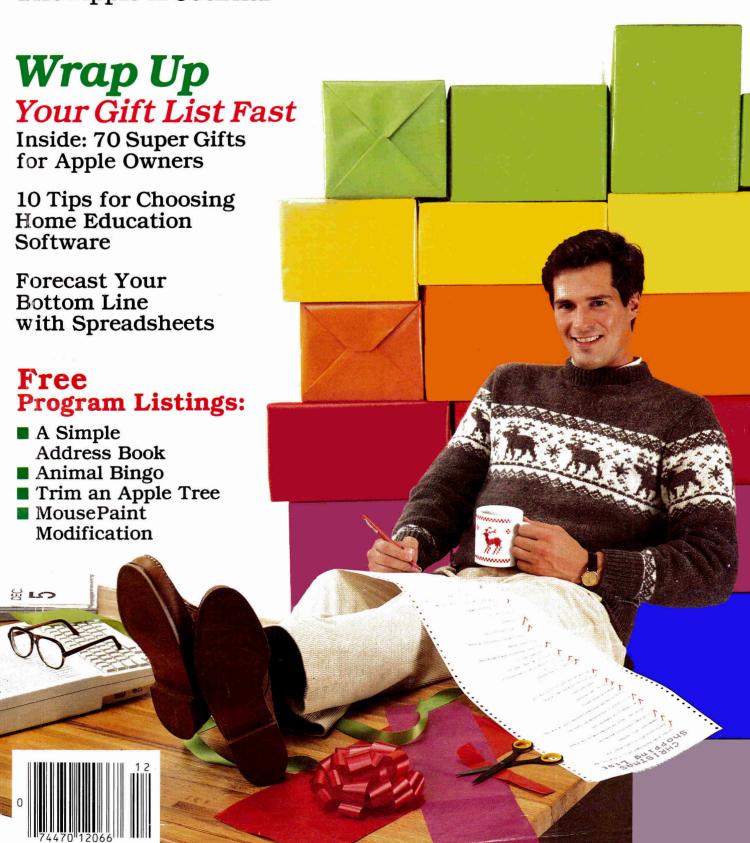
Shopper's Guide

The Apple II Journal



Now...Draw On Your Imagination





Introducing The Gibson Light Pen System.™

The link between mind and machine has arrived. Suddenly you're free ... free to translate your every thought into professional quality computer graphics... just by touching your screen.

The Gibson Light Pen System software features *icon* menus that offer easy access to powerful graphics tools such as symbol libraries, geometric shapes, mirror-imaging, magnification and complete color and pattern editing. Even if you're not a graphic artist, you can design, diagram and draw with precision at high-speed, in high-resolution, and in full-color...right on your screen.

COMPLETE WITH FIVE SOFTWARE SYSTEMS TO MAXIMIZE YOUR CREATIVE OPTIONS.

The Gibson Light Pen System comes complete with all you need to draw, paint, design, score music and learn animation.

DRAW FREEHAND WITH PENPAINTER™

A full range of drawing tools, shapes, patterns and colors to draw or paint virtually anything on your screen.

DESIGN PRECISION DIAGRAMS WITH PENDESIGNER.™

Turn your computer into your own graphic design studio. A complete selection of templates make perfect business and architectural diagrams, technical drawings and engineering schematics a snap.

CREATE COMPUTERIZED ANIMATION WITH PENANIMATOR.™

All that you need to learn the basics of animation. Develop your own animation sequences, and bring your screen to life.

COMPOSE MUSIC WITH PENMUSICIAN™

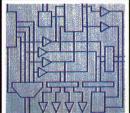
Score computerized melodies with incredible ease at the touch of your pen.

CREATE YOUR OWN LIGHT PEN APPLICATIONS WITH THE PENTRAK LANGUAGE SYSTEM.™

Take advantage of the software features, and customize your own light pen programs.

NOW AVAILABLE FOR THE APPLE II[®] SERIES Coming soon for the IBM PC™ and PCjr.™







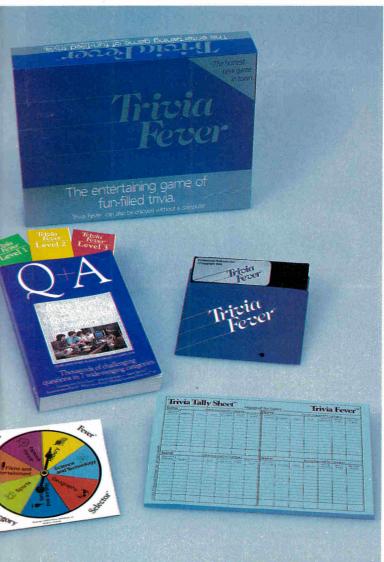
Circle 315 on Reader Service card.



The Gibson Light Pen System

Touch the Magic of Light

Catch The Hottest New Game In Town"



At \$39.95, Trivia Fever comes complete with Question and Answer Book, Category Selector, and Tally Sheets to be used when played without a computer.

Trivia Fever is absolutely unique — it's the only software entertainment package that can be enjoyed **with** or **without** a home computer! When played on your home computer, Trivia Fever is a refreshing alternative to all those shoot'em up games. An elected "Master of the Game" uses the computer to randomly select subject categories, handicap players, generate questions and answers, keep score automatically, and more! Instructive by its very nature, Trivia Fever can be enjoyed by up to 8 individuals or teams. And when played without a computer, Trivia Fever has all the best features of the "popular" trivia games plus more — all without the cumbersome board, cards, and little game pieces. You can play in a car, on vacation, anytime, anywhere! And Trivia Fever is by far the best Trivia game available anywhere. Here's why:

Trivia Fever offers thousands of challenging questions in 7 interesting categories, so there's something for everyone. Each category

has questions with 3 levels of difficulty, which score comparable points. What's more, Trivia Fever allows players to HANDI-CAP all those so-called "trivia experts" three different ways, giving everyone a chance to win. And players can easily control the length of play from quick thirty minute



games to multi-hour party marathons!

Trivia Fever is unique, entertaining, educational, and most of all FUN. And at \$39.95, Trivia Fever is destined to quickly become the best selling software entertainment package of all time. There's even a \$5 rebate available to any non-computer users who return the computer diskette.

Trivia Fever can be enjoyed on the Commodore 64, IBM PC & PCjr and compatibles, Apple II series, and others. So don't delay. Catch Trivia Fever at your favorite software retailer today!

For additional information call 617-444-5224, or write to:



Express Yourself!

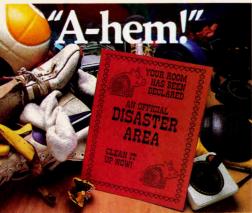
A few minutes and a few keystrokes. That's all it takes to turn your personal

computer into a personal print shop.

Everything you need is in the program: typefaces, border designs, background patterns, pictures, symbols and a starter kit of colored paper and matching envelopes. The Print Shop will also guide you along, step by step, even if you've never touched a computer before.

So think what you'd like to say, then put it in your own words with The Print Shop.

Make quite an impression with just five easy keystrokes.

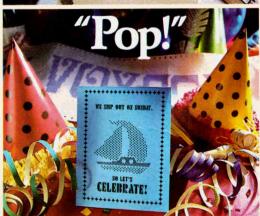




Everybody's creative with The Print Shop. You just can't help it!



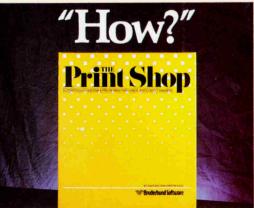




Dozens of pictures and symbols to suit every purpose and occasion.







Keep your creativity flowing...put it in your own words with The Print Shop.

The Print Shop is available for the Apple. Coming soon for the Commodore 64, Atari Home Computers, Macintosh and IBM-PC/PCjr. Apple and Macintosh are trademarks of Apple Computer, Inc. Commodore 64 is a trademark of Commodore Electronics, Ltd. Atari is a trademark of Atari Corp. IBM-PC and PCjr are trademarks of International Business Machines, Inc. For more information about Brøderbund and our products, write to us at: 17 Paul Drive, San Rafael, California 94903 or call (415) 479-1170.



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.

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)

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



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

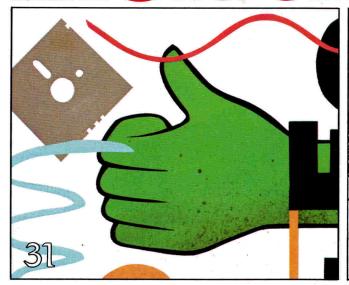


FORMERLY HAYES PRODUCTS

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

Manufactured in U.S.A.

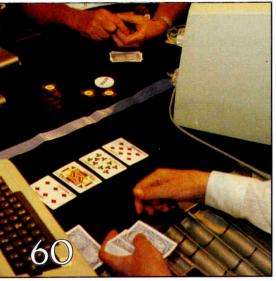
inCider

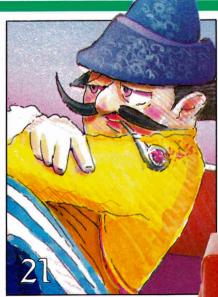




ARTICLES

inCider's Holiday Shopping Guide	Take the bah-humbug out of holiday shopping with a wish list suited to any Santa's budget.				
Read 'Em and Weep by Michael Wiesenberg	The //e antes up at the First Computer Poker Challenge.	60			
Build a Better MousePaint by Stephen Jones Free Listing!	Avoid cat and mouse games and print pictures directly from MousePaint.	69			
Nothing but Interruptions by Bill Bynum	Stop machine-language programs in their tracks—any time you want.	72			
Polaroid Palette by Chuck Doherty	Video graphics transformed into sharp color prints or slides in the time it takes to say "cheese."	78			
Account for Yourself by Lawrence Conley	Wunderbar! Wundersheet organizes your yearly finances on one convenient spreadsheet.	84			
Random Music by Frank Coker	Follow the dancing dot to tunes scored within a three-octave range.	93			
A New Glossary for Computerists	Tongue-in-cheek translations cut through high-tech gobbledygook.	98			
by Rob Russon	Downloaded from www.Apple2Online.com				







DEPARTMENTS

10

66

104

112

115

126

Fermentations

Eeny, Meeny, Miny, Mac?

Letters

Consumer Alert The Cider Press

Computer Orphanages: Scholarly Preference: White-Collar Micros

The Game Reserve Holiday Plans

The Learning Machine

Ten Tips for Choosing Educational Software

Fudge It! Free Listing!
Animal Bingo

Child's Play Free Listing! Trim an Apple Tree

inCider's inSidious inSolubles

The Rainbow, The Data Disk Maker

Corrections

The Applesoft Adviser
Reading Data and Linear Arrays

Free Listing!

hardware questions

Ask inCider
Answers to your software and

The Glau Report
Spicadsheets: Forecasting Tools

Hints 'n' Techniques Maintenance Made Easy: Now You See It. Now You Don't

Calendar 128 Apple Extract 129

Apple Extract
Six months of capsule reviews

Downloaded from www.Apple2Online.com Cover photo by White/Packert Studio

6 Software Reviews 136

Financial Cookbook; Seastalker; MathMaze; Music Construction Set: Bank Street

14 Speller; Multigraph; M-ss-ng

L-nks: The Write Stuff; People Management: Knoware: Counters: Number Farm: How About a Nice Game of Chess?

Hardware Reviews 149

31 DuoDisk; RGB Interface; ALF AD8088 Processor Card; Cricket; Era 2

AD8088 Processor Card; Cricket; Era 2

Book Reviews 15

37 An Apple for Kids; Inside Apple's ProDOS; Writing with a Word Processor; Writing in the Computer Age; VisiCalc Extensions for

39 the Apple II and Apple //e

New Software 163
New Publications 169

New Products 171

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. Postmaster: Send address changes to inCider, Subscription Services, P.O. Box 911, Farmingdale, NY 11737. Entire

contents copyright 1984 by CW Communications/Peterborough, Inc.



242 325

ERMENTATIONS



Eeny, Meeny, Miny, Mac?

he following ad appeared in the San Jose Mercury-News:

Apple //e System, \$995. . .comes with Monitor II, a disk drive and three hours of training. Or you could plunk down the same money and depart with a //c. no monitor, same training. Or you could dig down a thousand dollars deeper and take a Macintosh home for \$1995. So, assuming that you're in the market for a new Apple, what'll it be: Macintosh or an Apple II?

The Mighty Mac

Let's look at the Macintosh first. Technically, there's nothing else like it. The Mac's 68000 microprocessor needs little introduction and is simply one of the best chips on the market. Its 16-bit (or 32-bit, depending on who's counting) architecture allows for nimble operation. Its superior ROM paves the way for the integration of applications—witness the possibilities of cutting and pasting between text and graphics.

Durable 3½-inch mini-floppy disks are less prone to damage than the venerable 51/4-inch variety, and the machine itself is marvelously compact and sturdy. Some declare the bit-mapped display's resolution of 512 by 342 dots to be the sharpest screen display available in any

micro. It can even emulate an IBM 3278 terminal. And user-friendliness has been "Macsimized," making this computer the easiest ever to master. All for \$1995.

The Apple II Advantage

Compare the Mac to the //e, Apple's Gunga Din. For \$1000 less you get color capability, something every Apple II owner is hopelessly spoiled about. You also get seven expansion slots (and an auxiliary slot)—the mother lode of peripheral capability.

The //e has cursor keys as humans have thumbs. The Mac has no thumbs, but it does have a mouse. Efficient as the mouse may be for drag-clicking through screen menus and manipulating Mac-Paint, it flaws the Mac's word-processing ability. To move from line to line, you must take your hand off the keyboard, grab the mouse, carefully move the cursor, and hustle back to the keyboard. "Making a mouse available," James Fallows said recently in The Atlantic Monthly, "is like offering your guests chopsticks in addition to silverware. Making it mandatory is like forcing them to use chopsticks even when you're serving soup."

We come now to the biggest sin-

gle advantage the Apple II enjoys over Macintosh: software. As of this writing, perhaps 90 programs are available for the Macintosh, tops. For the //e, there are more than 10,000 software packages. Need we say more? During a "slow" month, our new software folder bulges with 50 to 60 news releases announcing the latest software for the Apple II line. So while Macintosh third-party developers get their acts together, the Apple II community continues to flood the market with innovative, improved programming. Ditto for peripherals.

This stage of the Macintosh's development poses no match for the Apple II. Conventional design, the industry's largest software selection, and price keep the II on top.

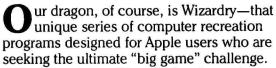
And the Envelope, Please. . .

My guess is that prices on all three machines will steadily decrease. By the time you read this in mid-November-I'm speaking to you from a time warp—there may be an ad in the Mercury-News that is downright irresistible. Yes, the temptation will exist and the decision will be tough, but if you keep chanting, "Solutions, applications, solutions, applications," you'll know what to do. ■

by Paul Quinn

Big Game Hunting? Try Baggin' Our Dragon.

It's the biggest game in town



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

6 MAIN STREET OGDENSBURG N.Y. 13369 (315) 393-6633 LEADERS IN COMPUTER FANTASY ROLE-PLAYING



Modern times have create

We've cleverly disguised them as funny creatures from a computer game. But underneath the funny exterior is one of the most serious approaches to home education you've ever heard of.

INTRODUCING SPROUT™ SOFTWARE.
GAMES THAT TEACH.

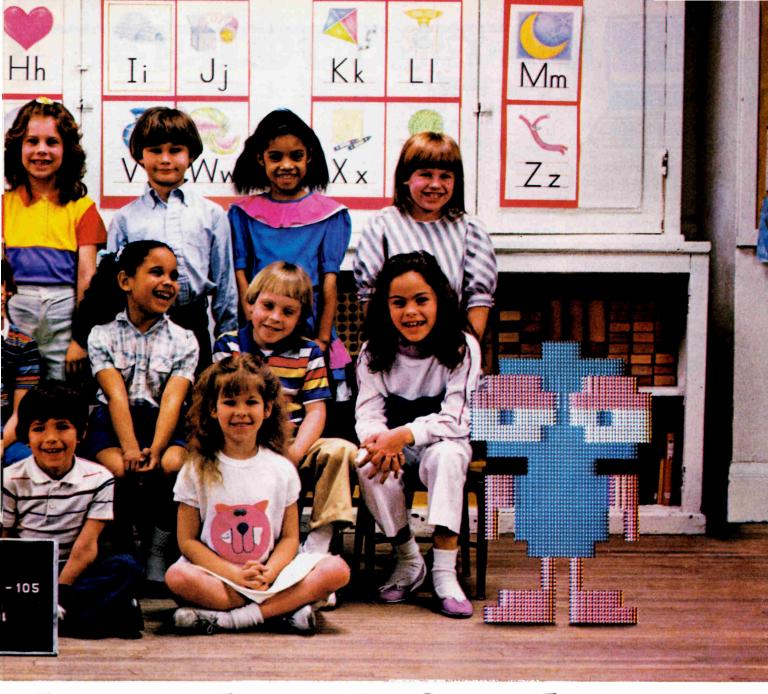
Your kid's new teachers are called Tink and Tonk. They come from Sprout. Software for kids 4 to 8.

The beauty of Sprout software is how

entertainment is balanced with a healthy dose of education.

While kids are having fun at home, they're actually reinforcing what they've learned at school. Things like the alphabet, spelling, vocabulary, counting, adding, and pattern recognition.

You'll also like how Sprout prevents boredom. Our games grow up, instead of wear out. As kids get older, the game adjusts and gets harder. Because there are many



da new breed of teachers.

variations and many decisions to make.

Knowing how to do all this isn't something Sprout learned overnight.

You see, we've got a hundred years of experience to lean on. (Our parent company is SFN, the country's #1 text-book publisher for elementary and high schools.)

We've also got the expe-

rience of Mercer Mayer, who has written or illustrated 80 children's books. He dazzles kids with ideas and pictures that keep them coming back for more.

With TINK!TONK!™ software, kids see that learning can be more fun than destroying space creatures.

Sproul

Games that grow up. Instead of wear out.

Circle 537 on Reader Service card,



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

PUBLISHER David Schissler

EDITOR IN CHIEF Paul C. Quinn

MANAGING EDITOR Peg LePage

TECHNICAL EDITOR Robert M. Ryan

SENIOR EDITOR Susan Gubernat

REVIEW/NEW PRODUCTS EDITOR Kerry J. Lanz

EDUCATION EDITOR Joan Witham

NEWS EDITOR Cynthia K. Carr

COPY EDITORS Melody Bedell Robin Florence EDITORIAL OPERATIONS MANAGER John C. Burnett

ADVERTISING

SALES MANAGER Paul Boule

SALES REPRESENTATIVE Barbara Alvarez (800) 441-4403

WEST COAST OFFICE 1060 Marsh Road Menlo Park, CA 94025

SALES MANAGER Giorgio Saluti

SALES REPRESENTATIVES Karen Letendre, Allison Walsh (415) 328-3470

PRODUCTION

PRODUCTION DIRECTOR Nancy Salmon

ASSISTANT PRODUCTION MANAGER/MANUFACTURING Susan Gross

TYPESETTING MANAGER Dennis Christensen

PHOTOGRAPH MANAGER Nathaniel Haynes

FILM PREPARATION MANAGER Robert M. Villeneuve

DESIGN

CREATIVE DIRECTOR Christine Destrempes

DESIGN MANAGER Joyce Pillarella

ART DIRECTOR Holly Fuette

DESIGN DIRECTOR Judy Oliver

PRODUCTION ASSISTANT Phyllis Pittet

AD/GRAPHICS PRODUCTION Fiona Davies

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.

ETTERS

Professional Numbers Polished

I would like to thank all those who wrote to me about my "Professional Numbers" (July 1984, page 116). I enjoyed reading the letters and responding to them. I was especially impressed with several suggestions.

Dale Kirkland of Fort, Washington, added this line to avoid unwanted results given by a number larger than 999,999,999:

10005 IF ABS(N)>99999999 THEN N\$ = "###,###," : GOTO 10110

In other words, the program displays a field overflow as a FORTRAN program would.

Don Martindale of Redmond, Washington, pointed out that some people want to print a dollar sign only on the first item in a list and before a total. The following line prints a dollar sign at the head of a listing, or wherever you want it, when DF is set equal to 1. The variable DF will be reset to zero after printing one number with a dollar sign in front of it.

10100 IF DF = 1 THEN N\$ = "\$" + N\$:DF = 0

I hope these modifications will be useful. Thanks again to everyone who wrote—it really made my day!

Damien Lindauer P.O. Box 592 Oroville, WA 98844

Soliciting Word Games

I'm putting together a collection of word game programs that I intend to make generally available. *inCider* readers who would like to contribute to the collection, who like to play word games, or who want more information should send me an SASE, telling me what computer they own.

Eric Balkan 14704 Seneca Castle Court Gaithersburg, MD 20878

Penpals for Programs

I am a student and tutor in a computer education class at the Connecticut Correctional Institution. I would like to correspond with people who write programs for their Apple //e's. I've been working with the //e for two years and have been writing educational programs for lower grade level and special education students for a year.

Ronald G. Proulx P.O. Box 100, Q-1-59 Somers, CT 06071

Pickin' the Daisies

Robert Hart's article on low-cost daisy-wheel printers (June 1984, page 28) was informative, but incomplete. NEC, Diablo, Qume, and other manufacturers make daisies for less than \$1000. I wish Hart had included which printers have bi-directional tractors and how much their ribbons and print wheels cost. And what is a Star *Powertype*?

Greg Hitchings 2623 West Artesia Boulevard Torrance, CA 90504

Star Powertype is a printer manufactured by Star Micronics, Inc., Box 612186, Dallas/Fort Worth Airport, TX 75261. It retails for \$499.

—eds.

Bar Code Banter

Hal Hancock's letter regarding bar codes (June 1984, page 10) is based on a limited view of typing program listings. As a parent of two children, ages 10 and 12, I've found the program listings to be of great educational value. Each month my children type in at least one listing in the magazine. This has resulted in excellent learning experiences, since we jointly dissect the programs to determine what is happening inside the "magic box."

While there may be people willing to spend \$100 for a monthly subscription to new bar code software (as Mr. Hancock suggests), a

HAS MR. DO CLOWNED AROUND ONCE TOO OFTEN?



VICE PRESIDENT/GENERAL MANAGER Debra Wetherbee

VICE PRESIDENT/FINANCE Roger Murphy

ASSISTANT GENERAL MANAGER

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 (800) 343-0728

DIRECTOR OF CREDIT SALES, AND COLLECTION William M. Boyer

DIRECTOR OF PUBLIC RELATIONS

FOUNDER Wayne Green

inCider magazine is published monthly by CW Communications/Peterborough, Inc. Entire contents copyright 1934 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-relatgroup, the words larges, problems to compute publications in 24 major countries. Mins 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/Argentina, Asia Computerworld/Argentina, Asia Computerworld/Argentina, Asia Computerworld/Argentina, Asia Computerworld/Argentina, Asia Computerworld/Ar envorld; Australia's Computenvorld 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 OFC (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, MikroDatom, Min Hemdator, and Svenska PC World; the UK's Computer Management and Computer Business Europe; the U.S.' Computerworld, HOT CoCo, inCider, Info-World, 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: inClder, 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., Routs 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 281 (300) 258-5473 from outside New Hampshire, or 324-9471. ext. 136, within New Hampshire.

IETTERS

marketing survey would prove that the reduction in readership (at a higher revenue per reader) would not make up the loss.

At its current subscription price, inCider is a bargain. I'm not certain I would be willing to give up the educational component.

William D. Grant, Ed.D. University of Oklahoma P.O. Box 26901 800 N.E. 15th Street, Room 501 Oklahoma City, OK 73190

I've noticed that a growing number of computer magazine readers would prefer not to type in program listings. I don't blame them. After attempting this feat a number of times myself, it becomes laborious and annoying trying to locate the inevitable typos.

Readers have written to support the bar code program listings option. Although perfectly feasible, I can't see myself paying several hundred dollars for a bar code reader.

I'd like to suggest another system. It's inexpensive to both the publisher, and the reader. The system is that relic of the past, the phonograph record. Since demonstration disks can be stamped into paper or thin, flexible plastic for inclusion in books and magazines, why not use this medium for data? Apples have cassette input jacks that could take input from a turntable or stereo system. The program listings could be stamped on one platter, each program listing as an individual cut. These platters are good for only a couple of passes. but all that's needed is one pass.

I can't locate anyone in Canada who is involved in the paper record process or anyone who could generate a "soft cut" record to prove my theory. It should work. I hope you'll give it some consideration.

> **Phil Brunette** R.R.#4 Uxbridge, Ontario LOC 1KO Canada

inCider acknowledges the disgruntled readers who balk at typing program listings. That's why we set up our bulletin board system so readers could dump longer listings directly through their modems. Your solution, Phil, could possibly work with the II Plus or // e, but the //c doesn't have a cassette input jack. But, you know what, you've got a good idea and we'll look into it.

"Each month my children type in at least one listing in the magazine. This has resulted in excellent learnina experiences."

Russian to Navaio

I found "Russian Word Processor" (July 1984, page 64) very interesting. The organization I work with is choosing a way of handling the Navajo language on our Apple II Plus. I have been reluctant to use Gutenberg because, in its sophistication, it does not seem particularly user-friendly.

The Gutenberg demo disk proves tremendous potential (including the print processor, which we could use), but a brief exposure to the actual program left me feeling overwhelmed with the multiplicity of commands needed; having to insert a command at the beginning and end of each paragraph, for example, seems a bit much.

We want this program to be usable by Navajos themselves, who may not have a lot of experience with word processing. I am interested in how and how much Mr. Svec was able to simplify the actual use of the program for the students. I have no question about Gutenberg's ability

ARE YOU BRAVE ENOUGH TO ENTER THE SAVAGE WORLD OF MIGHTY CONAN"?



So flex your muscles and prepare to do battle.

Your mission is to slay Conan's wicked rival and bring home a bounty of gems. Blocking your way are fire-breathing dragons, poisonous scorpions, vicious bats and other deadly adversaries.

If that weren't enough, you also have to fight your way through dark caves and dangerous dungeons. One false step and you'll be swallowed up in red-hot lava pits. And watch out for all those mysterious, supernatural creatures waiting to do you in.

Whew! Are you strong enough to play Conan?

For Commodore 64, Apple II series, Atari and IBM PC & PC/JR systems.

Datasoft®
WE
CHALLENGE
YOU.

Datasoft, Inc., 19808 Nordhoff Place, Chatsworth, CA 91311 • Phone (818) 701-5161

Circle 165 on Reader Service card.

STATISTICS

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.



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



HUMAN SYSTEMS DYNAMICS

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

Northridge, CA 91324

Dealer Inquiries Invited



TETTERS

to handle the extra characters required for Navajo. I would appreciate any advice on this problem.

> Glenn E. Marshall P.O. Box 700 Thoreau, NM 87323

Consumer Alert

We have recently been informed that Micro Merchant, North 10th Street, or Box 1516, Colton, CA, has gone out of business. We have been unable to reach anyone for comment.

Making Room

In his Hints 'n' Techniques ("Goodbye 80-Column Blues," August 1984, page 125), Jon Sutten set up his printer in the condensed mode to print a Quick File report with more information than would fit the standard 80-column printout. I offer an even simpler solution to this problem.

With Apple's Quick File for the //e, it's very easy to control the print mode from within the Quick File program. After formatting your report, use the right-arrow key to go to the right edge of the report. You'll see a statement with "len" and some numbers which indicate your report's column width. Make adjustments to the report until the len statement reads no more than 136. (You may have to omit certain columns of your report or make the columns narrower.)

After formatting your report not any wider than 136 columns, use the open-apple O command to display the printer options menu. Set the left (1) and right (3) margins at zero. Set the printer size (4) at 136. Now select Send Special Codes To Printer (9). Use the code applicable

for your printer-in the case of MX-80, control-O, and the Apple DMP, escape-Q, to specify the condensed mode. End the control string with a ^ (caret or shift 6).

Controlling your printer eliminates the time-consuming process of booting the System Master and typing the printer control characters. Also, you can transmit any print mode to your printer directly through Quick File using the Send Special Codes To Printer option. This will be saved as part of the report print specifications, making it possible to specify available print size and style that fits within a maximum of 136 columns for a printer using 81/2-inch wide paper.

This technique also works with PFS: Report. Use the report options menu to enter the decimal form of your printer control code after the menu item, Printer Control Codes. You must use the decimal form because PFS programs recognize only that form of instruction. If you try to enter escape-Q, you'll be sent back to the main menu as soon as you enter escape.

> **Winston Sayers** 5421 Ivywood Lane Columbus, OH 43229

Sorry, Wrong Number

The telephone company has been everyone's scapegoat in the past, but for once you can't blame them. Because of recent editorial changes, we published two telephone numbers for our bulletin board system. Unfortunately, the latest number is not being serviced. But, don't despair-we haven't let you down. Our new number is our old number, (603) 924-9801. Sorry if this caused any inconvenience. —eds.

THE FIRST FAMILY OF PRODUCTIVITY FROM CREATIVE SOFTWARE

The best costs only \$49.95, wby pay more?

Creative Writer™, Creative Filer™, and Creative Calc™ - three low-cost, yet powerful personal productivity programs designed to give you the most for your software dollar.

HASSLE-FREE **WORD PROCESSING.**

Creative Writer is a word processor you can start using in just 15 minutes. Now anything you do with your typewriter, you'll do better and faster with Creative Writer. It lets you concentrate on the words, not the processing.

Arrange and rearrange words or paragraphs at the touch of a key. Compose, edit, save, retrieve and print documents almost effortlessly. \$49.95.

Α

E

R

T

V

Е

CREATIV WRITER

- Preview entire document
- Help screens
- · Search and replace
- Move text
- Headers and footers

E A

- Unrestricted format
- Report writer included
- · Change format after creation
- Automatic alphabetizing

- Adjustable column width
- Mix text and numeric data
- 12 digit accuracy
- Within cell editing
- Menu of commands
- · Flexibility of design

EACH PROGRAM IS FULL-FEATURED WITH INTEGRATED CAPABILITIES. COMMODORE 64™, IBM PC;™ PCjr™, AND APPLE™ VERSIONS AVAILABLE.

PUT YOUR FILING CABINET ON DISK.

Now there's Creative Filer - the simplest way to organize and access all your files.

You can set up and maintain virtually any file with Creative Filer all on a computer disk and automatically filed in alphabetical order for instant access. \$49.95.

A SPREADSHEET PROGRAM THAT REALLY ADDS UP.

Creative Calc automates any mathematical process.

It lets you ask the "what if" questions of financial analysis more easily

ALL THREE PROGRAMS ARE INTEGRATED FOR **MORE COMPUTING POWER**

TEN-PACK OFFER

IN EVERY BOX.

Creative Filer and Creative Calc work together with Creative Writer, allowing you to customize documents combining text, data, and numeric tables.

Now you can get the power of expensive productivity programs at a very economical price.

CALL AND ORDER TODAY!

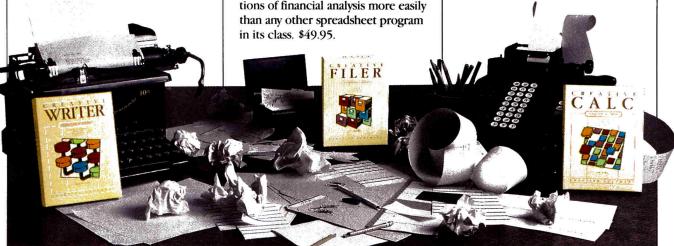
Use your Visa, MasterCard or personal check. Toll Free 1-800-331-7990 (outside Calif.) or 1-800-448-1001 (in Calif.).

MONEY BACK GUARANTEE. If not completely satisfied, return within 10 days for full refund.

*Limited time only

T

W



S

0



20/20 VDT Vision

Looking at the world through rose-colored glasses may come to signify common sense rather than romanticism. USA Today (August 14, 1984) reported that American Optical Corporation has developed video glasses for people who experience eyestrain caused by using VDTs all day.

The rose-tinted glasses, which cost \$100 and come in designer styles, are sold by American Optical and selected optical retail stores.

According to USA Today, controversy blurs the video glasses' actual benefits. Some say they're the answer to a VDT worker's prayer; others quote a National Academy of Sciences' study that states VDTs don't cause "serious eye problems."



Horse Sense

Apple is in the saddle at Sweet Briar College in Virginia. All it took was a little horse sense to set up a //e for the college's riding program, making Sweet Briar the first out of some 600 U.S. college riding programs to use computers in managing stables.

Paul Cronin, director of riding, explains that logging statistics for 60 horses and 125 students amounts to a massive record-keeping chore that includes keeping track of each horse's shots, shoes, and feed; its purchase price and competition performance level; as well as board, medical, and transportation fees.

Through the guidance and support of W. Ford Cramer, a member of the college's board of directors and a former IBM executive, the riding program was groomed to enter the computer age.

"Other people look at it [the computer system] and wonder why it's here," Cronin says. "People in our field aren't really involved with computers."

According to Keedie Groanes, manager of the riding center and system operator, the stable relies primarily on three commercial programs: Applewriter, VisiCalc, and VisiFile.

Cronin and Groanes agree that the //e has saved hours of book-keeping time while managing the riding program's operations.

"The computer makes it run as efficiently as any other small business," Cronin says.

White-Collar Computing

Just who uses personal computers, anyway? Not many top-level executives, according to a survey conducted by Forum/Nevison, a personal computer training firm.

The survey refutes the popular assumption that personal computers have infiltrated every level of the work force.

"It's not a surprise to us, but the results of the survey appear to contradict what the media is writing about the computer revolution," Forum/Nevison Chairman John Nevison says. "In fact, the computer revolution has yet to attract top executives in significant numbers as active participants."

Only one in five of those polled indicated that within their companies there was "significant" use of personal computers by executives. The survey was distributed among executives in financial, industrial, human resources, and service companies as well as those in small-business management.

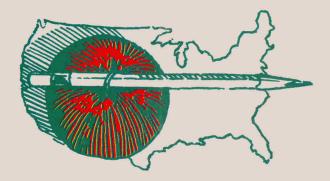
"Personal computers tend to be used to a far greater extent by lower management, accounting department staff, and secretaries than by anyone else," Nevison adds.

It's Academic

Apples and education are symbiotic these days. In a survey of computer usage in the 50 largest school districts in the United States, Apple emerged the winner. Of the 38,211 computers placed in these schools, 16,992 are Apples. Six of the school districts—Detroit Public (Michigan), Broward County

(Florida), San Diego Unified (California), Jefferson County (Kentucky), Dekalb County (Georgia), and Boston (Massachusetts)—use Apples exclusively.

The report, conducted by Quality Education Data, Inc., is based on 1983–84 enrollment statistics. Broward County claimed the most Apples with 2000 in the district, but Jefferson County had more units per school with 13.03 Apple computers for each school.



edited by Cynthia Carr

VOTErs' Rights

Thumbs up, thumbs down. You control the fate of computer products through VOTE—Voice of the End User. Formed by the Institute for Personal Computing, VOTE is a nonprofit educational organization aimed at distinguishing the good products from the bad for consumers.

Started in July, VOTE depends on the average consumer who uses a product day in and day out. According to Dr. Heinz Dinter, IPC president, consumers are the best judges of software and hardware.

Anyone interested in personal computing can join VOTE. The organization is recruiting volunteers.

"If they [computer users] have a message [about a product] to tell other people—whether positive or negative is not relevant—we would like to know about it," Dinter said.

IPC plans to spread the results of its studies through the media and its own publications.

"We're all very enthusiastic about VOTE," says Dr. Roger C. Schlobin, VOTE director. "I have a great interest in the personal computer, but I'm a non-technical end user, just like tens of thousands of others out there. This is a great opportunity for all of us to have a voice in the future development of personal computer products."

If you would like to become a VOTE volunteer, write to Dr. Schlobin at the Institute for Personal Computing, P.O. Box 8187, Vero Beach, FL 32963, or call (305) 231-6846.



Illustrations by Katherir.....

Adopt a Computer Waif

The picture isn't a pretty one: Cast aside for whatever reason, unloved, unused, and unwanted computers account for the fact that one out of every five sold this year will be orphaned within two years. What can you do for a homeless piece of hardware? Put it up for adoption. That's right. Give it a chance for a better life, courtesy of Brian Keenan, president of International Computer Orphanage.

Keenan developed the idea of a computer "orphanage" when he saw how many computers are abandoned because of new technology or their owner's lack of interest, and admits he selected the orphan theme for promotional purposes. The company acts as a brokerage house to locate and sell used computers.

International Computer Orphanage matches computers with prospective owners. People no longer interested in their computer can give it up for adoption while those looking for a computer can call up an

adoption center to see what's available, either on a temporary or permanent basis.

Giving up a used computer for adoption is a profitable alternative for the owner, who receives payment from International Computer Orphanage. Those looking for a computer can get one at a reduced price through a company-sponsored computer orphan agent.

Apple and IBM machines are the most favored, according to Keenan. The Commodore follows in popularity. People who "adopt" an IBM tend to be computer-literate or business-oriented, Keenan says, while those interested in an Apple are often first-time users.

The computer orphanage has two centers in operation with 95 requests for franchises in the United States. Keenan anticipates 1000 computer agents by the end of 1984.

"We are building a sub-industry within the computer industry," Keenan says. "We're dealing with a different breed when dealing with a used [computer] product. One out of ten existing stores cannot afford to deal in a used program."

To match the right owner with the right

computer orphan, Keenan's company entered the private market on The Source (an on-line information service) to store information on used computers. Through The Source, International Computer Orphanage is available to 66,000 members scattered in 53 countries.

Keenan's business has taken off within a matter of months. He developed the concept in January, and started advertising on The Source in June. ICO's biggest market, the education field, pulls in some 40 percent of the company's business.

"We present a new image to the public where computers are not intimidating," Keenan says. He points to the homey atmosphere characterizing his stores, decorated in a "bedroom" motif with nonmodular furniture and teddy-bear wallpaper. "The plan is to make this high-tech field a comfortable place to live in."

For more information on how to adopt a computer of your own, contact International Computer Orphanage, 6711 Mississauga Road, Suite 103, Mississauga, Ontario L5N 2W3, (416) 826-7955 in Canada, or (800) 387-8244.

OUR ARCADE GAMES WE BROUGHT



Bally Midway's Spy Hunter puts you in the driver's seat of the hottest machine on four wheels. You're after enemy spies. The situation is life and death. You'll need every weapon you've got – machine guns, and guided missiles, oil slicks and smoke screens. But the enemy is everywhere. On the road, in the water, even in the air. So you'll have to be more than fast to stay alive in Spy Hunter. You'll need brains and guts, too.

Do you have what it takes?



Bally Midway's Tapper would like to welcome you to the fastest game in the universe.

You're serving up drinks in some of the craziest places you've ever seen. And the service better be good, or else. You'll work your way through the wild Western Saloon to the Sports Bar. From there to the slam dancing Punk Bar and on into the Space Bar full of customers who are, literally, out of this world.

Are you fast enough to play Tapper? If you have to ask, you probably already know the answer.



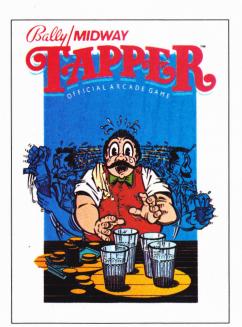
Bally Midway's Up 'N Down by Sega. In this game, a crash is no accident.

In fact, it's the whole object of the game. You'll race your baja bug over some of the worst roads south of any border. Leap dead ends, gaping canyons and oncoming traffic in a single bound. And if anyone gets in your way, crush 'em.

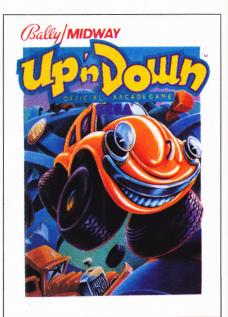
Crashing, bashing Up 'N Down. It's one smash hit that really is a smash.



The #1 Arcade Game of 1984.



Nominated as Most Innovative Coin-Op Game of 1984 by *Electronic Games* magazine.



#1 Arcade Hit, *Play Meter* Conversions Poll, 8/1/84

WERE SUCH BIG HITS, THEM HOME.



Sega's Congo Bongo rocked the home game world when it shot up to Number 3 on the Billboard chart

this spring. And now it's available for even more home systems. So check the chart and get ready for jungle action. You'll pursue the mighty ape Congo up Monkey Mountain and across the Mighty River. Do battle with dangerous jungle creatures. Ride hippos, dodge charging rhinos and try

man-eating fish. Congo Bongo. It's fast and it's fun. But be careful. It's a jungle in there.

to avoid becoming a snack for a



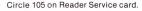
Sega's Zaxxon. If you haven't played Zaxxon, you must have been living on another planet for the past few years.

And now the ultimate space combat game is available for even more home systems. You'll pilot a space fighter through force fields and enemy fire on your way to do battle with the mighty Zaxxon robot. Countless others have gone before you in this Hall of Fame game. But this time your life is in your own hands.

Zaxxon killed them in the arcades. But compared to what it will do to you at home, that was child's play.



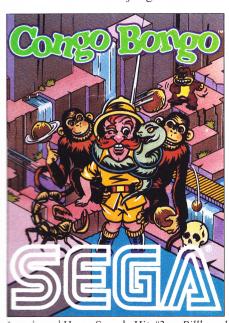
One of only ten games ever to make Electronic Games' Hall of Fame.



	SPY HUNTER	TAPPER	UP 'N DOWN	CONGO BONGO	ZAXXON
Atari 2600 cartridge	NEW	NEW	NEW	1	/
Atari 5200 cartridge				1	NEW
Atari Computers* cartridge	NEW	NEW	NEW	1	NEW
Atari Computers† diskette	NEW	NEW	NEW		1
ColecoVision & ADAM cartridge	NEW	NEW	NEW	NEW	1
Commodore 64 cartridge	NEW	NEW	NEW	1	NEW
Commodore 64 diskette	NEW	NEW	NEW	NEW	1
Apple II, IIe, IIc diskette	NEW	NEW	NEW	NEW	1
IBM PC diskette	NEW	** NEW	NEW	** NEW	** NEW

- Published by Sega Enterprises, Inc.
- Published by Datasoft, Inc. under license from Sega Enterprises, Inc. Published by Coleco Industries, Inc. under license
- from Sega Enterprises, Inc. Published by Synapse Software Corporation under
- license from Sega Enterprises, Inc.
 *Atari 400, 800, 600XL, 800XL and 1200XL.
 (Congo Bongo cartridge: 400, 800 and 800XL.)
 †Atari 800, 600XL, 800XL and 1200XL.
- **Also available for IBM PCjr. All new games are scheduled to be in your stores for Christmas. Check your local dealer. © 1984 Sega Enterprises, Inc.

¹Number of game levels varies on cartridges for Atari and Commodore systems. Atari, 2600, 5200, 400, 800, 600XL, 800XL, and 1200XL are trademarks of Atari Corporation. Commodore 64 is a trademark of Commodore Electronics, Inc. ColecoVision and ADAM are trademarks of Coleco Industries, Inc. Apple, II, IIe, and IIc are trademarks of Apple Computer, Inc. IBM, PC and PCjr are trademarks of International Business Machines PCjr are trademarks of International Business Machines Corp. UP 'N DOWN is a trademark of Sega Enterprises, Ltd., manufactured under license from Sega Enterprises, Ltd., Japan. Videogame copyright © 1983 Sega Enterprises, Ltd. Japan. Videogame copyright © 1983 Sega Enterprises, Ltd. BALLY MIDWAY is a trademark of Bally Midway Mfg. Co. Package and program copyright © 1984 Sega Enterprises, Inc. TAPPER and SPY HUNTER are trademarks of Bally Midway Mfg. Co. Videogame copyright © 1983 Bally Midway Mfg. Co. All rights reserved. ZAXXON is a trademark of Sega Enterprises, Inc. Copyright © 1984, Sega Enterprises, Inc. CONGO BONGO is a trademark of Sega Enterprises, Inc. COpyright © 1983, Sega Enterprises, Inc. COPYIGH © 1983, Sega Enterprises, Inc. Copyright © 1983, Sega Enterprises, Inc.



Arcade and Home Smash. Hit #3 on Billboard magazine's Top Video Games survey.

Circle 171 on Reader Service card.

Flight Simulator II

ADDIE II X ADDIE III. & ADDIE III.



Put yourself in the pilot's seat of a Piper 181 Cherokee Archer for an awe-inspiring flight over realistic scener 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 mode ■ 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 please add \$1.50 for shipping and specify UPS or first class mail delivery. American Express, Diner's Club, MasterCard, and Visa accepted.

Order Line: 800/637-4983

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



Holiday Plans

ow do you expect to spend Christmas? I plan to dress inadequately for winter, carry a frozen rifle through Russian snow drifts, and charge into the teeth of a fanatical foe.

Chestnuts won't be roasting on an open fire (though Jack Frost will be nipping at my nose)—in simulation, at least, when I refight World War II with **Objective: Kursk** and **War In Russia**, by Gary Grigsby.

Grigsby, one of my favorite war-game authors, thinks BIG (just like the

Warden, whose Old Rhino toddies run to 16 ounces and up). His naval games take place on an oceanic scale, with hundreds of ships and planes.

I was surprised when Grigsby turned from naval games, at which he is the master, to monster-sized land games. Fortunately, he has the same flair for land-bound war games as for naval games. His two Eastern Front games, masterpieces of complexity and detail, are surprisingly simple to learn and play.



Objective: Kursk

In Objective: Kursk the German player must capture the Soviet city of Kursk, situated at the top of a 31 by 32 hexagon map. Only a fraction of the map, about 11 by 12 hexagons, is on the screen at a time (see **Photo 1**). A scrolling simulation moves you to other parts of the display. There is no "strategic map" to let you see the entire display in miniature. The distance (simulated) between the Germans' starting line, in the lower left of the map, and their

Spend Christmas deep in Russia, away at boot camp, or in the Olympics.

with Warden Shiftky

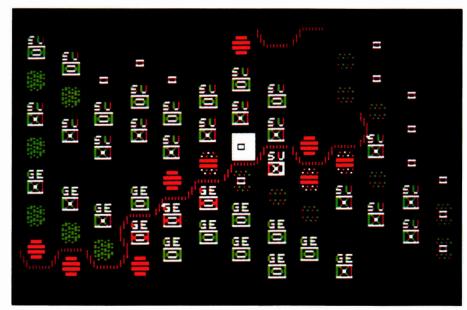


Photo 1. Close-up battle map from Objective Kursk.

objective is 50 grueling miles. The Russian's objective is to stop the Germans.

Both players have large and complex forces at their command. At almost any point in the game you can inventory the units, called combat groups (CGs for short). Each group is divided into smaller units of infantry, artillery, motorized troops, tanks, and so forth. Under each unit heading, you see the number of soldiers, guns, vehicles, and tanks in the group as well as a morale estimate an important indicator of the soldiers' willingness to fight. These statistics, which measure the overall effectiveness of the CG in combat, are crucial in planning successful attacks or defending a position. You can divide a CG into two

You can divide a CG into two smaller groups. If you have two hexes to defend or attack and only one very strong CG, dividing the group can be a smart move. If the two smaller CGs surround an enemy unit, they invoke the game rule that a retreating enemy CG surrounded by your zones of control must be eliminated. That's when division is a very smart move.

Adding to the game's complexity is the sophisticated simulation of terrain. Geographic features include roads, fields, streams, gullies, minefields (that can reduce your force and your effectiveness on attack), and towns. All terrain features have important effects on combat results. CGs in towns and woods are twice as powerful on defense. Soviet units in minefields are also doubled on defense (presumably because the minefields are part of the Soviet strategy). Attacking out of a gully cuts your strength in half, while charging into a gully doubles your strength. Got it?

Supply rules require that both sides allocate supplies to their units during each move. Not being supplied on any particular turn means that the unit has only a limited time before it runs out of supplies. Once out of supplies, a CG can't move or participate in combat, except on the defensive and then only at half-strength.

Heavy Casualties

Combat takes place when a CG attempts to move into a hex occupied by an enemy CG. The computer collects all the data on the relative combat strength and morale of the units, includes the disruptive effects of any air or artillery bombardments you have conducted, adds the effects of terrain and other factors, and comes up with a result. This result may be anything from a simple reduction in forces from casualties, to a retreat, or even the elimination of the enemy group.

It will be hard going for the Ger-



man player to get even halfway to Kursk. The terrain and the minefields favor Soviet defense. The German side must attack to win, but has only half-strength time and again as it advances. In addition, the Soviets receive heavy reinforcement from six hexes along the right edge of the map.

All the Soviet player has to do is sit tight, roll with the punches, channel in the reserves, and fall back to lines of defense. Even if the first Soviet line falls, there are plenty of other places where you can re-form and punish the German side.

In solitaire, the German player has one advantage that the real-life German commanders lacked in their ill-fated offensive: The computer player can set the difficulty level to limit Soviet reinforcements. Aside from that though, it will take real military genius to avoid crushing defeat.

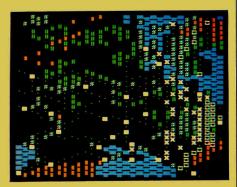


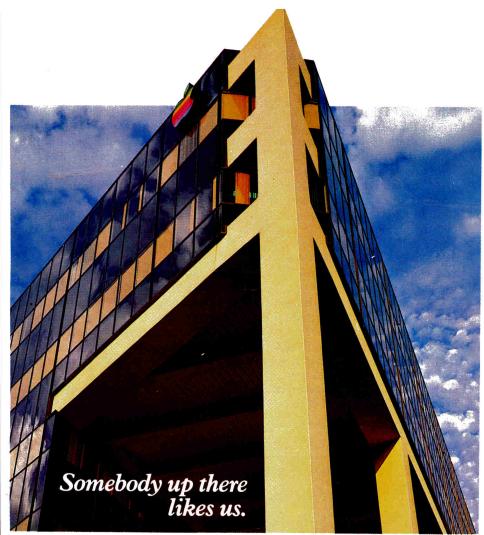
Photo 2. Strategic map gives an overview of War in Russia.

War in Russia

Grigsby's other game, War in Russia, is a mammoth simulation of the entire Eastern Front from Murmansk above the Arctic Circle to Baku, just north of the Persian border (**Photo 2**). In this game the German units are divided into "corps" and the Russian forces into "armies," both about equivalent in size and force.

Both sides are challenged equally. The German player must capture cities, and the Russian player (or the computer in solitaire) must prevent the German side from doing so without expending all its forces before reinforcements arrive.

Supply and transportation are more of a factor here than in the Kursk game. The German player is faced with limited supply resources (in the form of depot units) which can be used either to resupply combat



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 APPLE-WORKS™ 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 Pro-DOS 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

**ProDOS and APPLEWORKS are trademarks of Apple Computer, Inc.
**WORD JUGGLER He is a
***Compare of Quark Incorporated

Circle 129 on Reader Service card.

units or to extend rails from west to east. Supply range is limited but can be extended by rail movement. As German forces move east, rails must be extended eastward at the expense of supplying combat troops. A good commander recognizes the need to build these rails and rebuild Russian tracks for German trains.

The main scenario takes you from June 1941, the beginning of the German invasion of Russia, to December 1944, by which time the Nazis were doomed to defeat. Your best opportunity to beat the computer Russian commander comes in the first year and a half of the game, from June of 1941 to the end of 1942. After that, you win victory points just for staying in the game.

Let's face it: Invading Russia isn't easy, even in a computer game. The Swedes tried it, Napoleon tried it, and Hitler tried it. They all fell flat on their faces. Maybe you can do better. Defending Russia isn't any picnic either (what with the Swedes, the French, and the Germans constantly

invading you). In the last war around 22,000,000 Russians were killed. If you were in charge, could you cut those losses?

No matter which side you choose, be sure you can block around 100 hours of free time (the two secondary scenarios take only 20 hours each) and that you have lots of Old Rhino on hand. One hundred hours in the same chair is a long time—but it can be worth it.

That's the last war game that I'll review for the next few months. It seems fitting that we close out the year on a lighter note and look at some unusual arcade games.

Arcade Boot Camp

You say you can't shoot down Galaxian's alien ships? Can't avoid the barrels in Donkey Kong or escape the ghosts in Pac-Man? Still stuck on the first level of Miner 2049er?? Can't get off the ground in Choplifter? You even poop out at Pong???

Well, just take a look at yourself. Your wrists are flabby, there's no

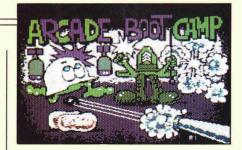


Photo 3. Sign up at the Arcade Boot Camp for gaming skills.

tone in your thumb muscles, and your eyes and hands are about as coordinated as the New Orleans Saints' backfield. It's gonna take the Army—the Arcade Army—to make a videogame player out of you. What you need, buddy, is a hitch in Penguin's **Arcade Boot Camp (Photo 3)**.

They'll shape up your arcade-game skills, sharpen your reflexes, and make you worthy of this most sophisticated pursuit. You come out ready to do combat with any and all game machines and computers.

The camp offers training in five basic areas: driver education, survival, helicopter piloting, obstacle course survival, and target practice.

Circle 22 on Reader Service card.

WORD HANDLER

It's easy...and we're not monkeying around!

The Word Handler is the easiest word processor around...also the most sophisticated. Word Handler, a single-key command word processing program that runs without hardware modifications to your Apple® II, II+, IIe and IIc, or Apple compatible computer. Words can't describe how much we love the Word Handler! It has a two character format and everything else found in a dedicated, high level word processor. Our Word Handler comes with a simple to understand manual and complete customer service. See your Apple or Apple compatible computer dealer or call us directly at 408-730-0307. For sophisticated simplicity... The Word Handler. After you've gone ape over the Word Handler try the List Handler, a data base file manager, and the Spell Handler, the simplest, most powerful spelling checker available. Word Handler, List Handler, Spell Handler...great together; known as the Handlers and great apart.

Apple is a registered trademark of Apple Computer Inc.

Advanced Logic Systems



1195 E.Arques Ave., Sunnyvale, CA 94086



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

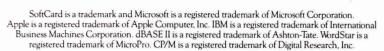
FORTRAN-80, COBOL and BASIC Compiler.

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 In fact, our The High Performance Software 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.





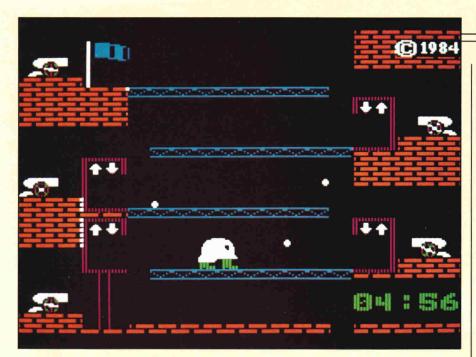


Photo 4. Boot Camp teaches helicopter skill under fire.

Each area is a separate video game, with various levels of difficulty that you reach only by mastering easier levels and winning promotions. For example, in target practice you start with stationary targets. Take those

out and you are offered pop-up targets, moving tanks, and birds.

In the survival course, you begin by dodging falling bombs. Survive that and you have to evade falling, bouncing, and rolling boulders. In driver education, you first steer down a winding road. Then you tackle an icy road. In chopper piloting you learn to fly from point to point. Then you fly around barriers. Survive that and the barriers will be topped by cannons (**Photo 4**). Even K.P. is a challenge; the spuds chase you through a maze while you frantically search for a paring knife.

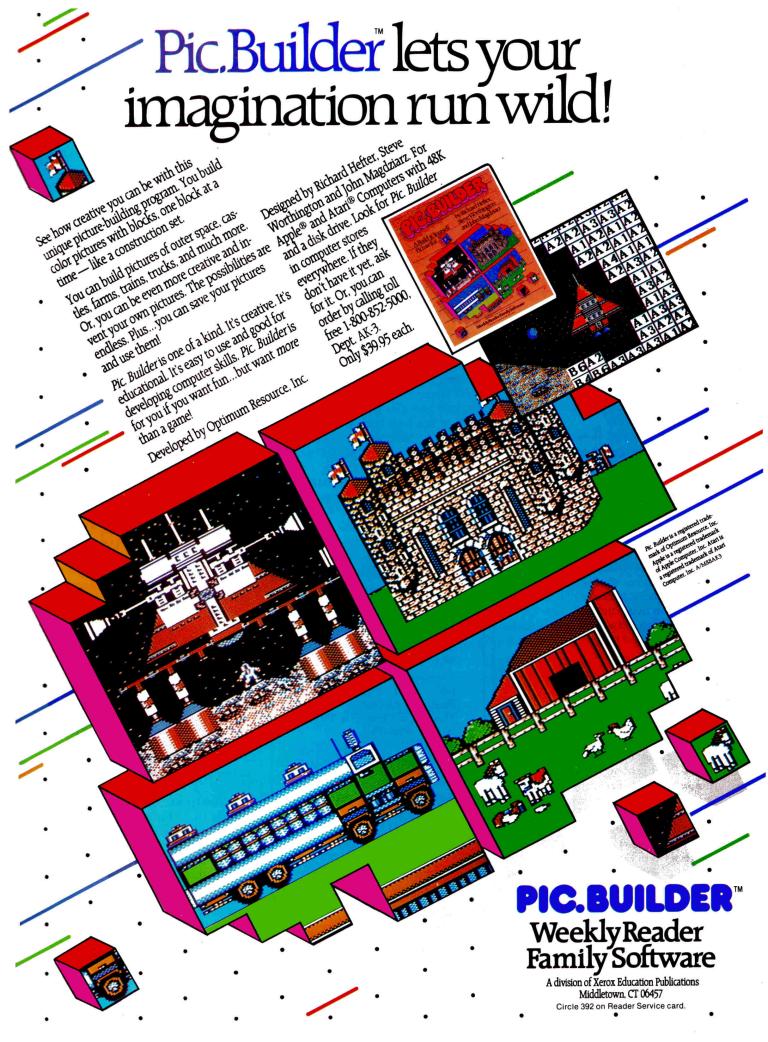
Arcade Boot Camp is fun and a little dizzy—what simulation of simulations wouldn't be? The game's major charm, the little Peewee character who is your alterego on screen, loses at video games and is kicked around by a sergeant until his skills (and yours) improve. If your skills improve drastically, who knows? Maybe you'll qualify for the 1984 Summer Games in Los Angeles.

Summer Games

Okay, okay. I know that I've missed the games by about four months, but that's no reason why you can't participate anyway—through the magic of your Apple II, that is. Even the



STATEMENT OF OWNERSHIP, MAN					
A TITLE OF PUBLICATION	18 PUBLICATION N				
inCider	0 7 4 0 0 1	- neper 10, 1704			
FREQUENCY OF ISSUE	ANNUALLY	PRICE			
MONTHLY	12	524.97			
COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION		odei (Not printers)			
80 Pine Street, Peterborough, N.H., Hil	1sborough County 034				
COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERA		LISHER (Nat printer)			
80 Pine Street, Peterborough, N.H., Hil	lsborough County 034				
5. FULL NAMES AND COMPLETE MAILING ADDRESS OF FUBLISHER, ED. PUBLISHER (Name and Complete Stading Address)	ITOR, AND MANAGING EDITOR .	No cem MUST NOT Sc Mank)			
David Schissler, 80 Pine Street, Peter EDITOR (Name and Complete Meding Address)	borough, N.H. 03458				
	N. H. OOZEG				
Paul C. Quinn, 80 Pine Street, Peterbo MANAGING EDITOR (Name and Complete Mailing Address)	rougn, N.H. U3438				
	- N U 02/50				
Peg Li Page, 80 Pine Street, Peterborou		set and addresset at the bholders			
7. OWNER (If owned by a corporation, its name and address must be stated and owning as holding I percent or more of total amount of stock. If not owned by given If owned by a patternity or other unincorporate firm, its name as non-us published by a monprofit organization, its name and address must be simple.	by a corporation, the names and address as well as that of each indi- tased; (Item must be completed.)	esses of the individual counters must vidual must be given. If the publica-			
FULL NAME	COMPLETE MA	ILING ADDRESS			
International Data Group Patrick J. McGovern		5 Speen Street			
ratrick J. Accovern	Framingham, M	ass. 01/21			
8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HO AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES (If there as	re none, so siete:				
Patrick J. McGovern	P.O. BOX 1450 5 Speen Street				
Tattick 3. Actovern	Framingham, Mass. 01701				
-					
9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED The purpose, function, and nonprofit status of this organization and the exer	TO MAIL AT SPECIAL RATES ISCO	ion 421 [2 DXM only]			
441		pole (Carta line)			
HAS NOT CHANGED DURING HAS CHANGED DUP PRECEDING 12 MONTHS PRECEDING 12 MON	TING (If changed.	publisher must submit explanation of this statement)			
10. EXTENT AND NATURE OF CIRCULATION					
EXTENT AND NATURE OF CINCOCATION	AVERAGE NO COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE			
A. TOTAL NO. COPIES (Net Press Run)	131,321	132,363			
PAID CIRCULATION Seles through desters and corriers, street vendors and counter sales	41,082	41,291			
2. Mod Subscription	42,616	41,662			
C. TOTAL PAID CIRCULATION (Sum of 1081 and 1082)	83,698	82,953			
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	1,762	1,653			
E. TOTAL DISTRIBUTION (Sum of C and D)	85,460	84,606			
F. COPIES NOT DISTRIBUTED 1. Office use, left over, unaccounted, spouled after printing	2,309	4,623			
2. Return from News Agents	43,552	43,134			
G. TOTAL ISum of E. Fl and 2 - should equal net press run shown in A)	131,321	122 262			
		132,363 R. BUSINESS MANAGER, OR OWNE			



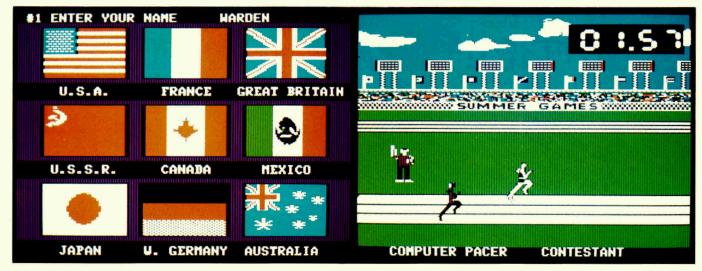


Photo 5. Pick your country in the Summer Games.

Photo 6. The 100-meter dash pits you against the clock.

Russians have come to Epyx's **Summer Games** for the 100-meter freestyle swim, swim relay, pole vaulting, gymnastics, the 400-meter relay, the 100-meter dash, platform diving, and skeet shooting.

If you think you needed sharp arcade skills to get through Arcade Boot Camp, you ain't seen nothin' yet. Your skills have to be, shall we say, of "Olympic" caliber to make the grade in this grueling series of events. Up to eight players of nine different "nationalities" may join in the games (**Photo 5**). Each event calls for quick reflexes, careful judgement, and great timing.

In the gymnastics event, for example, you must time a joystick-button press precisely to give your gymnast a good jump off the springboard. Then you maneuver your joystick to somersault off the vaulting horse and land on your feet. Similar skills are required in the platform diving event and in planting and releasing the pole in the pole-vaulting event. In the swimming competitions, you can increase your athletes' speed by pressing the joystick or mouse button-or hitting the space bar or the return key-whenever you see the swimmer's arm come out of the water. This is the way you achieve the "power stroke."

The spirit of Los Angeles lives on in the track events. In the 100-meter dash (**Photo 6**), your physical endurance is tested as you move your joystick as fast as you can to speed up your runner. In the relay race, you more or less set your speed and then try to time relays and pace runners so they don't run out of steam before passing the baton.

All these events are competitions against the clock. The contestant posting the best time wins the gold. The skeet shoot, on the other hand, is a straightforward target game—the one who pops the most clay pigeons wins. In this contest, the players press the fire button to pull the skeet, then maneuver cross hairs to intercept the fast-moving target.

Summer Games, perfect for shortterm nostalgia buffs, includes open-

Product Information

Objective: Kursk War In Russia

Strategic Simulations 883 Stierlin Road Building #A-200 Mountain View, CA 94043 Kursk: \$39.95 War: \$79.95 Any Apple II, 48K, Applesoft.

Arcade Boot Camp

Penguin Software P.O. Box 311 Geneva, IL 60134 \$29.95 Any Apple II, 48K, joystick.

Summer Games

Epyx 1043 Kiel Court Sunnyvale, CA 94089 \$35 Any Apple II, 64K, mouse or joystick optional. ing ceremonies, record keeping (so you'll know when you've broken a world's record), and even the appropriate national anthems played for the winners. Only the ads are missing—we're spared the Official Snack Food, Official Tacos, Official Athlete's Foot Sprays. . . .

Merry Christmas to All

All this talking about exercise certainly wears me out. There are a lot of games that have to be played for the new year waiting at the Game Reserve's computer station. I better face up to the task—and put it off until February. Instead, I'll dedicate at least part of my January column to the results of the Shiftky readers' poll. I'll also reveal the name of the first (and only) arcade player to be recognized as player of the month.

Meanwhile, remember that the poor old Warden enjoys getting your cards and letters. Address your comments and complaints about the gaming scene—and whatever news you care to send me—to Warden Shiftky, c/o inCider. Your letters make good reading for me and the Reserve's readers—and good kindling on those cold winter nights.

Until then, lift a cool one with me to the old year and accept my very best wishes for a healthy, happy new one. Mele Kalikimaka (Merry Christmas) and aloha.

Send your Christmas cards and other mail for the Game Reserve to: Warden Shiftky, inCider, 80 Pine Street, Peterborough, NH 03458.

Haba Claus has something special for all the Apples of your eye.

inally there's a friendly face you can turn to for all your Apple computer gift-giving needs this holiday season. Haba Claus, one of the family at Haba Systems.

No one else brings you such a unique line of simple-to-use products for your Apple $//e^{TM}$, $//c^{TM}$, or $///T^{M}$ computer. And you can spend as little as \$30.00 or as much as \$500.00* — depending on how special the Apples of your eye really are.

Just be sure to keep your gift-giving plans under wraps. That is, if you want want this season's most tempting gifts to stay that way. Otherwise, those presents will be opened faster than you can say "Haba Happy Holiday". And we wouldn't want anyone to peek, now would we?

Besides, if you've been real good this year, Haba Claus may even have something extra-special for you, too.

Apple //e, //c, ///

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

HabaMerae™

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



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.



Finally, a Computer Keyboard Kids Can Use

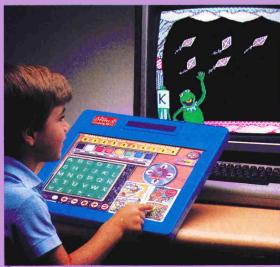
computer can help your child learn, but the keyboard often gets in the way. It's a jumble of keys that's confusing and hard for little fingers to operate. And it's not much fun.

Introducing Muppet Learning Keys™ from Koala Technologies™

It's the first computer keyboard made especially for young children. Unlike regular computer keyboards, all the letters and numbers are in order. So a child can find A-B-C and 1-2-3 without hunting all over the keyboard. And with Muppet Learning Keys software, learning letters and numbers becomes fun.

From the Experts

Muppet Learning Keys was created by education specialists to make learning exciting for your child. It's the first computer keyboard with Kermit, Miss Piggy and the whole Muppet gang right on it, ready to introduce your children to the magic of letters, numbers and colors.



© Henson Associates, Inc., 1984

Kid Stuff

Muppet Learning Keys has things that every child knows and loves:

- A paint box with eight touchable colors
- A blackboard with the ABC's in order
- A ruler with the numbers where they're supposed to be
- And keys the right size for small fingers

Press any key and something always happens. Press K and Kermit flies his

kites. Press 6 and six kites appear. Touch a button on the paint box and leave a colorful impression.

Muppet Learning Keys-for a child's hands, a child's mind and a child's heart. Give your child Muppet Learning Keys and make computer learning child's play.

Muppet Learning Keys. The Hands-on Keyboard for Kids.



For the Apple® IIe and IIc, Atari,® and Commodore 64™ computers. In-Box software by Sunburst Communications. Muppet Learning Keys works with software that is designed or adapted for it.

Apple and Atari are registered trademarks of Apple Computers, Inc., and Atari, respectively. Commodore 64 is a trademark of Commodore Business Machines, Inc. Muppet Learning Keys, Muppet and character names are trademarks of Henson Associates. Inc.

© Copyright Koala Technologies, 1984. The symbol is a trademark of Sunburst Communications.

Circle 541 on Reader Service card.



T EARNIN G



MACHINE

Ten Tips for Choosing Educational Software

ow do you know that the software you are about to purchase will help your child?

Unfortunately, there is no foolproof way to determine that a package is educationally sound. It's best to view the software and even have your child use it before you buy it. But that's not always possible. If you follow my guidelines, though, your chances of purchas-

ing worthwhile software will increase dramatically.

I'll start off with some of my biases. If a program responds with any sound to a wrong answer, I immediately reject it (with few exceptions). A child can be embarrassed when the computer announces to everyone in the room that he or she has chosen a wrong answer. Hearing a razzberry sound frequently can discourage a child from using the computer. On the other hand, if the noise pleases

them, children will sometimes hit wrong answers just to generate the sound. Likewise, if a wrong answer is followed by a lot of activity on the screen, the student may err deliberately just to see the clown cry or the bottle break, and so on.

What should happen when a wrong answer is chosen? Nothing—absolutely nothing.

I have other biases against sexist or racially stereotyped software, software that degrades or denigrates. I When buying educational software for your child, first do *your* homework.

inCider...ted
your integrated
your integrated
your integrated
approach to

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-bystep 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 get a 13th issue FREE.

One year of **inCider**...twelve big issues...is only \$24.97. That's a savings of 30% off the newsstand price. Now you can save even more. Just fill out the coupon and return it today with payment enclosed (or charge it on your Mastercard, Visa, or American Express). We'll add a 13th issue to your subscription at no charge.

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.

Apple is a registered trademark of Apple Computer Inc.



YES! I want	to acco	mplish m	ore. Sen	d me 12 issue	es of inCider for		
\$24.97. I underst							
receive a FREE i	ssue, ma	aking a tot	al of 13 i	ssues for \$24.	97.		
CHECK/MO	- MC	- VICA		□ Bill mo \$2/	1 07 for 12 iccurs		

☐ CHECK/MO	□ MC	□ VISA		☐ Bill me\$	24.97 for 12 issues	6
Card #	Exp. date					
Signature						
Name						
Address						į
City			Sta	ite	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

34DF5

"If a wrong answer is followed by a lot of activity on the screen, the student may err deliberately just to see the clown cry or the bottle break."

dislike violence and can't condone children's shooting down aliens or killing monsters.

Individual Needs

If you've read this column before, you may remember that I think Stickybear ABC is a fantastic program-but not for everyone. Before buying even a highly recommended educational package, you must first determine your child's particular needs. Enlist his or her teacher's help in charting your child's strengths and weaknesses. List as many qualities or traits as you can. You can list such things as "He is neat," or "He has poor gross motor skills." The profile of your child you create will be important when reviewing certain types of software. For example, slow-paced software may be perfect for a youngster who is methodical and exacting. Fast-paced software can better hold the attention of the child who is hyperactive or easily bored.

After determining your child's strengths and weaknesses, choose one or two subject areas to work on. Your child won't benefit from working on ten different packages every night. He or she will grow bored quickly, and you may be tempted to blame the "awful" software.

Ten Ways to Evaluate Software

1) Is the program easy to use? Can your child turn it on without your intervention? (Dale, my 2-year-old, turns on Stickybear ABC by himself and plays with it five to ten minutes at a time without any adult help.)

2) Is the documentation easy to understand or, preferably, unnecessary? The best software is so easy to use that you don't need more than the on-screen directions that are a part of the program. I try to use software that is not continu-

ously dependent on documentation because my daughter Melody tends to scatter computer instructions all over the house. (I'm looking for a program on how to help a 5-year-old want to be neater.)

3) Does the program have sustaining power? The only real way to answer this question is to put your child on the computer for an hour and see if it keeps his or her interest. You can guess at a program's sustaining power by evaluating its intellectual appeal. Is the task a simple one that is easily accomplished? Is it accomplished the same way each time or does it vary? For example, does the child complete the same maze repeatedly or does the computer randomly draw different mazes? Are there enough mazes to keep a child busy mastering them all?

4) Is the program highly motivational? This is where color, sound, and entertaining animation and art spark a youngster's interest in a program, though they don't guarantee that he or she will stay interested.

5) Is the software accurate? You might think this wouldn't be worth mentioning. But I have seen some otherwise good educational software that's riddled with atrocious spelling errors.

Sometimes a package contains factual errors; sometimes the information is so simplified that the meat is left out. And be aware that if you purchase a program to improve your child's algebra skills, for example, you are probably only going to get a fraction of what your child will cover over a semester in a high school course.

6) Is the program educationally sound? For example, a program that teaches reading by using all capital letters would confuse a primary student. (There were plenty of those programs in the old days, so beware.)

7) Is the program outdated? A bargain on a program that is no longer state-of-the-art may be no bargain at all. (Lack of graphics does not mean the program is out of date.) Is the program reasonably sophisticated?

8) Is the computer used in a meaningful way? One well-known educational company once put out a series of classics like Black Beauty and 20,000 Leagues Under the Sea complete with cassette audio tape and a beautiful comic book. The computer was used simply to ask the student questions. The tape and the comic book were great, but it appeared that the disk itself was added as an afterthought; it did nothing to enhance the student's learning.

Unlike some educators, I'm not opposed to a program that doesn't fully use the computer. The most significant difference between a worksheet on paper and one displayed on screen is that the computerized version provides the child with immediate feedback and is more apt to be fun to complete.

9) Is there a sense of excitement about the software? Does the program evoke interest in your child or is working with the program a chore, comparable to dreaded school work?

10) Does the program do a better job of teaching than a book or workbook could? I've seen some programs that lecture a student by writing essays on the screen. This is boring and won't motivate a child. The novelty of the computer can't last forever. An animated character running across the bottom of the screen isn't enough to enliven a deadly lecture. Remember that the computer is most effective when it is used as an interactive tool, that is, when a dialogue is set up between the child and the computer.

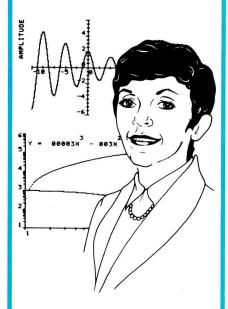
Some Last Thoughts

I like programs that are easy to use, ones that require a single keypress to select an answer. I like to hit the Y key for yes and the N key for no (with no return key).

I like programs written in machine language because they run faster.

'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.



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



Stay clear of any programs written in Integer BASIC, which involves an extra step in loading the program. Believe it or not, there are still some programs being sold in Integer BASIC (watch out for those bargain closeouts).

I like programs that are ready to use, straight out of the package—no data disks to configure, no setup required, and no long books to read first.

I don't take the recommended agelevel printed on the outside of the package at face value. Too many educational software manufacturers know nothing about education and often misassign the age appropriate for their particular program.

A program should offer an easy exit when you hit the escape key and then an "Are you sure you want to quit now?" You should be able to skip lengthy titles, introductions, or instructions by hitting the escape key.

Be reasonable when you evaluate software. For example, if a program's sharp-edged packaging could be dangerous to youngsters, don't throw out the entire program. Just make sure an adult opens the package and then puts it away where a youngster can't get to it.

Word Search Reviewed

Word Search by Hi Tech of Santa Cruz, a fantastic program written with the classroom teacher in mind, has as many applications at home as it does at school.

Hi Tech, a small company, produces four top-notch educational programs, all carrying the NEA (TM) teacher-certified seal. Owner and programmer David M. Summer is a part-time junior high school teacher devoting the remainder of his time to his computer business.

Word Search is the best of its type I've seen (and there are several such games on the market). As a principal, I've used it to get my teachers involved with the computer. Almost anyone can learn to use it effortlessly on the first try—even without reading the directions.

To start the program you boot the disk, tell the computer how large you want the puzzle, type in a word, and the computer will randomly place it on the grid. If you don't like

where the computer places the word, you can quickly and easily tell it to move that word, or any other word, to a new location. It even lets you decide in which direction you want the word to be placed.

The grid can be a 20 by 20 puzzle, or smaller, with up to 100 words. Save any puzzle you make for later use right on the Word Search disk.

When I was playing with the program, I used 27 words in my puzzle. I had fun hitting the R key, which rearranged all the words almost instantly, each time in a different way.

The printout was absolutely beautiful. Word Search first prints an answer key, and then the puzzle itself. It pauses between the puzzle and the key to give you time to insert new paper or to adjust your paper. It lets you put your name, the date, and a message at the top. It also prints out a list of words in the puzzle. I have used Word Search with equal success on daisy-wheel and dot-matrix printers.

This would be a great program for your child to use weekly on his or her spelling words. Children in the third grade and up will have fun generating their own puzzles, while the puzzles themselves could be used appropriately with students from first grade on.

Thanks for reading.■

Dr. Fred Huntington thrives on interaction. Write to him at 21721 Majorie Street, Apt. 223, Torrance, CA 90503.

Product Information

Stickybear ABC

Weekly Reader Family Software 245 Long Hill Road Middletown, CT 06457 (203) 347-7251 \$39.95

Word Search

Hi Tech of Santa Cruz 126 Lighthouse Avenue Santa Cruz, CA 95060 (408) 425-5654 \$34.95



LOW PRICES TO PROFESSIONALS WHO KNOW WHAT THEY WANT AND KNOW HOW TO USE IT! ALL MAIL: Conroy-LaPointe, Inc. 12060 SW Garden Place, Portland, OR 97223

CASH-n-CARRY COMPUTER STORES, INC. -- SEE BELOW

HARDWARE for your APPLE

SOFTWARE for your APPLE

Culving	
APPLE IIc	CALL
APPLE MACINTOSH	CALL
APPLE IIe, STARTER SYSTEM BY APPLE	CALL
LIMITED WARRANTY is 100% Parts & Labor for 90 day	ys by us.

DISK DRIVES

OUR PRICE *CENTRAL PT., Filer, Utility & Apple DOS \$ 20 \$ 15

CONCORDE

C1214 Dual Drives, ½ Height, flat pack (like Apple Duodisk™) N C130 Controller (DOS & ProDOS) N NEW \$ 589 \$ 425 NEW \$ 89 \$ 65

μ-SCI	* A2, 143K Disk Drive A2 Controller Card	345 \$ 100 \$	
	T40 D 100V		

TEAC TEAC, T40, Direct Drive, 163K \$ 349 \$ TEAC, T80, Double Sided, 326K \$ 449 \$ 1/2 HIGH Controller Card by ComX \$ 110 \$



Elite 1, 163K, 40 Track Elite 2, 326K, 80 Track Elite 3, 652K, 160 Track Elite Controller

RAM EXPANSION

*Com X, 80 col. +64K RAM, for Ile, 1 Yr. Wty \$ 199 \$
* RAM Card, 1 Yr. Wty. (II+) 16K \$ 179 \$
* Microsoft, RAM Card (II+) 16K \$ 100 \$
* Titan/Saturn RAM Card (II+) 3ZX \$ 249 \$
RAM Card (II+) 4K \$ 425 \$
RAM Card (II+) 128K \$ 599 \$

VIDEO CARDS

\$ 199 \$ 279 \$ 379 \$ 35 \$ 149 \$ 39 \$ **+ComX**, 80 col. +64K RAM(lie) 1 yr. wty. 99 175 229 22 95 25 /ideoTerm 80 col. (+ or el UltraTerm (+ or e)
Soft Video Switch (II+)
Enhancer II (II+)
Function Strip (II+) We Have Full Videx Line. Call. Up to 35% off.

