
Des Moines, IA 50322

TRIVIA CHALLENGE

An exciting new Trivia game with a hires game board. Five categories, including Entertainment, Sports, History, Geography, & Miscellaneous. A Trivia Development System which allows you to create your own categories & questions is included at no additional cost. As an ongoing service, The Trivia Factory will market any trivia question disk created with the development system. Complete package $15.95. Send check or money order to:

THE TRIVIA FACTORY
Box 564, Boulder Ave.
Stonington, CT 06378

Hardware

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 picture of your choice. The possibilities are limitless! Send $34.95 + $2 postage & handling (CA residents add $2.10 sales tax) to:

BRIMARK INNOVATIONS
9821 Yolanda Ave.
Northridge, CA 91324

APPLE COMPATIBLE HARDWARES

1/2 HEIGHT FLOPPY DISK DRIVES for II, II + , & IIe—Direct Drive System, auto. DOS selection, w/cable—ONLY $129.95
4 COLOR MINI PRINTER/PLOTTER - 8-bit Parallel Centronics Type Interface, compact size & light weight—ONLY $149.95
VISA, MC, COD/100% Money back Guarantee.

VIDEO LOGIC CORP.
597 N. Mathilda Avenue
Sunnyvale, CA 94086
(408) 245-8622

Services

COMPUTER MEDIA PRODUCTS

3½ $ 5¼ $ 8 guaranteed turn around. Duplication on premium diskettes. 150+ formats: Mac, Apple, IBM, Tandy. Copy protection. Custom packaging, Serialization—place a blanket order now, drop ship large or small quantity at a fixed price.
$$ Service $$ Quality $$ Service $$ Quality $$ Service $$ Quality $$

COMPUTER MEDIA PRODUCTS
5482 Complex Street
San Diego, CA 92123
(617) 565-7802

TRY US BEFORE YOU BUY!

Dollars and $ense	$62.50
Koala pads	$78.50
Bank St. Writer	$43.75
PFS:File, Etc.	$77.50
Beyond Castle Wolf	$21.75
Print Shop	$31.25

HOOSIER SOFTWARE
Box 275, Goshen, IN 46526
(219) 534-1012

US$8.00 INCLUDED DISK!

Yes, thousand famous disk programs for Apple II, II + & IIe (business, education, games etc.), all peripheral cards at unbelievable price! 48K Apple compatible @US$380.00/set (included air parcel postage and thousand worth free softwares). Write immediately with US$1.00 for your catalogue:

RELIANT
P.O. Box 33610
Sheung Wan, Hong Kong

SOFTWARE GALORE!

Five Big Reasons to buy from Soft Source-R
1. Top selling Apple + c e Mac programs
2. Up to 40% off
3. Recreational, educational, sm. business
4. Money back guarantee
5. FREE shipping
FREE brochure (specify computer)

THE SOFT SOURCE-R INC.
Dept. B, Box 2931
Joliet, IL 60434

Miscellaneous

LOWEST PRICING IN THE INDUSTRY!

Free shipping and replacement on defectives guaranteed within the continental U.S. Thousands of Apple products for the II, II + , //e, Mac, and Lisa found in our complete catalog for $8.00 (Paper or on-disk versions of Cat. available—good towards future purchases) can be ordered and received quickly. Just compare these Apple II Specials: Micromodem //e = $210.00; Grappler + = $107.00; DB Master Ver. 4 + = $214.00; Koalapad w/Koalapainter = $75.00; Flight Simulator II = $34.40; Pinecom 64K Apple compatible computer = $371.00; MicroSci A2 disk drive = $198.95; Mach III Joystick = $34.98. The Hitchhiker's Guide to the Galaxy = $29.97. PA res. add 6% sales tax. Send check or money order to:

COMPUTER EXCEL
162 East Sanner Street
Somerset, PA 15501

Circle 155 on Reader Service card.

Here's What They're Saying...

"Hardware and software developers, enthusiasts, and students too, will gain greatly from ***Understanding the Apple II*** *... It's about time the story of its innards was presented so well."*

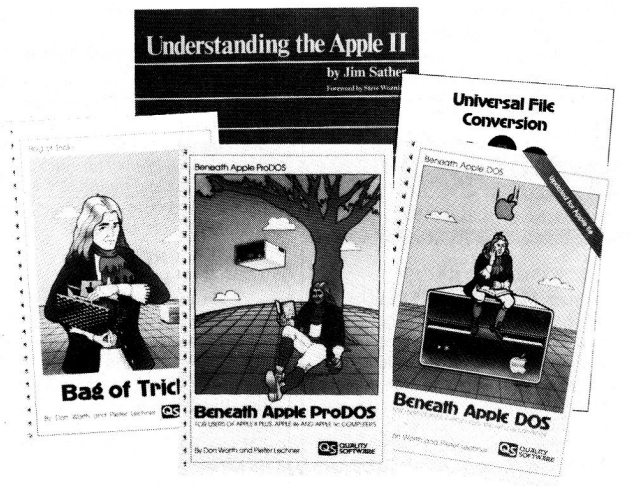
—Steve Wozniak

"So much information is crammed into this 160-page spiral-bound manual that it could have been titled ***Everything You Ever Wanted to Know About DOS (But Apple Didn't Tell You).***"

—Softalk, July 1981

"The true craftsman ... is usually satisfied with nothing but a truly professional tool. "That's the category ***Bag of Tricks*** *belongs in."*

—Microcomputing, November 1983



BOOKS ...

Beneath Apple DOS
by Don Worth & Pieter Lechner
Covers all facets of DOS 3.3 and previous Apple disk operating systems. 176 pages. **$19.95**

Beneath Apple ProDOS
by Don Worth & Pieter Lechner
New! *They've done it again! This time for ProDOS, Apple's new disk operating system. 288 pages.* **$19.95**

Understanding the Apple II
by Jim Sather
Foreword by Steve Wozniak. Covers Apple II and Apple II Plus hardware, including the disk controller and logic state sequencer. 352 pages. **$22.95**

Understanding the Apple IIe
by Jim Sather
New! *Similar to* ***Understanding the Apple II,*** *this book covers Apple IIe hardware.* **$24.95**

UTILITIES ...

Bag of Tricks
by Don Worth & Pieter Lechner
The best set of utilities available for your Apple II, IIc, or IIe. Four programs that allow you to examine and modify the data on the diskette, reformat tracks, and repair damaged catalogs. Diskette and 160 page manual. **$39.95**

Universal File Conversion
by Gary Charpentier
New! *Moves files between any of the four operating sysetms used by Apple II, IIc and IIe computers—DOS 3.3, CP/M, ProDOS, and Apple Pascal. Unprotected diskette and 48 page manual.*
$34.95

QS QUALITY SOFTWARE
Computer Book Division
21601 Marilla Street, Chatsworth, CA 91311
(818) 709-1721

Ask for Quality Software products at your computer store, or send the price of the software ***plus*** *$2.50 for shipping and handling (****plus*** *6% sales tax if a California resident) to Quality Software. VISA and Mastercard holders may phone their orders.*

**Apple is a trademark of Apple Computer, Inc.*

Utilities

MINUTE MANUALS

PFS:FILE/REPORT/GRAPH/ WRITE $12.95
APPLE WRITER (SPECIFY II + OR //e $ 7.95
DB MASTER (VER 3) $12.95
Basic & advanced step by step procedures & printing and formatting procedures. Codes explained for printers shown below.
GLOSSARY DISK FOR APPLE WRITER $14.95
No need to know or remember printer codes any longer. Access any code within Apple Writer II + or //e with a single keystroke for the Epson, Gemini, Okidata, Prowriter, Apple, or NEC 8023A. NUL patch explained. Scripts on Apple DMP. Send check + $1 to:

MINUTEWARE
P.O. Box 2392
Columbia, MD 21045
(301) 995-1166

RGB CARDS
APPLE & FRANKLIN

Apple II, II + , IIe: Colormaster, $139. Kaleidoscope, $199.; Franklin Ace 1000, 1200: Colormaster, $169., Kaleidoscope, $219. Cards plug into slot 7. Can be interfaced with 80 col. cards & 80 col. card with extended memory. Compatible with all RGB monitors. *Apple IIc: Colormaster II, $199* Apple IIc version is an external module.

TELEMAX, INC.
ENHANCEMENT PRODUCTS
P.O. Box 339
Warrington, PA 18976
(215) 343-3000

TIRED OF REPLUGGING II + GAME CONTROLLERS

THE GAME I/O BUSS delivers the versatility of individual selection and concurrent use of up to eight controllers without replugging. $39.95 postpaid.

I/O EXPRESS, INC.
78-82 Reade St.
N.Y.C. 10007
(212) 962-2679

Entertainment

ATTENTION:

Hi-Res Adventure Games: Secret of Easter Island and the Learjet Caper. $32.00 ea. The Flexible Message System—a BBS system. $59.95. Call (313) 623-6309 for a sample (modem).

NUCLEUS SOFTWARE
5582 Dvorak Street
Clarkston, MI 48016
(313) 623-7115

18 NEW EAMON ADVENTURES

Choose from Units 1,2,3 or brand new #4. Each with 18 adventures & utilities on 9 disks for $35. Any 2 units for $60. Any 3 for $85. All 72 adventures for $110. Sample adv. @ $5. Also AdventureDisk—a monthly double-sided disk with hints, tips and solutions to all types of adv. Included is a NEW Eamon adventure each issue. $9 to start, then $6 per issue.

ADVENTUREDISK
Box 216
Mercer Island, WA 98040

SOCIAL STUDIES

Travel across wildest Africa on the trail of a mysterious gem! Brave the dangers of the dark continent! The adventurer in your family can learn and find excitement in ADVENTURES IN AFRICA! Vocabulary list and two maps included. Apple IIe disk, only, $22. pp. Send check or money order to:

GOLDENSOFT
5095 Pine Ridge Dr.
Golden, CO 80403

SUPER-EAMON IS HERE!

Super-Eamon replaces your blah, all-text Main Hall with colorful Hi-Res graphics. With twice as many 'shops', Super-Eamon makes the Main Hall as exciting as an adventure! Plus, a faster DOS loads adventures in half the normal time. This neato-keen program requires a 64K Apple II + or //e; a color monitor is recommended. Available for $20 + $2 postage, or write for details.

LITTLE GREEN SOFTWARE
PO Box 459
Glenwood Landing, NY 11547
NYers please add tax.

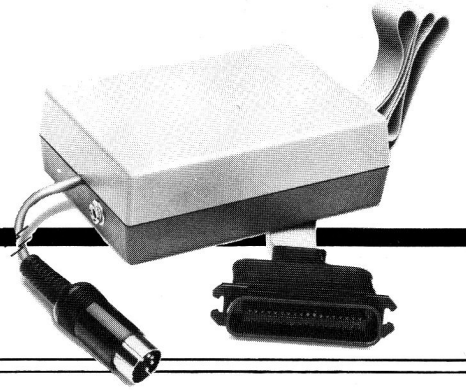
Education

MELODY MAGIC

If you have always wanted to learn to play a musical instrument but thought music was too difficult, then this is for you! Melody Magic teaches you how to read the melody part of sheet music so that you can enter and save your favorite melodies. A simple music book is included which contains 29 easy to read famous melodies. 48K Apple II, II + , //e or //c, 1 disk. $34.95. Check, money order, VISA or MC (713) 937-6410. Texas residents add 6.125% sales tax.

SWEARINGEN SOFTWARE
6312 W. Little York #197
Houston, TX 77088

NEW PRODUCTS



Kameleon joins parallel printers to your Apple //c.

Parallel //c Port

With the **Kameleon** interface ($99.95), your //c can run parallel printers. One end plugs into your Apple's serial port, the other goes to a Centronics-style plug. The interface comes with **K-graphics**, a screen dump for MousePaint and many dot-matrix printers. Get more details from Intronics, 2520 East 125th Street, Kansas City, MO 64146. Check off number 479 on the Reader Service card.

Kodak Enters Disk Field

The new **Kodak Diskettes** line of floppy disks includes the 5¼-inch size used by all Apple IIs. They come single- or double-sided, in boxes of two, five, and ten disks each. See them at your dealer or contact Eastman Kodak, 343 State Street, Rochester, NY 14650. Reader Service number is 486 on the enclosed card.

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

Hard Disk for Apples

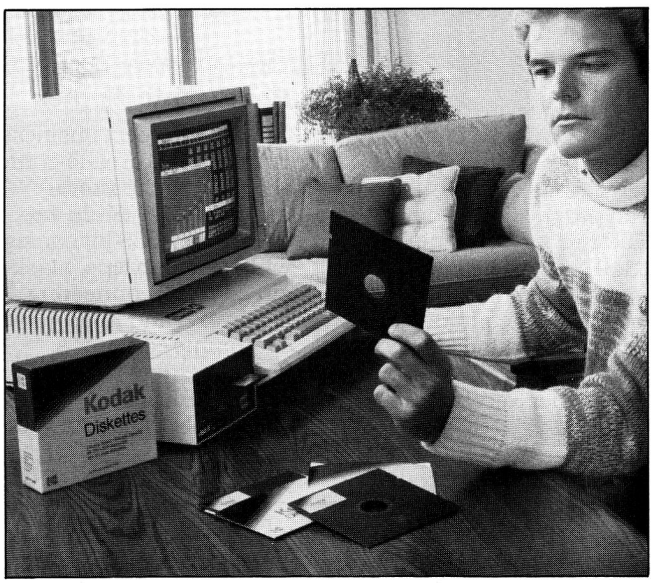
Enjoy fast access to large amounts of memory with a **DisCache** Winchester disk on your Apple. With print spooling, cache memory, and ability to network 21 Apples, the system comes in three models: 10 Mbyte ($3250), 20 Mbyte ($4250), and 40 Mbyte ($5250). Get full details from Eicon Research, 520 Fifth Avenue, New York, NY 10036. The Reader Service number is 476.