MISCELLANEOUS



for your

Bluechip, Millionaire		-		1
Continental Software, Home Accountant 100	Bluechip, Millionaire	\$	60 \$	
Human Edge, Sales Édge \$ 250 \$ 250 \$ 25 \$	Central Point Software, MAC Tools	\$	40 \$	
Service S	Continental Software, Home Accountant	\$	100 \$	
Starter Pak 90	Human Edge, Sales Edge	\$	250 \$	1
Surge Protector S 50 8 195 50 195 50 195 50 195 50 195 50 195 50 195 50 195 50 195 50 195 195 50 195 1	Kensington, Swivel	\$	25 \$	
Microsoft, Multiplan 195	Starter Pak	\$	90 \$	
Chart	Surge Protector	\$		
Word or File, each \$ 95 \$ 8ASIC \$ 8ASIC \$ 50 \$ 8ASIC \$ 50 \$ 8ASIC \$ 50 \$ 8ASIC \$ 50 \$ 50 \$ \$ 50 \$ \$ 50 \$ \$ \$ 50 \$ \$ \$ \$ \$ \$ \$ \$ \$	Microsoft, Multiplan	\$	195 \$	1
BASIC S 150 S	Chart	\$	125 \$	
BASIC Interpreter \$ 150 \$	Word or File, each	\$	195 \$	1
Penguin, Transylvania	BASIC	\$		
Graphics Magician \$ 50 \$ 50 \$ \$ 50 \$ \$ \$ 50 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		\$		
Scarborough / Lightning, Mastertype \$ 35		\$		- 3
Software Publishing, PFS: File		\$		
PFS: Report \$ 125 \$ PFS: File & Report \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ \$ 195 \$ 1		\$		
PFS: File & Report \$ 195 \$ 50 \$ Videx, Macalendar \$ 89 \$		\$		
T/Maker, Clickart \$ 50 \$ Videx, Macalendar \$ 89 \$		\$		
Videx, Macalendar \$ 89 \$		\$		1
		\$		
FunPak \$ 39 \$		\$		- 3
	FunPak	\$	39 \$	- 3

BUSINESS & TRAINING

PRICE PRICE

DB Utility Pak I or II VisiCorp, Full Line In Stock

| Knoware, Knoware | Knoware | Knoware, Knoware | Knowar

COMPLETE MICROSOFT LINE IN STOCK COMPLETE MICKOSOT TINE
Penguin, Complete Graphics System II
Graphics Magician
Phoenix, Zoom Grafix
Quality, Bag of Tricks
Terrapin, Logo
United SWI, ASCII Express-The Pro
Utilico, Essential Data Duplicator III \$ 80 \$ \$ 60 \$ \$ 40 \$ \$ 40 \$ \$ 99 \$ \$ 130 \$ \$ 80 \$

HOME & EDUCATIONAL Atari, Centipede, PacMan or Donkey K,ea. \$ Jungle Hunt NEW! \$

35 \$ 35 \$ 90 \$ 30 \$ 60 \$ 50 \$ 30 \$ 28 60 19 32 34 23 40 20 Atan, Centipede, PacMan or Donkey Jungle Hunt Barrons, Study Program for SAT Beagle Bros., Beagle Bag Bluechip, Millionaire Broderbund, Print Shop udy Program for SAT \$
s., Beagle Bag \$
millionaire \$
Print Shop NEW \$
Arcade Machine \$
Apple Panic \$ Arcade Machine
Apple Panic
CBS, (Large Inventory)
*Continental, Home Accountant
Datasoft, Arte or Zaxon, each
Davidson, Speed Reader II
Word Attack or Math Blaster! ea.
Edu-Ware, (Large Inventory)
Harcourt, Computer Prep for SAT
Havdan, Saron III (Ches 30 \$ 20 35% off list 75 \$ 49 40 \$ 27 70 \$ 45 50 \$ 32 40% off list 5 80 \$ 50 \$ 40 \$ 82 \$ 95 \$ 49 34 27 25 64 Hardourt, Computer Prep for SAI \$
Haydon, Sargon III (Chess) \$
Infocorn, Zork I.II, III, each \$
*Insoft, 3 Games, Zigar (Spider Raid/Grapple \$
Knoware, Knoware Koala, Full line in stock, CALL |
Learning Co. (It see Josephen) 50 \$ 34 40 \$ 27 82 \$ 25 95 \$ 64 35% off list 35% off list Learning Co., (Large Inventory)
Microsoft, Typing Tutor III
Monogram, Dollars and \$ense
S.A.M. \$ 25 \$ \$ 100 \$ \$ 100 \$ \$ 60 \$ \$ 40 \$ \$ 60 \$ \$ 50 \$ \$ 50 \$ \$ 50 \$ 35% off list 25 \$ 17 100 \$ 69 100 \$ 59 60 \$ 40 35 \$ 24 40 \$ 27 60 \$ 40 50 \$ 35 35% off list 50 \$ 35 Origin, Ultima III Penguin, Iransylvania NEW \$
Scarborough/Lightning, Mastertype \$
Sierra/On-Line, Ultima II
Sir-Tech, Wizardry \$

50 \$ 35 \$ 99 \$ 35 22 65

* * S A L E * * DISKETTES

APPLE HARDWARE

Orange Micro, Buffer Board for Grappler + \$1.75 \ 99

Buffered Grappler + 18K \ 2.39 \\$1.59

(expand to 64K)

Chip Set, 16K (2 e.a, 4164) \ 2.8 \\$1.2

APPLE SOFTWARE

MicroPro, Malmage&Spektar (3:30) Combo \$ 399 \$ 199

Malmerge (3:30) \$ 195 \$ 115

Spektar (3:30) \$ 195 \$ 115

Perfect, Perfect Writer & Spekic Combo \$ 399 \$ 199

MISCELLANEOUS

SURGE PROTECTORS

50 \$ 29 60 \$ 35 90 \$ 52 80 \$ 46 60 \$ 38 90 \$ 57 140 \$ 89 98 \$ 63 50 \$ 39 70 \$ 32 Curtis, Diamond Emerald Ruby Sapphire EPD, Lemon reach
Kerisington, PC Saver" Line Cord w/litter
Network Wiretree, 4 outlet, w/litter surge

RDERING INFORMA

PS. Fortune 1000 chemics for VISA

Solv IVISA

Solv IVISA

WISA

Solv IVISA

Solv IVISA

WISA

NEW!

* CONROY-LAPOINTE" DISKETTES

** CONROY-LAPOINTET** DISKETTES

We guarantee these top quality products with the ConroyLaPointe name. 5-YEAR LIMITED WARRANTY

10 ea, SS/SD, 35 Track (Apple, etc.)

1000 ea, SS/SD, 35 Track (Apple, etc.)

10 ea, DS/SD, 40 Track (BM, H/P)

1100 ea, MS/SD, DS/SD, 40 Track (BM, H/P)

1100 ea, MS/SD, DS/SD, 40 Track (BM, H/P)

1100 ea, MS/SD, BS/SD, 40 Track

GENERIK ** DISKETTES 100 ea., SS/SD, 35 Track (Apple, Atari) 1000 ea., SS/SD, 35 Track (Apple, Atari) 100 ea., DS/DD, 48TPI (IBM, H/P) 1000 ea., DS/DD, 48TPI (IBM, H/P) \$ 415 \$ 85 \$ 4150 \$ 750 \$ 626 \$ 120 \$ 6260 \$ 995

MODEMS AND ACCESSORIES OUR ANCHOR, Signalman Mark XII HAYES, IBM-PC Smartmodem 1200B IBM-PC Smartcom II Software 239 275 189 Micromodem He w/Smartcom Micromodem 100 (S-100 bus) Micromodem 100 (5-100 bus) \$ Stack Chronograph (RS-232) \$ Stack Smartmodem 300(RS-232) \$ Smartmodem 1200 (RS-232) \$ IBM-PC to Modem Cable KENSINGTON, Modem 1200 NEW \$ NOVATION, 103/212 Smart Cat \$ ACCESS 1-2-3 (1200B+Crosstalk XVI) \$ Apple Cat II 300 BAUD \$ 212 Apple Cat, 1200 BAUD \$ 369 249 559 139 389 725 189 149 J-Cat 212 Auto Cat QUADRAM, Quadmodem, Internal IBM Quadmodem, Stand alone

MONITORS AND ACCESSORIES

AMDEK, Color Series NEV Color 300 Comp/Audio Color 500 Comp/VCR/RGB/Audio \$ 259 \$ 395 \$ 495 \$ 595 \$ 119 \$ 149 \$ 159 349 525 649 749 Color 600 Hi Res, RGB /Audio Color 700 Ultra Hi Res, RGB 12" Green, #300G 12" Amber, #300A 12" Amber, #310A for IBM-PC \$ 179 \$ 199 \$ 230

PRINT	ERS AND	ORIES	
DOT MAT		LIST	PRIC
	500, 200 & 67 CPS	NEW \$ 1395	InStoc
	lel Interface for LQ150		InStoc
	0, 100 cps	\$ 269	
	D, F/T D. 160 CDS	\$ 369	
	0, 160 cps 00, 160 cps	\$ 699 \$ 895	
	e II Graphics Dump Pro		
+MANNESM	ANN Spirit, 80 col 80	cps \$ 399	
TALLY.	160L 80 col. 16		\$ 56
	180L 132col, 16	Ocos \$ 1098	\$ 77
	2A, 80 col., 120 cps, p.	ara. \$ 349	\$ 31
	col., 120 cps, para.	\$ 749	\$ 59
	col, 200 cps, para.	\$ 1395	\$109
	ol., 160 cps, para.	\$ 599	\$ 46
	col., 160 cps, para.	\$ 999	\$ 69
	acemark, 350cps, para		\$209
	acemark, 350cps,par Plug 'N Play,Tractors,Oki		\$239
	Quadjet, Jet Color Prir		
	Gemini 10"X, 120cps		\$ 26
	Gemini 15"X, 120cps		\$ 41
TOSHIBA, 1			\$137

Spinnaker, Full line in stock, CALL Sub Logic, Flight Simulator II "Night Mission Pinball" Terrapin, Logo maker, Full line in stock, CALL

LETTER QUALITY:
AMDEK, 5094, 40 pp. Fare, & Ser.
\$117X, 1014, 13cp. Para & Ser. PhilPrinc, ap.
\$1114 came as 1014 with 1/r. 2 cd. & Pop.
\$439, 4365
MACpac, Interface TTX to Apple MAC
\$2UKI, 6100, 16cps, Para, 3 pitch
\$599, \$459

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—with mendeately brook. Personal and other company checks—allow 20 days to bear. Prices reflect 3% cash discount, so ADD 3% to above 12% (3.55 mmmmm) harant—UPS Blue for Allaska or Canada—UPS in use areas only, all others Postal—call or write, or specify Postal Foreign orders except Canada, 18% (\$25 mmmmm) checks—allow 2004 to thorough countries, 30% (\$30 mmmmm) checks represent the price of the prices of the price of t

FREE GIFT

now for order forms, and our new newsletter and sales specials announcement. Our

URAD COUPON

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

OUR AD

#112



NO SALES TAX

CASH-n-CARRY COMPUTER STORES IN COver-the-counter sales only, Open Monday through Saturday, 10:00 to 6:00 SAN FRANCISCO — NEW STORE! 550 Washington. Street [at Montgomery, apposite the Pyramid] Interstate 80, to Highway 480; take Washington Street Exit. CALL (4:19) 982-6212 PORTLAND. OREGON — AF Park 217. Tigard at intersection of Highway 217 and 99W. CALL (5:03) 620-55-95 SEATLE. WASHINGTON — 3540 128It Ave 5E. Bellevue, WA 98006. In Leehmann's Plaze near Factoria Square. South East of Highway 405 & 90 and at South East 36th and Richards. CALL 63-14-376.

National Order Desk TOLL FREE Foreign (800) 547-1289 Portland OREGON ONLY (800) 451-5151 (503) 620-9877

HOT LINE | ORDER DESK HOURS Mon-Fri — 6AM to 6PM PST Saturday — 10AM to 4PM PST (6AM here is 9AM in New York) (503) 620-9878 WEEKDAYS ONLY



THESE COULD BE THE KEYS TO YOUR FUTURE

Unlock *all* the potential of your Commodore 64 and VIC-20* with **RUN**.

Explore...Experiment...Enjoy...
Beginner and expert alike will be taken beyond the manual to the limits of their abilities. Enter your own game programs. Construct a simple hardware add-on. Broaden your scope with unique applications...And...get a 13th issue FREE!

Enjoy key features like these:

- Games for fun & strategy.
- Programming tips help you learn short cuts.
- Candid reviews help you make money-saving decisions.
- Programs to add to your library.
- Instructions & tutorials to increase your skills.
- Hardware & software modifications help your machine work smart.
- Unique applications broaden your scope.

Here's a system-specific magazine written with you in mind. Written by and for the reader to give time-saving, money-saving hints. You'll get instructions and tutorials to increase your skills, and candid reviews to help you make the right decisions. Most of all though, you'll have fun.



address

Commodore 64 and VIC-20 owners are one of the largest groups of computerists today. Enjoy the benefits of this with your own magazine. Be in control like never before. Order RUN today and get a 13th issue free with your prepaid order (check or credit card) of only \$19.97. Send in the coupon or call toll free 1-800-258-5473. In N.H. call 1-924-9471.

Send me a subscription to **RUN** for the regular subscription price of only \$19.97 per year. I understand that with payment enclosed or credit card order I will receive a FREE issue making a total of 13 issues for \$19.97.

□ Check/MO □ MC □ AE	\square VISA \square Bill me \$19.97 for 12 issues
card #	exp. date

signature ______name_____

city_____state___zip___

Canada & Mexico \$22.97; Foreign Surface \$39.97, 1 year only, US funds drawn on US bank. Foreign airmail, please inquire. Please allow 6 to 8 weeks for delivery.

RUN • Box 954 • Farmingdale, NY 11737

34DF5



Animal Bingo

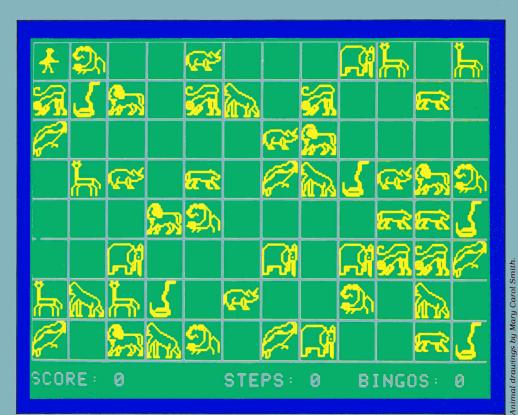
his month I'm presenting another graphics game for your enjoymentthe second in a two-part series providing a bit of a diversion from this column's usual tutorial fare. The game is called Animal Bingo. Starting from traditional bingo, which involves very little but luck and staving awake, I have developed a game requiring nearly as much judgment and strategy as chess. The ability to think ahead is critical.

How to Play

The object of the game is to get bingos by lining up five animals of the same kind in a horizontal or vertical row. (Diagonal doesn't count.) After three bingos, the game is over and you get a score and an evaluation.

The animals are of ten kinds: elephant, snake, lion, scorpion, rhinoceros, tapir, gorilla, giraffe, parrot, and monkey. To begin play, the computer places five of each type of animal, 50 in all, in random positions on the playing grid of 12 by 8 squares.

You're represented in the game by



the figure of a hunter, which you control with the first four key presses listed in the Table. When you want to move an animal you must first move the hunter one square north, south, east, or west of that animal, then pick it up with the appropriate key press from the Table. The animal then disappears from the screen to indicate that you are "carrying" it. When you've reached the desired location, drop it with the appropriate key press. Through all this, remember that if the hunter "steps on" an animal, the animal vanishes forever from the game.

When you've lined up five identical animals, the screen fills with the

word BINGO, accompanied by sound effects. Then play resumes. If it's your third bingo, the game ends as previously described.

Strategy

Whenever you need to move an animal to a square that is already occupied, you must temporarily drop it elsewhere, pick up the animal that's in the way, drop *it* in an out-of-theway square, pick up the original animal, and drop it in the target square—the one that's part of your intended bingo.

Let's look at how this works. The following diagram represents a situation in which you, the hunter (H),

by Don Fudge

FUDGE TT!

SOFTYME

Asks "Who Needs Paper?"

Imagine receiving **SOFTYME**, the magazine on a disk every month on a double-sided 51/4 inch floppy.

Software delivered directly to you each month for about the price of a disk. Your chance to learn and be part of a true "user-friendly" network.

SOFTYME, the monthly magazine on a disk — PACKED WITH PROGRAMS

games, adventure, utilities, pastime, financial, and graphics.

SOFTYME is Challenging, Listable, Copyable and SOFTYME'S Fun Too!



Byte Into a Diskful this Month!

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. 174 Bellevue Ave., Newport, RI 02840. 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.

are carrying a lion you intend to use to complete a bingo. There are already four lions (L) in the row where the bingo will be, plus a snake (S) and two elephants (E):

H ESLLLLE

The hunter drops the lion to the west (DW):

LH ESLLLLE

then picks up the snake to the south (PS):

LH E LLLLE

and drops the snake to the east (DE):

E LLLLE

Finally, the hunter picks up the lion to the west (PW):

HS E LLLLE Table. Key-press commands.

Kev **Function** Move hunter north. N Move hunter south. E Move hunter east. W Move hunter west. PN Pick up animal to the north. PS Pick up animal to the south. PE Pick up animal to the east. PW Pick up animal to the west. DN Drop up animal to the north. DS Drop up animal to the south. DE Drop up animal to the east. DW Drop up animal to the west.

drops the lion to the south (DS):

ELLLLE and BINGO!

Continued on page 120.

Listing 1. Animal Bingo.

```
HIMEM: 36862:D$ =
           DIM A(13,9): FOR I = 1 TO 12: FOR J = 1 TO 8:A(I,J) = INT (10 * RND (1)) + 5: NEXT : NEXT : GOSUB 15000: CLEAR : CALL 54915: GOSUB
          DIM A(13,9),S(6),AN(4)
TEXT : HOME : VTAB 1
      X = 11:Y = 12
      D$ = CHR$ (4)
PRINT D$"BLOADALLCHAR"
              PRINT D$"BLOADANIMALS"
PART S SECRETARIAN S SECRETARIAN S SECRETARIAN S SECRETARIA S SECRETAR
               POKE 233,8: POKE 232,0
               FOR L = 1 TO LEN (A$:A = ASC (MID$ (A$,L,1)) REM IF A = 32 THEN HCOLOR= \emptyset: DRAW 96
                                                                                                                                                                                        96 AT HA, VA: HA = HA
                       + 7: GOTO
28
               XDRAW A - 31 AT HA, VA: HA = HA + 7
               NEXT
              POKE 232,255: POKE 233,143: RETURN
HTAB 1: VTAB 24:A$ = "SCORE: STEPS: BINGOS: ": GOS
22: HTAB 8: VTAB 24:A$ = STR$ (SC): GOSUB 22: VTAB 24: HTAB 24
                                                                                                                                                                                                                                         ": GOSUB
                                            STR$ (ST): GOSUB 22: HTAB 36: VTAB 24:A$ = STR$ (BG): GOSUB
                   22
100 PK = PEEK ( - 16384): IF PK > 127 THEN SC = SC - 1:ST = ST + 1:
                      POKE
                                              - 16368,0: GOSUB 1000: GOTO 110
                   GOTO 100
                  HCOLOR= Ø: FOR K = 184 TO 190: HPLOT 49,K TO 83,K: NEXT : FOR K = 184 TO 190: HPLOT 161,K TO 181,K: NEXT : FOR K = 184 TO 190:
              HPLOT 245,K TO 251,K: NEXT

HTAB 8: VTAB 24:A$ = STR$ (SC): GOSUB 22: VTAB 24: HTAB 24:A$ =

STR$ (ST): GOSUB 22: HTAB 36: VTAB 24:A$ = STR$ (BG): GOSUB 2
199 HCOLOR= 3: GOTO 100
200 X = (I * 22) - 11:Y = (J * 22) - 10: DRAW A(I,J) AT X,Y: RETURN
1000 IF PK = 197 THEN I = I: IF X < 232 THEN GOSUB 57300:X = X + 2
2: GOSUB 57310: DRAW 1 AT X,Y: GOSUB 2000: RETURN

1010 IF PK = 206 THEN I = I: IF Y > 33 THEN GOSUB 57300:Y = Y - 22

: GOSUB 57310: DRAW 1 AT X,Y: GOSUB 2000: RETURN

1020 IF PK = 211 THEN I = I: IF Y < 145 THEN GOSUB 57300:Y = Y + 2

2: GOSUB 57310: DRAW 1 AT X,Y: GOSUB 2000: RETURN

1030 IF PK = 197 THEN I = I: IF Y < 145 THEN GOSUB 57300:Y = Y + 2

2: GOSUB 57310: DRAW 1 AT X,Y: GOSUB 2000: RETURN
2: GOSUB 57510: DRAW I AT X,1: GOSUB 2000: RETURN

1030 IF PK = 215 THEN I = I: IF X > 32 THEN GOSUB 57300: X = X - 22

: GOSUB 57310: DRAW I AT X,Y: GOSUB 2000: RETURN

1040 IF PK = 208 THEN SC = SC - 50: GOSUB 62500: GOSUB 9000: RETURN

1050 IF PK = 196 THEN FOR QW = 1 TO 6:PP = PEEK ( - 16336):D = 5:
                         = 21: GOSUB 60000: NEXT : GOSUB 10000: RETURN
```

Listing continued.



Trim an Apple Tree

y earliest memory is decorating a Christmas tree with my parents. It was a real tree with fragile glass ornaments and a star at the top made of silver paper and red cellophane. While nothing can substitute for a real Christmas tree, my program, O CHRISTMAS TREE, gives children a chance to decorate their own—on the computer. Not only can they arrange the colored orna-

ments as they like, but also the more ornaments they hang, the more rewards (color graphics, sound, music, and an animated final scene) they will get.

This is a creative program and not a game. Children can't lose because there is no scoring.

Trimming Your Tree

Use the I, J, K, and M keys to move the cursor over the tree, then press the space bar to hang an ornament. Don't try to hang ornaments in empty



space: They will fall and break. The tree trimmer gets a reward after every five ornaments, including a fascinating present with a red ribbon. After you've hung 25 ornaments, the present pops open to reveal a final surprise.

Saving Your Tree

Once the present opens, you can interrupt the program display by pressing the escape key. To start over on a new tree, type RUN and hit the return key. If you press the reset key, but still

Deck the halls with hi-res color, seasonal sounds, and a Christmas surprise.

by Michael A. Seeds

Dot Matrix	Apple Peripherals
BROTHER/DYNAX	ALS
	CP/M+ (3.0) \$ 279.88
Brother 2044L \$ 1039.88	CP/MT (3.0)
C. ITOH	Smarterm II 139.88
Prowriter CALL	Dispatcher
Prowriter-2 CALL	AMT
HotDot CALL	MicroDrive (1/2 ht) 179.88
HotDot-2 CALL	MA SYSTEMS
EPSON	Printer Card w/cable 79.88
RX/FX/LQ Series CALL	MICROSOFT
INFORUNNER	16K RAMcard CALL
Riteman	16K RAMcard CALL Softcard II (Z-80) CALL
MEMOTECH	Premium Softcard II (2-80 &
DMX-80 259.88	Videx VideoTerm) 459.88
OKIDATA	Softcard IIe (Z-80, 80 col
Microline 92 419.88	& 64K card) 279.88
Microline w/Imagewriter	ORANGE MICRO
code (IIc, Mac) 499.88	Grappler+ 109.88 Buffer Board (16K) 114.88
Microline 93 CALL	Buffer Board (16K) 114.88
Microline 93 CALL Microline 84 769.88	Buffered Grappler+ CALL
NEC	Buffered Grappler+ CALL INTERACTIVE STRUC.
Pinwriter (80 col) 699.88	Pkasso-U
Pinwriter (132 col) 050 88	QUADRAM
Pinwriter (132 col) 959.88 TOSHIBA	Quad a Pam (IIa) 100 PP
	Quad e-Ram (IIe) 109.88 RANA SYSTEMS
P-1351 CALL	Tite 1
P-1340	Elite-1 219.88
Letter-Quality	Elite-2 CALL
	Elite-3 CALL
BROTHER/DYNAX	Drive Controller Card
HR/DX-15 \$ 399.88	(ProDOS compatible) 84.88
HR-25 CALL	TBL
HR-35 939.88	16K RAMCard 69.88 Drive Controller 69.88
C. ITOH	Drive Controller 69.88
A-10 CALL	TITAN
A-10	Accelerator II 419.88
F-10/55	Memory Cards
Diablo Series CALL	32K 154.88
NEC	64K
2010/2030 739.88	128K 349.88
3510/3530	Neptune Card CALL
7710/7730 CALL	VIDEX
Tractor 359.88	Enhancer II
QUME	PSIO
Sprint 11/40 1519.88	Enhancer II 109.88 PSIO 159.88 VideoTerm 199.88
Sprint 11/40 1519.88 Sprint 11/55 1679.88	VideoTerm with 40/80 col.
LetterPro 20 709.88	SoftSwitch 219.88
	SoftSwitch IIF 29.88
EXP-770 CALL	S oftSwitch IIE 29.88 UltraTerm 244.88
EXP-550 CALL	Omarom
LAI 330 OALL	
770/550 Tractor 120 99	Accessories
770/550 Tractor 129.88	Accessories
770/550 Tractor 129.88 EXP-500	IDE
770/550 Tractor 129.88 EXP-500 389.88 EXP-400 329.88	IDE Switch Boxes
770/550 Tractor	IDE Switch Boxes Parallel, 2-way \$ 109.88
770/550 Tractor	IDE Switch Boxes Parallel, 2-way. \$109.88 Serial 2-way. 109.88
SILVEH HEED 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	IDE Switch Boxes Parallel, 2-way. \$109.88 Serial 2-way. 109.88
· oworrypo OALL	IDE Switch Boxes Sarallel, 2-way. \$ 109.88 Serial, 2-way. 109.88 Parallel, 4-way. 159.88 Cross Switch 129.88
Modems	IDE
Modems HAYES	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
Modems HAYES Micromodem IIe \$ CALL	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
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 CALL	IDE Switch Boxes Parallel, 2-way
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 CALL Smartmodem 1200 CALL	IDE
Modems HAYES Micromodem Ile \$ CALL Smartmodem 1200 CALL NOVATION	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 INNOVATIVE CONCEPTS Flip N-File 50. 29.88 29.89
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 CALL Smartmodem 1200 CALL NOVATION AppleCat 300 239.99	IDE Switch Boxes Parallel, 2-way
Modems HAYES Micromodem Ile\$ CALL Smartmodem 300 CALL Smartmodem 1200 CALL NOVATION AppleCat 300239.99 AppleCat 300299.99	IDE
Modems HAYES Micromodem Ile\$ CALL Smartmodem 300 CALL Smartmodem 1200 CALL NOVATION AppleCat 300239.99 AppleCat 300299.99	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 (130) 39.88 Printer Stand (132) 49.88 INNOVATIVE CONCEPTS Flip-N-File 50. 29.88 KENSINGTON System Saver. CALL QUADRAM CALL CALL QUADRAM CALL CALL
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 CALL Smartmodem 1200 CALL NOVATION AppleCat 300 239.99	IDE
Modems HAYES Micromodem Ile	IDE
Modems HAYES Micromodem Ile	IDE Switch Boxes Parallel, 2-way
Modems HAYES Micromodem Ile	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 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 Parall
Modems HAYES Micromodem Ile	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 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 Parall
Modems HAYES Micromodem Ile	DE
Modems HAYES Micromodem Ile	DE
Modems HAYES Micromodem Ile	DE
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 Monitors AMDEK 300A (gn). \$ 144.88 300A (am). 159.88 Color 300. 269.88 NEC	DE
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 . CALL Smartmodem 1200 . CALL NOVATION AppleCat 300 to 1200 Upgrade Kit	DE
Modems HAYES Micromodem IIe	DE
Modems HAYES Micromodem IIe \$ CALL Smartmodem 300 . CALL Smartmodem 1200 . CALL NOVATION AppleCat 300 to 1200 Upgrade Kit	DE

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

VE



want to see the tree you just decorated, type POKE 49239,0: POKE 49232,0 and hit the return key. With a screen-dump utility, you can print your Christmas tree then have little tree trimmers color the printout and add some glitter and ribbons.

"After you've hung 25 ornaments, the present pops open to reveal a final surprise." CHRISTMAS TREE and pressing the return key. Compare the typed-in program with the listing and look for typos. If you find any, correct them and resave the program.

Type in the data statements at the end

carefully. They contain shape tables to draw ornaments and surprises, and a music routine to play the Christmas carol, and are POKEd into memory by lines 50 and 55. These lines also check the data for typos and will warn you if you have made an error. It's possible, though unlikely, to make two typos that cancel each other out. If the program runs and doesn't print the error messages in lines 50 or 55, you can be sure you typed the data statements correctly.

If you escape from the program but still want to hear the Christmas carol, type GOSUB 740 and hit the return key. To restart the animation in the final scene, use the commands given above to display the tree, then type GOSUB 1050 and hit the return key.

Save decorated trees on disk by pressing the reset key then typing BSAVE TREE1,A\$2000,L\$2000 and pressing the return key. If you save more than one tree on a disk, be sure to assign different names to the files. To show a saved tree to visiting relatives, type HGR:POKE 49234,0, press the return key, then type BLOAD TREE1, using your own file name to reload the desired tree.

Typing in the Listing

To enter the program, clear your Apple by typing NEW, hit the return key, then type in the program listing. Save the program to disk by typing SAVE

Changing the Program

Since this program is written in structured BASIC, you can easily change it. Each task is isolated in a single subroutine. If, for instance, you want to make the five-pointed star a six-pointed star or an angel, change the subroutine in lines 300–390.

You might like to use the subroutine in line 900 in your own programs for

If practice makes perfect, buy the SAT and typing programs that make practicing easier.

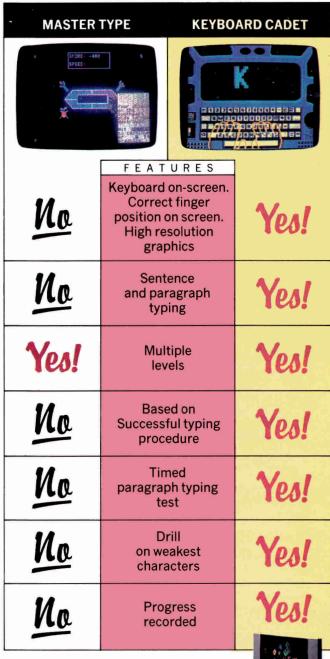
Harcourt Brace J			
• •			
	FEATURES		
Two double- sided	Number of disks	Six double- sided	
Yes!	Testing and learning modes	Yes!	
Yes!	Sample test	Yes!	
No	Practice SAT and TSWE on disk	Yes!	
Yes!	Manual with test taking strategies	Yes!	
No	Continuous on-screen clock	Yes!	
No	Print-out capability	Yes!	
		PARTY BANKS WING	

Studying with a computer program makes more sense than using a manual. But Harcourt's Computer SAT (\$79.95) gives you a fat manual and just 2 double-sided disks.

For \$89.95, Barron's Computer Study Program gives ou an even fatter manual, plus 3 double-sided disks.

Why not buy a computer program that's a computer program?

Ours has 6 double-sided disks and a skinny manual. And costs just \$69.95.



Unlike Keyboard Cadet, Master Type doesn't show you the correct finger positions on the screen. So you might become a fast hunt-and-peck typist instead of a fast typist.

As long as you're learning how to type, why not learn how to type the right way? Keyboard Cadet, \$39.95.

The Perfect Score and Keyboard Cadet from Mindscape

Program listing. O Christmas Tree.

```
HGR : POKE - 16302,0:SU = 0
     FOR J = 1 TO 93: READ SH: POKE 16383 + J,SH:SU = SU + SH: NEXT J: IF S U < > 5449 THEN TEXT: PRINT "TYPO IN SHAPES DATA, LINES 10000-1000
40
       U < > 5
6": END
      POKE 232,0: POKE 233,64:SU = 0: ROT= 0: SCALE= 1: GOSUB 800
FOR J = 1 TO 126: READ SH: POKE 770 + J,SH:SU = SU + SH: NEXT J: IF SU

< > 8052 THEN TEXT : PRINT "TYPO IN MUSIC DATA, LINES 10010-10018"
        : END
      GOTO 500
90
      REM
100
       REM ** DRAW BALL **
       HCOLOR= 3: IF RND (1) > .5 THEN HCOLOR= 7
IF Y < 23 AND ABS (X - 140) < 4 THEN GOSUB 300: RETURN
IF Y > 170 THEN GOSUB 200: RETURN
110
130
135
       IF ABS (X-140) > (Y-20) * (11 / 15) THEN GOSUB 200: RETURN XDRAW 2 AT X,Y
150 NB = NB + 1: DRAW 1 AT X, Y
       XDRAW 2 AT X,Y
IF NB = 10 THEN
155
160
                                 GOSIIB 400
       IF NB = 15 THEN
                                 GOSUB 300
       IF NB = 25 THEN GOSUB 440

IF NB = 20 THEN GOSUB 740

IF NB = 25 THEN GOSUB 100

RETURN
180
                                 GOSIIB 740
183
1.85
                                GOSUB 1000
190
       REM
       REM **
200
                  DROP BALL **
210 \text{ VY} = 1:YS = Y
       XDRAW 1 AT X,Y:YN = Y + VY: IF YN < 190 THEN 230

XDRAW 1 AT X,Y:Y = 188: XDRAW 1 AT X,Y: GOSUB 700: XDRAW 1 AT X,Y:Y =
220
        YS: RETURN
230
      VY = VY + 2: XDRAW 1 AT X,Y:Y = YN: GOTO 220
290
       RETURN
295
       REM
300
                   DRAW STAR
       HPLOT 140,10 TO 148,28 TO 131,17 TO 149,17 TO 132,28 TO 140,10
320
       HPLOT 141,10 TO 149,28 TO 132,18 TO 150,18 TO 132,28 TO 141,10
390
       RETURN
395
       REM
```

small children. It draws a dotted line from point X1,Y1 to point X2,Y2. (X1 must be less than X2.) If the two X's are even, then the line will be purple or blue depending on whether HCOL-OR is set to 3 or 7. If the two X's are odd, then the line will be either green or orange. In this program, we need the dotted line subroutine to draw the green Christmas tree in line 820-840.

Line 570 lets you end the program by pressing the E key. This is handy while getting the program to run, but you may want to remove the line before turning the program over to a child. With line 570 deleted, only typing RESET can crash the program.

The most beautiful Christmas trees are first trees—the first we remember. the first in a new home, the first for the new baby. I hope you have a special tree this year, and I hope you and your family enjoy playing with the Christmas tree on your computer.

Mike Seeds can be reached at Franklin and Marshall College, P.O. Box 3003, Lancaster, PA 17604.

Circle 219 on Reader Service card.

A Printer For All Reasons!

The GP-550-AP is an extra high quality graphic printer that offers both standard Dot Matrix printing and Near Letter Quality printing all in a single unit.

PRINTING MODE	DOT MATRIX (H x V) & SPACES	NUMBER OF COLUMNS	PRINT SPEED (CPS)	CHARACTER SPACING (CPI)	PASS
DP Mode:		22010140040000			
Pica	$9 \times 8 + 3$	80"	50	10	1
Elite	9 x 8 + 1	96	60	12	1
Condensed	5 x 8 + 2	136	86	17	1
NLQ Mode: NOT	E: There is expa	nded (double-widt	h) printing fund	tion in every charac	ter mode
Pica	9 x 16 + 3	80	25	10	2
Elite	9 x 16 + 1	96	30	12	2
Proportional	N x 16	_	_	_	2
Super/Subscript	5 x 8	136	43	17	2
Italic Cursive	12 x 16	80	25	10	2
Line Spacing	6, 8, 7½, 12, or	N/120 (N = 0-99) lines per inch.		

Paper Feed Paper Width Paper Type Ribbon Dimensions **Printing Method**

Multiple Copies

Graphics

Pin-feed and friction-feed (single sheet)

Adjustable from 4.5 to 10 inches (fanfold paper) Fanfold or cutsheet paper

Single color, special self-inking cassette

12" (D) x 16.5" (W) x 4.5" (H) (including paper separator) Two-hammer

Printing Format 9 x 8 (DP); 9 x 16 (NLQ) **Character Kinds** 96 ASCII + 44 characters and symbols

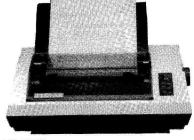
Arbitrary combination of 8 dots or 16 dots. 3 including original

1 year parts & labor warranty

oniv

Listing continued.

DIRECT PLUG-IN AND PRINT ON YOURAPPLE II OR IIe - NO OTHER **EQUIPMENT NEEDED.**



FEATURES:

- Two print modes: Data Processing (DP) mode, Near Letter Quality (NLQ) mode.
- Lower noise level.
- High cost-performance.
- Two matrix configurations: 9 (H) x 8 (V) dots in DP mode; 9 (H) x 16 (V) dots in NLQ mode.
- Capable of printing 140 different characters: 96 ASCII characters plus 44 European characters and symbols.
- Various character modes for special effects: DP mode: Pica, Elite, Condensed NLQ mode: Pica, Elite, Italic Cursive, Superscript, Subscript and Proportional.
- Graphic printing of vertical 8-dot or 16-dot graphic data.

FOR ORDERS CALL TOLL FREE: 1-800/962-5800 USA 1-800/962-3800 CALIF.



CASH PRICES CHARGE CARDS ADD 3%

APROPOS TECHNOLOGY

15 Day Money Back Guarantee

1071-A Avenida Acaso Camarillo, CA 93010 805/482-3604

"... when many peripheral cards are plugged into the back of the Apple, inhibiting air flow and causing more heat output from the power supply . . . expansion and contraction (results which) will eventually cause the components to malfunction. Fans ensure that your computer keeps cool and works smoothly."

InCider Magazine, July 1983, page 122

ALL RIGHT APPLE II and IIe OWNERS, Let's really take a look at cooling efficiency, versatility and flexibility!



Independent control of system and peripherals.

Illuminated switches separately control two rear outlets. This allows front panel control of your Apple and mon-

itor, plus printer or other peripheral. This also provides a check on the sys-

tem's on/off status.

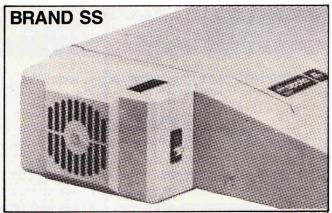


Heated air removed and exhausted at REAR, not across you and your workspace.

Line surge suppression at safe 130 volts RMS.

\$79.95





Fan

Only One Switch

Heated air removed and exhausted at SIDE, across your workspace.

Line surge suppression at safe 130 volts RMS.

\$89.95

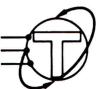
Also Available

COOL41IME

Still the leader, this unit has all the same outstanding features as the COOL plus . . . PLUS a Real Time/Elapsed Time Clock that provides a method of accurately budgeting/tracking time when using costly data bases, programming or other timesensitive tasks. \$99.95



THE CHOICE IS YOURS!

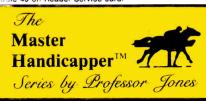


Quality Products from TENCAL. INC. 9525 DeSoto Avenue Chatsworth, California 91311 (818) 998-4850

Value Engineering for over a Decade

Circle 181 on Reader Service card.

SEE YOUR LOCAL COMPUTER DEALER. OR CALL (818) 998-4850 COLLECT



EVALUATES FROM RACING FORM!

		to I of this.
Age	Gender	Post (Today
Class	Jockey (Today)	Post (Last)
Condition	Jockey (Last)	Speed
Consistency	Length	Trainer
Earnings	Time of Year	Workouts
And gives ye	OU GRAPHIC REPRESENT	TATION of finish

PROGRAM

GLD. Thoroughbred "Gold" EditionTM A "Full" featured thoroughbred analysis designed for the profes-\$159.95 complete

EGLD. Enhanced "Gold" EditionTM

"Gold" Edition with complete Master BettorTM system integrated onto the same disk. This powerful program will transfer all horses and scores to the bet analysis with a "single keystroke."

(Master BettorTM included) \$199.95 complete

GLTD. Limited "Gold"TM

Enables Professional Handicappers to assign specific values to the racing variables "they" feel are important

PROFESSIONAL HANDICAPPING SYSTEMS

90	9/0	9/0
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 BettorTM) \$299.95 complete

GD. Gold Dog AnalysisTM



The only professional dog handicapper on the market includes:
1) Speed 6) Condition

7) Running Style 2) Post Today 8) Weight
9) All new internal weighting
10) NEW class indicator 3) Kennel 4) Post Last 5) Distance

If you are near a greyhound track, you can't afford not to use this \$149.95 complete

(with integrated Master BettorTM) \$199.95

MHH. Master Harness HandicapperTM



Professional software designed to provide a thorough analysis of all trotter and pacer races in North America and Canada. Features: Time Finish Class Post Positions Driver Track Conditions Time Last Quarter Days Since Last Gender w/integrated Master BettorTM \$199.95

PPX. Professor Jones' Football Predictor, Prof. PixTM

Complete Football Analysis with **Data-Base**.

1) Overlays
4) "Over/Under" bets
2) Point Spreads
5) Data Base Stats 2) Point Spreads

P 3) "Super Plays" 6) Holds "100" teams Highest percentage of winners 1983 \$39.95 complete

\$99.95 with Data Base Management

\$\$ MB. Master BettorTM

7 7		
A compliment to ALL	Master Handicapp	er 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 de	signed to use results	from all Master Programs
to generate "best be	rt".	\$59.95 complete

BROCHURE AVAILABLE

Send check / money order / VISA / Mastercharge (Include expiration date) to: Prof. Jones



1114 N. 24th St. Boise, ID 83702

TELEPHONE (208) 342-6939



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. No Refunds on Software.

> IBM, APPLE, TRS-80, C-64 AND OTHERS

Listing continued.

```
400
           REM **
                         DRAW PRESENT
          HCOLOR= 3: FOR L = 180 TO 210: HPLOT L,175 TO L,191: NEXT L HCOLOR= 0: FOR L = 191 TO 199 STEP 2: HPLOT L,175 TO L,191: NEXT L
 410
 420
          RETURN
 430
 435
445 REM ** DRAW GARLAND **
445 HCOLOR= 3: IF RND (1) > .5 THEN HCOLOR= 7
450 X1 = 112:Y1 = 60:X2 = 156:Y2 = 40: GOSUB 900
460 X2 = 186:Y2 = 82: GOSUB 900
 470 X1 = 78:Y1 = 108: GOSUB 900
480 X2 = 220:Y2 = 128: GOSUB 900
490 X1 = 60:Y1 = 169: GOSUB 900
 495
          RETURN
 499
          REM
 500 REM ** KEYBOARD LOOP **
505 DX = 1:DY = 1:XL = 140:YL = 50:X = XL:Y = YL: XDRAW 2 AT X,Y
         DX = 1:DY = 1:XL = 140:YL = 50
GET A$: PRINT
IF A$ = "I" THEN Y = Y - DY
IF A$ = "J" THEN X = X - DX
IF A$ = "K" THEN X = X + DX
IF A$ = "M" THEN Y = Y + DY
IF A$ = "" THEN GOSUB 100
IF A$ = "E" THEN TEXT : END
IF X > 270 THEN X = 10
IF X < 10 THEN X = 270
IF Y > 191 THEN Y = 191
 510
 520
 530
 540
 570
 580
         IF Y > 191 THEN Y = 191
IF Y > 191 THEN Y = 5
IF Y < 5 THEN Y = 5
XDRAW 2 AT XL,YL: REM
XDRAW 2 AT X,Y: REM DR
 600
 610
                                                        ERASE
 620
                                                     DRAW
 630
 640 XL = X:YL = Y: GOTO 510
          REM
 650
          REM **
 700
                          POP **
          POKE 06,114: POKE 07,3: CALL 786
 720
          RETURN
 730
          REM
 740
          REM **
                         PLAY SONG
          POKE 7,3: POKE 6,46: CALL 786: CALL 786
 760
          POKE 6,79: CALL 786
 770
          POKE 6,46: CALL 786
 790
          RETURN
          REM
795 KEM

800 REM ** DRAW TREE **

805 HCOLOR= 3:TW = 110:XC = 141

810 X1 = XC - TW:Y1 = 170

820 X2 = XC:Y2 = 20: GOSUB 900
830 X2 = XC + TW:Y2 = 170: GOSUB 900
840 X1 = XC:Y1 = 20: GOSUB 900
850 FOR X = 137 TO 145 STEP 2
860
          HCOLOR= 7: HPLOT X,171 TO X,191
870
          NEXT X
880
          RETURN
890
          REM
          REM ** DRAW DOTTED LINE **
900
920 SL = (Y2 - Y1) / (X2 - X1)
930 FOR J = X1 TO X2 STEP 2
940 HPLOT J,Y1 + SL * (J - X1)
950
          NEXT J
          RETURN
960
970
          REM
            REM ** OPEN PRESENT
1000
1010
            HCOLOR = 0: FOR XP = 180 TO 210: HPLOT XP, 175 TO XP, 191: NEXT XP
1020 X = 191
1030 XDRAW 3 AT X,190:XT = X

1035 IF PEEK ( - 16384) = 155 THEN POKE - 16368,0: END

1040 X = X - 2: IF X < 1 THEN X = 279

1050 XDRAW 3 AT XT,190
1030
1060
            GOTO 1030
 9000
            REM
9100
            REM
                     SHAPES
9999
            REM
            DATA 3,0,8,0,31,0,40,0,36,60,40,173,62,46,46
DATA 32,21,54,254,48,254,36,151,35,36,36,252,18,54,54
DATA 0,36,85,10,63,214,60,56,63,0,63,40,45,28,255
DATA 154,27,63,40,45,28,255,26,36,39,37,37,44,54,45
DATA 45,45,37,44,45,45,53,62,55,54,46,45,109,32,108
 10000
 10001
 10002
 10003
 10004
               DATA 54,23,46,108,32,36,36,45,54,54,118,46,36,36,13
 10005
 10006
               DATA 54,5,0
 10008
               REM
 10009
               REM
                      MUSIC DATA
             REM MUSIC DATA
DATA 173,1,3,32,168,252,173,48,192,206,0,3,208,242,96
DATA 160,0,177,6,141,1,3,240,18,200,177,6,141,0,3
DATA 200,32,3,3,169,128,32,168,252,76,20,3,96,43,60
DATA 37,60,37,20,37,80,35,89,33,73,33,25,33,148,33
DATA 49,35,44,33,49,32,105,38,76,35,89,37,80,174,1
DATA 0,30,59,30,59,33,49,28,201,30,59,30,59,32,52
DATA 32,158,32,52,32,52,35,44,30,177,32,52,32,52,33
DATA 49,33,99,174,1,0,5,5,1,16,2,16,3,16,2
 10010
 10011
 10012
 10013
 10014
 10015
10016
 10017
                                                                                                                            End of listing.
 10018
               DATA 5,1,5,2,16,0
```



APPLE-COMPATIBLE DRIVES. CONSUMER-COMPATIBLE

Finally there's a way to get reliable disk drives at reasonable prices.

Introducing Microsci. America's Number One independent seller of Apple compatible disk drives.

HOW TO KEEP YOUR APPLE GROWING. FOR LESS.

We've got a full selection of Applecompatible disk drives to fit your needs, a little or a lot.

The A2, our most popular Apple II and He-compatible, and the A20, an even better price value, are both direct replacements for the Disk II. Thirty-five-track, 143K drives, they'll easily attach to the Apple Disk II controller. Or interface them with our C2 controller with the unique "jumper" that lets you switch from DOS 3.2 to DOS 3.3.

And for even more capacity, we offer the A80. Featuring a full 80 tracks and 328K.

Microsci's A80 also runs utility programs that allow DOS 3.3, CP/M* 2.20B, CP/M 2.23, PASCAL 1.1 and ProDOS™ to take full advantage of its capacity.

And like the A2, both the A20 and A80 can be

used with the Apple Disk II controller or Microsci's C2 controller.

Our Microsci A143 is Apple III-compatible and features 140 tracks with 572K of storage. It attaches directly to the Apple III's controller and power supply and takes up no additional slots.

The A143 may also be daisy-chained to allow you up to 1.5 megabytes of storage.

INTRODUCING OUR NEW HALF-HEIGHT DRIVES.

Available for the II. He and Hc, they're direct replacements for the Apple Disk II and IIc drives.

Microsci's incredible new half-height drives. Technological breakthroughs are getting smaller every day.



SOMETHING MORE FOR HE OWNERS.

Microsci's 80/64e card.

It'll increase your Apple's 64K memory to 128K and add 80 column display capability. Just plug it into the He's auxiliary slot and you're ready to go. More easily, more productively.

And Microsci's 80/64e card is backed by a full 120-day warranty. A sign of confidence in the reliability of our products.

Microsci. Truly reliable products at truly reasonable prices.

And that's compatibility you can live with.

Educational discounts available. For more information, call or write Microsci at 2158 South Hathaway Street, Santa Ana, California 92705 (714) 241-5600, Telex 910-346-6739.

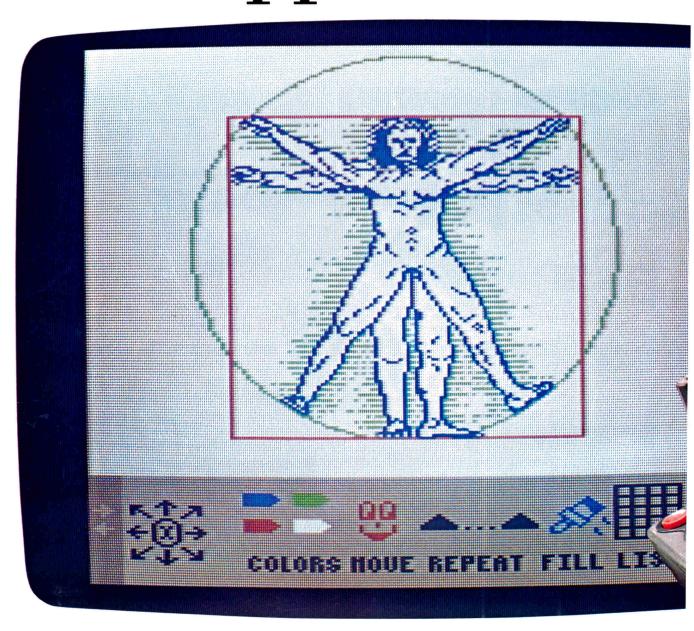
MICROSCI A STANDUN CO

© 1984, Microsci, Inc

Apple is a registered trademark of Apple Computer, Inc. ProDOS is a trademark of Apple Computer, Inc. CP/M is a registered trademark of Digital Research, Inc.

Circle 371 on Reader Service card

Computer progda Vinci, Shakesp Al Capp would ha



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

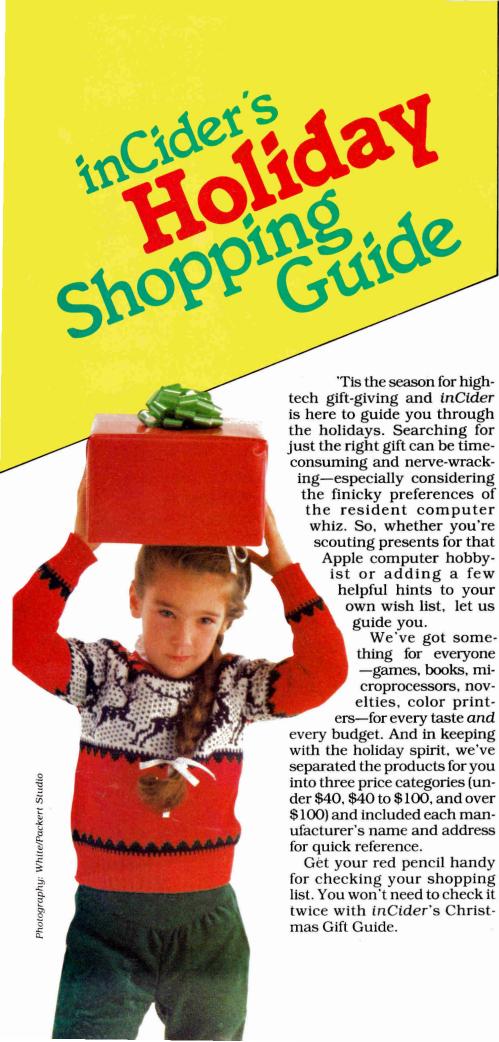
Pixelwerks is to bring it out, with more features, more options and more flexibility than other programs.



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



Circle 538 on Reader Service card.





Charlie Brown's ABC's

Snoopy, Woodstock, Lucy, and the rest of the Peanuts gang teach your child the alphabet in animated, musical sequences. Activity cards add to the fun.
\$39.95 from Random House Software, 201 East 50th Street, New York, NY 10022, (800) 331-5469.

Fact and Fiction Tool Kit

Story Maker and Secret Filer programs challenge kids' imaginations and organizational skills as they create information banks and write and illustrate their own stories.

\$39.95 from Scholastic, 730 Broadway, New York, NY 10003, (212) 505-3000.

65C02 MPU

Apple II, II Plus, and //e owners, don't feel left out of the CMOS revolution. Hayden offers a 65C02 microprocessor just like the //c's, and it's pin-compatible with your 6502. Give CMOS to someone you love. \$15 from Hayden Software, 600 Suffolk Street, Lowell, MA 01854, (617) 937-0200.

Rocky's Boots (revised)

Put the whiz in your whiz kids: they'll use logic gates and simulated electricity to build computers in this innovative game for ages 7 and above.

\$39.95 from The Learning Company, 545 Middlefield Road, Suite 170, Menlo Park, CA 94025, (415) 328-5410.

0 1 1 0 1

Work Force II

An inexpensive and helpful set of financial utilities with routines to balance your checkbook and keep track of earned interest and service charges.

\$34.95 from Core Concepts. P.O. Box 24157, Tempe. AZ 85252, (602) 968-3756

Skyfox

Pilot the Mach-4 Skyfox fighter against invading tanks, planes, and motherships. This arcade game combines flight simulation with 3-D battle for edge-ofthe-seat excitement. \$39.95 from Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403, (415) 571-7171.

Championship Lode Runner

For the Indiana Jones in you: Fifty of the most intricate and challenging rooms ever-loaded with gold and guards-lie before you in this sequel.

\$34.95 from Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 479-1170.

Stickybear Series

Colorful animated pictures teach children aged 3-6 their ABCs, counting, shape recognition, and other concepts. A hardcover book, a poster, and stickers accompany each package. \$39.95 each from Xerox Educational Publishing, 245 Long Hill Road, Middletown, CT 06457, (203) 347-7251.

Learning with Fuzzywomp

Leave your prereaders alone with Fuzzywomp to learn pattern matching, counting, number sequencing, and creative play through four challenging games on a single disk.

\$29.95 from Sierra On-Line, Sierra On-Line Building, Coarsegold, CA 93614, (209) 683-6858.

Disk Chest

Made of native basswood, each chest has dovetailed joinery, hand-rubbed lacquer finish, and brass-finish hardware. Perfect disk accessory for the civilized execu-

\$29.95 for 40-disk, \$34.95 for 60-disk, and \$39.95 for 80-disk sizes from Smith & Bellows, P.O. Box 668, Amherst, NH 03031, (603) 673-8482.



Skyfox

Boulder Dash

Rockford needs help to explore 16 caves before time runs out. Scrolling graphics and music accompany your search for gems and points. \$39.95 from MicroLab, 2699 Skokie Valley Road, Highland Park, IL 60035, (312) 346-7886.

The Elementary Apple

It's elementary that Bill Sanders' is perhaps the best book on BASIC programming. Good examples hold your interest while you learn.

\$14.95 from Reston Publishing, 11480 Sunset Hills Drive, Reston, VA 22090, (703) 437-8900.

Jenny of the Prairie

This pioneering adventure game features a girl-hero whose goal is to survive a harsh prairie winter through her own resources of skill and courage.

\$39.95 from Addison-Wesley, Jacob Way, Reading, MA 01867, (617) 944-3700.

Reading Skill Adventures with Tom Thumb

The adventurous Tom Thumb takes children (preschool through grade one) on a reading-skills journey. \$29.95 from International Software Systems (ISS), P.O. Box 5427, Richmond, VA 23220, (804) 359-2211.



Microzine

Flipping pages is passe with a magazine on disk that's full of educational programs. \$39.95 from Scholastic, 730 Broadway, New York, NY 10003, (212) 505-3000.

The Disk aRranger

A useful collection of disk utilities that-among other things-arrange disk files alphabetically or by file type. \$29.95 from Penguin Software, 830 4th Avenue, P.O. Box 311, Geneva, IL 60134, (312) 232-1984.

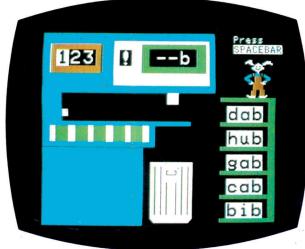
inciders **Holiday** Shopping Guide



Inside the Personal Computer



Music Construction Kit



Reader Rabbit

Music Construction Set

Budding composers learn musical notation, then create and play back their own kind of music. \$39.95 from Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403, (415) 571-7171.

Nibble Notch

Double up! Make use of your disk's flip side with a tool that cuts a square notch right where you need it. \$14.95 from Nibble Notch Computer Products, 4211 N.W. 75th Terrace, Dept. 21, Lauderhill, FL 33319, (800) 642-2536.

Inside the Personal Computer

Pop goes the computer! No, it's not an I/O error but a pop-up book with three-dimensional disk drives, chips, and printers to illustrate the inner workings of the machine. Defines computer terminology clearly and simply.

\$19.95 from Sweet Gum, 15490 N.W. 7th Avenue, North Miami, FL 33169, (305) 687-9338 in Florida; (800) 237-9338 elsewhere.

Reader Rabbit

Dancing rainbows, whirling windmills, and fluttering butterflies—these fanciful graphics help preschoolers comprehend spatial concepts as well as develop reading and math readiness skills.

\$39.95 from The Learning Company, 545 Middlefield Road, Suite 170, Menlo Park, CA 94025, (415) 328-5410.

The Return of Werdna

The good, the bad, and the ugly return in Wizardry's fourth scenario. This time, join the bad guys in their battle through an underground maze. (You need the first scenario to create characters.)
\$39.95 from Sir-Tech Software 6 Main Street Office of the street of the scenario to the street of the scenario to the scenario that scenario the scenario to the scenario to the scenario to the scenario that scenario the scenario that scenario the scenario that scenario the scenario to the scenario to the scenario that scenario the scenario tha scenario that scenario the scenario that scenario the scenario t

\$39.95 from Sir-Tech Software, 6 Main Street, Ogdensburg, NY 13669, (315) 393-6633.

Cutthroats

Avast, matey! A shipwreck loaded with sunken treasure lures you and a ragtag band of islanders in this text adventure. But be careful—there's a traitorous cutthroat among your crew. \$39.95 from Infocom, 55 Wheeler Street, Cambridge, MA 02138, (617) 492-1031.

Beyond Castle Wolfenstein

Hitler plans the final days of World War II. Your mission is to find your way to his bunker, activate a time bomb, and get out before it goes off. A worthy sequel to a best-seller.

\$34.95 from Muse Software,

\$34.95 from Muse Software, 347 North Charles Street, Baltimore, MD 21201, (301) 659-7212.

Fishies

Please don't feed the piranha. Turn your monitor into a simulated fish tank. Denizens of this hi-res, animated deep include fish, mermaid, diver, submarine, and other aquatic surprises.

\$14.95 from Harper & Row, 10 East 53rd Street. New York, NY 10022, (212) 207-7655.

CompuServe Starter Kit

Get on-line: from the world's most popular electronic information service, an easy way to get someone telecommunicating. Complete with password, user number, manual, and five free hours of connect time. \$39.95 from CompuServe Information, 500 Arlington Centre Boulevard, P.O. Box 20212, Columbus, OH 43220, (614) 457-8650.

Kindercomp

Children's reading readiness and counting skills improve while this package familiarizes them with the computer keyboard.

\$34.95 from Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139, (617) 494-1200.

The Chocolate Chip

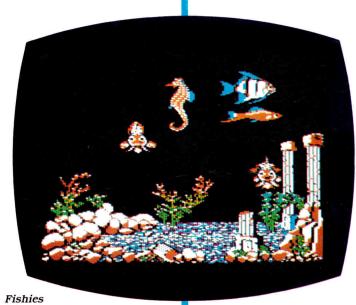
Satisfy a high-tech sweet tooth with 54 grams of Belgian chocolate molded to resemble an integrated circuit. \$5.95 from The Computer Museum, 300 Congress Street, Boston, MA 02210, (617) 426-2800.

Early Games Series

Colorful graphics and music teach math and reading in a series including Piece of Cake, Matchmaker, and Fraction Factory. \$29.95 from Springboard Software, 4005 West 65th Street, Minneapolis, MN 55435, (800) 328-1223.

In Search of the Most Amazing Thing

Violence takes a back seat in this adventure game that helps children develop reasoning skills. \$39.95 from Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139, (617) 494-1200.



Discover 35

A place for every disk and every disk in its place. A disk storage unit with rubber feet that prevent desktop damage and with room for 35 disks. \$9.95 from Ring King Visi-

\$9.95 from Ring King Visibles, 2210 Second Avenue, Muscatine, IA 52761, (319) 263-8144.

Business Power for Your Apple

Get more than one bottom line on 75 popular business programs as defined in this collection by various software reviewers. \$32.95 from Van Nostrand Reinhold, 135 West 50th Street, New York, NY 10020, (212) 265-8700.

MasterType

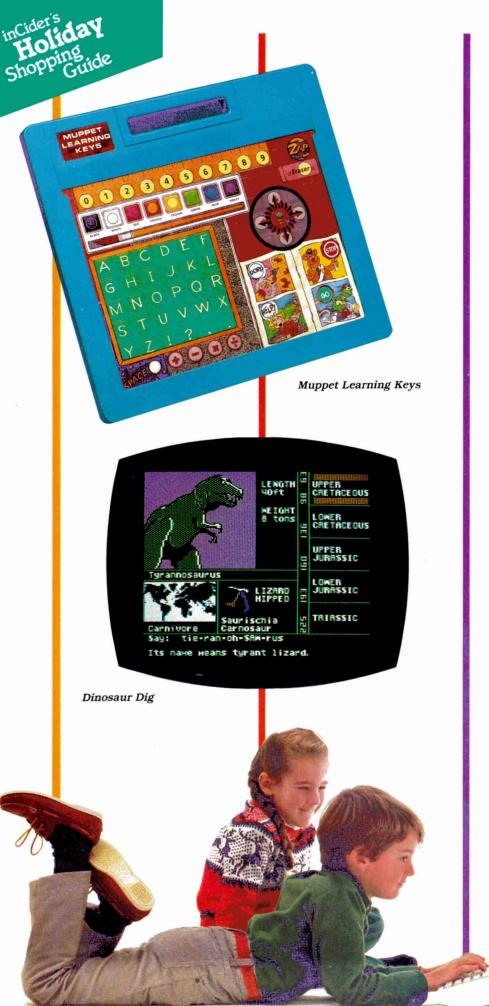
What's your WPM? Novice and advanced typists alike challenge homerow with a game designed to teach or improve typing skills. \$39.95 from Scarborough System, 25 North Broadway, Tarrytown, NY 10591, (914) 332-4545.

Word Challenge

Race the computer to find complete words from a grid of random letters. Twenty-six levels of difficulty and three grid sizes in this, the best word game for the Apple. \$39.95 from Hayden Software, 600 Suffolk Street, Lowell, MA 01853, (617) 937-0200.







gifts \$40-100

Barron's Computer Study Program for the SAT

Prepare to encounter "the boards" through a program that analyzes your strengths and weaknesses and then prescribes an individual course of study in verbal and math areas. \$89.95 from Barron's Educational Series, 113 Crossways Park Drive, Woodbury, NY 11797, (212) 598-4440.

Paddlesticks

End the agony of "paddle wrist." These single-axis joysticks run circles around conventional paddles. \$44.95 from CH Products, 1558 Osage Street, San Marcos, CA 92069, (619) 744-8546.

Muppet Learning Keys

Finally, a keyboard with letters and numbers placed where children expect to find them. Accompanying software features the Muppets teaching colors, numbers, and letters.

\$80 from Koala Technologies, 3100 Patrick Henry Drive, Santa Clara, CA 95052, (408) 986-8866.

Dinosaur Dig

The paleontologist in all of us can explore the ancient world of the "thunder lizards" through colorful, animated graphics and a helpful keyboard overlay. \$49.95 from CBS Software, One Fawcett Place, Greenwich, CT 06837, (203) 622-2525.

We've Provided Innovation And Excellence To 170,000 Apple® Users.



Three years ago Orange Micro set the standard for parallel printer interfaces with the Grappler + . Now a new standard has been set for Apple II's and the Imagewriter Printer. The new Serial Grappler brings all the power, features and compatibility of the Grappler + to Apple's innovative serial printer. Over 30 built-in Grappler commands let you control screen

printouts without software. The Serial Grappler will work with all programs written for the Grappler + .

The newest innovation in the Serial Grappler is the Bufferpak™ expansion module, a printer buffer that clips right onto the Serial Grappler. No extra slots, no boxes or cables. You just plug it on. Adding the power of buffering has never been so easy. Pick up a Serial Grappler today and see how far your Imagewriter can go.



The Bufferboard is the original buffer upgrade for parallel printer interfaces. Buffering saves you time by storing data being sent to your printer. That means that your computer is free to let you work, even while your printer prints.

The Bufferboard easily installs inside your Apple and "docks" onto your Grappler, Epson, or Apple parallel interface. Standard at

16K, it expands to either 32K or 64K. At capacity, the Bufferboard provides 20 pages of text memory.

Just plug the Bufferboard into any available slot, attach it to your printer interface, and you're set. No extra power supplies, no clumsy boxes and cables. The Bufferboard is the easiest and most economical way for you to add printer buffering.

Bytes vs. Bauds



For Apples and Printers



If your focus is on accounting, word processing or other text-only applications, then the Orange Interface is for you.

The Orange Interface is a low priced, text specific interface. Sure, programs can send graphics through the card, but the 15 built-in commands are for text screen dumps and formatting. These features include a special screen dump for Apple's Ile 80 column screen.

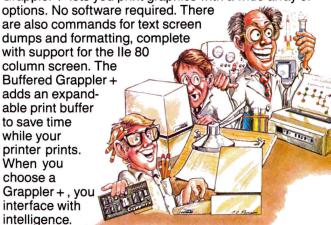
The Orange Interface is engineered to be

Grappler + compatible, so software for the Grappler + (except graphics) will run just fine. The Orange Interface is compatible with most all parallel printers and comes complete with a cable and documentation. Its quality is assured by Orange Micro's 1-year warranty. Why settle for a "dumb" card when you



When Apple owners talk about intelligent printer interfaces, they talk about the Grappler + . With over 150,000 units sold, the Grappler + series has become the most widely recognized product of its kind.

The parallel Grappler + comes with or without buffering, and offers a special version for Dataproducts color printers. With over 27 built-in commands, the Grappler + lets you print graphics with a wide array of





can have an Orange

Interface?



The Incredible Lab

Vis\Bridge/Sort

Templates out of sorts? This VisiCalc utility sorts data according to your specifications.

\$89 from Solutions, Box 989, Montpelier, VT 05602, (802) 229-0368.

Global Program Line Editor

Debug listings, search and replace at warp speed, modify those long BASIC programs easily—a must for the serious Applesoft programmer.

\$49.95 from Beagle Bros, 3990 Old Town Avenue, Suite 102C, San Diego, CA 92110, (619) 296-6400.

Homeword

Worth a thousand words: Icon-driving makes this inexpensive word processor especially easy to use. \$69.95 from Sierra, Sierra On-Line Building, Coarsegold, CA 93614, (209) 683-6858.

Speed Reader II

Evelyn Woods, watch out: Increased productivity is the goal of six challenging activities that replace poor reading habits with good ones. \$69.95 from Davidson & Associates, 6069 Groveoak Place, #12, Rancho Palos Verdes, CA 90274, (213) 378-7826.

Elementary Volume 6— Social Studies

"You are there" when history comes alive in simulations children follow to trace the development of the United States. \$49 from MECC, 3490 Lexington Avenue North, St. Paul, MN 55112, (612) 481-3500.

The Incredible Laboratory

Igor, fetch the beaker of blue goo. Kids form and test hypotheses and discover how chemical combinations create various monster configurations.

\$55 from Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570, (914) 769-5030.

Joystick

A rugged, all-purpose joystick for the serious gamer. \$59.95 from Personal Peripherals (P.P.I.), 301 East Whaley, Suite A, Longview, TX 75601, (214) 758-8874.

GraForth

Create fast-action graphics without assembly language through the extensions in this special implementation of Forth. \$75 from Insoft, 7933 S.W. Cirrus Building, #23, Beaverton, OR 97005, (503) 641-5223.

The Factory

Figure it out for yourself with a program designed for fourth through ninth graders that teaches problemsolving skills.

\$55 from Sunburst Communications, 39 Washington Street, Pleasantville, NY 10570, (914) 769-5030.

Robot Odyssey

Boolean logic is fun when you build robots to solve this adventure. A sophisticated, hi-res way to learn about basic robotics and computer chips. \$49.95 from The Learning Company, 545 Middlefield Road, Suite 170, Menlo Park, CA 94025, (415) 328-5410.

War in Russia

Can you alter the course of history? Reenact the German invasion of Russia (1941–44) in a simulation that includes both laminated paper and hi-res maps. \$79.95 from Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94043, (415) 964-1353.

Math Maze

Guide a spider through 40 mazes of basic math problems. \$45 from DCH Software, 125 Spring Street, Lexington, MA 02173, (800) 428-8071.

Apple Logo //

Don't sit there like a turtle on a log: Introduce your family to this easy-to-learn programming language and take command of your computer.

\$100 from Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014, (800) 538-9696.

Survival Math

Simulations in this package (Smart Shopper Marathon, Hot Dog Stand, Travel Agent Contest, and Foreman's Assistant) keep youngsters one step ahead of those who would separate them from their cash. \$55 from Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570, (914) 769-5030.

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.

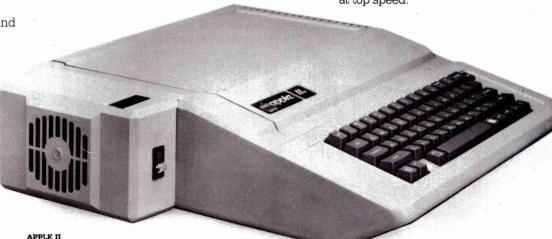
System Saver clips surges and spikes at a 130 Volts RMS/175 Volts dc level. A PI type filter attenuates common and transverse mode noise by a minimum of 30 dB from 600 kHz to 20 mHz with a maximum attenuation of 50 dB. You end up with an Apple that's more accurate, more efficient and more reliable.

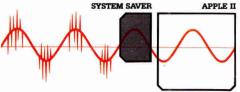
System Saver lets your Apple keep its cool.

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

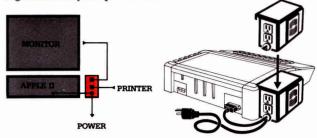
slots. It leaves your Apple cool, calm and running at top speed.





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. 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.



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

inCider's **Holiday**Shopping Guide

Arcademic Skill Builders in Language Arts/Math

Teaching tools with arcade action: Alien Addition, Minus Mission, Meteor Multiplication, and Demolition Division teach fundamental math; Word Man, Word Invasion, Verb Viper, and others attack language-arts skills.

\$44 each from DLM, One DLM Park, Allen, TX 75002, (214) 248-6300.

ProDOS User's Kit

The latest operating system for the Apple II is faster and more flexible than good old DOS. If you plan to keep your computer for the next few years, then you need ProDOS.

\$40 from Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014, (800) 538-9696.



Binary Watch

Bank Street Writer

You and your children can bank on one of the easiest (and cheapest) word-processing programs available. \$69.95 from Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 479-1170.

Fontrix

For highly detailed graphics work, this extends your monitor to the size of 16 hires screens you can send to a dot-matrix printer. \$75 from Data Transforms, 616 Washington Street, Denver, CO 80203, (303) 832-1501.

Binary Watch

Don't be late for your 1011 o'clock appointment. Check your quartz watch with hours marked in binary numbers. Men's and women's versions come with battery and leather strap. \$49.95 from Sweet Gum, 15490 N.W. 7th Avenue, North Miami, FL 33169, (305) 687-9338 in Florida; (800) 237-9338 elsewhere.

Apple Tote Bags

Make your getaway with designer tote bags sporting the Apple logo. Made of Caprolan nylon, these lightweight totes show your true colors. \$45 for gear bag; \$32 for daypack; \$32 for zippered tote from Apple Computer, The Apple Collection, P.O. Box 306, Half Moon Bay, CA 94019, (800) 632-7979 in California; (800) 227-6703 elsewhere.



Gold Card

Worth its weight in gold, DRI's entry into the Z-80 coprocessor market is a value. And where better to buy a board that runs CP/M than from the makers of CP/M? \$350 from Digital Research, P.O. Box 579, Pacific Grove, CA 93950, (408) 646-6230.

TASC

Compiled Applesoft programs run, on the average, three to seven times faster than interpreted Applesoft programs. Who needs to learn 6502 assembly language, anyway?
\$160 from Microsoft, 10700 Northup Way, Bellevue, WA 98004, (206) 828-8080.

Modem Starter Set

If you can't afford \$400-\$500 for a modem and communications software, check out Zoom's products. With this package, all you'll need to get on-line is a telephone number.

\$129 from Zoom Telephonics, 207 South Street, Boston, MA 02111, (800) 631-3116.

VAX-11/780

Complements your Apple system. Just boot your Apple with some VT52 or VT100 simulation software and take control of all those megabytes of RAM and gigabytes of direct access storage that come with your VAX. The perfect gift for a casual acquaintance. \$184,000 (base price) from Digital Equipment, 146 Main Street, Maynard, MA 01754, (617) 897-5111.

Palette

Turn hi-res graphics into sparkling slides and prints. The software lets you modify colors for best results using Polaroid instant or 35mm film. \$1499 from Polaroid. 575 Technology Square, Cambridge, MA 02139, (617) 577-2012.

Back-up Your Floppy with Diversi-Gopy

A New Breakthrough

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

Diversi-Copy.

Don't get burned by a bad disk!

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

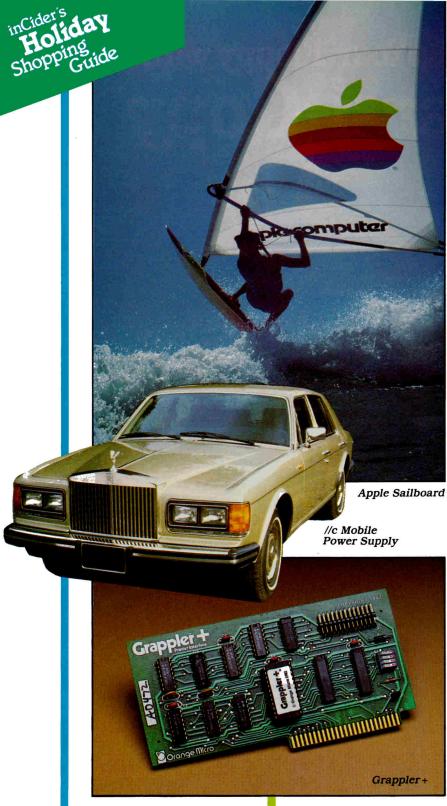
Start your own CB-simulator on an Apple with 7 modems. Try our station at 815-877-9521 (300-baud modem).

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

□ Diversi-Copy \$30 ☐ ST □ Diversi-DOS \$30
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:



Apple Sailboard

Sail the seas on this polyethylene board for beginner and seasoned sailor alike. Emblazoned on one of its two Dacron sails-a 52-square footer-is a gigantic Apple logo.

\$899 from Apple Computer, The Apple Collection, P.O. Box 306, Half Moon Bay, CA 94019, (800) 632-7979 in California; (800) 227-6703 elsewhere.

Micro-Ear

Knock, knock. Who's there? Connect this voice recognition system to your Apple via an RS-232 interface and it will recognize up to 256 words in anyone's voice. Demo software includes voice-controlled video games.

\$579 from Arctec Systems, 9104 Red Branch Road, Columbia, MD 21045, (301) 730-1237.

//c Mobile Power Supply

The //c's most frustrating limitation is its dependence upon a clunky external power supply. This Christmas, consider the ultimate 12-volt mobile power supply: the Rolls Silver Spirit. Hook up your //c to the cigarette lighter and relish the pleasures of transportable computing in style. \$98,500 (suggested USA retail price) from Rolls Royce, P.O. Box 476, Lyndhurst, NJ 07071, (212) 594-2586.

Omnis 2

Pascal-based data base manager that can also create form letters. \$195 from Organizational Software, 2655 Campus Drive, Suite 150, San Mateo, CA 94403, (415) 571-0222.

Grappler +

Get the picture with this parallel printer interface card that makes it easy to print out hi-res graphics. \$175 from Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807, (714) 779-2772.

Mockingboard //c

Listen to the mockingboard's arcade-level sound effects, synthesized speech, and stereo music. \$195 from Sweet Micro Systems, 50 Freeway Drive, Cranston, RI 02920, (800) 341-8001.

Hush 80 Printer

Weighing in at a mere 28 ounces, this 80-column, 80 cps thermal printer handles itself among the big guys. Battery-powered; parallel or serial model. \$159 from Ergo Systems, 1360 Willow Road, Menlo Park, CA 94025, (415) 786-3746.

JX-80 Color Printer

Color your world with a printer that features what you'd expect from dot matrix, and then some: frontpanel control, programmable characters, and seven bold colors.

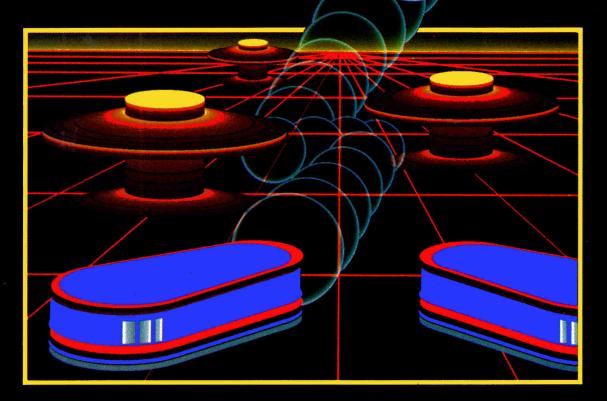
\$800 from Epson America, 3415 Kashiwa Street, Torrance, CA 90505, (213) 316-2557. ■

TAKE

Circle 156 on Reader Service card.

BREAKI

And Apple 11, Ap



WITH NIGHT MISSION PINBALL

You deserve the best. You've earned it. Now reward yourself with a session of Night Mission PINBALL, the most realistic and challenging arcade simulation ever conceived! ■ Stunning graphics and dazzling



sound effects put Night Mission PINBALL in a class by itself. Game features: multiball and multi-player capabilities, ten different professionally designed levels of play, and an editor that lets you create *your own* custom modes. ■ So take a break with Night Mission PINBALL from SubLOGIC. Winner of *Electronic Games* magazine's 1983 Arcade Award for Best Computer Audio/Visual Effects.

See your dealer . . .

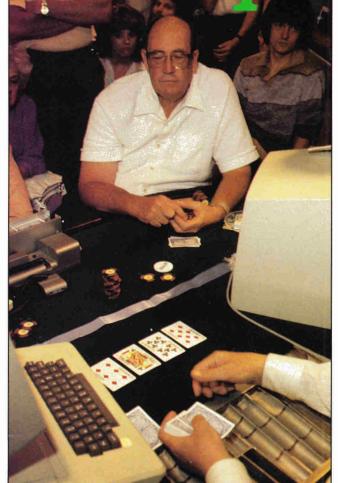
or write or call for more information. For direct orders please add \$1.50 for shipping and specify UPS or first class mail delivery. Illinois residents add 5% sales tax. American Express, Diner's Club, MasterCard, and Visa accepted.

Order Line: 800/637-4983



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

Read 'Em and Weep



an a computer play poker? Can an Apple computer hold its own in a challenge against the world's best poker players? Poker experts flatly refused to believe that a machine could even play the game. Computer experts thought it would be 20 years before a computer program could be designed to play on a world class level.

On May 13, 1984, the experts were proven wrong when an Apple computer programmed by renowned poker authority Mike Caro was a participant in the World's First Computer Poker Challenge, a media event scheduled as part of the Fifteenth Annual World Series of Poker at Binion's Horseshoe Hotel and Casino in Las Vegas.

Mike Caro is the editor-in-chief of *Poker Player* and the poker editor of *Gambling Times*. He has written several books about poker and gambling, including *Poker Without Cards*, *Poker for Women*, and *Caro on Computer*

Gambling. Considered by many as the best high draw poker player in the world, Caro is a world class poker player. His unorthodox playing style earned him the nickname, "The Mad Genius of Poker." Caro writes Pascal programs on his Apple II computer to produce the mathematics for the winning strategies described in his books and articles. He spent over a year perfecting his poker-playing program.

The World's First Computer Poker Challenge was scheduled for the day before the final event of the World Series. The game was no-limit Texas hold 'em, the same game that would determine the next world champion.

The first two to challenge the computer were reigning World Champion Tom "Grand Rapids" McEvoy, a former accountant who last year parlayed \$100 in a smaller "satellite tournament" into \$540,000, and two-time winner Doyle "Texas Dolly" Brunson, the first poker player to win more than \$1 million in tourna-

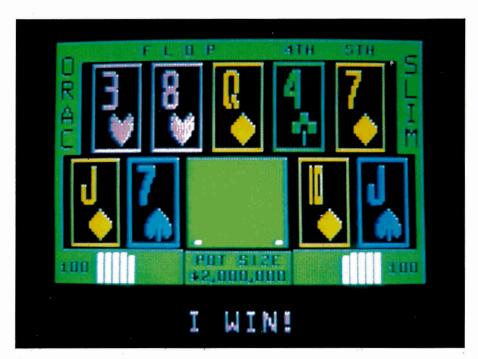
ment play alone.

The computer poker challenge was structured similarly to all tournament games. Players start with the same number of chips and play until one person has all the chips. The computer and its challenger each started with 100 chips and the minimum bet was set at one chip. The deal alternated between computer and opponent.

Before the hole cards were dealt, both players made blind bets. At the start of each hand, the dealer put one

Don't try to bluff Michael Wiesenberg at 420 Guinda Street, Palo Alto, CA 94301.