Four Cards in One

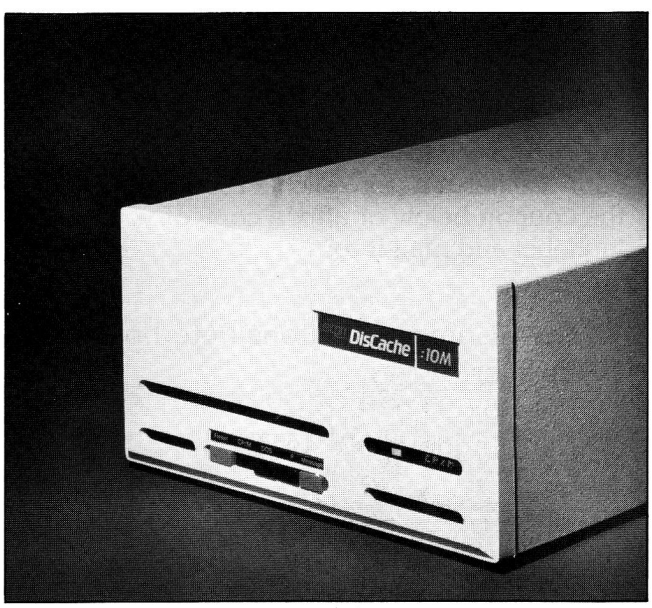
Call **Slotbuster** for four cards in one slot. This $230 card fits your Apple II Plus or //e and gives you: Centronics-compatible parallel port, RS-232C serial port, 8K buffer expandable to 24K, and a sophisticated speech and sound synthesizer. This is produced by RC Systems, 121 West Winesap Road, Bothell, WA 98012, or mark number 478 on the Reader Service card.

Smart Thermostats

Computerize your home heating with a **Programmable Furnace Controller**. Through an RS-232 interface, your Apple programs the PFC with

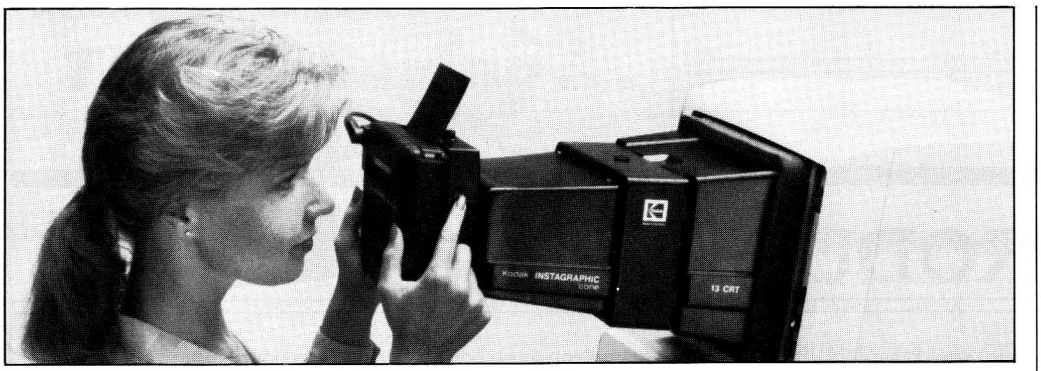


Get your data with a Kodak disk.



DisCache 10-Mbyte hard disk offers fast memory.

edited by Kerry J. Lanz



Kodak's Instagraphic system for computer photos.

temperature and time data to regulate the heat all week. The PFC includes two temperature sensors, clock, manual, and programming guide. The cost for one zone is $349, and $399 for two zones. For more details on this product contact Future Projects, P.O. Box 11, Hawleyville, CT 06440, or use Reader Service number 480.

Photogenic Apples

Save your best business graphics and arcade-game scores with the **Instagraphic CRT Slide Imager**. The $339 kit comes with: close-up lens, blackout cone, all connecting hardware, and Kodak Instagraphic camera. A 35mm camera can also be used for slides and prints. Get details from Eastman Kodak, 343 State Street, Rochester, NY 14650. Use number 472 on the Reader Service card.

Accurate Modem and Software

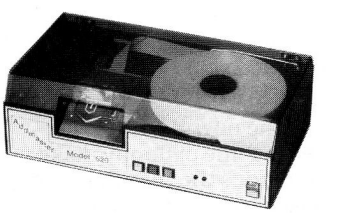
Perfect transmission of data, especially over poor phone lines, is the boast of the **General DataComm 1200** modem ($699). This 300/1200-baud modem uses an RS-232 interface to connect with your Apple. A 300-baud version costs $289. Both modems will support General DataComm Communications Software ($199), which can be updated by modem. Get the full story from General DataComm, Middlebury, CT 06762. Use number 484 on the Reader Service card.

New Life for Old Drives

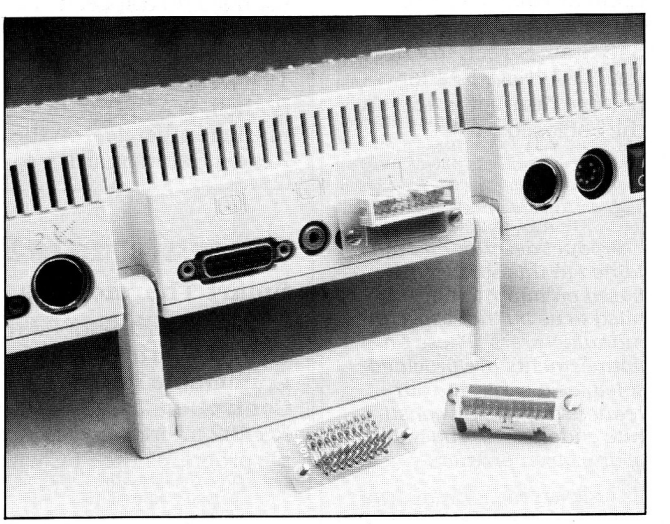
You can use a disk drive from an Apple II Plus or //e as an external drive for your //c with **Adapt-A-Disc**. This coupler costs $29.95 and installs in seconds. Just plug it in and teach an old drive new tricks. Get full information from Computer Accents, P.O. Box 5307, Kingwood, TX 77325. Reader Service card number is 471.

Punch Your Own

Write Telex messages on your Apple with a **Model 520 Punch**. You can make a paper tape at 50 cps in the Baudot code used for a Telex. For other control applications, you can make a tape in hexadecimal, ASCII, or EIA code. This is from Addmaster, P.O. Box 387, San Gabriel, CA 91778. Circle number 489 on the Reader Service card.



Addmaster paper punch for Telex applications.



Old disk drives work with //c and Adapt-A-Disc.

ATTENTION
subscribers!

We occasionally make our mailing list available to other companies or organizations with products or services which we feel might be of interest to you. If you prefer that your name be deleted from such a list, please fill out the coupon below or affix a copy of your mailing label and mail it to:

C.W. Communications/Peterborough
inCider
PO Box 911
Farmingdale, NY 11737

Please delete my name from mailing lists sent to other companies or organizations.

name _____
address _____
city _____ state ____ zip _____
inCider

Two new dot-matrix printers from Datasouth.