The Apple II took on the poker champs in the card game of the year. Would you play the odds?



chip into the pot and the nondealer, two. On the first round, the dealer was the first to act. He could either fold, call the one chip raise, or raise the bet (by any amount from one chip to all of his chips, or all of the opponent's if he had more than his opponent). On succeeding hands, the nondealer started the betting.

Commercial electronic poker games generate their own cards, but this method would never do for such a contest; poker players would not trust the computer to handle both sets of cards. They would be suspicious of the programmer's claim that the computer only knew its own hole cards and not its opponent's. So, just as in any tournament event, the hands were dealt by a professional dealer. Real cards were used, but slightly doctored to accommodate the non-human player. The Databar Corporation, of Eden Prairie, Minnesota, makers of optical scanners for home computers, supplied special decks with bar codes printed on the card faces. Databar's OSCAR (Optical SCAnning Reader) served as the computer's "eyes." For

each hand, the dealer dealt two cards face down to the opponent and two to the computer. A Databar representative slid the computer's hole cards, one at a time, up a short metal ramp. At the top of the ramp, each card slid over the reading tip of OSCAR, which transmitted the rank and suit directly to the computer. The computer's two hole cards remained face down on a solid platform just past the reading tip during the betting.

Two monitors were connected to the Apple. An NEC color monitor kept a running display of the play. Until the hole cards were shown, they were represented by their blank sides. As each face-up card was dealt, it appeared on the monitor, which also kept a running total of the bets. The other monitor, a Soroc black and white, was used for data input. As each face-up card appeared, Caro typed its value into the Soroc. Caro also entered the amount of the opponent's wager. The program generated its own bets, and displayed them on the NEC monitor.

The rest of the equipment consisted of three Apple disk drives and, for

by Michael Wiesenberg

speed, an Accelerator II board by Titan Technologies.

McEvoy played the computer first. He announced his bets verbally, and Caro entered them on the Soroc's keyboard. The computer displayed its own bets on the NEC screen. The two fenced cautiously for nearly an hour. At one point, the computer was ahead 140 chips to McEvoy's 60. Poker experts were impressed with the computer's aggressive style and its often tricky tactics. More than once the computer bet, McEvoy raised, the computer raised again, and McEvoy folded. Since McEvoy did not call those bets, the computer's cards were shuffled back into the deck and Caro never knew what the cards were.

Once, McEvoy had 66 chips and raised all his chips before the flop (when three cards are dealt face up and there is another betting round). The computer called. The computer held the ace and 4 of spades while McEvoy held the ace of diamonds and 8 of hearts. Although McEvoy started with the best, his bet was actually what poker experts call a semi-bluff.

More often than not, if he makes an all-in bet on these cards and the computer calls, he is beat. The community cards (10 of clubs, 4 of hearts, 8 of clubs, 7 of hearts, 10 of hearts) gave the comptuer 10's and 4's, and McEvoy 10's and 8's. The chips then stood at 138 for McEvoy, and 62 for the computer. That was a crucial hand. Had the computer won the hand, the match would have been over.

Soon, with the computer down to 43 chips, McEvoy bet all. The computer called. The computer started with the better hand, a very respectable ace and queen of diamonds. McEvoy had the ace and 9 of two dif-

"Lady Luck was not with the computer this time."

ferent suits. The flop was 9 of clubs, 8 of hearts, 2 of diamonds, 3 of clubs, 8 of clubs. McEvoy ended up with a pair of 9's, and the computer didn't help. The first match was over. Poker play-

ers call this going in with the best and getting drawn out on.

Two-time world champion Doyle Brunson, referred to as the best poker player in the world, next tested the computer's skill. In a surprise opening, Brunson bet all on the first hand, feeling that "there was no chance any computer would call." Caro, however, prepared the Apple for just such a possibility. The computer was instructed to call with even a medium strong hand in any all-in bet situation on the first hand.

This strategy did not work out as well as expected, though. The computer had the ace of diamonds and 7 of diamonds. Brunson had better—the ace and 9 of different suits. Lady Luck was not with the computer this time and did not "draw out on" the champ. Score one more for the humans.

Now trailing two matches to none, Caro accepted Brunson's offer of a rematch. Rather than play for the glory of the challenge, this time real money was wagered with Brunson laying the computer at 2 to 1. He later stated that at the time he would have been willing to lay odds at 10 to 1.

Poker then became serious. Brunson and the computer traded bluffs, bets, and check-raises for 50 minutes. When the match was suspended so that reporters could attend a press conference, the computer was ahead by 58 chips. Brunson expressed amazement at the machine's performance.

"I was very impressed with the computer. I'd like to take 2 to 1 and bet on the computer against anyone in the world," Brunson said. "I'm not sure it's the favorite against world class players, but if all seven matches [that had originally been scheduled] were played, it sure would have won some of them."

Score one draw for the computer.

Most experts agreed that the computer made no major errors in more than two hours of intense competition.

Caro plans on marketing a home version of his game with possible cash prizes for anyone who can beat the computer ten games in a row. Larger prizes would be awarded for more wins—perhaps as much as \$10,000 for 14 wins. Caro envisions his game as creating the same tensions that exist in an actual poker tournament. Someone winning ten games would have to decide whether to take the sure winner, or risk it all in an attempt to win more. How's your poker face?



cringe? Because we're Anchor Automation, one of the world's leading

away from the pack.

independent modem makers.

Visit your local computer store, today! Kick the tires. Look under the hood.

Compare what you pay with what you

get. You'll find the VOLKSMODEM 12 runs

Ave., Van Nuys, CA 91406. (818) 997-6493.

A Leader in Modem Technology

Anchor Automation, Inc., 6913 Vallean

NCHOR AUTOMATION

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. 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

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.

Circle 268 on Reader Service card.

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



It's Christmas and Apples are in Season.

Christmas again. If a relative or friend owns an Apple II computer, you ought to start thinking about what to give them for Christmas.

Why not give them the most useful gift of all, user-friendly information. Information like that found only in inCider magazine, the Apple II Journal. inCider takes the difficulty out of learning about Applesoft, graphics programming, assembly language, games, business and educational applications. inCider makes computing easier and more fun. Isn't that what gift giving is all about? So, when it comes to Christmas this year, give **inCider**.



The Apple II Journal	
CHECK/MO MC VISA AE Bill me (Please make checks payable to inCider) Card #	Norman Weletring on the Arthrophysics of the Arthro
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. A subscriptions will begin with the January 1985 issue.	64DF5
CW Communications/Peterborough • inCider • PO Box 911 • Farm	ningdale, NY 11737

inCider's inSidious inSolubles

kay, all you inSoluble fans, time to check the authenticity of your Apple II. Perform this inGenious test from a cold start. If you have the autostart ROM, make sure your Hello program does absolutely nothing, or hit the reset key to stop Apple from booting DOS. Now type PRINT PEEK (230). What did Apple say? It should have been zero or 255. Anything else and the pedigree of your machine is suspect. Taiwan? Korea? inSidious, isn't it? No prizes here, just something that turned up from inside the 47th parallel and I thought you'd like to know.

Now back to our usual (unusual?) assortment of brainteasers, puzzles, and erroneous results. Remember, an inCider inSoluble is not a contest-at least, not one that produces prizes or trophies. It may challenge your BASIC programming abilities and provide a few hours of fun but, sorry, no monetary rewards for correct solutions (only for published submissions). If you're new to our inSidious programs and want some inSights, remember an inSoluble is an Applesoft BASIC program that has one or more problems, errors, mistakes, or some inTangible inAccuracy submerged within.

Most submissions are from readers whose programs developed the same problems their puzzles display. By submitting an inSoluble and having it published, you will receive \$20—an easy way to turn bugs into bucks.

Key in the listing, and type RUN, and hope for the best. If your typing is accurate you won't get a syntax error, but what you'll see is not what you'd expect. Or is it? Just follow the simple rules to solve or submit an inSoluble.

Rules for inSidious inSolubles

- 1. An inSoluble must be a BASIC Applesoft program. Any POKEd machine-language subroutines and CALLs to that subroutine must be correct.
 - 2. The program must accomplish

something; when it's run it should produce some kind of result.

- 3. No error message should occur. If one does, check your typing.
- 4. A short explanation of the program's purpose is necessary and may contain clues to the problem.
- 5. The program may use common peripherals such as disk, printer, and modem. DOS 3.3 or ProDOS commands are acceptable.
- 6. More than one error may appear in the program.

When submitting your puzzles, remember to provide the solution, and please include an SASE if you'd like a reply to your entry before it appears within these pages. The shorter the in-Soluble, the better—but we like programs that do something useful.

The Rainbow

David Shields of Akron, Ohio, likes the serene beauty of a colorful rainbow spread over a quiet green meadow. His program, The Rainbow, produces just such a picture. Dave tells us that if you find something wrong, just remember that Roy G. Biv didn't do the programming. I think Dave must be kidding. What does he mean *if* we find something wrong? As Alice wanders around CompuLot, within these pages she *will* find things amiss. Rainbows, of course, are colorful things. Your Apple should have a color display.

Listing 1. The Rainbow.

10 REM THE RAINBOW
20 FOR A = 1 TO 7: READ C(A): NEXT
30 TEXT: HOME: GR: FOR I = 1 TO 7: COLOR= C(I)
40 FOR A = 1.725 TO 4.475 STEP.
025
50 PLOT (20 + SIN (A) * (12 + I)), (40 + COS (A) * (20 + I))
60 NEXT A: NEXT I
70 COLOR= 4: HLIN 0,39 AT 36
80 DATA 1,9,13,12,7,6,3

The Data Disk Maker

Our second in Soluble comes from Harvey David Heilbrun of Manorville, New York. Watch out for this one. Harvey wanted to initialize a data disk to store music records for his school. His solution was to write a program that initialized a disk and locked the Hello program on the disk. The Hello program would state that it was a data disk used only for storage. Harvey solved his problem nicely, and all went fine until some smart aleck boot-



by Art Ude



	COMP	UTERS		
Apple Ile's & Ilc's			call	Bank Stree
		TORS	AE 10.05	PFS:Write
Amdek 300 A	\$159.95	Amdek Color 600 RGB		PFS:Proof Homeword
Amdek Color I +	299.95	NEC JB 1201 A	159.95	Homeword
Lieuw Court 2000 III		EMS	200005	Apple Writ
	499.95	MicroCom ERA2 Prometheus Pro 1200	369.95	Sensible S
Hayes Smart 1200		Prometheus Pro 1200A		ScreenWri
		S & ACCESSORIES		Word Han
		Synetix	_	Wordstar v
ALS Z80 CP/M 3.0+			\$309.95	Wordstar F
Cnt. Pt. Wildcard 2	109.95	Flashcard 288 kb	449.95	Format II I
IQ Smartcable	69.95	Sprite I	119.95	Business Multiplan
Koala		Sprite II	199.95	PFS: File
Graphics Pad		Supersprite	309.95	PFS: Repo
Gibson Light Pen	189.95	VideoSprite	749.95	PFS: Grap
Kensington System S		TG Joystick	34.95	PFS Acces
Kraft Joysticks	39.95	TG Paddles	29.95	Think Tank
Hayes Joysticks M 3 Microsoft	39.95	Titan Technologies Accellorator II/IIE	429.95	Home Acc
Z80 CP/M Softcard	22995	64k Ram II+	259.95	Tax Advan
Premium Pack II +			319.95	Dollars &
Premium Pack IIe	299.95	Neptune 64k + 80	199.95	Apple Wor
Premium IIe w/d:BASE		Neptune 128k +80		Apple Q F Apple BPI
PCPI		Neptune 192k+80	339.95	ASCII Exp
Appli 6mz 64 Ex	339.95			Crosstalk
Appli 6mz 128 Ex	399.95	Videoterm w/ss	219.95	dBase II
Street	20.05	Ultraterm	269.95	DJ Inv/Eva
ECHO II Cricket IIc	99.95 139.95	Ultraplan	119.95	DJ Market
	1414	DRIVES	_	DJ Investo
	\$269.95		\$240.05	DJ Spreads
Rana Elite III 652kb	469.95	Micro Sci A70 286kb		Home * Ed Entertainn
Haria Eliko III OOEKB	HARD		000.00	Lintertainii
Corvus Omni Dr. 5			\$4199.95	Hardware
Corvus Omni Dr. 16				Kensington
GRAPHIC	INTERF	ACES & BUFFERS		Mac Surge
Fingerprint	\$119.95		\$194.95	Mac Swive
Print-It	169.95	Grappler w/64k	229.95	Mac Mode
PKASO/U	149.95	Quadram 32k Fazer	179.95	Mac Disk
Grappler +	119.95	Quadram 64k Fazer	194.95	Tecmar 5 Mb. Ren
Grappler w/16k	179.95	Quadram 128k Fazer	2/4.95	10 Mb. Fix
		OT MATRIX		MicroCom M
Apple Imagewriter \$		Gemini Delta 10	369.95	Prometheus
Apple Scribe C. ITOH 8510			479.95 539.95	Novation M
			629.95	Apple
Epson RX 80		NEC Pin 10	669.95	Macintosh
Epson RX 80 F/T	319.95	NEC Pin 15	869.95	Ext. Drive
Epson RX 100			709.95	Numeric F
Epson FX 80	419.95		399.95	Disks (10) Artsci MacF
Epson FX 100	599.95	Okidata 92 Imagewtr.		Software
Epson JX 80 Color	599.95	Okidata 93	609.95	Games * P
Gemini 10x	279.95		1299.95	Mac Fun-F
Gemini 15x	379.95	Toshiba P1340	729.95	Macalenda
		TER QUALITY		Zork I
DW 2000 33cps 48k			1699.95	Zork II or I
		Silver Reed 400 12cps	299.95	Witness
Dynax DX 25 23cps				Deadline
Dynax DX 35 36cps NEC 2010/2030 20cps		Silver Reed 550 17cps Star PowerType 17cps		Enchanter
NEC 2010/2030 20cps NEC 3515/3530	1299.95	oral rower type trops	000.00	Infidel
		FOR IIe & IIc		Planetfall Sargon III
Word Processing	TAIN!		\$ 29.95	Pensate
				· crisate

		MICIO COOKDOOK	
PFS:Proof	54.95	Owlcat 15hr SAT	69.95
Homeword	49.95	Owlcat 60hr SAT	189.95
Homeword Speller	39.95	Crossword Magic	39.95
Apple Writer IIe	169.95	Print Shop	39.95
Sensible Speller IV	79.95	Math Blaster	39.95
ScreenWriter Pro	84.95	Word Attack	39.95
Word Handler	54.95	Speed Reader II	39.95
Wordstar w/Star	319.95	Alphabet Zoo	19.95
Wordstar Pro w/Star	419.95	Story Machine	24.95
Format II Enh.	109.95	Apple Logo	89.95
Business * Persona		Terrapin Logo	69.95
Multiplan	139.95	Grandma's House IIc	
PFS: File	79.95	Graphics Magician	42.95
PFS: Report	79.95	Sideways	42.95
PFS: Graph	79.95	Beagle Basic	24.95
PFS Access	54.95	Beagle DiskQuick	19.95
Think Tank	109.95	Beagle Apple Mechani	c 19.95
Home Acct. En.	54.95	Data Capture 4.0	45.95
Tax Advantage	49.95	Flight Simulator II	39.95
Dollars & Cents	79.95	Champ Lode Runner	
Apple Works	219.95	Choplifter	29.95
Apple Q File IIe	89.95	Zork 1,2,3	29.95
	324.95		
	94.95	Seastalker Sorcerer	29.95 39.95
ASCII Exp. Pro.			
Crosstalk	129.95	Deadline	34.95
dBase II	399.95	Sargon III	39.95
DJ Inv/Eval.	99.95	Beyond Castle Wolf.	29.95
DJ Market Anal.	249.95	Zaxxon	29.95
DJ Investors Wks. IIc		Objective Kursk	29.95
DJ Spreadsheet Lnk.	169.95	Exodus Ultima III	45.95
Home * Educationa Entertainment		Xyphus	24.95
	-	Exp. Amazon	24.95
MA	CINTOS	H SECTION	24.53
MA Hardware	CINTOS		
MAG Hardware Kensington	CINTOS	H SECTION	
MACHardware Kensington Mac Surge \$	39.95	Graphic Magician \$ Exodus Ultima III Frogger	34.95
MAG Hardware Kensington		H SECTION Graphic Magician \$ Exodus Ultima III	34.95 45.95
MACHardware Kensington Mac Surge \$	39.95	Graphic Magician \$ Exodus Ultima III Frogger	34.95 45.95 29.95
MACHardware Kensington Mac Surge \$ Mac Swivel	39.95 25.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen	34.95 45.95 29.95 29.95
MACHARION MACKENSINGS SMAC SWIVE MAC MODERN MAC DISK PAC	39.95 25.95 109.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire	34.95 45.95 29.95 29.95 44.95
MACHardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar	39.95 25.95 109.95	Graphic Magidian \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III	34.95 45.95 29.95 29.95 44.95 39.95
MACHardware Kensington Mac Surge Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem.	39.95 25.95 109.95 24.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank	34.95 45.95 29.95 29.95 44.95 39.95 39.95 99.95
Hardware Kensington Mac Surge Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed	39.95 25.95 109.95 24.95 1519.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series	34.95 45.95 29.95 29.95 44.95 39.95 39.95 99.95
Hardware Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Jecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem	39.95 25.95 109.95 24.95 1519.95 169.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95
MACHardware Keensington Mac Surge \$ Mac Swivel Mac Modern Mac Disk Pac Fecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac	39.95 25.95 109.95 24.95 1519.95 169.95 399.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 29.95
Hardware Kensington Mac Surge \$ Mac Swivel Mac Swivel Mac Disk Pac fecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat	39.95 25.95 109.95 24.95 1519.95 169.95	H SECTION Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub.	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 29.95
MACHardware Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Business * Utilities	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac fecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95 call 409.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95
MACHardware Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95 call 409.95 89.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 29.95 39.95 39.95 119.95 59.95
MACHARDWARE Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Idecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10)	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95 call 409.95 89.95 44.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Swivel Mac Modern Mac Disk Pac fecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95 call 409.95 89.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense	34.95 45.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 119.95 59.95 99.95
MACHARDWARE Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 399.95 389.95 call 409.95 89.95 44.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 119.95 59.95 69.95 79.95
MACHARDWARE Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 call 409.95 89.95 44.95 149.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Flee	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 79.95 79.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modern Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 call 409.95 89.95 149.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Susiness * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report PFS: File/Report	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 99.95 79.95 79.95 139.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 389.95 281 409.95 89.95 44.95 149.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: File/Report Megamerge	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 49.95 69.95 99.95 79.95 79.95 79.95
MAI Hardware Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork	39.95 25.95 109.95 24.95 1519.95 1519.95 469.95 389.95 44.95 44.95 149.95 29.95 29.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report PFS: Fiel/Report Megamerge Main St. Filer	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 99.95 79.95 139.95 79.95 149.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modern Mac Disk Pac fecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork Zork Zork Zork Jore Ill	39.95 25.95 109.95 24.95 1519.95 1519.95 399.95 389.95 409.95 89.95 149.95 149.95 29.95 64.95 29.95 34.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Susiness * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report PFS: File/Report Megamerge Main St. Filer Habedex DB	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 79.95 79.95 139.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I Zork I o III Witness	39.95 25.95 109.95 24.95 1519.95 1519.95 399.95 399.95 389.95 44.95 149.95 29.95 34.95 29.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: File/Report Megamerge Main St. Filer Habedex DB Odesta Helix	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 79.95 79.95 149.95 139.95 149.95 139.95 269.95
MAI Hardware Keensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I Tor III Witness Deadline	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 call 409.95 89.95 44.95 149.95 29.95 34.95 29.95 34.95 29.95 39.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Click Art Pub. Olick Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report PFS: Report Megamerge Main St. Filer Habedex DB Odesta Heliix Filevision	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 79.95 79.95 139.95
MAI Hardware Kensington Mac Surge Mac Swivel Mac Modern Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I or III Witness Deadline Enchanter	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 44.95 149.95 64.95 29.95 64.95 29.95 34.95 29.95 34.95 39.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Click Art Pub. Susiness * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report Megamerge Main St. Filer Habedex DB Odesta Helix Filevision Microsoft	34.95 45.95 29.95 29.95 44.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 79.95 139.95 139.95 139.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I Zork I or III Witness Deadline Enchanter Infidel	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 call 409.95 44.95 149.95 29.95 34.95 34.95 34.95 34.95 34.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Gress * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: File/Report Megamerge Main St. Filer Habedex DB Odesta Helix Filevision Microsoft Chart	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 149.95 139.95 139.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Tecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I or III Witness Deadline Enchanter Infidel Planetfall	39.95 25.95 109.95 24.95 1519.95 469.95 389.95 call 409.95 44.95 149.95 29.95 34.95 39.95 34.95 34.95 29.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Click Art Pub. Click Art Pub. Click Art Pub. Olick Art Business * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: Report PFS: File/Report Megamerge Main St. Filer Habedex DB Odesta Helix Filevision Microsoft Chart File	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 119.95 79.95 139.95 149.95 139.95 139.95 139.95 139.95
MAI Hardware Kensington Mac Surge \$ Mac Swivel Mac Modem Mac Disk Pac Iecmar 5 Mb. Rem. 10 Mb. Fixed MicroCom MacModem Prometheus MacPac Novation MacCat Apple Macintosh Ext. Drive Numeric Pad Disks (10) Artsci MacPhone Software Games * Personal Mac Fun-Pac Macalendar Zork I Zork I or III Witness Deadline Enchanter Infidel	39.95 25.95 109.95 24.95 1519.95 469.95 399.95 389.95 call 409.95 44.95 149.95 29.95 34.95 34.95 34.95 34.95 34.95	Graphic Magician \$ Exodus Ultima III Frogger Murder by Dozen Millionaire Typing Tutor III Run for Money Think Tank Devinci Series Mirage Trivia Mac the Knife Click Art Pub. Gress * Utilities MacForth Lev 1 Dow Jones ST Home Accountant Dollars & Sense PFS: File PFS: File/Report Megamerge Main St. Filer Habedex DB Odesta Helix Filevision Microsoft Chart	34.95 45.95 29.95 29.95 39.95 39.95 39.95 39.95 39.95 39.95 39.95 59.95 69.95 79.95 79.95 149.95 139.95 139.95

SOFTWARE FOR IIe, IIc

49.95

79.95

Sim. Sch. T Tutor 3

Micro Cookbook

Bank Street Speller

ed Harvey's storage disk. Careful now! Dave and Harvey each receive \$20 for their inSoluble submissions.

Write to Art Ude c/o inCider, 80 Pine Street, Peterborough, NH 03458.

Solutions on page 146.

Listing 2. The Data Disk Maker.

```
REM DATA DISK MAKER

D$ = CHR$ (13) + CHR$ (4)

TEXT : HOME : VTAB 12: PRINT

"INSERT BLANK DISK YOU WANT

INITIALIZED": PRINT : PRINT

"DRESS (CRACE BAR) TO BECIN"
 200 D$ =
                                  "PRESS (SPACE BAR) TO BEGIN"
                         "PRESS <SPACE BAR> TO BEGIN"
;
GET AK$: HOME : VTAB 12: PRINT
: FLASH : PRINT "WARNING": NORM
: PRINT "ANYHTING ON THIS DI
SK WILL BE ERASED!"
PRINT "PRINT "PRESS <SPACE
BAR> TO CONTINUE";: GET AK$
HOME : FLASH : VTAB 12: PRINT
"PLEASE WAIT WHILE I INITIAL
IZE THE DISK": NORMAL
PRINT D$; "NOPEN DISK"
PRINT D$; "WOPEN DISK"
PRINT "SAVE HELLO"
PRINT "SAVE HELLO"
PRINT "DELETE DISK"
PRINT D$; "CLOSE DISK"
PRINT D$; "CLOSE DISK"
PRINT D$; "CLOSE DISK"
REM ** STORAGE DISK **
REM ** STORAGE DISK **
REM ** BY HDH **
HOME : VTAB 12: PRINT "THIS
IS A STORAGE DISK ONLY"
END
900
 1100
 1200
  1300
1400
1500
1600
1700
1800
```

Corrections

In "The Compleat Text File Primer, Part 7" by Lee Swoboda, October '84, the end of the Visi-Data listing on page 99 is erroneously marked with a "Listing continued." Please disregard it.

The Product Information box in "Capturing Big Games," page 65 of the November '84 issue, contains an incorrect phone number. Thirdware Computer Products, manufacturers of FingerPrint, can be reached at (305) 592-7522.

"Recover a Protected File in MBASIC" by Michael Galler, a Hint 'n' Technique in the September '84 issue, contains an error. The list of commands at the top of the third column of page 91 is incomplete. The complete sequence of commands follows:

DDT M628F, last-byte, 101 S100 FF

control-C SAVE no-pages SECRET.BAS

12 School Street • Peterborough, NH 03458

OF PETERBOROUGH

Microsoft T Tutor 2

BUSINESS COMPUTERS

19.95

SHIPPING 800-845-3003

CONTINENTAL US

2795

QUESTIONS

Word

Mac Bas

13995

109.95

VISA

Bank Street Writer



icroProse Software 10616 Beaver Dam Road, Hunt Valley, MD 21030

The Action is Simulated — the Excitement is REAL!! (301) 667-1151



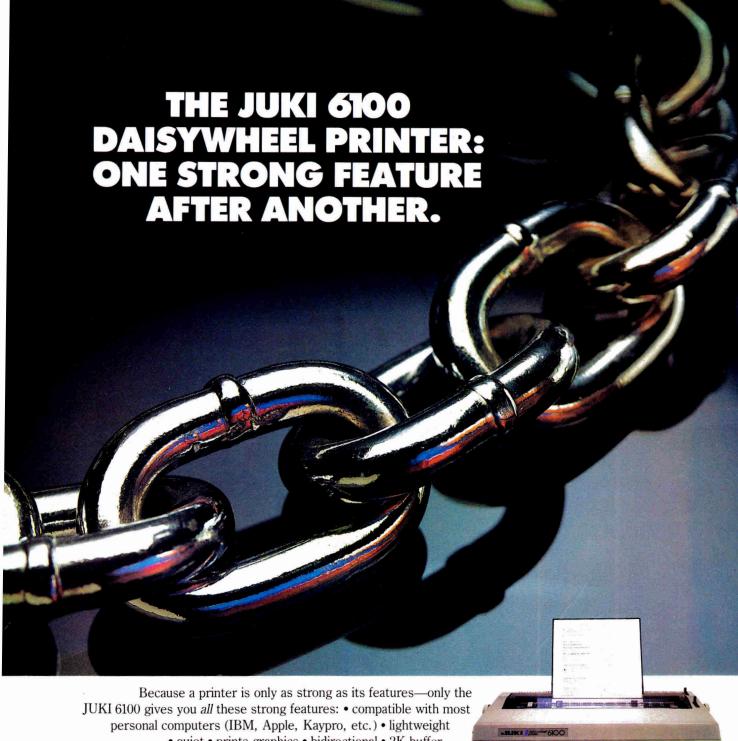
Heart Pounding, Accelerated Real-Time Challenging and Exciting Air Combat from the Defense of Europe Against Soviet Invasion!!!



Exciting 3-Dimensional Aerial Combat Over Europe in World War II!!

Bill Jr. loves the fun of flying — with SOLO FLIGHT

SOLO FLIGHT is a real flight simulator that includes VOR's, ILS, 21 different airports, VFR, and IFR flying. SOLO FLIGHT is easy to get started with, but you will get hooked on its Fun and Excitement!! Try to master



• quiet • prints graphics • bidirectional • 2K buffer

memory (expandable to 8K) • bidirectional tractor feed option • proportional spacing • 100-character drop-in daisywheel • uses inexpensive, easy-to-find IBM Selectric II[®] ribbon • ALL FOR UNDER \$600!

JUKI 6100: feature for feature, it's the best all-round printer anywhere. Could it be the "missing link" your personal computer system needs? Ask to see the JUKI 6100

at your local JUKI dealer.

The worker.

JUKI INDUSTRIES OF AMERICA, INC.

ACORN DATA PRODUCTS 7042 S. Revere Pkwy. Ste 50 Englewood. CO 80112 (303) 799-8900 Serving MT, WY, CO, UT, NM

OSSMANN COMPUTER **TECHNOLOGIES**

6666 Old Collamer Rd East Syracuse NY 1305/ (315) 437-6666 Serving UPSTATE NY

BUTLER ASSOCIATES, INC. 82A Winchester St. Newton, MA 02161 (617) 964-5270 Serving ME, NH, VT. MA, CT, RI

CM DISTRIBUTION 7023 Little River Triple Annandale, VA 22003 (703) 750-3885 Serving MD. DE. DC. VA

COMPUTER SERVICES INTL 560 Sylvan Ave Englewood Cliffs, NJ 07632 (201) 569-6300 METRO NY E PA N.I

CYPRESS DISTRIBUTING CO. 1266 Lincoln Ave., Ste 109 San Jose, CA 95125 (408) 297-9800 Serving N. CA, NV. AZ

GENTRY ASSOCIATES INC. 7665 Currency Dr Orlando, FL 32809 (305) 859-7450

Serving: Serving: Serving: WI, IL, MN, IA, MO, NE, ND, SD, KS WESTERN MICRO TECHNOLOGY

2420 E. Oakton St., Unit K Arlington Heights. IL 60005 (312) 228-5480

MICRO SOURCE OF TEXAS INC. 670 International Pkwy Richardson, TX 75081 (214) 690-5111 Serving: TX. OK. AR. LA

NATIONAL HEADQUARTERS: JUKI INDUSTRIES OF

WEST COAST: JUKI INDUSTRIES OF AMERICA, INC DA DIVISION 299 Market St. Saddle Brook. N (201) 368-3666

SOUTHERN MICRO DISTRIBUTORS

Serving TX OK AR LA

STAR-TRONIC DISTRIBUTING CO. 23976 Freeway Park Dr Farmington Hills. MI 48024 (313) 477-7586 Serving MI IN OH KY W PA. WV

TECHNOLOGY MARKETING CORP. 2300 Valley View Lane. Ste 109 Dallas. TX 75234 (214) 243-7994 Serving TX OK AR LA

VITEK 930G Boardwalk Ave San Marcos, CA 92069 (619) 744-8305

10040 Bubb Road Cupertino, CA 95104 (408) 725-1660 N CA NV AZ

INFORMATION SYSTEMS INC.

CALIFORNIA DIVISION

BUILD a better MOUSEPAINT

by Stephen Jones

The graphics in this article were printed directly from Mouse-Paint through the author's

ithout both an Apple printer and an Apple printer interface card, you can't print a picture directly from MousePaint. You must save it as a MousePaint disk file, exit MousePaint, and then use another program to dump this picture file to your printer. I didn't have such a program, so I wrote PIC.DUMP to integrate a print routine with MousePaint while providing print options not included in the MousePaint program.

Where There's a Will . . .

If you own an Apple II Plus, //e, AppleMouse II with MousePaint, and a printer interface card other than an Apple, then this article is for you. The PIC.DUMP program should work with most printer configurations after you change the print control codes that dump the picture (lines 500-550). Check your manual to see which codes work with your setup.

To implement the picture dump routine:

- 1) Change the STARTUP program on your back-up copy of MousePaint to the one in Listing 1. Type SAVE/ MOUSEPAINT/STARTUP to save this revised STARTUP.
- 2) Type in PIC.DUMP (Listing 2) and save it to the MousePaint disk. Name it PIC.DUMP as in the STARTUP program. Type SAVE/MOUSEPAINT/PIC .DUMP to save it.
- 3) Boot the MousePaint disk. Select the menu option you need. The P op-



Listing 1. STARTUP.

```
REM
20
             REM
3Ø
4Ø
5Ø
            REM
            REM
6Ø
7Ø
            REM
            REM
 80
             REM /MOUSEPAINT/STARTUP PGM
90
            REM
                           REVISED FOR PRINTING WITH
                               NON-APPLE CONFIGURATIONS
               REM
              REM NON-APPLE CONFIGURATIONS

D$ = CHR$ (4): REM CTRL-D

B$ = CHR$ (7): REM CTRL-G, BELL

HOME: VTAB 5: PRINT "... MOUSEPAINT ..."

PRINT : PRINT "IP INTRODUCTION TO MOUSEPAINT": PRINT "<M> GO DIRECTL

Y TO MOUSEPAINT": PRINT "<P> PRINT A MOUSEPAINT PICTURE FILE": PRINT

: PRINT "SELECT ONE -> ":: GET 58: PRINT 5$

IF 5$ = "I" THEN PRINT D$;"-/MOUSEPAINT/START.INTRO"

IF 5$ = "M" THEN PRINT D$;"-/MOUSEPAINT/INTRO/MOUSEPAINT"

IF 5$ = "P" THEN PRINT D$;"-/MOUSEPAINT/PIC.DUMP"

PRINT B$: GOTO 130
110 D$ =
120 B$ =
                PRINT B$: GOTO 130
```

```
REM
                                                                                   Listing 2. PIC.DUMP.
 3Ø
           REM
5Ø
           REM
           REM
           REM
70
8Ø D$ =
9Ø I$ =
                         CHR$ (4): REM
CHR$ (9): REM
CHR$ (7): REM
                                                                       CTRL-D
           CTRL-I
100 B$ =
              120
                                                                                                                                                           ...................
140
                                                                                                                                                                  - PRESS (RTN) TO S
                                                                    ENTER PRINTER SLOT#": INVERSE : HTAB 5: PRINT "SLO
CALL - 868: PRINT " 1":: HTAB 14: INPUT "";S$: IF
160
               T# ->";: NORMAL : CALL - 868: PRINT " 1";: HTAB 14: INP
S$ = "" THEN S$ = "1": VTAB 21: HTAB 14: PRINT S$
S = VAL (S$): IF S < 1 OR S > 7 THEN PRINT B$: GOTO 160
17Ø S =
                            MAIN MENU
              ONERR GOTO 220
HOME : PRINT "
 190
200
                                                                                   <RTN> - SELECT DEFAULTS": PRINT "
                                                                                                                                                                                          SCTRL-O. R
                         - QUIT PROGRAM"
              TN' - QUIT PROGRAM:

VTAB 4: PRINT "1. ENTER THE NAME OF THE PICTURE FILE TO";: PRINT "

PRINT, IN THE FORM: ";: INVERSE : PRINT "/PREFIX/FILENAME": NORMAL : PRINT

" ('/PREFIX/' CATALOGS 'PREFIX' DISK)"
                            7: HTAB 5: INVERSE : PRINT "FILE -> ";: NORMAL : CALL - 868: INPUT
                      ";NS
             "";N$
IF N$ = "" THEN PRINT B$: GOTO 220
IF N$ = CHR$ (17) THEN 560
IF RIGHT$ (N$,1) = "/" THEN PRINT
TO CONTINUE";: GET A$: GOTO 200
ONERR GOTO 290
 240
 250
                                                                                                    PRINT DS: "CAT": NS: PRINT "PRESS RETURN
 260
               VTAB 9: PRINT
                 TABB 9: PRINT "2. ENTER PRINT OPTIONS, WITH NO COMMAS": PRINT " AND NO SPACES.": PRINT : PRINT " D - DOUBLE SIZE";: HTAB 25: PRINT "R - ROTATED": PRINT " L - AT LEFT MARGIN";: HTAB 25: PRINT "E - ENH
               ANCED"
               PRINT : PRINT "
                                                              NOTE: PICTURES WILL AUTOMATICALLY BE PRINTED INVERS
280
             PRINT : PRINT " NOTE: PICTURES WILL AUTOMATICALLY BE PRINTED INV
E SINCE MOUSEPAINT DRAWS ON A WHITE BACKGROUND, WHICH WOULD
MALLY BE PRINTED AS BLACK."

VTAB 19: HTAB 5: INVERSE : PRINT "OPTIONS ->";: NORMAL : CALL - 6
PRINT " NORMAL";: HTAB 16: INPUT "";O$: IF O$ = "" THEN VTAB 19:
16: PRINT "NORMAL"; GOTO 33Ø
IF O$ = CHR$ (17) THEN 56Ø
FOR I = 1 TO LEN (O$):CH$ = MID$ (O$,I,1): IF CH$ < > "D" AND CO
> "R" AND CH$ < > "L" AND CH$ < > "E" THEN PRINT B$: GOTO 29Ø
NEXT I
                                                                                                                                                                                    VTAB 19: HTAB
 300
                                                                                                                                                                           > "D" AND CH$ <
 31Ø
 320
               NEXT I
               ONERR GOTO 340

VTAB 21: PRINT "3. ENTER NUMBER OF COPIES.": INVERSE: HTAB 5: PRINT "COPIES ->";: NORMAL: CALL - 868: PRINT " 1";: HTAB 15: INPUT "";C
 340
              VTAB 21: PRINT "3. ENTER NUMBER OF COPIES.": INVERSE:
"COPIES ->";: NORMAL: CALL - 868: PRINT "1";: HTAB:
"IF C$ = "" THEN C$ = "1"; VTAB 23: HTAB 15: PRINT C$
IF C$ = CHR$ (17) THEN 560
FOR X = 1 TO LEN (C$):Y$ = MID$ (C$,X,1):AY = ASC (YAR)
 35Ø
                                                                                                 MID$ (C$,X,1):AY = ASC (Y$): IF AY < 48
              FOR X = 1 TO LEN (CS):YS = MIDS (CS)
OR AY > 57 THEN PRINT BS: GOTO 340
NEXT X
C = VAL (C$): IF C < 1 THEN PRINT BS:
HOME: GOTO 430
REM ERROR PROCESSING
                                                      IF C < 1 THEN PRINT B$: GOTO 340
 390
 400
               PRINT B$: HOME : TEXT : VTAB 3: PRINT "THERE'S A PROBLEM FINDING FILE :": INVERSE : HTAB 7: PRINT N$: NORMAL : PRINT "BE SURE CORRECT DISK IS INSERTED AND FILENAME IS CORRECT."
410
               THE THE TOTAL TOTA
 430
               PRINT : PRINT "WHEN THE PICTURE IS DISPLAYED PRESS": PRINT " <RETURN
 440
               > - TO BEGIN PRINTING": PRINT " <ESC
P$: IF P$ = CHR$ (27) THEN GOTO 190
                                                                                                             <ESC>
                                                                                                                                        - TO ABANDON PRINTING": GET
               REM CLEAR HGR2 & LOAD PIC
 460
               HGR2
              ONERR GOTO 410: REM DISK FILE ERROR
PRINT D$; "BLOAD";N$; ",A$4000": REM BLOAD PIC INTO HIRES PAGE 2
GET A$: IF A$ = CHR$ (27) THEN 560
REM PRINT PICTURE
PRINT D$; "PR#";S: REM TURN ON PRINTER
PRINT CHR$ (27); ">": REM PRINTER CTRL CODES FOR UNIDIRECTION
 480
 500
 510
 520
                                                                                            PRINTER CTRL CODES FOR UNIDIRECTIONAL PRI
               NTING
                               = 1 TO C: PRINT I$; "G2I"; O$: PRINT CHR$ (12): NEXT I: REM DUMP
 530
                 HGR2 WITH OPTIONS
                                  CHR$ (27); "<": REM
 540
               PRINT
                                                                                              PRINTER CTRL CODES FOR BIDIRECTIONAL PRIN
               TING
               PRINT D$; "PR#Ø": REM
                                                                                  TURN OFF PRINTER
 55Ø
                            CLOSING MENU
              TEXT: HOME: VTAB 5: HTAB 5: PRINT "<P>RINT ANOTHER PIC": HTAB 5: PRINT "<M>OUSEPAINT": HTAB 5: PRINT "<Q>UIT": PRINT VTAB 9: HTAB 10: PRINT "SELECTION ->";: CALL - 868: INPUT " ";SL$: IF SL$ = "P" THEN 190"
 570
 580
              SL$ = "P" THEN 190

IF SL$ = "M" THEN NP$ = "/MOUSEPAINT/INTRO/MOUSEPAINT": GOTO 660

IF SL$ < > "Q" THEN PRINT B$: GOTO 580

HOME : VTAB 15: PRINT "ENTER /PREFIX/FILENAME OF NEXT PROGRAM": 1NPUT
"";NP$: IF NP$ = "" THEN HOME : VTAB 12: HTAB 17: PRINT "B Y E": VTAB
 590
 600
                                                                                                                                                       OF NEXT PROGRAM": INPUT
               23: END
 620
               GOTO 660
                          ERROR PROCESSING
 630
              REM ERROR PROCESSING
PRINT B$: HOME : VTAB 10: PRINT "THERE'S A PROBLEM FINDING FILE:": HTAB
5: INVERSE : PRINT NP$: NORMAL : PRINT "CHECK THAT CORRECT DISK IS IN
SERTED AND PATHNAME IS CORRECT."
PRINT : PRINT "PRESS 'RETURN' TO CONTINUE, 'ESC' TO REENTER FILENA
ME.": GET ER$: IF ER$ = CHR$ (27) THEN 610
 640
 650
               ONERR GOTO 640 VTAB 22: PRINT "LOADING "; NP$: PRINT D$; "-"; NP$
 660
```

tion runs PIC.DUMP. Follow the instructions for a printed copy of the designated picture file with print options—something MousePaint doesn't have.

4) After printing, select an option to either print another picture, go to Mouse-Paint, or run a different program.

5) To print a picture when in Mouse-Paint, save the picture in a file using the ProDOS prefix and filename conventions described in the Mouse-Paint manual. Select Exit Mouse-Paint on the File pull-down menu. When the screen prompts you for a prefix, press return to choose the default of /MOUSE-PAINT/ (the Mouse-Paint disk). You will then be prompted for the path name of the next application. (It must be a SYS file type.)

6) Type MP.SYSTEM (MP for Mouse-Paint and SYSTEM for SYS file), and the STARTUP menu (as in step 3) appears. Select P to run PIC.DUMP. Follow the instructions to print your picture.

A line description for the PIC.DUMP program appears in the **Table**. For lines 180–380, pressing the return key selects the displayed defaults.

You can leave PIC.DUMP any time during the main menu selections. When prompted for input to any of steps 1 through 3, press control-Q and the return key. The program will jump to the closing menu routines. In step 1, entering a filename, note that if you want to catalog a disk, the prefix entered must start and end with a slash (/). This is a good habit to acquire when working with ProDOS.

ProDOS and Your Programs

Since MousePaint uses Apple's Pro-DOS, STARTUP and PIC.DUMP must be saved to the MousePaint disk in a ProDOS-format file, too. If you have ProDOS on a disk other than Mouse-Paint use it as a boot disk, enter the two programs, then save them to your MousePaint disk.

If you aren't fortunate enough to have ProDOS, you can still dump out of MousePaint to enter and save both STARTUP and PIC.DUMP. After booting MousePaint, the ProDOS file will load and the STARTUP welcome will appear while the disk drive loads other files. Hit reset to dump out of this BASIC STARTUP program.

Resetting later causes the disk to reboot. For a "boot on reset," add POKE 1010.0:POKE 1011.0 at or near the beginning of both programs. Wait until you are sure the program works before adding this line or you won't be able to reset in order to dump out of

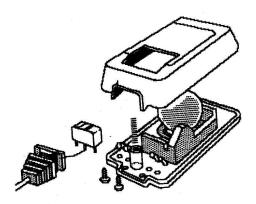


Table. Line descriptions.

	Ni Ni
Lines	Description
80-100	Set control variables for
	ProDOS commands, print-
	er card commands, and an
	error message.
110-170	Display the welcome, open-
	ing menu, and preliminary
	instructions. Error-trapping
	routines for invalid slot
	numbers are included.
180-380	Print picture files with
	printing option codes.
390-490	Display the printing in-
	structions.
500-550	Input file name (or catalog
	disks), printing options,
	and number of copies.
560-670	Display the closing menu.

the program and make corrections.

Before you enter the programs, catalog the disk, then load and list some BASIC files to make sure no error messages appear. If they do, press reset, or reboot and reset again. Then you can type in and save each program. If you don't have a separate ProDOS disk, have a friend or your computer store make a back-up copy of MousePaint for you so you don't damage the master by accident.

These routines don't represent the most efficient way to print a Mouse-Paint picture, but until Apple comes out with software modifications for those without an Apple printer and Apple interface card, you can use them to get a hard copy of your latest masterpiece.

Stephen Jones draws with his Apple-Mouse II at 2937 Winter Garden #4, Lexington, KY 40502.

Circle 72 on Reader Service card

ETWORKING MODEM OR YOUR



The NETWORKER links you to the vast network of computers. Send electronic mail to a friend or business associate. Use your schools computer, access hundreds of computer bulletin boards or thousands of data bases for up to the minute news, sports, weather, airline, and stock information.

There's absolutely nothing else to buy. You get For \$179 we include with the Networker the Netthe modem board, communication software, and master Communications Software for advanced a valuable subscription to America's premier infor- users. Netmaster will let you transfer games. mation service, THE SOURCES. For \$129 it's an computer graphics, programs, sales reports, unbeatable value.

This is the modern that does it all, and does it another computer, directly from disk to disk, withfor less. The Apple Communications Card is on out errors, even through noisy phone lines. board, so no other interface is needed. It's 300 baud, the most commonly used modem speed. puters, Netmaster's superb error checking and And it comes complete with Networker Communications Software on an Apple-compatible disk. Netmaster on each end, you can transfer informagiving you features no modem offers.

Like the ability to lock on-screen messages cations packages like Visiterm" or ASCII into your Apple's RAM, and then move the infor- Express". Error free. mation onto a disk for easy reference and review. A terminal program that turns your computer into other communications packages, but they don't a communications command center, with on- work as fast and they don't check errors like screen "help" menus, continuous updates of Netmaster. And Netmaster doesn't only work with memory usage, carrier presence, and communi- the Networker modem. Even if you already have cation status.

The Networker supports both originate and outstanding value in communications software, so answer modes, so you can send and receive infor- we sell Netmaster by itself for \$79. Netmaster mation, in full or half duplex modes. Just plug it requires 48k of RAM, one disk drive, and the into any slot in your Apple computer, and then into Networker or another modem. It can also be used your phone jack. Now you're part of a vast net- without a modem when two Apples are hard-wired work of computers.

Networker.....\$129

Netmaster....\$ 79

documents-in fact, any Apple file of any size-to

high speed are an unbeatable combination. With a

tion three to five times faster than other communi-

another modem for your Apple, Netmaster is an

But Netmaster's not stuffy. It will talk to those

For transfering information between com-

Networker / Netmaster Combo...... \$179

HOW DO I GET ONE? OR TWO?

together.



Call us TOLL FREE

800-227-8292 (incl Alaska & Hawaii),

in California call (415) 424-0800

760 San Antonio Rd Palo Alto, CA 94303

Nothing but Interruptions by Bill Bynum

hen you start a machine-language program on the //e, you have no control over it—it runs until completion. Thus, an error in a machine-language program, particularly one that locks up the computer, can be difficult to find. With this debugger, you can stop your program at any location, inspect and modify the contents of the registers and memory, and then resume or abort your program.

Using the Debugger

The debugger is 208 bytes long and fits in the unused area of Apple DOS 3.3 from \$300 to \$3D0, beneath the vector jump table. The dollar sign [\$] indicates hexadecimal notation. To use the debugger, insert a JSR \$300 statement wherever you want to suspend program execution. When you run your program, each JSR \$300 passes control to the debugger, which lists the address of the next instruction, displays the current register contents, and flashes its prompt. The debugger commands do the following:

- display and modify memory or registers;
- disassemble 20 instructions at a chosen location;
- move memory from one location to another; or
- perform 1-byte hexadecimal addition or subtraction.

If you give the debugger a command it doesn't understand, it beeps and redisplays the prompt. To proceed, you may either continue or abort the program.

After locating and correcting the bugs, remove the JSR \$300 statements from your program and reassemble it. If you lack an assembler, replace each byte sequence 20 00 03 (the JSR \$300) in the object code with three NOP's (EA EA EA).

The program being debugged should not use the zero-page locations the debugger or monitor refer to—\$31-\$49 and \$F9-\$FD. You can't debug a copy of the monitor or the debugger itself. The program you intend to debug also can't use the debugger's location between \$300 and \$3D0.

Debugger Commands

Except for the R (display registers), K (continue execution), and Q (abort execution) commands, the debugger commands are identical with the corresponding Apple monitor commands. However, because of the debugger's 208-byte space limitation it won't accept certain monitor commands, such as G or V. **Table 1** explains the syntax of the commands.

How It Works

The **Program listing** tests a WRITE subroutine which writes the characters stored in a buffer to the

display screen. The WRITE subroutine assumes the buffer address will be stored at \$06 and \$07, with the least significant byte at \$06. The subroutine also assumes that the first byte contains the number of bytes of the buffer to be listed.

This example contains a deliberate error to illustrate how to use the debugger. In storing the address of the buffer at \$06 and \$07, the most significant byte and the least significant byte of the address were switched.

Table 2 is the output listing. The program is started from the monitor with 800G. The first call to the debugger is at memory location \$820, so the next instruction on return from the debugger is indeed \$823, as the debugger announced. The 800L command given from the debugger disassembles the first 20 instructions of the program. This is a good way to find out where you are in your program if you don't have a listing handy.

The debugger corrects the address stored at \$06 and \$07. This error won't be repaired, however, until you return to the program source, switch lines 170 and 190, reassemble, and store the object file on disk. Just to illustrate how to use the MOVE command, move a copy of the program to \$900 and check it by listing memory locations \$900 to \$937

At the next debugger break, the carriage return (the first character in

With Breakpoint Debugger, start and stop programs at any point for any reason.

the buffer to be written) is listed by COUT. After the T in the buffer is listed, look at the contents of the stack. The current value of the stack pointer is \$F7, so list the contents of locations \$1F7-\$1FF (recall that the stack is located in page 1-\$100 to \$1FF-and grows down from \$1FF). The 6502 differs from other processors, like the Z-80, in that the stack pointer indicates the next available byte on the stack to be filled rather than the byte of the most recently filled stack. Notice that the address

on the top of the stack is \$080A, pushed there by the JSR WRITE instruction at \$0808. The actual return address is \$080B, but RTS increases the address POPed from the stack.

Continue, and the O from the buffer is printed. Check the displacement

Table 1. Debugger co	ommand syntax.
----------------------	----------------

Command	Description
)K	Continues execution of the program being debugged.
) Q	Aborts execution of the program being debugged and returns to the host program (the program from which you initiated testing).
)R	Displays registers and gives the location of the next
	instruction. You can modify the registers, except the stack pointer, at any prompt that follows the register contents display—the first prompt appearing when the debugger is called by your program or the prompt following the R command. The corresponding monitor command is control-E. but use R instead.
1800.80A	Lists the contents of memory locations \$800–\$80A,
,000.0011	8 bytes per line.
)900L	Disassembles the next 20 instructions, starting at \$900. If given an L without an address, the next 20 instructions starting at the memory address pointed to by \$3C and \$3D (A1L and A1H) are disassembled. This will be the next memory location if you used the L command with an address.
)906:AA BB CC	Stores bytes: \$AA in location \$906, \$BB in \$907, and \$CC in \$908.
)902<800.808M	Moves memory contents from locations \$800-\$808 to the locations starting at \$902, namely, \$902-\$90A.
)CB+FF	Hexadecimal addition. Displays the answer = CA.
)CB-FF	Hexadecimal subtraction. Displays the answer = CC.

Program listing. Breakpoint Debugger.

Ø3ØØ- 2Ø 4A FF E6 49 E6 49 E6 Ø3Ø8- 49 E6 49 A9 A9 85 33 68 Ø31Ø- 85 FC 18 69 Ø1 85 FA 68 Ø318- 85 FD 69 ØØ 85 FB AØ ØØ Ø32Ø- B9 AD Ø3 2Ø ED FD C8 CØ Ø328- 23 3Ø F5 A6 FA A5 FB 2Ø Ø33Ø- 41 F9 A9 8D 2Ø D7 FA 2Ø FF Ø338- 67 FD 2Ø C7 FF Ø34Ø- 84 34 C9 C6 FØ 3D C9 Ø4 Ø348- FØ 2F C9 EA FØ 31 C9 EB 0350- F0 CC C9 95 FØ 12 AØ Ø7 Ø358- 88 3Ø 31 D9 9F Ø3 DØ F8 Ø36Ø- 2Ø 92 ØЗ A4 Ø368- A5 45 85 F9 20 99 03 20 Ø37Ø- 2Ø FE A5 F9 85 45 4C 63 Ø378- Ø3 A5 FD 48 A5 20 60 20 99 03 20 00 Ø38Ø- 3F FF Ø388- FE 4C 37 Ø3 2Ø 3A FF 4C Ø39Ø- 37 Ø3 A9 A6 Ø398- 48 A5 31 20 C7 FF 93 A7 Ø3AØ- A4 Ø6 Ø5 17 5D 17 17 .8D Ø3A8- 2B Ø3BØ- C5 C1 CB DØ CF C9 CE D4 Ø3B8- AØ C4 C5 C2 D5 C7 C7 C5 Ø3CØ- D2 8D CE C5 D8 D4 AØ DØ Ø3C8- C7 CD AØ C1 C4 C4 D2 AØ Ø3DØ- 4C

Not Piracy...



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:

□ M □ Fo □ Fo	exico preign Air preign Sur AMPLE, L	PO/FPO, 1: mail . face Mail J.S. oreign			\$39 \$60 \$40 \$3.50
ubscription now.	n e	diz z		Exp	Signature Send to: Hardcore COMPUTIST, POB 44549J, Tacoma, WA 98444 US funds only.
☐ Yes, start my subscription now.	Name	City	Country	Visa/MC	Signature Send to: Hardcore C

\$F2 in the BMI WTLOOP instruction in the subroutine at location \$0834. Add \$F2 and \$0836 to obtain \$28 (actually, \$0828-only 1-byte quantities can be added, and the \$08 is truncated), which seems correct since this is the value of the WTLOOP label.

Change the Y register to skip over a few characters in the buffer by displaying the registers and changing the contents of the Y register. Even though you don't want to change the A and X registers, you must type the values in them anyway because the destination of the bytes to be stored is determined by their positions (typing only \$09 would change the A register instead of the Y register). Continue to one more break, abort the test program, and return to the monitor instead of continuing.

Installing the Debugger

Store the object code in memory starting at \$0300. Then give the Apple DOS command BSAVE BREAK .OBJ,A\$300,L\$D0 to save the object file on disk under the name BREAK .OBJ. Afterward, when you want to bring the debugger into memory, type BLOAD BREAK.OBJ and the object file will be loaded into the proper place. \blacksquare

Write to Bill Bynum at 130 West Kingswood Drive, Williamsburg, VA 23185.

Table 2. Breakpoint Debugger program test output.

Hex Dump

*800G

BREAKPOINT DEBUGGER **NEXT PGM ADDR 0823**

A = 0C X = 34 Y = 00 P = 32 S = F7)800L

0800-	A9 08	LDA	#\$08
0802-	85 06	STA	\$06
0804-	A9 0C	LDA	#\$0C ←
0806-	85 07	STA	\$07
0808-	20 1E 08	JSR	\$081E

080B-60 RTS 080C-11 89 ORA (\$89),Y-080E-D4 ???

080F-CF ??? 0810-A0 C5 LDY #\$C5 0812 -D2??? 0813 -D2 ??? 0814-A0 C9 LDY #\$C9

???

LDY #\$00

JSR \$0300

0816-D3??? 0817 -A0 C8 LDY #\$C8 0819 -D5 CD CMP \$CD,X CMP (\$CE,X)

081B-C1 CE 081D-89 081E-A0 00

0820-20 00 03)06.07

0006-08 OC)06:0C 08

)900 < 800.837M

)900.937

0900-A9 08 85 06 A9 0C 85 07 20 1E 08 60 11 89 D4 CF 0908 -0910 -A0 C5 D2 D2 A0 C9 D3 A0 0918-C8 D5 CDC1 CE 89 A0 00 0920-20 00 03 B1 06 8D 37 08 0928-C8 B1 06 20 EDFD 20 00 03 CC 37 08 30 F2 60 00 0930-)K

Disassembly

The program to be debugged is at \$0800 (see the Program listing). Call it from the monitor.

Disassemble the first 20 program instructions.

Note that the LSB and MSB of the buffer address were switched.

This is the buffer to be written.

The start of the WRITE subroutine. The first call to the Debugger. Checks the locations where the buffer address is stored.

Switches the LSB and MSB of the address.

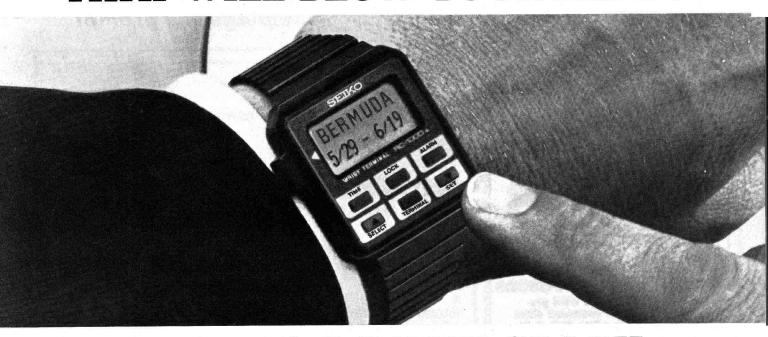
Saves a copy of the program being tested.

Checks that the program got there.

Continue

Table 2 continued.

SOMETHING FOR YOUR WRIST THAT WILL BLOW YOUR MIND.



THE SEIKO PC DATAGRAPH: A Computer Terminal For The Apple II.

Markline proudly presents The Seiko PC Datagraph — a fine quartz watch with an on-board microprocessor and 2K RAM you can use to store and recall data entered directly from your Apple II, IIe and IIc.

Store data in up to 12 separate files — recall it anywhere. Use it like a personal notebook, with files for phone numbers, travel schedules, key dates — any kind of information you can think of.

Set the alarm a year in advance — your PC Datagraph displays a preprogrammed message the moment it sounds. There's also a Weekly Alarm file for daily scheduling, and a World Time file that tells you the time all over the world.

A powerful word processing/scheduling software program — makes data input a breeze. The $5\frac{1}{4}$ " floppy disk is formatted for the PC Datagraph

memory and functions. And a special cable connects directly to your computer's RS232C serial port.

It's the most sophisticated timepiece ever developed — which is exactly what you'd expect from Seiko. Because when it comes to new ideas, the world is coming to Seiko.



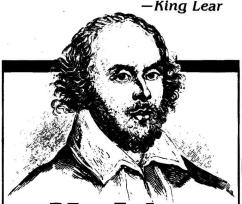
Circle 436 on Reader Service card.

MAR	KLINE	Order No. SERC1000
\$120.00 plus	\$7.25 shipping & han	dling (Sales tax: MA 5%)
Order by Phone: Call toll-	ree, 24 hours a day –	1-800-225-8493/8390
In Massachusetts call: (6		
Order by Mail: Just fill or Markling	ut this coupon and retu e/PO Box C-5/Belmor	irn to it, MA 02178
Type of Computer	ple* II/IIe/IIc	□IBM®-PC/PCjr.
□Tar	ndy Model 100	□Commodore 64™
Method of Payment	☐American Express	□Visa □ MasterCard
□Diners Club	□Carte Blanche	☐Check/Money Order
Card No		Exp. date
Phone		
Cardholder signature		3
Name		
Address		
City/State/Zip		Description of the Con-
Please call the above number of the plant of	mber toll-tree if you h years of experience o	ave any questions about the Sei and over 1,000,000 satisfied custo
		© 1984 Hatton Comporation of

At Christmas I no more desire a rose

Than wish a snow in May's new fangled mirth

But like of each thing that in season grows



MacInker A Gift For Christmas A Gift For All Seasons

If Shakespeare had had a word processor he would have consumed about 25 cartridges to run a first draft of his works. At an average of \$10/cartridge the cost is \$250. With MAC INKER he would use one cartridge, his total would be 50 cents in ink and his print-out quality would be much improved.

MAC INKER is very simple to use and automatic. Average ink cost/re-inking is 5 cents. We support 535 printers and we have 20,000 units in the field, in the US and in 5 continents.

MAC INKER, a gift for Christmas, that will last for years in many seasons to come.

\$54.95+



MacSwitch

Choose also our popular MAC SWITCH, serial or parallel switch - the ideal companion for the user who has 2 printers or 2 microcomputers or both. \$99.00



Order toll free 1-800-547-3303 or ask for free brochure

Cmputer Friends

6415 S.W. Canyon Court Suite #10 Portland, Oregon 97221 (503) 297-2321

Circle 48 on Reader Service card.

"If you give the debugger a command it doesn't understand, it beeps and redisplays the prompt."

Table 2 continued.

BREAKPOINT DEBUGGER NEXT PGM ADDR 0831

A=89 X=34 Y=01 P=71 S=F7

JK. T

> BREAKPOINT DEBUGGER NEXT PGM ADDR 0831

A = D4 X = 34 Y = 02 P = 31 S = F7 Look at the stack.)1F7.1FF

01F7-03

01F8-0A08 84 FF 3B 14 31 10

ζ

0

BREAKPOINT DEBUGGER NEXT PGM ADDR 0831

A = CF X = 34 Y = 03 P = 31 S = F7

)F2 + 0836

= 28)R

BREAKPOINT DEBUGGER NEXT PGM ADDR 0831

A = CF X = 34 Y = 03 P = 31 S = F7):CF 34 09

)K

BREAKPOINT DEBUGGER NEXT PGM ADDR 0831

A = D3 X = 34 Y = 0A P = 31 S = F7

)Q

Carriage return written by WRITE.

Continue

T written by WRITE.

Note the top address on the stack is \$080A.

Continue

O written by WRITE.

Checks the address to which the BMI WTLOOP refers (see the **Program listing**). \$0828 is correct. Displays the registers.

 Changes the Y register to skip several characters in the buffer.

S written by WRITE.

Quit

Back in the monitor.

Circle 281 on Reader Service card.



"TermExec does a lot for the money." InCider

A total communications resource, Term-Exec lets you talk with any other phoneaccessible 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

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 mempership 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, IACcalcTM. 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.

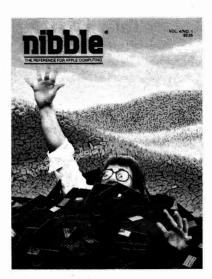
For as little as \$50 annually and no deductible, you can protect your hardware, software and disks for up to \$15,000.

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.

Santa Clara, CA 95050

Circle 157 on Reader Service card.

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.

to use certain of the latter's trademarks.	Nibble is a registered diademark of flicrostatic, 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
908 George Street	

Signature

Polaroid Palette

by Chuck Doherty

Take a look at this—state-of-the-art screen dumps to film, in any colors you want, with no distortion!

he Apple's graphics have made it the choice of business people for preparing charts and graphs. Many programs have been written to produce bar graphs, pie charts, and other business graphics, often in full color. While it is easy to display these graphics on a video monitor, it is difficult to produce high-quality hard copy of the results.

There are two common methods of putting screen displays on paper. One way is to "dump" the image to a printer. With most dot-matrix printers, different colors are represented by various shades of grey. Getting a full-color image is more difficult, but possible with some printers. The quality of the results depends on the resolution of the printer and the flexibility of the dump routine, but the image always suffers degradation.

The second way of producing an image of a screen display is simply to photograph it. Here, many factors affect the outcome. The curvature of the screen can distort the image, causing the edge of the picture to appear warped. Any light which may be present in the room can be reflected in the screen and show up in the finished print. Also, what you see is what you

get: the photo is never better than the image on the monitor, and often quite inferior.

A Better Way

The Polaroid Corporation of Cambridge, Massachusetts has long been a leader in optical and photographic techniques. Although best known for their instant film products, Polaroid's research has led them into many diverse fields. Recently, Polaroid intro-

Chuck Doherty lives at 32 Meadowood Drive, South Dartmouth, MA 02748.

Photo 2. The nine color sets of eight colors each that are stored on the main program disk.

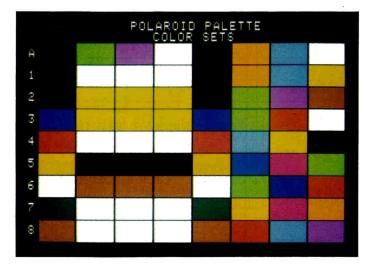


Photo 3. You can choose any eight of the 72 colors available for your picture, and you can edit the colors to get what you need.





Photo 1. The Polaroid Palette.

duced Palette (Photo 1), a product which converts screen images into distortion-free color slides and prints. In addition, Palette enhances the Apple's graphics image and gives full control over the selection of colors.

Palette was designed to record graphics with none of the problems found in other systems. Inside the unit, a four-inch high-resolution CRT supplies the actual photographic source. The screen is black and white, but a clever arrangement of filters converts the image to full color. These filtersred, green, and blue-are mounted on a motorized wheel which moves each filter into place as needed. When the red filter is in position, for example, the internal screen will show only those parts of the image which contain red. The more red present in the image, the longer that section is exposed. By passing the image through the blue and the green filters as well, a complete color photo is produced.

Polaroid's system has several advantages. First, the resolution of the screen is greater than any color monitor, resulting in more detail. A Fill mode enhances solid-color portions of the image. This corrects the loss of detail which results from space between scan lines on a video monitor.

Fine-Tuning the Color

The most interesting part of Palette is the control it gives over the color. Since the system operates under software control, the image is not bound by hardware limitations. For example, you can change any of the original colors to give the photo an appearance that would be impossible on the video display.

Colors are not limited to the standard six-color set used by Apple, though the picture can be reproduced just as it ap-

Photo 4. Text screen photographed without color correction.

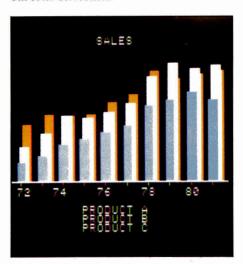
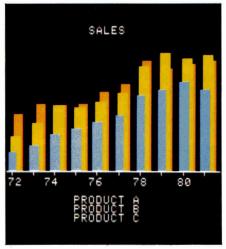
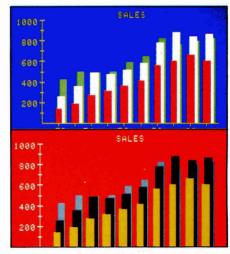


Photo 5. Text screen photographed with green and violet corrected to white.



Photos 6 and 7. Choose alternate colors for more attractive graphs.



December 1984 inCider 79



Photo 8. Original art from a KoalaPad.



Photo 9. Same original with a different color set.

pears on screen. The main program disk holds eight ready-to-run color sets of eight colors each, plus a set of Apple standard colors. (See **Photo 2**.) In all, Palette lets you choose up to eight colors per picture from the 72 available. (See **Photo 3**.) If that is not enough, you can even edit the colors themselves to get the exact shade you need.

Apple color graphics have always suffered poor text reproduction. On a color monitor, text appears as a mishmash of white, green, and violet. As hard to read as it is on the screen, the problem is magnified when the screen is photographed without correction. (See Photo 4.) With this in mind, Polaroid designed a color set that improves screen readability while leaving most of the original colors intact. Color set 1 converts any pixel that would normally appear as green or violet to white. As a result, text is returned to a pure form that is much easier on the eyes. (See Photo 5.) Of course, this set also converts to white any part of the image that is supposed to be green or violet as well. By selecting a different color set you can change the background from black to another color, making many graphs much more attractive. (See Photos 6 and 7.)

Saving Your Image

A graphics image must be in the form of a disk file before Palette can process it. Most business graphics programs, including Apple Business Graphics 1.0, VisiTrend, VisiPlot, and Graphmagic, have a feature that saves graphs as hi-res images. You can also process images from programs like the Koala Micro Illustrator (**Photos 8** and **9**) or Beagle Bros' Alpha Plot.

The Palette has no image-save routine—you must get the screen to disk. It is difficult (sometimes impossible) to reproduce images from programs which lack a disk-save function. If, for example, you wished to photograph a display from a game, it is often necessary to reset the computer, load a utility program that can perform a disk save, and hope that the graphic image survived the process. More often than not, an image captured this way will be distorted or lost altogether.

Physical Appearance

The heart of the Palette Computer Image Recording System is the recorder itself, a 13-by-5¾-by-7¾-inch device containing the CRT, color filters, and control electronics. The Palette is well constructed and finished in "Apple Beige" with a black faceplate. An on/off rocker switch on the side of the unit is the only control you will have to deal with on a regular basis.

The system comes with a Polaroid 3¼-by-4¼-inch film unit which accepts standard type 669 film to produce color prints in 60 seconds. This "camera" bolts onto the front of the recorder whenever an instant print is desired. There is no shutter on the camera. Instead, a metal slide is pulled from the front of the unit to expose the film when a photo is desired. The screen photographs used in this review were produced in this way.

An automatic 35mm Minolta camera body is also included for making color slides or 35mm prints. The camera shipped with my test unit was a Minolta XG-A, complete with autowinder. This is a very nice camera for everyday use away from the Palette—add an inexpensive lens and you are ready to shoot. A bayonet-mount adaptor mates the body to the Palette when required.

You also receive a Polaroid instant color slide processor and slide mounter. With this system you can process a roll of Polaroid's new Polachrome 35mm slide film into 12 full-color slides in 60 seconds. Each Polachrome package comes complete with film and a pack of processing chemicals

The Palette owner's manual is one of the finest pieces of documentation I have ever seen. This boxed, looseleaf book is indexed by chapter, printed on heavy glossy stock, and filled with illustrations and photographs. Every part of system assembly and operation is fully explained in a clear, thorough manner.

If you have difficulty with the system and are unable to find an answer in the manual, Polaroid provides a toll-free customer assistance telephone line to get you back on the right track. The Palette is a well supported product, built by a company dedicated to customer satisfaction.

Installation

To operate the system you need an Apple //e or II Plus with at least 64K of memory, an RS-232 adaptor such as Apple's Super Serial Card, one disk drive, and a monitor. A color monitor is not required.

The Palette connects to the serial port through a supplied cable, and is wired in-line with your monitor's video signal. The only other connection is its AC power cord.

When you first turn the Palette on, a quick set-up routine calibrates its internal CRT. The process involves looking into the unit and adjusting a brightness control on the rear panel until a test pattern is displayed properly. The



entire procedure takes less than a minute.

Operation

Many of the Palette's options are accessed from a system menu which appears when the program is first booted. From here, you can change the disk drive used for the program itself, the drive used for the images, and the slot number of the Palette's controller. Any of these selections can be saved to disk for a permanent record. The system menu also accesses the setup/test menu, where you adjust the threshold of the internal CRT.

When you are ready to continue, press escape and the main menu comes into view. Sub-menus handle color selections, exposures, and batch operations. At the bottom of the screen is a listing of the color set selected, plus the name of the image to be processed.

With both an image and a color set selected, proceed to the exposure menu and you are ready to take a picture. This routine keeps track of your film counter (photos remaining) and any special exposure settings. Photos are normally exposed at a neutral set-

"I found the system extremely easy to operate, and I was impressed.

ting, but you can manually lighten or darken the image by as much as a full stop (F stop) in either direction under software control.

The Expose command brings up the film menu. Since different films have different response characteristics, Palette needs to know the type used. The five standard selections are: Polaroid 669 (instant color prints), Polachrome 35mm (instant slides), Ektachrome 64, Agfachrome 100, and Fujichrome 100. A file of technical information on each film type is loaded during the exposure process.

With the film selected, Palette is

ready to go. A prompt instructs you to open the camera shutter (or pull the dark slide) and hit any key. During the actual exposure, the monitor shows the red, green, and blue sections of the image, in turn, as they are processed. These displays look a bit odd at first-they are both upside-down and backwards, exactly as the camera sees them. The entire process takes from one to two minutes, depending on film type, exposure settings, and complexity of the image.

If you have a number of images to be recorded, you can use Palette's Batch Exposure feature. Up to 16 images are processed automatically, with multiple copies of any image produced as well. To use the Batch mode, the 35mm camera body with auto-winder must be in place. As each image is loaded and exposed, the Palette triggers the camera to advance the film. This feature can be a tremendous time-saver. Since everything is done automatically, you could set up a batch before leaving for lunch and return to find the entire process completed.

Summary

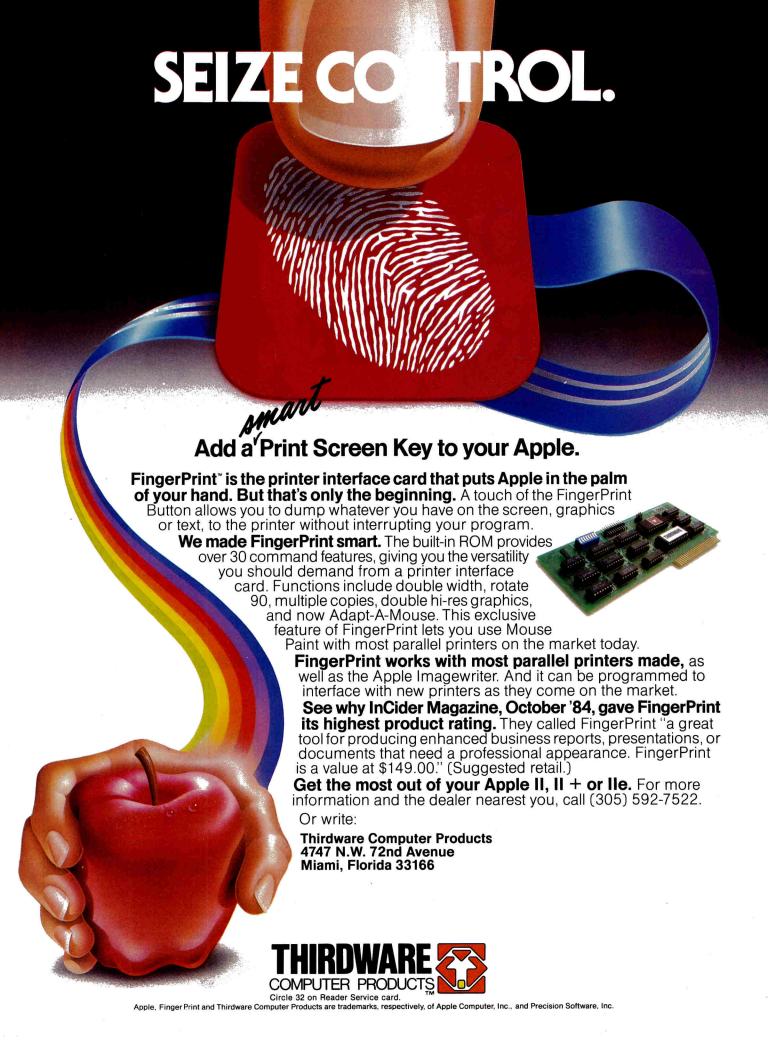
I found the system extremely easy to operate, and I was impressed with the results. Photos produced by Palette were crystal-clear-a noticeable improvement over standard Apple graphics. The only drawback as far as I can see is that there is no way to capture screen images unless they are stored on disk. It would be nice if the system could produce an image of any screen, any time, as do some printer control cards. Nonetheless, Palette is very good at what it does.

The Polaroid Palette is ideal for anyone who uses graphs and charts for presentations and reports. By using Polachrome 35mm instant slide film, you could prepare a complete slide presentation from computer-generated graphics in minutes. The Palette is also a useful device for software developers and teachers.

Considering the extent of the Palette system, and the amount of equipment included in the package, its \$1499 price seems well justified. This is not a product for the casual computer user, but it can be a valuable tool to many business people.

For more information, write to Polaroid Corporation, 575 Technology Square, Cambridge, MA 02139. Call their technical assistance hot-line at (800) 225-1618. ■





ACCOUNT FOR YOURSELF

AFTER

ssets, liabilities, expenses. . .stacks of paper strewn across your desk. Sound familiar? Then you need a complete picture of your financial standing compacted into one easy-to-read spreadsheet. Wundersheet provides the solution.

Using my formulas (see the **Table**) with any popular spreadsheet program, you can build Wundersheet, a flexible template of several schedules—portfolio worth, assets, taxable and nontaxable income, expenses, cash flow, liabilities, and total net worth—all on one manageable sheet of paper.

Creating your portfolio worth is the first step in building this template (see Figure 1). A portfolio can contain stocks, bonds, treasury bills, cash management accounts, Ginnie Maes, bank accounts, checking accounts, and ready assets accounts. You can tailor it to include any other item in your own portfolio. In the horizontal column, headers are the elements a basic portfolio report requires: security name, quantity owned, original cost per share, current price per share, current value of the portfolio, percent the individual security is of the total portfolio value, amount of gain or loss, and date of purchase to help you keep track of whether a gain is short or long.

In the second step, you add to the

Clear the desk with Wundersheet, a compact template for spreadsheet reckoning.

template a monthly schedule of income gained from the portfolio and other sources (see **Figure 2**). Also add gain and loss (both short and long term), salary, consulting income, and tax refund. Items are totalled individually on a yearly basis and in entirety on a monthly basis, with an additional monthly running cumulative total indicating your taxable income. You can also add nontaxable income like a tax efficient savings plan or an individual retirement account (IRA).

In step 3, you build in a schedule of expenses (see **Figure 3**). Expenses are grouped in much the same order in which they appear on a 1040 form (A and B), so this spreadsheet should be helpful at tax time.

A few other additions can make your expense sheet fancy. If you have a home mortage, you can split **Table.** The formulas that comprise the Wundersheet are listed starting with the lower-right cell and proceeding to the upper-left. Each line contains the cell identifier, the cell format (if any), and the formula or label associated with the cell. Global formats are found at the bottom of the listing.

```
>V77:@SUN(J77...U77)
>K77:+J77/J77
>H77: "PRINCIPLE
>V76: @SUM(J76...U76)
>K76:+J76/J77
>H76: "INTEREST
>H75: "MEMO
>F73:+F34-F67
>E73: "NET WORTH
>V72:+V71/V23
>U72:+U71/U23
>T72:+T71/T23
>S72:+S71/S23
>R72:+R71/R23
>072:+071/023
>P72:+P71/P23
>072:+071/023
>N72:+N71/N23
>M72:+M71/M23
>L72:+L71/L23
>K72:+K71/K23
>J72:+J71/J23
>172:"F TOTAL
>H72: "PERCENT O
>W71:+V71/V23
>V71:+V23-V67
>U71:+U23-U67
>T71:+T23-T67
>S71:+S23-S67
>R71:+R23-R67
>Q71:+Q23-Q67
>P71:+P23-P67
>071:+023-067
>N71:+N23-N67
```

Table continued.



Figure 1. Portfolio portion of Wundersheet.

INCOME SOURCE	QUANTITY	COST PER SHARE	PRICE PER SHARE	TOTAL PERCENT VALUE OF HOLDINGS	GAIN OR LOSS	DATE OF PURCHASE
FORD STOCK AT & T STOCK CASH MGMT ACCOUNT READY ASSETS ACC BANK ACCOUNT CHECKING ACCOUNT TREASURY BILL 1/83 TREASURY BOND 9%94 ATT 8.75% BOND ØØ CAR 7.75% BOND ØØ CAR 7.75% BOND ØZ GNMA G/L ST G/L LT SALARY CONSULTING INCOME TAX REFUND TOTAL				Ø Ø Ø Ø Ø Ø	Ø Ø Ø Ø Ø Ø Ø	

Table continued. >M71:+M23-M67 >L71:+L23-L67 >K71:+K23-K67 >J71:+J23-J67 >H71: "CASH FLOW >W7Ø:/FR"OF TOTAL >AJ69:/FR" >AI69:/FR" >AH69:/FR" >AG69:/FR" >AF69:/FR" >AE69:/FR" >AD69:/FR" >AC69:/FR" >AB69:/FR" >AA69:/FR" >W69:/FR"PERCENT >V69:/FR"TOTAL >U69:/FR"DEC >T69:/FR"NOV >S69:/FR"OCT >R69:/FR"SEP >Q69:/FR"AUG >PG9:/FR"JUL >069:/FR"JUN >N69:/FR"MAY >M69:/FR"APR >L69:/FR"MAR >K69:/FR"FEB >J69:/FR"JAN >W68:/-->V68:/-->U68:/-->T68:/-->\$68:/-->R68:/-->Q68:/-->P68:/-->068:/-->N68:/-->M68:/-->L68:/-->K68:/-->J68:/-->168:/-->H68:/-->G68:/-->F68:/-->E68:/-->D68:/-->C68:/-->B68:/--->A68:/-->W67:+V67/V23 >V67:@SUM(V42...V66) >U67:@SUM(U42...U66) >T67:@SUM(T42...T66) >S67:@SUM(S42...S66) >R67:@SUM(R42...R66) >Q67:@SUM(Q42...Q66) >P67:@SUM(P42...P66) >067:@SUM(042...066) >N67:@SUM(N42...N66) >M67:@SUM(M42...M66) >L67:@SUM(L42...L66) >K67:@SUM(K42...K66) >J67:@SUM(J42...J66) >H67:"TOTAL >G67:/FR" >F67:@SUM(F42...F66) >D67: "TOTAL >W66:+V66/V23 >V66:@SUM(J66...U66) >166:"N >H66: "RECREATIO >G66:/FR" >W65:+V65/V23 >V65:@SUM(J65...U65) >H65: "TUITION >G65:/FR" >W64:+V64/V23 >V64:@SUM(J64...U64) >H64:"CLOTHING >G64:/FR' >W63:+V63/V23 >V63:@SUM(J63...U63) >163:/FR"APPLIANC Table continued.



your monthly payments into principal and interest. You can subtract the year-to-date contributions to principal from the mortgage liability and look at your current monthly mortgage rate.

Step 4 develops a cash flow to help keep you abreast of your financial picture. Merely subtract total expenses by month from total income by month and you have your cash flow.

In the final step, assign values to your major assets and liabilities to determine your personal net worth. (See **Figure 4** for a completed template reflecting calculations performed on assets and liabilities.) Now you are prepared to handle your finances in an orderly manner, and with little effort you can forecast what the next few months hold for you.

You can contact Larry Conley at 3797 Burning Tree, Bloomfield Hills, MI 48013.

Table continued.

>H63: "FURNITURE >G63:/FR" >W62:+V62/V23 >V62:@SUM(J62...U62) >162: "TENANCE >H62: "HOME MAIN >G62:/FR" >W61:+V61/V23 >V61:@SUM(J61...U61) >161: "LECTRIC >H61:"WATER & E >G61:/FR" >W60:+V60/V23 >V60:0SUM(J60...U60) >160:/FL"ENTS >H60:/FR"CAR PAYM >G60:/FR" >D60:"CAR LOAN >W59:+V59/V23 >V59:@SUM(J59...U59) >159:/FR" >H59:/FR"GASOLINE >G59:/FR" >W58:+V58/V23 >V58:@SUM(J58...U58) >158:/FR"NCE COSTS >H58:/FR"MAINTENA >G58:/FR" >W57:+V57/V23 >V57:@SUM(J57...U57) >157: "OSTS >H57: "VEHICLE C >G57:/FR'

Figure 2. Income portion of Wundersheet.

INCOME	SOURCE	INTEREST	OR D	IVID	ENDS	FOR	1	983	PERCENT	GA	IN
		JAN		FEB		MAR		APR	MAY	J	าบ
FORD S'	тоск							0			8
AT & T	STOCK							0			0
CASH M	GMT ACCOUNT							Ø			0
READY A	ASSETS ACC							Ø			0
BANK A	CCOUNT							Ø			0
CHECKI	NG ACCOUNT							Ø			0
TREASU	RY BILL 1/83							Ø			0
TREASU	RY BOND 9%94							Ø			0
ATT 8.	75% BOND ØØ							Ø			8
CAR 7.	75% BOND 02							Ø			0
GNMA								Ø			0
G/L ST											
G/L LT											
SALARY											
CONSUL	TING INCOME										
TAX REI	FUND										
TOTAL		Ø		Ø		Ø		Ø			0
CUMULAT	TIVE TOTAL	Ø		Ø		Ø		Ø		ERRO	OP

Wait! Streamline those paper airplanes into neat rows of balanced figures with Wundersheet.

```
>W56:+V56/V23
>V56:@SUM(J56...U56)
>H56: "TELEPHONE
>G56:/FR"
>W55:+V55/V23
>V55:@SUM(J55...U55)
>155:"T CONTRIB
>H55:"RETIREMEN
>W54:+V54/V23
>V54:@SUM(J54...U54)
>I54: "RANCE
>H54:/FR"CAR INSU
>W53:+V53/V23
>V53:@SUM(J53...U53)
>153:/FR"INSURANC
>H53:/FR"ACCIDENT
>G53:/FR"
>W52:+V52/V23
>V52:@SUM(J52...U52)
>152:/FL"URANCE
>H52:/FR"LIFE INS
>G52:/FR"
>W51:+V51/V23
>V51:@SUM(J51...U51)
>H51:"INSURANCE
>G51:/FR"
>W50:+V50/V23
>V50:@SUM(J50...U50)
>150: "IONS
>H50: "CONTRIBUT
>G50:/FR"
>W49:+V49/V23
>V49:@SUM(J49...U49)
```

```
>149: "ORTGAGE
>H49: "RENT OR M
>G49:/FR"
>F49:50000+(V49*.1328)
>D49:"MORTGAGE
>W48:+V48/V23
>V48:@SUM(J48...U48)
>148:/FR"
>H48:/FR"FICA TAX
>G48:/FR"
>W47:+V47/V23
>V47:@SUM(J47...U47)
>I47:/FR"E TAX
>1147:/FR"US INCOM
>G47:/FR"
>W46:+V46/V23
>V46:@SUM(J46...U46)
>I46:/FL"LES TAX
>H46:/FK"MAJOR SA
>G46:/FR"
>W45:+V45/V23
>V45:@SUM(J45...U45)
>145:/FR"TAX
>II45:/FR"PROPERTY
>G45:/FR"
>W44:+V44/V23
>V44: @SUM(J44...U44)
>144:/FL"COME TAX
>H44:/FR"STATE IN
>G44:/FR"
>W43:+V43/V23
>V43:@SUM(J43...U43)
>H43: "TAXES
```

Table continued.

DATE							
JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	PERCENT
							OF TOTAL
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERROI
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERRO
						ERROR	ERROI
Ø	Ø	Ø	Ø	Ø	Ø	ERROR	ERRO
ERROR	ERROR	ERROR	ERROR	ERROR	ERROR		

```
Table continued.
       >G43:/FR"
      >D43: "TAX OWED
      >W42:+V42/V23
      >V42:@SUM(J42...U42)
      >142:/FR"DENTAL
>H42:"MEDICAL &
      >G42:/FR"
      >W40:/FR"INCOME
      >G40:/FR"
      >F40:/--
      >D40:/--
      >W39:/FR"OF TOTAL
      >139:/FL"ATEGORY
>H39: "EXPENSE C
      >G39:/FR"
>F39:"LIABILITY
      >D39: "CATEGORY
>W38:/FR"PERCENT
      >V38:/FR"TOTAL
      >U38:/FR"DEC
      >T38:/FR"NOV
      >S38:/FR"OCT
      >R38:/FR"SEP
      >Q38:/FR"AUG
      >P38:/FR"JUL
      >038:/FR"JUN
      >N38:/FR"MAY
      >M38:/FR"APR
      >L38:/FR"MAR
      >K38:/FR"FEB
      >J38:/FR"JAN
>D38:"LIABILITY
      >Y37:/---
      >X37:/---
      >W37:/----
      >V37:/----
      >U37:/----
      >T37:/----
      >S37:/----
      >R37:/----
      >Q37:/---
      >P37:/----
      >037:/----
      >N37:/----
>M37:/----
>L37:/----
      >K37:/----
      >J37:/----
      >D37:/---
      >C37:/---
      >B37:/---
     >A37:/---
>J36: "EXPENSES
>C36: "LITIES
>B36: "AND LIABI
      >A36: "EXPENSES
      >Y35:/--
      >X35:/---
      >W35:/--
      >V35:/--
      >U35:/--
      >T35:/--
      >S35:/--
      >R35:/--
      >Q35:/--
      >P35:/--
      >035:/--
      >N35:/--
      >M35:/--
      >L35:/--
      >K35:/--
     >J35:/--
      >135:/--
      >H35:/--
      >G35:/--
     >F35:/--
     >E35:/--
     >D35:/--
     >C35:/--
     >B35:/---
     >A35:/--
     >V34:@SUM(J34...U34)
     >U34:+U23+U25+U26
     >T34:+T23+T25+T26
     >S34:+S23+S25+S26
     >R34:+R23+R25+R26
     >Q34:+Q23+Q25+Q26
                   Table continued.
```

```
Table continued.
>P34:+P23+P25+P26
>034:+023+025+026
>N34:+N23+N25+N26
>M34:+M23+M25+M26
>L34:+L23+L25+L26
>K34:+K23+K25+K26
>J34:+J23+J25+J26
>H34:@SUM(H7...H33)
>F34:@SUM(F7...F17)+@SUM(F25...F33)
>B34: "AL
>A34: "GRAND TOT
>A33: "COINS
>A32: "ANTIQUES
>A31: "VEHICLE
>B30: "GS
>A30: "FURNISHIN
>A29: "HOME
>H28:+(E28*C28)-(D28*C28)
>F28:+C28*E28
>B28: "OHAWK
>A28:"NIAGARA M
>F27:+V55
>B27: "T CONTRI
>A27: "RETIREMEN
>V26:@SUM(J26...U26)
>H26:+(E26*C26)-(D26*C26)
>F26:+C26*E26
>A26:"IRA
>V25:@SUM(J25...U25)
>H25:+(E25*C25)-(D25*C25)
>B25:"IENT SAV
>A25:"TAX EFFIC
>U24:+T24+U23
>T24:+S24+T23
>S24:+R24+S23
>R24:+024+R23
>024:+023+P24
>P24:+024+P23
>024:+N24+023
>N24:+M24+N23
>M24:+L24+M23
>L24:+K24+L23
>K24:+J23+K23
>J24:+J23
>B24: "E TOTAL
>A24: "CUMULATIV
>Y23:@SUM(Y7...Y22)
>W23:+V23/V23
>V23:@SUM(J23...U23)
>U23:@SUM(U7...U22)
>T23:@SUM(T7...T22)
>S23:@SUM(S7...S22)
>R23:@SUM(R7...R22)
>Q23:@SUM(Q7...Q22)
>P23:@SUM(P7...P22)
>023:@SUM(07...022)
>N23:@SUM(N7...N22)
>M23:@SUM(M7...M22)
>L23:@SUM(L7...L22)
>K23:@SUM(K7...K22)
>J23:@SUM(J7...J22)
>G23:+F23/F23
>F23:@SUM(F7...F22)
>A23: "TOTAL
>Y22:+V22
>W22:+V22/V23
>V22:@SUM(J22...U22)
>G22:+F22/F23
>B22:"D
>A22: "TAX REFUN
>Y21:+V21
>W21:+V21/V23
>V21:@SUM(J21...U21)
>G21:+F21/F23
>B21: "G INCOME
>A21: "CONSULTIN
>Y20:+V20
>W20:+V20/V23
>V20:@SUM(J20...U20)
>G20:+F20/F23
>A20: "SALARY
>Y19:+V19
```

```
>W19:+V19/V23
>V19:@SUM(J19...U19)
>G19:+F19/F23
>A19: "G/L LT
>Y18:+V18
>W18:+V18/V23
>V18:@SUM(J18...U18)
>G18:+F18/F23
>A18: "G/L ST
>Y17:+V17
>X17:+V17/(C17*D17)
>W17:+V17/V23
>V17:@SUM(J17...U17)
>H17:+(E17*C17)-(D17*C17)
>G17:+F17/F23
>F17:+C17*E17
>A17: "GNMA
>Y16:+V16
>X16:+V16/(C16*D16)
>W16:+V16/V23
>V16:@SUM(J16...U16)
>H16:+(E16*C16)-(D16*C16)
>G16:+F16/F23
>F16:+C16*E16
>B16:/FR"BOND 02
>A16: "CAR 7.75% BON
>Y15:+V15
>X15:+V15/(C15*D15)
>W15:+V15/V23
>V15:@SUM(J15...U15)
>H15:+(E15*C15)-(D15*C15)
>G15:+F15/F23
>F15:+C15*E15
>B15:/FR"BOND 00
>A15:"ATT 3.75%
>Y14:+V14
>X14:+V14/(C14*D14)
>W14:+V14/V23
>V14:@SUM(J14...U14)
>H14:+(E14*C14)-(D14*C14)
>G14:+F14/F23
>F14:+C14*E14
>B14: "BOND 9%94
>A14: "TREASURY
>Y13:+V13
>X13:+V13*4/(C13*D13)
>W13:+V13/V23
>V13:@SUM(J13...U13)
>H13:+(E13*C13)-(D13*C13)
```

>G13:+F13/F23 >F13:+C13*E13 >B13:"BILL 1/83 >A13: "TREASURY >Y12:+V12 >X12:+V12/F12 >W12:+V12/V23 >V12:@SUM(J12...U12) >H12:+(E12*C12)-(D12*C12) >G12:+F12/F23 >F12:+C12*E12 >B12: "ACCOUNT >A12: "CHECKING >Y11:+V11 >X11:+V11/F11 >W11:+V11/V23 >V11:@SUM(J11...U11) >H11:+(E11*C11)-(D11*C11) >G11:+F11/F23 >F11:+C11*E11
>B11:"UNT
>A11:"BANK ACCO >Y10:+V10 >X10:+V10/F10 >W10:+V10/V23 >V10:@SUM(J10...U10) >H10:+(E10*C10)-(D10*C10) >G10:+F10/F23 >F10:+C10*E10 >Bl0: "ETS ACC >Alu: "READY ASS >Y9:+V9 >X9:+V9/F9 >W9:+V9/V23 >V9:@SUM(J9...U9) >H9:+(E9*C9)-(D9*C9) >G9:+F9/F23 >F9:+C9*E9 >B9:/FR"ACCOUNT >A9: "CASH MGMT >Y8:+VE >X8:+V8/(C8*D8) >W8:+V8/V23 >V3:@SUM(J8...U8) >H3:+(E8*C8)-(D8*C8) >G8:+F8/F23 >F3:+C8*E3 >B8: "OCK >A8: "AT & T STO

Figure 3. Expenses and liabilities of Wundersheet.

	JAN	FEB	MAR	APR	MAY
EXPENSE CATEGORY					
MEDICAL & DENTAL					
TAXES					
STATE INCOME TAX					
PROPERTY TAX					*
MAJOR SALES TAX					
US INCOME TAX					
FICA TAX					
RENT OR MORTGAGE					
CONTRIBUTIONS					
INSURANCE					
LIFE INSURANCE					-
ACCIDENT INSURANC					
CAR INSURANCE					
TELEPHONE					
VEHICLE COSTS					
MAINTENANCE COSTS GASOLINE					
CAR PAYMENTS					
WATER & ELECTRIC					
HOME MAINTENANCE					
FURNITURE APPLIANC					
CLOTHING					
TUITION					
RECREATION					
TOTAL	Ø	Ø	Ø	Ø	Ø

>Y7:+V7 >14:/FR"OF >X7:+V7/(C7*D7) >H4:/FR"OR >W7:+V7/V23 >G4:/FR"OF >F4:/FR"VALUE >V7:@SUM(J7...U7) >H7:+(E7*C7)-(D7*C7) >E4:/FR"PER >G7:+F7/F23 >D4:/FR"PER >F7:+C7*E7 >Y3:/FR" >B7:"K >M3:1983 >A7: "FORD STOC >L3: "ENDS FOR >Y6:/FR"TAXABLE >K3:/FR"OR DIVID >J3:/FR"INTEREST >X6:/FR"YIELD >W6:/FR"OF TOTAL >Y5:/FR"TOTAL >I3:/FR"DATE >H3:/FR"GAIN >G3:/FR"PERCENT >F3:/FR"TOTAL >X5:/FR"PERCENT >W5:/FR"PERCENT >V5:/FR"TOTAL >E3:/FR"PRICE >U5:/FR"DEC >D3:/FR"COST >C3:/FR"QUANTITY
>B3:"URCL >T5:/FR"NOV >S5:/FR"OCT >A3: "INCOME SO >R5:/FR"SEP >Q5:/FR"AUG >J2:/--->P5:/FR"JUL >12:/--->05:/FR"JUN >112:/--->G2:/--->N5:/FR"MAY >M5:/FR"APR >F2:/--->L5:/FR"MAR >E2:/--->K5:/FR"FEB >D2:/--->J5:/FR"JAN >C2:/--->15:/FR"PURCHASE >B2:/--->A2:/--->J1:"NET WORTH >H5:/FR"LOSS >G5:/FR"HOLDINGS >E5:/FR"SHARE >I1: "AND MINI >D5:/FR"SHARE >H1: "ASH FLOW >Gl: "XPENSE, CASH FLOW >Gl: "XPENSE, CASH FLOW >Fl: "INCOME, E >El:/FL"O WORTH, >Dl:/FR"PORTFOLI >Y4:/FR"MEMO >X4:/--->W4:/-->V4:/--->U4:/--->C1:/FR"INCLUDING >T4:/--->Bl:/FR"PICTURE, >54:/--->Al: "FINANCIAL >R4:/---/W1 >Q4:/---/GOC >P4:/---/GRA >04:/---/GC9 >N4:/---/X>Al:>Al:/TV >M4:/---/X!/X>C34:>F34: >L4:/--->K4:/--->J4:/---

JUN JUL AUG SEP OCT NOV DEC TOTAL Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø

CALL OR WRITE TODAY! CALL FOR MORE SOFTWARE VALUES AND OUR NEW FREE CATALOG, TOO!! **Business** Think Tank Market Analyzer PFS Access PFS File Recreation/ Education Heist crossword Magic ling Quest expidit. Amazon phus insylvania cky Bear ABC Numbers Math Blaster Word Attack ork II or III Tax Preparer 1984 Supercalc Supercalc ii D B Master ver 4 itness anetfall anetrali astertype irly Games ping Tutor II gebra I ocky's Boots ocst Amazing **Utilities** Copy II + Ess. Data. Dup. Alpha Plot Apple Mechai Beagle Bag Beagle Basic Thing arrier Force asr In Russia bjective Kursk Beagle Graphics Disc Quick Dos Boss stron Double Take astering S.A.T. de Runner Illionaire Wizardry Knight of Dia 23.00 27.00 40.00 30.00 30.00 36.00 36.00 36.00 egacy Itima III ummer Games Zoom Graphit Terrapin Logo ASCII Pro Summer Games Sky Fox Flight Sim. II Air Sym III Typing Tutor III Sargon III Lisa 2.6 Visible 6502 Home Home Accountant \$48.00 Homeword 34.00 Bank Street Writer 44.00 Bank Street Spell 45.00 Dollars & Sence 72.00 Micro Cookbook 29.00 Hardware/Misc. Hardware/Misc.
Comp. Starter Kit \$29.00
Mockingboard 80.00
w/Speech 160.00
System Saver 65.00
Flip n'file 70 15.00
Library Case 5 colors 2.50
Micromodemille 245.00
Mach Ill Joysticks 39.00
Kraft Joysticks 35.00
Flibbons 35.00 Practicalc II 2.50 **Graphics**245.00 Fontrix
\$45.00
3.39.00 Fontpak 1-5 ea.12.00
35.00 Graphics Magician 40.00
call! Pixit
45.00 Printshop 38.00 Complete Graphics 55.00 R PRODUCTS 5360 N. High Street Columbus, OH 43214 (614) 436-1124 OR TOLL-FREE OUTSIDE OHIO 1-800-272-

End of table.

Circle 318 on Reader Service card.

Figure 4. The finished template with values assigned.

FINANCIAL PICTURE,	INCLUDING	PORTFOLIO	WORTH,	INCOME, E	(PENSE, CASI	H FLOW	AND MINI	MEI WORIN		
INCOME SOURCE	QUANTITY		PRICE		PERCENT	GAIN			OR DIVIDE	NDS FOR
		PER SHARE	PER SHARE	VALUE	OF HOLDINGS	OR LOSS	OF- PURCHASE		FEB	MAR
FORD STOCK	100	90	102	10200	.2837274	1200		127		
AT & T STOCK	100	58	65	6500	.1808067	700				210
CASH MGMT ACCOUNT	1		1000		.0278164	1000				
READY ASSETS ACC	1		3400		.0945758	3400				
BANK ACCOUNT	1		1600		.0445063	1600				
CHECKING ACCOUNT	1		350		.0097357	35Ø 2ØØØ				
TREASURY BILL 1/83 TREASURY BOND 9%94			2000 10000		.Ø556328 .2781641	10000				
ATT 8.75% BOND ØØ	i		500		.0139082	500				
CAR 7.75% BOND 02	ī		400		.0111266	400				
GNMA				Ø	Ø	Ø				
G/L ST					Ø					
G/L LT					Ø			2000	2000	2000
SALARY					Ø			3000	3000	3000
CONSULTING INCOME TAX REFUND					Ø					
TOTAL				3595Ø	í			3127	3000	3210
CUMULATIVE TOTAL				160950				3127	6127	9337
TAX EFFICIENT SAV			Ø			Ø				
IRA			Ø	Ø		Ø				
RETIREMENT CONTRI			Ø	Ø						
NIAGARA MOHAWK			Ø	Ø		Ø				
HOME				110000 2600						
FURNISHINGS VEHICLE				9800						
ANTIQUES				2000						
COINS				600						
GRAND TOTAL				160950		2115Ø		3127	3000	3210
EXPENSES AND LIABI	LITIES							EXPENSES	7	
							,			
		LIABILITY						JAN	FEB	MAR
								OAN		THIN
		CATEGORY		LIABILITY	EX	PENSE C	ATEGORY	OAN		THIN
				LIABILITY	EX	PENSE C	ATEGORY	UAN		THIN
		CATEGORY					ATEGORY	200	100	150
		CATEGORY			ME					
		CATEGORY			ME TA S'	DICAL & XES TATE IN	DENTAL			
		CATEGORY			MEI TAI S'	DICAL & XES TATE IN ROPERTY	DENTAL COME TAX TAX			
		CATEGORY			ME TAJ S' PI M	DICAL & XES TATE IN ROPERTY AJOR SA	DENTAL COME TAX TAX LES TAX			
		CATEGORY			ME TAI S' P! M.	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM	DENTAL COME TAX TAX LES TAX E TAX	200	100	15Ø
		CATEGORY			ME TAI S' PI M U	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX	DENTAL COME TAX TAX LES TAX E TAX	200	100	15Ø 23Ø
		CATEGORY			MEI TA: S' P! M. U: F REI	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE	200	100	15Ø
		CATEGORY			MEI TAX S' PI M. U: F REI COI	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS	200	100	15Ø 23Ø
		CATEGORY			ME TAI S' P! M. U: F! REI CO! IN:	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS	200	100	15Ø 23Ø
		CATEGORY			MEI TA: S' P! M. U: F REI CO! IN: L	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC	200	100 230 345	15Ø 23Ø 345
		CATEGORY			MEI TAX SY PI M. US F REI COI IN: L A	DICAL & XES TATE IN ROPERTY AJOR SA SINCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE	200	100 230 345	15Ø 23Ø
		CATEGORY			MEI TAX SY PI M. UT REI COI IN L A C.	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB	200 230 345	100 230 345 450	15Ø 23Ø 345
		CATEGORY			MEI TA' S' P! M. U: F REI COI IN L A' C. RE'	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NT HENT SURANCE IFE INS CCIDENT ALIREMEN LEPHONE	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB	200	100 230 345	15Ø 23Ø 345
		CATEGORY			MEI TA: S' P! M. U: F REI CO! IN: L A: C. RE' TE: VE!	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU TIREMEN HICLE C	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB	200 230 345	100 230 345 450	15Ø 23Ø 345
		CATEGORY			MEI TAX S' PI M. U.G F REI COO INI L A C. RE' TEE VE	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU TIREMEN HICLE C	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS	200 230 345	100 230 345 450	15Ø 23Ø 345
		CATEGORY			MEI TA' S' P! M. U: F REI COO! IN L A' C. RE' TE: VE M. G.	DICAL & XES TATE IN ROPERTY AS INCOM ICA TAX NT OR M NT OR M SURANCE IFE INS CCIDENT AIREMEN LEPHONE HICLE C AINTENA ASOLINE AR PAYM	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS	200 230 345	100 230 345 450 60 100 100	15Ø 23Ø 345 14Ø 6Ø 1ØØ
		TAX OWED			MEI TA: S' P! M. U: F REI COI IN: A: C: REE VEI M. G. C. WA:	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU LEPHONE HICLE C AINTENA ASOLINE AR PAYM TER & E	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LENTS LECTRIC	200 230 345	100 230 345 450 60 100 100 45	150 230 345 140 60
		TAX OWED			MEI TAX S' PI M. U. F REI COI IN. L A C. RE' TEE VE WA G C. WA'	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SIFE INS CCIDENT AR INSU TIREMEN LEPHONE LEPHONE LEPHONE ASOLINE ASOLINE AR PA ME MAIN	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS ENTS LECTRIC TENANCE	200 230 345	100 230 345 450 60 100 100	150 230 345 140 60 100 120
		TAX OWED			MEI TAX S' PI M. U. F REI COI IN: L A A C. RE' TE. VE. M. G. C. WA HO HO F U.	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE INS CCIDENT AR INSU TIREMEN LEPHONE HICLE C AINTENA ASOLINE AR PAYM TER & E ME MAIN RNITURE	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LENTS LECTRIC	200 230 345	100 230 345 450 60 100 100 45 300	15Ø 23Ø 345 14Ø 6Ø 1ØØ
		TAX OWED			MEI TA: S' P! M. U: F REI COI IN. A: C. RE' TE: VE M. G. C. WA' HO!	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SIFE INS CCIDENT AR INSU TIREMEN LEPHONE LEPHONE LEPHONE ASOLINE ASOLINE AR PA ME MAIN	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS ENTS LECTRIC TENANCE	200 230 345	100 230 345 450 60 100 100 45	150 230 345 140 60 100 120
		TAX OWED			MEI TA: S' P! M. U: F REI COI IN: A' C: REE VEI M. G. C. WA' HOI FU	DICAL & XES TATE IN ROPERTY AS INCOM ICA TAX NT OR M NT OR M SURANCE IFE INS CCIDENT AIREMEN TIREMEN LEPHONE HICLE C AINTENA ASOLINE ASOLINE AR PAYM TER & E ME MAIN RNITURE OTHING	COME TAX TAX LES TAX E TAX CRTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LECTRIC TENANCE APPLIANC	200 230 345	100 230 345 450 60 100 100 45 300	150 230 345 140 60 100 120
		TAX OWED			MEI TA: S' P! M. U: F REI COI IN: L A: C. RE' TE: WE WA G. C. WA HOI FU CLU TU REG	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU LEPHONE HICLE C AINTENA ASOLINE AR PAYM TER & E ME MAIN RNITURE OTHING ITION	COME TAX TAX LES TAX E TAX CRTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LECTRIC TENANCE APPLIANC	200 230 345 60 100	100 230 345 450 60 100 100 45 300 100	150 230 345 140 60 100 120 400
		CATEGORY TAX OWED MORTGAGE CAR LOAN		5ØØØØ	MEI TA: S' P! M. U: F REI COI IN: L A: C. RE' TE: WE WA G. C. WA HOI FU CLU TU REG	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU TIREMEN AR INSU HICLE C AINTENA ASOLINE ASOLINE AR PA ME MAIN RNITURE ME MAIN RNITURE OTHING ITION CREATIO	COME TAX TAX LES TAX E TAX CRTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LECTRIC TENANCE APPLIANC	200 230 345 60 100	230 345 450 60 100 100 45 300 100 200	150 230 345 140 60 100 120 400
		CATEGORY TAX OWED MORTGAGE CAR LOAN		5ØØØØ	MEI TA: S' P! M. U: F REI COI IN: L A: C. RE' TE: VE WA HOI FU CLL TU REG TO'	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M NTRIBUT SURANCE IFE INS CCIDENT AR INSU TIREMEN ALEPHONE HICLE C AINTENA ASOLINE ASOLINE TER ASOLINE ME MAIN RNITURE OTHING ITION CREATIO TAL	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LECTRIC TENANCE APPLIANC	200 230 345 60 100 200 1135 JAN	100 230 345 450 60 100 100 45 300 100 200 2030 FEB	15Ø 23Ø 345 14Ø 6Ø 10Ø 12Ø 40Ø 1745 MAR
		CATEGORY TAX OWED MORTGAGE CAR LOAN		5ØØØØ	MEI TA: S' P! M. U: F REI COOI IN: IN: AA C. C. RE' TE: VE M. G. C. WA' HOOI FU CL. TU: REG TO	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M ICA TAX SURANCE IFE INS CCIDENT AIREMEN TIREMEN LEPHONE HICLE C ASOLINE AR PAYM TER & E ME MAIN RNITURE OTHING ITION CREATIO TAL SH FLOW	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS ENTS LECTRIC TENANCE APPLIANC	200 230 345 60 100 1135 JAN 1992	100 230 345 450 60 100 45 300 100 200 2030 FEB	15Ø 23Ø 345 14Ø 6Ø 12Ø 4ØØ 20Ø 1745 MAR 1465
		CATEGORY TAX OWED MORTGAGE CAR LOAN		5ØØØØ	MEI TA: S' P! M. U: F REI COOI IN: IN: AA C. C. RE' TE: VE M. G. C. WA' HOOI FU CL. TU: REG TO	DICAL & XES TATE IN ROPERTY AJOR SA S INCOM ICA TAX NT OR M ICA TAX SURANCE IFE INS CCIDENT AIREMEN TIREMEN LEPHONE HICLE C ASOLINE AR PAYM TER & E ME MAIN RNITURE OTHING ITION CREATIO TAL SH FLOW	DENTAL COME TAX TAX LES TAX E TAX ORTGAGE IONS URANCE INSURANC RANCE T CONTRIB OSTS NCE COSTS LECTRIC TENANCE APPLIANC	200 230 345 60 100 1135 JAN 1992	100 230 345 450 60 100 100 45 300 100 200 2030 FEB	15Ø 23Ø 345 14Ø 6Ø 12Ø 4ØØ 20Ø 1745 MAR 1465

1983											
APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	TOTAL	PERCENT OF TOTAL	PERCEN'
160		190	178		190	169		205	795	.0169387	.070444
36									Ø	Ø	
									Ø	Ø	
									Ø Ø	Ø Ø Ø	ERRO! ERRO!
									Ø	Ø Ø	ERRO
3000	3000	3000	3000	3000	3000	3000	3000	2000	Ø	Ø	
3000	3000	3000	3000	3000	3000	3000	3000	3000	36000 0	.961821Ø	
316Ø 12497	3ØØØ 15497	319Ø 18687	3178 21865	3ØØØ 24865	319Ø 28Ø55	3169 31224	3ØØØ 34224	32Ø5 37429	37429	Ø 1	
,	13171		21005	24003	20033	31224	34224	37429	Ø		
3160	3000	3190	3178	3000	3190	3169	3000	3205	37429		
							-7.				
APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		PERCENT OF TOTAL INCOME	
150	100	120	190	200	13Ø	200	100	130	177Ø Ø	.0472895 Ø	
45Ø 23ØØ						2300			450	.0120228	
7800			450						450	.0120228 .2083946	
23Ø 345	23Ø 345	23Ø 345	23Ø 345	23Ø 345	23Ø 345	23Ø 345	345	345	2300	.0614497 .1106094	
									Ø	Ø	
				450					9ØØ Ø	.0240455 Ø	
,		140			140		To a contract of the contract	150	Ø	.Ø152288 Ø	
60	6Ø	60	60	6Ø	60	. 60	6Ø	60	Ø	.Ø192364 Ø	
100	100	100	100	100 100	100	100 100	100	100 100		.0160304 .0320607	
45		45 300		45	120	45 3ØØ		45	510	.Ø136258 .Ø24Ø455	
	100			200	400		100		500	.0213738 .0133586	
200 11780	200 1135	200 1640	200 1575	200 1930	200 1725	200 3880	200 905	200 1130	2400	.Ø641214 .8178151	
APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	TOTAL	PERCENT	
-862Ø .72785	1865 .6216667	1550 .4858934	1603 .5044053	1070 .3566667	1465 .4592476	-711 224361	2Ø95 .6983333	2075	6819	OF TOTAL .1821849	

This holiday season, Mockingboard is giving you more titles than ever before.

And some great prices, too!

If you've ever listened to a Mockingboard, you know the thrill of listening to the Mockingboard music, sound and speech routines contained in the most popular software. What you may not have heard is that now there are more great software titles supporting Mockingboard than ever before.

Better yet, right now, we're offering the lowest Mockingboard prices ever. That's right, through January 15th only, we're reducing our prices on our entire line of Mockingboard products. So you can save on the Mockingboard that best fits your price range.

To hear Mockingboard perform live, call 401-941-1130.

Mockingboard is available at most fine computer stores. If your local dealer doesn't carry Mockingboard, you can order yours direct from Sweet Micro Systems, Inc., by calling 1-800-341-8001.

Sweet Micro Systems, Inc. 50 Freeway Drive, Cranston, RI 02920

Apple is a registered trademark of Apple Computer Company



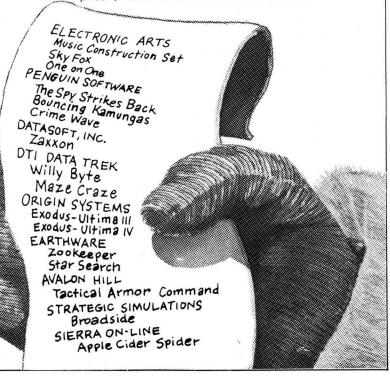


Mockingboard A is a stereo sound and music synthesizer that makes a perfect gift for the composer or game player. Suggested retail price \$124.95. HOLIDAY SPECIAL \$99.00 This model can be upgraded for speech synthesis with the purchase of a Mockingboard B. Suggested retail price \$99.00 **HOLIDAY SPECIAL \$89.00**

Mockingboard C is a stereo sound, music and speech synthesizer that does all the above plus gives the computer hobbyist the ability to work with the most intelligible low data rate speech synthesizer available. Suggested retail price \$219.00 HOLIDAY SPECIAL \$179.00. Mockingboard A, B and C versions are Apple II-Plus and Apple IIe compatible.



Mockingboard D is a stereo-sound, music and speech synthesizer available for your Apple II C. This new Mockingboard product is compatible with MUSIC CONSTRUCTION SET by Electronic Arts. Additional software is presently being developed to take advantage of the expanded capabilities of the APPLE IIC and Mockingboard D. Suggested retail price \$229.00. HOLIDAY SPECIAL \$195.00





Listing 1. Random chromatic notes. DIM PITCH(39) 790: READ D: POKE Z.D: NEXT: DATA FOR Z = 770 TO 136.208.5.206.1.3.240.9.202.208.245. DATA

DATA

DE Z = 770 TO 790: READ D: POKE Z.D: NEXT : DATA

173,48,192,136,208,5,206,1,3,240,9,202,208,245,1

173,48,192,136,208,5,206,1,3,240,9,202,208,245,1 HOME 10 20 30 INT (RND (1) * 255) + INT (RND (1) * 255) + INT (RND (1) * 255) + INT (RND (1) * 255) 153,161,171,180,192 Listing 2. Pitch and duration windows. 4Ø POKE 768, PITCH(P) 100 P = 110 D = = 20 (RND (1) * 2) = 1 THEN DJUMP = DJUMP * (210 CALL 770 220 GOTO 100 230 = 18 60 PDIREC = 50 P 290 70 PJUMP = 4 80 DMAX = 125 110 DMAX = DMAX + (INT (RND (1))

110 DMAX = DMAX + STHEN DMAX = 250

120 IF DMAX < 350 MUDN DMAY = 5 90 DJUMP = 20 100 IF IF DMAX > 250 THEN DMAX = 5

IF DMAX > 250 THEN DMAX) +

D = INT (RND (1) * DMAX)

Adding the lines in Listing 2 supplies two windows: one for pitch and one for duration. The pitch window randomly chooses the next pitch from all pitches within a given distance (PJUMP) from the present one. The duration window randomly chooses a duration between five (shortest note) and the maximum (DMAX). Then this maximum moves randomly to a new value within a given distance (DJUMP) from the present maximum. Choosing duration in this way gradually changes tempo (dictated by the moving duration maximum), while still allowing for individual short

Line 50 sets the initial pitch (P). Line 60 sets the initial pitch change direction flag (PDIREC). A positive value moves up the scale. Line 70 sets the maximum pitch change (PJUMP), or pitch window size. Line 150 sets the new pitch change direction, line 160 sets the new pitch change, and line 170 figures the new pitch itself. Lines 180 and 190 check the pitch limits (1-37), and wrap around if the pitch has moved out of bounds.

Line 80 sets the initial duration maximum (DMAX), and line 90 sets the maximum change (DJUMP) in the duration maximum. Line 100 sets the direction of change for the duration maximum. Line 110 figures the new duration maximum. Lines 120 and 130 check the limits of the duration maximum (5-255), and wrap around the value if it has moved out of bounds. Line 140 then figures the present duration.

94 inCider December 1984

13Ø 140 D =

15Ø

180 190

Snake Dance Once everything worked I wanted to "see" this random music on the screen. I used hi-res graphics to plot pitch along the Y-axis and the (duration *5) along the X-axis. After watching the dot jump around the screen, I started connecting the new notes with the old notes and came up with a "dancing snake" whose three body parts express the relationship between the last four notes played.

IF INT

160 PCHANGE = PDIREC *

IF P < 1 THEN P = 37

IF P > 37 THEN P = 1

170 P = P + PCHANGE

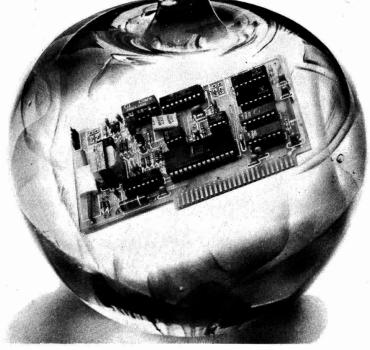
* UMAX) + 5
* 2) = 1 THEN PDIREC = PDIREC
* 2)

(INT (RND (1) * PJUMP) + 1)

Listing 3 gives the lines to be added for the snake. The plotting coordinate values of these four notes are held in the variable pairs: X3,Y3; X2,Y2; X1,Y1; D,P*5. As it's played, each new note becomes the anterior end of the snake. The other variables are pushed down the body, with the oldest point (X3,Y3) being pushed off the end of the tail and lost.

The vertical distance between any two points represents their pitch difference. The horizontal distance represents difference in duration. To keep track of where the snake has been, the end of the tail leaves a dot at every point it touches.

In Listing 3, line 10 is changed to enter full page hi-res graphics. Line All This **Function** For One **Low Price**



AN INTELLIGENT CHOICE

300 MODEM

A FULL FUNCTION MODEM PACKAGE PLUG-IN CARD

TO BE USED WITH APPLE II, APPLE II PLUS, APPLE IIE, and COMPATIBLES

INCLUDED WITH INTEC MODEM:

- · Hardware module
- Communications software module (CPM 2.2 & DOS 3.3)
- Modular phone line connector cable

- Automatic answer / Automatic dial
- Easy to use manual
- Full-year warranty

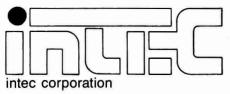
A SAMPLING OF COMMANDS:

- · Data capture direct to disk file
- · Data capture to memory buffer
- On-line display of capture buffer
- Optional add/delete of linefeeds
- XMODEM Protocol error-checking file transfer
- Non-ASCII (binary), ASCII file transfer
- Auto-redial of last number called
- Modem/telephone hangup

- 255 number auto-dialing telephone directory
- Automatic log on
- List disk files
- On-line printer on/off toggle
- Deletion and addition of disk files
- Unattended answer mode
- On-line display of help files
- · Send files from disk

suggested retail price

Order Now For Special X-Mas Discount





P.O. BOX 5164

WEST BLOOMFIELD, MI 48033

(313) 851-5491

200 plots the snake's new head. Line 240 erases the old tail, and line 250 leaves a dot where the old tail ended. Lines 260-280 push the variables down the body.

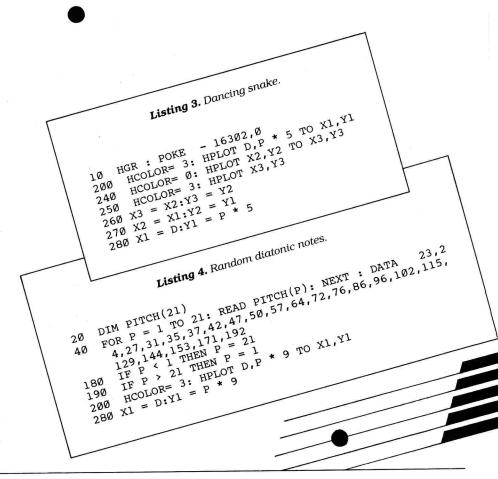
Dancing to Your Own Tune

You can play around with the music by changing the window sizes. The larger the windows, the less structured the music will be. You can dispense with the wrap-around for either the pitch or the duration by changing the values which are given if the boundaries are crossed (lines 120, 130, 180, and 190) to the values of the boundaries themselves.

The supplied chromatic scale has a full complement of sharps and flats. Use the diatonic scale, which has no sharps or flats, to produce music with a much lighter feel. Listing 4 gives the changes for a three-octave diatonic scale.

Create multiple snakes using other constantly changing variables (such as duration limit and pitch change), and have your own dance contest.

Write to Frank Coker at 2735 North Murray #5, Milwaukee, WI 53211.





EDD is the most powerful copy program available for backing up your protected Since EDD has been preset to copy a broad range of copy-protections, many disks can Apple software. be copied easily, without changing messy parameters. Even though you rarely need parameters. Even unough you release, need to change them, each parameter is fully described in the operating manual. Unlike the copycards, which only copy single load the copyodius, which only copy single load programs, EDD backs up entire disks. Thus, not only copying single load, but, multi disk access programs as well. We feel on an average, diele shack up many more protected disks than all other copy programs or copycards put together.

ESSENTIAL DATA DUPLICATOR III

EDD runs on Apple II, II plus (including most compatibles), IIe, and III (in emulation mode),

with one or two 3.3 disk drives.

- Automatically copies most protections.
- Rarely needs parameter changing
- Average duplication time 21/2 minutes
 - Accurately finds "self-sync" bytes and their lengths
 - Can copy ¼ and ¾ tracks
 - Updated program lists available
 - Unlike copycards, EDD backs up entire disks, not just what's in memory

To order direct; send \$79.95 plus \$2 shipping (\$5 foreign), California residents add 6%. Mastercard/Visa accepted. Prepayment required.

UTILICO MICROWARE 3377 Solano Ave., Suite #352 Napa, CA 94558 (707) 257-2420

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

Go to the

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



You need more storage for your Apple *II* + or *II*e than your trusty little floppy disk drive can deliver.

And you're thinking about going down to your local computer store to check out your next logical storage step: A hard disk file. Sure, you'll have to face several hard facts. One, you know it's going to cost you an arm and a leg, particularly from your computer dealer. And two, you heard that the state-of-the-Winchester-art is less than it's cracked up to be. But you and your Apple are caught between a rock and the hard facts. If you're going to compute, you've got to store, and what alternative is there to ye old computer store?

First Class Peripherals. And what an alternative we offer! Our message is a simple one: 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.

True to our name, we simply wouldn't offer a product that wasn't first class, inside and out. And The Sider is evidence. Outside, that fact is obvious. Just take a long, lean look at it. While Apple may have written the book on micro-

computing, First Class Peripherals has clearly written the bookend. The Sider's compact, smart-looking cabinetry is a true complement to the computer alongside which it works, and an unobtrusive, space-saving partner as well.

Inside, that quality look is matched by the highest quality components, from the half-height 10-megabyte Winchester, to the best-selling intelligent controller in the business, right down to the power supply. The most comprehensive component-to-component testing ensures first class reliability, day-in and day-out. And advanced internal design has allowed us to build these components into this modestly-sized casing in such a way that we've even eliminated the need for a cooling fan.

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

Our name is our commitment. First Class. That's why we offer a full one-year warranty on The Sider. No hassle. No nonsense. Full documentation, of course, accompanies the subsystem. A toll-free hotline is in place to answer any technical or service question you may have concerning The Sider's operation. But if there's any problem whatsoever that relates to the manufactured quality of the product, just return it for immediate replacement.

Here's A First Class Idea: Order Now. 1-800-538-1307

We expect The Sider to sell like crazy. Because the product is right for today's Apple *II*+ and *II*e owners. And the price is, well, the price speaks for itself. You won't find an offer like this one anywhere in the industry for a long time to come.

So, act now. Complete the order form attached to this advertisement or call our toll free number. Harness the power of your Apple to the price/performance of The Sider. What a team!

ALS PE

The Sider: A First Class Engineering Achievement.

PUT ON YOUR SPECS AND READ OURS.



The quality of a product is often made or lost in the fine print, the nitty-gritty engineering details. That's why we're proud to say that the technical-at-heart can indeed take heart at how we put together The Sider.

Take a look at these specifications.

Operating Systems Supported

• Apple DOS 3.3; ProDOS 1.0; Microsoft CP/M® 2.23; PCPI CP/M 1.0, 1.5, 2.0; Apple Pascal 1.1, 1.2

Specifications

- Formatted Capacity: 10 MB
- Sectors/Track: 32Bytes/Sector: 256

AC Power Requirements

- Source: 100-126 VAC, 220-240 VAC
- Line Frequency: 50/60 Hz ($\pm 2\%$)
- Power Consumption: 40 W

Environmental Range

- Temperature—Operating: 10°C to 40°C; Non-Operating: -40°C to 60°C
- Relative Humidity: 20% to 80% (without condensation)

- Altitude—Operating: -300 ft. to 10,000 ft. (-91 m to 3,048 m); Non-Operating: -300 ft. to 30,000 ft. (-91 m to 9144 m)
- Shock—Operating: 5 g; Non-Operating: 40 g
- Vibration—Operating: 2 g; Non-Operating: 3 g

Physical Dimensions

- Height: 7.5 in.
- Width: 3.375 in.
- Depth: 16.0 in.
- Net Weight: 11 lbs.

Feature/Benefit Brief

- Automatic data error detection and correction for high data integrity and faster system throughput.
- Internal diagnostics for increased subsystem reliability.
- Field-proven Winchester disk technology for better data integrity.
- Small footprint for increased workspace dynamics.
- Regulatory agency approval, meeting FCC Class B requirements.
- Menu-driven installation for increased user friendliness.
- Backup and restore utility for most operating systems, by volume, by operating system, by file, and by use of wild card backup.
- Flexible partitioning for optimizing operating system file sizes.
- Built-in modular drive expansion capability.
- Direct boot from hard disk, eliminating floppy drive booting.



First Class Peripherals P.O. Box 6187 Lehigh Valley, PA 18001 1-800-538-1307

FOR APPLE USERS WHO CAN'T WAIT TO BYTE INTO PASCA

Each book/software package comes complete with book, ready to run diskettes, and documentation booklet. Saves users hours of keyboarding time and the aggravation of debugging. Documentation booklets contain a directory of programs, instructions for their use, and pages of additional information to supplement the book.

Pascal Programs for **Data Base Management**

(Swan) A Pascal Data Base System (pdbs) of more than 35 short, UCSD Apple™ Pascal programs for a full range of dBASE applications.

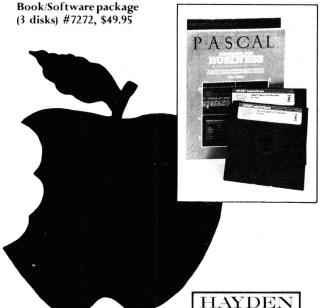
Includes VMOS (Virtual Memory Operating System) which allows the programs to search data on the disk as though it were already stored in the computer, and pdbsunic, a special Pascal system library extension. #6272, \$18.95

Pascal Programs for **Business**

(Swan) An invaluable collection of 28, ready-to-run UCSD Apple Pascal programs ranging from basic statistics to spreadsheets, word processing, and data security.

Includes HONEYCALC, a powerful electronic spreadsheet program, and TYPE RIGHT, an excellent word processing program. #6270, \$18.95

Book/Software package (2 disks) #7270, \$39.95



Apple is a trademark of Apple Computer, Inc., and is not associated with Hayden Book Company.

Circle 291 on Reader Service card.

Pascal Programs for Games and Graphics (Swan) Pure video enjoyment-more than 20 unusually sophisticated, nerve-testing games and

colorful light displays!

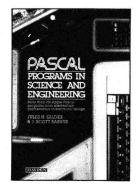
Includes a powerful graphics editor that allows users to custom-design character sets, save and change pictures up to full screen, and print the finished product.

#6271, \$17.95 Book/Software package (2 disks) #7271, \$39.95



Pascal Programs in Science and Engineering

(Gilder) More than 100 Apple Pascal programs ranging from elementary math and basic electronics to electronic design. All programs are ready to run, easy to modify, and serve as excellent models of structured programming. #6265, \$19.95



Order by Phone 1-800-631-0856 operator IND4 in NJ call (201) 393-6315

Mail to: Dept. IND4 • Hayden Book Company 10 Mulholland Dr. • Hasbrouck Hts., NJ 07604

Please send me the book(s) indicated below by code number. If I am not completely satisfied I may return the book(s) undamaged, within 10 days for a complete refund. I am enclosing \$2.00 to cover postage and handling.

_ Enclosed	is my check o	r money order	Bill my U V	isa 🗆 MasterCa
Name	ř			

City State/Zip

Visa/MasterCard # Expires

Residents of NJ and CA must add sales tax. Prices subject to change.

New Glossary

by Robb Russon



High-tech vocabulary has gotten so complex, even Merriam-Webster can't keep up with the lingo.

elect Committees have agonized over subtle differences in defining the myriad terms that abound in the ever evolving world of computing. Anthologies of such definitions are not lacking and most manuals worth their salt list glossaries of varying length and detail-perhaps as a last gasp at systematic thought in a sea of chaos.

The problem with these glossaries is not length-although they are often incomplete-nor is it the selection of which term deserves honor of explanation. The main problem is the total disregard of the subject's real-world implications. In order to bridge the gap between what is and what should be, the following short glossary is offered:

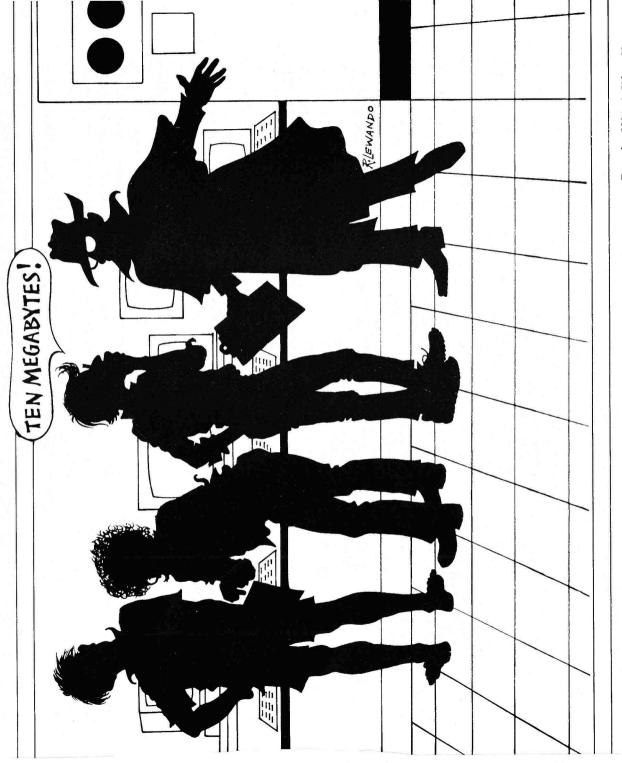
ASCII. The control code for all beginning programmers and those who would become computer literate. Etymologically, the term has come down as a contraction of the often-repeated phrase "ascii and you shall receive."

Backing up. The process of protecting what should never have been saved in the first place.

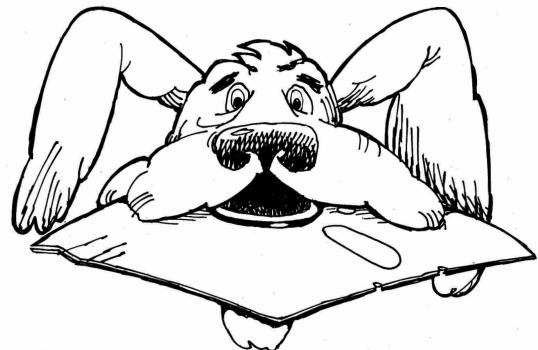
BASIC. An acronym that represents a universal programming language, but in reality was created as a joke among programmers. The letters stand for "Boy, this Algorithm Sure Is Com-

Robb Russon ponders computer semantics at UMC 30, Utah State University, Logan, UT 84321.

Yomputists



December 1984 in Cider 99



Having problems with retrieval?

You need software insurance.

Diskettes are fragile, and when a protected program is damaged, the results are expensive and inconvenient. If you have a backup diskette, though, you can have your Apple, IBM or compatible computer back on line within seconds...affordably. That's software insurance.

Copy II Plus (Apple][,][Plus, I/e)

This is the most widely used backup program for the Apple. Rated as "one of the best software 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. A new version is now available that is easier to use and more powerful than before. Best of all, Copy II Plus is still only \$39.95.

WildCard 2 (Apple ||, || Plus, I/e)

Designed by us and produced by Eastside Software, WildCard 2 is the easiest-to-use, most reliable card available. Making backups of your total load software can be as easy as pressing the button, inserting a blank disk and hitting the return key twice. WildCard 2 copies 48K, 64K and 128K software, and, unlike other cards, is always ready to go. No preloading software into the card or special, preformatted diskettes are required. Your backups can be run with or without the card in place and can be transferred to hard disks. \$139.95 complete.

Important Notice: These products are provided for the purpose of enabling you to make archival copies only. Under the Copyright Law, you, as the owner of a computer program, are entitled to make a new copy for archival purposes only, and these products will enable you to do so.

These products are supplied for no other purpose and you are not permitted to utilize them for any use, other than that specified.

Copy II PC (IBM)

This is THE disk backup program for the IBM PC and PC/XT that backs up almost anything. Others may make similar claims, but in reality, nothing out performs Copy II PC . . . at any price. Copy II PC even includes a disk speed check and is another "best buy" at only \$39.95.

We are the backup professionals. Instead of diluting our efforts in creating a wide variety of programs, we specialize in offering the very best in backup products. So, protect your software investment, before your software meets its master.



ENTRAL POINT Software, Inc. Circle 361 on Reader Service card.

The Backup Professionals

To order, call 503/244-5782, 8:00-5:30 Mon.-Fri., or send your order to: Central Point Software, 9700 SW Capitol Hwy, Suite 100, Portland, OR 97219. Prepayment is required. Please include \$3 for shipping and handling (\$8 outside U.S. or Canada). Welcome

Boot. Early computers were notoriously unreliable and often needed adjustment beyond the technical manual's guidance. To start these machines one often had to give it a "boot." Thus the term has come to mean the process of starting or running the machine.

Buffer. A derisive name for the proud new computer owner, who is always polishing or "buffing" his equipment.

Character. You see these people hanging around computer rooms and in computer stores. They usually wear thick glasses and they mumble phrases such as, "I got ten megabytes from the I/O phasing using the integrated verification data sequence."

Code. A secret string of symbols known only to those who have mastered the guild language. Makes equipment work and programs run.

Computer. The cause of it all.

Control Character. Those whom you ASCII. (See Character.)

Cursor. One whose program will not run.

Default. Usually the equipment or the recently-purchased software; never the owner.

Disk Drive. A street in Cupertino, California.

Error Message. What one gets when the instructions are scrupulously followed, routines checked, and bugs deleted.

Expansion Slot. A bottomless slit inside the computer into which large sums of money are poured in hopes of placating the great god Peripheral.

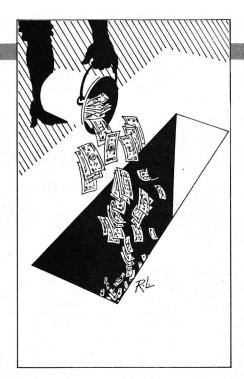
Filename. A created title with the unique amnestic property of becoming instantly forgotten as soon as it is written.

High Level Language. Communication between two programmers or computer engineers.

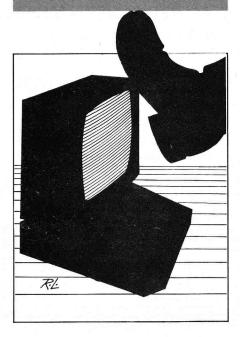
Immediate Execution. What happens when one messes around with computer innards with the power on.

Interpreter. An individual with the ability to understand and communicate to others the arcane mysteries of the computer. (See *High Level Language*.)

Keyboard. A set of closely placed switches or buttons that change function randomly from program to pro-



"They usually wear thick glasses and they mumble."



gram, and even during a program. With some operators, these switches are almost uncanny in their ability to place themselves under fingers at the wrong time, particularly the reset and escape keys.

Kilobyte. A slang term used by "old computer hands" when describing the beginner. It means, roughly, "He has bitten off more than he can chew."

Loops. See Recursion.

Nibble. Another slang term for the green, rank beginner. This person doesn't even measure up to a *kilobyte*.

Peripheral. The Great Spirit of computing whose omniscient presence dominates the hardware. Those who wish to placate this spirit must softly utter the words, "I/O, I/O, I/O."

RAM. The process used by the main memory to stuff all the meaningless information generated by the operator into unused cracks and crannies inside the lid.

Recursion. See Loops.

Rigid Disk. A floppy disk that has been left out overnight in the car on the coldest night of winter.

ROM. The eternal, unchanging god of memory.

Save. The process used to create file names. (See *Filename*.)

Syntax. Arbitrary rules, created by fiendish computer engineers, designed to confuse, perplex, befog, and baffle those who would rashly attempt to communicate with their computers using the rules painfully learned over many years of public schooling.

Turnkey Program. A good example of a typo that, with constant usage, remains intact in its original form. The term was first used as an expletive uttered by those who would try and debug their programs (@#\$%*&!!# TURKEY PROGRAM!!) but was changed to its current form by a typing mistake. (See *Keyboard*.) It means about the same thing, but has lost its punch.

Write-Protect Tab. A small sticker created to cover the unsightly notch carelessly left by disk manufacturers. The use of the tab creates an error message once in a while, but its aesthetic value far outweighs the momentary inconvenience. ■

14" COLOR MONITOR SALE!!!

(Lowest price in USA)

- Built in speaker and audio
- Front Panel Controls
- •For Video Recorders
- For Small Business/ Computers
- Apple-Commodore Atari-Franklin-etc.



14" Color Computer Monitor



- •Beautiful Color Contrast
- High Resolution
- Sharp Clear Text
- •40 Columns x 24 lines
- •List \$399

SALE \$219

15 Day Free Trial - 90 Day Immediate Replacement Warranty

12" HI-RESOLUTION GREEN OR AMBER TEXT DISPLAY MONITOR List \$249 SALE\$119

80 Columns x 24 lines, Hi-Resolution-crisp clear easy to read text with anti glare screen! A Must for word processing.

12" SANYO GREEN OR AMBER SCREEN MONITOR List \$199 SALE \$99 80 Columns x 24 lines, amber or green text display, easy to read, no eye strain, up front controls.

9" SANYO GREEN SCREEN DATA MONITOR List \$149 SALE \$69
80 Columns x 24 lines easy to read, up front controls metal cabinet.

• LOWEST PRICES • 15 DAY FREE TRIAL • 90 DAY FREE REPLACEMENT WARRANTY
• BEST SERVICE IN U.S.A. • ONE DAY EXPRESS MAIL • OVER 500 PROGRAMS • FREE CATALOGS

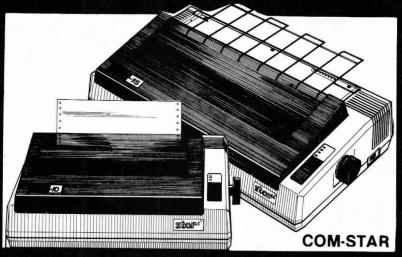
Add \$10.00 for shipping, handling and insurance. Illinois residents please add 6% tax. Add \$20.00 for CANADA, PUERTO RICO, HAWAII orders. WE DO NOT EXPORT TO OTHER COUNTRIES.

Enclose Cashiers Check, Money Order or Personal Check, Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail! Canada orders must be in U.S. dollars. Visa - MasterCard - C.O.D.

PROTECTO
ENTERPRIZES (WE LOVE OUR CUSTOMERS)

BOX 550, BARRINGTON, ILLINOIS 60010 Phone 312/382-5244 to order

FANTASTIC COMPUTER PRINTER SALE!!!



COM-STAR T/F

Tractor Friction Printer

only ₹

- Lowest Priced, Best Quality, Tractor-Friction Printers in the U.S.A.
- Fast 80-120-160 Characters Per Second
 40, 46, 66, 80, 96, 132 Characters Per Line Spacing
 - Word Processing
 Print Labels, Letters, Graphs and Tables
 List Your Programs
- Print Out Data from Modem Services
 "The Most Important Accessory for Your Computer"

** DELUXE COMSTAR T/F 80 CPS Printer — \$169.00

This COMSTAR T/F (Tractor Friction) PRINTER is exceptionally versatile. It prints 81/2" x 11" standard size single sheet stationary or continuous feed computer paper. Bi-directional, impact dot matrix. 80 CPS, 224 characters. (Centronics Parellel Interface).

Premium Quality 120-140 CPS 10" COM-STAR PLUS+ Printer \$249.00

The COM-STAR PLUS+ gives you all the features of the COMSTAR T/F PRINTER plus a 10" carriage, 120-140 CPS, 9 x 9 dot matrix with double strike capability for 18 x 18 dot matrix (near letter quality), high resolution bit image (120 x 144 dot matrix), underlining, back spacing, left and right margin settings, true lower decenders with super and subscripts, prints standard, italic, block graphics and special characters. It gives you print quality and features found on printers costing twice as much!! (Centronics Parallel Interface) (Better than Epson FX80). List \$499.00 SALE \$249.00

Premium Quality 120-140 CPS 151/2" COM-STAR PLUS+ **Business Printer \$349.00**

Has all the features of the 10" COM-STAR PLUS+ PRINTER plus 151:" carriage and more powerful electronics components to handle large ledger business forms! (Better than Epson FX 100). List \$599

SALE \$349.00

Superior Quality 10" COM-STAR+ H.S. HIGH SPEED 160-180 CPS **Business Printer \$369.00**

This Super High Speed Com-Star+ Business Printer has all the features of the 10" COM-STAR+ PRINTER with HIGH SPEED BUSINESS PRINTING 160-180 CPS, 100% duty cycle, 8K Buffer, diverse character fonts, special symbols and true decenders, vertical and horizontal tabs. A RED HOT BUSINESS PRINTER at an unbelievable low price (Serial or Centronics Parallel Interface) List \$699.00 Sale \$369.00.

Superior Quality 151/2" COM-STAR PLUS+ H.S. High Speed 160 - 180 CPS **Business Printer \$469.00**

This Super High Speed COM-STAR+ 151/2" Business Printer has all the features of the 10" COM-STAR BUSINESS PRINTER witha 15½" Carriage and more powerful electronic components to handle larger ledger business forms! Exclusive bottom feed. (Serial Centronics Parallel Interface) List \$799.00 Sale \$469.00

Olympia

Executive Letter Quality DAISY WHEEL PRINTER \$379.00

This is the worlds finest daisy wheel printer Fantastic Letter Quality, up to 20 CPS bidirectional, will handle 14.4" forms width! Has a 256 character print buffer, special print enhancements, built in tractor-feed (Centronics Parallel and RS232C Interface) List \$699 SALE \$379.

15 Day Free Trial - 1 Year Immediate Replacement Warranty

- PARALLEL INTERFACES -

For VIC-20 and COM-64 — \$49.00 For Apple computers — \$79.00 Atari 850 Interface — \$79.00 For ALL IBM Computers — \$89.00

Add \$14.50 for shipping, handling and insurance. Illinois residents pleasepdd 6% tax. Add \$29.00 for CANADA, PUERTO RICO, HAWAII, ALASKA, APO-FPO orders. Canadian orders must be in U.S. dollars. WE DO NOT EXPORT TO OTHER COUNTRIES.

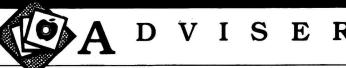
Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days for delivery. 2 to 7 days for phone orders, 1 day express mail! VISA-MASTER CARD-We Ship C.O.D. to U.S. Addresses Only

ENTERPRIZES (WELOVE OUR CUSTOMERS)

BOX 550, BARRINGTON, ILLINOIS 60010 Phone 312/382-5244 to order

Print Example:

COM-STAR PLUS+ ABCDEFGHIJKLMNOPGRSTUVWXYZ ABCDEFGHIJKLMNOPGRSTUWIXYZ 1234567890



Reading Data and Linear Arrays

he real power of the FOR...NEXT construction, as I suggested last month, lies in its control over arrays and subscript indexing. This month I'll show how a FOR...NEXT loop with a data array can simplify even the most elementary processes in your programs.

Linear Arrays

An array, in its simplest form, is a list of data elements such as an alphabetized list of names or inventory items, or a numeric list of part numbers. The elements can be arranged either in a certain order or randomly.

Imagine a shopping list written on a narrow strip of paper with room for only one item on each line. This list is a collection of data elements arranged in a linear, or one-dimensional, array. Now number the lines of the list, 1 through 18. Each of the elements is different, yet all belong to the group of items to be purchased on your next shopping trip.

To represent this list as an array in a computer's memory you would select a single variable name, such as SL\$, to represent all of the elements in the group. Each individual element would also need a number in parentheses to distinguish it from the others. Thus, SL\$(1) would correspond to the first item in the list, SL\$(2) to the second, and SL\$(18) to the last.

The numbers in parentheses are called subscripts, and they are the

key to manipulating arrays. Every array variable must have a subscript. However, the subscript need not be a numeric constant such as 1, 2, or 18. It can also be a numeric variable or a mathematical expression with a numeric result, as long as the resulting value is a positive integer or zero.

Now we come to the connection between FOR. . .NEXT loops and arrays. Since subscripts are numeric, the counter values in a FOR. . .NEXT loop, which are also numeric, can serve as subscripts. For example, if the shopping list array were stored in your computer's memory, you could use the subroutine in **Listing 1** to display the list.

This sequence makes it unnecessary to deal with each item in a unique way. Lines 710–730 constitute a loop in which the loop counter, J, and hence the array subscript in line 720, changes with each cycle. The first time through, J's value is 1, and SL\$(1), the first item in the list, will be printed. Then, the second time through, J has a value of 2, and SL\$(2) is printed. In this way, only three lines of BASIC code are responsible for printing all 18 items.

For a second example, suppose a large number of inventory items, MX, is stored in the computer's memory in the array I\$(j), where j represents any value from zero to MX. The task at hand is to search for a specific item, represented by A\$, and to determine where in the list that item

can be found. That is, you must determine the subscript associated with the item that matches A\$. The subroutine in **Listing 2** would do the trick.

There are more efficient ways to handle such lists than this item-byitem comparison, but this technique is the simplest and at times may be the only way the task can be accomplished. The value of JF must be checked immediately after returning from the subroutine. If it is still zero, then a match for A\$ was not found in the inventory list, and an appropriate message or instruction sequence handles the event.

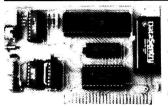
If a match was found, the value of JF on return from the subroutine corresponds to the subscript value of the item that matched. Thus I\$(JF) contains the element sought. Note that if a match is found, after JF is assigned the value of J, J itself is changed to MX so the FOR. . . NEXT loop will be terminated before returning to the main program. Never use a GOTO command to jump out of a FOR. . . NEXT loop, because the "stack" in memory that does the loop bookkeeping will not get cleared and may fill up to the point that the program will crash.

BASIC requires that you adhere to one simple rule whenever you use arrays in a program: You must let the computer know in advance the maximum size of each array. This process is known as dimensioning an array, and the BASIC keyword you

by Dan Bishop

APPLIED ENGINEERING

The BEST Peripherals for the BEST Computer!



THE NEW TIMEMASTER II H.O.

- Absolutely, positively, totally PRO-DOS and DOS 3.3 compatible.
- Time in hours, minutes, seconds and milliseconds (the ONLY PRO-DOS compatible card with millisecond capability).
- 24 hour military format or 12 hour with AM/PM format.
- Date with year, month, day of week and leap year.
- The easiest programming in BASIC.
- Eight software controlled interrupts so you can run two programs at the same time (many examples are included).
- Compatible with ALL of Apple's languages. Many sample programs for machine code, Applesoft, CP/M and Pascal on 2 disks.
- On-board timer lets you time any interval up to 48 days long down to the nearest millisecond.
- Rechargeable nickel-cadmium battery will last over 20 years.
- Two BSR/serial ports for future expansion.

REMOTE CONTROLOur BSR X-10 interface option for the H.O. allows you to remotely control up to 16 lights and electrical appliances through your BSR X-10 home control system in your home or office. You're already wired because a BSR system sends its signals over regular 120 volt wiring. That means you can control any electrical device in your home or office without any additional wiring.

Full emulation of all other clocks. Yes, we emulate Brand A, Brand T, Brand P,

Brand C, Brand S and Brand M too. It's easy for the H.O. to emulate other

clocks, we just drop off features. That's why the H.O. can emulate others, but

The Timemaster II H.O. will automatically emulate the correct clock card for the software you're using. You can also give the H.O. a simple command to

tell it which clock to emulate. This is great for writing programs for those poor

Of course, most programs will use the Timemaster II H.O. in its native mode,

but its comforting to know that you can use programs written for other

PRICE \$129.00

BSR Option \$49.00

MemoryMaster IIe 128K RAM Card

- Expands your Apple IIe to 192K memory.
- Provides an 80 column text display.
- Compatible with all Apple IIe 80 column and extended 80 column card software (same physical size as Apple's 64K card).
- Can be used as a solid state disk drive to make your programs run up to 20 times FASTER (the 64K configuration will act as half a drive).
- Permits your IIe to use the new double high resolution graphics
- Automatically expands Visicalc to 95K storage in 80 columns! The 64K config. is all that's needed, 128K can take you even higher.
- PRO-DOS will use the MemoryMaster IIe as a high speed disk drive.
- The 64K MemoryMaster IIe will automatically expand Apple Works to 55K storage. The 128K MemoryMaster IIe will expand Apple Works to 101K storage.
- High Speed disk emulation for BASIC, Pascal and CP/M is available at a very low cost. NOT copy protected.
- Documentation included, we show you how to use all 192K.

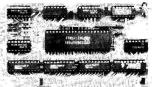
MemoryMaster IIe with 128K \$249
Upgradeable MemoryMaster IIe with 64K \$169
A. E. Extended 80 Column Card with 64K \$139

Z-80 PLUS

none of the others emulate us.

products without any modification.

unfortunates that bought some other clock card.



- TOTALLY compatible with ALL CP/M software.
- The only Z-80 card with a special 2K "CP/M detector" chip.
- Fully compatible with microsoft disks (no pre-boot required).
- Specifically designed for high speed operation in the Apple IIe (runs just as fast in the II+ and Franklin).
- Runs WORD STAR, dBASE II, TURBO PASCAL, FORTRAN-80.
 PEACHTREE and ALL other CP/M software with no pre-boot.
- A semi-custom I.C. and low parts count allows the Z-80 Plus to fly thru CP/M programs at a very low power level. (We use the Z-80A at fast 4MHZ.)
- Does EVERYTHING the other Z-80 boards do, plus Z-80 interrupts. Don't confuse the Z-80 Plus with crude copies of the microsoft card. The Z-80 Plus employs a much more sophisticated and reliable design. 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.

PRICE \$139.00

VIEWMASTER 80

There used to be about a dozen 80 column cards for the Apple, now there's only ONE.

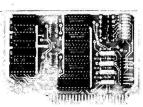
- TOTALLY Videx Compatible.
- 80 characters by 24 lines, with a sharp 7x9 dot matrix.
- On-board 40/80 soft video switch with manual 40 column override.
- Fully compatible with ALL Apple languages and software—there are NO exceptions
- Low power consumption through the use of CMOS devices.
- All connections are made with standard video connectors.
- Both upper and lower case characters are standard.
- All new design (using a new Microprocessor based C.R.T. controller) for a beautiful razor sharp display.
- The VIEWMASTER incorporates all the features of all other 80 column cards, plus many new improvements.
- PRICE SHIFT KEY VIEWMASTER 159 YES YES YES YES YES SUP RTERM MORE YES VO VO NO NO YES YES YES YES WIZARD80 MORE NO NO NO NO YES NO NO VISION80 MORE NO YES YES YES OMNIVISION NO MORE VIEWMAX80 YES YES NO YES NO NO YES MORE NO YES YES SMARTERM MORE YES YES NO NO NO NO YES YES YES YES MORE NO VIDEOTERM NO

The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, WordStar, Format II, Easywriter, Apple Writer II, VisiCalc, and all others. The VIEWMASTER 80 is THE MOST compatible 80 column card you can buy at ANY price!

Thousands SOLD at \$179 NOW ONLY \$159.00

SUPER MUSIC SYNTHESIZER - END MOCKINGBOREDOM

SUPER MUSIC STRIFFESIZI





- Complete 16 voice music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) to your stereo, boot the disk supplied and you are ready to input and play songs.
- It's easy to program music with our compose software. You will start right away at inputting your favorite songs. The Hi-Res screen shows what you have entered in standard sheet music format.

THE MOCKINGBORFEOM

- Now with new improved software for the easiest and the fastest music input system available anywhere.
- We give you lots of software. In addition to Compose and Play programs, 2 disks are filled with over 30 songs ready to play.
- Easy to program in Basic to generate complex sound effects. Now your games can have explosions, phaser zaps, train whistles, death cries. You name it, this card can do it.
- Four white noise generators which are great for sound effects.
- Plays music in true stereo as well as true discrete quadraphonic.
- Full control of attack, volume, decay, sustain and release.
- Our card will play notes from 30HZ to beyond human hearing.
- Automatic shutoff on power-up or if reset is pushed.
- · Many many more features.

PRICE \$159.00

Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products work in the APPLE IIE, III, II + and Franklin. The MemoryMaster IIe is IIe only. Applied Engineering also manufactures a full line of data acquisition and control products for the Apple: A/D converters and digital I/O cards, etc. Please call for more information. All our products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle THREE YEAR WARRANTY.

Texas Residents Add 5% Sales Tax Add \$10.00 If Outside U.S.A. Send Check or Money Order to: APPLIED ENGINEERING P.O. Box 798 Carrollton, TX 75006 Call (214) 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 use is DIM. Immediately after this word, you must list all of the array variables you plan to use in your program, with the maximum dimension for each indicated in parentheses. For example:

20 DIM SL\$(18),I\$(3500),RM(28),CC(F)

is a valid statement that dimensions four arrays. (Four separate DIM statements would have done as well.) The first array, SL\$(i), will contain string information, and will hold a maximum of 19 elements with subscript values from zero to 18. The second array, also string, will have room for 3501 elements. The third, RM(i), will hold numeric information to a maximum of 29 elements, and the fourth, CC(i), has a numeric variable for a dimensioning parameter. F must have been assigned a valid positive integer value earlier in the program for this line to execute, because without such an assignment, F will have a value of zero, and the array will hold only one element, CC(0).

Applesoft BASIC provides automatic dimensioning of small linear arrays containing 11 or fewer elements. This convenience is available at your option. But it's good programming practice to specifically establish all arrays with an appropriate DIM statement.

Dimensioning is usually done at the beginning of a program, although this is not a requirement. Remember that an array must be dimensioned before any reference to any of its elements occurs. Also, you cannot re-dimension an array. Any attempt to do so will result in a "redimensioned array" error.

The READ/DATA Combo

Now that you know what a linear array is and how to manipulate its subscripts from within a FOR. . . NEXT loop, the next step is filling the array elements with data. You could use a procedure like the one following that will fill a 50-element string array with up to 50 names entered at the keyboard:

699 REM KEYBOARD ENTRY EXAMPLE
700 DIM NM\$(50)
710 FOR I = 1 TO 50
720 INPUT"ENTER A NAME (OR X)
...":NM\$(I)
730 IF NM\$(I) = "X" THEN N = I:I = 50

740 NEXT I 750 RETURN **Listing 1.** A subroutine in which a FOR. . .NEXT loop prints the elements of an array.

```
699 REM *** DISPLAY LIST SUBROUTINE ***
700 PRINT "TODAY'S SHOPPING LIST"
710 FOR J=1 TO 18
720 PRINT SL$(J)
730 NEXT J
740 RETURN
```

Listing 2. A subroutine in which a FOR. . .NEXT loop searches an array for a specific element.

```
899 REM *** ARRAY SEARCH SUBROUTINE ***
900 JF=0
910 FOR J=1 TO MX
920 IF I$(J)=A$ THEN JF=J:J=MX
930 NEXT J
940 RETURN
```

Listing 3. A simple address book program. This program illustrates the use of DATA and READ statements to store input data within the program itself. Four linear arrays are filled with the data values by a simple FOR. . .NEXT loop (lines 100–150), and a sequential search for an assigned name is carried out by the subroutine at line 200.

**** SIMPLE ADDRESS BOOK PROGRAM

1 REM

```
FIRST DATA ELEMENT MUST BE NUMBER OF NAMES IN LIST
2
   REM
         (READ AS N). EACH ENTRY MUST BE NAME (N$), STREET ADDRESS (S$), CITY & STATE-NO COMMA- (C$), AND PHONE NUMBER (P$).
   REM
4 5
   REM
   REM
6
         ADDRESS BOOK CAN BE SEARCHED FOR A GIVEN NAME.
   REM
   REM
           (ENTERED AS A$).
                                    ****
   REM
                 MAIN PROGRAM
    HOME : GOSUB 100: REM READ DATA INTO MEMORY
    PRINT "WHO ARE YOU SEARCHING FOR?"
    INPUT AS
    GOSUB 200: REM
40
                        SEARCH ARRAY FOR NAME MATCHING A$
5Ø
    IF JF = Ø THEN
                        PRINT A$" IS NOT ON YOUR LIST.
                                                              : GOTO 7Ø
    GOSUB 300: REM DISPLAY NAME, ADDRESS & PHONE
6ø
70
    END
            **** READ DATA SUBROUTINE ****
99
    REM
     READ N
100
     DIM N$(N),S$(N),C$(N),P$(N)
110
120
     FOR I = 1 TO N
130
     READ N$(I),S$(I),C$(I),P$(I)
140
     NEXT I
150
      RETURN
199
      REM
                  ARRAY SEARCH SUBROUTINE
200
      JF = \emptyset
210
     FOR J = 1 TO N
220
      IF N$(J) = A$ THEN JF = J:J = N
230
240
     RETURN
299
            ***
                  DATA DISPLAY SUBROUTINE
      REM
     HOME : PRINT : PRINT PRINT "NAME"; TAB( 15); "ADDRESS"; TAB( 30); "PHONE"
300
31Ø
320
      PRINT : PRINT N$(JF); TAB( 15); S$(JF); TAB( 30); P$(JF)
              TAB( 15);C$(JF)
33Ø
      PRINT
340
      RETURN
      REM
                         DATA
999
1000
       DATA 5
              JON HARRISON, "8181 TROUT ST.", BILTON NJ, "218-643
MARY GALLOWAY, "212 OAK AVE", BUNION MN, "438-6438"
BO AXELTON, "1895 MAIN ST", GELLTOWN PA, "621-4121"
                                                                 "218-6433"
1010
       DATA
1020
       DATA
1030
       DATA
              ALICE TASSLE, "16172 S. 8TH", HARDLUCK WY,
                                                                  "413-2188"
1040
       DATA
              JERRY JERKY, SLUMVILLE CA, "218-4295"
1050
       DATA
```

FRIENDLY COMPUTER Satisfaction Guarantee: refund or exchange within 14 days (less shipping) if returned in original MINT CONDITION with all papers (as shipped)

FRIENDLY SERVICE AT A FRIENDLY PRICE Friendly Computer Center, Inc.

1381 Coney Island Avenue, Brooklyn, New York 11230

Ask for GREEN LIGHT SERVICE For Same Day Shipment

Must Have It Immediately?

THIS MONTHS SPECIAL **COMREX MONITORS**

(Green or Amber)

\$134 90

\$189.90

\$304.90

\$1.049.00

299 00

Monitors

CR-6800 Hi Res RGB...... 449.00 CR-6600 RGB with FREE RGB board . 289.00

CR-6500 13" color 249.00

CR-5400 69.00

AMDEK

MODEMS Hayes 1200 B- IBM CALL

Hayes 1200Rs-232 475.00

Hayes 300-RS-232 195.00

w/software 239.00

Novation J.CAT RS-232 . 99.00

256K • Two 320K Disk Drives
Built-in High-res Monochrone
Monitor with Graphics

• Color Monitor Card
• Parallel Printer Card
• DOS Call or write for price

Rana 1000Disc Drive for Atari...... 279.00 Chalk Board - Power PAD79.95

Software available for IBM, Apple, Commodore

Spinnaker Software for Apple, IBM, Commodore In Stock at Low Low Prices

New Quad Jet Color Ink Jet Priver 649.00

Floppy Discs 10 MAXELL MD2 DS/DD 29.90

6 OUTLET SURGE PROTECTOR 38.90

New Expanded Quad Board in Stock

Quadram Microfaze Buffer in Stock

Hayes Micro-Modem Ile

100% IBM COMPATIBLE

COMPAQ PORTABLE

Quadchrome Monitor....

DISK BANK FILE (50) .

TO ORDER CALL TOLL FREE

(800) 258-5805

FOR INFORMATION CALL

From Continental USA, Virgin Islands and Puerto Rico NEW 0X-10

"After Sale Friendly Support" Computers MODEM IN STOCK TAKE ADVANTAGE OF OUR 8 YRS EXPERIENCE SERVING BOTH PROFESSIONALS AND AMATEUR ENTHUSIASTS WORLDWIDE

We will ship orders at the advertised prices. Prices guaranteed until JAN 1, 1984

NEW

Video · 310A, IBM

AMDEK color-1 plus . . .