Datasouth's New Printers

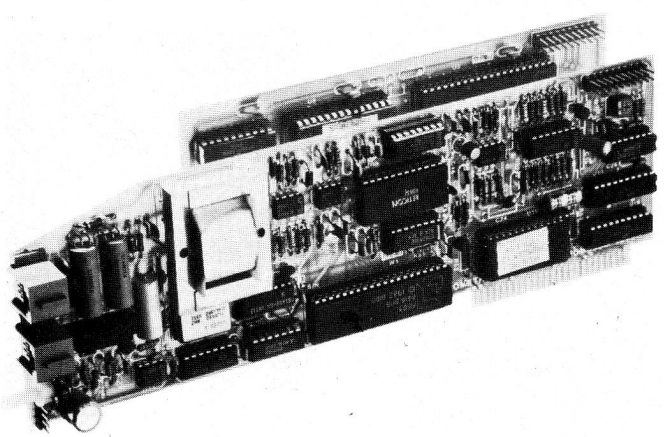
Two new dot-matrix printers operate at 160 cps in draft mode and 27 cps in letter-quality mode. They include a 2K buffer, alternate character sets, and graphics ability. The **Personal Printer I** ($695) features a 10-inch carriage, and **Personal Printer II** has a 17-inch carriage for $895. Learn more from Datasouth Computer, 4216 Stuart Andrew Boulevard, Charlotte, NC 28210. The Reader Service number is 481.

Complete Modem Card

Simply plug the **ProModem 1200A** into a slot on your Apple II Plus or //e and enter the field of telecommunications. This 300/1200-baud modem ($449) offers auto-dial and auto-answer, help commands, and a built-in terminal program. For complete information, write to Prometheus Products, 45277 Fremont Boulevard, Fremont, CA 94538. Mark number 475 on the Reader Service card.

Single-Outlet Surge Control

The handy, single-outlet **Kiwi** ($19.95) protects your computer from the vagaries of power-line flux. It plugs into any electrical outlet and suppresses surges before they can disrupt data in memory. This is produced by Electronic Protection Devices, 217 Bear Hill Road, Waltham, MA 02254. Use number 488 on our Reader Service card.



Full-featured ProModem 1200A from Prometheus.

Circle 326 on Reader Service card.

Before this happens, call SAFEWARE

800/848-3469
(In Ohio, call 614/262-0559)

Protects your computer against theft, fire, power surges and other accidental losses. Insures your entire system for as little as $35 a year — depending on the value of your hardware, software, and media. Full replacement after a low $50 deductible.

We're SAFEWARE,℠ the first name in computer insurance. Tens of thousands of satisfied customers. Call toll-free for rates or immediate coverage.

SAFEWARE, The Insurance Agency Inc.
P. O. Box 02211
2929 N. High Street
Columbus, Ohio 43202

SAFEWARE

Circle 286 on Reader Service card.

GET FAST RELIEF FROM IRS HEADACHES!

With TAX COMMAND Income Tax Preparatory Software Series!

On disk for Apple II, II +, //e, and //c with 64K or more: TAX COMMAND PROFESSIONAL: high-speed tax computation, with a wide variety of schedules, at your finger tips.

• Fast line-by-line Federal Tax information entry. • All mathematical calculations done automatically. • Built-in tax tables. • Prints on the official U.S. Tax forms. • Forget something? Tax Command Professional is flexible enough to quickly recalculate. • Cost of program is tax deductible.

This menu driven program covers the 1040 Form, Schedule A, B, C, D, E, G, R, RP, SE, W, and Forms 2106, 2119, 2441, and 3903.

$79.95.

On disk for Apple II, II +, / /e, and / /c with 64K or more: NEW! TAX COMMAND PLANNER for quick, easy planning of tax strategies.

• Specifically designed for your tax planning. • Decide how to depreciate assets. • Whether to sell stock. • How to make contributions at the lowest cost. • Six different options for five years.

$79.95.

Registered owners receive next year's update at a reduced cost.

Double Discount! Buy **Tax Command Professional** and **Tax Command Planner** for one low price of **$139.99.**

Practical Programs Inc. stands behind its products, and will replace any defective disk.

Send me fast relief! Enclosed is my check or money order for the amount specified below plus $2.00 for shipping and handling. Please send me:

☐ **Tax Command Professional** ($79.95)
☐ **Tax Command Planner** ($79.95)
☐ **Double Discount!** Send both programs. ($139.99)

Credit card customers call (414) 278-0829.

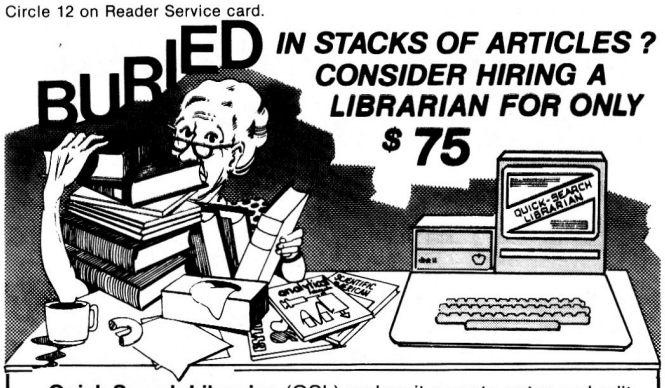
Name _____ Address _____

City _____ State _____ Zip _____

Mail to:
Practical Programs, Inc. • P.O. Box 93104
625 North Milwaukee Street • Milwaukee, Wisconsin 53203

Practical Programs, Inc.

Circle 12 on Reader Service card.



Quick Search Librarian (QSL) makes it easy to enter and edit your journal references, search for articles, and print or sort a list of articles using the APPLE* II+/IIe computer. Important QSL features include:

- Two keystrokes select any one of 255 keywords or any one of 255 journal titles.
- Four lines available for listing authors, title and/or comments.
- Powerful data base screen editing, copying and merging features.
- Average search speed is 50 articles/second with multiple criteria; average sorting speed is 40 articles/second when sorting on 3 fields.
- Typically, 1000 articles can be stored on a single disk.
- Includes sample data base and tutorial for *Scientific American* magazine.

VISA or Mastercard orders accepted. QSL manual available separately for $5. (Price of manual deductible later with purchase of QSL software.) Add $2.50 for shipments made in U.S.A.
Telex: 705250 *Trademark of Apple Computer, Inc.

INTERACTIVE MICROWARE, INC.
P.O. Box 139, Dept. 52
State College, PA 16804, (814) 238-8294

MOVING?

SUBSCRIPTION PROBLEM?

Get help with your subscription by calling our new toll free number:

1-800-645-9559 *

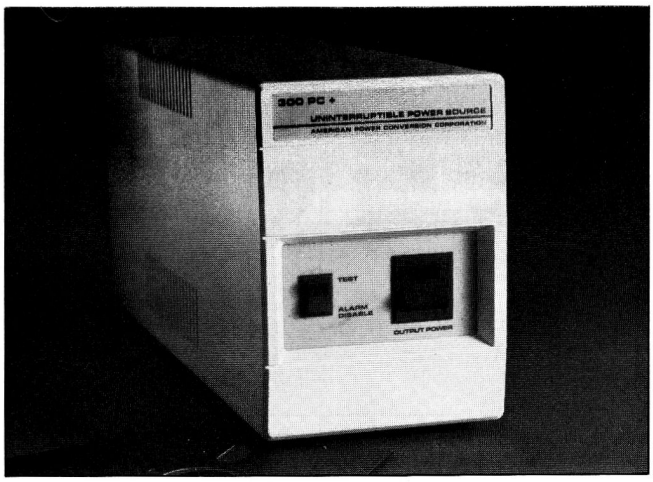
between 9 a.m. and 5 p.m. EST, Monday–Friday.