Color - 1 Color · IV Hi res RGB



EPSON ΩX-10 NOW IBM

> IN STOCK

> > Super

LOW

Price



386K w/valdocs and CP/M Super Special!

With Free Lotus 1-2-3

We Service all Epson products

Sorry NO Mail Order on QX-10.

Computer displayed and sold in store only.

MS-DOS Board SPECIAL

Printers





FX-100 F/T: 160 CPS

- Accepts 15" paper . seven graphics modes.
- Downloadable characters 1:1 plotter mode.
- THE BUSINESS PRINTER!

RX-80 F/T: 100 CPS.

- Six dot graphics modes.
- Special quiet mode 91/2" paper
- Single sheet & tractor feed.

Epson economy price • 100 CPS

Same as RX-80 but tractor only FX-80 Printer Super low prices.

RX-100 Super SPECIAL 15" Paper



TTX-1014 Daisy, Parallel & Serial 459.00 OKADATA Microline 93 649.00 ODADATA 92A Printer Special 419.00



MONOCHROME PRO PACKAGE

- IBM® PC 64K
- 2-320K DS/DD Drives
- Monochrome Display Card
- Monochrome Monitor

COLOR PRO PACKAGE

- IBM® PC 64K
- 2-320K DS/DD Drives
- Color Graphics Card
- Amdek Color II RGB Monitor

CALL FOR LOW PRICES



APPLE IIe **PRO STARTER** KIT

NEW APPLE DUODISK DRIVE W/EXTENDED 80 COLUMN CARD IN STOCK — MACINTOSH CALL NEW APPLE IIC W/DISK DRIVE \$999.00

DOUBLE SIDED SANYO MBC-555-2 IBM compatible \$1049.00

- 128 K RAM . Monochrome & RGB adaptors
- 2360K drives Word star w/Mailmerger EASY FILER . EASY WRITER .. CALC STAR

DOUBLE SIDED SANYO MBC-550-2

with drive & software \$829.00 with MS-DOS 2.1

MBC 1150 2-320K Drives w/CPM and 1450.00

379.90

STORE HOURS: MON.-THURS 9:30-6:30/FRI. 9:30-3/OPEN SUNDAY 10-4

Apple is a registered trademark of Apple Computer, Inc. IBM is a registered trademark of International Business Machines. FOR MAIL ORDERS: Send Money Order, Certified Check, Mastercard, VISA gladly accepted. Add estimated price for shipping, handling and insurance, prices guaranteed 'til JAN. 1, 1985. All orders are subject to our acceptance and verification. This ad supersedes all previous ads. Not responsible for typographical errors. No returns on software.

TO ORDER CALL TOLL FREE FOR ORDERS ONLY EXCEPT ALASKA, HAWAII & N Y

(800) 258-5805

FOR INFORMATION CALL



Friendly Computer Center, Inc.

1381 Coney Island Avenue Brooklyn, New York 11230

Bonus, FREE Box of 10 Diskettes with Purchase of any Computer

Of course, with this subroutine every time you run the program you have to re-type all the names.

A more efficient approach is BASIC's built-in input command, READ, which incorporates data directly into the program from DATA statements. With this technique, data you enter into the computer becomes part of the program and is saved onto disk along with the instructional lines. Then, when you run the program the data automatically loads into memory. Thus, you benefit from disk storage while avoiding the fuss of separate data files, disk I/O, and so forth. Of course, the disadvantage is that you must actually change program lines (the DATA statements) whenever you need to change the information the program is to process, thus reducing the program's flexibility.

Through READ statements the program calls up (or "reads") data from DATA statements for processing. READ statements include the BASIC keyword READ, followed by a list of the variable names or array elements that are to be assigned the values being read. The statement:

250 READ A,R\$, BF(6), J\$, M

instructs the computer to read five data elements and assign those values to the five variables in the list. The first data element is assigned to A, the second to R\$, and so forth.

It is essential that the type of data being read match the type of the variable corresponding to it in the variable list. Thus, the first data element in the above example must be numeric, the second string, the third numeric, the fourth string, and the fifth numeric. A "type mismatch" error results when this rule is violated.

You have considerable flexibility in handling DATA statements. You can list as many values on a single line as you want, up to the character limit of 239. DATA statements may be located anywhere in the program, although traditionally they are placed as a block at the end.

Each value in a DATA statement is separated from its neighbors by a comma. String information need not lie between quotation marks unless it begins with a number, a plus or minus sign, a period, or a space. See **Figure 1** for some sample DATA statements. As you can see, a DATA statement

Figure 1. A sequence of DATA statements and an instruction sequence that would read values from them.

```
2000 DATA 6
2010 DATA 12, 28, 13.26, -45.219
2020 DATA SUN, MON, TUE, WED, THU, FRI, SAT
2030 DATA JOE SCHMOE, "12 OAK ST", 28, M, S

360 READ N
370 FOR I=1 TO 4
380 READ F(I)
390 NEXT I
400 FOR I=1 TO 7
410 READ DY$(I)
420 NEXT I
430 READ NM$, AD$, AG, SX$, MS$
```

may contain one or more values, and the type (string or numeric) may be mixed within the same statement.

If you used lines 2000–2030 in **Figure 1** in a program, then you might include the READ statements in the same figure to read the data.

The computer regards all of the values in all the DATA statements in a program as one long list. At the start of the program, the computer stores the memory location of the first data value. When it encounters the first READ command, the first data value is read, and the data pointer changes to the memory location of the second data value. When the second READ command is encountered. the second data value is read, and the data pointer changes to the memory location of the third data value. (READ commands with several variables, such as line 430 in Figure 1, are treated just as though each separate variable had its own READ command.) In this way, the computer progresses through the data values, reading each one in succession.

If you have more data values than are used by the READ commands, those left over are not processed. On the other hand, if you try to continue reading data after all the values have been used, you will receive an "out of data" error message and the program will crash.

Occasionally you will need to reset the data pointer to the very first data value in the program. BASIC provides a one-word command to carry out the task: RESTORE. It starts the data-reading sequence all over again.

A common way to handle data values in a program is to treat each group of related values as a set with its own DATA statement. For exam-

Figure 2. A hierarchy diagram showing the functional parts of the address book program presented in Listing 3.

ADDRESS BOOK PROGRAM

MEYBOARD INPUT OF SEARCH RESPONSE

MESSAGE FOR NO MATCH

DISPLAY NAME, ADDRESS, AND PHONE

TWO GREAT GIFTS FOR HANUKKAH.

A TASTE-TESTED JEWISH COMPUTER COOKBOOK







available for the Apple II+, IIe, IIc and IBM PC with disk drive

For "Balebostahs," beginning cooks, or bachelors . . . features more than 150 of the finest recipes in Jewish cookery. The Jewish Computer Cookbook plays no ethnic favorites. It includes such selections as Rumaki, Knaidlach, Beef Teriyaki, Chili, Spinach Filo, and Biscuri Tortoni—All Kosher!

Imagine you're starting with only a few ingredients and want recipes that use them; The Jewish Computer Cookbook will do an instant search of all the recipes for that ingredient! You can add, change or remove any recipe. Print recipes, or shopping lists! Even create your own cookbook of your family's favorite recipes. Plus the cookbook automatically calculates ingredient amounts for different serving sizes.

The Jewish Computer Cookbook is only \$39.95 for the basic cookbook and

AN UNBELIEVABLE, UNBEATABLE BARGAIN!

Order the Jewish Computer Cookbook at the regular price of \$39.95 and get absolutely free any two of the supplementary modules. Regularly \$12.00 each.

BUT YOU DON'T TASTE

only \$39.95

City, State, Zip_

Phone__(

JEWISH
A collection of international cui-sine (French, Italian, Mexican, Chinese) adapted for the Kosher Kitchen. A wide variety of appe-tizers, entrees, desserts and more.

Call toll-free 1-800-621-8227

LIKE MAMA USED

A mouth-watering array of tra-ditional Jewish Sabbath and Holi-day cooking, with recipe sugges-tions adapted for each festive occasion.

THE PARTY PLACE Having a cocktail party? a sit-down dinner? a business buffer? This disk does everything except prepare the food? From finger toods to deserts, a selection of the best in party fare.

Software for Pre-Schoolers Available for Apple II + /IIe/IIc

An interactive program that will familiarize youngsters with the letters of the Hebrew alphabet while providing hours of creative fun. Children can

select from a 'palette' of 16 colors to color in 27 different pictures. Each picture corresponds to a different Hebrew letter—and features an object whose first letter in its Hebrew form (or last, if it's a final letter), is the same as the large letter displayed on the screen. Unlike paper coloring books, pictures may be 'colored in' over and over again, and finished artwork can be saved on the disk itself. Older children will enjoy connecting the dots to form the letter before coloring the picture. The Alef-Bet Coloring Book helps in identification and recognition of Hebrew letters and will familiarize children with the computer keyboard-but most important-it's fun!!

The Alef-Bet Computer Coloring Book

- · lets your child create full-color 'works of art'
- · is an excellent creative tool
- · will give your child a head start in learning the Hebrew letters

Signature.

for children ages 3 and up

Card #

Exp. Date.

קיף	
T G	
٩	(1)

----- ORDER FORM ------In Illinois call 1-312-944-4070 845 N. Michigan Ave. Suite 843 Chicago, IL 60611 Yes, send me the Jewish Computer Cookbook and two free disks for Yes, please send me the Alef-Bet Computer Coloring Book for only \$24.95 Check two: ☐ But You Don't Taste Jewish ☐ Like Mama Used to Make ☐ The Party Place ENCLOSE CHECK, OR COMPLETE BELOW: Please charge my: ☐ American Express
☐ MasterCharge ☐ MasterCharge | VISA Amount enclosed

1001 Medical Park Dr. S.E. Grand Rapids, MI 49506 Phone 616/957-3036

Animation Graphics		The Making!
Animala	Stunning animation	Until now only movie studios and a handful of programmers could make computer movies. Now you can too! With easy to use TAKE 1, you define animation shapes & movements, "Shoot Scenes" frame-by-frame, add text at any time, and then combine the scenes to make a complete movie. Perfect for presentations & demos.
SECOND SE		Trow Woals with
See Your Dealer or for direct orders enclose \$59.95 plus \$3.00 for ship		
ping & handling. Mastercard and Visa accepted. 616/957-3036	6 .3	Take 1 requires an APPLE IIc. IIe. II+ with 64K. APPLE is a registered trademark.

ple, if you had a list of 50 names and phone numbers to be read into memory, you could write 50 DATA statements, each containing one name and its corresponding phone number. One such program line might look like this:

11030 DATA SAM JOHNSON, "(321) 123-0077"

This method makes it easy to alter or delete one name or phone number without affecting any of the other data sets in the program. It also makes it easier to design your READ command to match the order of the data being read.

Keep in mind that whenever the computer sees a comma in a DATA statement, it moves the data pointer ahead one notch after a READ command. This works to your advantage if you have a data set with missing information. For example, in:

820 DATA 18, 32, 4.611, , 12.821

the fourth value is empty, so when the fourth READ is executed, a zero or null is read. A fifth READ is required in order to pick up the 12.821. Unintentional commas in DATA statements can cause a great deal of trouble, however, and are very difficult errors to catch.

A Simple Address Book

Listing 1 illustrates the simplest possible method for data-base filing. It employs only three functions and a set of data elements to set up an address book containing the name, street address, city and state, and phone number for each person in the data base. Figure 2 presents the hierarchy diagram for this program, while Figure 3 shows the three flow-charts for the program and its subroutines.

Four arrays to hold data in memory are dimensioned in line 110. But

since the number of records in the data base will change from time to time, the current number is provided to the computer as N by the first READ command in line 100. The first data element appears in line 1000. This value must correspond with the number of records that follow, and is the number used in line 110 to dimension the arrays. Each time you change the number of records in your list of DATA elements, you must also change the value in line 1000.

After reading the data elements (subroutine 100) into their respective arrays, the program asks the user to enter a name. It then searches the data sequentially to find an exact match (subroutine 200). If a match is made, the screen clears and that person's name, address, and phone number are displayed (subroutine 300).

Note that once the appropriate subscript value for a matching name has been found and assigned to the variable JF, that same value is applied to the other three arrays to bring out the corresponding address and phone number values (lines 320 and 330). Here is another advantage of using arrays: Related data elements in a set can be linked through the use of a common subscript.

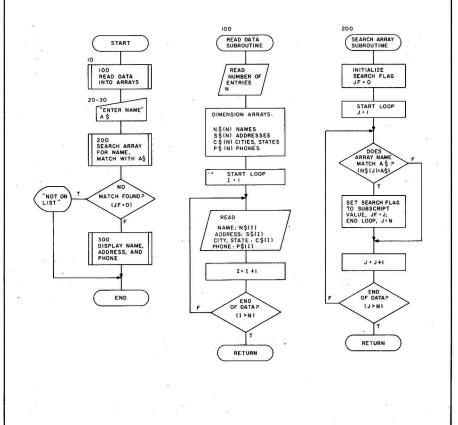
Conclusion

Linear arrays are important data structures in computer programming. This column has only scratched the surface to show how they can be used to organize and manipulate information in programs. Once you are familiar with their use, you'll find that you literally can't do without them.

Next month I'll continue discussing arrays and basic methods for managing the data they contain. In the meantime, try setting up a simple data-base program of your own, following the outline of the address book program in this column. You might add a subroutine that displays all the entries on the screen as though you were reading down a printed list, and incorporate an option into the main program for the user to search for a given name or see the complete list.

You can write to Dan Bishop c/o Custom Comp, P.O. Box 429, Buena Vista, CO 81211.

Figure 3. Flowcharts for the address book program and subroutines presented in Listing 3.



The Making Of A Legend.

Both tractor & friction feed are standard.

Prints a crisp original, plus up to three copies.

Mix & match more than 40 software-selectable type styles.

Bit image graphics add to Legend's versatility.

LEGEND & & Total Control of the selectable type styles.

Centronics parallel interface standard; Serial optional. Serial impact dot matrix output.

New square dot technology for higher resolution & near letter quality print. Up to 142 columns in compressed printing mode.

Bi-directional logic seeking for fast output.

Check Legend 880's performance, and you'll look twice at the price. With new square dot technology and bi-directional logic seeking, this impact printer turns out near letterquality work at 80 cps. Prints in 80-column-or 142column-with compressed print. Does the full ASCII character set and highresolution bit image graphics in the bargain. Lets you mix and match more than 40 software-selectable type styles. Produces a crisp original, plus three copies. Includes tractor and

friction feed to handle fanfold paper and single sheets. All with Legendary reliability and a lifetime warranty on the print head.

With standard Centronics® and optional RS232C serial interfaces, it's a great match with any micro. See a Legend 880 in action.

For more information, contact: CAL-ABCO Peripherals Division 6041 Variel Avenue, Woodland Hills CA 91367. Telephone (818) 704-9100 Outside CA call toll free 1-800-321-4484 Telex 662436. Dealer inquiries invited

PERIPHERAL PRODUCTS
Circle 428 on Reader Service card:

If you have a question, our technical editor has the answer. Send your queries about Apple computing to Bob Ryan, Ask inCider, 80 Pine Street, Peterborough, NH 03458.

Your Best Baud

Dear inCider:

I own an Apple //e and I'm considering the purchase of a modem. In your August 1984 issue, John Granfield states in "Buying Your First Modem" (page 57) that "Home users don't need 1200 baud. . .300 baud is fast enough. . and is the standard for all BBS's and information utility systems." Yet, in the same issue, Alexy and Zwemke, in the review "Apple's Talkative Pair" (page 74), say that "operation at 300 baud is a frustrating experience," and they recommend 1200 baud.

This leaves me confused and undecided. I want a modem so I can access bulletin boards and information services. I am not a business user. Where do I go from here?

Mark H. Conner Rt. 7, Box 310 Morgantown, WV 26505

Dear Mark:

I can understand your confusion, although the two articles are not as contradictory as they appear...I agree with Granfield: 300 baud is just fine for home users. I also agree with Alexy and Zwemke: 300 baud is too slow. How, then, do I reconcile these two opinions?

Whether you buy 300 or 1200 baud depends upon how you intend to use your modem. If you're going to spend most of your time connected to services that require a great deal of keyboard input from you—such as bulletin board systems and information services—then buy a 300-baud modem. In these instances, the slowest link in your telecommunications chain is

you, not your modem. On the other hand, if you intend to use your modem to send and receive many large files, then 1200 baud is for you. In this instance, the amount of time you spend at the keyboard is minimal when compared with your total hook-up time.

To reiterate, let me present Bob Ryan's Unofficial, Unscientific, Offthe-Wall, Don't-Quote-Me Law of Buying Baud: If you'll spend most of your connect time at the keyboard, buy 300 baud. Otherwise, buy 1200.

While on the subject of the August issue, I'd like to make one correction: The Micromodem //e does support touch-tone dialing. Thanks to Ray Lyon and others for pointing out our error.

More on the Model 100

Dear inCider:

In the September 1984 Ask in-Cider, you advised a reader on how to transfer files between a Radio Shack Model 100 portable computer and an Apple. I've recently acquired a commercial product that does the trick. It's called DISK+ and is available either as a ROM chip or on cassette tape from Portable Computer Support Group, 11035 Harry Hines Boulevard, #207, Dallas, TX 75229. DISK+ permits easy use of Apple disks as program and data storage directly from the Model 100.

Evans M. Harrell 342 Sequoia Drive Marietta, GA 30060

Dear Evans:

Since writing the September column, I have had the opportunity to use DISK+, and I agree that it's a very useful product. An Apple equipped with a Super Serial Card doesn't even need a null modem adapter. I recommend DISK+.

The Rev. B Blues

Dear inCider:

I bought an Apple //e soon after it came out. It contains a revision A motherboard. Unfortunately, double hi-res graphics only works on revision B motherboards. Do you know where I can trade in my board or how I can update it?

Jonathan Cohen 15 Bechstein Drive Aberdeen, NJ 07747

Dear Jonathan:

When the Rev. B motherboard was introduced, Apple supported a free-of-charge upgrade policy for all Rev. A owners. Check with your local Apple dealer to see if you can still get a free upgrade. If not, buying a new motherboard is not as drastic or as expensive as it sounds.

Happiness Is a Warm //e

Dear inCider:

I have an enclosed, but unheated, porch and would like to put my Apple //e out there. Temperatures in the summer can go over 90 degrees. In the winter, they can fall below 20.

Can the Apple withstand this temperature range? I've heard it said that what is comfortable for a human is comfortable for a computer. I'm not concerned with comfort, but with damage to my computer.

> Joe McKeon RRI Box 323 Milford, NJ 08848

Dear Joe:

According to Apple, the //e is designed to operate in an environment that ranges from 30 to 115 degrees Fahrenheit, with a relative humidity range of 5–85 percent. You won't have to worry about summer temperatures, but be prepared to bring

by Bob Ryan, inCider staff

TURBO CHARGE YOUR IIe AND EXPAND APPLE WORKS TO 101K

MEMORYMASTER IIe™ 128K RAM CARD

As an Apple user, you already know all the things your IIe can do. Now Applied Engineering expands that list with MemoryMaster IIe[™].

With the MemoryMaster IIe, you'll have up to 192K RAM at your command. Designed expressly for the auxiliary slot in the IIe, the MemoryMaster IIe provides an 80 column video display and up to 128K of memory using just one slot. But the MemoryMaster IIe differs from other large memory cards in one important way, both the 64K and 128K configurations are TOTALLY compatible with software written for the Apple IIe 80 column and extended 80 column cards. In fact, it's not possible to write a program that uses the smaller cards from Apple that won't work with the MemoryMaster IIe.

But the MemoryMaster IIe is not just another piece of unsupported

- Expands your Apple IIe to 192K memory.
- Provides an 80 column text display.
- TOTALLY compatible with all Apple IIe 80 column and extended 80 column card software—there are NO exceptions.
- Available in 64K and 128K configurations.
- The 64K configuration is USER upgradeable to 128K.
- Can be used as a solid state disk drive to make your programs run over 20 times faster (the 64K configuration will act as half a drive).
- Bank select LED's for each 64K bank.
- Permits your He to use double high resolution graphics.
- Uses the same commands as the Apple 80 column card.
- Plugs into the auxiliary slot in the Apple IIe.

hardware. Each MemoryMaster IIe includes a multi-programming environment program which will enable you to have three different programs ready to run at any moment.

Many of today's software packages for data-base management, word processing, business applications and spread sheets either require or are enhanced by the MemoryMaster IIe. And more and more programs are using double high resolution graphics for which the MemoryMaster IIe is required.

If you already have Apple's 64K card, just order the MemoryMaster IIe with 64K and use the 64K from your old board to give you a full 128K. The board is fully socketed so you simply plug in your chips.

- The 64K MemoryMaster IIe will automatically expand VisiCalc to 95K storage, in 80 columns! The 128K MemoryMaster IIe will expand VisiCalc to 141K storage with optional pre-boot disk.
- The 64K MemoryMaster IIe will automatically expand Apple Works to 55K storage, in 80 columns! The 128K MemoryMaster IIe will expand Apple Works to 101K storage with optional expand disk.
- Fully PASCAL and CP/M compatible.
- Lowest power consuming 128K card available.
- · Complete documentation included.
- PRO-DOS will automatically use the MemoryMaster IIe as a high speed disk drive.
- Three year warranty.

Low Cost Options.

Apple Works Expand™

Although Apple Works is compatible with both a 64K and 128K Memory-Master IIe, Apple Works only "sees" it's first 64K bank. 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.

\$29

Ram Drive IIe™

Sure-fire wait-reduction! Time was, you had to wait for your disk drives. But Ram Drive IIe has changed all that, giving you a large, extremely fast, solid-state disk drive, much faster than floppies or hard disks.

Ram Drive IIe works with either the 64K or 128K MemoryMaster IIe to 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 MemoryMaster, Ram Drive IIe will act as half a disk drive. If you have a 128K MemoryMaster, Ram Drive IIe will act as a full disk drive. Ram Drive IIe is compatible with APPLESOFT, DOS3.3, PRO-DOS, and PASCAL. Disk also includes a high speed RAM disk copying program. Ram Drive Is another disk drive only 20 times faster.

CP/M Ram Drive Ile

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 and Wordstar become virtually instantaneous when used with CP/M Ram Drive.

\$20

VC IIe Expander

VC IIe Expander will give owners of VisiCalc IIe and the 128K Memory-Master a total of 141K work space. This disk will pre-boot VC IIe in 1.5

\$29

Advanced VC IIe Expander

Advanced VC IIe Expander is just like VC IIe Expand only it is designed for Advanced VC IIe. Your work space will be increased to 131K. This disk will pre-boot in 1.5 seconds.

\$29

Texas Residents Add 5% Sales Tax Add \$10.00 If Outside U.S.A. Send Check or Money Order to: APPLIED ENGINEERING P.O. Box 798 Carrollton, TX 75006

Call (214) 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.

LASSIFIEDS

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 Ext. 159

Circle 404 on Reader Service card.

Call ELEK-TEK for

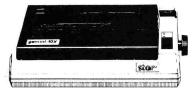
80 COLUMN

GEMINI 10X 120 CPS 250.00 DELTA 10 160 CPS 360.00 RADIX 10 200 CPS 530.00

132 COLUMN

GEMINI 15X 120 CPS 365.00 DELTA 15 160 CPS 490.00 RADIX 15 200 CPS 630.00

NEW Letter Quality PRINTER



325.00

Cables for Epson	
CB5622 10 ft. 36/36 pin standard parallel	32.0
CB5609 8 ft. 36/25 pin parallel for IBM	25.0
CB5618 6 ft. 36/16 pin parallel for Ti-99/4A	25.0
CB5629 10 ft. 25 pin standard RS-232 (fully loaded)	25.0
CB5620 6ft, parallel for TRS 80 Model I-III-IV	22.0
RS1Y RS-232 Y cable for TI-99/4A	25.0
Interfaces	
CARDCO G	65.0
APPLE DUMPLING GX	
GRAPPLER PLUS	
Buffered (16K) GRAPPLER PLUS	165.0
Flek Tek Dust Covers available for Gemini models	5.0

TOLL FREE 800-621-1269 EXCEPT Illinois, Alaska, Hawaii

ELEK-TEK.inc.

your //e indoors on those cold winter nights. Other components of your system may be more susceptible to extremes of temperature or humidity. In particular, most floppy-disk

manufacturers warn against temperatures below 45 or 50 degrees Fahrenheit.

Apple //c owners should be aware that the range of temperatures recommended for their machines is narrower than the range for the //e. The //c is designed to operate between 50 and 104 degrees Fahren-

Kansas City, Here I Come

Dear inCider:

I recently purchased an Apple Modem 300 and ASCII Express. Are you aware of any bulletin boards in the Kansas City, Missouri, area that I could access?

> Bryan K. McGehee 118 South McKissock Street Pleasant Hill, MO 64080

Dear Bryan:

Bulletin boards come, and bulletin boards go, so the list I give you is, most likely, already out of date. Try these numbers to contact a BBS in your area: (816) 483-2526, (816) 523-0304, (816) 252-0232. You should also try to access the original People's Message System board in Santee, CA. The number is (619) 651-7277. The list of bulletin board systems that they maintain is as complete and up-to-date as you will find.

And the Winner is. . .

I was supposed to announce the winner of the "Two-Bit Game Contest" this month, but, due to the large number of entries, I've put off the announcement until the January issue. I think you'll be delighted with the great games readers have sent in.





Spreadsheets: Forecasting Tools

nder scrutiny this month are three spreadsheet packages: an updated version of the original king, VisiCalc, and two contenders to the throne, Magicalc and Multiplan. All three provide a worksheet of about 16,000 cells that relate to one another in many helpful ways. Each package comprises a powerful array of mathematical functions as well as the core of any spreadsheet program, the ability to calculate the bottomline result as you forecast the future of your business.

Not all of their advertised capacity is actually available, though, even with a 64K machine. Magicalc, for example, will not accept any type of data you enter in the last cell (column BK, row 254) of its grid; instead, it tells you that you're out of memory. While Multiplan will take an entry at its furthest cell location, it takes about 20 seconds for you to regain keyboard control (and about the same length of time to blank out that test figure). All three packages are designed to function best with a 128K Apple //e; Magicalc can even access and use up to 512K of memory.

VisiCalc now comes with two versions of the program in the package you buy. The basic version is comparable to the original VisiCalc, with two major changes: It now allows variable column widths and will access and use an 80-column card for a wider display area. The new advanced version of the package—the one I'll compare with Multiplan and Magicalc—requires two disk drives and includes even more features than the basic version.

If you are a new VisiCalc user and have only a single drive, since you get both versions in the package, you can start using the basic version of VisiCalc at once and, when you buy another drive, you can transfer your information to the advanced version. If you already have VisiCalc and two disk drives, you can move your present data to the advanced version's format immediately.

Documentation

Magicale's manual spans some 300 pages and provides a good tutorial and reference section. Each part even has its own index. An abbreviated spreadsheet example lets you use perhaps only half of Magicale's functions, but the tutorial presents a good introduction.

Multiplan, a more complex and powerful package, comes with a longer (459 pages) manual, but, surprisingly, not a more difficult one. It leads you through a workable and real-world example that lets you use most of the spreadsheet's capabilities. You still should use its reference section, though, when you start to create your own worksheets.

VisiCalc literally wrote the book on spreadsheets, and includes a booklet and an on-line tutorial. Anyone, from beginner to experienced computer user, will feel quite comfortable with VisiCalc's approach to creating a spreadsheet. Even though Magicalc is perhaps a simpler program and Multiplan a slightly more powerful one, VisiCalc still shines because it contains an on-disk tutorial. It also comes with Don Beil's *The VisiCalc Book* (Reston Publishing), an out-

standing guide filled with helpful tips and good ideas.

Using Magicalc

All three programs allow for variable column widths and will work in a 40- or 80-column display (if you have an 80-column card).

Magicalc is, simply put, a VisiCalc clone with some added attractions thrown in. Its biggest plus is its easy operation, and if your Apple doesn't have an 80-column card, the program's own character set provides you with a 70-character display. In addition, the letters and numbers in this mode are fairly easy to read, although not as clear as those produced by an 80-column card. You can switch modes easily within Magicalc-a good idea that lets you create a worksheet with the larger characters you're used to, and then expand the visible window when examining

Magicalc is partly menu-driven, an unusual approach in spreadsheets that lets the beginner use the program quickly and easily. The package uses a series of subsystems to file your information, print it, and so on. The program combines its menus with in-system commands that mimic VisiCalc's: You enter a slash (/) followed by a letter of the alphabet to indicate what you'd like to do (for example, /P lets you print and /S lets you save a file).

Magicalc lets you save all or part of your worksheet, and creates and reads data interchange format (DIF) files. Some of this flexibility, though, is confusing. When you choose an option to save a file, the screen dis-

NEVER FAT AGAIN

Tired of being overweight? Tried every diet in the book? Weary of gaining back all those lost pounds? Then this program is for you! Now a way of losing weight safely and permanently through BEHAVIOR MODIFICATION. This program clearly directs and guides you. Even subliminal messages are given to program your subconscious mind for weight loss. This is not a calorie counting, food measuring diet program. It is a way to learn about your eating habits and to change HOW you eat, not WHAT you eat ... to be NEVER FAT AGAIN. \$49.50

ALSO AVAILABLE FROM PSYCHOLOGICAL PSOFTWARE

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	
PROFILE FOR SUCCESS IN SALE	S	150.00

ALL PROGRAMS FOR THE APPLE II, II + , IIe. 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 tay

PSYCHOLOGICAL PSOFTWARE

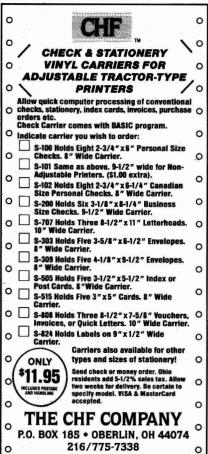
4757 Sun Valley Road • Del Mar, California 92014 (619) 481-4182

This Publication is available in Microform.

University Microfilms International

300 North Zeeb Road, Dept. P.R., Ann Arbor, Mi. 48106

Circle 289 on Reader Service card.



The GLAUREPORT

plays a subsystem menu that has a place for column and row locations for the start and end of the worksheet you want to save. Your current cursor location is indicated as the starting point—suggesting that it will save the worksheet from that point on. It doesn't, unless you save your data as a DIF file; instead, Magicalc will save the entire worksheet.

The process for saving or loading a file in DIF format is explained adequately, but Magicalc offers little help beyond that. Instead, the manual suggests that you refer to other books that describe in greater detail the process you want to learn.

With Magicalc you can assign to particular cells, or a series of cells, attributes that protect a cell so data cannot be written into it; mark a cell to accept values or labels only; or even hide the contents of a cell from the user. VisiCalc and Multiplan also let you hide data in specific cells and protect a cell or group of cells from accidental data entry.

Multiplan's Workings

Multiplan uses a command line noting each available command with one word. You either scroll the cursor over the word or type in its first letter; the screen then displays the next series of commands you can use. Since command names are fully spelled out, this approach is easier than those of the other two systems. In most cases, Multiplan suggests what it calls a proposed response, the entry or command that you'd usually use in a given set of circumstances.

When you insert or delete rows or columns, you can tell Multiplan the precise number you want to insert or delete, and exactly where to position added rows or columns. VisiCalc also lets you move or delete multiple rows or columns, while Magicalc can move or delete only a single row or column at a time.

Whereas both Magicalc and Visi-Calc use letter and number combinations to indicate cell locations, Multiplan has its own system that's confusing to interpret. For example, if you add the data in two cells in the same column, your formula is:

=R[-2]C+R[-1]C

You're telling the program to go up

two rows from the current cell [-2] and add that amount to what's in the cell one row above [-1].

Multiplan, however, does provide two ways to avoid using this complex notation. In the first, you point to the cells you want to use in a formula by moving the cursor to those cells. The second lets you name a cell or series of cells and then use those names to construct your formulas. Herein is Multiplan's true power. Instead of being forced to work with a complex arrangement of rows and columns to create the formula you need, you enter a formula like the following:

PROFIT = SALES - COSTS

Multiplan goes even further and lets you link worksheets together and instruct one worksheet to pull data from another. For example, you might want to track your monthly electricity, gas, and telephone bills. A simple Multiplan worksheet can store and total them, but each month you may want to transfer this information to a more complex income statement that summarizes all of your expenses. Multiplan lets your utility worksheet send its data to your income statement worksheet automatically each time the income statement worksheet is loaded into memory. This function saves not only data-entry time but cuts down on mistakes, and it has numerous applications in the business world.

Uses of VisiCalc

VisiCalc is almost completely command-driven, and each command is mnemonic (C clears the screen; D deletes a row or column), so commands are easy to learn and use. The latest version of the program offers fullword prompts that make it easier to understand what information the system is requesting.

VisiCalc also offers Keystroke Memory, a method that lets you assign several commands to one entry; when you want to use these instructions, you have to press only a single key. The system also includes printformatting commands that let you send the codes to your printer to make presentation-quality reports.

VisiCalc is the only one of the three programs that comes with a disk tutorial, making it easier for the first-

"CompuServe" — EMAIL" 74266.601" DEALER INQUIRIES INVITED!

"Multiplan lets you link worksheets together.

time user to get the package up and running. On-line help is context-sensitive-the help screen you see depends on what you're doing at that

Finally, VisiCalc includes six worksheets on disk to help you with your personal finances, including an individual retirement account (IRA) analysis form, a checkbook-balancing program, and a home-finance template. You don't have to type these worksheets in-just enter your data and use them.

A Touch of Weakness

Into every program a little rain must fall, and these three, like any other piece of software, deserve a bit of criticism. Magicalc, for example, doesn't prevent you from saving a new file over an old one with the same name. You might just be saving an updated version of that file, but the program should at least ask you to verify that you want to overwrite the old one, as Multiplan and VisiCalc do.

Magicalc lets you use windows (to examine different sections of your worksheet on the same screen) and titles (fixed in place so you always know what data should be entered where), but doesn't cover them in the tutorial section of the manual.

Another problem involves printing; Magicalc's screen doesn't clear at the time printing begins, and your printed data flashes by without any

With Multiplan, your printer can only be in slot 1—a limitation for some users. This system also cannot read DIF files from other programs. Although Multiplan can work with SYLK (SYmbolic LinK) files, and DIF files can be converted into SYLK format so Multiplan can use them, the process is tedious.

Multiplan is designed to work with the Apple //e and takes advantage of its cursor command keys and other features. When you run the program Circle 208 on Reader Service card.

TO ORDER OR FOR FREE CATALOG, PHONE

If you don't see what you need,

/ i					call	uswe probably ha	ve it	t.
HARDWAR	3	FOI	RAPPLE					
	LIST	OUR PRICE	,	LIST	OUR PRICE		LIST	OUR PRICE
16K Ram Card for II, II+	\$ 79		DIGITAL RESEARCH			QUADRAM		
Z-80 Card for II, II+ and IIe	185	69	Gold Card CP/M 64K	\$ 495	\$ 326	eRam 8080 Col., 64K for He	\$ 135	\$ 115
Cooling Fan w/Two Outlets and Surge Protection	69	35	Gold Card CP/M 192K HAYES PRODUCTS	775	499	Microfazor MP8 Par/Par (8K) SWEET MICRO SYSTEMS	179	149
High Quality Joystick w/Fire Button	49	20	Mach II Joystick for II+	39.95	35	Mockingboard A	124.95	92
(specify II+ or IIe)		29	Mach III w/Fire Button for II+	49.95	42	Mockingboard B	124.95	92
Switching Power Suppry	110	64	Mach II Joystick for Ile	44 95	38	Mockingboard C	195	155
Computer Case Similar to II+	149	59	Mach III w/Fire Button for Ile	54 95	45	SYNETIX SYSTEMS		
Replacement Keyboard	159	69	INTERACTIVE STRUCTURES			Supersprite w/3 Diskettes	454.95	299
Computer Case w/Built-in Numeric Keypad	329	149	Pkaso Card, Universal	175	135	TG PRODUCTS		
RF Modulator	49	19	Shuffle Buffer Parallel/Parallel (32K)	299	234	Select-A-Port	49.95	39.95
ParallelPrinter Caro w/Cable	149	55	KENSINGTON MICROWARE			Track Ball (Specify II+ or IIe)	39.95	34.95
Power Strip w/Surge Protection	143	35	System Saver Fan	89.95	69	TITAN SYSTEMS		
and 6 Outlets	59	20	KOALA TECHNOLOGIES			Accelerator II	599	425
	-		Koala Pad w/Micro Illustrator	124.95	75	64K Ram Card for II/IIe	349	249
			MICROSOFT			128K Ram Card for II/IIe	499	359
ADVANCED LOGIC SYSTEMS			SoftCard Premium System	695	185	64K Ram + 80 Cols. for Ile	249	189
CPM Card	399	284	Premium SoftCard IIe	395	309	128K Ram + 80 Cols. for Ile	399	299
Z Card II	169	139	MICROTEK			TRACK HOUSE		
Smarterm II	179	149	Dumpling-GX	89.95	75	Programmable 10-Key		
Dispatcher Serial Card	139	109	64K Ram Card	199	152	Numeric Keypad for Ile	199	142
The second secon			128K Ram Card	299	219	10-Key Numeric Keypad		0.000
			ORANGE MICRO			for II+ or IIe	149	112
CALIFORNIA COMPUTER SYSTEMS			Grappler +	175	105	TRANSTECTOR SYSTEMS		
Clock/Calendar	120	95	Buffered Grappler + (w/16K of Buffer)	239	165	Model SL Supreme Surge Protector	99	79
7710-01 Async Serial Interface			Bufferboard	175	109	VIDEX		
for Printer	135	119	PERSONAL COMPUTER PRODUCTS			Ultraterm	379	259
7710-02 Async Serial Interface	1200000	107.00	Appli-Card 6MHz/64K Memory	375	259	Videoterm 80 Col. Board	279	179
for Modern	135	119	PRACTICAL PERIPHERALS		2000	80 Col. + Soft Switch		
			16K Microbuffer II	199	145	+ Inverse Video	319	239
			32K Microbuffer II	219	159	Enhancer II	149	115
CHALKBOARD			GraphiCard (w/6' parallelcable)	99	79	VisicalcPreboot	49	39
Power Pad for II, II+ and ite	99.95	79	SeriALL	159	119	Apple Writer II Preboot	19	17
PRINTERS								
						-		
Call for prices on DIABLO and IDS			i					
BROTHER			OKIDATA			STAR MICRONICS		
HR-15P	599	459	Microline 82A	549	309	Gemini 10X	399	275
HR-25P	995	735	Microline 83A	749	565	Gemini 15X	549	419
MANNESMAN TALLY		000.00	Microline 92P	699	439	TRANSTAR		
Spirit 80	399	289	Microline 92S	199	515	T315 Color Printer	599	449

Call for prices on DIABLO BROTHER	and IOS		OKIDATA			STAR MICRONICS		
HR-15P	599	459	Microline 82A	549	309	Gemini 10X	399	275
HR-25P	995	735	Microline 83A	749	565	Gemini 15X	549	419
MANNESMAN TALLY			Microline 92P	699	439	TRANSTAR		
Spirit 80	399	289	Microline 92S	799	515	T315 Color Printer	599	449
MT-1601	798	609	Microline 93P	999	695	120P	599	419
MT-180L	1,098	845	Microline 93S	1,099	795	130P	895	569

AMDEK			NEC			TAXAN		
V300 12" Green	179	129	JB 1260 12" Green	149.95	115	12 Hi Res Amber	- 90	125
V300A 12" Amber	199	145	JB 1205M (A) 12" Amber	210	159	12" Hi Res Green	180	120
Color I+	399	280	JC 1215 12" Color Comp	399	265	RGB Vision I	399	309
Color II+	559	420	JB 902 9" Green	199	152	RGB Vision III	699	429

MODEMS								
Color II+	559	420	JB 902 9" Green	199	152	RGB Vision III	699	429
Color I+	399	280	JC 1215 12" Color Comp	399	265	RGB Vision I	399	309
V300A 12" Amber	199	145	JB 1205M (A) 12" Amber	210	159	12" Hi Res Green	180	120
V300 12" Green	179	179	JB 1260 12 Green	149.95	115	12 Hi Hes Amber	- 30	125

ANCHOR AUTOMATION			NOVATION			1		
Signalman 300/1200 Baud (RS 232)	399	269	J-CAT	149	99			
Signalman Modern (RS 232)	99	85	103 Smart CAT	249	159	TRANSEND CORPORATION		
HAYES			103/212 Smart CAT	595	375	- Algorithm and the contract of the contract o		
Smartmodem 300	289	199	212 Auto CAT	695	549	Transpak I (Transend I/ModemCard/ Source/D.J.)	388	299
Smartmodem 1200	699	479	Apple CAT II	389	199	AMC - 300 ModernCard	500	233
Micromodem He w/Smartcomm I	329	239	212 Apple CAT Upgrade	389	240	with Source	325	239
			250 240000000000000000000000000000000000	44700	P0.17081	V1000000000000000000000000000000000000		7.000

DIGR BILLIO									
Standard Height Apple Compatible (Shugart SA390)	159	AP-100-A 2-in-1	469	AP-100-C Slim Line	239				
High Quality Half Height Apple Compatible	185	AP-100-B Full Height	239	Super 5 Direct Slim Drive	189				

		BRODERBUND SOFTWARE	8	SOFTWARE PUBLISHING	
SOFTWARE					
Apple Compatible	185	AP-100-B Full Height	239	Super 5 Direct Slim Drive	189
High Quality Half Height	130.000			NO 04-40 A 04000 A 0400	

DISKETTI	ES							
VERBATIM SS DD Box of 10	49	19 95	Disk Drive Analyzer for Apple II,lle	39.95	29.95	Disk Drive Head Cleaning Kit	10.95	8.95

We now carry Microsoft Software for MacIntosh!

We accept check, money order, VISA, MasterCard, or American Express (include # and expiration we accept cliebt, filology order, viola, mastercate, or American Express (include # and expression date). 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.



MONITORS

PLEASE CALL FOR COMPLETE LISTING!

MICRO CITY ● P.O.Box 571 ● Downers Grove, IL 60515

125 89

In a Nutshell

Magicalc is an easy-to-use spreadsheet that provides menus for many of its operations. It also will generate its own character set to give you a wide display without an 80-column card.

Multiplan is the most powerful package of the three, with the unique ability to link worksheets together so one can draw data from another.

VisiCalc now comes with two versions (in the same package) that let you start with a single disk drive and later on move to the more complex program that requires two drives. VisiCalc includes an on-disk tutorial to get you started fast, along with templates on disk for financial planning help.□

on an Apple II Plus, you often must use two keys to get the same effect. If you plan to use your spreadsheet on an older Apple, Magicalc's and VisiCalc's maneuverability are easier than Multiplan's. With a single-drive system, you must swap disks to load or save a file within Multiplan. The system disk must remain in drive 1 at all times, not only to provide onscreen help, but to perform certain functions.

With Multiplan, up to eight windows can be open for any worksheet, and you can even put borders around them. That sounds better than it actually is; a border takes up cell space, so once you add one, the bordered worksheet no longer lines up with its counterparts on your screen.

Although Multiplan's file-linking is terrific, its data transfer (one link at a time) has one limitation. When you have information on worksheet A that you send first to worksheet B and then to worksheet C, each worksheet must be saved and loaded sequentially. So if you store data on A and then load C, your information won't get transferred. You must enter it on A, and then save that worksheet. You then load B (which will

take the information from A), and then save it. Finally, after you load worksheet C, it's updated as it pulls the data from worksheet B.

VisiCalc, even with its new prompts, is still more cryptic in its operation than either of the other two packages.

A Few Extras

Multiplan deals with a cell or series of cells as if the cells were an entire range of data. For example, if you want to add a series of numbers within Multiplan, you only have to name the specific row or column and ask the system to sum it (SUM SALES as an example). This procedure is much easier and faster than it is with VisiCalc or Magicalc. With those programs, you must mark the column and row locations from the beginning location all the way to the last cell and tell the program to sum the figures.

With Multiplan and Magicale you can scroll a page at a time—a helpful device when you have a large worksheet to examine. Multiplan's sophisticated mathematics eliminates the forward reference problems worksheets sometimes contain, and the program includes extra functions like sorting.

I also like Multiplan's tutorial model, which works with a whole year's worth of information. In this kind of worksheet, the first month's figures usually contain a numerical entry and the following cells often include formulas. When you get to year-end, your totals are calculated differently than they are calculated in the rest of the worksheet. Multiplan helps with all of this.

VisiCalc's on-line tutorial is terrific for beginners—much more effective than a model you must both build and enter data into.

Magicalc's printed output is a strong feature. If a worksheet won't fit on one page, Magicalc will automatically format your printed copies so that the rows will line up from one sheet to the next. This makes it easy to tape the pages together to end up with a nice-looking and effective printout.

What to Buy?

You won't go wrong with any of these packages. They're all bug-free

Product Information

Magicalc

Artsci 5547 Satsuma Avenue North Hollywood, CA 91601 (213) 985-2922 48K system, one disk drive \$149

Multiplan

Microsoft Corp. 10700 Northrup Way Bellevue, WA 98004 (206) 828-8080 64K system, one disk drive (two recommended) \$195

The VisiCalc Package

Software Arts Products Corp. 27 Mica Lane Wellesley, MA 02181 (617) 237-4000 Standard version: 48K system, one disk drive Advanced version: 128K system,

two disk drives \$179

and work well. Which system you buy depends on how complex and sophisticated your calculations might become and what hardware you have to work with.

If you have only a single disk drive and want an easy-to-use program, Magicalc is the one to buy. If you have a dual-drive system, either Multiplan or VisiCalc will serve you well. Multiplan is slightly more powerful and is a good buy if you need to link worksheets together. Otherwise, buy VisiCalc; it's almost as powerful and is a bit more amiable than Multiplan. And at its new price, VisiCalc is a true bargain. ■

Write to Greg Glau at P.O. Box 1627, Prescott, AZ 86301.

THE TIMEMASTER II H.O.™

(H.O. for short)

All the features of all the competition combined.



If you are using or writing software for other clock cards, no problem, the H.O. will automatically emulate the correct clock.

with two disks full of sample programs, including a computerized appointment book, a DOS dating program, interrupt programs, and over 30 others. We give the software others charge extra for, or simply don't

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

Is the TIMEMASTER II H.O. a simple, easy to use clock for beginners? Or a sophisticated high performance peripheral for the experienced? The answer is "YES". And when you think about it aren't those two products, the one you need now?

Call 214/492-2027, 8 AM to 11 PM, 7 days a week. MasterCard, Visa & C.O.D. welcome. No extra charge for credit cards.

Send check or money order to: APPLIED ENGINEERING, P.O. Box 798, Carrollton, TX 75006. Texas residents add 5% sales tax. Add \$10.00 if

TIMEMASTER II H.O.....\$129

APPLIED ENGINEERING

```
Listing continued.
                  GOSUB 62000: RETURN
       2000 D = 5:P = 24: GOSUB 60000:P = 16: GOSUB 60000:P = 8: GOSUB 6000
                 Ø: RETURN
                    IF SC < 900 THEN 4101
       4001
                   IF SC >
                                     = 900 AND SC < 1100 THEN 4102
       4002
                   IF SC >
                                      = 1100 AND SC < 1300 THEN 4103
                                    = 1300 AND SC < 1500 THEN 4104
= 1500 AND SC < 1700 THEN 4105
= 1700 AND SC < 1700 THEN 4105
= 1700 AND SC < 2100 THEN 4107
       4003
       4005
                   IF SC >
                                     = 2100 AND SC < 2300 THEN
= 2300 AND SC < 2500 THEN
= 2500 AND SC < 2700 THEN
       4007
       4008
                   IF SC >
                                                                                              4109
                                    = 2700 AND SC < 2900 THEN 4111
= 2900 THEN 4112
       4010
                   IF SC >
                    IF SC
       4011
       4101
                   PRINT
                                "THIS SCORE MAKES YOU A NERD.": RETURN
                                "THIS SCORE MAKES YOU A DORK.": RETURN
"THIS SCORE MAKES YOU OUT-OF-IT.": RETURN
"THIS SCORE MAKES YOU OUT-TO-LUNCH.": RETURN
       4102
                   PRINT
                    PRINT
       4104
                    PRINT
                    PRINT
                                 "THIS SCORE MAKES YOU A CRUM-BUM.": RETURN
                               THIS SCORE MAKES YOU SO-SO.": RETURN
"THIS SCORE MAKES YOU FAIRLY GOOD.": RETURN
"THIS SCORE MAKES YOU GREAT.": RETURN
       4106
                   PRINT
       4107
                   PRINT
       4108
       4109
                    PRINT
                   PRINT "THIS SCORE MAKES YOU SUPER.": RETURN
PRINT "THIS SCORE MAKES YOU A WIZARD.": RETURN
       4111
                   PRINT
       Saga
                    IF N = 5 THEN POP : GOTO 13000
       5010
                   RETURN
       9000 PK = 9010
                              PEEK ( - 16384): IF PK > 127 THEN POKE - 16368, Ø: GOTO
                   GOTO 9000
                 GOTO 9000

IF PK = 197 THEN I = I: IF X < 232 THEN XX = X + 22:YY = Y:QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:AN = A(QW,WQ):TX = X

:TY = Y:X = XX:A(QW,WQ) = 0:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN IF PK = 206 THEN I = I: IF Y > 33 THEN YY = Y - 22:XX = X:QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:AN = A(QW,WQ):TX = X

:TY = Y:X = XX:A(QW,WQ) = 0:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN IF PK = 211 THEN I = I: IF Y < 145 THEN YY = Y + 22:XX = X:QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:AN = A(QW,WQ):TX = X

:TY = Y:X = XX:A(QW,WQ) = 0:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN IF PK = 215 THEN I = I: IF X > 32 THEN XX = X - 22:YY = Y:QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:AN = A(QW,WQ):TX = X

:TY = Y:X = XX:A(QW,WQ) = 0:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:AN = A(QW,WQ):TX = X

:TY = Y:X = XX:A(QW,WQ) = 0:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN
       9010
       9020
                             Y:X = XX:A(QW,WQ) = \emptyset:Y = YY: GOSUB 57300:X = TX:Y = TY: RETURN
      9999 RETURN
10000 PK =
                              PEEK ( - 16384): IF PK > 127 THEN POKE - 16368,0: GOTO
                 10010
      10005 GOTO 10000
10010 IF AN > 0 AND (PK = 197 AND X < 232) THEN XX = X + 22:YY = Y:
QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:NA = A(QW,WQ): IF
NA > 0 THEN RETURN
                NA > 0 THEN RETURN

1 IF PK = 197 AND (X < 232 AND AN > 0) THEN A(QW,WQ) = AN: DRAW

AN AT XX,YY: GOSUB 11000:AN = 0: RETURN

3 IF AN > 0 AND (PK = 206 AND Y > 33) THEN YY = Y - 22:XX = X:Q

W = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:NA = A(QW,WQ): IF

NA > 0 THEN RETURN
                AN AT XX,YY: GOSUB 11000:AN = 0: RETURN

I IF PK = 206 AND (Y > 33 AND AN > 0) THEN A(QW,WQ) = AN: DRAW

AN AT XX,YY: GOSUB 11000:AN = 0: RETURN

IF AN > 0 AND (PK = 211 AND Y < 145) THEN YY = Y + 22:XX = X:

QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:NA = A(QW,WQ): IF
      10021
                QW = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:NA = A(QW,WQ): IN NA > Ø THEN RETURN

1 IF PK = 211 AND (Y < 145 AND AN > Ø) THEN A(QW,WQ) = AN: DRAW

AN AT XX,YY: GOSUB 11000:AN = Ø: RETURN

Ø IF AN > Ø AND (PK = 215. AND X > 32) THEN XX = X - 22:YY = Y:Q

W = INT (XX / 22) + 1:WQ = INT (YY / 22) + 1:NA = A(QW,WQ): IF

NA > Ø THEN RETURN

1 IF PK = 215 AND (X > 32 AND AN > Ø) THEN A(QW,WQ) = AN: DRAW

AN AT XX,YY: GOSUB 11000:AN = Ø: RETURN

9 COSUB 62000. COSUB 62000.
      10031
      10999 GOSUB 62000: GOSUB 62000: RETURN
11000 N = 1: GOTO 11100
                     IF AN = A(QW - 4, WQ) THEN N = N + 1: GOTO 13000
                     GOTO 12000
      11061
                     IF AN = A(QW - 3, WQ) THEN N = N + 1: GOSUB 5000: GOTO 11060 GOTO 12000
      11070
                      IF AN = A(QW - 2, WQ) THEN N = N + 1: GOSUB 5000: GOTO 11070
                     GOTO 12000
      11081
      11090
                     IF AN = A(QW - 1, WQ) THEN N = N + 1: GOSUB 5000: GOTO 11080
      11091
                     GOTO 12000
                     IF AN = A(QW + 1, WQ) THEN N = N + 1: GOSUB 5000: GOTO 11110
      11101
                     GOTO 11090
                     IF AN = A(OW + 2.WO) THEN N = N + 1: GOSUB 5000: GOTO 11120
      11110
                     GOTO 11090
      11120
                     IF AN = A(QW + 3, WQ) THEN N = N + 1: GOSUB 5000: GOTO 11130
                     GOTO 11090
      11130
                     IF AN = A(OW + 4, WO) THEN N = N + 1: GOTO 13000
                     GOTO 11090
      11131
      12000 N = 1: GOTO 12100
12060 IF AN = A(QW,WQ - 4) THEN N = N + 1: GOTO 13000
      12061
      12070
                     IF AN = A(QW, WQ - 3) THEN N = N + 1: GOSUB 5000: GOTO 12060
                     RETURN
                     IF AN = A(QW, WQ - 2) THEN N = N + 1: GOSUB 5000: GOTO 12070
                                                                                                                                       Listing continued.
```



As I mentioned, should a hunter "step on" an animal, it's gone forever. But this is more than impolite; there are consequences. You lose 100 points for each animal you eliminate. What's more, if you wipe out at least one of the five animals in each of eight groups, you are doomed to play Animal Bingo for the rest of your life—because there'll be no way to end the game. This could happen when you've killed as few as eight animals. The bottom line is to always make sure at least three animal groups remain intact.

There are other penalties, as well. Every step the hunter takes costs a point, and it costs 50 points to pick up and drop an animal. So, the fewer moves—of both hunter and animals—the better.

To get the best score you often must choose between stepping on animals (at 100 points each) and moving animals (at 50 points per pick-up and drop). Moving is the obvious choice when only one animal is in the way. When you must relocate two animals, the choice will depend on the situation, since the point loss for moving or stepping on will be the same. If three or more animals are in the way, stepping on has the definite advantage.

The Programs

Listing 1 is Animal Bingo, the main program. Type it in and SAVE it on your disk. ALLCHAR, Listing 2, is a hi-res character generator to use with it. (You may have ALLCHAR from one of my previous columns.) It contains 96 ASCII-character vector shapes, number 1 being the space.

To type in ALLCHAR, enter the monitor with CALL-151, then type in the addresses and data. If a line reads 0800-7E 00 FE 00 00 01 06 01, you should type 800:7E 00 FE 00 00 01 06 01 and hit the return key. Or type up to six lines of hex num-

NORTHEASTERN **SOFTWARE**

- Up to 50% off/software purchases over \$300 an additional 2% off
- New larger facilities to serve you better

SOFIL	HR-35 DAISY WRITER 2000 DIABLO	Call Call	Wildcard II Dollars & Sense/Mac Think Tank/Mac	Call 87.90 98.90			
88 Ryders Lane, St	ratford, Connecticut		620 (RS-232C) 630 (PC) Ink Jet Printer DYNAX DX-15	850.00 1,785.00 1,150.00	Home/Hobby	Call	
• Up to 50% off/so	EPSON FX-80	435.00 420.00	BAUDEVILLE Pixit Take One	34.90 41.90			
New larger facil Och and a common services.		FX-80 FX-100 FX-100 RX-80FT RX-100 LQ-1500	600.00 300.00 415.00 1.000.00	BEAGLE Apple Mechanic Beagle Basic	18.90 22.90		
School & corpoNo additional cl	IDS Prism 80 (Basic) Prism 80 (Full)		Beağle Graphics Disk Quick Doss Boss Double Take	37.90 19.90 14.90			
Entertainment	, Educational	. Business		Prism 132 (Basic) Prism 132 (Full)	1.065.00 1.435.00 1.225.00 1.655.00 425.00	Double Take Fat Cat Flex Type	18.90 22.90 37.90 19.90 14.90 22.90 22.90 18.90
	APPLE Logo II 84.90 BARRONS Computer SAT 57.90	APPLE .	Call	MANNENSMANN TALLY	425.00 605.00	Frame Up GPLE	18.90 34.90
Sega Star Trek 29.90 Sega Buck Rogers 29.90 Sega Congo Bongo 29.90 Sorcerer 29.90 Suspended 29.90 Zork I. II, III 23.90 Witness 29.90 Deadline 29.90 Planetfall 29.90		Appleworks Apple Writer IIe ARTSCI Magic Calc	124.90 94.90	MT-160L MT-180L MT-Spirit Okidata	795.00 295.00	Pronto Doss Silicon Salad Triple Dump	34.90 18.90 15.90 25.90 13.90
Zork I, II, III 23.90 Witness 29.90 Deadline 29.90	DAVIDSON AND ASSOCIATES Speed Reader II 44 90	Magic Calc Magic Window II ASHTON-TATE DB II BPI	94.90 289.90	Microline 82 Microline 83A Microline 92	325.00 565.00 425.00	Type Faces Utility City BRODERBUND	
Planetfall 29.90 Enchanter 29.90	DESIGNWARE 32.40	General Accounting GL, AR, AP, PR or INVEA	259.90 259.90	Microline 93	669.00	Bank Street Writer Bank Street Speller Print Shop	46.89 46.89 32.90
Infidel 29.90 Sea Stalker Call Ultima III 35.90 Lode Runner 23.90	Spellicopter 25.90 Crypto Cube 25.90 Creature Creator 25.90	CONTINENTAL Home Accountant Tax Advantage	47.90 44.90	KXP 1090 KXP 1091 KXP 1092 KXP 1093 PROWRITER	285.00 335.00 469.00 679.00	COMPUTER COLORWORKS Digital Paint Brush	249.90
Choplitter 23.90 Spare Change 23.90	Alien Addition 21.90 Medior Multiplication 21.90	IAX AGVANIAGE FCM/FL G/L. A/R. A/P DICKENS DATA SYSTEMS The Super Plotter DOW JONES SOFTWARE The Market Analyzer Market Manager HOWARD SOFTWARE SERVICES Real Estate Analyzer II KENSINGTON	64.90 149.90		679.00 335.00	CREATIVE PERIPHERALS UNLIMITIME Trax DATA TRANSFORMS FONTRIX	74.90 44.90
Eagles 25.90 Objective Kursk 25.90		The Super Plotter DOW JONES SOFTWARE	52.90	1550AP 8510SP Starwriter A10-20P	530.00 465.00 490.00	DECISION SUPPORT	62.90
Questron 34.90 Rails West 25.90	EDU-WARE (PEACHTREE)	Market Manager HOWARD SOFTWARE SERVICES	224.90 194.90	Starwriter F10-40PU	1.020.00 Call	ELECTRONIC ARTS Cut & Paste Financial Cookbook	35.90 35.90
Queen of Hearts 22.90 Fortress 22.90 Pro Tour Golf 25.90	Compu-Head 1.90	KENSINGTON Format II Enhanced	159.90 94.90	SILVER REED 500P 550P	415.00 515.00	FUNK Sideways HAYDEN	42.90
Pro Tour Golf 25.90 Ring Side Seat 25.90 Cosmic Balance II 25.90 Computer Baseball 25.90	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 Algebra 5 & 6 31.90	KENSINGTON Format II Enhanced LIVING VIDEO Think Tank II/IIe MEGAHAUS MegaFinder	93.90	770P STAR MICRONICS Gemini 10X	875 00 275 00	Orca/M Compiler Plus (Hayden) LAZERWARE Lisa V 2.6	74.90 42.90 57.90
Geopolitique 1990 25.90 Epidemic 22.90 North Atlantic 86 38.90	Decimals 31.90	MegaSpell MegaWriter	44.90 66.90	Gemini 10X Gemini 15X Radix 10 (200 CPS) Radix 15 (200 CPS)	395.00 620.00 720.00	MECA Managing Your Money	129.90
Computer Baseball 25.90 Geopolitique 1990 25.90 Epidemic 22.90 North Atlantic 86 38.90 Germany 1985 38.90 War in Russia 57.90 Right Simulator II 34.90 Night Mission Pinball 22.90 Mizardry 31.00	HARCOURT BRACE JOVANOVICH SAT 51.90	MICROPRO Wordstar Calcstar	Call 119.90	Power Type Delta 10 Delta 15	345.00 395.00 549.00	MICROSOFT Applesoft Compiler Typing Tutor II Typing Tutor III	114.90 15.90 32.90
Night Mission Pinball 22.90 Wizardry I 31.90	HAYDEN SOFTWARE Micro Math (Add-Sub) 20.90	Wordstar W/Z Card MICROSOFT Multiplan MID WEST SOFTWARE	Call 129.90	TOSHIBA Printers Transtar	Call	MONOGRAM Dollars & Sense Dollars & Sense IIc PENGUIN	67.90 77.90
Wizardry I 31.90 Wizardry II (Night of Diamonds) 21.90 Wizardry III (Legacy of Llylgamyn) 25.90 Wizprint 18.90	GRE Test 59.90	PEACHTREE Peach Caic	114.90 91.90	120P 130P 315	425.00 550.00 455.00 95.00	The Graphics Magician New Complete Graphics System	37.90 m 49.90
Crypt of Media 21 90	Number Stumper 25.90 Addition Magician 22.90 Reader Rabbit 25.90 Magic Spell 22.90	QUARK Lexicheck Word Juggler Ile Combo	138 90	Pics Card Disk Drives	95.00	QUALITY Bag of Tricks ROGER WAGNER ASSOCIATES Merlin Pro Merlin Combo	27.90 45.90
724400	Magic Spell 22.90 Juggle's Rainbow 18.90 Bumble Games 24.90 Bumble Plot 24.90	SENSIBLE SOFTWARE Sensible Speller Bookends	78.90 74.90	APPLE Disk II Drive Duo Disk w/acc, kit	300.00 Call	SOFTRONICS Softerm II	45.90 78.90 133.90
Pooyan 20.90 The Spy Strikes Back 17.90 The Quest 17.90 Minit Man 17.90 Rougeing Kamangas 17.90	Bumble Games 24.90	Report Card Sierra on-Line	74.90 41.90 144.90	Duo Disk w/acc kit Pro File Disk Drive Ilc Add-On Mac Add-On	Call Call Call Call	TURNING POINT Time is Money UNITED SOFTWARE OF AMERICA ASCII Pro	63.90 81.90
Coveted Mirror 21.90	MECA Basic Building Blocks The Running Program 49.90	The General Manager ii Homeword ScreenWriter lie SILICON VALLEY	44.90 44.90 79.90	INFAX 101 10 Meg 102 20 Meg	2,145.00	VIRTUAL COMBINATICS Micro Cookbook II/IIe	25.90
	MECA	The Handlers Package	104.90 46.90	Cartridges INDUS GT Slimline	3,350.00 60.00 250.00	Accessories CORVUS Hard Disk	Call
Championship Boxing 19.90 BCs Quest for Tires 21.90 The Dark Crystal 25.90 Wizard of Id Touch Type 19.90	The New Step by Step 73.90 Step By Step III 73.90 Step By Step III 73.90	The Word Handler II SOFTWARE PUBLISHING PFS: Access	46.90 46.90 Call	Cartridges INDUS GT Slimline MICRO SCI A2 143K A20 164K	195.00 175.00	DIGITAL RESEARCH CPM Gold Card HAYES Joysticks	Call Call
FAX 1990	Step By Step III 73.90 SCARBOROUGH SYSTEMS Songwriter & Picturewriter 25.90	PFS: Write	74.90 74.90	A80 328K Micro SCI Controller Slimline	335.00 65.00 Call	HAYES Micromodem Ile/w SC I 1200 Baud Modem	235.00 498.00
Summer Games 27.90 Stellar 7 23.90 Ken Uston's Blackjack 45.90 Caverns of Frietag 19.90	Phi Beta Philer 31.90- Master Type 25.90 SCHOLASTIC WIZWARE	PFS Graph PFS: Report STONEWARE DB Master Version 4 Plus	74.90 74.90	QUENTIN AP 100A Full Height	215.00	1200 Baud Modem KENSINGTON System Saver KEYTRONICS Keyboards	498.00 65.00 Call
Castle Wolfenstein 1990	Fact & Fiction Tool Kit Ilc 25.90	DB Master Version 4 Plus VISICORP Advanced Visicalc Ile	Cail 100 00	AP 105 Slimline AP 101 Twin Pack RANA	Call Call	KOALA Koala Pad The Gibson Light Pen	Call 165.00
Intellectual Decathalon 25.90 Millionaire 38.90 Spitfire Simulator 25.90 Air Sim III 26.90	Microzine (1-6) ea. 25.90 Story Tree 25.90 Turtle Tracks 25.90 SPINNAKER SOFTWARE	Visicalc lle & II Visitrend/Visiplot	199.90 163.90 65.90	Elite I Elite II Elite III	259.00 420.00 490.00	The Gibson Light Pen MCT Speed Demon MICROSOFT	165.00 225.00
Sargon II 21.90 Sargon III 31.90 Miner 2049er 24.40	Trains 21.90 Facemaker 21.90	MacIntosh PFS: File	75.00	Monitors AMDEK		Ram Card Soft Card	68.00 230.00
Death in the Caribbean 21.90 The Heist 24.40 Critical Mass 26.90	Snooper Troops 1 & 2 27.90	PFS: Report PFS: File/Report Typing Tutor III	75.00 120.00 32.00	Color C 300 Color 600 Video 300G Green Video 300A Amber	280.00 425.00 135.00	NOVATION Apple Cat II 212 Apple Cat II	228.00 400.00 100.00
How about a nice game of Chess 21.90 Computer Gin Rummy 22.90 Hard Hat Mack 24.90	Delta Drawing 31.90 Kids on Keys 18.90 Alphabet Zoo 18.90	Millionaire Transylvania Coveted Mirror	Call 20.00 20.00	Video 300A Amber DVM II or DVM III RGB Interfa DVM 80E RGB Interface	135.00 147.00 ace 130.00	ORANGÉ MICRO Grappler ; PKASKO w/interface PROMETHIUS Pro Modem 1200	100.00 133.00 355.00
Critical Mass How about a nice game of Chess 21.90 Computer Gin Rummy 22.90 Hard Hat Mack 24.90 The Last Gladiator 14.90 Pinbail Const. Set 28.90 The Standing Stone 28.90 The Standing Stone 28.90	Hey Diddle Diddle 17.90 In Search of 25.90	Main Street Filer	20.00 153.00 Call	BMC Color Plus BM12 AOW Green	Call 95.00	SATURN 128K Ram Card SPIES LABS	345.00
Music Const. Set 28.90 The Standing Stone 28.90 One-on-One 28.90	Grandma's House 21.90 Kidwriter 21.90	Helix Sargon III McPic!	31.00	PANASONIC TR 120 Green TR 120 Amber		Nice Print STREET ELECTRONICS The Cricket	145.00 Call
One-on-One 28.90 Archon 28.90 Skyfox 28.90 Seven Cities of Gold 28.90 Murder on the Zinderneuf 28.90	SPRINGBOARD Early Games For Young Children 19.90 Matchmaker 19.90	Home Accountant Microsoft Multiplan	29.00 Call 125.00	SAKATA	Call Call Call	SWEET MICRO	Call 124.00 Call
Seven Cities of Gold 28.90 Murder on the Zinderneuf 28.90 Sundog 31.90 Crossword Magic 33.90	Piece of Cake 19.90 Fraction Factory 19.90 SUBBURST	Microsoft Basic Microsoft Chart Microsoft Word	90.00 75.00 Call	SC-100 Color SC-200 RGB Color STS-1 Stand	245.00 455.00 35.00	Mockingboards SYNETICS Super Sprite	309.00
Blank Media	The Factory 31.90 Teasers by Tobbs 31.90 TERRAPIN Logo 62.90	Mac the Knife	24.00	TAYAN	120.00	TEXTPRINT Print It THIRDWARE Fingerprint TRACKHOUSE	169.00 118.00
Elephant SS/DD 17.00 Verbatim SS/DD 21.50 Maxell SS/DD 23.00	I XERDA	Zork II & III Filevision 1st Base	125.00 135.00	Green (Hi-Res) Amber (Hi-Res) 210 13" Color (Lo-Res) RGB Vision III 410-64 RGB-2 Interface	275.00 419.00 240.00	Key Pad THUNDERCLOCK Thunderclock Plus	115.00 115.00
Elephant SS/DD	Sticky Bear Bop 24.90 Sticky Bear Opposites 24.90	DB Master (Mac) DaVinci (series) Habadex	125.00 135.00 135.00 8a. 35.00 135.00 130.00	410-64 HGB-2 Interrace USI 12" Amber 12" Green	145.00 140.00	VIDEX Ultraterm	249.00
Mexell (Mac 3½") 39.00	Stický Bear Shapes 24.90	MegaFiler	130.00	12" Green	140.00	Videolerm	Call

If something you would like is not listed, just call. For Inquiries and Connecticut Orders Call (203) 268-1850



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. D. 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 expirate the property of th tion 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 203-268-1850 to obtain one before returning goods for replacement.

ORDERS ONLY-TOLL FREE DAYS/WK 9AM to 9PM EST

We fully support the MacIntosh — call toll free

745.00 Call Call

Specials

EDD III Locksmith 5.0 CIA Files Copy II+ Wildcard II Dollars & Sense/Mac Think Tank/Mac MacFourth

Apple Computers — call toll free

Printers

APPLE Imagewriter (10 & 15") BROTHER HR-25 HR-35 DAISY WRITER 2000

Circle 310 on Reader Service card.



Listing continued.

```
12081
                       RETURN
                       IF AN = A(QW, WQ - 1) THEN N = N + 1: GOSUB 5000: GOTO 12080
12090
12091
                       RETURN
                       IF AN = A(QW, WQ + 1) THEN N = N + 1: GOSUB 5000: GOTO 12110
12100
12101
                       GOTO 12090
                       IF AN = A(OW, WO + 2) THEN N = N + 1: GOSUB 5000: GOTO 12120
12110
                       GOTO 12090
12111
                       IF AN = A(QW, WQ + 3) THEN N = N + 1: GOSUB 5000: GOTO 12130
12121
                       GOTO 12090
                       IF AN = A(QW, WQ + 4) THEN N = N + 1: GOTO 13000
 12130
                       GOTO 12090
                                                               > AN AND AN(2) < > AN THEN SC = SC + 1000:ST = 0
13000
                       IF AN(1) <
                       TEXT : HOME : GOTO 13002
                       RETURN
 13001
                       FOR VV = 1 TO 24: HTAB 1: VTAB VV: PRINT "BINGO!BINGO!B
13002
                 INGOIBINGOIBINGOIIII:**LPP = PEEK ( - 16336):PP = PEEK ( - 163
36):P = VV * 10:D = 5: GOSUB 60000
NEXT : GOSUB 62500: POKE - 16304.0: POKE - 16297.0
 13003
13005 IF BG = 3 THEN GOSUB 62000: GOSUB 62500: FOR P = 250 TO 10 STEP - 10:D = 5: GOSUB 60000: NEXT : GOTO 58000 13010 BG = BG + 1: IF BG = 3 THEN 13002
13015 AN(BG) = AN
13020 RETURN
                       PRINT D$"BLOADANIMALS"
 15001 PARTIE DA BECARRIFINGS

15001 POKE 232,255: POKE 233,143

15002 HOME: HGR: POKE - 16302,0: HCOLOR= 3: ROT= 64: SCALE= 1

15005 I = 2:J = 4: GOSUB 200:I = 3:J = 4: GOSUB 200:I = 4:J = 3: GOSUB

200:I = 4:J = 2: GOSUB 200:I = 3:J = 1: GOSUB 200:I = 2: GOSUB

200: FOR J = 1 TO 8:I = 1: GOSUB 200: NEXT: J = 8:I = 2: GOSUB
200:1 = 3: GOSUB 200

15010 I = 4:J = 7: GOSUB 200:J = 6: GOSUB 200:I = 3:J = 5: GOSUB 200

15010 I = 4:J = 7: GOSUB 200:J = 6: GOSUB 200:NEXT : FOR J = 8 TO 1 STEP - 1:I = 8: GOSUB 200:NEXT :I = 9:J = 2: GOSUB
                  200:J = 3: GOSUB 200
200;J = 3: GOSUB 200

15020 I = 10:J = 4: GOSUB 200:J = 5: GOSUB 200:I = 11:J = 6: GOSUB 2

00:J = 7: GOSUB 200: FOR J = 8 TO 1 STEP - 1:I = 12: GOSUB 200

: NEXT : FOR QW = 1 TO 1900: NEXT : CALL 62450:I = 3:J = 5: GOSUB 200:I = 4: GOSUB 200:I = 4:J = 6: GOSUB 200

15030 J = 7: GOSUB 200:I = 3:J = 8: GOSUB 200:I = 2: GOSUB 200: FOR J = 7 TO 2 STEP - 1:I = 1: GOSUB 200: NEXT : I = 2:J = 1: GOSUB 200:I = 3: GOSUB 200:I = 4:J = 2: GOSUB 200:I = 7:J = 1: GOSUB 200:I = 7:J = 1:J = 1:J
                  200:I = 8: GOSUB 200
                  FOR J = 2 TO 7:I = 9: GOSUB 200: NEXT :I = 8:J = 8: GOSUB 200

:I = 7: GOSUB 200: FOR J = 7 TO 2 STEP - 1:I = 6: GOSUB 200: NEXT

:I = 11:J = 8: GOSUB 200: FOR J = 6 TO 1 STEP - 1:I = 11: GOSUB
                  200: NEXT : FOR QW = 1 TO 1900: NEXT : RETURN
 57000 FOR DR = 5 TO 14: FOR QW = 1 TO 5
57010 RN = INT (12 * RND (1)) + 1:RD = INT (8 * RND (1)) + 1: IF
                 A(RN,RD) = Ø THEN A(RN,RD) = DR: NEXT : NEXT : RETURN
                      GOTO 57Ø1Ø
                      FOR QW = 1 TO 12: FOR WQ = 1 TO 8
                       IF A(QW,WQ) = \emptyset THEN 57120
ROT= 64: SCALE= 1: DRAW A(QW,WQ) AT (QW * 22) - 11,(WQ * 22) - 11
  57105
 57110
                  10
 57120 NEXT : NEXT : RETURN
57200 FOR VV = 1 TO 177 STEP 22: HPLOT 1.VV TO 265, VV: NEXT : FOR V
                 V = 1 TO 265 STEP 22: HPLOT VV,1 TO VV,177: NEXT
 57210 RETURN
57300 HCOLOR= 0: FOR QW = Y - 10 TO Y + 10: HPLOT X - 9,QW TO X + 1
1,QW: NEXT: HCOLOR= 3:QW = INT (X / 22) + 1:WQ = INT (Y / 22
1 + 1:A(OW.WO) = 0: RETURN
1,QW: NEXT: HCOLOR= 3:QW = INT (X / 22) + 1:WQ = INT (Y / 22) + 1:A(QW,WQ) = Ø: RETURN

5731Ø HCOLOR= Ø: FOR QW = Y - 1Ø TO Y + 1Ø: HPLOT X - 9,QW TO X + 1
1,QW: NEXT: HCOLOR= 3:QW = INT (X / 22) + 1:WQ = INT (Y / 22)
) + 1: IF A(QW,WQ) > 3 THEN SC = SC - 1ØØ: GOSUB 625ØØ: FOR QQ = 9 TO 33 STEP 4:D = 5:P = QQ: GOSUB 6000Ø: NEXT

5732Ø A(QW,WQ) = Ø: RETURN
5800Ø PR# Ø, TEYT - HOME - YOUR SCHOOL STEEL STEEL
                  F PR# Ø: TEXT : HOME : IN# Ø: CALL 1002: VTAB 1: PRINT "THE GAM
E IS OVER.": PRINT : PRINT "SCORE: "SC: PRINT
PRINT "BINGOS: "BG: PRINT
  58000
  58002
 58005
                         GOSUB 4000
  58006
                        PRINT
                 ## PRINT "WOULD YOU LIKE TO PLAY AGAIN, GO TO
M, OR QUIT & GO TO BED?": PRINT
## PRINT "(1)PLAY AGAIN
## PRINT "(1)PLAY AGAIN
  58010
                                                                                                                                                                                      ANOTHER PROGRA
  58Ø2Ø
                                                                                                                                                                                       (2)GO TO ANOTH
                 PRINT (IPERI AGAIN

ER PROGRAM

(3)QUIT & GO TO BED": PRINT

IF RR = 3 THEN HOME: INVERSE: PRINT "GOOD NIGHT!!!": END

IF RR = 2 THEN END

IF RR = 1 THEN CLEAR: CALL 54915: GOTO 1
  58Ø3Ø
  58050
   58055
                         GOTO 58010
POKE 768,P: POKE 769,D: CALL 770: RETURN
  58Ø6Ø
  60000
                         FOR I = 770 TO 790: READ D: POKE I,D: NEXT : RESTORE : RETURN
  61000
                                               173,48,192,136,208,5,206,1,3,240,9,202,208,245,174,0,3
 ,76,2,3,96
62000 FOP
  61010
                         DATA
                        FOR QW = 1 TO 80:V = PEEK ( - 16336): NEXT : RETURN
FOR QQ = 1 TO 13:PP = PEEK ( - 16336): NEXT :P = 29:D = 10: GOSUB
  62500
                                         RETURN
                  60000:
                        PRINT : PRINT "(HIT ANY KEY TO CONTINUE):": PRINT
PP = PEEK ( - 16384): IF PP > 127 THEN POKE - 16368.Ø: RETURN
  63000
                         GOTO 63010
   63020
                                                                                                                                                                                                                    End of listing.
```

bers before hitting the return key. With the latter method it is best to type in a quantity of hex numbers that is divisible by eight. Then, after hitting the return key, you'll be ready to use one of the memory addresses given to begin your next input. When you're done keying in ALLCHAR, type BSAVE ALLCHAR, A\$800, L1272 and hit return.

If you've already saved ALLCHAR from one of my previous columns, it probably starts at a different address from that required for Animal Bingo—namely \$800. To change the address that ALLCHAR is loaded into, type BLOAD ALLCHAR,A\$800 < return >. This overrides the default starting address you specified when you first BSAVEd it. Now change the default loading address by typing BSAVE ALLCHAR,A\$800,L1272 < return >. This will ensure that ALLCHAR resides where Animal Bingo expects to find it.

As with so many games, your //e or //c's caps-lock key should be down when you are giving keyboard commands. Not that ALLCHAR doesn't have both upper- and lowercase—it does. But I've linked the commands to the capital letters to accommodate II Plus owners.

Another vector shape table you'll need for playing Animal Bingo is Animals, **Listing 3**. (It, too, has appeared before in my column, so you may already have it.) Key it in exactly the same way you did ALL-CHAR. (For 8FFF- 16, type 8FFF:16 < return > .) Then save Animals with BSAVE ANIMALS, A\$8FFF, L1102 < return > .

One final program, **Listing 4**, is the Hello program needed to keep Animal Bingo from conflicting with the graphics pages and shape tables in memory. If you'd rather use a menu program of your own devising, make sure POKE 104,64 and POKE 16384,0 are executed just prior to running Animal Bingo.

Let me or *inCider* know how you feel about my recent Fudge It! columns. We'd like to know if they're meeting your needs. See you next time!

You can write to Don Fudge at Avant-Garde, P.O. Box 30160, Eugene, OR 97403.

Why settle for one graphic "artist" when you can have the (complete

Why handicap yourself with software that may only do charts or lettering or "slide" showing, when Graphics Department does it all! Get the most impact with the Graphics Department menu-driven program which combines the most graphic devices into one friendly package. It has modules for everything!

Build a bar, line, 3-D pie, area, XY, or scatter graph with The Charting Kit. Add titles, labels and other lettering in 30 different fonts with The Lettering Kit. Draw ellipses, points, lines and rectangles or "paint" in 100 colors with The Graphics Tools. Present a "slide show" of up to 32

pictures with The Slide Projector. Even manage your library of picture data with The File Utilities.



All you need to do all this is an Apple II or Apple-compatible computer (//e, //c, Plus, ///, Franklin, Basis, etc.) with 48K of memory, ROM version of Applesoft...and Graphics Department. Available for \$124.95 from your dealer or by mail (add \$1.25 for shipping.) Visa/MasterCard/Check/COD welcome!

Sensible Software, Inc.®

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

Apple II. //e. //c. /// and Applesoft are registered trademarks of Apple Computer. Inc.





Listing 2. ALLCHAR, A\$800, L1272.

Ø8ØØ- 7E Ø8Ø8- ØC Ø81Ø- 44 FE ØØ 1D Ø1 48 Ø1 49 36 Ø6 ØE ØE Ø5 ØØ ØØ ØA8Ø-0940- 24 20 ØBCØ-3F 04 2D F5 3C 07 24 3C 2D 1E 49 09 00 31 ØA88-2B Ø1 5Ø Ø1 ØBC8-Øl Ø948-49 36 ØE 25 ØØ 31 4C 36 21 29 Ø5 75 ØØ 36 73 3F 36 ØE 2D 2D 1E Ø1 Ø1 Ø958-49 36 36 ØD EØ Ø4 ØA98-ØBD8-49 ØBEØ-Ø82Ø-87 Ø1 Ø1 96 01 9E Øl Ø96Ø-DF 16 1E ØAAØ-91 Ø7 1C 1E F5 24 ØØ 6Ø 75 ØAA8-ØABØ-36 36 36 36 35 31 F6 B4 ØBE8-F2 Ø1 15 Ø2 3D Ø2 72 Ø2 A2 Ø2 C8 Ø2 FB Ø2 2C Ø3 Ø83Ø- DB Ø1 Ø838- Ø5 Ø2 E4 Ø1 ØC Ø2 Ø2 Ø2 Ø97Ø-Ø978-12 F6 2D ØØ Ø6 49 ØØ 2D 92 92 ØBFØ-ØØ 91 ØAB8- Ø9 1C 1C ØC ØC ØC 2D 2D 24 24 ØC ØØ 1D ØC 1E ØØ 31 31 36 36 36 36 2E 6E Ø9 2D 1C 2F Ø2 ø98ø-Ø5 ØACØ-ØCØØ-Ø5 ØAC8-ØCØ8-04 Ø848- 5A Ø85Ø- 8A Ø2 Ø2 66 96 Ø2 Ø2 7F AB Ø988-2D ØE 24 4E 36 3F 36 4E 36 ØE 36 ØE 1C 36 Ø99Ø-F1 76 F6 2D Ø4 8Ø ØADØ-ØC1Ø-ØC Ø7 1E 1E 49 3F ØAD8- 6E ØAEØ- ØE ØAE8- 1E ØAFØ- 36 1E 24 36 36 Ø2 Ø3 Ø3 3F F7 35 Ø9 Ø6 3F 36 24 ØØ 1C 2E 24 Ø9 24 8Ø 24 2D 24 8Ø Ø998- 35 Ø9AØ- 2D ØØ 2E 9F ØC18-C1 02 C8 02 EF 02 FB 02 4 03 C8 03 4C 03 58 03 7C 03 83 03 9F 03 A4 03 F2 03 FD 03 F2 03 FD 04 40 04 4C 04 47 04 77 04 92 04 9D 04 BF 04 C8 04 2D 25 2D 25 EB 27 FD 05 C1 EF 24 4C 7C 9F Ø2 ØE Ø4 28 36 31 ØC2Ø-Ø86Ø- E3 Ø2 Ø868- 17 Ø3 29 1C 3E 1E 31 64 ØC28-ØC3Ø-36 8Ø ØØ ØC 91 75 Ø87Ø- 4Ø Ø3 Ø3 Ø3 Ø9BØ- 3F Ø9B8- 37 ØØ Ø9 2D ØE 8Ø Ø878- 6F Ø3 0AF8- 3F 04 00 09 2D 0B00- 0E 0E 1F E7 24 0B08- 29 2D 0E F6 3F 0B10- 36 6E 09 1C 1C 0B18- 2D 0E DF 33 0E 0B20- 3F 1C 04 00 29 24 Ø4 Ø4 18 Ø5 ØØ 91 E4 ØØ 36 ØC4Ø-ØC48-36 3F 36 Ø7 2E 8Ø 8Ø ØØ 91 29 Ø9CØ- ØØ 29 B5 3B 3F B4 Ø9C8- 31 Ø9DØ- 3F Ø9D8- 3F Ø3 Ø3 1C 36 Ø4 76 ØØ 49 2D ØC 09 Ø888- BA F6 3F 36 ØØ ØC Ø89Ø- E5 1E 1E 0898- ØD Ø4 08A0- 36 Ø4 08A8- 64 Ø4 35 1E 2D ØE 24 D8 2D 2D 91 75 ØE F5 36 Ø6 29 2D ØC58-09E0- 1E 09E8- 3F 09F0- 24 09F8- 3F 0A00- 49 36 1E ØØ ØC6Ø-Ø6 76 ØØ Ø9 F6 1B ØB28- 36 36 ØB3Ø- 2D ØC ØB38- 76 ØE ØØ 24 31 24 36 ØØ 1E 49 2D 2D 2D ØC Ø6 ØC68-ØE ØE ØC7Ø-2D ØE 2D DC Ø6 ØØ 36 F6 23 Ø4 49 92 24 Ø8BØ- 88 Ø4 A9 D2 Ø9 4Ø 1E ØØ 31 F6 76 1 E 24 ØC 31 ØC 2E 29 Ø4 12 Ø8B8- B4 Ø4 31 24 6E 31 8Ø 36 24 Ø9 ØE ØC 72 16 ØE 36 ØØ ØB4Ø-ØB48-36 Ø4 66 ØØ AC ØE ØC8Ø-ØC88-ØE 76 ØC ØC Ø4 2B ED 6B 22 2A 27 1E ØE FD ØE 2A 75 6B E6 ØAØ8- F6 Ø6 ØA1Ø- ØE ØE ØØ ØE 49 Ø5 49 ØØ F1 91 1E 2D 1E 2D Ø8C8- 14 ØE ØC 95 E4 ØE 1C 36 ØC 8Ø 24 ØØ 8Ø 8Ø ØB5Ø-ØC9Ø-Ø8DØ- 24 Ø8D8- 6D 1E ØE E6 65 12 ØA18-07 ØØ Ø9 ØB58-ØC98-10 ØC ØB6Ø-ØØ 2D 1E ØCAØ-2D 24 66 6B ØC 12 Ø8EØ- 24 Ø8E8- 24 3F ØA2Ø-ØA28-ØE 1E 1E 2D ØE 1E 1E Ø7 1E B6 ØØ 11 ØC ØØ Ø9 80 0C 1E 1E 36 36 2C 2D 0E 05 3E 3F 91 12 91 92 0E 0E 08E0- 24 3F 08E8- 24 1E 08F0- 14 E7 08F8- 6A 1C 0900- 49 36
 ØCAØ 2D
 25
 24

 ØCAØ ØØ
 91
 2D

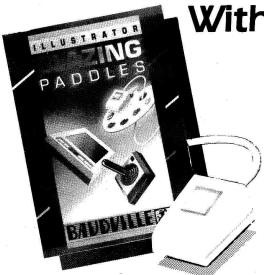
 ØCBØ 2D
 2D
 05

 ØCB8 1E
 77
 F1

 ØCCØ ØE
 ØE
 ØE

 ØCC8 29
 75
 1E
 12 2E 24 1E ØA ØØ ØA28- ZD ØA3Ø- ZD ØE ØA38- 8D 36 ØB68-ØB7Ø-1E 2E 2D 2E 2D E5 31 24 2D ØØ Ø6 2D ØØ 1E 75 16 24 Ø1 Ø9 36 36 25 3C 96 3F Ø4 ØØ 3F Ø4 E7 91 8Ø 24 Ø7 24 36 1 B 24 Ø5 ØØ 67 ØØ 29 Ø9 11 2D 24 ØE ØA 16 Ø6 ØØ Ø9 24 8⁷ ØF ØB78-36 Ø4 24 16 4D ØE Ø4 29 36 35 24 ØE 1E ØE ØØ ØB8Ø-ØB88-36 Ø7 36 ØØ Ø9Ø8- ØD Ø91Ø- ØD 24 24 36 13 ØA48-ØE 36 18 ØØ 36 2D ØE 2E 2D ØC 2D ØØ ØCDØ-ØA5Ø-3F 24 04 ØC 2D 35 3F 49 3F 2E 1C ØB98-12 Ø6 2D 91 ØØ 35 Ø9 29 2D 2D 2D 35 3F 3F 3F Ø6 ØØ ØA58-ØØ 89 3F Ø5 ØCD8- ØØ ØBAØ-ØC Ø4 1E 3F ØСЕØ-67 61 36 ØE 36 2D 36 ØØ 2E 0920- F2 37 1C ØA6Ø-29 2D Ø928- ØE Ø5 ØØ 31 ØE 27 24 ØBA8-2E 36 DE 36 38 2E 1C 7Ø ØC 65 2D 24 ØØ 1C 31 ØCE8-ØA68-ØBBØ-0930- 1E 1E 4E 29 3C 07 00 0938- 0E F6 0E 0D 1E 0E 1F 9 ØA7Ø-Ø4 ØØ 29 2D B5 1A ØA78- 18 36 36 2E 2D 2D 00 29

Circle 183 on Reader Service card.



See Your Dealer...

or for direct orders enclose \$49.95 Apple Version \$34.95 Commodore Version plus \$3.00 for shipping & handling.

616/957-3036

Without Blazing Paddles... Your Mouse Is Just A Squeak.

Let's face it. The free software that came with your Touch Pad, Mouse, Graphics Tablet, or Light Pen, leaves a lot to be desired. Quality graphics requires premium software.

Consider blazing paddles. It's the perfect complement to your graphics system. Software to enhance creativity. A versatile tool with intuitive features supporting all the popular input devices, printers, and interface cards.

BLAZING PADDLES. The all-in-one illustrator that turns your little squeak into a productive graphics tool that's fun to use.

Ask your dealer for a demonstration.

APPLE is a registered trademark of APPLE COMPUTER. COMMODORE is a registered trademark of COMMODORE COMPUTER.



1001 Medical Park Dr. S.E. Grand Rapids, MI 49506 Phone 616/957-3036





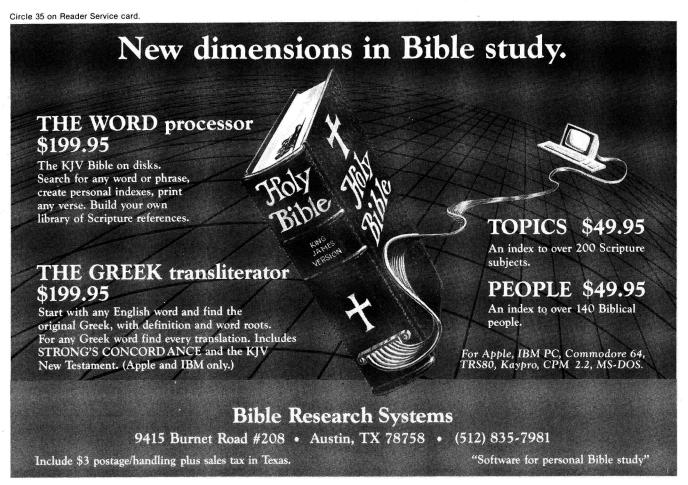
Listing 3. Animals, A\$8FFF, L1102.

2D 25 2D 8FFF- 16 9138-9140-9148-3E 1F ØC 46 ØØ 6B ØØ BF 9000-ØØ 38 88 61 Ø1 Ø2 Ø3 C1 Ø2 EF Ø3 F2 Ø2 Ø4 43 37 915Ø- 2A 9158- 37 2D 9F 37 25 35 55 37 2D 35 3C 9018-Ø3 7B 2D 3E ØC 25 3C 25 ØC 95 35 15 25 4D ØC 17 3F 24 9028-15 1E 1F 36 9168-10 3F 3F 9ø3ø-3A 3F 3F 3F E7 9170-BF 2D 24 27 AD AE AE FF 1B 04 00 01 2C 2E 2D Ø4 17 1F 20 07 9038- BF 9178-36 28 24 28 17 24 67 ØC 9040-ØC 9180-2E 2E 24 2C 1C 37 36 27 97 17 2D 2D AD 3F 21 9048-9188-9050- 17 ØE 15 9058- 2A 2D 2D 35 Ø7 9190- 04 24 ØC 2A BF 3F 9198-36 36 36 36 36 E5 37 25 6D Ø9 91AØ-ΕØ Ø4 ØØ 3F 27 27 25 37 25 38 25 Ø6 27 27 25 91A8-91BØ-36 EØ B7 96 23 8A ØC 3F 9068-37 27 9070-ØC 2E Ø5 2E 2E 3E 2C 2E 3E ØE 1F 3F 67 91B8- 3F 3F 3F 37 ØD 3E 37 Ø5 Ø5 35 2E 35 91CØ- 3F 91C8- ØC 24 24 24 ØC 2D 2D 24 24 2D Ø5 24 Ø5 9080-Ø5 9088-37 2D C7 9090-3E 4E 29 ØD 35 FF2E 91DØ- Ø5 ØØ E7 27 36 64 24 2C F8 12 3F 24 24 24 3F 24 E5 64 9098-4E 31 36 36 DF 64 24 91D8- 3F 24 24 3F 3E 2E ØD 1E 36 1F 90A0-91EØ-91E8-17 64 F6 ØC AE 1C 24 E4 ØC 3C 36 DF C3 33 E4 6C 9ØA8-17 91FØ-ØC AD 15 9ØBØ-36 1 F 15 1C 91F8-9200-AD 67 AD 1C 36 Ø4 15 B8 36 36 37 29 ØØ 2D 2C 9aca-36 36 27 36 24 36 36 37 36 36 27 2E 25 9208-9ØC8-2C 1C 24 DF 2E 24 27 BE 9210-9218-37 2C 3C 24 3C ØØ 3F 3F 10 BC E7 1F 1E 1E ØE ØC ØD 3F ØC 1F 1F ØC 9ØD8-9220- 36 9228- 24 9230- F5 90E0-DF 3F 2D 1C 2D 24 64 75 27 6D 2D ØD Ø4 38 3F ØC ØC 24 ØE Ø4 28 36 36 4D 90FO-3F E7 38 77 3F 2D 9238-24 10 3F **3**F 9ØF8-9240- AE Ø6 ØØ 1C 1C 9248- 4C 2D 15 2D 65 24 2E 9100- E4 8D 15 9108- 0C 0C 2D 36 17 AD 3F 2D 3F 25 3E ØC 10 4C Ø4 ØØ 3E 2C 2E 1E 20 1E 37 2E 15 77 27 9E 925Ø-ØØ 00 00 00 00 ØØ ØØ ØØ ØØ 9118-32 3F 27 1C ØE ØD 27 36 3F 9258-00 00 9260-00 00 00 00 9120-ØØ 89 38 3F 17 BF 17 3F 9268-ØØ ØØ ØØ ØØ aa aa 9270-2D FE E3

9278- 17 9280- 3C 9288- 0C ØE 36 1E 24 2C 2C ØC 2D 65 27 1C 2D 38 1E Ø4 9378-ØØ 11 3E 17 37 **A8** 36 36 9380-11 1E Ø4 38 9388-9298-92AØ-3C 3E 49 89 F7 3E 62 ØC 17 17 ØC Ø4 17 939Ø-18 Ø8 2C 25 2D 68 67 2C 3C 92A8-9398-ØØ 60 93AØ-00 01 24 0C 36 D6 92B8-92CØ-ØØ ØØ 25 24 93A8- 15 93BØ- DF 15 1F 6E 31 6E 36 31 9F 00 00 00 81 2C 24 2D 43 93B8-93CØ-15 1C 36 17 92C8-3F Ø7 36 ØD 92DØ-35 35 37 2D 2D 35 06 3E ØE 3F 10 00 92D8-2D 2D 93C8-35 BE ØD Ø8 18 Ø4 2D DE 3E 24 ØØ 18 3C 3E Ø7 2Ø 24 Ø4 92EØ-3C E5 3E 3C 24 93DØ- 32 В6 61 3C Ø7 37 24 24 2C 93D8- 2E 2D 95 93EØ- 24 24 E4 93E8- A8 15 36 92E8-09 24 FC ØC 24 18 37 37 37 ØC 92 ØA 4C 1 E 36 3E **27** 3C 24 24 24 24 92F8-2D 1C 3C 27 96 Ø7 93FØ-93F8-36 2D 76 65 2E 65 2D 3C 2D F5 25 ØC 9308- AE 37 9310- BE 17 15 2E 35 ØC 17 36 92 1C 1C 3F 3F 9400-64 15 24 1C 3C 3C 9F 9318-20 15 2D 9408- EØ 3F 2D ØC ØC ØC 15 15 9410- 3E 9418- 1C 36 Ø5 44 64 A8 76 D6 2A 9320-BE 17 2D AC 1C 3F 9328-15 2D BE AC 3F 77 21 3F 35 24 E4 24 F7 FC Ø7 6C ØØ 1C 1C ØD 35 9330-9420-4D 9338-FF 1C 9428-BF 6E 36 9340-37 E4 E5 24 ØØ 9430-DF ØC 6D 3A 3F 3F 3C FC 6C 2C 3C ØC 37 9348-6D FF 04 2D 9438-ØC Ø4 20 68 38 ØC 2D 9440-6D FE 36 ØØ 36 36 2D 2D 936Ø- 35 1E E7 97 96

Listing 4. The Hello program.

258 POKE 103,1: POKE 104,64: POKE 16384,0 260 D\$ = CHR\$ (4) 1000 PRINT D\$"RUNANIMAL BINGO"



HINTS 'N' TECHNIQUES

Maintenance Made Easy

by Paul Pagel

Sometimes a common-sense, doit-yourself approach to computer housekeeping tasks works best. So here are some maintenance hints for Apple owners to help with sound control, keyboard contamination, screen glare, and radio frequency interference (RFI).

Sound Off

If beeping computers annoy you, install an on/off switch in your speaker as I did in my Apple //e.

Inside the computer, the speaker is mounted facedown against the louvres on the bottom, left-hand side. Two twisted wires run from the speaker to a connector on the motherboard. The proximity of the wires to the louvres makes any of those ready-made holes a convenient spot for mounting an on/off switch. The minimal clearance space between the bottom of the computer and the desk doesn't leave enough room for the bat handle of a toggle switch, but my parts supply yielded a miniature DPDT slide switch (one pole is unused) that fits perfectly in one of the louvres. You can find similar slide switches at Radio Shack stores and electronic-supply houses.

I mounted the switch, cut one of the speaker wires (it doesn't matter which one you use), and connected the wires to the switch as shown in the **Figure**. The speaker wires carry 5V dc, so make certain there are no shorts to ground or to other components to avoid power-supply and other damage. I used small pieces of heat-shrink tubing over the wire/switch terminal connections to avoid inadvertent shorts.

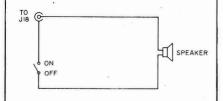
Now I can silence my Apple any time. Raising the front of the computer slightly to reach the switch is a small inconvenience considering the results: easy installation of an inconspicuous switch.

Keyboard Cover

Your computer keyboard is exposed to many hazards: accumulated dust, wayward staples and paper clips, coffee spills—to name a few. A commercial cover works fine when the computer isn't on; however, when you are away from an operating computer, you can't use this cover to protect the monitor and keyboard because of heat build-up. My solution is to use a plastic bag—not any old plastic bag, but a genuine Apple ("The Personal Computer") shopping bag.

I cut the bag in half, folded over about 4 inches at the top, and taped it to the bottom (formerly the inside) of the bag half. This provides me with a colorful cover that I secure over the keyboard by placing a large rubber band around the computer case just above the keyboard in the

Figure. Although the circuit requires only a single-pole, single-throw (SPST) switch, chances are a single-pole, double-throw (SPDT) or double-pole, double-throw (DPDT) switch is easier to obtain. Break one of the speaker leads and insert the switch in series with it. Insulate the connections with heat-shrink or spaghetti tubing to avoid accidental shorts.



slot that normally stores pens or pencils. When I leave the computer unattended, I slide the top portion of the cover under the rubber band, and dress the cover over the keyboard. This provides inexpensive keyboard insurance and avoids heat build-up. It's quick and easy to use, and the price is right.

Screen Glare

Despite the anti-reflective screen covering on some video monitors, a major source of eyestrain and headaches is screen glare caused by overhead lighting. Changing the position of the monitor or the computer station or using a different lighting scheme is a relatively obvious, though not always practical, means of correcting the problem. A simpler solution is placing a light shield on top of the monitor (a manila file folder taped to the monitor cabinet will do) so that it extends a few inches in front of the screen to prevent glare from above.

Cable Shielding

Amidon Associates offers a line of ferrite products that help eliminate RFI to and from computers. These devices come in various shapes (donuts, flat bars, cylinders) and sizes to fit practically every requirement. The relatively new flat ferrite bars are ideal for use with disk drive, printer, and other flat cables. Each bar, comprising two U-shaped sections of ferrite, can be placed on either side of a cable and held together with rubber bands, tape, or nylon ties. Write to Amidon Associates, 12033 Otsego Street, North Hollywood, CA 91607, for more information.

Contact Paul K. Pagel at 4 Roberts Road, Enfield, CT 06082.

Now You See It; Now You Don't

by P. Kenneth Morse

leaning house can pose unforeseen difficulties. While working on a set of Turbo Pascal procedures, I decided to clear the .BAK files but ended up erasing the .PAS files as well. In Apple DOS, I would have used an appropriate utility to recover the files, but until I discovered Turbo Pascal, I rarely used CP/M so I had no such utility.

With three weeks' work lost and no back-up disk, I needed to recover the files. Before panicking, I reasoned that perhaps a DOS zap program could correct the damage if I located the CP/M directory and discovered what CP/M changed to erase a file from the directory.

First I located the directory by taking a newly formatted CP/M disk and

PIPing one file to it. Track 17 was blank (CP/M has \$E5 in each byte of an unused sector), but track 3 sector 0 showed a 32-byte directory entry. I wrote down the 32 bytes in hex and then read track 3 sector 0 on my erased disk. Directory entries were found beginning at bytes \$00, \$20, \$40, \$60, \$80, \$A0, \$C0, and \$E0.

The first byte of each erased entry was \$E5, while the first byte of the good entry on the test disk was \$00. It seemed almost too simple, but I zapped \$00 into bytes \$00, 20, 40, 60, 80, A0, C0 and E0, booted CP/M, and eight files appeared on the directory. I typed them (all were text files) to verify their recovery.

Since the original disk had more than 40 files, I rebooted DOS and reloaded my zap program to search for the other entries. Sectors 1 and 2 on track 3 contained program text, but sector 3 had eight more entries. Directory entries also appeared on sectors 6, 9, 12, and 15. After zapping \$00 into the first byte of these entries, I recovered my disk.

DOS changes the bit map when you delete a file to free up the occupied sectors, and CP/M replicates the procedure. I PIPed the recovered files to the test disk, and then used Copy to transfer the files back to the original disk. This ensured that CP/M would not write over the files when I added a new file to the disk.

Write to P. Kenneth Morse at P.O. Box 3367, Augusta, GA 30904.

Circle 211 on Reader Service card.

Wizardo

Easy user.

Letter Wizard is an ideal word processing program for even the most serious wordsmith in your family. It boasts a spelling checker and compatibility with all popular printers. Nice thing is, commands are a whiz to learn and perform.

Compose and edit right on the screen. At the stroke of a key, you can move, delete, insert, search and replace words and paragraphs like. . . well, magic.

Easy speller.

Letter Wizard includes a spelling checker which allows easy in-line corrections of over 33,000 words. And you can even create custom dictionaries of your own special words. Have we got you under our spell yet?

Letter Wizard™ is a trademark of Datasoft, Inc.® 1984. © 1984 Datasoft, Inc.

Easy buyer.

OK, a powerful program like this must cost a powerful lot of money, right? Stuff and nonsense. Even though Letter Wizard offers more than most, it costs less than most. And that's no voodoo.

For Commodore 64, Apple II and Atari systems.

Letter Wizard with Spelling Checker

Datasoft, Inc., 19808 Nordhoff Place Chatsworth, CA 91311 • (818) 701-5161



Nov. 30-Dec. 2

Bits & Bytes Show for Kids

Anaheim, CA contact: Doug Mitchell 87 North Raymond Avenue Suite 305 Pasadena, CA 91103 (818) 792-5111

December 6-8

Great Southern Business and Computer Shows and Seminars

Tallahassee, FL contact: Great Southern Computer Shows P.O. Box 655 Jacksonville, FL 32201 (904) 356-1044

December 10-11

Computer Supermarket Christmas Show

San Mateo County, CA contact: Microshows P.O. Box 4323 Foster City, CA 94404 (415) 571-8041

December 13-16

Southeast Computer Show and Software Exposition

Atlanta, GA contact: CompuShows, Inc. P.O. Box 3315 Annapolis, MD 21403 (800) 368-2066

December 17-19

Carl Machover on CAD/CAM

San Francisco, CA contact: Carol Every Frost and Sullivan 106 Fulton Street New York, NY 10038 (212) 233-1080

December 20-21

Carl Machover on Business Graphics

San Francisco, CA contact: Carol Every Frost and Sullivan 106 Fulton Street New York, NY 10038 (212) 233-1080

December 25-28

Southeast Computer Show and Software Exposition

Atlanta, GA contact: CompuShows P.O. Box 3315 Annapolis, MD 21403 (800) 368-2066

January 28-30

Office Automation Conference Chicago, IL

contact: AFIPS 1899 Preston White Drive Reston, VA 22091 (703) 620-8900

January 28–31

Communications Networks

Washington, D.C. contact: Nancy Hedges CW/Conference Management Group Framingham, MA 01701 (800) 225-4698

February 4–6

1985 Office Automation Conference

Atlanta, GA contact: Helen Mugnier AFIPS 1899 Preston White Drive Reston, VA 22091 (703) 620-8926

February 5-7

Mini/Micro West

Anaheim, CA contact: Tim Parrott Electronic Conventions Management, Inc. 8110 Airport Boulevard Los Angeles, CA 90045 (213) 772-2965

February 10-13

Personal Computers: Now in Business

Dallas, TX contact: Marlan D. Stredwick Infomart Dallas Market Center 2100 Stemmons Freeway Dallas, TX 75207 (214) 655-6100

February 16–20

International Software Update

Kauai, HI contact: Phillip J. Russell Raging Bear Productions 21 Tamal Vista Drive Suite 175 Corte Madera, CA 94925 (800) 732-2300

February 18-20

Retail: Minding the Store

Dallas, TX
contact:
Marlan D. Stredwick
Infomart
Dallas Market Center
2100 Stemmons Freeway
Dallas, TX 75207
(214) 655-6100



February 20-22

Info/Software

Rosemont, IL contact: Show Manager Info/Software 999 Summer Street Stamford, CT 06905 (203) 964-0000

February 25–28

COMPCON Spring '85

San Francisco, CA contact: IEEE Computer Society 1109 Spring Street Suite 300 P.O. Box 639 Silver Spring, MD 20901 (301) 589-3386



WHOLESALE + 8% PRICING **OUR 500 PAGE CATALOG OF 20,000 COMPUTER PRODUCTS** AND 14 TO 28 DAY SOFTWARE RENTALS† FOR NETWORK MEMBERS ONLY!

For as little as \$8 per year you can join the thousands of value wise buyers who have saved more than \$18,000,000 on 45,000 orders in just the last few months and received these 15 unique benefits:

- Cost + 8% Pricing
- Our 500 Page Wholesale Catalog
- In-Stock Insured Fast Home Delivery
- 10 Day Hardware Return Policy
- Membership Satisfaction Guarantee
- · Experienced Consultants
- Free Technical Support
- · Optional Business Rental Library
- Optional Game Software Rental Library
- Special Savings Bulletins-The Print-Out
- Discount Book Library
- · Membership Referral Bonus
- · Corporate Account Program
- Quantity Discounts
- Price Protection

See back of card for complete details.

CALL 1-800-621-S-A-V-E (memberships)
In Illinois call (312) 280-0002
Your Membership Validation Number: 18C1

COMPLETE APPLE SYSTEMS

The NETWORK offers fantastic discounts on these three complete 100% Apple packages.

APPLE //c

128K System Modem Port Serial Printer Port Mouse/Game Port Composite/RGB/TV 40/80 Column Monitor Port QWERTY/DVORAK





Keyboard **Built in Drive** Software

860.00* (18.58)

APPLE //e STARTER SYSTEM 128K //e CPU

80 Column Card 1 Disk Drive 1112.00* (24.01) Software





400K Diskette Keyboard Mouse Software

1580.00* (34.12)



Wholesale Prices Change Rapidly . . . if you ever see a lower price advertised anywhere please call! You will find the Network's Price will always be the best!

Below is a sampling of the over 20,000 products available from the NETWORK at our everyday low prices!

	Wholesale	ng for each (itle ordered from below.)	Wholesal
Bluechip Barron Millionaire or Tycoon—Mac To Broderbund Loadrumer	o! \$ 34.20° 19.75°	Microlab Miner 2049er Microsoft Typing Tutor II	\$ 22.80 14.22
Broderbund Choplitter	19.00*	Orlan JBird (QBert Look Alike)	22.00
CBS Goren-Bridge Made Easy	48.00° 90.00°	Penguin Transylvania Macintosh Version Only	20.97 22.77
CBS Mastering the SAT CBS Murder By The Dozen Macintosh Version O	nly 25.97*	Scarborough Mastertype Screenplay Professional Blacklack Sierra On-Line Frogger Mac too! Sierra On-Line Crosstire	39.88
Counterpoint Music, Fractions or Piece of Cake	17.00	Sierra On-Line Frogger Mac too!	21.00
Designware Creature Creator or Spellicopter Designware Cryoto-Cube or Tran-A-Zoid	22.80*		28.50
Designware Crypto-Cube or Trap-A-Zoid EPYX Temple of Apshai	21.97*	SubLogic Flight Simulator II	31.00
Hayden Sargon III Hayden-SAT Sampler Test	28.47° 11.97°	SubLogic Night Mission Pinball Spinnsker Alphabet Zoo	20.00 17.00
Infocom Zork I. II. or III	21.50*	Spinnaker Delta Drawing	29.00
Infocom Deadline, Witness or Suspended	27.00	Spinnaker FaceMaker	20.00
Infocom Deadline, Starcross, Suspended Macintosh Varsion Only	35.97*	Spinnaker Hey Diddle Diddle Spinnaker KinderComp	17.00
Infocom Enchanter, Sorcerer, Zork II & III, Infidel	29.97*	Spinnaker Rhymes & Riddles	17.00
Macintosh Version Only Infocom Planet Fall, Sea Stalker, Witness, Zork I	23.97*	Spinnaker Story Machine Spinnaker The Most Amazing Thing	20.00
Macintosh Version Only	23.51	Virtual Combinetics Micro Cookbook	21.00
8 10 ² 1	BUSINESS	SOFTWARE lling for each title ordered from below.)	
ASPEN/WANG Grammatik	\$ 42.00°	ling for each title ordered from below.) Microsoft File for Macintosh	\$110.00
ATI How to use Wordstar	42.00*	Microsoft Multiplan for Macintosh	110.00
ATI How to use Multiplan Broderbund Bank Street Writer	42.00*	Microsoft Basic for Macintosh Microsoft Chart for Macintosh	85.00 71.00
Business Solutions The Incredible Jack	100.00*	Microstuff Crosstalk	105.00
Central Point Copy II Plus	23.00	Monogram Dollars & Sense	57.00 89.90
Dow Jones Software Market Analyzer Dow Jones Software Market Manager	198.00* 171.00*	Monogram Dollars & Sense for Macintosh Version Only	69.90
	113.00*	Odesta Helix for Macintosh	237.00
Howardsoft Tax Preparer 1984 Living Videotext Think-Tank-Mac-Tool LJK DataPerfect	143.00*	Softcraft Fancy Fonts	125.00
Living Videotext Think-Tank-Mac-Tool	85.00° 80.00°	Software Publishing PFS: File Software Publishing PFS: Write	71.00 71.00
LJK LatterPenact	60.00	Software Publishing PFS: Write Software Publishing PFS: Graph Software Publishing PFS: File & Report	71.00
Microsoft Applesoft Compiler	99.00*	Software Publishing PFS: File & Report	117.00
Microsoft Multiplan (DOS or CPIM) Microsoft MS: Financial Statement	110.00° 57.00°	Mecintosh Pack Stoneware DB Master Version 4 — Mec Too!	199.00
Microsoft A.L.D.S.	78.80° 110.00°	T/Maker Click Art for Macintosh Version Only	29.97
Microsoft Word for Macintosh		Werbatim Disk Drive Analyzer	23.00
	ipping and handling	charges found in italics next to price.)	7
COMPLETE SYSTEM	S	MONITORS (continue	
Apple Lisa All Configs Available Apple Macignosh Base System	CALL \$1.580.00*(34.12)	Taxan 210 Combination RGB/ Composite Display	230.00* (6:00)
Apple Macintosh Base System Apple IIc All Configs Available	\$1,580.00* (34.12) 860.00* (18.58) 1,112.00* (24.01)	Zenith 2VM-123 High Res Green	76.00* (2.50)
Apple He 100% Apple Starter System	1,112.00* (24.01)	(Consumer Reports Rated Best Buy!!)	
Columbia Desktop & Portable Systems Eagle Desktop PC and Spirit Portables	CALL	Zenith ZVM-131 13" RGB Color	275.00° (6.00)
IBM PC Starter System 1 DSDD/	1,642.00° (35.47)	w/Green Switch	D.T.+003
FDC/Color CD/Par Port/Monitor/64K	2.97	BOARDS AND BUFFE	RS
IBM PC Base System	1,625,15* (35.10)	ALS ZCard II	\$ 96.33* (2.50)
2 DSDD/FDC/256K IBM PC Professional Hard Disk (XT)	2,195.15* (48.60)	Digital Research CP/M Gold Card w/192K	465.00° (2.50)
1BM PC Professional Hard Disk (XT) (1 DSDD/FDC/10MB Hard Disk/256K)	Marie Company Company	Microsoft Premium Softcard lie Microtek Dumpling/GX	243.87° (2.50) 55.00° (2.50)
IBM PC/AT All Configs NEC Notebook (New Lower Price)	CALL 428.00* (10.00)	Microtek Magnum 80me 80 col + 64K	93.00* (2.50)
Sanyo MBC-550 "Lowest Cost MS-DOS System"	640.00* (15.00) 1,450.00* (31.32)	Oranga Micro Granoler +	96.90° (2.50
Tava Complete IBM compatible	1,450.00 (31.32)	Orange Micro Grappier/Bufferboard	113.05° (2.50) 35.00° (2.50)
Texas Instruments Professional	CALL	PC Network Z80 Card PC Network Printer Card w/Cable	40.00* (2.50)
DISK DRIVES & CONTRO Alps AP-100A Dual Apple Drives in	\$ 309.00* (7.00)	Personal Comp Prod 6MH Appli-Card with 8088/BASIC IMS-DOS	552.00° (2.50)
One Case		with 8088/BASIC IMS-DOS Quadram MP-88k Microfazer Buffer	110.00* (2.50)
Alos AP-1008 Same as 100A with One Drive	159.00° (4.00) 159.00° (4.00)	(expandable)	
Alps AP-100C Slimline Drive in Case Apple All MODELS	CALL	Quadram APIC Parallel Interface Quadram APIC/G Graphics Interface	57.00° (2.50) 62.00° (2.50)
Apple Macintosh Add On Drive	312.00* (6.74)	Street Electronics ECHO II Speech	100.00° (2.50)
Corvus 6MB Hard Disk Davong Hard Disks for Macintosh	1,436.00*(31.02)	Synthesizor	1-1-4
Franklin Data X-10 10MB Hard Disk	4 20E 00* /20 20)	PRINTERS	
Micro-Sci A2 143KB Drive	165.00° (5.00) 55.00° (2.50)	AL AND ADDRESS OF THE PARTY OF	
Micro-Sci Floppy Controller		Amdek 5025 New 25CPS Letter Quality Apple 15" Image Writer	\$ 525.00°(11.34 530.00°(11.45
Rana Elite II 326K Drive		C. Noh Starwitter F10/40 40 CPS LQ	530.00* (11.45) 875.00* (18.90) 475.00* (11.00) 415.00* (9.25)
Rans Ekte III 652K Drive	398.00*(10.00) 70.00*(2.50) 130.00*(2.81)	Epson RX-100 100CPS Wide Platen	475.00° (11.00)
Rana Floppy Controller	70.00* (2.50)	Epson FX-80 160CPS 80 COL Epson FX-100 160CPS Wide Platen	415.00° (9.25) 600.00° (14.35)
Panasonic Half Height DSDD Drive —No Case		Eppon LO1500 NEW LO/DP Printer	CALL
Shugart AP-50 Full Height Add-On	155.00° (4.00) 158.00° (3.41)	Epson IBM-to-EPSON Parallel Cable	21.00" (1.00)
Tandon TM100-2 Full Height DSDD	158.00* (3.41)	LDS Prisim 132Color witall optns NEC 2030 20CPS Letter Quality Printer	1,365.00° (30.00) 625.00° (16.53)
Drive Only Teac FD55-B Half Height DSDD	140.00" (4.00)	NEC 3530 33CPS Letter Quality Printer	1,185.00* (31.54
Drive Only	or delice of the	Okidate 82A Serial & Parallel	1,185.00° (31.54 280.00° (7.00 350.00° (7.56
Tecmar 10MB Hard Disk for Macintosh	1,350.00* (29.16)	 Okidate ML92P 160CPS 80 COL Printer Okidate IBM-to-Okidate Parallel Cable 	350.00° (7.56, 20.75° (1.00)
MEMORY CHIPS	8.40 //	Quadram Quadrat Multicolor Ink-Jet	535.00° (12.00)
All chips guaranteed for life. 64K Memory Upgrade Kita (9 Chips)	\$ 35.55* /1.00)	Quadram Quadjet Multicolor Ink-Jet Qume Sprint 11/45 45 CPS Letter Quality	1,155.00° (24.40)
84K Dynamic Ram Chips (Each)	\$ 35.55° (1.00) 3.95° (1.00)	Gume IBM Cable and Interface (required) ➤ Star Micronics Gemini 10X	72.00° (1.00 225.00° (4.88
MODEMS		Star Micronica Gemini 15X Wide Carr 10X.	325.00* (7.02
Anchor Valksmadem	\$ 47.00* (2.50)	► Star Micronics Padi-10 160CPS	485.00" (5.74
Anchor Mark XII LOWEST PRICE 12008PS HAYES COMPATIBLE EXTERNAL MODEM!	230.00 (5.00)	Epson Comp With I.Q Mode Star Micronica Radix-15 132 COL	545.00*(11.77
Hayes Micromodem He w/Smartcom	200.00* (2.50)	➤ Star Micronice Powertype 18 CPS LO	545.00° (11.77 295.00° (6.37
Hayes Smartmodem 300 Hayes Smartmodem 12008 with	180.00° (3.60) 368.90° (2.50)	Diablo Compatible Tatley M7-160L 160CPS DPLQ Printer	540.00° (12.00
Smartcom II		Texas instruments 855 DP/LQ w/Tractor	\$ 716.00° (15.50
Novation Apple Cet II	196.00* (2.50)	Toehiba P-1351 160/100CPS DP/LQ	1,200.00* (25.92
Novation 212 Apple Cat Prometheus ProModem 1200	369.88° (2.50) 325.00° (8.00)	ACCESSORIES AND SUF	PI IFS
Prometheus Macintosh Modem Pac		► Brand Name SSD Diskettes	\$ 11.00* (7.00
Rizon R212A Stand Alone 1200BPS	235 00° (8 50)	Guaranteed for Lifell Box of 10	
U.S. Robotics Password (Compact 1200BPS Ext'l)	290.00* (6.50)	PC Network MacIntosh Dishettes	CALL
MONITORS	of Tour of T	Chalkboard Powerpad	62.00° (1.50 56.97° (1.50
Amdek Video 300G Composite Monitor	\$ 110.00° (3.00)	Kensington Microware System Saver Fan Koela Koala Pad Touch Tablet	
Amdek Video 300A Composite Monitor	120.00° (3.00) 130.00° (3.00)	Hayes Mach II Joystick for He	25.00° /1.50
Amdek Video 310A IBM Type	130.00* (3.00)	Hayes Mach III Joystick w/Fire	31.00 (1.50
Monochrome Manitor Amdek Color 300 Composite Color	215.00" (6.00)	Button for Ile M & R Sup-R-Mod RF Modulator	44.00* // 60
Amdek Color 500 RGB Color	320.00° (6.00) 110.00° (2.50)	PC Network Cooling Fan with Surge Protector & Dual Outlets	44.00° (1.50 25.00° (2.50
Amdek DVMIII RGB Monitor	110.00* (2.50)	Protector & Dual Outlets	8
Interface Card Princeton HX-12 RGB Monitor	CALL	WP Printer Paper 2600 Sheets Microline Perfs.	17.00*(10.00
	- Committee	Mec-fool Indicates the Mac version is available	at the same price.
		*PC Network Members pay Just 8% above th plus shipping. All prices reflect a 3% cash dis prices fluctuate rapidly—all prices in this issue 60 days in advance. Please call for latest pricer	e wholesale orice.

†RENT BEFORE YOU BUY—Members are eligible to join PC NETWORK's Business and Game Software Rental Libraries for a much smaller fee than other software rental services. And PC NETWORK's rental charges are far less—just 20% of the Members WHOLESALE PRICE.

PC NETWORK

America's Number 1 Computer Buying Service Brings You These 15 Exclusive, Money-Saving Benefits . . .

Join PC NETWORK for as low as \$8 for one year (or \$15 for two years) and receive all these exclusive, money-saving benefits:

COST + 8% PRICING — The NETWORK purchases millions of dollars in merchandise each month. You benefit in receiving the lowest price available and all at just 8% above published dealer wholesale price.

2 OUR 500 PAGE WHOLESALE CATALOG — Members receive our 500 page wholesale catalog containing over 20,000 hardware and software products for the IBM PC, APPLE and over 50 other popular computer systems. THE NETWORK'S CATALOG IS THE LARGEST SINGLE COMPILATION OF PERSONAL COMPUTER PRODUCTS AVAILABLE TODAY.

A IN-STOCK INSURED FAST HOME DELIVERY—The NETWORK maintains a giant multi-million dollar inventory of most popular products, allowing us to ship many orders from stock. Non-stock items are typically maintained in local warehouses just days away from The NETWORK and YOU. We pay all insurance expenses on your shipment. EMERGENCY OVERNIGHT SERVICE IS AVAILABLE ON REQUEST.

4 10 DAY RETURN POLICY — If you are not satisfied, for any reason with any hardware component purchased from The NETWORK within 10 days of receipt, we will refund your entire purchase (less shipping) with no questions asked.

MEMBERSHIP SATISFACTION GUARANTEE
If for any reason you are not satisfied with your membership within 30 days, we will refund your dues IN FULL.

6 EXPERIENCED CONSULTANTS — The NET-WORK hires consultants, not order takers, to aid you in product selection. Our consulting staff possesses in excess of 150 man years of personal computer product experience. We back our consultants with our money back guarantee: IF ANY PRODUCT RECOMMENDED BY OUR CONSULTING STAFF FAILS TO PERFORM AS PROMISED — OR IS INCOMPATIBLE WITH YOUR SYSTEM — WE WILL TAKE IT BACK AT OUR EXPENSE FOR A 100% REFUND.

7 FREE TECHNICAL SUPPORT — The NETWORK supports every product it sells. Our qualified TECH-SUPPORT staff will help you assemble your system, interpret vendor documentation and get your software and hardware to work. WE WILL GIVE YOU ALL THE HELP YOU NEED, WHEN YOU NEED IT — FREE!

PARTIONAL BUSINESS RENTAL LIBRARY—All members can join our BUSINESS RENTAL LIBRARY featuring over 1000 available titles for just \$25 PER YEAR above the base membership fee. This entitles you to rent business software AT JUST 20% of the DISCOUNTED PRICE FOR A 14 DAY PERIOD. If you decide to keep the software, the entire rental fee is deducted from the purchase price. VIP MEMBERS GET A FULL 28 DAYS for just \$30 above the V.I.P. base fee. This also includes the game library privileges for a \$5 combination savings.

†9 OPTIONAL GAME SOFTWARE RENTAL LIBRARY — The Game Rental library is available to members for just \$10 PER YEAR and permits evaluation (or just enjoyment) of any game or educational software product as above.

10 SPECIAL SAVINGS BULLETINS — THE PRINT—OUT — The NETWORK seeks every opportunity to save money for its members. We buy excess dealer inventories, and store bankruptcy closeouts regularly. We then turn around and make this merchandise (only top quality name brand products) available to our members at fantastic savings via THE PRINTOUT, our newsletter and savings bulletins.

CALL TOLL FREE

1-800-621-S-A-V-E In Illinois call (312) 280-0002

Your Membership Validation Number: 18/C1



You can validate your membership number and, if you wish, place your first money-saving order over the phone by using your VISA, MASTERCARD or AMERICAN EXPRESS. Our knowledgeable service consultants are on duty Mon-Fri 8 AM to 7 PM. SAT 9 AM to 5 PM CST.



PC NETWORK 320 West Ohio Chicago, Illinois 60610

Call now...Join the PC NETWORK and start saving today!

The Nation's Largest - Corporations Depend on PC NETWORK!

On our corporate roster are some of the nation's largest financial, industrial and professional concerns including some of the most important names in the computer industry:

AT&T
Barclays Bank
Bell & Howell
Citibank
Columbia University
Data General
Farm Bureau
Insurance
Frontier Airlines
General Mills

Harvard University
Hewlett Packard
Hughes Aircraft
IBM
ITT
Kodak
Multimate
Standard Oil of Ohio
University of Chicago
Veteran's
Administration

plus thousands of satisfied consulting firms, small businesses, user groups, municipalities, government agencies and valuewise individuals ACROSS THE NATION! Their buyers know that purchasing or renting from PC NETWORK saves them time, money and trouble. They also count on us for product evaluation, professional consultation and the broadest spectrum of products and brands around.

PC Network's Try-Before-You Buy Software Evaluation Service is the Ideal Way to Avoid Costly Errors in All Your Software Purchases!

SPECIAL V.I.P. MEMBERSHIP

A limited number of PC NETWORK V.I.P. Memberships are available at just \$15 for one year or \$25 for two years.

V.I.P. Members receive additional benefits:

1. FIRST PICK ON "BELOW WHOLE-SALE" SPECIALS—V.I.P. Members are given preference in the purchase of any "below wholesale" merchandise specials as featured in the "PRINT-OUT" where only limited quantities are available. Whether it be 75¢ diskettes or \$3 chips, V.I.P. Members often earn back the membership cost difference the first time they exercise this option.

2. V.I.P. SAVINGS ON SOFTWARE RENTAL LIBRARIES—All V.I.P. Members are eligible to join our Business AND Game Software Rental Libraries for just \$30 per year in addition to the basic V.I.P. membership fee. All the same conditions apply to the V.I.P. Libraries as the Basic Membership Libraries.

3. EXTENDED V.I.P. RENTAL PRIVI-LEGES—V.I.P. Members can enjoy their rented merchandise longer . . . a full 21 days instead of the twelve days allowed with our Basic Membership.

11 DISCOUNT BOOK LIBRARY — Working with numerous publishers and distributors, The NETWORK has assembled a library of over 1000 computer related books and manuals at savings of up to 75% from the normal store price.

12 MEMBERSHIP REFERRAL BONUS — Our most valuable source of new members is you! To date almost 40% of our members have been referred by word of mouth from other satisfied members. For those of you who refer new members, THE NETWORK will credit a cash bonus to your account applicable to any future purchase.

13 CORPORATE ACCOUNT PROGRAM — Almost 50% of The NETWORK'S members are corporate buyers and users (see opposite page left). The NETWORK can establish open account status and assign designated account managers to expedite orders, and coordinate multiple location shipments.

14 QUANTITY DISCOUNTS — For large corporations, clubs and repeat or quantity buyers The NETWORK can extend additional single order discounts, when available to us from our manufacturers and distributors.

15 PRICE PROTECTION — The PC Industry is crazy!! Prices change not yearly or monthly or even weekly but often day by day! These changes are sometimes up but are mostly down!!! THE NETWORK GUARANTEES THAT IN THE EVENT OF A PRODUCT PRICE REDUCTION, BETWEEN THE TIME YOU PLACE YOUR ORDER AND THE TIME THE PRODUCT SHIPS YOU WILL ONLY PAY THE LOWER AMOUNT!!

FXTRACT PPLE

A reprise of the reviews that have appeared in inCider in the last six months. Prices subject to change without notice.

Superlative Above average Good Not recommended Stay away

Software

Access II $\star\star\star$

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014 Communications, August '84. A sophisticated yet easy to use terminal package. Pro-DOS based. \$75.

Accounts Receivable $\star\star\star$

BPI Systems, 3423 Guadalupe, Austin, TX 78705 Business, June '84. Get a handle on your business. This package does what an AR package should. \$395.

Alphabet Beasts and Company $\star \star$

Reader's Digest Software, Microcomputer Software Division, Pleasantville, NY 10570 Education, July '84. Beautiful graphics help youngsters learn how to draw numbers, letters, and strange creatures. \$34.95.

Apple Logo II $\star\star\star$

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014 Language, September '84. More powerful and complete than its predecessor. Requires

a //c or a 128K //e. \$100.

AppleWorks

 $\star\star\star\star$

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014

Business, July '84.

A superb integrated package featuring a word processor, a spreadsheet, and a data base manager. An excellent value.

BASIC Tutor

 $\star\star$

Supersoft, Inc., 1713 S. Neil Street, Champaign, IL 61820 Education, August '84. A solid instructional package for people interested in learning Applesoft BASIC. Schools can take advantage of a multiple copy policy. \$99.95.

Beyond Castle Wolfenstein $\star\star\star$

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.

Break the Bank Blackjack

Gentry Software, 9411 Winnetka Avenue, Chatsworth, CA 91311 Entertainment, July '84.

This program teaches you how to count cards when playing blackjack. \$24.95.

Carrier Force $\star\star\star$

Strategic Simulations, Inc., 883 Stierlin Road, Building A-200, Mountain View, CA

Strategy game, August '84. A war game that simulates a number of famous air-sea battles of the Pacific Theater in World War II. A super challenge. \$59.95.

Caverns of Callisto $\star\star$

Origin Systems, Inc., P.O. Box 58009, Houston, TX

Arcade game, June '84. It's a long walk (400 million miles) back to Earth if you don't find the parts stolen from your spaceship. \$34.95.

Certified Personal Accountant

 $\star\star$

Sundex Software, 3000 Pearl Street, Boulder, CO 80301 Home accounting, October

CPA tracks your personal financial information in an easy and understandable way. \$99.95.

Chivalry $\star\star\star$

Weekly Reader Software, 245 Long Hill Road, Middletown, CT 06457 Arcade game, June '84. Beautiful graphics enhance this game set in days of yore. A great game for kids. \$49.95.

CodeWriter $\star\star\star$

CodeWriter Corp., 7847 North Caldwell Avenue, Niles, IL 60648 Utility, October '84. CodeWriter is a data-base generation program that lets you create tailor-made data bases. \$199.

The Coveted Mirror $\star\star$

Penguin Software, P.O. Box 311, Geneva, IL 60134 Adventure game, August '84. An adventure game with some arcade features included. Be careful-King Voar is watching! \$34.95.

Create-A-Test $\star\star$

Create-A-Test Company, 80 Tilley Drive, Scarborough, Ontario, Canada M1C 2G4 Education, September '84. Teachers can save a lot of time with this test authoring system. Question disks are also available. \$89.95.

Data Spectrum

 $\star\star\star$

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.

Disk Quick $\star\star\star$

Beagle Bros, Inc., 4315 Sierra Vista, San Diego, CA 92103 Utility, June '84. Turn the extended 80-column card in your //e into a RAM disk. \$29.50.

Documax $\star\star\star$

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.

Dow Jones Spreadsheet Link $\star\star\star$

Dow Jones & Company, Inc., P.O. Box 300, Princeton, NJ 08540

Communications, October

This package automatically dials up the Dow Jones data base, downloads information on selected stocks, and writes the data to a file which can be read by your spreadsheet program. \$249.

The Eating Machine $\star\star\star$

Muse Software, 347 North Charles Street, Baltimore. MD 21201 Home, July '84. A cut above the average selfimprovement program. The Eating Machine helps you plan a healthy diet. \$49.95.

Edu-Ware Fractions $\star\star\star$

Edu-Ware Services, Inc., P.O. Box 22222, Agoura Hills, CA 91301

Education, September '84. Everything you always wanted to know about fractions and decimals. \$49.

Electronic Playground $\star\star$

Software Entertainment Company, 537 Willamette Street, Eugene, OR 97401 Education, August '84. Games for three- to eightyear-olds, including a kaleidoscope, a matching game, and a drawing program. \$24.95.

El-Ixir $\star\star\star\star$

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.

The Factory $\star\star$

Sunburst Communications, Inc., 39 Washington Avenue, Pleasantville, NY 10570 Education, July '84. Designed for fourth through ninth graders, The Factory teaches real problem solving skills in a challenging way. \$55.

Fraction Factory $\star\star\star$

Counterpoint Software, 7807 Creekridge Circle, Minneapolis. MN 55435 Education, September '84. An excellent introduction to fractions for young learners. \$29.95.

Fraction Fever



Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139

Education, September '84. An arcade game that teaches fraction equivalents. Poor documentation limits the usefulness of the software. \$34.95.

Fractions



P.O. Box 12486, Portland. OR 97212 Education, September '84. A package containing six disks that makes learning about fractions fun. An excellent buy for schools. \$175.

The Graphics Magician

Penguin Software, P.O. Box 311, Geneva, IL 60134 Graphics, June '84. A great graphics utility for the Apple. No wonder so many professional game designers use it. \$59.95.

Gruds in Space



Sirius Software, Inc., 10364 Rockingham Drive, Sacramento, CA 95827 Adventure game, June '84. Saving the universe can be a chore. A game where all is not what it seems. \$39.95.

Gutenburg Jr.



Micromation Limited, 1 Yorkdale Road, STE 406, Toronto, Ontario, Canada M6A 3A1 Word processor, June '84. A powerful and inexpensive program for combining text and graphics. Limited in the hardware it supports. \$85.

The Heist



Micro Lab, 2699 Skokie Valley Road, Highland Park,

Arcade game, October '84. Great animation is the high point of this game in the vein of Miner 2049'er and Donkey Kong. \$40.

Homeword



Sierra On-Line, 36575 Mudge Range Road, Coarsegold, CA 93614 Word processor, July '84. The use of icons makes this inexpensive package easy for beginners to understand. \$69.95.

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.

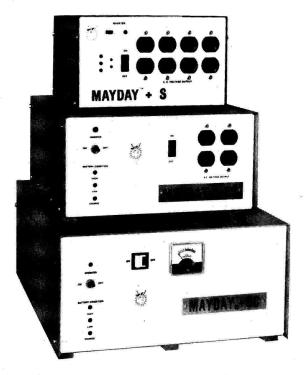
MAYDAY™ UNINTERRUPTIBLE POWER SYSTEMS BY SUN RESEARCH

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



In Search of the **Most Amazing Thing** $\star\star\star$

Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139

Education, June '84. An adventure game for children that helps develop reasoning skills and deemphasizes violence. \$39.95.

In-The-Mail $\star\star$

el Dorado Software, 350 7th Avenue, Suite 324, San Francisco, CA 94118 Business, July '84. In-The-Mail gives you 99 different letters for all those times when you can't think of what to write. From sympathy notes to letters of resignation, this package has them all. \$60.

Jeepers Creatures $\star\star$

Kangaroo, Inc., 332 S. Michigan Avenue, Suite 700, Chicago, IL 60604 Education, July '84. A program for preschoolers

that lets kids be creative while practicing word recognition and association. \$34.95.

Jenny of the Prairie $\star\star$

Addison-Wesley Publishing Company, Jacob Way, Reading, MA 01867 Adventure game, August '84. You take the part of the "plucky pioneer girl" and try to survive the harsh prairie winter. \$39.95.

Kids on Keys

Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139

Education, September '84. A game for young children that teaches how to use the Apple keyboard. \$29.95.

Kidwriter



Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139

Education, July '84. A good reason why Spinnaker has a reputation for excellence. This program lets young kids create pictures and then write short stories to accompany them. \$34.95.

Kinder Koncepts $\star\star$

Midwest Software, Box 214, Farmington, MI 48024 Education, September '84. Six disks containing 30 programs that teach math and reading skills to young children. \$175 or \$39.50 per disk.

Learning with Fuzzywomp

 $\star\star$ 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.

Letters and Words $\star\star$

Learning Well/Methods and Solutions, Inc., 200 South

Circle 341 on Reader Service card.

Service Road, Roslyn Heights, NY 11577 Education, July '84. Games for preschoolers that teach alphabet sequencing, upper/lowercase association, and word/object association. \$49.95.

Magicalc $\star\star\star$

Artsci, Inc., 5547 Satsuma Avenue, North Hollywood, CA 91601 Spreadsheet, September '84.

Powerful, flexible, and economical, this spreadsheet is the answer to a VisiCalc user's dreams. \$149.

Magic Memory



Artsci, Inc., 5547 Satsuma Avenue, North Hollywood, CA 91601

Data base, June '84. Put your address book on your computer with this easy to use package. Although not very powerful, it does its job well. \$99.95.



Blank"Cheat" Sheets? You've got the best com-puter in the world, and lots of software to run on it. One problem. Unless you work with these pro-grams everyday, it's hard to keep all those com-mands straight. "F5" in one program means one thing, and "F5" in another program means thing, and 75 in another program means something else. A few companies offer a die cut sheet that attaches to your keyboard with **all** the commands of one program printed on it. Great idea, unless you only need a few easy-to-find "hints," or you need them for 10 or 20 programs. Our solution? Simple. A pack of 12 lined cards, die cut to fit your keyboard and just waiting to be filled with those problem commands **you** forget most often. Simple? Yes, but effective. Now you can have **all** your program commands right at your tinger tips on YOUR VERY OWN, custom designed "cheat" sheets. Great for offices and schools. Order a couple packs today! Please send me the following: Check computer type: Apple II Apple II + Apple IIe Apple IIc Qty. Item **Price** Sets of 12 Keyboard Cheat Sheets @ \$16.95 2 Packs (24 Sheets) for \$27.95 200 Shipping and Handling 5% State Tax (WI Residents only) TOTAL ENCLOSED ☐ Please Charge to ☐ MasterCard ☐ VISA Number Expires SHIP TO: Name Address City State/Zip Dealer Inquiries Invited 550 N. 68th Street Butes & Pieces, Inc. Wauwatosa,

414/257-1214

HIGHEST QUALITY! LIFETIME GUARANTEE!

DISKRTTES

\$1500 Box of 10 SS/DD diskettes, 5-1/4'' soft-sectored, hub ring, envelopes • 100 for \$139.00

- Double-sided double density \$1.65 each 25 for \$40.00
- 100 for \$149.00

Hard Plastic Stand-Up 10 Diskette Carrying Cases— \$2.75 each or 4 for \$10.00 (beige, black, blue, green, grey, red) Smoked-Plastic Flip-Top 75 Diskette File Cases \$18.00 70 Diskette File Cases \$16.00 ● 140 Diskette Locking Wooden File Cabinets \$33.00 ● Heavy-Duty Nibbling \$19.00

EDESTA IDIZIN'INS

\$154⁰⁰ 100% Apple-Compatible, 40 Track Slimline Quality Drives, with manufacturer's 1-year warrantee.

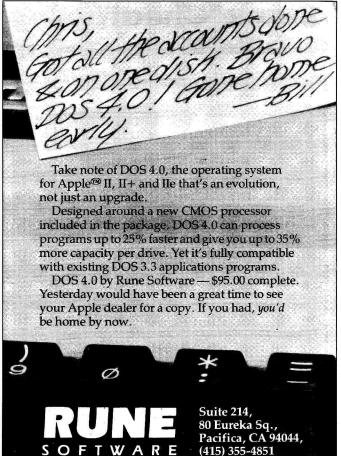
- Full Size—\$169.00 Controller Card—\$59.00
- 5 Megabyte Hard Disk with Controller—\$749.00
- 10 Megabyte \$1175.00

COD and VISA/MASTER CARD orders welcome. UPS shipping, \$4 per order.



6327 WESTERN AVE. NW/WASHINGTON, DC 20015

Circle 267 on Reader Service card.



Masquerade ★ ★ ★

Phoenix Software, Inc., 64 Lake Zurich Drive, Lake Zurich, IL 60047 Adventure game, July '84. This hi-res game features a wonderful collection of characters and a bewildering array of puzzles that you must solve before you can unmask

that arch-criminal, Mr. Topp.

Mastering the SAT ★ ★

CBS Software, One Fawcett Place, Greenwich, CT 06836 Education, September '84. A good preparation for the Scholastic Aptitude Test. \$150.

Microzine



\$34.95.

Scholastic Wizware, 730 Broadway, New York, NY 10003

Education, June '84.

A disk magazine from the publishers of *Scholastic*.

More fun than flipping pages. \$39.95.

Murder by the Dozen ★ ★ ★

CBS Software, One Fawcett Place, Greenwich, CT 06836 Strategy game, August '84. A great game for Agatha Christie fans and anyone else who likes a tough problem to crack. \$34.95.

Number Commander



ComputerEase, Inc., 1312 West Cedar Street, Appleton, WI 54914 Statistics, August '84.

A good package for those who store and manipulate a lot of numeric data. \$125.

One-on-One ★ ★ ★

Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403

94403
Game, July '84.
The best sports game available for the Apple. When
Larry Bird and Julius Erving
go one-on-one, it's almost as
much fun as a Celtics-Sixers
playoff game at the Garden.
If only they had included a
parquet floor. \$40.

Paper Graphics ★ ★ ★

Penguin Software, P.O. Box 311, Geneva, IL 60134 Graphics, July '84. This package lets you print the contents of the Apple hires screens. As an added bonus, you can edit the pictures before you print them. \$49.95.

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.

Planetfall



Infocom, Inc., 55 Wheeler Street, Cambridge, MA 02138

Adventure game, August '84. With Floyd as your boon companion, you'll set out to unravel the mysteries of the lost civilization. Success depends upon your wits and imagination. \$49.95.

Plato Fractions



Control Data Publishing, 4455 Eastgate Mall, San Diego, CA 92121 Education, September '84. A dart game with a difference. This one teaches youngsters about fractions. \$49.95.

Plato Whole Numbers



Control Data Publishing, 4455 Eastgate Mall, San Diego, CA 92121 Education, September '84. An arithmetic drill that takes the form of a pinball game. \$49.95.

 $\star\star\star$ PractiCorp, 44 Oak Street, Newton Upper Falls, MA

Spreadsheet, October '84. PractiCalc offers the features of spreadsheets costing more than twice as much. As a bonus, it also has limited data-handling and texthandling capabilities. \$69.

The Print Shop $\star \star$

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903

Graphics, September '84. The Print Shop lets you combine graphics and text and print the results on a dot-matrix printer. An excellent program and a lot of fun. \$49.95.

Report Card $\star\star\star$

Sensible Software, Inc., 24011 Seneca, Oak Park, MI 48237

Education, October '84. For teachers only. Report Card eliminates the tedium of calculating student grades. \$59.95.

The Return of Heracles $\star\star\star$

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.

Sargon III $\star\star\star$

Hayden Software, 600 Suffolk Street, Lowell, MA 01853

Strategy game, August '84. A worthy successor to Sargon II. Its enhanced features make it a great buy. \$49.95.

Simply Perfect $\star\star\star\star$

LJK, Inc., 7852 Big Bend Boulevard, St. Louis, MO 63119

Business, October '84. An integrated package that features a word processor, a spelling checker, and a data manager. Requires a 128K Apple II. \$189.95.

Songwriter

 $\star\star\star$

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.

Speed Reader II

 $\star\star$

Davidson & Associates, 6069 Groveoak Place, #12, Rancho Palos Verdes, CA 90274 Education, June '84. Increased productivity is the goal of this software. A good alternative to expensive speedreading courses. \$69.95.

Stickybear Opposites $\star\star$

Weekly Reader Family Software, 245 Long Hill Road, Middletown, CT 06457 Education, August '84. Colorful graphics teach kids word opposites. For 3- to 6-year-olds. \$39.95.

Stock-Folio



Micro Program Designs, 5440 Crestline Road, Wilmington, **DE 19808**

Investment analysis, October

With Stock-Folio, you can plot the activities of different stocks. It doesn't support downloading data from Dow Jones, \$79.50.

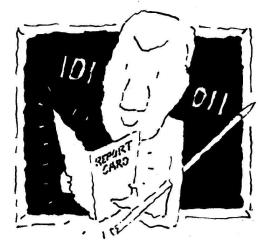
Term Exec 1.2 $\star\star\star$

Exec Software, 201 Waltham Street, Lexington, MA 02173 Communications, June '84. A sophisticated yet low-cost communications package for the Apple. Sometimes hard to use, but worth the bother. \$79.95

Time Tunnels

 $\star\star\star$

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.



The Visible Computer. The machine language teacher that gets good grades.

Users and experts alike are giving The Visible Computer straight A's for making machine language understandable.

InCider magazine: "TVC is excellent". Learning Computing: "Best Educational Software of 1983." Peelings magazine: "AA rating...The explanations are truly excellent, being that rare combination: correct and intelligible." Basic Programmer, Rockford, Illinois: "Wow!".

With The Visible Computer's graphic 6502 simulator, thirty sample programs, and 160 page tutorial-style manual, you'll find that the only mystery about machine language is why no one ever taught it this way before.

Special Offer: For a limited time, get a free copy of the Assyst Editor/Assembler with the purchase of Visible Computer: 6502.

The Visible Computer: 6502 for Apple II Plus and IIe (includes Assyst Editor/Assembler) \$49.95. From your dealer or direct from Software Masters, 3330 Hillcroft, Suite BB, Houston, Texas 77057. (713) 266-5771.



THE NEW DIMENSIONS IN GRAPHICS 640 X 768

Give your Apple II the graphics capabilities of the Macintosh plus 40% greater screen resolution

- · Compatable with Applesoft High-Res graphics comman-
- Comes complete with software enable ing the user to easily make logic dia grams, schematics. floor plans, mechan ical drawings, charts



and graphs, special forms parts layouts, CAD, flowcharts, and much more.

- . The software supports the Apple mouse and keyboard for cursor movement.
- Dump a full 8 ½ by 11 inch page of graphics to a dot matrix printer capable of 80 dots/inch.
- Some software features are rubberband line draw, pattern draw, plot, shape and font positioning.
- The system contains a vector shape maker and a font maker capable of making fonts 1 inch high with proportional
- A must for all engineering departments with Apple II's.
- Complete hardware and software package including fonts and shape tables for only \$495.00.

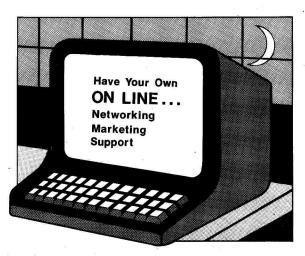
GRAPHICS TOOL KIT

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

Apple II and Macintosh are registered Trade Marks of Apple Computer Inc.

Circle 239 on Reader Service card.

Leave your computer ON, make it



FIND OUT HOW!

Have your computer call our computer night or day. full duplex - 7 bits - space parity

Toll free 1-800-237-0601 In Calif 1-800-523-7917

©1984, Nocturnal Software, P.O. Box 794, Soquel, CA (408) 462-3912

Tournament Golf



Microcomputer Games, Inc., 4517 Harford Road, Baltimore, MD 21214 Simulation game, August '84. An excellent sports simulation. Have fun making chip shots with your computer!

VODAC—The Alpine Encounter



Ibidinc, 179 Allyn Street, Suite 607, Hartford, CT 06103

Adventure game, July '84. A hi-res game of intrigue set in the Swiss Alps. Robert Ludlum would love this game, \$39.95.

Winning on Wall Street $\star\star\star\star$

Summa Software, P.O. Box 2046, Beaverton, OR 97075 Investment analysis, October

A decision support system for stock traders and investors. Winning on Wall Street consists of three separate packages. \$700.

Word Blaster



Random House, 201 East 50th Street, New York, NY 10022

Education, July '84. Students in grades two through six will enjoy this reading and comprehension program. You don't have to tell them they can learn from it. \$150.

Word Challenge $\star\star\star$

Havden 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.

Work Force II

 $\star\star$

Core Concepts, P.O. Box 24157, Tempe, AZ 85282 Home, June '84. Six programs that help you manage your budget. Includes a checkbook program, a loan analyzer, and a savings analyzer. \$29.95.

The Writer



Hayden Software, 600 Suffolk Street, Lowell, MA 01853

Word processor, July '84. A solid, low-cost word processor, The Writer is a scaleddown version of the popular Pie Writer by Hayden. \$49.95.

Hardware

AppleModem 300/1200



Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014

Modem, August '84. An external modem that provides 300- and 1200-baud operation. Lots of nice features. \$495.

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.

CP/M Gold Card $\star\star\star\star$

Digital Research, P.O. Box 579, Pacific Grove, CA 93950 Coprocessor, October '84. The makers of CP/M have developed an excellent Z-80 board to run their industrystandard, eight-bit operating system. \$350.

Drum-Key $\star\star\star$

PVI, 1 Great Valley Parkway East, Malvern, PA 19335 Sound synthesizer, October

'84. You can create some im-

pressive percussion lines with this peripheral card from PVI. An external amplifier and speakers are required. \$139.95.

EXP 500



Silver-Reed America, Inc., 19600 South Vermont Avenue, Torrance, CA 90502 Printer, June '84. A daisy-wheel printer with 12 cps and a low price. Free yourself from dot-matrix. \$599.

EXTRACT

FingerPrint $\star\star\star\star$

Precision Software, Inc., 4747 N.W. 72nd Avenue, Miami, FL 33166 Printer interface, October

This intelligent interface card can dump both the text and graphics screens to your printer. It works with a wide variety of printers. \$149.

Gibson Light Pen $\star \star$

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.

Graphics Tablet $\star \star$

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014 Graphics, September '84.

A sophisticated input device for producing high-quality graphics on the Apple II. Not for the casual user. \$795.

Juki 6100 $\star\star\star$

Juki Industries of America, Inc., 299 Market Street, Saddle Brook, NJ 07662 Printer, June '84. A low-cost daisy-wheel printer that features 18 cps operation. \$699.

L-1000 $\star\star$

Smith-Corona Consumer Products, 65 Locust Street, New Canaan, CT 06840 Printer, June '84. Letter quality can be within your budget. This inexpensive daisy-wheel printer features 12 cps operation. \$595.

Password Modem $\star\star\star$

U.S. Robotics, Inc., 1123 West Washington Boulevard, Chicago, IL 60607 Modem, August '84. A 300/1200 baud external modem that is suited especially for advanced home and business communications. \$449.

PowerPad and Leonardo's Library

 $\star\star$

Chalkboard, Inc., 3772 Pleasantdale Road, Atlanta, GA 30340 Education, September '84. A hardware-software product that eliminates the need for keyboard input. Ideal for children. Pad-\$149.95; software-\$39.95 each.

Pro 100 Keyboard $\star\star$

Amkey, 220 Ballardvale Street, Wilmington, MA 01887

Keyboard, November '84. A replacement keyboard for the Apple II and II Plus. Includes function keys and a numeric keypad. \$295.

RP1200N $\star\star\star$

Ricoh of America, Inc., 5 Dedrick Place, West Caldwell, NJ 07006 Printer, October '84. At 18-20 cps and a midrange price, the RP1200N is a good value. \$895.

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 thirdparty software. \$119.95.

Voice-Based **Learning System** $\star\star$

Scott Instruments Corporation, 1111 Willow Springs Drive, Denton, TX 76205 Education, June '84. A hardware-software package. It lets you create interactive tutorials that recognize speech input. A system

with a lot of potential. \$895.

Voice Box III



The Alien Group, 27 West 23rd Street, New York, NY 10010 Speech synthesizer,

November '84. This is a very good speech synthesizer, but hampered by poor documentation. \$129.

NOW WITH TEXT-TO-SPEECH!

Speech Articulator for the Apple!

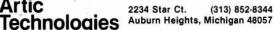


SynPhonix[™] features:

- SSi263 Phoneme Synthesizer
- Text-to-Speech Software
- . SONIX Speech Operat. System
- External Speaker Jack
- Volume Control
- · On Board Speaker
- Speech/Singing/Sound Effects
- · Comprehensive User's Manual
- · Demo Software/Spelling Tutor
- · 90 Day Warranty
- Suggested Retail \$150.00

SynPhonix™ is capable of countless speech activities. Vocabulary that is just right for your Educational, Industrial, Business, Entertainment, or Prosthetic Aid application is UNLIMITED. Just type the English text and SynPhonix knows how to say it. With the SONIX Speech Operating System and Text-to-Speech you have complete control over the speech output as well as music and sound effects. Inquire about our entire line of speech products.

Dealer inquiries welcome!



Apple is a Trademark of Apple Computer, Inc.

Circle 24 on Reader Service card.

Artic

APPLEWARE, INC.

The Apple Users Group* Software Library

For the first time enjoy your Apple to its fullest capacity, using specially packed disks with over 60 outstanding programs each.
[not available from any other source]

Each packed disk includes an extensive variety of interesting, useful and enter-taining programs indispensable to all com-puterists! Mixed category packed disks include:

BUSINESS . EDUCATIONAL . DATA BASE . GAMES . UTILITIES . SCIENCE . MUSIC . GRAPHICS . FINANCE Library Disks I, II and III are mixed categories. Single category disks are: GAMES • UTILITIES • GRAPHICS • INTEGER • SCIENCE • TECH • MUSIC & AUDIO Individual disks available at \$59.95 each

Order direct from this ad and \$ave up to \$150. Buy Library Disks I, II and III and get a special bonus disk FREE - over 260 programs for \$179.95 + \$4. shipping, BUT for the Best Value, receive any 9 disks featuring over 600 of our best programs for only 65¢ each for a package price of \$389. Certified Postage plus handling paid!

*Send one-time membership fee of \$15. (no fee charged to institutions) for 1000 + program catalog and gain access to a library of over 10,000 programs at a special 15% discount (Foreign memberships \$28. U.S.)

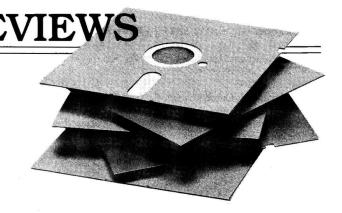
For Orders Only Call now TOLL FREE: 1-800-327-8664 Florida: 1-305-987-8665

Appleware, Inc. 6400 Hayes Street Hollywood, Fla. 33024



Program Disks compatible with Apple II, II $\,+\,$, IIe, III Emul., Franklin Ace and IBM Quad

SOFTWARE REVIEWS



inCider's Ratings

★★★★ Superlative

★ ★ ★ Above average

★★ Good

★ Not recommended Stay away

Financial Cookbook

Electronic Arts

2755 Campus Drive San Mateo, CA 94403

Home finance \$50

 $\star\star\star$

Inancial Cookbook answers home finance questions through a worksheet that makes it more than just a programmed calculator. This program is useful if you lack a spreadsheet program or are uncomfortable constructing spreadsheets using financial formulas for future and present values, interest rates, and so on.

Financial Cookbook provides 32 "recipes"—related to savings, interest rates, investments, IRA's, and mortgages—with fill-in blanks. The Leasing Your Car recipe, for example, has blanks for initial and monthly payments, tax credit, interest rate earned, and five other amounts.

After you fill in the numbers, press a sequence of keys (or point and click the mouse), and the program computes and displays the results. The results for car leasing include monthly and total

13 Saving Money with IRAs Compares growth of IRA deposit with regular savings deposit
Amount of deposit \$ 2000 Years to analyze 4 Interest rate earned % 10 Compounding periods 365 Marginal tax rate % 30
Ending savings balance \$ 1860 Ending IRA balance \$ 2984
NON IRA IRA YR INTEREST TAXDUE BALANCE BALANCE NOW \$ 0 \$ 600 \$ 1400 \$ 2000 1 \$ 147 \$ 44 \$ 1503 \$ 2210 2 \$ 158 \$ 47 \$ 1614 \$ 2443 3 \$ 170 \$ 51 \$ 1732 \$ 2700 4 \$ 182 \$ 55 \$ 1860 \$ 2984
TOT \$ 657 \$ 797 \$ 1860 \$ 2984 COMPUTE MANUER PROPERTY SAVE CATALOG Arrows select command, RETURN does it

Recipe for an IRA from the Financial Cookbook.

values for cash payment, tax savings, net expense, and the current value of total leasing costs.

Once the results are computed, you can ask "what-if" questions or change some numbers to see how the financial situation changes. You can also retrieve previously saved worksheets, print them, or rework them. Functions include the ability to back up, delete, and rename files.

I do have one complaint. Worksheets can be saved only on document disks initialized from within the program, but these disks aren't compatible with standard DOS, and you can't access saved worksheets from other programs. The Financial Cookbook's

stored worksheets can't even be used by its publisher's word processor, Cut and Paste.

The Cookbook's excellent 32-page manual glosses financial jargon for you. It begins with a program introduction, a discussion of financial terms, and a short tutorial. Recipe explanations are next, followed by a glossary and an index.

The Financial Cookbook is slightly flawed by one minor undocumented feature. Sometimes when you print a worksheet and then review the results on the screen, the program goes out to lunch. This happens with only the last six recipes, and if it does, you have no choice but to reboot the disk and lose



Infocom's Seastalker for underwater adventure.

the worksheet. You still have the printout; without it, ironically, the bug doesn't seem to surface in the first place.

Overall, Financial Cookbook is well done. It's easy to use and comes with an excellent manual. A nonstandard disk format and a minor bug account for the only distractions. Of course, it can't compete with a full-blown spreadsheet program, but if the included recipes meet your needs, Financial Cookbook might be the selection for you.

Jon Voskuil Milford, NH

Seastalker

Infocom

55 Wheeler Street Cambridge, MA 02138

Text adventure \$39.95

In the depths of the sea lie strange and wonderful creatures. You'll fight the most deadly ones in Seastalker, an Infocom text adventure for ages nine and up with enough action and challenge for any beginning adventurer.

You're a member of the Discovery Squad in command of the submarine Scimitar, designed to take two men on voyages of deep-sea exploration. One day, while working in the laboratory/headquarters of the Discovery Squad, you get a message from the Aquadome, a permanent underwater research station: A gigantic sea monster is attacking the base.

You must go to the rescue, but technical foul-ups make the job difficult. In addition, one of your most trusted aides is bent on sabotaging the entire operation. You must power up the Scimitar and navigate it submerged through the treacherous waters of Frobton Bay and far out to sea to the Aquadome station. Once there, you will have to contend with equipment failure, morale problems, more treachery, and, of course, the monster's attacks, which are weakening the dome to the danger point.

Since this is an Infocom game, you can devise complex commands to make the program do what you want. This is in vivid contrast to other companies' adventures, which usually require simple commands like "GET WRENCH" or "CLIMB ROPE." Typically sophisticated commands from Seastalker are "TAKE THE BLACK BOX, OXYGEN GEAR AND UNIVER-SAL TOOL," and "MARV, GO TO THE LAB THEN FIX THE SUBMA-RINE." The game's capacity to understand English sentences increases the sense of realism. You feel as if you're talking to people, not machines.

The game comes with various aids and goodies: a full-color chart of the bay, blueprints of the lab, the sub, and the Aquadome, character sketches of all the principal characters in the game, stickers, and a game manual.

Seastalker has plenty of clues you can use when the going gets tough. If

you appear to be trapped or if you don't perform certain actions in a certain sequence and number of turns, hint messages appear on screen. These messages steer you to a collection of hint cards you can read via a decoding device packaged with the game.

My own hints are: Don't trust many of the people you meet in the Aquadome; find the catalyst capsule quickly and use it where it belongs in the sub, and read a magazine during the long boring part of the trip out to the dome. If you can't get started, go into the corridor and look at the panel. One last hint: Close the hatch!

Infocom couldn't have designed a better game to introduce new players to their text-only adventures. Seastalker has lots of action, intrigue, and surprises. It's a great stimulus to the imagination, an ideal puzzle for the beginner, and a wonderful pastime for your nine-year-old to share with Mom or Dad.

Seastalker will run on any Apple II with at least 32K (if you have 64K the program will execute faster) and on the Apple /// in Apple II emulation mode. You'll need a scratch disk to save games.

Brian J. Murphy Fairfield, CT

MathMaze

DesignWare

185 Berry Street San Francisco, CA 94107 Basic math skills \$39.95

 $\star\star\star$

earning can be fun and Design-Ware's MathMaze proves it for the four basic mathematical operations of addition, subtraction, multiplication, and division.

MathMaze begins with an all-encompassing demonstration. The highresolution graphics entice any child to play without giving any hint that he or she is using skills learned at school.

First, the child chooses one of the four operations and the difficulty level. Then the child solves ten math problems by moving a fly through a maze to the correct answer. The problem is pictured at the bottom left of the screen and the score is at the bottom





Ile Foam Padded Carrying Case
with
Removable Cover



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 custommake cases for any computer model!