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If moving, please give both your old address and new address.

* New York State residents call 1-800-732-9119.

NEW PRODUCTS



The 300PC+ assures your power supply.

Power Guarantee

When your system must work all the time, try the **300PC+** for steady power. During normal operation, it filters all power-line surges, spikes, and interference. In brownouts or blackouts, it provides time for you to save files and protect data until service is restored. Priced at $495, this is produced by American Power Conversion, 89 Cambridge Street, Burlington, MA 01803. Reader Service number is 474.

Color Your Files

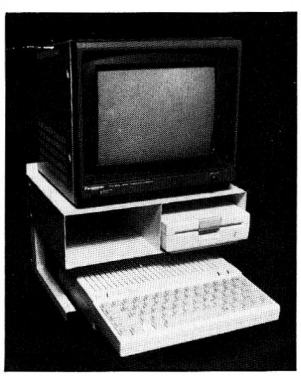
A **Prism Pack** of color disks can help you organize your data and records. The pack ($28 for single side, single density) features ten disks, each with its own hue. You can also get a pack of ten disks of the same color. For full information, contact Sentinel Technologies, One Sentinel Plaza, Hyannis, MA 02601. Reader Service number is 490.

Slim-Line Disk Drive

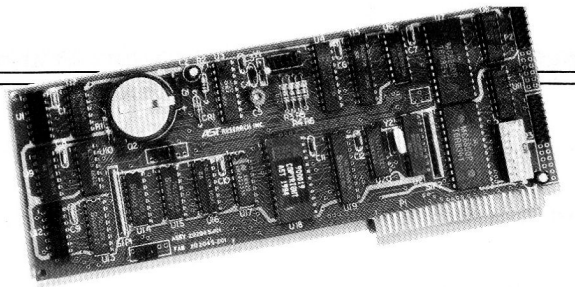
New half-height disk drives are fully compatible with Apple II Plus, //e, and //c computers. Priced at $269, the **A.5** connects to your II Plus or //e controller card and runs all Apple II software. The **A.5c** ($299) gives your //c a second disk drive. Contact Microsci, 2158 South Hathaway Street, Santa Ana, CA 92705, or circle number 473 on the Reader Service card.

System Organizer

Organize your work area with the **Apple //c Stand** ($59.95), which supports a monitor, external disk drive, and modem over your //c. Built of vinyl-coated steel, the stand matches the //c's color and slim lines. Get more information from Care Distributors, 490 Wrightwood, Elmhurst, IL 60126. Use number 482 on the Reader Service card.



The Apple //c Stand organizes your equipment.



Two ports and a clock on one Multi I/O.

Multi-Function Interfacing

Multi I/O puts three popular interfaces on one card for the Apple //e. For $235, you get a printer serial-port, a modem or terminal serial-port, and a ProDOS-compatible clock/calendar with battery back-up. A disk of utilities comes with it to show off its abilities. This card comes from AST Research, 2121 Alton Avenue, Irvine, CA 92714. Use Reader Service number 485.

Clock Your Programs

Bring your system up to date with the **TimeStamp Module** ($65). This clock and calendar card, with battery back-up, fits a slot in your Apple II Plus or //e and is easily accessed from BASIC. The documentation tells how to modify DOS 3.3 to date and time-stamp your files and listings. This product is from Mi-ChRon, 311 Quebec Avenue, Longmont, CO 80501. Use number 477 on the Reader Service card.

Optical Mouse

Give your //c the **A+ Mouse**, an optical mouse with no moving parts. It plugs directly into your //c, or into an Apple II Plus or //e Mouse Card, and works with all AppleMouse-compatible software. The mouse costs $150, but for $239.95 you get it bundled with Dollars and Sense and Bank Street Writer. The big cheese behind this mouse is Mouse Systems, 2336 H Walsh Avenue, Santa Clara, CA 95051. Use Reader Service card number 483.

Phone and Modem Combo

ModemPhone provides you with a 300-baud modem and a re-dial telephone in one desktop unit ($119) connected to your Apple through an RS-232 interface. Find out more about this product by writing to Theall Engineering, P.O. Box 336, Oxford, PA 19363, or by checking off number 487 on the Reader Service card.

You and your Apple share the ModemPhone.

FREE SHIPPING
DISKETTES
West Coast "Call" 1(800) 621-6221
Central & East "Call" 1(800) 654-4058
Discounts Starting at 3 Box Quantities

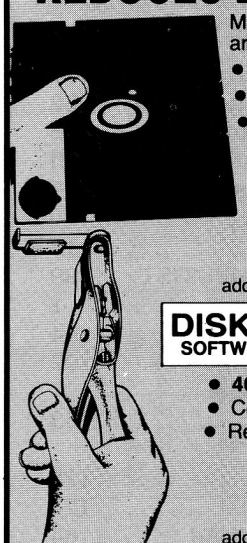
3M	Dysan	maxell	Verbatim
• 5¼" •	• 5¼" •	3½" CALL	• 5¼" Datalife
s-side d-den. 17.95	s-side d-den. 22.95	• 5¼" •	s-side d-den. 18.95
d-side d-den. 23.95	d-side d-den. 30.50	s-side d-den. 19.95	d-side d-den. 24.95
s-side quad 27.50	s-side quad 34.50	d-side d-den. 25.95	s-side quad 30.95
d-side quad 33.95	d-side quad 45.50	s-side quad 28.95	d-side quad 39.95
• 8" •	• 8" •	d-side quad 36.95	• 8" Datalife
s-side s-den. 21.50	s-side s-den. 28.50	• 8" •	s-side s-den. 24.75
s-side d-den. 26.00	s-side d-den. 30.95	s-side d-den. 31.95	s-side d-den. 26.95
d-side d-den. 31.50	d-side d-den. 34.95	d-side d-den. 34.95	d-side d-den. 31.95

3M	AMARAY MEDIA MATE	Head Cleaners
DC100A....13.95	(3½"...11.95) (5¼"...11.95)	Kits.....5.20
DC300A...18.40	DISK MINDERS	Refills...9.55
DC300XL 20.25	(5¼"....16.75) (8"...21.50)	Analizers 25.00
DC600A..24.45	BULK PACKED DISKS "CALL"	

Diskettes 10/Box
the Diskette Connection™
Dealer Inquiries Welcomed
1(800) 654-4058
OKLAHOMA & NEVADA
*UPS Delivery Only, Add 3.00 on orders under 35.00 or 20 disk.

Circle 380 on Reader Service card.

*REDUCES DISKETTE COST 50%!



Make use of the back of your 5¼" Diskettes and SAVE
- NIBBLE NOTCH tools make it easy.
- Adds the precise notch where you need it.
- Doubles diskette space or MONEY BACK!