For Fast Service!







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



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



right. (Movement of the fly is controlled by the I, J, K, M keys.) The program guide includes provision for using a joystick.

Correct answers receive bonus points, but these points decrease for every few seconds taken to solve the problem. Each problem begins with 100 bonus points, so the most points are won by manuevering the fly through the maze in a direct path. The quickest motion is rewarded, thereby strengthening eye-to-hand coordination.

MathMaze has been carefully planned and coordinated with the educational process. The child begins slowly. In the additional games, the child learns to add to ten, then to 20, and so on. In multiplication, the times tables are learned just like in school. With MathMaze, the mathematical instruction of basic operations is coordinated between school and home. Active participation between parents and teachers is possible.

For the more skilled math student, MathMaze offers challenging options. The student may choose from 40 mazes and four skill levels. He or she may also design mazes, which can be stored on a data disk.

The four difficulty levels are carefully structured. The first level is directed toward the young math student. The second level introduces an enemy—a spider who likes flies—who provides an interesting twist to the math game. In the third level, all the walls of the maze disappear. The fourth level combines all of the above: math skills, the enemy, and invisible walls.

The strongest point for this program is the link between home and school. Now parents have a vehicle, the computer, to take an active part in the education of their children while having fun at the same time.

Bonnie Fox Merrimack, NH

Music Construction Set

Electronic Arts 2755 Campus Drive San Mateo, CA 94403 Music composer \$40

t was something that needed to be done." So says Will Harvey on the package of his software, Will Harvey's Music Construction Set. Not too far from this quote is a photo of Will's beaming face; the look he gives of healthy enthusiasm prompts you to believe that not only is he a man you can trust, but this program is going to be fun, too. Right from the start, the Music Construction Set struck me as one of the slickest, most professionally designed programs ever to come down the pike. It did not fall short with regards to fun either.

The Music Construction Set was designed to make learning about music easy and enjoyable. Your video display is the musical staff, your computer the orchestra, and you the composer. Music created with Music Construction Set can be extremely complex or very simple. In fact, very few things can be done with written music that can't be done here. Some of the demonstration material included on the program disk is amazing.

To make music, you simply place notes on either of the two musical staffs, much as you would with pen and paper. You can also pick up and move notes once they are on the staff, to change the tune. The notes themselves are taken from locations near the bottom of the screen by pointing to them with the hand-shaped cursor, to be moved wherever they are needed. Music Construction Set lets you choose the way these notes are moved.

One method is with the keyboard; using the four arrow keys or two arrow keys plus A and Z, you select the note, accidental, rest, or other sign that you want, and drag it across the screen until it is in the proper place. Another mode is with the joystick. The third and most effective method is with a KoalaPad. This was by far the easiest and fastest way of operating the program.

All of the commands to the program are given through icons, small pictures on the screen corresponding to desired functions. For example, moving the cursor to the picture of a disk would select disk operations, either for saving or loading files. Once you get used to operating a program this way, you may never want to go back to your keyboard again.

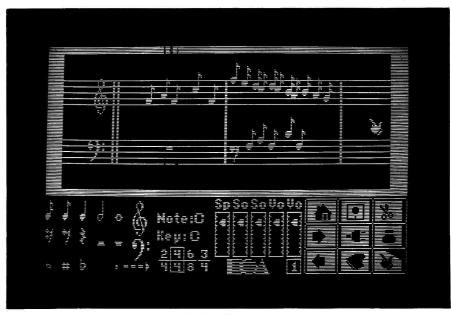
After your music is written or loaded from disk, it can be played through the system. If you have a no-frills Apple, Music Construction Set plays through the tiny speaker in the cabinet. Needless to say, this little speaker is not the last word in fidelity. Music Construction Set also supports the Mockingboard, from Sweet Micro Systems. Using any of the Mockingboards raises the level of performance in several ways; not only is the sound greatly improved, but the stereo reproduction of the Mockingboard allows you to create much more involved musical pieces. Further, since the Mockingboard does not busy the processor in producing the sound, the Music Construction Set is able to scroll the music past while it is being played. This gives you a graphic display of the piece while you hear it, with the moving notes synchronized to the music.

Your printer can provide hard copy of your music genius. The two musical staffs are printed exactly as you created them. You can print the entire piece or just a small section.

If there were one part of the system that could have been improved, it would have to be the documentation for the print routine. It is quite difficult to follow the printer set-up procedures as described in the manual.

The Music Construction Set impressed me in many ways, from its excellent documentation to the superb graphics. Will Harvey released this program at the ripe age of 16, so don't be surprised to see some more examples of this young man's talent in the future. This is a very well designed and documented program, and I feel that it is a superb value at its \$40 retail price. In fact, I would go so far to say that the Music Construction Set might just be the greatest bargain in recreational software available today.

> W. Charles Doherty South Dartmouth, MA



Worksheet from Music Construction Set by Electronic Arts.

HOLIDAY SPECIALS!

\$1.00 credit for phone orders over \$100.00

EDUCATIONAL (OUR SPECIALTY)

Making you





	LIST	SPECIAL
Adventure Master	44.95	- 31.76
Coast to Coast	49.95	- 34.96
Dinosaur Dig	49.95	- 34.96
Dream House	39.95	- 28.06
Forecast	49.95	- 34.96
Goren: Learning Bridge	79.95	- 57.16
Keys to Resp. Driving	79.95	- 57.16
Mastering GRE	50.00	- 108.96
Mastering SAT	50.00	- 108.96
	29.95	
Microspeedread 1	25.00	- 90.46
	34.95	
Pathwords	34.95	- 24.36
	79.95	- 57.16
	79.95	- 57.16
	49.95	- 34.96
	49.95	- 34.96

Ask for FREE price list

Educators: ask for special educational catalog

APPLE
Bank Street Writer 69.95 - 50.76
Bank Street Speller 69.95 - 50.76
Ess. Data Dup (EDD) 79.95 - 58.16
Flight Simulator II 49.95 - 38.96
Gibson Light Pen 249.95 - 193.96
Kidwriter
Koala Pad
Krell SAT (Gold) 299.95 - 249.96
Micro Cookbook (II + or IIe) 40.00 - 28.56
Mockingboard-C
New Step by Step
Print Shop
Speed Reader 2 69.95 - 50.76
Terrapin Logo
Time is Money
The Factory
Typing Tutor III
War in Russia 79.95 - 58.16
Wildcard 2 139.95 - 110.19
Write Stuff 59.95 - 43.36
Xyphus
MACINTOSH
D.B. Master
Filevision
Helix



Multiplan...

Think Tank

. 145.00 - 103.00 Apple & MacIntosh are trademarks of Apple Computer, Inc.

......195.00 - 139.00

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 \$2.00 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

Microsoft Word 195.00 - 139.00

PF.S File/Rept. Combo 195.00 - 139.00

We have hundreds of other programs in stock at fantastic savings! Story Machine Trains Ring Quest Bouncing Kamangas Coveted Mirror 25.95 19.95 Castle Wolfenstien 21.95 34.95 Beyond Cast. Wolf. Flight Simulator II Champ Load Runner Paper Graphics Minit Man 24.95 34.95 23.95 41.95 25.95 24.95 24.95 38.95 25.95 34.95 34.95 53.95 24.95 41.95 Quest Transylvania Graphics Magician Expedition Amazon 24.95 Carrier Force Cosmic Balance II 24.95 24.95 34.95 Computer Baseball Epidemic Xyphus Transitions Fortress Germany 1985 Geopolitique 1990 North Atlantic 86 Rails West Alpha Plot
Apple Mechanic
Beagle Bag
Beagle Basic
Beagle Graphics
Disk Quick
DOS Bose 24.95 18.95 18.95 22.95 36.95 18.95 14.95 22.95 22.95 War in Russia DOS Boss Double-Take Millionaire Zaxxon Sideways
Sargon III
Home Accountant
Tax Advantage
Dollars & Sense
Multiplan Flex Type Frame-Up 31.95 18.95 32.95 18.95 15.95 13.95 25.95 47.95 441.95 134.95 162.95 164.95 162.95 164.95 162.95 164.95 162.95 163 GPLE Prento DOS Silicon Salad Silicon Salad Tip Disk # 1 Triple-Dump Typefaces Utility City PFS: Write PFS: File PFS: Report PFS: Graph Terrapin Logo Master Type Format II 13.95 18.95 Bank Street Writer 74.95 74.95 74.95 74.95 74.95 Bank Street Speller Print Shop Homeword General Mgr II
General Mgr II
Magic Window II
Magic Calc
Sensible Speller
Bookends 23.95 26.95 29.95 29.95 29.95 23.95 23.95 23.95 26.95 26.95 23.95 24.95 Zork I Zork II or III Starcross Deadline Suspended Report Card MegaFinder MegaSpell MegaWriter Mico Cookbook Planetfall Enchanter Infidel Sorcerer Fontpak 1,2,3,4 or 5 Essential Data Dup Sticky Bear ABC 24.95 24.95 24.95 24.95 24.95 24.95 14.95 35.95 35.95 14.95 Shapes Snapes
Opposites
Basket Bounce
BOP
Numbers
Archon
Axis Assassin
Cut & Paste Copy II + Think Tank Jane
Bag of Tricks
Zoom Grafix
ASC II Pro
Merlin Pro Lisa V 2.6 Mockingboard Mock. w/speech Financial Cookbook Hard Hat Mack Last Gladiator Murd. on the Zind.
Music Construction
One-On-One 28.95 28.95 28.95 28.95 28.95 28.95 28.95 Wildcard II Echo II Micromode Koala Pad Roals Pau System Saver Fan Apple Cat II Hayes Mach IIIE Hayes Mach III + Graphics Solution Library Case Diskets 70 Skylox Standing Stones Ultima III Wizardry Knight of Diamonds Legacy of Llylgam. Wizprint 31.95 21.95 25.95 18.95 21.95 20.95 24.95 20.95 20.95 20.95 55.95 24.95 41.95 Diskette 70 Crypt of Medea Rescue Raiders Datalife Analyzer Speed Reader II Work Attack Rescue name...
Stellar 7
Arcade Boot Camp
Cat Graphics
Disk Repair Kit
Disk Arranger
Complete Graphics Math Blaster Math Blaster
Sat (Harcort Brace)
Step By Step By Step II
Step By Step III
Magic Paint Brush
Pixit Baltic '85 Reforger '88 Objective Kursk 50 Mission Crush 44.95 19.95 19.95 19.95 19.95 25.95 25.95 46.95 Take 1 27.95 27.95 Early Games Match Maker Piece of Cake ou mission Crush 27,95
Fraction Fever 21,95
Fraction Fever 21,95
Hidde Diddle 18,95
Kids on Keys 18,95
Kinder Comp 18,95
Most Amazing Thing 25,95
Rhymes & Riddles 20,95
Sneoper Trps 1 or 2 27,95 Fraction Factory List Handler Work Handle 46.95 46.95

<u>SILICON EXPRESS</u>

2202 S. Hamilton Road Columbus, Ohio 43227 614/868-5007

Your Toll Free Access Outside Ohio

1-800-228-0755

We accept Mastercard & Visa with no additional surcharge. Personal checks allow 2 weeks. Shipping charges are \$2.50. Ohio residents add \$5½% state sales tax. Prices are subject to change without notice.

SOFTWARE REVIEWS

Bank Street Speller

Broderbund Software

17 Paul Drive San Rafael, CA 94903 Spelling checker

\$69.95

 $\star\star$

A ccording to recent statistics, Bank Street Writer is the most popular word processing program available. It follows then that many people must be curious about Bank Street's new companion program, Bank Street Speller.

Bank Street Speller does what its name implies—it checks the spelling of any text written on the Bank Street Writer. With double disk drive, you simply boot up the Bank Street Speller program then insert the disk containing the Speller's dictionary and the disk with the text you want checked. For single drive users the process is the same but because of the obvious limitations, it involves switching disks more often.

The Bank Street Speller serves as a motivational tool for student writers. After text is written on the Bank Street Writer, the Speller can comb through and flag unfamiliar or misspelled words. The student can now concentrate on the text. Spelling won't become a thing of the past with this program, but those using the Bank Street Writer/Speller combination will have an easier time.

A 30,000-entry word list accompanies Bank Street Speller. Using special wild-card characters, the Speller will list all words beginning with a selected letter combination or words beginning and ending with designated letters. The 30,000-word dictionary may seem limiting (the typical classroom dictionary contains about 95,000 words), but double disk drive users may create expanded dictionaries by adding words or creating a new dictionary. (Single disk drive users can't utilize this feature.)

If you could master Bank Street Writer, then Bank Street Speller should be a snap. The formats are the same, and an in-depth user's manual comes with the package.

The program's scope is limited be-

cause it doesn't check punctuation or grammar. For example: give, them those there things? would sail through the speller as a correct sentence. Single disk users won't be as enamoured with the Speller's features as double disk users because of the constant disk swapping and the inability to create new dictionaries with the single drive.

Gerry Gontarz North Hampton, NH

Multigraph

Micro Lab

2699 Skokie Valley Road Highland Park, IL 60035

Business graphics \$150

Any graphics system should create a snapshot of the moment that represents a piece of your financial picture. Multigraph is a business tool that produces line, bar, and scatter graphs based on the numbers you enter into the program and store in its files. The package can interface with the data-base program, The Data Factory, to access its information. The program disk is copyable, and Multigraph also operates with a hard disk.

The 123-page indexed manual presents a thorough tutorial that covers all aspects of creating a graphic image. Each function is detailed with sample data for you to practice with. You use abbreviated commands to operate the system; the program is fast and accepts or changes information easily.

You initially configure the package to work with your hardware. While Multigraph will function with one disk drive, it's faster with two-one to hold the program disk and another to store data. Each line or scatter graph can plot up to six data sets; bar graphs can display up to four. You can create different graph patterns that overlay one another. Once information is entered into Multigraph, the system will print and store it for future use. With one of four printer interface cards, Multigraph will print the pictures you create. You can always exit any section of the program.

Multigraph lets you construct a data set relative to one already in memory. If you have costs, for example, that run 65 percent of sales, you can instruct the system to create a new file in which each item is 65 percent of the corresponding value in your existing sales file.

The program also draws (and saves) its graphs in two sizes. The RUN command pulls the chart data from disk and recreates a graph, letting you save the information the picture is based on in less disk space than a normal high-resolution image requires. This system is the only one I know of that allows a logarithmic scale for its graphs, which is often more effective because it shows the percent of change rather than just the raw data of your numbers. Unfortunately, the package doesn't explain what this kind of graph is or how it should be used. On-screen help is available for each of Multigraph's commands.

There are limitations in the way Multigraph operates that may or may not be important to you. For starters, there is no provision for a pie chart. If you hit the return key when the program expects data, it usually defaults to the start of that particular section, which forces you to re-enter your information.

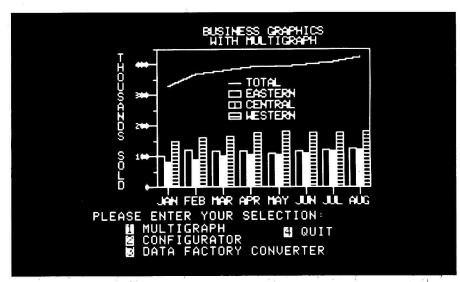
Multigraph is overburdened with commands. It isn't that there are too many (33 in all), but rather that you must select each part of your image, and then enter the associated range of values. In other words, if you want tick marks along the side or across the bottom of your chart, you not only have to indicate that to the system but you also must tell it how many you'd like, what increment they should be drawn in, and so on. This is also true for horizontal and vertical grid lines.

You locate legends, which explain each aspect of the graph, by screen coordinate numbers. A confusing and difficult approach, this method requires some trial and error to check that the legends don't overlay part of your graph. If you have a single drive system, there are no prompts to insert your data disk when you issue a SAVE command. RESET halts program execution and erases what data you have in memory.

Multigraph is a useful business tool, and is especially appealing if you already have records stored in Data Factory files that you'd like to chart. It can also graph non-standard files. The system works well and is fast, but is a burden because of the number of things to specify. The process becomes time consuming and tiring. You must be X-axis and Y-axis oriented; duties that could be handled by your Apple simply aren't by Multigraph.

That isn't to say that Multigraph might not be right for you. If you don't mind a bit of extra work and want control over every aspect of your pictures, Multigraph is a functional package. ■

Gregory R. Glau Prescott, AZ



Title page from Multigraph shows sample figure.

CLASSIFIEDS

Buying or selling, personal or commercial, get your message across to 110,000 Apple owners by placing an inCider classified ad.

- Entertainment
- Education
- Home Productivity.
- Business
- Utilities
- Hardware
- Services
- Wanted
- Trade or Swap

For details, call Michele Gilmore at inCider

1-800-441-4403, Ext. 159

inCider

Circle 295 on Reader Service card.

Secret Of Easter Island

Only you can save Easter Island from volcanic devastation by finding the mysterious idol in this full color, Hi-Res adventure. \$32.00.

The Learjet Caper

Your assignment is to return a stolen jet hidden somewhere in the South American jungle in this full color, Hi-Res adventure with animation. \$32.00.

The Flexible Message System

A bulletin board featuring 20 message bases, 2048 access levels, conference sections, and a file transfer system. Requires Hayes Micromodem][or Apple-Cat. \$59.95. For a sample, call (modem) (313) 623-6309.

Send Check or Money Order To:

NUCLEUS SOFTWARE 5582 Dvorak Street Clarkston, Michigan 48016

C.O.D. orders only (add \$2.00) (313) 623-7115

Dealer inquiries invited.

M-ss-ng L-nks

Sunburst Communications

39 Washington Avenue Pleasantville, NY 10570

Language skills \$39.95



hildren's literature comes to the microcomputer with M-ss-ng L-nks, a game for one or two players, ages nine to adult. The game involves filling in blank parts of words excerpted in phrases from such stories as Charlie and the Chocolate Factory and The Lion, the Witch, and the Wardrobe. Filling in blanks may not seem like a big deal, but deciding which letter goes in a particular blank involves digging into the player's unconscious understanding of language.

This game goes in nines: There are nine passages from each of nine stories and nine different formats of blanks for the players to make educated guesses. The easiest format leaves out all the vowels, as in f-tch-d d-wn - dr-ss-ng g-wn -nd- sl-pp-rs, from The Wind in the Willows. The next easiest leaves out every other letter: B-t -n -l- h-s -o-r-e-s -h-o-g- t-e -r-a-e-t, from The Cricket in Times Square. The other formats provide only the first letter, every other word, vowels only, last letter of each word, first word of each sentence, complete blanks, and then not even blanks but the title and author of the passage followed by an empty screen with the cursor flashing at the upper left.

The educational philosophy behind M-ss-ng L-nks is consistent with Piagetian humanistic and behavioristic principles. Players see results immediately. They can move the cursor to any blank and try any letter that suits their fancy; players can examine their scores at any time by pressing return and abandon a passage by pressing the escape key. Players have a choice of the number of guesses per blank and per turn. (Adults can take control by setting up a game with less player choice.)

M-ss-ng L-nks does not emphasize right and wrong answers. Wrong choices activate a not too unpleasant beep, and the chosen letter appears in a rectangle at the bottom of the screen while the cursor remains on the blank being guessed. Correct choices meet with the same beep, but the cursor jumps to the next blank. When a player uses all the guesses on a blank, the program supplies the letter with a more melodious beep. When the players complete a passage, the program plays a fanfare and invites the players to look at their scores by pressing the return kev.

The score display shows the number of blanks in the passage, the number of guesses made by each player, the number and percent of correct guesses, the number of wrong guesses, and the number and percent of letters supplied by the program. An overall score is recorded on a scale from one to 100.

M-ss-ng L-nks comes with a 14-page program guide of adequate, though rudimentary, instructions.

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

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



HI-RES PICTURE USING THE DS-65 AND PICTURE SCANNER SOFTWARE

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.



Now for IBM PC!

California Residents add 6% Tax

Mastercard/Visa Accepted

P.O. BOX 1110 DEL MAR, CA 92014 619-942-2400

The version marketed to schools has a 30-page documentation manual with detailed information about the program's educational aspects. Purchasers interested in knowing what is behind M-ss-ng L-nks should locate a school version (\$55).

Also available on the school market is a program called English Editor (\$65), a device for creating new files for M-ss-ng L-nks. It could be a valuable companion, since once you've gone through most of the 81 passages in the original package there isn't much interest left.

Great care has gone into designing and producing M-ss-ng L-nks. Fresh material would liven things up after the newness wears off, so M-ss-ng L-nks and the English Editor make a good team to create passages for the children using it. Write stories about them. Have them write stories about each other. This software combination could encourage interaction between younger and older players.■

> Tony and Rachel Stavely Keene, NH

The Write Stuff

Harper & Row Publishers 10 East 53rd Street

New York, NY 10022

Word processor \$59.95

here is no lack of new, low-cost word processors for the Apple //e. The Write Stuff is aimed at the same market that products such as Pen-Pal, Homeword, and Bank Street Writer are trying to capture. Besides low cost, its virtues are ease of use, 80-column capability, on-screen help menus to remind you of the available options and required keystrokes, and a virtual memory that permits larger documents than RAM-limited systems.

The 83-page Write Stuff manual contains all that you need to learn to use the package. The back cover lists the most important control commands for handy reference. On-screen menus identify options available at any time. and a description of each control command can be called with a control-key-

Overall, I found the Write Stuff easy to use. Entry and edit of text became fairly natural once I picked up the essentials. One handy feature included in the Write Stuff is an Undo command for correcting the last operation. Another nice option is the choice of deleting characters to either the left or right of the cursor, as well as the ability to delete whole words. And if you aren't sure which disk file you want, you can examine the first line without having to load the whole thing into memory!

My greatest complaint about the package is the slow response to most requests when in the view mode. Text entry is slow, and some command requests require several seconds to be performed.

In the view mode, the Write Stuff has many of the features of a "what you see is what you get" word processor system except right justification and

Circle 25 on Reader Service card. 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 ** 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/M³. PRINT-IT! will print your screen at any time no matter what program you're running, as well as perform every function you expect of an intelligent printer card PRINT-IT! supports: • Craphics - Low, high, double low, and double high resolution • Text - 40 column as well as Apple //e and Videx[®] 80 column cards including the new Apple 80 column RGB card Software - Prints from ALL software, even allows any printer to be used directly from Apple MousePaint Printers - All of the most popular printers, ⁹ including color, are easily selected with 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. Subsidiary of Computer Products Inc. Can't find a local dealer? PRINT-IT! is available for \$199 directly from Texprint. dham Heights Ma. 02194 (617) 449-5808 Qualified educational and dealer discounts available. Visa MC.AMX accepted. Add S4 shipping and handling within USA, Mass res. add 5% tax
 Apple II, II+, //e, and MousePaint are registered trademarks of Apple Computer, Inc.
 Or/PM is a registered trademark of Dipital Research
 Videx is a registered trademark of Dipital Research
 Videx is a registered trademark of Videx, Inc.
 Apple DMMP/IMAGEMRTEX/SCRIEE BMK. C. Itch, Canon, Epson, Dataproducts, IDS, Tally, NEC, Okidata, Quadram. Panasonic, Radio Spack, Star Cermin, Transtar, Dabio plus many others.

headers. When you select control-V, for "view," you see the text as it will be formatted within the established column margins. Control codes for boldfacing or underlining, which appear on the edit screen, are no longer visible. However, you will see boldfaced or underlined text.

I have not been able to get the boldface or underline option to work properly with my NEC 8023A printer. The Write Stuff includes a utility program to let you modify format codes sent to the printer; however, I found the manual too brief and unclear on how to do this.

The Write Stuff has some of the more common formatting features. These include changing line spacing, inserting page breaks, pausing during the printout to let the operator change a single sheet of paper, and varying line width for different margin settings. In addition to left-justification, text can be centered or right-justified. You can print up to 125 characters per line and 125 lines per page (assuming your printer holds forms large enough to handle these).

A nice feature is the inclusion of up to nine different user-defined formatting specifications. Each option (initially named F1 through F9) can be identified with an easier-to-remember two-character label, such as QU for quote. You can use these to establish margins, line spacing, and other format choices that might vary within your text.

The idea of a virtual memory is indeed a good one for a word processor. Memory-limited word processing programs usually give you no more than 25 to 35K of space for text (at most ten pages, single-spaced). Having worked with several other "virtual" systems, I was interested to see how smoothly the Write Stuff performed. I must report that it is no better than others, perhaps a bit slower. The drawback of the virtual approach is that the disk drive will interrupt your typing at unpredictable times. Of course, the type-ahead buffer saves almost all that has been typed in during disk saving, but the process proves to be a distracting interruption.

I had no trouble learning how to use the Write Stuff, although packages that use icons or interactive tutorials are far easier to learn. The documentation is brief and well-written. The pro-



Knoware's tutorial on Applesoft graphics.

gram's ability to use an 80-column board is a valuable feature, but delays will occur in the view mode. The Write Stuff is one of the few virtual memory systems in the low-price category.

Having worked with word processors that I prefer over this one, and with others that lack its stronger features, I consider the Write Stuff somewhere in the middle of the low-cost programs.

David Morganstein Germantown, MD

People Management

CBS Software

One Fawcett Place Greenwich, CT 06386 Management training \$79.95



People Management, part of the Managing for Success series, is the disk equivalent of *The One-Minute Manager*. A self-paced instructional program that stresses leadership skills you need in dealing with subordinates, People Management was developed in cooperation with Thoughtware, Inc., a group of specialists in business administration, psychology, training, and computer programming. The program attempts to teach managerial skills through instruction and case studies, but de-

votes too much time to course outlines and summaries, and not enough to content.

People Management is a four-disk set packaged within a sturdy plastic binder, and comes with a wirebound, 20-page program guide. The disks deal with leadership, team-building, motivation, and communication, and each subject is broken down into two or three subunits.

One problem with the product was immediately obvious to me: The programs don't employ ordinary Apple character-generation but instead use larger-sized, hi-res shape-table characters, forcing the program to read every screen from disk. Screens requiring 10 to 15 seconds to read need an additional 10 to 25 seconds to load, severely damaging the effectiveness of the training.

Another problem is irritating, flickering horizontal lines on the display as the screens are loaded. (Color is only used incidentally; a monochrome monitor is adequate for this program.)

Not only did I find the waiting tedious and the display distracting, but also my intelligence was substantially underestimated by a series of management homilies, simplistic case studies (where the situation is straightforward and the solution obvious), and basic levels of instruction. One unit describes a leader as one who gives continuous feedback and who gets results by influencing behavior, but lists only a few relevant examples.

Your responses to a series of questions customize the program. Then People Management summarizes the results of your replies. For example, the program produces a list of management skills you use and of those you don't use. It doesn't analyze information or give any specific advice that might improve your management performance. You can get a printout of this list, but its usefulness isn't apparent.

People Management was obviously developed by serious people with good intentions who missed the mark. They didn't exploit the medium well. A computer can be an exciting, interactive educational tool. Management case studies could be written as adventure games are, thrusting you into a situation that changes according to your answers. This package, on the other hand, is more akin to a short paperback brought to the screen of the computer.

Daniel Umberger Reynoldsberg, OH

Knoware

Knoware

301 Vassar Street Cambridge, MA 02139

Business software tutorial \$95



Do you need a simple, hands-on introduction to personal computers? Do you yearn for money, prestige, and power? Knoware may fulfill your desires. This three-disk set introduces the major types of applications software and their uses in the guise of a game.

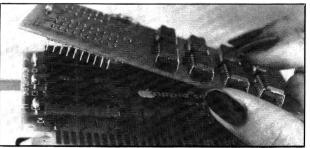
While Knoware does a reasonable job of introducing applications concepts, its usefulness ends there since you must purchase other software if you want to use your computer seriously.

The major components are Knowcalc, a spreadsheet; Knoword, a text processor; and Knowdata, a data-file manager. These are supported by a bar and pie chart generator, a perpetual calendar routine, programs for financial calculations, and a metric

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:

CARIBBEAN COMPUTER SALES, INC.

1-800-821-0208 (OUTSIDE FLORIDA) 221 EAST OSCEOLA - SUITE 110

(305) 287-3336

Circle 216 on Reader Service card

DON'T COOK YOUR APPLE®!

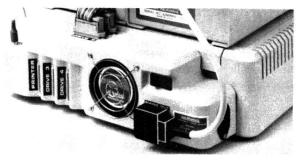
STUART. FL 33494

Have you added an 80 column, Z80 or RAM card to your *Apple II*? Have you also connected disk drives and printers?

If so, your *Apple* runs the risk of overheating, spoiling programs and seriously shortening the life of major components. And look at the tangle of wires that you have!



THE FAN® is a single unit with a very quiet and efficient cooling fan. It has all the necessary connectors and fits neatly on the back of your Apple.



THE FAN also filters out surges and spikes in the main supply which can damage your hardware and corrupt data. A single switch ensures that all peripherals are turned off at the same time as the *Apple*.

THE FAN is simple to attach and remove, and matches the Apple perfectly.

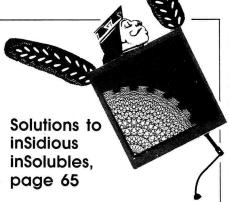
TO ORDER, please send check or money order for \$155.00 to:

Shipping and handling charges are included. Colorado residents, please add \$5.25 to cover 3.5% State sales tax.

Suite 7068
111 East Drake
Fort Collins, CO 80525



'Apple' and 'Apple II' are registered trademarks of Apple Computers, Inc.



Solution to The Rainbow:

You might remember Roy G. Biv's name from your junior high science class. No, he's not a famous astronomer and he didn't buy the first Apple. The letters of his name represent the seven different colors of the rainbow in their correct order: red, orange, yellow, green, blue, indigo, and violet. Since indigo and violet are not among Apple's best known lo-res colors, we substituted medium blue and purple. If you were able to fix that, you really are a wiz.

At any rate, the problem seems to be that the colors in our rainbow are in reverse order. The red should be on the outside and the violet on the inside. To fix this, simply reverse the values found in the data statement in line 80 to read:

80 DATA 3,6,7,12,13,9,1

Now you have a rainbow that would make old Roy's heart glad.

Solution to The Data Disk Maker:

The program will initialize the disk perfectly, execute the EXEC file, and delete the EXEC file. The disk was perfect to store and retrieve data, as long as you didn't boot up the disk itself. Booting the disk initializes it (thus wiping the disk out) or creates another blank disk if you aren't careful.

Adding line 950 below deletes all of the earlier steps of the program on the new data disk, so if it's accidentally booted, all you'll see is the statement THIS IS A STORAGE DISK.

950 PRINT "DEL 100, 1400"

Fooling around with DEL, INIT, and EXEC commands can be dangerous to your programs' health. I hope you remembered to save your programs before running them and used disks without valuable information on them. I told you to be careful.

converter. The only printed documentation is a small illustrated leaflet that shows you how to turn the computer on and insert the first disk. The package is tied together by the game narrative, with some low-key recreational material thrown in: at times you will be advised to take a break from your strenuous career to check your biorhythms or attend the mouse races.

You begin Knoware as a lowly mail clerk with \$500 to your name. Your first assignment is to trap a thief, using HPLOT to build a barricade between him and the mailroom shelves. This scenario introduces you to Cartesian coordinates and screen graphics. Your bonus depends on how quickly you complete the task. You then have the option of accepting a promotion to the next job level or remaining in the mailroom to earn extra bonuses.

In your next job as an accountant, use Knoware's compound interest program to help the company achieve a specific investment objective. Use this routine to manage your own investments, too. After each promotion and after completing certain tasks you can buy or sell securities to amass a fortune.

From accountant you advance to EDP Manager and modify the BASIC investment program to include brokerage fees. Next comes the job of Director of Public Relations and a chance to update the company's data base of birth dates and birthplaces. As Director of Personnel, you use a simple word processor to produce a holiday bonus announcement, and as Vice President of Marketing you examine your own savings plan to see if you'll have enough cash to purchase a boat in six months.

As President, you must use all the previous programs and a few more to carry out tasks assigned by the Board of Directors. At the completion of each task you can advance to Chairman of the Board, but you don't win the game unless your investments yield one million dollars.

Despite a few rough spots at the highest levels (prompts that don't seem to lead where they should), Knoware plays fairly well. However, although the vendor claims that the various components can be used independently after you've mastered the

game, the programs are too rudimentary to do very much.

Knoware runs on the Apple II Plus or //e with 64K and one disk drive. ■

Scott L. Norman Framingham, MA

At press time, Knoware announced an enhanced version of this product at the same price. They report that the new version makes it possible to use individual components outside of the tutorial setting.

—eds.

Counters

Sunburst Communications

39 Washington Avenue Pleasantville, NY 10570

Preschool counting \$55



Number Farm

DLM

One DLM Park Allen, TX 75002

Preschool counting



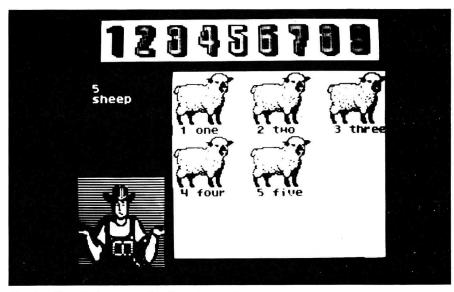
hen they practice math skills early, children find later learning experiences in the classroom that much easier. Both Counters and Number Farm, designed for ages 4–6, help to teach counting and other principles of preschool math.

Counters is based on the premise that a child is really counting only when he or she can correctly answer the question "How many?" When given a collection of things—marbles or fingers or people. Real counting is not the rote naming of number words that many preschool children can do.

Counters has three parts: Counting, Addition, and Subtraction. In Counting, children press a key or paddle button to show correspondence between the count of objects on top of the screen and the objects or numeral on the bottom of the screen.

Counting has five levels. Level 1 introduces a correspondence between two collections of objects, such as bears, cars, or helicopters. A musical

SOFTWARE



Number Farm helps youngsters learn to count.

message is the reward when the child presses any key to stop the flow of objects and match the top. At level 5, objects are randomly arranged on top of the screen, and children must match a numeral with the count on top. As children work through the counting levels, they become adept at the concept of counting. The Addition (five levels) and Subtraction (two levels) sections are similar in construction to Counting.

The program handles incorrect responses constructively. If a child presses a key too early or too late, the problem is worked out on the screen. If the child makes no response, the object to be counted crosses the screen again. Incorrect responses automatically set the program back so that the next problem is easier.

The colorful boats, bears, and cars are attractive, and the numerals are easy to read. But the 4-year-olds who tried the program found that it occasionally moved too fast. They pointed to the screen to count, taking more time than the programs allow.

Number Farm is a more entertaining and lively approach to counting. Billed as "six fascinating games to help children up to 7 years learn their numbers," the program teaches the concept of number, numerical order, and recognition of numerals and number words.

Number Farm, the first game, introduces the child to the numbers 1 through 9 and to the farm animals

used throughout the program. As the child presses a number, pictures of farm animals appear, depicting the number the child chooses.

Old McDonald plays the familiar tune, but stops at the phrase "and on his farm he had? pigs (ducks, and so on)." The child counts the number of animals on the screen so that the song can continue. In all the activities, the farmer prompts children to try again when they answer incorrectly.

In Crop Count, the child counts as many crops as he or she can before the sun goes down. Children enjoy this, but are frustrated by the short time limit. Other games include Hen House, a guessing game that teaches the concepts "less" and "more," and Horseshoes, which reinforces number recognition and counting skills.

The favorite game of every child who tried Number Farm was Animal Quackers. Here the child counts the number of times an animal makes its sound. It is quite exciting for children to hear the computer bark, oink, and

While Number Farm's special effects keep children glued to the computer, the noise level could be disruptive in a classroom where children are busy with other projects. Number Farm might be better used in a home setting. Counters is a quieter, gentler program. It would work in a classroom where the exercises could reinforce any early math curriculum.

The thorough booklet accompany-



Complete with hub reinforcing rings, Tyvek sleeves, color coded user labels, and write protect tabs.

Quality you expect at a price you don't.

Proven quality at a great price. BECK offers you a full satisfaction money-back guarantee - you can't lose! If you like the quality of 3M, Dysan, Verbatim, et al, you'll like BECK.

- Satisfaction, Money-Back Guarantee
 100% Certified, 100% Error-Free
- Full 7-Year Warranty
- Tested and Retested 21 Times to 42 Rigid Specifications
- Meets or Exceeds ANSI Standards

For IBM, Apple, TRS, and 97% of popular computers.

Order Toll Free 1-800-232-5634. Available in 25-Pack only plus freight. Bulk product inquiries welcome.

COD's CASH ONLY Corp. Accts Welcome No personal checks accepted.





Order Now Toll Free Door to Door in 48 hrs.

(In New Hampshire call 924-3821)

GOLEM COMPUTERS

APPLE SOFTWARE/HARDWARE AT SUPER SAVINGS

PLACE ORDERS TOLL FREE 1-800-345-8112 PA 1-800-662-2444

FA 1-800-002-2444	VISA
LIST Arcade Price	GOLEM
7AYYON 20 05	26.97
DUNKEA KUNG 34 02	
LODE RUNNER 34.95	23.47
LODE RUNNER 34.95 MINER 2049er 40.00 SPARE CHANGE 34.95	27.00
SPARE CHANGE 34.95	23.47
DIG DUG	23.47
ADVENTURE	26.07
ZORK I, II, III	26.97 23.47
DEADLINE	33.97
DEATH IN THE CARIBBEAN 35.00	23.00
DEADLINE 49.95 DEATH IN THE CARIBBEAN 35.00 ENCHANTER 49.95	33.97
STRATEGY	2002
FLIGHT SIMULATOR II	34.97
SARGON III	33.97 39.97
FANTASY	33.37
WIZARDRY	33.97
ULTIMA II, III ea. 59.95	33.97 39.97
KNIGHT OF DIAMONDS 39.95	23.47
ULTIMA II, III	26.97
UTILITIES	
MICROSOFT BASIC (MAC). 150.00 GLOBAL PROGRAM LINE EDITOR 49.95 APPLE MECHANIC 29.50 FORTRAN COMPILER 195.00 ASCII EXPRESS PROFISSIONAL 129.95 SUBEWAYES	102.00 33.97
APPLE MECHANIC 29 50	20.50
FORTRAN COMPILER 195.00	131.00
ASCII EXPRESS PROFISSIONAL 129.95	85.97
SIDEWAYS	40.00
SMARTCOM I 119.00	75.30
HOME	
HOME ACCOUNTANT	50.47
CDUCCMUDD MACIC 40 0E	65.00 33.97
CROSSWORD MAGIC	60.97
JANE (IIC)	120.30
MEMORY TRAINER 89.95 JANE (IIC) 179.00 MICRO COOKBOOK 40.00	26.00
EDUCATION	22 32
MASTER TYPE	26.97 26.97
FARLY GAMES FOR YOUNG CHILDREN 29 95	20.47
PIECE OF CAKE	20.47
ALLIGATOR MIX IIe	23.40
MASTER TYPE 39.95 ALGEBRA I, II III ea.39.95 EARLY GAMES FOR YOUNG CHILDREN 29.95 PIECE OF CAKE 29.95 ALUGATOR MIX IIe 34.00 ALPHABET ZOO 2.955	20.47
	82.00
PFS:WRITE (IIe) 125.00 BANK STREET WRITER 69.95 BANK STREET SPELLER 69.95 MAGIC WINDOW II 149.95	46.97
BANK STREET SPELLER 69.95	46.97
MAGIC WINDOW II	99.97
HUME WURD	46.97 82.00
SENSIBLE SPELLER IV 125.00	02.00
BUSINESS	
PFS:FILE	82.00
PFS:REPORT	82.00
CHART (MAC)	85.50 195.00
DBASE II	445.00
DBASE II	250.00
MULTIPLAN 195.00	130.97
	572172174
MARDWARE SPECIALS SMARTMODEM 1200 (HAYES) GRAPHICARD (PRACTICAL PERIF) KOALA GRAPHIC TABLET W/SFT (KOALA) GRAPLER + (ORANGE MICRO) MICROMODEM IIE/SMARTCOM (HAYES) COLOR 1- 13" LOW RES COLOR MONITOR (AMDEK) GEMN 10X PRINTER (STAR MICRONICS) MACH III W/FIRE BUTTON JOYSTICK (HAYES)	485.30
KNALA GRAPHIC TARLET W/SET (KNALA)	93.00
GRAPLER + (ORANGE MICRO)	117 00
MICROMODEM IIE/SMARTCOM (HAYES)	233.00
COLOR 1+ 13" LOW RES COLOR MONITOR (AMDEK)	295.00
GEMNI 10X PRINTER (STAR MICRONICS)	270.00
MACH III W/FIRE BUTTON JOYSTICK (HAYES) DISK DRIVE SLIM LINE (TITAN)	38.00
DION DRIVE SLIM LINE (IIIAN)	225.00

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 % 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 \$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. Pereign 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.

SOFTWARE REVIEWS

ing Counters explains the principles of math education that underlie the design of the program. In contrast, the Number Farm booklet, while adequate to run the program, doesn't delve into the principles of teaching math. Both packages suggest how to enhance and reinforce the skills used in each activity.

If you need a replacement or a backup for Number Farm, the cost is \$15 per copy. Counters has a lifetime guarantee: The publisher will send a new disk at any time if yours is damaged.

> Margaret Lurie Evanston, IL

How About a Nice Game of Chess?

Odesta 3186 Doolittle Drive Northbrook, IL 60062 Chess simulator



Amodified version of Larry Atkin's Chess 7.0 for micros, How About a Nice Game of Chess?, not only plays chess but also aims to teach the basics of the game. Any novice player who wants to understand the intricacies of chess, though, will need a bit more theory than the program manual provides.

Chess suggests moves, shows positions susceptible to attack, displays strategic offensive positions, and limits the novice to moving pieces to permissible squares. You can't adjourn a game at any point and save it to disk for later recall, but you can watch Chess think, ask its advice for your move, or have it play against itself.

Make your moves with the keyboard, the paddles, or the mouse. If you have a mouse, point to the piece and click the button, then point to where you want your piece placed and click the button a second time. (Chess will light up, showing you the squares for legal moves.) If you don't have a mouse, use the keyboard or paddle to move the cursor through a sequence that identifies each piece. Mouse control is very

natural—almost like picking up a piece and positioning it. The paddle or keyboard approach is somewhat awkward. Chess doesn't include the option to enter the algebraic notation designating the move.

In the manual's 53-page tutorial, six chapters contain several teaching aids that demonstrate chess techniques. Each chapter is accompanied by a "movie" on the disk. You should first read the section and then watch the movie. While the idea is clever and well done, I have one concern about the presentation: You can't change the speed of the movie (although you can halt it temporarily). While the quick learner may pick up the point immediately, others may require more time to understand what just happened. There is no fast-forward or instant-replay feature, but you can rerun the entire lesson. The section on "How the Pieces Move" gives you the opportunity to practice moving the pieces and reviewing their characteristics.

The well-written manual, complete with table of contents and index, provides tutorials for the pieces, the mate, openings, special moves, the middle game, and the end game. Unfortunately, the manual doesn't list references to any books on learning chess.

You can select from any of nine play levels, which are timed from one second per move (level 0) to two to six minutes per move (level 9). Although newer chess programs think while you think, the manual doesn't specify if Chess can do so. Chess does give an "opening book" of 7000 positions. If you remain in the book, Chess will move automatically without thinking.

I have few criticisms of the package or manual, but a nice option would have been to print the game moves or a given position. Chess does provide a listing of the most recent 40 moves, and with the "take-back-a-move" feature you can review earlier moves. If you're a beginner, Chess is a good instructor, but more advanced players should consider a stronger opponent like Chess 7.0 or Sargon III.■

David Morganstein Germantown, MD



HARDWARE REVIEW



inCider's Ratings

*** Superlative

★ ★ ★ Above average

★★ Good

Not recommended Stay away

DuoDisk

Apple Computer

20525 Mariani Avenue Cupertino, CA 95014

Two disk drives in one \$729

 $\star\star\star$

A sleek addition to the Apple II line, DuoDisk, a dual disk drive, consists of two low-profile disk drives set side by side as a single unit.

Like many other Apple accessories, DuoDisk complements the computer. Color and overall design match the Apple, giving it an integrated look. I found the low-profile drives functional and cosmetic: The low, 2¾ inches high, drive unit is an ideal height for eve-level viewing.

Packed with DuoDisk are a controller card and a shielded round cable with D-connectors on either end. Installation is simple: Plug the controller card into slot 6, fasten the card D-plug to the back of the Apple, and use the shielded cable to connect the drive.

Using the cable and plugs reduces RFI (radio frequency interference).

Also the use of D-connectors facilitates quick detachment of the drive, should you want to transport the computer.

Insertion and removal of floppy disks have been improved over the older Disk II drives. Push down the access door lever to insert a disk. Push the lever in and the disk is automatically ejected, with the edge extending about 2 inches from the drive.

DuoDisk's operation is extremely quiet, a definite plus. Another technical improvement is more precise head positioning, resulting in more reliable access of half tracks. Naturally,

each drive (#1 on the left, #2 on the right) has the usual "in-use" light to indicate when it is running.

DuoDisk uses DOS 3.3 and ProDOS. Therefore, it runs all current Apple II software. It can be hooked up to an Apple II, II Plus, or //e.

What about the practical considerations? Do you really need two disk drives?

Those of you who already have one drive face a sticky problem. If you are a software developer—say with a graphics utility in one drive, a work disk in another, and an assembler in a



third (allowing you to switch between the utility and assembly language) then maybe the three drives will come in handy. But let's face it, a three-drive system is hardly *de rigueur*. You are probably better off buying an inexpensive add-on drive, if needed.

On the other hand, if you make a lot of backup copies, maybe the expense is worthwhile. And if you use dualdisk programs—software that requires one drive for a utility or applications disk, and a second drive for your work disk—then you should certainly consider two drives.

For those of you who have not yet purchased an Apple, or who are considering a second system, the decision is easy. Assuming you need a second drive, ask your dealer to price a system with the DuoDisk in place of the single drive that comes with the typical package. You should certainly do better than purchasing the DuoDisk as a separate item.

The \$729 price tag may seem high, but it actually compares favorably with the \$940 list price of two Disk II's and a controller card.

In short, this product is not just two drives mounted together in a plastic case. It is visually appealing, quiet and efficient in operation, and reasonably priced. If you have a need for two drives, I recommend it.■

Charles Englesher Loudonville, NY

RGB Interface

Video-7

12340 Saratoga Sunnyvale Road Saratoga, CA 95070

Interface for Apple //c \$199.95



ou haven't seen color on an Apple II until you've seen it on an RGB (red-green-blue) monitor. The dull and muted tones of a composite color display pale before the vibrant, rich hues available with RGB output. Because the //c has no internal expansion slots, however, there is no place to install a conventional RGB interface card. So, in response to the portable's design, Video-7 has produced an external RGB interface for the //c.

The device is as portable as the computer. It's twice as thick but not much larger than a pack of cigarettes. You connect it to the video expansion port via a short integral cable with a 15-pin male connector at one end.

An additional 15-pin female connector is built into the other side of the small box. Here the signals that duplicate the digital video environment on the majority of quality RGB monitors can be found. Video-7 reproduces the output-signal standard Apple introduced on the Apple /// resulting in most cases in direct plug-to-plug compatibility.

Just beneath the case of the interface, accessible through slots in the cover, is a small DIP-switch pack with two switches. Using these, you can create a variety of colored text displays. With the inherent resolution of RGB displays, you can produce 40- or 80-column text in green, blue, amber, or white on a black background. Even the white mode has none of the color fringing that typically appears when a composite NTSC monitor is used.

Graphics are incredible. The interface supports standard Apple graphics, and overlapping colors aren't subject to the "bleed" common on composite NTSC displays. Video-7 supplies Apple-compatible driver routines for the double-density mode which can produce, among others, two color 560-by-192 and 16 color 140-by-192 modes. Unlike the standard Apple colors, none of these 16 is repeated within the list.

The old-line Apple programmer can implement hi-res color and screen handling commands with the ampersand (&) character, although the commands may not be familiar. For example, using & COL = n, where n is a number between zero and 15, you can describe the drawing pen in terms of one of the available colors.

&GPRNT relocates the Apple printing hooks so that all text output is routed to the screen, eliminating the need to download a separate graphics character set. You can download a font stored on disk: Use &NCHARS F\$ (where F\$ is the name of the font). Use &SCHARS to restore the system font.

Before you run out and get the RGB Interface for your //c, remember that RGB monitors, inherently more expensive than their NTSC cousins, come in two varieties: digital and analog. Almost all of the current RGB interface cards for the Apple II series, and the Video-7 interface, support the digital variety. The other common RGB monitors use analog signals.

Video-7 markets the \$50 Mappler Interface that mates the Apple //c RGB interface with a nine-pin connector to provide all of the proper analog signals at the correct levels. A simple solution is to purchase a monitor designed to work with the interface. Most of the Electrohome series will, as will monitors from manufacturers who supply RGB cards for the Apple II series. ■

Bill O'Brien Fort Lee, NJ

ALF AD8088 Processor Card

ALF Products

1315-F Nelson Street Denver, CO 80215

8088 processor card \$345



The AD8088 card is an Apple compatible version of the 8088 microprocessor. It offers two major enhancements for the Apple II: a substantial speed-up in program operations that involve large amounts of arithmetic operations, and the possibility of developing programs for 8088-based computers including the IBM PC and IBM-compatible machines.

Using the Formula Transfer Link (FTL) that is on the disk included with the card, a number of mathematical functions are transferred from the relatively slow 8-bit 6502 processor in the Apple to the faster 16-bit 8088 processor on the card. These functions include multiplication, division, exponentiation, SQR, LOG, EXP, and trigonometric functions.

The differences are substantial; a rather attractive Applesoft ellipse-plotting program was reduced from 66.4 seconds in the normal Apple to 18.6 seconds with the 8088 card installed and incorporated into the Apple system by a simple RUN FTL command. (Instructions for installing and activat-

EASTCOAST SOFTWARE

 $\pmb{\textit{ecs...}} \textbf{inflation-fighting prices.}$

No hidden charges! No credit card fees!

APPLE

_	_		A TOTAL CO.	
	CAT	#	LIST	SALE
	0080	Adam & Con Daddles	39 95	27.50
	1298	Adventure Writer	70.00	53.85 27.60
	0560	Algebra I	39.95	27.60
	0723	Adventure Writer Algebra I Algebra V & VI (2-Disk) Alian Addition (Home)	49.95	34.50
	1142	Alien Addition (Home)	34.00	23.55
	0013	Alpha Plot	39.50	27.25
	2598	Algebra V & VI (2-Disk) Alien Addition (Home) Alpha Plot Alphabet Zoo Apple Cat 2 Modem Apple Mechanic Apple Users Guide 2/2E	29.95	23.55 27.25 20.70 244.95
	0434	Apple Cat 2 Modem	319.00	20.35
	0151 0490	Apple Mechanic Apple Users Guide 2/2E Applesoft Compiler Plus Applewire 2 Pre-Boot Assembly Lines (Book) Axis Assasin Back to Basics Acct 2E Bag of Tricks Bank Street Writer Bank St. Writer 2C/E-128K Barron's Computer Sat Battle For Normandy Beagle Basic Beagle Bag Beagle Basic Beagle Graphics Beneath Apple Prodos Beneath Apple Prodos Beneath Apple Prodos Benenath Apple Prodos Benond Castle Wolfenstein Book of Apple Software '85 Bookends Broadsides Buffered Grappler + (16K) Bumble Games Business Accountant 2/2E Castle Wolfenstein Cat Graphics Cat Graphics Cat Graphics Cat Graphics	17.05	14.50
	1580	Apple Osers Guide 2/2L	50 05	41.50
	0309	Appleson Compiler Flus	24 00	41.50 16.95
	0536	Assembly Lines (Book)	19.95	15.35
	2905	Axis Assasin	35.00	26.95
	1446	Back to Basics Acct 2E	195.00	123.75
	0042	Bag of Tricks	39.95	27.65
	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 27.65 20.35 24.20
	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	10.05	13.85 14.95
	1395	Beneath Apple Prodos	19.93	
	1136	Beyond Castle Wolfenstein	34.95	24.20 12.80
	0111 0096	Book of Apple Software 85	125.00	86.40
	2599	Bookends	20.05	27.70
	1682	Puffored Cramples (16K)	220.00	178.00
	0448	Bumble Games	30.05	27.65
	2805	Business Accountant 2/2F	255.00	196.15
	0228	Castle Wolfenstein	29 95	20.70
	0459	Cat Graphics	34.95	25.65
	0734	Cat Graphics CDEX How to Use Apple IIE CDEX Visicalc Training Charles Brown's ABC's	59.95	41.50
	0734 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	34.60 141.05
	1432	Colewriter Compu-Math/Arith. Skills Compu-Read Compu-Spell System Compuserve Starter Kit Computer Sat (Harcourt)	200.00	141.05
	0740 0654	Compu-Math/Arith. Skills	49.95	34.50 20.70
	0743	Compu-Read	20.95	20.70
	0416	Compusaria Startar Kit	39.95	20.70 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 20.70
	0189	Decathalon	29.95	20.70
	0630	Deadline Decathalon Delta Drawing Demolition Division (Home)	39.95	27.65 23.55
	1143	Demolition Division (Home)	34.00	
	1166	% Disk Bank (50)	19.95	11.00
	1722	Disk Boxes (5 Color Coded)	10.75	12.50 16.70
	2866 2833	Disk Drive Ext Cable	29.50	20.45
		DISK QUIK	110.05	83.05
	1205	Dollars & Sense-2C Dollars & \$ense	100.00	69.25
	0409	DOI Boss	24 00	. 16.60
	0216 0983	Dauble Take	34 95	24.15
	2600	Fanles	39.95	27.70
	0360	Farly Games Young Children	29.95	27.70 20.75
	1384	Eagles Early Games Young Children Echo 2 Speech Synthesizer	149.95	125.60
	0661	Elementary Apple	14.95	10.35
	0092	Elephant Disks SS/DD (10)	37.00	20.55
	1337	Elementary Apple Elephant Disks SS/DD (10) Elephant Disks SS/SD (10)	34.00	21.15
	0107	Epson Mx-80 Ribbon Essential Data Duplicator	14.00	6.30
	0029	Essential Data Duplicator	79.95	52.00
	0314	EZ Port II	34.95	24.20

EASTCOAST SOFTWARE

40 Hockersville Rd. Hershey, PA 17033 MAIL YOUR ORDER OR CALL (717) 533-8125 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 September, 1984

	А	FF	LL
CAT		LIST	SALE
0280 1182	Facemaker		\$24.20 24.20
0850 0553	Fat Cat Flashcalc Flex Text Flight Simulator II Flip & File W/Lock (50) Flip-N-File (50 Disks) Fontrix Format II Enhanced Frame-Up Game Show General Manager II Geopolitique 1990 Gertrude's Puzzles Global PLE/Beagle Bros Graphics Magician Grappler + Hardhat Mac Hayes Joystick Mach 2 Hayes Joystick Mach 2 Hayes Joystick Mach 3 Howe Accountant Home Accountant Home Accountant 2C/E-128K Home Word How To Parm In Applesoft	. 99.00	68.55 20.35
2821	Flight Simulator II	49.95	38.05 23.85
2918 1440	Flip-N-File (50 Disks)	.29.95	18.85
2796 1427	Format II Enhanced	.75.00 150.00	64.10 103.85 20.35
0554 1127	Frame-Up	. 29.50 . 39.95	20.35 27.65
0046 0533	General Manager II	229.95 39.95	158.90 27.65
0573 2843 0043	Gertrude's Puzzles	44.95	31.15 34.60
0043 0094	Graphics Magician	. 59.95	41.40 110.80
2902	Hardhat Mac	. 35.00	26.95
2816 2817	Hayes Joystick Mach 2	44.95	31.15 31.15
2883 2880	Hayes Joystick Mach 3 Hayes Joystick Mach 3-E	54.95	38.05 38.05
1437 0197	Head Cleaning Kit	29.95	17.30 48.05
.1364 2804	Home Accountant 2C/E-128K	74.95	48.05 46.60
	How To Pgrm In Applesoft	. 49.95	34.60 27.60
1589 0449	Juggles Rainbow	29.95	20.75
1442 0003	Kindercomp Knight Of Diamonds	34.95	20.70 24.20
1693 2954	Koala Graph Tablet - Apple Krell Logo	. 124.95	83.50 76.95
2972 2890	Home Accountant 2C/E-128K Home Word How To Pgrm In Applesoft In Search Of Amazing Thing Juggles Rainbow Kindercomp Knight Of Diamonds Koala Graph Tablet — Apple Krell Logo Labels — I' White (1000) Learning Bridge Made Easy Legacy of Llylgamyn Letter Perfect Lisa 2.6 List Handler Locksmith 5.0 Lode Runner Magic Window 2 Master Type Master Type May Cond To Master Type Master Type May Cond To Master Type Master Type May Cond To May Cond To Master Type Master Type May Cond To May Cond To Master Type Master Type Master Type Master Type May Cond To May Cond To Master Type Master Ty	9.95	24.20 83.50 76.95 6.75 55.35
1463 0050	Legacy of Llylgamyn	149 95	27.65 103.60
0403 0310	Lisa 2.6	79.95	61.75 55.35 71.55
0806	Locksmith 5.0	99.95	71.55 24.15
0982 0194	Magic Window 2	. 150.00	103.85
0192 0089	Master Type Maxell MD1 Disks-SS/DD (10)	46.50	27.65 23.05
2901 2147	Memorymaster 2E/64K Exp Micro Cook-Appetizers-2E	. 169.00	140.85 8.50
2146 0437	Micro Cook-Soups/Salads-2E . Micro Cookbook	12.00	8.50 27.65
2148 0692	Magic Window 2 Master Type Maxell MD1 Disks-SS/DD (10) Memorymaster 2E/64K Exp Micro Cook-Appetizers-2E Micro Cook-Appetizers-2E Micro Cook-Soups/Salads-2E Micro Cookbook IIE Microline 92-P Printer Microline 18tbon Microline Tractor Feed Micromoder IIE W/Smartcom I Micro-Sci 2C Disk Drive Micro-Sci A2 Disk Drive Millionaire	40.00	27.65 CALL
1509 2958	Microline Ribbon	65.00	2.20 54.00
2802 1294	Micromodem IIE W/Smartcom I Micro-Sci 2C Disk Drive	329.00 . 299.00	54.00 246.75 248.75
1316 1347	Micro-Sci A2 Disk Drive Millionaire	- 345.00	216.65
1135 1124	Minus Mission (Home)	34.00	41.50 23.55 105.50
0774		195.00	162.50 27.65
1400 0580	Multiplan (Apple DOS)	. 195.00	135.00 30.75 30.75 333.35
1341 2903	Music Const. Set	40.00	30.75
0101 0273	NEC 1215 Color Monitor	10.00	6.65 53.25
0423 2908	Nibble's Away II	40.00	53.25 30.75 103.80
1531 056 3	Orca/M	. 149.95 29.95	103.80 26.90
0568 2893	Paper Graphics	49.95	34.60 21.80
0635 1418	Parallel Interface W/Cable Peanuts Picture Puzzlers	. 139.50	62.85 27.65 70.55
0616 0088	Orca/M Paddle-Adapple Combo Paper Graphics Parall Piniter Ext. Cable 6' Parallel Interface W/Cable Peanuts Picture Puzzlers Personal Touch PFS Access-ZP2C PFS File IIE PFS Graph IIE PFS Graph IIE PFS Report IIIE	70.00	70.55 48.50
1413 1415	PFS File IIE	125.00	85.95 85.95
1414	PFS Graph IIE PFS Report IIE PFS Solutions/Ledger 2E PFS Write IIE Pie Writer 2.2 (40/80)	. 125.00	85.95 85.95
0372 2809	PFS Write IIE	125.00	13.85 85.95
0495 2907	Pinball Const. Set (E.A.)	. 40.00	103.85 30.75 10.35
0659 0584	Preschool IQ Builder 1	23.95	16.60
1196 0349	Printshop Pro Blackjack - K. Uston	69.95	34.60 48.45 20.35
0461 1279	Pronto DOS Prowriter Nylon Ribbon	10.00	20.35 6.65 24.20
0047 2111	Quest Ramcard 16K (MPC)	99.00	24.20 60.25
0634 0955	Ramcard 16K Microtek Ramcard 16K Prometheus	. 129.00	71.55 56.55 62.85
1386 0140	Ramcard 16K Wizard Ramcard 16K-Microsoft	95.00	62.85 75.00
0771 1450	RF Modulator-Internal Rhymes & Riddles	39.00	19.40 \$20.70
0503 0574	Riteman Plus Printer	.399.00	\$20.70 312.80 34.60
.0561	Sat Word Attack Skills	49.00	34.60 33.90 89.00
0133 0041	PFS Write IIE Pie Writer 2. (40/80) Pinball Const. Set (E.A.) Power of Visicalc Preschool 10 Builder 1 Printshop Pro Blackiack – K. Uston Pronto DOS Prowriter Nylon Ribbon Quest Ramcard 16K (MPC) Ramcard 16K Microtek Ramcard 16K Microtek Ramcard 16K Wizard Ram	. 125.00	86.50

CAT	#	LIST	SALE
1206	Sensible Speller-Pro DOS	. 125.00	86.50
0447	Sideways	60.00	40.00
0400	Silicon Salad	24 95	17.25
1340	Sky Fox Smartmodem 2C W/Smartco Smith Corona TP1 Ribbon Snooper Troops 1	40.00	30.75
1373	Smartmodem 2C W/Smartco	m I 339.00	265.60
1416	Smith Corona TP1 Ribbon	7.95	6.35 31.15
0465	Snooper Troops 1	44.95	31.15
0271	Software Automouth	124.95	86.35
0250	Spellagraph	39.95	27.65
1291 0631	Spellicopter	30.05	27.65
2906	Standing Stones	40.00	27.70 30.75 4.50 69.20 69.20
1277	Standing Stories	5.50	4.50
0435	Sten-Bu-Sten	99.95	69.20
1447	Starwriter Film Ribbon Step-By-Step . Step-By-Step II Sticky Bear A B C Sticky Bear Numbers	99.95	69.20
0100	Sticky Bear ABC	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 Supertext Pro (40/80)	69.95	53.05
1445	Supertext Pro (40/80)	99.00	68.55
0524	Switch-A-Slot	1/9.50	161.10 69.20
0001 1259	System Saver	190.00	138.65
1259	Taxan 12 in Green Monitor	179.00	131.60
1528	System Saver Taxan 12 in Amber Monitor Taxan 12 in Green Monitor Taxan Color Mntr W/Audio	399 00	305.50
0236	Terrapin Logo	99.95	305.50 69.20
0137	Terrapin Logo TG Game Paddles TG Joystick W/Toggle TG Joystick W/Toggle IIE	39.95	27.65
0136	TG Joystick W/Toggle	59.95	41.50
1330	TG Joystick W/Toggle IIE	64.95	45.00
1730 2597	The Accountant	99.00	64.10
0844	The Accountant — VCalc Intfc . Think Tank //E	150.00	15.40 103.85
2897	Thunderclock Plus	150.00	121.80
2899	Time Master II	129.00	107.50
0462	Ti- Di-1. #1	20.00	13.85
1193	Triple Dump Typefaces Typing Tutor 2 Typing Tutor 3	39.95	27.65 13.85 17.30
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) Ultraterm Utility City Verbatim DS/DD (10)	54.95	40.00
0559 0062	Ultraterm	29.50	284.30 20.35 28.25
2992	Verbatim DS/DD (10)	46.50	28.25
1721	Verbatim SS/DD Hardpack	35.00	23.35 20.75
0093	Verbatim SS/DD Softpack	34.00	20.75
0063	Versaform	389.00	263.00 247.05
0648	Videoterm W/SS & Inverse	319.00	247.05
2900 2152	Verbatim SS/DD Hardpack Verbatim SS/DD Hardpack Versaform Videoterm W/SS & Inverse Viewmaster 80 Column Visible Computer-6502	169.00	140.80
0422	Visicalc Pre-Boot	47.70	32.70 33.95
1480	Wico Analog Joystick	49.00	38.40
0145	Wigard & Princes	32.05	
0144	Wizard & Princess Wizardry	49 95	22.75 34.60
1532	Wizprint	24.95	17.30
0284	Wizprint . Word Handlers Pkg.	169.95	117.65
1223	Word Juggler //C	189.00	157.50 157.50
0342	Word Handlers Pkg. Word Juggler //C Word Juggler IIE W/Lexichect Z Engine With CP/M 2.2 2.80 Plus Board Zaxxon Zork I.	k . 189.00	
1336 0249	Z Engine With CP/M 2.2	199.00	166.65
0521	Z-ou Plus Board	39.00	115.85 27.60
0296	Zork I	39.95	27.60
0141	Zork II	44.95	27.60 29.95
0379	Zork III	44.95	29.95
	100000		,
M	ACINTOSH		

M	ACINTOSH	
0656	Chart (MAC)	86.55
0523	Da Vinci - Building 49.95	34.60
1151	Dollars & Sense149.95	103.80
1362	Financial Cookbook 50.00	38.50
1082	Graphics Magician 49.95	34.60
1388	Habadex	134.70
1099	Helix395.00	273.45
1083	Home Accountant 99.95	64.10
1357	Mac Tool	25.65
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	PFS File125.00	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	34.60
1239	Typing Tutor 3 49.95	34.60

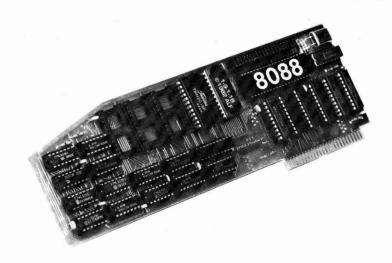
	The party of the control of the cont
CHECK ONE: □ VISA	☐ MASTERCARD
Card#	Exp
Telephone	-
Name	
Address	
City	
State	Zip
Please enter my order for:	12
42.0	
Please specify machine:	
☐ Please send free catalog.	

ing the card are clear and easy to follow.) For a similar speed increase of Pascal programs, you must purchase MicroMagic's Pascal Patch disk (\$49.95). For example, ALF's numerical integration demo program was reduced from 42.6 seconds to 10.5 seconds, just as stated in the ALF literature. I wrote a test program for 2000 multiplications and divisions, and execution time was reduced from 13.6 to 6.5 seconds with the 8088 card.

That is a large percentage difference, but consider one point before you spend \$345 for the faster processor. If a program involves many keyboard entries, disk I/O, printing, or other noncomputational activities, the arithmetic speed-up might not make much difference in the program's total execution time. Review your program to ensure enough time is spent doing computations so the 8088 card will make a difference in running time. For example, one of my lab Pascal programs calculates means, standard errors, and p values (sums of squares, square roots, and other mathematical computations) on seven sets of data while it prints the results. The delay that occurs during computation is about equal to the time required to print one character at 40 cps. Obviously, the speed-up resulting from the 8088 card is not significant in that program.

Additional software extends the AD-8088 card's usefulness. Clone Software Corporation offers a version of CP/M-86 designed for the AD8088 card for \$100 through ALF. With this system, the Apple uses the 6502 only for input/output functions. Everything else is done by the 8088. This opens your Apple to a wide variety of software, particularly in the business area. Programs such as Digital Research's Manager Set, MicroPro's Star Series, Ashton-Tate's dBaseII and Financial Planner, all use CP/M-86; many are available on Apple-formatted disks.

MS-DOS (PC-DOS on the IBM PC) will be available from Clone Software through ALF. Check actual availability of this system before buying the card if your major interest is IBM compatibility. Of course, programs developed on the Apple-AD8088 must be re-typed or transferred to an IBM through the serial ports, but ALF is developing an Apple Disk Controller Card that will read



double-sided, double-density IBM disks. Then, we'll have complete compatibility except for programs that use graphics or the IBM special function keys.

Some of the IBM and CP/M-86 programs require more than 64K of memory. ALF sells an expansion card that allows many of these programs to be run on the Apple II. The ALF systems make it possible to develop IBM programs from an Apple for less money than it takes to buy an IBM computer. Such programs would be adaptable to other 8088 computers such as the DEC Rainbow and Professional, the Zenith Z-100, and the TI Professional computer.

The AD8088 Processor Card also provides, at no extra charge, a handy program for program developers. It uses the 8088 microprocessor to time programs running on the 6502. Simply put appropriate POKE statements before and after the program portion to be timed, and the MET (Multiple Event Timer) READ program will read the durations for each specified event. The programmer can find out which parts of the program are most time consuming and then concentrate on speeding up those sections. This makes program optimization more organized, and is useful in the later stages of program development. According to ALF, this procedure can be accomplished in any language that can write a byte to a specified memory location. So, it could be used in BASIC, Pascal, or assembly language.

The MET program also can log data in laboratory work. A number to be

logged (0 to 255) is written to a particular memory location. The MET program stores both the number and the time since it was logged previously. Resolution is to 50 microseconds in the fastest mode. Events more than an hour apart can be logged with this system in the slowest mode (100 milliseconds). These program uses are documented in the AD8088 manual; I suspect that this device's usefulness is limited only by the user's imagination.

The ALF Processor Card offers a neat solution to the backup versus copyprotection question. Each card has a serial number in ROM, and it is possible for an Applesoft program developer to have his program automatically run the FTL program and check the card's serial number. This would add \$345 (the price of the card) to the cost of the program for any purchaser who didn't already have the 8088 card, but complex programs requiring the faster calculation speeds of the 8088 might include the ALF card as part of the program package. With this system, you could make unlimited backups but they would run only on the machine containing the "correct" AD8088 card.

ALF's AD8088 Processor Card is very good at what it does. Although not for the casual Apple user who does mostly game playing, word processing, and simple programming, AD8088 is for professionals and advanced amateurs who need processor speed, special features, or partial compatibility of an Appe //e with an IBM PC.■

James R. Florini Syracuse, NY

SCRG PRODUCTS FOR THE APPLE COMPUTER

SWITCH-A-SLOT



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.

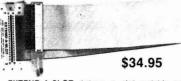
New-resistive terminations for better response



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



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.

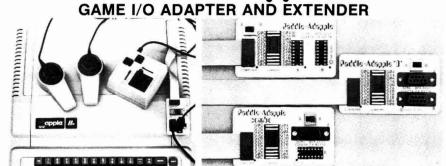
OTHER PRODUCTS

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-Adaople



- 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

The Paddle-Adapple has two 16 pin sockets

The Paddle-Adapple "D" works with the subminiature D

The Paddle-Adapple Combo has one 16 pin socket and one subminiature D connector



9-16 Adapter

For Apple / /e and / /c

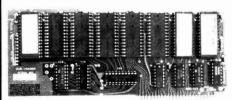
This product permits the use of most 16-pin I/O devices with the APPLE //c or //e. By plugging this adapter into the sub-miniature 'D' connector, you can plug in a 16-pin device, such as the Paddle-Adapple, paddles, joystick, KOALA PAD'', etc. The

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



 $\overline{\mathrm{uik}} \mathrm{Loader}^{\scriptscriptstyle{\mathsf{IM}}}$



FAST AND CONVENIENT

The quikLoader is the *lastest* 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

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 appropriate 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

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 dopying 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 JI 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 JP (LUS 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, ECON speech synthesizer software from \$\$TREET ELECTRONICS, and MERLIN

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 JI (forward by Steve Wożniak), published by QUALITY SOFTWARE (21601 Marilla Street, Chatsworth, CA 91311 (818) 709-1721).

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 O. 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
- 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) 635-8310

all other states (Including AK, HI, VI & PR) Information & technical questions: (805) 685-1931

Cricket

Street Electronics

1140 Mark Avenue Carpinteria, CA 93013

Speech, music, and clock. Requires ProDOS, Apple //c, or //e with 128K and serial card. \$179.95



ricket, a speech synthesizer, music generator, and clock, is aimed primarily at the //c owner, but can be adapted by //e owners if they incorporate extended memory in their machines.

Cricket produces three types of speech output: *limited*, from a built-in vocabulary; *unlimited*, using normal English words entered at the keyboard; and *phonemic*, created from letters and symbols representing component speech values. This latter process is as far from the English language as is calculus.

In the limited mode, using Cricket's Word Editor, you create word files from a predefined, 750-word vocabulary. From this list, the file can borrow as many as 116 words for your Apple to pronounce in a relatively intelligible female voice. While you achieve clearer, easier to understand output, you're limited to those words that

Street Electronics has selected. You can, however, append the prefixes dis-, re-, ex-, and un- or the suffixes -s, -t, and -d to any of the words in your list.

Limited mode is closer to the typical synthesizer output you'd expect: A metallic robot voice articulates your chosen words. The advantage here is that you can use any word you want, although you'll have to make either some concessions for the unit's pronunciation (robot pronounced rahbot) or spelling adjustments (rowbot) if you want dialogue spoken accurately. You'll need to listen carefully in this mode to understand what's being said.

Phonemic mode lets you create words from their sound components or phonemes. A simple expression like Apple Computer is translated into A3P'L KUIMP%T'R for proper pronunciation. The manual also uses terms such as "schwa" and "fricative," so this mode should be left to the more industrious speech programmer.

All speech modes let you adjust the speed and pitch of the spoken words. For the first two modes, speed is a matter of fast or normal output, while in phonemic mode you have a greater control of speed, pitch, and inflection. Speed and pitch can vary in either direction, and unless you compensate with inflection, you'll lose clarity.

Many synthesizers don't discrimi-

nate between "sounds" and "music." Cricket breaks this pattern: You can program up to 31 different sounds with its Sound Editor software and play them from either of two sound generators. Connecting the correct cable to the stereo mini-plug jack produces true stereo sound from your amplifier.

Music is handled through a two-voice (instrument sound), eight-octave music generator. Although more complex scores require an optional Music Editor, simple tunes can be played from Applesoft. Without the editor, you're limited to one-note melodies throughout the eight-octave range, but you can include three-note chord accompaniment. In Applesoft, only one voice can be used at a time.

The Apple //c is definitely not a candidate for a clock card since it has no slots. However, if you have a ProDOS application that requires clock input, there is a solution. You can access Cricket's clock features either by running the binary program included on the disk, thus modifying ProDOS in memory, or by transferring Cricket's altered ProDOS file to your disk. Then any Thunderclock features ProDOS or your ProDOS application supports will be available from Cricket. In addition, you can program a built-in alarm to chime at a preset time each day.

Cricket software works only under ProDOS. If you're DOS-bound, you might look at Street's Echo II Synthesizer instead.

Nor does it work automatically with pre-existing software. A significant amount of programming is involved since it has its own command set, and all these commands must be prefixed with an ampersand (&). For all of its features, this is an experimenter's or development tool, not a finished application.

From a hardware standpoint, it is well done. Many features are packaged into a small (3-inch by 4-inch by 1-inch) case. A wall transformer provides external power to Cricket, whether or not it is connected to your Apple, and maintains power to the clock circuit. Cricket has a volume control but no off switch.

You might be tempted to place the tiny Cricket on top of the //c. Don't. It will block the //c's ventilation slots. Also, the unit I tested, which looked



Beagle Bros Apple Software Report

Ad Number 182

"All the News That Fits"

"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 Ile 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 & 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.

PROCECT PROCEAMS: Unauthorized Save-

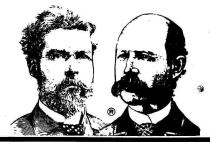
PROTECT PROGRAMS: Unauthorized Saveattempt can print "Not Copyable". List-Prevention and other useful tips, plus fascinating experiments.

SILICON SALADTM

MULTIPLE UTILITY

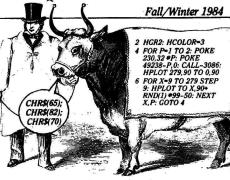
\$24.95 (DOS 3.3, compatible with any version of Apple II)

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...





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.

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
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

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

■ ALL-PURPOSE ■

DISKQUIK (described in this ad). 29.50
FATCAT (II+, IIE, IIc). 34.95
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 ■

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.

\blacksquare GAMES \blacksquare

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.)

suspiciously like a prototype, became uncomfortably warm after a few hours of operation. The combined heat of the Apple and Cricket doesn't benefit either.

Cricket comes with one of the best manuals I've seen. It takes you step by step through programming the device in sound, speech, music, and clock modes. The appendices are well done, including an Apple //c 5-pin DIN connector to standard DB-25 (Apple //e, Super Serial Card) cross-reference for the serial interface. In fact, the only thing that's missing is an index. ■

Bill O'Brien Fort Lee, NJ

According to Street Electronics, the heating problem in the prototypes has been solved for production models. They report that many programs supporting other synthesizers will soon support Cricket. —eds.

Era 2

Microcom

1400A Providence Highway Norwood, MA 02062

Modem and software \$499

asy to learn and use, the Era 2 communications program represents a good compromise between the slow, menu-oriented structure and the faster, but more difficult, command-driven structure. Documentation, both written and on-line, is very good.

Among its more powerful features is the terminal set-up arrangement. Communications settings can be customized for almost any remote system. With the user function module's flexibility, you can create a series of complex actions that can be invoked with a two-key command, and turn the Apple into a communications robot. Era 2 has predefined terminal setups, facilities for communicating with certain DEC and IBM computers directly, and a four-layer communications network protocol (MNP) for error-free transmission.

The Era 2 system includes the mo-

Table. Era 2's main menu options.

Option	Description
Enter Interactive Mode	The business end of the program: a command-oriented module backed up by a help menu and driven, single-key control codes (open-apple plus letter code on the //e).
Load Terminal Setup	A set of customized functions you load to communicate with a given data base or remote terminal.
Display/Change Terminal Setup	For editing set of functions currently in memory.
Save Terminal Setup	Use meaningful names here, such as DOW JONES SETUP.
File Maintenance	For routine disk access—cataloging or locking files, for example.
Display Change Configuration	For reconfiguring the program to system needs when necessary.

dem board itself, communications software on a 5¼-inch disk, spiral-bound and index-tabbed documentation, a quick reference card, a warranty card, and cabling for direct connection to a modular phone jack. In addition, you get a free hour of Dow Jones News/Retrieval Service; this includes the initial sign-up fee (\$75 when you subscribe separately).

The modem operates at 300 baud,

typical of many personal computer modems, as well as at 110 and 1200 baud. The board itself is a piggy-backed double board that operates in almost any Apple expansion slot. You need only plug in the board, connect it to a modular jack, and close the lid.

The first time you boot up Era 2, you configure the program to your system's needs. Specify the slot number the Microcom card resides in, dial-

The Era 2 communications program operates in almost any Apple expansion slot.