NIBBLE NOTCH I
Cuts square notch for Apple, II, II+, IIe, III, Franklin and Commodore.
only $14.95 each
add $1.50 each P&H ($4.50 each foreign P&H)

DISK OPTIMIZER© SYSTEM
SOFTWARE FOR APPLE, II, II+, IIe, III & Franklin
- 469% FASTER Than Similar Programs!
- Certifies your "new" disk 100% Error Free
- Removes Bad Sectors • Adds 36th Track
- Performs Disk Drive Speed Check
- Adds DOS and More

only $24.95 each
add $1.50 each P&H ($4.50 each foreign P&H)

— OR BUY BOTH —
only $29.95
add $2.50 each set P&H ($6.50 foreign P&H)
Florida Residents Add 5% Sales Tax
SATISFACTION GUARANTEED OR YOUR MONEY BACK!

ORDER TODAY!
CALL TOLL FREE: 1-800-642-2536
OR SEND CHECK OR MONEY ORDER TO:
NIBBLE NOTCH COMPUTER PRODUCTS
DIVISION OF CORTRAN INTERNATIONAL
4211 NW 75th TERRACE • DEPT. 21 • LAUDERHILL, FL 33319
PAT. PEND. ALL TRADEMARKS ARE ACKNOWLEDGED

inCider Index to Advertisers

Reader Service		Page
168	Addmaster	105
24	Appleware	73
*	Applied Engineering	45, 60
273	Apricorn	26
340	BASF	43
159	Baudville	CIV
179	Beagle Bros	40
*	Bottom Line	65
*	Business Computers of Peterborough	101
6	Bytes & Pieces	111
172	Caribbean Computer Sales	97
361	Central Point Software	88
	Classified Ads	121, 122
45	Comp Doc	48
542	Computer Continuum	104
77	Computer Novelty	95
17	Conroy-LaPointe	85
163	Core Concepts	89
*	Diskette Connection	127
108	Diversified Software	37
362	Eastcoast Software	71
404	Elek-Tek	69
318	Fastrack Computer Products	65
161	Fiberbilt	79
508	First Class Peripherals	58, 59
510	First Class Peripherals	57
44	Gamma Productions	62
146	Golem Computers	98
66	H & E Computronics	CIII
109	Haba Systems	7
40	Harcourt Brace Jovanovich	12
427	Hardcore COMPUTIST	99
*	Hayes Products	1
229	High Order Micro	94
43	Hogwash Software	102
*	Human Systems Dynamics	31, 53
	inCider	
	Dealer Ad	118
	Mailing List	124
	Subscription Ad	64
	Toll Free	126
12	Interactive Microware	126
157	International Apple Core	39
86	Kensington Microware	29
231	Kraft Systems	63
428	Legend	22
*	MacWorld Expo	86
56	Madwest Software	92
208	Micro City	115
204	Micro Works	102
*	Microsoft	9
538	Mindscape	2, 3
539	Mindscape	32
380	Nibble Notch	127
310	Northeastern Software	80
31	Pacific Exchanges	105
286	Practical Programs	125
49	Prof. Jones/ Frogg House	68
521	Programs Plus	74
268	Prometheus Products	13
389	Psychological PSoftware	105
155	Quality Software	122
16	Quinsept	102
281	Quinsept	92
*	Quorum	94
189	Ring King Visibles	24
326	Safeware	125
223	Sav-Soft Products	102
105	Sega Enterprises	16
353	Sensible Software	119
143	Silicon Express	35
123	Simon & Schuster	97
218	Sir-Tech	CII
314	Softyme	25
*	Southern California Research Group	49
67	Stellation Two	104
156	Sublogic	19
8	Sun Research	116
181	Tencal	63
25	Texprint	76
129	Thunderware	21
264	Utilico Microware	116
60	Vision Information Products	104
392	Xerox Education Publication	11
190	Zoom Telephonics	43

For further information from our advertisers, please use the Reader Service card.

*This advertiser prefers to be contacted directly.

Advertising Sales: (603) 924-7138, (800) 441-4403

Paul Boule, Sales Manager; Barbara Alvarez

Reader Service

This card valid until March 31, 1985

My vote for the best advertisement in this issue goes to _____whose Reader Service number is _____.

A. Where did you get this copy of *inCider*?
- ☐ 1. Personal subscription
- ☐ 2. Computer store
- ☐ 3. Newsstand
- ☐ 4. Bookstore
- ☐ 5. At work
- ☐ 6. Library
- ☐ 7. Friend/Colleague
- ☐ 8. Other

B. How many of each issue's program listings do you actually type in?
- ☐ 1. 0
- ☐ 2. 1
- ☐ 3. 2
- ☐ 4. 3
- ☐ 5. 4
- ☐ 6. 5 or more

C. Are you interested in reading more about the Macintosh or Lisa in *inCider*?
- ☐ 1. Yes, on the Macintosh
- ☐ 2. Yes, on Lisa
- ☐ 3. Yes, on both
- ☐ 4. No

D. Which of the following microcomputers do you own or use?
- ☐ 1. Apple II or II+
- ☐ 2. Apple IIe
- ☐ 3. Apple IIc
- ☐ 4. Apple III
- ☐ 5. Macintosh
- ☐ 6. Apple compatible
- ☐ 7. Other
- ☐ 8. Don't own or use one

E. What is your annual household income?
- ☐ 1. Under $20,000
- ☐ 2. $20,000 - $40,000
- ☐ 3. $40,000 - $60,000
- ☐ 4. $60,000 - $80,000
- ☐ 5. $80,000 - $100,000
- ☐ 6. Over $100,000

F. How much have you spent on computer hardware during the last 12 months?
- ☐ 1. Nothing
- ☐ 2. Under $1,000
- ☐ 3. $1,000 - $2,000
- ☐ 4. $2,000 - $3,000
- ☐ 5. $3,000 - $4,000
- ☐ 6. $4,000 - $5,000
- ☐ 7. Over $5,000

G. How much do you plan to spend on computer hardware during the next 12 months?
- ☐ 1. Nothing
- ☐ 2. Under $1,000
- ☐ 3. $1,000 - $2,000
- ☐ 4. $2,000 - $3,000
- ☐ 5. $3,000 - $4,000
- ☐ 6. $4,000 - $5,000
- ☐ 7. Over $5,000

H. How much have you spent on software during the last 12 months?
- ☐ 1. Nothing
- ☐ 2. Less than $100
- ☐ 3. $100 - $250
- ☐ 4. $250 - $500
- ☐ 5. $500 - $1,000
- ☐ 6. Over $1,000

I. What is your specific interest in the items circled at right?
- ☐ 1. Immediate purchase
- ☐ 2. Purchase within 6 months
- ☐ 3. Brand comparisons
- ☐ 4. Reference
- ☐ 5. Other

J. Do you influence computer purchases within your company?
- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. Doesn't apply

K. On a scale of 1 (no interest) to 5 (great interest), please rate your interest in the following *inCider* columns:
- ___ 1. Fermentations
- ___ 2. The Game Reserve
- ___ 3. The Glau Report
- ___ 4. O'Brien's Journal
- ___ 5. The Learning Machine
- ___ 6. Child's Play
- ___ 7. The Applesoft Adviser
- ___ 8. The Cider Press
- ___ 9. Fudge It!
- ___ 10. Ask inCider
- ___ 11. The Apple Clinic
- ___ 12. Apple Extract

L. If you are not a subscriber, please circle 500.

Reader Service: Return this card to receive full information on the products advertised in this issue. Refer to the ad. You will find numbers near the logo of each advertiser. Each represents the advertiser's Individual Reader Service Number. Circle the corresponding numbers on the card on this page. include your name, address, zip, & stamp, and drop in a mailbox. In 4-6 weeks you'll hear from the advertiser directly.

1	6	11	16	21	151	156	161	166	171	301	306	311	316	321	451	456	461	466	471
2	7	12	17	22	152	157	162	167	172	302	307	312	317	322	452	457	462	467	472
3	8	13	18	23	153	158	163	168	173	303	308	313	318	323	453	458	463	468	473
4	9	14	19	24	154	159	164	169	174	304	309	314	319	324	454	459	464	469	474
5	10	15	20	25	155	160	165	170	175	305	310	315	320	325	455	460	465	470	475
26	31	36	41	46	176	181	186	191	196	326	331	336	341	346	476	481	486	491	496
27	32	37	42	47	177	182	187	192	197	327	332	337	342	347	477	482	487	492	497
28	33	38	43	48	178	183	188	193	198	328	333	338	343	348	478	483	488	493	498
29	34	39	44	49	179	184	189	194	199	329	334	339	344	349	479	484	489	494	499
30	35	40	45	50	180	185	190	195	200	330	335	340	345	350	480	485	490	495	500
51	56	61	66	71	201	206	211	216	221	351	356	361	366	371	501	506	511	516	521
52	57	62	67	72	202	207	212	217	222	352	357	362	367	372	502	507	512	517	522
53	58	63	68	73	203	208	213	218	223	353	358	363	368	373	503	508	513	518	523
54	59	64	69	74	204	209	214	219	224	354	359	364	369	374	504	509	514	519	524
55	60	65	70	75	205	210	215	220	225	355	360	365	370	375	505	510	515	520	525
76	81	86	91	96	226	231	236	241	246	376	381	386	391	396	526	531	536	541	546
77	82	87	92	97	227	232	237	242	247	377	382	387	392	397	527	532	537	542	547
78	83	88	93	98	228	233	238	243	248	378	383	388	393	398	528	533	538	543	548
79	84	89	94	99	229	234	239	244	249	379	384	389	394	399	529	534	539	544	549
80	85	90	95	100	230	235	240	245	250	380	385	390	395	400	530	535	540	545	550
101	106	111	116	121	251	256	261	266	271	401	406	411	416	421	551	556	561	566	571
102	107	112	117	122	252	257	262	267	272	402	407	412	417	422	552	557	562	567	572
103	108	113	118	123	253	258	263	268	273	403	408	413	418	423	553	558	563	568	573
104	109	114	119	124	254	259	264	269	274	404	409	414	419	424	554	559	564	569	574
105	110	115	120	125	255	260	265	270	275	405	410	415	420	425	555	560	565	570	575
126	131	136	141	146	276	281	286	291	296	426	431	436	441	446	576	581	586	591	596
127	132	137	142	147	277	282	287	292	297	427	432	437	442	447	577	582	587	592	597
128	133	138	143	148	278	283	288	293	298	428	433	438	443	448	578	583	588	593	598
129	134	139	144	149	279	284	289	294	299	429	434	439	444	449	579	584	589	594	599
130	135	140	145	150	280	285	290	295	300	430	435	440	445	450	580	585	590	595	600

Name_____

Address_____

City_____State_____Zip_____

Telephone (____)_____

Reader Service

This card valid until March 31, 1985

My vote for the best advertisement in this issue goes to _____whose Reader Service number is _____.

A. Where did you get this copy of *inCider*?
- ☐ 1. Personal subscription
- ☐ 2. Computer store
- ☐ 3. Newsstand
- ☐ 4. Bookstore
- ☐ 5. At work
- ☐ 6. Library
- ☐ 7. Friend/Colleague
- ☐ 8. Other

B. How many of each issue's program listings do you actually type in?
- ☐ 1. 0
- ☐ 2. 1
- ☐ 3. 2
- ☐ 4. 3
- ☐ 5. 4
- ☐ 6. 5 or more

C. Are you interested in reading more about the Macintosh or Lisa in *inCider*?
- ☐ 1. Yes, on the Macintosh
- ☐ 2. Yes, on Lisa
- ☐ 3. Yes, on both
- ☐ 4. No

D. Which of the following microcomputers do you own or use?
- ☐ 1. Apple II or II+
- ☐ 2. Apple IIe
- ☐ 3. Apple IIc
- ☐ 4. Apple III
- ☐ 5. Macintosh
- ☐ 6. Apple compatible
- ☐ 7. Other
- ☐ 8. Don't own or use one

E. What is your annual household income?
- ☐ 1. Under $20,000
- ☐ 2. $20,000 - $40,000
- ☐ 3. $40,000 - $60,000
- ☐ 4. $60,000 - $80,000
- ☐ 5. $80,000 - $100,000
- ☐ 6. Over $100,000

F. How much have you spent on computer hardware during the last 12 months?
- ☐ 1. Nothing
- ☐ 2. Under $1,000
- ☐ 3. $1,000 - $2,000
- ☐ 4. $2,000 - $3,000
- ☐ 5. $3,000 - $4,000
- ☐ 6. $4,000 - $5,000
- ☐ 7. Over $5,000

G. How much do you plan to spend on computer hardware during the next 12 months?
- ☐ 1. Nothing
- ☐ 2. Under $1,000
- ☐ 3. $1,000 - $2,000
- ☐ 4. $2,000 - $3,000
- ☐ 5. $3,000 - $4,000
- ☐ 6. $4,000 - $5,000
- ☐ 7. Over $5,000

H. How much have you spent on software during the last 12 months?
- ☐ 1. Nothing
- ☐ 2. Less than $100
- ☐ 3. $100 - $250
- ☐ 4. $250 - $500
- ☐ 5. $500 - $1,000
- ☐ 6. Over $1,000

I. What is your specific interest in the items circled at right?
- ☐ 1. Immediate purchase
- ☐ 2. Purchase within 6 months
- ☐ 3. Brand comparisons
- ☐ 4. Reference
- ☐ 5. Other

J. Do you influence computer purchases within your company?
- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. Doesn't apply

K. On a scale of 1 (no interest) to 5 (great interest), please rate your interest in the following *inCider* columns:
- ___ 1. Fermentations
- ___ 2. The Game Reserve
- ___ 3. The Glau Report
- ___ 4. O'Brien's Journal
- ___ 5. The Learning Machine
- ___ 6. Child's Play
- ___ 7. The Applesoft Adviser
- ___ 8. The Cider Press
- ___ 9. Fudge It!
- ___ 10. Ask inCider
- ___ 11. The Apple Clinic
- ___ 12. Apple Extract

L. If you are not a subscriber, please circle 500.

Reader Service: Return this card to receive full information on the products advertised in this issue. Refer to the ad. You will find numbers near the logo of each advertiser. Each represents the advertiser's Individual Reader Service Number. Circle the corresponding numbers on the card on this page. include your name, address, zip, & stamp, and drop in a mailbox. In 4-6 weeks you'll hear from the advertiser directly.

1	6	11	16	21	151	156	161	166	171	301	306	311	316	321	451	456	461	466	471
2	7	12	17	22	152	157	162	167	172	302	307	312	317	322	452	457	462	467	472
3	8	13	18	23	153	158	163	168	173	303	308	313	318	323	453	458	463	468	473
4	9	14	19	24	154	159	164	169	174	304	309	314	319	324	454	459	464	469	474
5	10	15	20	25	155	160	165	170	175	305	310	315	320	325	455	460	465	470	475
26	31	36	41	46	176	181	186	191	196	326	331	336	341	346	476	481	486	491	496
27	32	37	42	47	177	182	187	192	197	327	332	337	342	347	477	482	487	492	497
28	33	38	43	48	178	183	188	193	198	328	333	338	343	348	478	483	488	493	498
29	34	39	44	49	179	184	189	194	199	329	334	339	344	349	479	484	489	494	499
30	35	40	45	50	180	185	190	195	200	330	335	340	345	350	480	485	490	495	500
51	56	61	66	71	201	206	211	216	221	351	356	361	366	371	501	506	511	516	521
52	57	62	67	72	202	207	212	217	222	352	357	362	367	372	502	507	512	517	522
53	58	63	68	73	203	208	213	218	223	353	358	363	368	373	503	508	513	518	523
54	59	64	69	74	204	209	214	219	224	354	359	364	369	374	504	509	514	519	524
55	60	65	70	75	205	210	215	220	225	355	360	365	370	375	505	510	515	520	525
76	81	86	91	96	226	231	236	241	246	376	381	386	391	396	526	531	536	541	546
77	82	87	92	97	227	232	237	242	247	377	382	387	392	397	527	532	537	542	547
78	83	88	93	98	228	233	238	243	248	378	383	388	393	398	528	533	538	543	548
79	84	89	94	99	229	234	239	244	249	379	384	389	394	399	529	534	539	544	549
80	85	90	95	100	230	235	240	245	250	380	385	390	395	400	530	535	540	545	550
101	106	111	116	121	251	256	261	266	271	401	406	411	416	421	551	556	561	566	571
102	107	112	117	122	252	257	262	267	272	402	407	412	417	422	552	557	562	567	572
103	108	113	118	123	253	258	263	268	273	403	408	413	418	423	553	558	563	568	573
104	109	114	119	124	254	259	264	269	274	404	409	414	419	424	554	559	564	569	574
105	110	115	120	125	255	260	265	270	275	405	410	415	420	425	555	560	565	570	575
126	131	136	141	146	276	281	286	291	296	426	431	436	441	446	576	581	586	591	596
127	132	137	142	147	277	282	287	292	297	427	432	437	442	447	577	582	587	592	597
128	133	138	143	148	278	283	288	293	298	428	433	438	443	448	578	583	588	593	598
129	134	139	144	149	279	284	289	294	299	429	434	439	444	449	579	584	589	594	599
130	135	140	145	150	280	285	290	295	300	430	435	440	445	450	580	585	590	595	600

Name_____

Address_____

City_____State_____Zip_____

Telephone (____)_____

inCider • February 1985

PLACE
STAMP
HERE

inCider
P.O. Box 336
Dalton, MA 01227

PLACE
STAMP
HERE

inCider
P.O. Box 336
Dalton, MA 01227

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 INC

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.

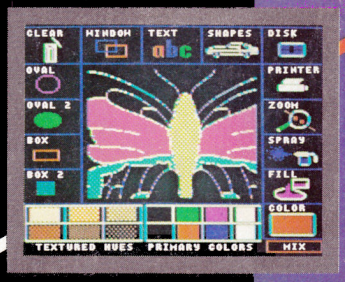
Circle 66 on Reader Service card.

Apple
Commodore

Now You Need...

The All-In-One Illustrator

It draws, paints & prints your high resolution illustrations with ease. Works with any standard input device, including touch tablets, joy sticks, light pens, mice & professional graphics tablets.



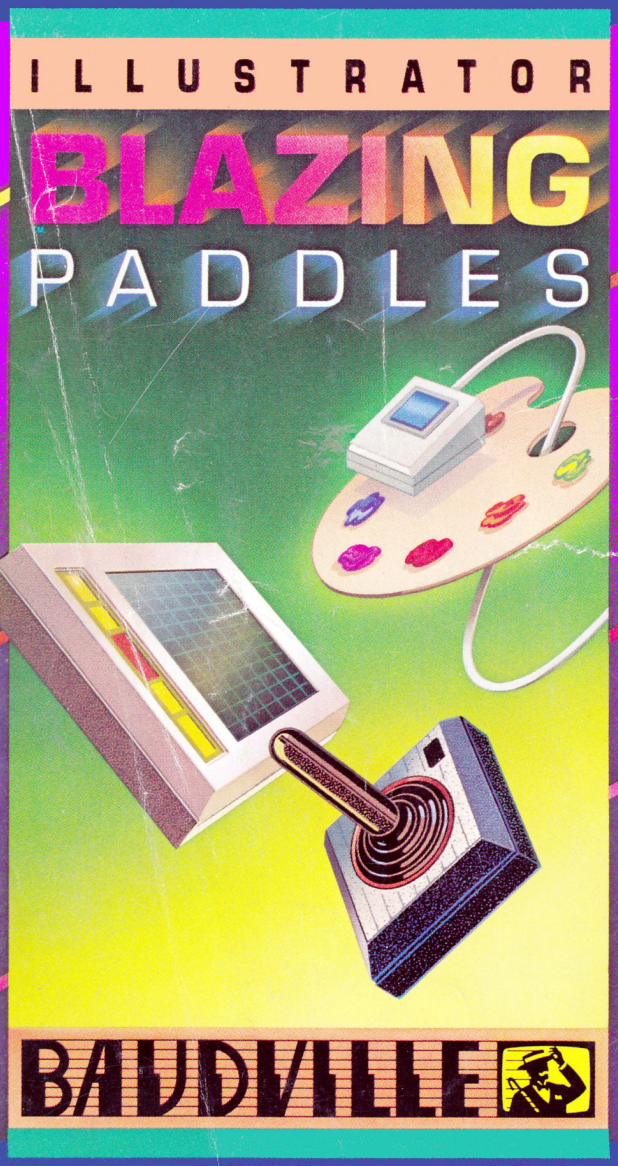
Sophisticated Features

State-of-the-Art input technology, color mixing to create over 200 textured hues, painting with a variety of brush strokes, air-brushing, inserting ovals, lines, rectangles. Zoom allows pixel editing while viewing the results at full scale. Text fonts and pre-drawn shapes are included and may be added at any time. A printer dump for most dot matrix printers is included.

See Your Dealer...

or for direct orders enclose
$49.95 Apple Version
$34.95 Commodore Version
plus $3.00 for shipping & handling.
Mastercard and Visa accepted.

616/957-3036



T.M.

Productive Fun

Includes all the artistic tools needed to create striking computer art. So versatile that young children are able to use it like a coloring book, yet sophisticated enough for a computer artist to use. Perfect for Home, Business, Education, and the Art. The possibilities are endless...

APPLE is a registered trademark of APPLE COMPUTER
COMMODORE is a registered trademark of COMMODORE COMPUTER

BAUDVILLE™

Baudville, 1001 Medical Park Dr. S.E.,
Grand Rapids, Michigan 49506

Circle 159 on Reader Service card.