Influs - Central Point 2,00	ORDERS O TOLL FRI Inquiries & Conn Up to MACINTOSH COMPI APPLE //c, //e COMPI KNOW DRIVE 128K I Business Our Price ADVANCED LOGIC SYSTEMS 1-Maker 195.00	TERS DÉCISION SUPPORT The Business Accountant 159.00	32-3201 3662 or 378-8293 'etail 	HR-25 675 HR-35 935 DYNAX DX-15 399 EPSON RX-80 249 RX-80 F/T 309 FX-80 449 FX-100 645 LO-1500 1125 IDS Prism 80 (Basic) 065 Prism 132 (Basic) 1225 Prism 132 (Basic) 1225 Prism 132 (Basic) 1225 JUKI 6100 425 JUKI 6100 425 OKIDATA Microline 82A 325
Company Comp	TOLL FRI Inquiries & Conn Up to MACINTOSH COMPU APPLE //c, //e COMP KNOW DRIVE 128K I Business ADVANCED LOGIC SYSTEMS 1-Maker 195.00 APPLE 195.00	TERS RAM w/Play-Back & B DECISION SUPPORT THE Business Accountant 159.00	6662 or 378-8293 'Etail Call Call	EPSON RX-80
TRONIC ARTS Hat Mack 25.00 Assassin 25.00 Construction Set 29.00 Assassin Set 29.00 Assassin Prinball 29.00 Assassin 29	TOLL FRI Inquiries & Conn Up to MACINTOSH COMPU APPLE //c, //e COMP KNOW DRIVE 128K I Business ADVANCED LOGIC SYSTEMS 1-Maker 195.00 APPLE 195.00	TERS DÉCISION SUPPORT The Business Accountant 159.00	6662 or 378-8293 'Etail Call Call	P.C. 100 943 LO-1500 1125 IDS Prism 80 (Basic) 1065 Prism 80 (Full) 1435 Prism 132 (Basic) 1225 Prism 132 (Full) 1655 P-480 Microprism 425 JUKI 6100 425 OKIDATA 225 Microline 80A 225
Hat Mack 25,00 ass Gladiator 25,00 ast Gladiator 25,00 tanding Stones 29,00 ill Construction Set 29,00 ill Construction Set 29,00 on-One 29,00 in Cities of Gold 29,00 or Cities of Gold 29,00 c The HTS Simulator II. 37,00 Runner 24,00 ill Construction Set 24,00 in Cattle Wolfenstein 24,00 in Cattle Wolfenstein 24,00 in Castle Wolfenstein 24,00 in Castle Wolfenstein 24,00 in III. 32,00 mission Pinball 22,00 in III. 32,00 oner Games 22,00 usest 22,00 in Session Pinball 22,00 in Games 22,00 in Castle Wolfenstein 26,00 in Castle Wolfenstein 25,00 in III. 32,00	Inquiries & Conn Up to MACINTOSH COMPU APPLE //c, //e COMP KNOW DRIVE 128K I Business ADVANCED LOGIC SYSTEMS 1-Maker 195.00 APPLE	n residents call (203) 378-3 50% off residents. TERS TUTERS RAM w/Play-Back & B DECISION SUPPORT The Business Accountant	6662 or 378-8293 'Etail Call Call	P.C. 100 943 LO-1500 1125 IDS Prism 80 (Basic) 1065 Prism 80 (Full) 1435 Prism 132 (Basic) 1225 Prism 132 (Full) 1655 P-480 Microprism 425 JUKI 6100 425 OKIDATA 225 Microline 80A 225
Identify	MACINTOSH COMPUAPPLE //c, //e COMPUENT 128K I	50% off roters UTERS RAM w/Play-Back & B	etailCall	Prism 80 (Basic) 1055 Prism 80 (Full) 1433 Prism 132 (Basic) 1225 Prism 132 (Full) 1655 Prism 132 (Full) 655 Prism 132 (Full) 655 UKI 6100 425 OKIDATA 225
On-One 29,00 xx 29,00 xx 29,00 on 29,00 on 29,00 or on the Zinderneuf 29,00 er on the Zinderneuf 24,00 illiter 24,00 or Change 24,00 or Change 24,00 or Change 36,00 or Ill 32,00 or Ill 32,00 or Ill 25,00 or Ill	MACINTOSH COMPU APPLE //c, //e COMP KNOW DRIVE 128K I Business Our Price ADVANCED LOGIC SYSTEMS 195.00 APPLE 195.00	TERS UTERS RAM w/Play-Back & B DECISION SUPPORT The Business Accountant 159.00	Call	JUKI 6100
er on the Zinderneuf 23.00 ER HITS Simulator II 37.00 Runner 24.00 lifter! 24.00 lifter! 24.00 d Castle Wolfenstein 24.00 a lil: Exodus 36.00 no III 32.00 Mission Pinball 23.00 oner Games 29.00 luest 22.00 lyvania 22.00 lyvania 22.00 lyvania 32.00 leges 22.00 luest 22.00 lyvania 22.00 leges 12.00 leges 12	MACINTOSH COMPU APPLE //c, //e COMP KNOW DRIVE 128K I Business Our Price ADVANCED LOGIC SYSTEMS 195.00 APPLE 195.00	TERS UTERS RAM w/Play-Back & B DECISION SUPPORT The Business Accountant 159.00	Call	JUKI 6100
ER HITS Simulator II. 37.00 Runner 24.00 iliter 24.00 iliter 24.00 iliter 24.00 iliter 24.00 iliter 24.00 in Castle Wolfenstein 24.00 a III: Exodus 36.00 in III. 32.00 Mission Pinball 23.00 iner Games 29.00 ilitest 22.00 ilitest 22.00 ilitest 22.00 ilitest 22.00 ilitest 22.00 ilitest 22.00	Business Our Price ADVANCED LOGIC SYSTEMS 195.00 APPLE	RAM w/Play-Back & B DECISION SUPPORT The Business Accountant 159.00		OKIDATA Microline 82A
lifter! 24.00 Change 24.00 nd Castle Wolfenstein 24.00 al all: Exodus 36.00 n III 32.00 Mission Pinball 23.00 non 25.00 ner Games 29.00 neust 22.00 vyvania 22.00 vyvania 22.00	Business Our Price ADVANCED LOGIC SYSTEMS T-Maker 195.00 APPLE	DECISION SUPPORT The Business Accountant 159.00	ack-to-back 3/3.00	
10 Castle Wolfenstein 24.00 36.00 36.00 on III 32.00 Mission Pinball 23.00 on 25.00 oner Games 29.00 coner Games 26.00 coner Games 22.00 coner	ADVANCED LOGIC SYSTEMS T-Maker	The Business Accountant 159.00	ſ	Microline 83A 565 Microline 92P 389 Microline 93P 619 Microline 84P 699
Mission Pinball 23.00 25.00 29.00 20.00 22	T-Maker 195.00	BOW IONES COMMITTEE	SENSIBLE SOFTWARE	PANASONIC
26.00 Quest		DOW JONES SOFTWARE The Market Analyzer 225.00	The Sensible Speller	KPX-1090
	Apple Works	Market Manager	Report Card 42.00 Graphics Department 87.00 Image Printer II 35.00	
oveted Mirror 22.00	Access // (//e, //c) 65.00 APPLIED SOFTWARE TECHNOLOGY	Pie Writer V2.2. 95.00 HOWARDSOFT Tax Preparer 1984. 179.00	SIERRA ON-LINE The General Manager II 139.00 The Screenwriter //e 79.00	PROWRITER (C. Itch) ProWriter 8510 AP. 329 ProWriter 1550 AP. 529 ProWriter 8510 SP. 465 StarWriter A10-20P. 529
lition Amazon	Versaform	Real Estate Analyzer II 159.00 KENSINGTON MICROWARE	SILICON VALLEY	SILVER REED
Boot Camp 19.00	Jane (II+ or //e) 195.00 Jane (//c) 119.00	Format II Enhanced 95.00	The Word Handler II (II+, //e, //c) 49.00 The List Handler (II+, //e, //c) 49.00 The Handlers (II+, //e, //c) 105.00	EXP-500P 389 EXP-550P 469
of Diamonds	ARTSCI Magic Office System 195.00	Think Tank II+ or //e 92.00	SOFTWARE PUBLISHING PFS: File	STAR MICRONICS
Raiders	Magic Window II	Data Factory 5.0	PFS: Graph	Gemini 15X
e 30.00	ASHTON TATE dBase II	MICROPRO Wordstar259.00	PFS: Write (//e, //c) 75.00 PFS: Proof (//e, //c) 50.00 PFS: Access (//e, //c) 50.00	Delta 10
ded	BLUE BUSH Speed File	Infostar	STONEWARE	TUSHIDA
II 30.00 er 30.00	BPI SYSTEMS (II+or//e) GA, AR, AP, PR or INV. ea 254.00	MICROSOFT Multiplan	DB Master Version Four Plus	Disk Drives Our Pr
30.00	CONTINENTAL SOFTWARE The Tax Advantage	A.L.D.S	SUNDEX Certified Personal Accountant 74.00	APPLE Disk II Drive
ker	F.C.M./FL	Practicalc II	Certified Personal Investor 74.00 VISICORP	Duo Disc w/Acc. Kit 669 ProFile w/Acc. Kit 1185
Seat	Home Cataloger 34.00 CREATIVE PERIPHERALS	Word Juggler Lexicheck //e 139.00 Catalyst //e 119.00	Flashcalc II+, //e, //c 65.00 VisiSchedule 98.00 Visitrend/Visiplot 65.00	MICRO SCI A2 143K 199 A20 164K (New!) 178
des	Time Trax 69.00	Terminus //e 72.00		A80 328K (New!)
27.00 tlantic '86 39.00 dley 39.00	Educational			RANA Elite I
/ 1985 39.00 e Kursk 27.00	Software Our Price	DLM	MICROLAB	Elite II
Russia 57.00	Apple Logo // (//e, //c) 85.00 BARON'S	Spelling Wiz. 22.00 Demolition Division 22.00 Alligator Mix 22.00	English SAT	QUENTIN
Balance II	Computer SAT 58.00	Number Farm	SongWriter or PictureWriter 25.00 Phi Beta Filer	
	BPI Speed Reading II+ 65.00 CBS	EDU-WARE/PEACHTREE PSAT Word Attack Skills	Run for the Money 32.00	Monitors Our Pr
2049'er 25.00 eist 25.00 a Chess 7.0 46.00 Iston's Blackjack 46.00	Mastering the SAT 97.00 Mastering the GRE 97.00	SAT Word Attack Skills 32.00 Spelling Bee w/Reading Primer 25.00 Spelling Bee Games 21.00	Fact and Fiction Tool Kit 26.00 Story Tree 26.00	AMDEK
ston's Blackjack 46.00	Goren's Bridge	Spelling Bee Games 21.00 Compu-Read 18.00 Compu-Math: Arithmetic 32.00	SPINNAKER	Color 600 (RGB)
bby Our Price at 23.00	Micro Speed Reading 84.00 CONTROL DATA CORP.	Compu-Math: Fractions 32.00 Compu-Math: Decimals 32.00	Trains 25.00 Grandma's House 22.00 President's Choice 26.00	DVM RGB Interface (II or III) 130
e Graphics	Plato Series Call COUNTERPOINT Early Games 20.00	Algebra 1, 2, 3, or 4	Fraction Fever 22.00	Color Plus Monitor 239
n Salad	Matchmaker 20.00 Piece of Cake 20.00	HARCOURT, BRACE Computer SAT 51.00	Snooper Troops 1 or 2 28.00 In Search of	TEKNICA
G.P.L.E. 34.00 Basic 24.00 Take 24.00	Praction Factory	LEARNING COMPANY Juggle's Rainbow	Kindercomp	SAKATA
Dos	Speed Reader II	Bumble Games	Facemaker	SC-200 RGB Color 455 SG-1000 Green 95
Jp	Math Blaster	Gertrude's Puzzles 28.00 Gertrude's Secrets 28.00	TERRAPIN Terrapin Logo 64.00	SA-1000 Amber
echanic 20.00 14.00 ot 26.00	DESIGNWARE Spellicopter	Rocky's Boots 32.00 Word Spinner 23.00 Addition Magician 23.00	XEROX Stickybear ABC	TAXAN RGB Vision III (Hi-Res) 420
16.00	Math Maze	Reader Rabbit 26.00	Stickybear Numbers 25.00 Stickybear Shapes 25.00 Stickybear Opposites 25.00	Green (Hi-Hes) 120
20.00 cks 28.00 Compiler (Microsoft) 115.00	EINSTEIN CORP. Einstein Memory Trainer 59.00	Basic Building Blocks	Picture Builder	410-64 RGB-2 Interface 19
mpiler 89.00 us (Hayden) 42.00		3000	23.00	Home Our P
74.00 58.00 tional System 108.00	Accessories Our Price Kensington System Saver 65.00	Saturn 128K Ramcard 345.00	Pkaso/U Interface	Dollars and Sense (II+, //e) 6 Dollars and Sense (//c) 7
embler	Cool + Ťime	Neptune 80 Col. 64K Card 190.00	Grappler +	The Accountant
ombo Pack 79.00 omputer: 6502 32.00 ohics Magician 38.00	Novation Apple Cat II	Synetix Supersprite	Finger Print	Money Street
mplete Graphics Sys 50.00 35.00	ERA 2 by Microcom 399.00		Thunderclock +	Cut and Paste
	Networker/Netmaster Combo . 140.00 Microsoft 16K Ramcard 68.00	The Cricket (//c)	Chalkboard Starter Kit 35.00 Muppet Learning Keys 49.00	Bank Street Writer
45.00 45.00 ak 1, 2, 3, 4, 5	Microsoft Premium System //e 299.00 ALS Cards	Haves Mach III Joystick //e 41.00	Koala Pad	Homeword Speller 34
grapher	Videx Videoterm	Kraft Joystick 35.00 TG Select-A-Port 28.00 Apple Super Serial Card 128.00 SeriAll Interfere Card 129.00	Trackhouse Key Pad	ASCII Express Professional 82 Data Capture //e
Graphics	Videx Keyboard Enhancer 105.00	SeriAll Interface Card 129.00		Softerm II
nk Media Our Price	company	elivery send cashler's check, certified checks allow 3 weeks to clear. Shipping	- Software (\$3.00 min.) C.O.D. add an	Micro Cookbook (II+ //e)
ant SS/DD (10) 17.00 SS/DD (10) 17.00	FPO \$5.00	\$1.75. Shipping - Hardware (please call). min. Foreign orders - \$15.00 min. and 15	% of all orders over \$100. Mastercard &	Music Construction Set
/DD (10)	ship same	de card # and expiration date). Connec day for most orders. PRICES SUBJECT ast have a return authorization number. (TO CHANGE WITHOUT NOTICE. All	Master Diagnostics (Nikrom)

to 5 keyboard features with the PEATERRRR#

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, fund if not satisfied. One year warranty. 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.

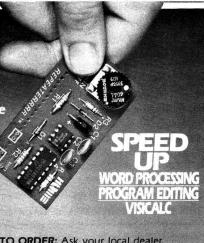
Easy installation. Open top and plug onto 25-pin connector between keyboard and encoder board (fits Rev .7 or later).

REPEATERRRR

without SHIFT-key modification \$27 95

REPEATERRRR+

with SHIFT-key modification \$37 95



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 re-



HIGHORDER MICROELECTRONICS CORP.

17 RIVER ST. CHAGRIN FALLS OHIO 44022 PHONE 216-247-3110

Trademarks: Apple/Apple Computer, Inc., Screen Writer Il/Sierra On-Line, Inc., Word Handler/Silicon Valley Systems Inc., VisiCalc/VisiCorp.

Circle 33 on Reader Service carc.

Free Catalog

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



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

Phone toll-free 1-800-547-5444 In California, call 1-800-547-5447.

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

Inmac Catalog Dept. 2465 Augustine Drive Santa Clara, CA 95051

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

0.01101111/			
COMPANY			
ADDRESS			
CITY	3/5		
STATE	ZIP	PHONE	

HARDWARE REVIEWS

ing system (pulse or tone), location of printer and clock cards, if any, and the number and location of your disk drives. Select the desired option with the arrow keys, and then the parameter with the space bar. This method neatly avoids illegal inputs.

The main menu has six options (see the Table). Powerful user functions let you automate your communications tasks. Microcom's documentation includes two chapters detailing applications of these user functions.

Microcom has also provided terminal set-up files on disk for four of the more common data-base services: Dow Jones, CompuServe, The Source, and MCI Mail. The documentation gives a thorough description of each element in these files, along with suggestions for customizing them to your

Unfortunately, Era 2 supports only two printer cards: Apple Super Serial and Apple Parallel. (You can always download files to disk, retrieve them later using your word processor, and then print them.) The company plans support for other cards sometime in the near future. Another drawback is that you can't look at the catalog of disk files from anywhere but the file maintenance mode. And creating and saving terminal set-up files is a fourstep process involving considerable disk access.

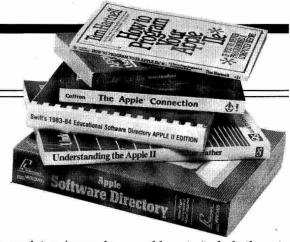
Era 2's strengths, though, compensate for its weaknesses. It provides terminal emulation for the DEC VT 100, VT 52, and IBM 3101 computers, when you have a //e with an 80-column display. You can communicate with other personal computers and set up a bulletin board with the autoanswer mode and programmed user functions.

For error-free transmission, Era 2 uses a four-layer network protocol called the MNP (Microcom Network Protocol) reliable link. This protocol assures correct transfer of both files and interactive communication, essential if you need a perfect facsimile at the other end, or if transmission lines are noisy.

Except for the lack of printer card support, the Era 2 modem is an excellent product. I recommend it to anyone interested in buying a modem.

> **Charles Engelsher** Schenectady, NY

BOOK REVIEWS



An Apple for Kids

by Sharon Boren

dilithium Press P.O. Box 606 Beaverton, OR 97075 Softcover, \$7.95

A n Apple for Kids, a well-written and educationally sound tutorial, teaches children how to program in BASIC on an Apple microcomputer. It is the first and principal book of a three-book series; the other two books are an activities workbook (\$5.95) and a teacher's guide (\$14.95).

The book is divided into eight components of approximately eight chapters each. Each lesson—or chapter—is presented in a straightforward, fun-to-read style geared to a fourth-grade reading level. Boldfaced type highlights important terms and most lessons are reinforced through reviews and practice sessions.

Overview

The early chapters familiarize the student with the Apple keyboard and system operation. Later chapters teach the language and skills necessary to write programs in BASIC. All programming techniques included in the book can be understood by the average sixth grade student. After completing the book the child should be able to write game programs, simple graphics, teaching programs, and programs that solve problems.

Component One introduces the child to the Apple with a tour of the keyboard (Apple II, II Plus, and //e are all treated), including the special keys, such as the escape, control, reset, return keys, and the space bar. Correcting typing errors and moving the cursor are both covered here through clear examples.

The first component also explains the inner workings of the computer and points out some of the circuitry visible when the Apple's cover is removed. Terms such as RAM, byte, kilobyte, ALU, and CPU are also explained. A discussion of peripherals and the proper operation of the disk drive close out the first component.

On to Programming

Component Two explains several arithmetic capabilities of the micro, including order of operations, while Components Three and Four start your child writing simple programs with graphics and loops. At this point the technique and benefits of flow-charts are presented.

Components Five through Seven continue to develop the BASIC commands necessary for simple programming. Variables, FOR...NEXT loops, timers, counters, and the different ways to input data are just a few examples.

The last six chapters in Component Eight explore animation and random

An Apple For Kids

numbers, and how to include them in game programs.

The book ends with five different appendices and a glossary of the many terms used in the book.

Summing Up

For the most part, Boren has succeeded at writing a textbook to teach programming to third through eighth graders. Differences in aptitude, reading skill levels, and ability to relate to or understand technical information across this age group make that a difficult assignment at best.

Her book can be used by a child alone or with the assistance of a parent. (Certainly, with the available teacher's guide, it could be used by classroom teachers.)

An Apple for Kids might be over the heads of some third graders; at times the terms and math used are appropriate only for the very top of the stated age range. On the other hand, eighth graders might find early examples a little simple. But this is a book that can sit by the home computer, to be read over and over again, always offering its reader another idea, another term from its wealth of information.

Ken Silverstein Salem, NH

Inside Apple's ProDOS by John Campbell

Reston Publishing Company 11480 Sunset Hills Road Reston, VA 22090 Softcover, \$16.95

nside Apple's ProDOS is a well-written companion to the manuals that Apple supplies with the Professional Operating System (ProDOS).

Each chapter begins with an overview, followed by several sections and subsections addressing related topics. A summary section and a questions section for quick review then conclude the chapter.

An introduction to the main features and boot-up technique is given in chapter one, along with some comments on the differences between DOS 3.3 and ProDOS, and the methods of program interconversion.

Chapter two, ProDOS Files and Commands, explains the structure of ProDOS, and its BASIC commands (RUN, LOAD, SAVE). The use of volumes, files, pathnames, and directories is also covered. Chapter three, Housekeeping Commands, continues with an explanation of other commands, including Lock, Unlock, Rename, Chain, Prefix, Store, and Restore.

Chapters four and five cover sequential-access and random-access files, respectively. Chapter six discusses binary files, and chapter seven covers executive files. Chapter eight explains some additional commands and utility programs, including the Filer, the Tutor, various file display and manipulation facilities, and the Convert utility for converting DOS 3.3 programs to ProDOS format.

Chapter nine, The Machine Language Interface, for the machinelanguage literate among you, includes the ProDOS loading sequence, memory maps, and integration of machinelanguage routines with ProDOS. This chapter also discusses system programs that fit in between an applications program and the operating system to permit more efficient use of ProDOS. Campbell addresses the subject of writing such routines with specific examples.

Learn by Doing

In the final chapter, chapter ten, Campbell presents the use of ProDOS with a Christmas card mailing list, a modest but educational project. This chapter gives a painless and fairly thorough introduction to structured programming in BASIC. It also reviews all the things you've been told about ProDOS earlier in the book. Pro-DOS commands are presented in a hands-on manner, so that you are left with a better understanding of their use in an actual case. The use of Pro-DOS's hierarchical file structure is also covered in this program, to the same advantage. Topics in chapter ten include: the skeleton program, screen routines, record read/write routines, system configuration and set-up routines, and clock card usage-all with emphasis on this particular program. Finally, the program is described on a line-by-line basis.

Nine appendices cover such things as a comparison of DOS 3.3 and Pro-DOS, the ProDOS memory map and command summary, hard-disk stor-

Circle 67 on Reader Service card.

age, details on selected ProDOS utility programs, and so on. The bibliography is comprehensive and current.

Inside Apple's ProDOS is well-conceived, well-executed, clear, and complete. And for those of you who anticipate converting to ProDOS, what better recommendation for a practical handbook do you need?

Charles Engelsher Schenectady, NY

Writing with a Word Processor

by William Zinsser

Harper and Row Publishers 10 East 53rd Street New York, NY 10022 Softcover, \$12.95

Writing in the Computer Age

by Andrew Fluegelman and Jeremy Joan Hewes

Anchor Press/Doubleday 245 Park Avenue New York, NY 10167 Softcover, \$10.95

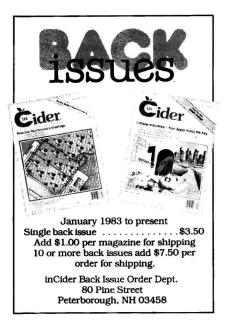
These two books are aimed at the writer who is considering taking the technological plunge. Both try to give a general introduction to word processing in clear and simple lan-

Circle 31 on Reader Service card.



McMill
The affordable & expandable 68000 software development system for your Apple II, IIe!

PO.Box 2342
Santa Barbara, CA 93120



guage. They talk about hardware and software in non-technical terms, and show how computerization can simplify the writing process. They also demonstrate that the new technology can benefit the writer both stylistically and creatively. The books differ mainly in the point of view and in intention.

Writing with a Word Processor

Zinsser's book is primarily an account of his own experience in adapting to the writer's newest tool. A professional writer for more than 20 years, Zinsser has a clear view of the future of writing and the courage to confront it despite his self-confessed techno-phobia. He recounts his emotional and intellectual responses to an IBM word processor with warmth, wit, and good humor, painlessly incorporating a clear and concise introduction to the basics of word processing.

The entire book is a textbook example of clear, simple, and excellent writing. Much of what he says can benefit even the experienced writer. But the foremost concern of the book is to look at the growth of a particular man-machine relationship from the human perspective. Zinsser shows writers looking to the future that the technology can be mastered and put at their service.

Writing in the Computer Age

If Zinsser tries to provide emotional

support and reassurance to word-processing novices, Fluegelman and Hewes attempt to teach them everything they might need to know about the subject. Their in-depth book covers all the major features of word processing on microcomputer systems. Fluegelman and Hewes consider each feature individually, giving a thorough explanation with a minimum of jargon. Numerous diagrams and examples help to clarify their explanations.

Both books begin with basics, assuming that the reader knows nothing about word processing beyond its existence. After covering all the beginner needs to know, Fluegelman and Hewes examine the more advanced features of some word processors and look at changes in the publishing business brought about by microprocessors. Beginners could easily be overwhelmed by the amount of information and detail, but all of it is thoroughly explained.

The two books complement each other and together provide a thorough introduction to the writing technology of the future. Zinsser's book should be read first for the reassurance that anyone can learn to live with and utilize a word processor. Fluegelman and Hewes provide the information needed to make an intelligent choice from all the word-processing hardware and software available. Both give invaluable insight and direction for us-

ing technology to improve the words, sentences, and paragraphs that are the writer's output.

Karen McCullough Greensboro, NC

VisiCalc Extensions for the Apple II and Apple //e

by Jack Grushcow

Reston Publishing Company 11480 Sunset Hills Road Reston, VA 22090 Softcover, \$16.95

Additional disk, \$49.95

As a VisiCalc user, you may have wanted to: print out the formulas behind spreadsheets in template format; print out spreadsheets with variable column widths and with commas embedded in large numbers; sort spreadsheet data; consolidate spreadsheets; and transfer data between other media and spreadsheets in a format simpler than DIF. Now you can with VisiCalc Extensions for the Apple II and Apple //e.

VisiCalc Extensions provides listings and tutorials for five programs that you can type in to make your own disk, or you can buy a disk containing the programs DOC, Print, Sort, Transfer, and Connect.

Since these are long and detailed

Subscription Problem?

inCider does not keep subscription records on the premises, therefore calling us only adds time and doesn't solve the problem.

Please send a description of the problem and your most recent address label to:

inCider

Subscription Dept. PO Box 911 Farmingdale, NY 11737

Thank you and enjoy your subscription

This Publication is available in Microform.

University Microfilms International

for		8	
8			
Name			
Institution			
Street			
City			
State	Zip		

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, (213) 285-1121, Telex 674770 Addmaster SGAB programs, I recommend that you purchase the disk and enjoy the considerable enhancements offered.

The Utility Programs

A word of caution: The Print, Sort, and Transfer programs make extensive use of DIF files. Be sure that you have Apple II version 202 (or later) and not version 193 of VisiCalc, which might erase an entire disk if you try to use it with DIF files.

The DOC program prints out for-

mulas and data that lie behind spreadsheets, as well as the visible format and labels in their template locations, instead of in a single listing with cell references. This feature provides an invaluable debugging and verifying tool for both template designer and user.

The Print program prints templates with variable column widths, either as you specify or by default whereby the program automatically varies the width of each column according to the size of the widest entry. Print also

prints selected columns instead of an entire block. A wrap-around feature determines how many rows and columns fit on a page. If a template exceeds that number, a form feed continues output to additional pages that are numbered automatically. And finally, the program prints templates with superimposed VisiCalc row numbers and column letters, enabling you to find specific cell locations quickly on a printout—an invaluable aid when editing template entries.

With the Sort program you can select and sort up to three different levels of rows or columns. You can designate protected as well as sorting areas, thereby precluding erroneous inputs to formulas outside of the sort range.

The powerful Transfer program cre ates linked VisiCalc systems that let you move or consolidate data between spreadsheets. Or you can modify the value of cells in all or part of a spread sheet by using simple commands. For example, you can split up a large Visi Calc problem or template into a series of related templates, complete each individual template separately, then consolidate the results in a final spreadsheet. Thus, the program lets you apply structured problem-solving techniques to VisiCalc operations. The Show Calculations (SC) feature verifies that correct data has been transferred to the correct cell, providing a perfect audit trail.

The Connect program takes data from external sources (for example, accounting, stock analysis) and loads it into your own spreadsheets, without using the complex DIF format. It uses its own interchange system, GIF (Grushcow's Interchange Format). GIF files are simply sequential files with any set of delimiters (characters used to separate one record in a sequential file from its neighbor). The program also converts standard DIF files into GIF files, making it easier for your external systems to process them.

Whether you buy the book and create your own disk, or buy the VisiCalc Extensions disk itself, the cost is well worth the enhanced VisiCalc results that these powerful programs provide.

> R.A. Bowling San Diego, CA

Circle 163 on Reader Service card.

YOUR APPLE NEEDS **WORK FORCE II**

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
- 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

Compatible with Apple IIc, IIe, II +, II and III (in emulation mode).

ALL ORDERS SHIPPED IMMEDIATELY

Gregg Glau

June 1984

InCider

"Borrowing money is no problem with the

loan analysis section to guide you. Work

Force II is easy to understand and

operate. It's an honest value...'

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 \$\(\text{or money order.} \) \(\text{UISA} \) \(\text{GMC} \) Arizona residents add 6% S 	\$34.95. C
Card #	
Signature	Valid From to
Name	Phone
Address	180 P - 1 12 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
City/State/Zip	-ay yasay
Core C P.O. Box 24157	oncepts Tempe, AZ 85282

(602) 968-3756 DEALER INQUIRIES INVITED

NEW SOFTWARE

Income Tax Help

The best-selling book becomes software in J.K. Lasser's Your Income Tax. Through a series of questions, the program collects data needed for your return. Help windows explain the questions, do calculations, and summarize the book's information. Annual updates will be available to purchasers. It runs on any Apple II and costs \$79.95 from Simon & Schuster, 1230 Avenue of the Americas, New York, NY 10020. Use Reader Service number 474.

Infocom's Cutthroats

Infocom brings you some shady characters in a new text adventure, Cutthroats. Become a daring deep-sea diver on a backwater island in this third Tale of Adventure game. Interaction among the characters is vital to solving the mystery. You need courage and \$39.95 according to Infocom, 55 Wheeler Street, Cambridge, MA 02138. Mark number 471 on Reader Service card.

Product descriptions contained in this section are based on information supplied to us by the respective manufacturers. These announcements are provided solely as a service to our readers and do not constitute an endorsement by inCider of any given product.

Utilities for **AppleWorks**

HabaMerge (\$69.95) lets you combine the word-processing and data-base files made by AppleWorks, You can create personalized letters and mailing labels for everyone included in the data base. HabaTemplates (\$29.95) provides 54 data-base and spreadsheet models that can be used or tailored for your needs. Both products require that your system use AppleWorks.You can purchase them from Haba Systems, 15154 Stagg Street, Van Nuys, CA 91405. Mark Reader Service number 481.

Graphics Spreadsheet

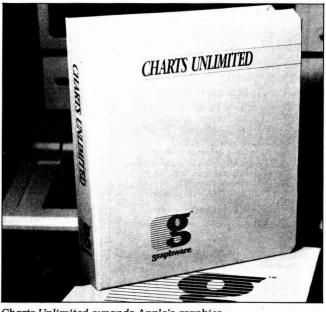
Charts Unlimited (\$195) gives you a window onto a graphics area 868 by 630 pixels, ten times the Apple hi-res screen. It has 36 predefined objects including flowchart shapes, triangles, boxes, and bars. Use these, create your own, or enter text and then send the whole worksheet to a dot-matrix printer. It works on any Apple II with 64K. Contact Graphware, 5084 Mosiman Road, Middletown, OH 45042, or mark Reader Service number 477.



Income tax classic hits home computers.



Haba utilities combine AppleWorks files.



Charts Unlimited expands Apple's graphics.



This Home Executive offers complete family management.

Bring Home an Executive

Let the Home Executive manage all your planning and organizing. This comprehensive package costs \$89.95, runs on any Apple II, and includes Address Book, Calendar, Checkbook, Collector's List, Household Inventory, Portfolio Manager, and Financial Analyst. Each module has powerful report generators. This Executive is based out of Superex Home Software, 151 Ludlow Street, Yonkers, NY 10705. Reader Service number is 484.

DOS Control of Profile

Control Apple's Profile hard disk without converting to ProDOS. **Pro**- fix runs on any Apple II with at least 64K and lets you store DOS 3.3 programs on Profile. Priced at \$59.95, Profix includes a utility disk to initialize a DOS area on Profile, copy disks, and transfer files. For more information contact Nordic Software, 4910 Dudley Street, Lincoln, NE 68504. Reader Service number is 478.

Structural Engineering Software

The **Structural Analysis Series** solves engineering problems for draftsmen, fabricators, engineers, and students. A demo disk for \$30 gives you a sample of the entire series, which includes Beam Analysis, Continuous Span Analysis, Column Buckling, Area Moment of Inertia, and Steel

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.

QUINSEPT, INC.
P.O. Box 216, Lexington, MA 02173
(617) 641-2930

Circle 223 on Reader Service card.



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

San Jose, CA 95154 (add \$1.50 handling; in CA add 61/2%)

VISA,MC call: (408) 978-1048
48 K Apple II, II+, IIe, 1 disk, printer
Apple is a trademark of Apple Computer, Inc.

ATTENTION

Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that CW/Peterborough provides.

Provide your audience with the magazine they need and make money at the same time. For details on selling Microcomputing, 80 MICRO, inCider, HOT CoCo, RUN, contact:

SANDRA JOSEPH WORLD WIDE MEDIA 386 PARK AVE., SOUTH NEW YORK, NY 10016 PHONE (212) 686-1520 TELEX—620430 Assembly Weight. Each unit is priced at \$125 by John Wiley & Sons, 605 Third Avenue, New York, NY 10158, Circle Reader Service number 483.

Printer and **Graphics Utilities**

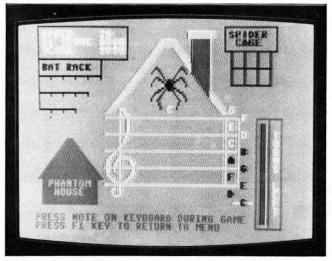
Print-Quick controls your printer's many options, and lets you save your favorites on disk. It is compatible with any Apple II and with most printers and interfaces. Pic-Quick helps you manipulate, save, and print any lo-res or hi-res screen. These programs cost \$39.95 each, are in listable BASIC, and are not copy-protected. Contact Third Wave Technology, 16309 Elsienna Avenue, Cleveland, OH 44135, or circle number 487 on the Reader Service card.

New Entries in Home Education

Sharpen your U.S. geography and history knowledge with States and Traits (\$44.95). Learn basic keyboard skills from ghosts and spiders in Notable Phantom (\$49.95). Work on grammar in the journalism game of Grammar **Examiner** (\$44.95). Rescue rocket ships from distress by solving equations in Mission: Algebra (\$44.95). These work on the whole Apple II family and are by DesignWare, 185 Berry Street, San Francisco, CA 94107. Reader Service number is

Stock Index Data

Stock index traders will welcome Kansas City Value Line data now



Playful spiders of Notable Phantom teach music skills.

available on disk. The data base includes every Value Line futures trade and the composite index, starting with September 1982. Data disks cost \$40 per month, the listing program is \$100, and a

graphics program is \$200. Total cost for the whole system is about \$1200. Contact Kansas City Board of Trade, 4800 Main Street, Kansas City. MO 64112. Use Reader Service number 488.

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

BE SAFE! Your 'FREE' disk is CERTIFIED 100% ERROR FREE with CERTIFIX by QUORUM. It 'LOCKS OUT' DISK FLAWS and lets you use the rest. Displays status report & saves it to disk. Next. CERTIFIX automatically formats then offers to initialize with genuine Apple DOS 3.3 too. Great for testing economy disks. CERTIFY, FIX & INITIALIZE every disk with CERTIFIX!

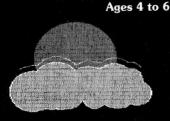
FREE! 64 'Write Protect' Tabs 32 Diskette Labels.

Only \$2995 for both! DISK NOTCHER is \$14.95 CERTIFIX ** is just \$24.95

Add \$1.50 s/h • CA add 6 % % tax SEE YOUR APPLE DEALER!

> 1-800-227-3800 24 Hours a Day EXT:30 Orders only Visa/MC **EXT:30**

QUORUM INTERNATIONAL, Unitd. INDUSTRIAL STATION P.O. BOX 2134-1 C OAKLAND, CA 94614 Circle 200 on Reader Service card.



SPELL WORDS!

or first letters of pictures to develop spelling skills

RHYMES WITH!

Objects & concepts that sound alike with special prompts

Over 50 pictures for an APPLE II +/E/C on each disk

\$35.00 each

1-800-343-0664 ext.3200

(in MA 1-800-322-1238)

KIDSWARE!

117 Sheridan Street Boston, MA 02130

Circle 142 on Reader Service card.

\$49.95 MICRO-MAN CUTS ENERGY COSTS 35%

If you've got an Apple or other major brand P.C. MICRO-MAN*; Quick, Easy, Safe to connect; will cut your present Htg. and A/C costs up to 35%*. Satisfaction guaranteed. Six months FREE trial offer! One year replacement warranty. Total refund if not pleased. Order Now!

Send chk., M.O., VISA/ MC Info: Energy Mgmt. Concepts, 304 Monroeville Mall, Pgh., PA 15146

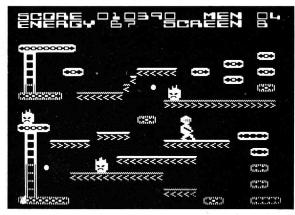
Name ___ St. __ _____ City ___ State ___ __ Zip __

Computer Make/Model __ Indicate Qty (Limit 2):

M 101 (Heat or A/C Only) \$49.95 M 102 (Heat & A/C)

Add \$4.05 ea. for Pstge./Hdlg./Ins. PA residents add 6%.

VISA/MC # _ Exp. _ Dlr. Inq. invited,, *Compl. Broch. \$1.00,



Fantasy role-playing in pursuit of Xyphus.



Circle 380 on Reader Service card.



Robot Construction Set

On one level. Mr. Robot and His Robot Factory is an exciting arcade game. Guide Mr. Robot through 22 screens of treadmills, bombs, ladders, and aliens. Next, when you tire of these screens, create up to 26 of vour own. Robot costs \$34.95 and works on any Apple II. The Factory is managed by Datamost, 20660 Nordhoff Street, Chatsworth, CA 91311. Reader Service number is 470.

Role-Playing from Penguin

Xyphus, a fantasy roleplaying game, allows independent movement of four characters. It combines six different scenarios into one grand adventure. The game is played on a full-screen map of Arroya where characters use both weapons and magic in pursuit of the demon lord. You can join the fantasy for \$34.95 at Penguin Software, P.O. Box 311, Geneva. IL 60134. Use Reader Service number 473.

Have an Apple Scrabble

Scrabble, the board game for word fans, is recreated in Monty Plays Scrabble, priced at \$39.95. The game is played on a full-color hires board and features four levels of play. This classic game is available through The Marketing Resource Group, 17195 Newhope Street, Suite 107, Fountain Valley, CA 92708. Use number 486 on the Reader Service card.

Powerful Printing Package

For graphics printing, check Printographer (\$39.95), for any Apple II, especially the //c. It sends lo-res or hi-res screens to disk or to over 50 printers, including color printers like Apple's Scribe. Label, magnify, reverse, and rotate pictures. Used with their Write Choice word processor, it prints pictures and documents together. Contact Roger Wagner Publishing, 10761 Woodside Avenue, Santee, CA 92071, or circle Reader Service number 472.

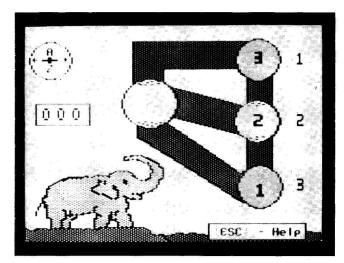
Apples at the Races

Handicapping a horse race can be more art than science, but the Thoroughbred Handicapping System tries to help. Enter data from the racing form and it scores the horses against a standard. The printout gives such a rating for each horse in the race and guides your final choice. Place a bet of \$129.95 with PDS Sports, P.O. Box E, Torrance, CA 90507, or check number 479 on the Reader Service card.

Does Your Apple Understand You?

Have a heart-to-CPU discussion with your Apple. RACTER engages you in conversation. It runs on any Apple II and prints out on a screen or printer. RACTER discusses anything, using a large vocabulary and correct grammar. The Apple version costs \$69.95 from John D. Owens Associates, 12 Schubert Street, Staten Island, NY 10305. Use Reader Service number 482.

NEW SOFTWARE



Freddy's puzzle is to unscramble numbered balloons.

ProDOS Cross Referencer

C-REF is a reference program that examines any BASIC program and tells you in under 15 seconds where each variable is used and which lines refer to other lines. It uses Apple ProDOS, 64K, and sends the final list to your monitor, disk, or printer. For \$30 you get manual and C-REF disk from Jagware, 127 Albany Avenue, S.E., Orange City, IA 51041. Use Reader Service number 480.

Stock and Commodity Analysis

High-Tech performs 30 different types of technical analysis on daily or weekly data for stocks and commodities. It can update its data by modem and costs \$395. Master Forecaster costs \$139 and its forecasts include closing prices of stocks and bonds, money supply figures, and consumer price index. Both programs work on any Apple II and are from Microvest, P.O. Box 272, Macomb, IL 61455. Use Reader Service card number 485.

Freddie Needs Logical Help

Designed for children ages 7-12, Freddy's **Puzzling Adventures** stimulates problem-solving and logical thinking. Children try to unscramble letters and numbers in the fewest moves. There are six adventures of varying difficulty, with sound and hi-res graphics. Freddie needs \$29.95 to adventure with DLM, One DLM Park, Allen, TX 75002. Use number 476 on Reader Service card.

Utilities for the Serious Programmer

Give any Apple II a fullscreen editor for Applesoft programs with **EDX/AB** for \$69.95. The editor scrolls up and down, renumbers lines, searches and replaces, and lists variables. Keyflex (\$39.95) lets you redefine any key on a 64K Apple II. Use single keys to catalog, control printer functions, and program. For information, write Troy Software Design, 63 Roseview Avenue, Richmond Hill, Ontario, Canada L4C 1C6, or mark Reader Service number 489.

A THE

Power Problems?

SURGES!
SPIKES!
RFI/EM!!
DIPS!
SAGS!
BLACKOUTS!
BROWNOUTS!

AEGIS® . . . Power Conditioning Equipment . . . THE SOLUTION Protects From Damaging Voltage Surges, Lost Data, & Costly Down Time



SPIKE-SPIKER®
Transient Voltage Suppressors & Noise Filters
Eleven Models — All Models Rated 120V, 15A

Deluxe Power Console—2-stage transient absorber; dual 5-stage filter; common & differential mode protection; nano seconds response; clamping at 150V; 8 individually switched sockets;

nano seconds response; clamping at 150V; 8 individually swi fused; main switch; 7' cord and status lite. **\$89.95.**

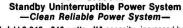


Quad Power Console—6-stage transient absorber; dual 5-stage filter; common & differential mode protection; pico second response; clamping at 131V; four outlets; fused, master switch; 7' cord and status light. \$75.95



Mini II—Direct AC Plug-In; 2-stage transient absorber; dual 3-stage filter; common & differential mode protection; nano second response; clamping at 150V; two outlets and status life. \$44.95

LINE-SAVERTM



Model LS-240—240 watts—VA capacity, increased backup time: 11 min. full load, 27 min. ½ load, 43 min. ½ load; 4-AC outlets, 3-staged transient protection; dual 4-staged RFI/EMI filter; sealed rechargeable internal battery; master control switch; test switch; exter-

nal fuses; detachable 6' cord; external DC connectors for mobil use and extended hold-up time; many more exclusive features. \$485.00

Call or write for free literature.

Dealer inquires invited.

UPS



6584 Ruch Rd., Dept. Bethlehem, PA 18107

INSTANT ORDER LINE 800-524-0400 TWX 501-651-2101 IN PENNA. 215-837-0700

PA Res. add 6% sales tax; for COD add \$3.00 + shipping & handling. All pre-paid SPIKE-SPIKER orders, freight allowed. All LINE-SAVER orders add \$10.00 shipping & handling.

Circle 170 on Reader Service card

CALL 602-820-8819

2632 West Baseline Mesa, Arizona 85202

MEMORY PLUS DISTRIBUTORS

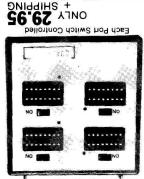


Five year limited warranty on all products. \$3.00 Shipping VISA & M.C. OKRY

Other Apple & IBM products available. Call or write for FREE color brochure.

NEW Tilt & Swivel Diamond Monitor Stand \$34,95

Dealers & Clubs Inquiries Invited!



NO more plugging and unplugging your favorite peripherals

Quadport Multiple Game I/O For Apple II & IIe

тым ротз

ОИLY **36.95**+ SHIPPING

Ваѕе

Вазе

NEW Slim-Line Design!
DUAL FIRE BUTTONS

For Apple II and IIe

TURN YOUR PROFITS

LASSIFIEDS

Game

THE ABYSSAL ZONE™

Underwater graphic adventure. Discover the mysteries of the Bermuda Triangle. Comes with 3-ring binder and 2 disks. Contains 114 hi-res pictures created with Graphics Magician. Game/Copyright by Jeff Gray, M.S. Aquatic Biology. Send \$29.95 + \$2 (U.P.S.) (Visa/MC, check or MO) to:



SALTY SOFTWARE

1139 Hawthorne S.W. Canton, OH 44710 or (216) 478-2220 24 hrs.

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

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

\$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, Drk Crystal. Clues, solution-Ultima III. Any Wizardry scenario maps.

> ASPEN APPLE SOFTWARE Box 1962 Boulder, CO 80306

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.



SWEARINGEN SOFTWARE 6312 W. Little York #197 Houston, Texas 77088

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-



SWEARINGEN SOFTWARE 6312 W. Little York #197 Houston, Texas 77088

Books

MORE THAN 3000 COMPUTER BOOK TITLES AVAILABLE

Comprehensive selection of computer books from every major publisher at low discount prices! Send \$2 for complete price list or receive price list free with book order.

THE BRIGHT SIDE 3308 W. Burbank Boulevard Burbank, CA 91505 (800) 847-4272 (818) 841-8411

Services

TRY US BEFORE YOU BUY!

Dollars and \$ense \$62.50
Koala pads
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

Business

APPLE-BISYNC

Transfer data files to/from the Apple II/IIe to/from IBM mainframes, other bisync devices such as scanners, other Apples and IBM PCs using PC-TRACS (from Sterling Software). Self-contained editor, ability to send multiple files, compression, truncation, blocking and error checking. Easy, menu-driven. True RJE 3780 emulation.

> URGEO SOFTWARE, INC. P.O. Box 305 Cheney, Wa. 99005

(509) 838-6058.

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

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

THE DISK LABELLER

A powerful program for AUTO-MATIC 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

Utilities

RAMDRIVE e/c

\$29.95. The best fast disk emulator for //e or //c. //e requires 64K or 128K extended 80-column card. Supports DOS 3.3 and Pascal 1.1. Copy utility, for ProDOS too, requires only 4 disk swaps, 60% less than COPYA, 78% less than ProDOS!! DOS speed-up, menu-driven documentation, not protected!! (CP/M version available.)

PRECISION SOFTWARE 6514 N. Fresno Street Milwaukee, WI 53224 (414) 353-1666

MINUTE MANUALS

PFS:FILE/REPORT/GRAPH/ WRITE APPLE WRITER (SPECIFY II + OR \$ 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

NEW PUBLICATIONS

Bulletin Board Directory

The National CBBS Directory (\$2) contains over 1000 computer bulletin board telephone numbers in numeric sequence, identifying the BBS type, its baud rate, operating hours, and other pertinent facts. For further information, contact Thomas Wnorowski, 3352 Chelsea Circle, Ann Arbor, MI 48104.

Dentists' Software Catalog

Over 30 applications packages for the dental profession are listed in a free catalog from CMA Micro Computer, 55722 Santa Fe Trail, Yucca Valley, CA 92284. These applications include billing and claim form preparation, appointment scheduling, patient recall, and general ledger. Also available are several specialized data base and word processing applications specifically designed for dentists.

Where's that Review?

The Computer Software/Hardware Index is a monthly loose-leaf index to software reviews, hardware reviews, book reviews, and printed programs. Reviews and programs are indexed from 35 computer publications. The index is priced at \$60 a year, and includes a binder, 12 monthly issues, and an annual cumulation. Contact the publisher, Robert M. Bottorff, P.O. Box 7991, Haledon, NJ 07538, for further information.

Educational Microcomputer Catalog

The 1984 Hammett Microcomputer Division catalog has 80 pages of hardware, peripherals, furniture, supplies, and more than 500 programs selected for their educational value. Contact the Microcomputer Division, J. L. Hammett Co., Box 545, Braintree, MA 02184, to obtain this free catalog.

Game Maps and Hints from Infocom

Players in need of help in the Infocom series of adventures (Zork, Planetfall, Deadline, etc.) can look to a series of Invisi-Clues hint books and game maps. They are available for \$7.95 for each game from Infocom, P.O. Box 855, Garden City, NY 11530.

TAPIT on TAP

TAPIT (The Apple Periodical Information Thesaurus) is a data base created by AV Systems, P.O. Box 49210, Los Angeles, CA 90049. You can find concepts and instructions in the published list of books. Retail price is \$39.95.

Want a Widget?

Widget World offers the nuts and bolts of the computer world to you—adapters, converters, data cables, switches, spoolers, tools, test sets, and much more. Write Micom Systems, Inc., 20151 Nordhoff Street, Chatsworth, CA 91311, to receive the free Widget World catalog.

Anecdote to Dullness

Directories don't have to be dull. Anecdotes liven up the PC Telemart/ VANLOVES Apple Directory with 3500 descriptions of Apple software programs. Applications range from agriculture to word processing, and the business category includes more than 700 programs. Contact PC Telemart, Inc., 11781 Lee Jackson Highway, Fairfax, VA 22033, for further information. The directory sells for \$24.95.

Let Your Fingers Use the Yellow Pages

The Complete Software Marketplace: 1984-1985 is a comprehensive, authoritative, and current guide that teaches personal computer users how to turn ideas into programs and how to sell these programs-either through software companies or directly to the public. This resource guide is available for \$17.95 from Warner Software/Warner Books, 666 Fifth Avenue, New York, NY 10103.

Problem Solver

A free 40-page catalog from Electronic Specialists presents products designed to eliminate problems most often blamed on software. Protective devices for smooth software performance include equipment isolators, AC power line filter/suppressors, AC line voltage regulators and modem protectors. Ask for catalog 831 from Electronic Specialists, Inc., 171 South Main Street, Natick, MA 01760.

Computer News for Educators

The charter issue of Computers in the Schools, a quarterly journal for the professional educator, covers the issues of educational computing in a friendly, literary style. It discusses issues and concerns, and reports research findings in nontechnical language. For further information, contact Computers in the Schools, The Haworth Press, Inc., 28 East 22nd Street, New York, NY 10010.

Computer News by Tape

Computer News Audio Digest (\$195), an edited and recorded twicemonthly digest of current computer news from key computer journals, can keep executives up to date on computer news while driving to work or opening their morning mail. For further information on this digest, contact Computer News Audio Digest, P.O. Box 10266, Stamford, CT 06904.

Let Your Computer Be Your Boss

Learn how to make money with your computer from Paul and Sarah Edwards, founders of the Association of Electronic Cottagers. Tape cassettes, start-up checklist, legal forms, money manager, computer search planner, and file finder are included in Paul & Sarah Edwards' Complete Start-up Kit for a Home Business with your Computer for \$69.95 from Cherry Valley Press, P.O. Box 836, Pasadena, CA 91030.

Magazine on Disk

Softyme, a monthly disk publication for Apple computers, features home productivity programs such as a checkbook balancer, utilities, and games. Outside submissions are welcome. Softyme is published by Viking Data Based Technologies, Inc. at 174 Bellevue Avenue, P.O. Box 299, Newport, RI 02840. A one-year subscription is \$48 for 12 issues.

LAMP Offers Light on Micros

LAMP (Literature Analysis of Microcomputer Publications) is a bimonthly journal that indexes 130 periodicals dealing with microcomputers in the areas of business, education, the arts, and the social and physical sciences. The Annual Cumulative Editor for 1983, printed in two volumes, is available for \$69.95 (\$39.95 for subscribers) from LAMP/Soft Images, Brochure Department, 200 Route 17, Mahwah, NJ 07430.

Good Software for Grades K-12

The 1984 Educational Software Preview Guide is a list of favorably reviewed software for K-12 classroom use. Available for \$5, this booklet helps locate software for a particular curriculum area, grade level or machine. and identifies undeveloped marketing areas for software developers. Contact The International Council for Computers in Education (ICCE), University of Oregon, 1787 Agate Street, Eugene, OR 97403, for further information.

Freeware

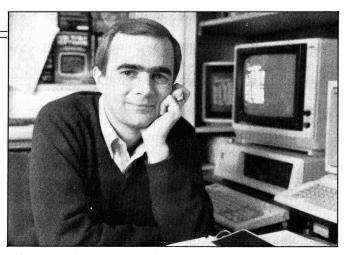
How to Get Free Software (\$14.95) by Alfred Glossbrenner offers a range of free or low-cost programs from word processing, spreadsheets, communications, database management and filing programs, to free music, graphics, education, and game programs of every description. User groups, bulletin boards, and software librarians and other sources are all listed here. For further information, contact St. Martin's Press, Inc., 175 Fifth Avenue, New York, NY 10010.

Doctor, Lawyer, Indian Chief?

Select the ideal computer system for your needs using the HJB Selection Series for your particular profession. These comprehensive. 300-page source books (\$49.95 each) can guide architects, auto dealers and repairmen, bookstore managers, church administrators, CPAs and accountants, contractors and builders. lawyers, hotel and motel owners, and so forth. Computer capabilities, system functions, and features are thoroughly covered. For further information about these step-by-step plan guides, contact Harcourt Brace Jovanovich, 1250 Sixth Avenue, San Diego, CA 92101.

VisiCalc on VideoTape

The VisiCalc Training VideoTape teaches VisiCalc use and applications in a 90-minute tape for \$195. For further information, contact Legalvision, 156 Bank Street, 2A, New York, NY 10014.



Alfred Glossbrenner, author of How to Get Free Software.

Update Your On-line Collection

Hayden Book Company announces The Microcomputer User's Guide to Information Online, an up-to-date collection of more than 100 on-line data bases for home use, business, news, education, and document delivery. This reference covers start-up, data-base costs, and vendor publications. Also included is a complete examination of how to perform a search and download data programs, as well as step-by-step instructions for sending mail, talking to others, programming, and forming special-interest groups. This handy guide is available for \$18.95 from Hayden Book Company, 10 Mulholland Drive, Hasbrouck Heights, NJ 07604.

SuperCalc Primer

In 218 pages, Super-Calc Primer (\$16.95) teaches novice users how to harness SuperCalc's power in "what-if" problems, making investment predictions and doing financial modeling. For further information, contact Howard W. Sams & Co., Inc., 4300 West 62nd Street, Indianapolis, IN 46268.

Avon's Data Sources

The Computer Data and Database Source Book is a complete encyclopedia of commercial and public sources of information on any computer. This reference tool (\$9.95) contains thousands of listings from commercial data bases to the names, addresses, and telephone numbers of data sources. For further information, contact Avon Books, 1790 Broadway, New York, NY 10019.

Industry Surveyor

Associated Technology has completed an industry survey, Software Locator Survey, that identifies over fifty major services, cites over 350,000 software packages, and represents over 9000 software companies. Survey results are available for \$18.50 from ATC Software, Route 2, Box 448, Estill Springs, TN 37330.

Computer Investors Journal

In-depth articles and reviews of investment software and books as well as member software discounts are available in the AAMI (American Association of Microcomputer Investors, Inc.) Journal. For a sample issue, send \$3.00 to the AAMI, P.O. Box 1384, Princeton, NJ 08542.

San

NEW PRODUCTS

Keyboard Overlay of Basic Commands

Keyfax puts often-used commands at your fingertips. The two-sided template fits around the Apple //e keyboard and lies flat on the computer. Overlays cost \$12.95 each and include commands for Applesoft, Applewriter //e, DOS 3.3, ProDOS, Multiplan, and VisiCalc. Kevfax is from Howard W. Sams & Company, 4300 West 62nd Street, Indianapolis, IN 46268. Reader Service number is 455.

Trivial Controllers

PQ-The Party Quiz Game adds hand-held controllers to trivia questions. Four controllers connect to any Apple II by 6-foot cords and are used to answer questions and select game options. For \$74.95 you get four controllers, interface, all cables, and the 2700question General Edition of the game. Other editions are available. Contact Suncom, 260 Holbrook Drive, Wheeling, IL 60090. Reader Service number is 458.

Searching for Software?

.Menu maintains a data base of over 50,000 software titles for all computers. Its **SoftReport** custom search lists programs that meet your criteria and costs \$25 for the first ten listings, \$1 each up to 50 listings, and 25 cents after that. Information is from .Menu, 1520 South College Avenue, Fort Collins, CO 80524. Call 1-800-THE-MENU or mark Reader Service number 468.

Home-Intelligence System

HomeBrain homemanagement system combines security with automation. Your Apple programs Brain's processor through an RS-232 interface. Then the Brain takes over, freeing your Apple for other work. Brain monitors temperature, moisture, or security, and controls thermostats, sprinklers, and alarms. The central unit costs \$1499, or \$2149 with sensors. Contact Hypertek, P.O. Box 137, Whitehouse, NJ 08888 or circle 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 an endorsement by inCider of any given product.

Quick commands from Keyfax.

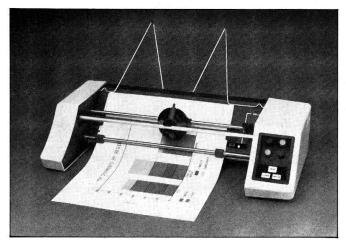


Unique Suncom trivia game controllers.



HomeBrain fully automates your home.

edited by Kerry J. Lanz



Houston Instrument's low-cost PC Plotter.

Plotting Costs Less

The **PC Plotter**'s fourpen design for business, school, or home produces multi-color graphics on paper or transparencies. Model 595 (\$595) uses 8½-by-11-inch paper; model 695 (\$695) works on paper up to 11 by 17 inches. Hook your Apple to the PC Plotter through an RS-232C interface and start plotting better graphs. Contact Houston Instrument, P.O. Box 1572O, Austin, TX 78761. Reader Service number is 452.

Share and Share Alike

Connect two peripherals to one computer with **MacSwitch**, priced at \$99. You can also connect two computers to the same peripheral. Be sure to specify parallel Centronics style or serial RS-232. For full information, write Computer Friends, 6415 SW Canyon Court, Portland, OR 97225. Or you could check off number 469 on the Reader Service card.

Get RID of Head Pains

Give your disk-drive head a thorough exam with **RID**, Recording Interchange Diagnostic, for \$34.95. The RID disk gives your drive seven tests, including speed, noise, alignment, write/read, and hysteresis. The disk works on any Apple II and comes from Dymek, 1851 Zanker Road, San Jose, CA 95112. Use Reader Service number 463.

Color-Coded Memories

Keep your blue moods away from your red-letter days with Rainbow Memories. Each sturdy plastic box of ten 5¹/₄-inch colored disks contains two each of silver, red, blue, yellow, and green. You can get single-sided (\$34.95) or double-sided (\$39.95) disks. This information is from Rainbow Memories, 710 Wooten Road, Colorado Springs, CO 80915. Reader Service number is 462.

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

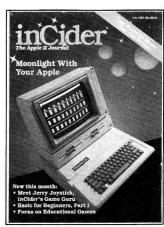
To place your order, call our Direct Sales Department today, at

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.

Jewels of Protection

Four new surge protectors for your home computer system, some with interference filtering, are **Diamond**, **Ruby**, **Emerald**, and **Sapphire**. They are priced from \$49.95 to \$89.95 by Curtis Manufacturing, 305 Union Street, Peterborough, NH 03458. Reader Service number is 456.

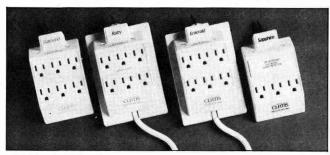
Alphapro Daisy Printer

Reliability and low cost combine in Alphacom's first daisy-wheel printer. **Alphapro** (\$399) prints at 18 cps and offers proportional spacing, double strike, superscripts and subscripts, and reverse line-feed. Interface cable (\$49.95) connects Alpha-

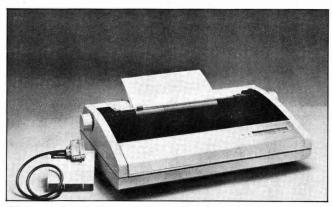
pro to your Apple through parallel or serial ports. For more information write Alphacom, 2323 South Bascom Avenue, Campbell, CA 95008, or mark number 450 on the Reader Service card.

Next Series of Grappler

Drive Apple's Imagewriter printer or any serial printer with the Serial Grappler (\$119) for Apple II, II Plus, and //e. This interface card includes firmware commands to dump text or graphics screens, even double hi-res. It can accept a Bufferpak for up to 64K printer memory. For more information contact Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807, or mark number 465 on the Reader Service card.



Four new surge protectors from Curtis.



Alphapro daisy-wheel printer from Alphacom.

Circle 232 on Reader Service card.

Its' the Season for Super Specials from C & S

Beagle Brothers Datamost Nikrom Penquin Sierra On-Line Spinnaker S.S.I. Xerox

bthers Broderbund Software Datasoft Inc.
The Learning Co.
Muse
Line Phoenix
Sensible
Sir-tech

30% OFF retail

order early and SAVE!!!

P.O. Box 366 Sycamore, Illinois 60178 (815) 895-9155

Please send information on the following:

- —Apple □□, □□+, //e, //c
- —Apple MacIntosh
- —Commodore 64
- —IBM PC
- -ATARI 400/800

Address _____ State ____Zip____

Circle 326 on Reader Service card.

Before this happens, call SAFEWARE

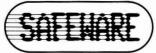
800/848-3469

(In Obio, 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.

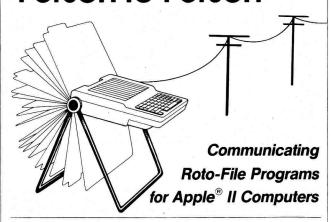
We're SAFEWARE,^{5M} the first name in computer insurance. Tens of thousands of satisfied customers. Call toll-free for rates or immediate coverage.

SAFEWARE, The Insurance Agency Inc. P. O. Box 02211 2929 N. High Street Columbus, Ohio 43202





Person-To-Person™



- Phone Dialer
- Addresses
- Memos
- Mailing Lists
- Smart Terminal

Version 1.2 48 or 64K

DOS 3.3

\$69.95

Text Menus

Version 2.0

Mouse & Mac

128K

ProDOS

Desktop

\$99.95

Person-To-Person™ from



1700 Solano Avenue, Berkeley, California 94707, (415) 525-4901 PTP works with all popular Modems and Printers.

Apple® is a registered trademark of Apple Computer.

TENT

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

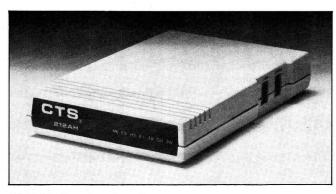
Please	delete	my	name	from	mailing	lists
sent to	other	com	panies	or org	ganization	ns.

name address _____

_____ state ____ zip _

inCider

JEW **P**RODUCTS



CTS 212AH modem from Datacomm.

Intelligent **Professional Modem**

The CTS-212AH modem offers full features at 300 and 1200 baud. Connected to your Apple by RS-232 interface, it is fully Hayes-compatible. For \$445, you get full duplex, auto dial/auto answer, and pulse or tone dialing. For details, contact CTS Corporation, Datacomm Division, 131 West Street, Danbury, CT 06810. Use Reader Service card number 459.

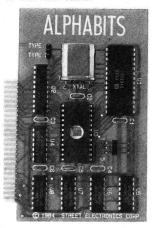
New from the Street

Extracard provides 80-columns and 64K memory for an Apple //e. Priced at \$189.95, it is bundled with software that adds hi-res commands to BASIC. Alpha-Bits serial interface card (\$119.95) lets your Apple II, II Plus, or //e imitate the serial port of the //c and control peripherals designed for the //c. It comes with GraphicBits, a powerful graphics program. Write: Street Electronics, 1140 Mark Avenue, Carpinteria, CA 93013. Reader Service number is 467.

Epson Interface for Apple //c

Your serial Apple //c can now drive the parallel Epson RX and FX printers with a cPrint Interface. For \$59.95, you get

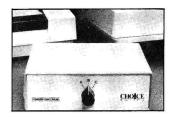
interface, cables, and plugs for both the Apple and Epson. This product comes from Dresselhaus Computer Products, 837 East Alosta Avenue, Glendora, CA 91740. Mark number 460 on the Reader Service card.



Connect II or //e peripherals to your //c with AlphaBits.

Disk Drive Care Kit

Omnium's Head **Cleaning Kit** features software that controls the disk drive during cleaning. The program positions the head on an unused track of the cleaning disk and reminds you when to use a new disk. For \$49.95 you get software, cleaning disks, and cleaning spray. Software is sold separately for \$29.95. This information is from Omnium, 201 North Second Street. Stillwater, MN 55082. Use number 451 on the Reader Service card.



Share data among several peripherals with Choice.

Peripheral Switcher

Eliminate the bother of constantly changing plugs among printers, modems, and computers with Choice switches. Six models, beginning at \$99, connect your computer to two or three other devices or connect one device to two or three computers. For full information on all the Choices, write: Computer Datacom, 1821 McGaw Avenue, Irvine, CA 92714. Circle Reader Service number 457.

Power Line Monitor

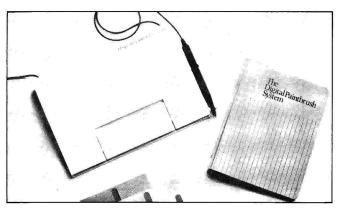
Power Monitor keeps a 24-hour watch on your electric power. The monitor (\$99.95) is a plug-in device that gives an accurate and constant reading of your power supply, important for safe use of your computer system. There is a built-in alarm to warn of power surge or loss. Write Ultima Electronics, 21 Central Drive, Farmingdale, NY 11735, or circle Reader Service number 461.

Modem Bundled with Software

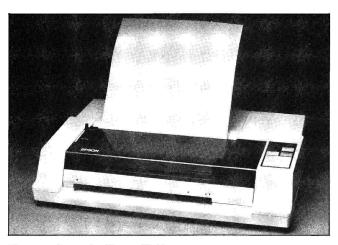
InfoPhone modem plugs directly into any AC outlet, clearing your desk of clutter. It features 300/1200 baud, full duplex, auto-dial and answer, voice/data switching, and pulse or touch tone. It links with your Apple through an RS-232 interface. The price of \$575 includes full software and free offers from The Source, Dow Jones, MCI Mail, and others. This is from Transend, 2190 Paragon Drive, San Jose, CA 95131. Mark Reader Service number 453.

Complete **Graphics System**

The Digital Paint**brush** is a pen-style input device for creating highquality graphics. Software helps you draw and edit screens, or draw on someone else's screen through a modem. The system costs \$299 and works on any Apple II. Flying Colors (\$39.95) is an easy-tolearn drawing and "slide projector" program. Flying Colors With Printout (\$69.95) adds a comprehensive screen dump. Contact: Computer Colorworks, 3030 Bridgeway, Sausalito, CA 94965. Use Reader Service number 466.



Digital Paintbrush for graphics, printers, and modems.



The new four-color Epson Plotter.

Epson Enters the Plot

With 42 intelligent commands to reduce programming time, the fourcolor Epson Plotter (\$599) holds four out of ten available colored

pens. A dot-matrix emulator allows it to print text within graphics. It comes with a parallel interface, but can operate with an Epson serial card. Contact Epson America, 3415 Kashiwa Street, Torrance, CA 90505. Reader Service number is 464.

1(800) 621-6221

Central & East"Call 1(800) 654-4058

Disc	ounts Starting	at 3 Box Quan	tities
3M	2 Dysan		Verbatim •5 ¹ / ₄ Datalife
• 54 • s-side 17 95 d-den.	• 54 • s-side 22 95 d-den. 22 95	3½ CALL • 5¼.	s-side 18 ⁹⁵ d-den.
d-side 23 ⁹⁵ d-den. 23 ⁵	d-side 3050	s-side 19 ⁹⁵	d-side 24 95 d-den.
s-side quad d-side quad 3395	dilad	u-uen.	s-side 30 95 quad d-side 20 95
• 8"•	• 8"•	u-side	• 8" Datalife
s-side 21 50 s-den. 26 00 d-den. 26	s-den. 40 s-side 20	• 8"•	s-side 24 ⁷⁵ s-den. 26 ⁹⁵ d-den. 26
d-den. 20 d-side 31 ⁵⁰ d-den. 31	d-den. 34 95 d-den. 34 95	s-side 31 95 d-den. 34 95 d-den. 34 95	d-den. 20 d-side 31 d-den. 31
3M DC100A139	AMARAY	MEDIA MATE (514"1195)	Head Cleaners
DC300A1849 DC300XL 2025	DISK M (51/4"1675)	INDERS (8"2150)	Refills520 Analizers 2500
Diskettes 10/Box th	BULK PACKED		Dealer Inquiries Welcomed

1(800) 654~4058

UP's Delivery Only, Add 3º on orders under 35º or 20 disk

inCider The Apple II Journal

Index to Advertisers

Re	ader Service	Page	Reader Service	Page	Reade	r Service Page
				(*)		
	Addmaster		38 Friendly Computer		416	Orange Micro 53
22	Advanced Logic Systems		Center		31	Pacific Exchanges 160
*			146 Golem Computers	148	*	PC Network Insert
	Appleware	. 135	66 H & E Computronics	CIII	49	Prof. Jones 44
*	Applied	1 ·	109 Haba Systems	29	308	Professional Software 1
-	Engineering 105, 113	,119	127 Hardcore COMPUTIST	74	521	Programs Plus 157
273	Apricorn	36	291 Hayden Book Co	97	268	Prometheus Products63
	Apropos Technology		* Hayes Products	3	274	Protecto
	Artic Technologies		229 High Order Micro			Enterprises 102, 103
	Bach Company		Electronics	158		Psychological
159	Baudville 109,	, 124	* Human Systems			PSoftware 116
4	Beagle Bros		Dynamics			Quinsept 176
*	Beck Manufacturing		33 Inmac	158	16	Quinsept 164
35	Bible Research Systems		57 International Apple			Quorum 165
*	Bottom Line		Core	77		Rune Software 132
4	Broderbund	2	* inCider			S&A Adaptations141
*	Business Computers		Back issues			Safeware
	of Peterborough		Christmas ad			Sav-Soft Products 164
	Bytes & Pieces		Dealer ad			Sega Enterprises 18, 19
	Bytes & Pieces		Foreign Dealers			Seiko
	C&S Software		Mailing Lists			Sensible Software123
	Cal-Abco	111	Subscription ad	32		Sensible Software123
172	Caribbean Computer	2.2	Subscription			Silicon Express 140
001	Sales		Problems			Sir-Tech
127	Central Point Software		University Microfilm .			Software Masters 133
289	CHF Company		390 Indus Systems			Softyme
10	Classified Ads		103 Intec	95		Southern California
	Computer Friends		335 Juki Industries	00		Research Group 153
	Conroy-LaPointe		of America			Spectrum Computer 81
	Core Concepts		62 Kalglo Electronics			Stellation Two 160
983	Creative Software		216 Kemcore			Sublogic20
	CVC-On-Line		86 Kensington Microware.			Sublogic
	Datasoft		314 Koala Technologies			Sun Research
- 100 TO 1980	Datasoft		641 Koala Technologies			Sweet Micro Systems 92
	Davka Corporation		231 Kraft Systems Company70 Memory Plus	y 20		Tencal
	Demco Electronics		Distributors	167		Texprint
	Dennison Computer		208 Micro City			Software83
	Diskette Connections		206 Micro Prose Software			Thirdwave Technology82
	Diversified Software		204 Micro Works			Thunderware
100 CONTRACTOR	Eastcoast Software	000 EV 100	371 Micro Sci			Trutec Software 174
	Elek-Tek		55 Microsoft			Utilico Microware
	Energy Management		37 Mindscape			V.F. Associates 132
	Concepts		38 Mindscape			W. Allan Associates 165
318	Fastrack Computer		39 Mindscape			Xerox Education
	Products		880 Nibble Notch			Publications27
161	Fiberbilt		39 Nocturnal Software			Zoom Telephonics 22
	First Class		310 Northeastern Software.			
	Peripherals In		95 Nucleus Software			
* 5				2		
ı						

For further information from our advertisers, please use the Reader Service card.

*This advertiser prefers to be contacted directly.

 $Advertising \, Sales: (603) \, 924\text{-}7138, (800) \, 441\text{-}4403$

Paul Boule, Sales Manager; Barbara Alvarez

Reader Service

This card valid until January 31, 1985

Please help us to bring you a better ering these questions.

. What is your occupation?	G. Do you ever move your Apple from	K. On a scale of 1 (no interest) to 5
☐ 1. Programmer ☐ 2. Technical	one location to another? Check all that apply.	interest), please rate your interes the following inCider columns:
3. Sales	1. Yes, transfer between home and	1. Fermentations
4. Medical/Health	office	2. The Game Reserve
5. Government 6. Education/student	 2. Yes, transfer between home and school 	3. The Glau Report 4. O'Brien's Journal
7. Business	3. Yes, transfer from room to room	5. The Learning Machine
8. Consultant	 4. No, it pretty much stays put 	6. Child's Play
9. Other	H. Which of the following peripherals do	7. The Appleaoft Adviser 8. The Cider Press
o what extent, approximately, do you	you own?	9. Fudge It! 10. Ask inCider
use your Apple for business-related	2. Modern	11. The Apple Clinic
pplications?	3. Plotter	12. Apple Extract
☐ 1. Not at all ☐ 2. Up to 33%	☐ 4. Joystick	L If you are not a subscriber please
3.33%-66% of use	☐ 5. Graphics Tablet ☐ 6. Monitor	circle 500.
4. Almost exclusively	7. 6800 Board	
	8. Disk Drive(s)	
o what extent do you use your Apple or home applications, including	9. Other	
ames and home education?	I. Which of the following peripherals do	
1. Not at all	you plan to purchase during the next	
2. Up to 33% of use	12 months?	
3. 33%-66% of use 4. Almost exclusively	1. Printer	
	3. Plotter	
hich of the following micro-	4. Joystick	
mputers do you own or use? 1. Apple II or II +	5. Graphics Tablet 6. Monitor	
Apple II or II + Apple IIe	☐ 5. Monitor ☐ 7. 6800 Board	
3. Apple IIc	3. Disk Drive(s)	
4. Apple III	☐ 9. Other	
5. Macintosh 6. Apple compatible		
7. Other	J. Which of the following magazines do	
8. Don't own or use one	you read regularly?	
	1. inCider	
you are an educator, do you use an pple in the classroom?	2. A+	
1. Yes	4. Nibble	
2. No	5. Call A.P.P.L.E.	
3. Not an educator	6. Peelings II	
Where is your Apple located? Check		
Ill that apply.		
1. Home 2. Office		
3. School		
4. Other		
		•
	C	•
Read	er Ser	
Read	er Ser	vice
Read	er Sei	vice
Reac This card valid ur	er Ser	vice
	ntil January 31, 1985	vice
Please help us to b	ntil January 31, 1985 pring you a better	5
Please help us to b	ntil January 31, 1985	5
Please help us to b nagazine—by ans	ntil January 31, 1985 pring you a better wering these question	ns.
Please help us to be nagazine—by answert	ntil January 31, 1985 pring you a better wering these question	NS. K. On a scale of 1 (no interest) to 5 interest), please rate your interest.
Please help us to be nagazine—by anso	ntil January 31, 1985 pring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply.	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider columns:
Please help us to be nagazine—by ansi What is your occupation? 1. Programmer 2. Technical 3. Sales	ntil January 31, 1985 pring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and	N. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider columns:
Please help us to be nagazine—by anso	ortil January 31, 1985 oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider country:
Please help us to be nagazine—by ansi What is your occupation? 1. Programmer 2. Technical 3. Sales 4. Medical/Health 5. Government	ntil January 31, 1985 oring you a better wering these question G. Do you ever more your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider columns: — 1. Fermantations — 2. The Game Reserve — 3. The Glav Report — 4. O'Erren's Journal
Please help us to be nagazine—by ansi What is your occupation? 1. Programmer 2. Technical 3. Sales 4. Medical/Health 5. Government 6. Education/student 7. Business	ntil January 31, 1985 oring you a better wering these question G. Do you ever more your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and school 3. Yes, transfer from room to room	K. On a scale of 1 (no interest) to 5 interest), please rate your interest he following inclider columns: —1. Fermentations —2. The Game Reserve —3. The Glau Report —4. O'Brien's Journal —5. The Learning Machine
Please help us to be nagazine — by ansome the second of th	ortil January 31, 1985 oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and school	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider columns: 1. Fermantations 2. The Game Reserve 3. The Game Reserve 4. O'Shrein Journal 5. The Learning Machine 6. Child's Play
lease help us to b nagazine—by ans What is your occupation? 1. Programmer 2. Technical 3. Sales 4. Medical/health 5. Government 6. Educations/udent 7. Business 8. Consultant	ntil January 31, 1985 oring you a better wering these question G. Do you ever more your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and school 3. Yes, transfer from room to room	N. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following incider columns: 1. Farmaniations 2. The Game Reserve 3. The Glaus Report 4. O'Brien's Journal 5. The Learning Machine 6. Child's Play 7. The Applesoft Adviser
lease help us to be lagazine—by ansi	oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. nea: ransfer between home and orfice 2. Yes, transfer between home and school 3. Yes, transfer from room to room 4. No, it pretty much slays put H. Which of the following peripherals do	N. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following inclider columns: — 1. Fermentations — 2. The Game Reserve — 3. The Glaup Report — 4. O'Brien's Journal — 5. The Learning Machine — 6. Child's Play — 1. The Applesoft Adviser — 8. The Cider Press — 9. Fugge 11
lease help us to be nagazine—by ansolution by ansolution b	oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and school 3. Yes, transfer from room to room 4. No, it pretty much slays put H. Which of the following peripherals do you own?	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following inCider columns: 1. Fermentations 2. The Game Reserve 3. The Game Reserve 4. O'Breins' Journal 5. The Learning Machine 6. Child's Play 7. The Appleaoft Adviser 8. The Cider Press 9. Fudge It! 10. Ask inCider
Please help us to be agazine — by ansi What is your occupation? 1. Programmer 2. Technical 3. Sales 4. Medical/health 6. Education/student 7. Business 8. Consultant 9. Other To what extent, approximately, do you use your Apple for business-related applications?	ortil January 31, 1985 oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and school 2. Yes, transfer between home and school 4. No, it pretty much stays put H. Which of the following peripherals do you own? 1. Printer	N. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following inclider columns: 1. Farmaniations 2. The Game Reserve 3. The Glaus Report 4. O'Brien's Journal 5. The Learning Machine 6. Child's Play 7. The Applesoft Adviser 8. The Cider Press 9. Fugge It! 10. Ask inCider 11. The Apples Clinic
Please help us to be nagazine—by ansi 1. Programmer 2. Technical 3. Sales 4. Medical/Health 5. Government 6. Education/student 7. Business 8. Consultant 9. Other To what extent, approximately, do you use your Apple for business-related applications? 1. Not at all	ntil January 31, 1985 pring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and office 2. Yes, transfer between home and school 3. Yes, transfer from room to room 4. No, it pretty much slays put H. Whith of the following peripherals do you own? 1. Printer 2. Modem	K. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following inCider columns: 1. Fermentations 2. The Game Reserve 3. The Game Reserve 4. O'Breins' Journal 5. The Learning Machine 6. Child's Play 7. The Appleaoft Adviser 8. The Cider Press 9. Fudge It! 10. Ask inCider
Please help us to be magazine—by ansi what is your occupation? 1. Programmer 2. Technical 3. Sales 4. Medical/Health 5. Government 6. Education/student 7. Business 9. Other To what extent, approximately, do you use your Apple for business-related applications?	ortil January 31, 1985 oring you a better wering these question G. Do you ever move your Apple from one location to another? Check all that apply. 1. Yes, transfer between home and school 2. Yes, transfer between home and school 4. No, it pretty much stays put H. Which of the following peripherals do you own? 1. Printer	N. On a scale of 1 (no interest) to 5 (interest), please rate your interest the following inclider columns: 1. Farmaniations 2. The Game Reserve 3. The Glaus Report 4. O'Brien's Journal 5. The Learning Machine 6. Child's Play 7. The Applesoft Adviser 8. The Cider Press 9. Fugge It! 10. Ask inCider 11. The Apples Clinic

C. To what extent do you use your Apple for home applications, including games and home education?

1. Not at all

2. Up to 33% of use

3. 33%-66% of use

4. Almost exclusively

D. Which of the following microcomputers do you own or use?

1. Apple II or II +

2. Apple IIc

4. Apple III

5. Macintosh

6. Apple compatible

7. Other

8. Don't own or use one

E. If you are an educator, do you use an Apple in the classroom?

1. Yes
2. No
3. Not an educator

F. Where is your Apple located? Check all that apply.

1. Home
2. Office
3. School
4. Other

January 31, 1985	
g you a better	
ring these question	IS.
G. Do you ever move your Apple from one location to another? Check all that apply. 1. 1'es, transfer between home and office 2. 1'es, transfer between home and school 3. 1'es, transfer from room to room 4. No, it pretty much stays put	K. On a scale of 1 fino interest to 5 (great interest), please rate your interest in the following inCider columns: 1. Permentations 2. The Game Reserve 3. The Game Reserve 4. O'Bren's Journal 5. The Learning Machine 6. Child's Play 7. The Appleadol Adviser 8. The Gider Pleas
H. Which of the following peripherals do you own? 1. Printer 2. Modem 3. Plotter	9. Fudge It! 10. Ask inCider 11. The Apple Clinic 12. Apple Extract
4. Joystick 5. Graphics Tablet 6. Monitor 7. 6800 Board 8. Disk Drive(s) 9. Other	If you are not a subscriber please circle 500.
I. Which of the following peripherals do you plan to purchase during the next 12 months? 1. Printer 2. Modern 3. Piotter 4. Joyatick 5. Graphics Tablet 6. Monitor 7. 6800 Board 8. Districts 9. Other	,
J. Which of the following magazines do you read regularly? 1. inCider 2. A.+ 3. Softalk 4. Nibble 5. Call A P.P.L.E. 6. Peelings II	

	1	6	11	16
•	2	7	12	17
	3	8	13	18
	4	9	14	19
K. On a scale of 1 (no interest) to 5 (great interest), please rate your interest in	5	10	15	20
the following inCider columns:	_		1.5	2.0
1. Fermentations	26	31	36	41
2. The Game Reserve	200	32	37	42
3. The Glau Report	27			
4. O'Brien's Journal	28	33	38	43
5. The Learning Machine	29	34	39	44
6. Child's Play 7. The Applesoft Adviser	30	35	40	45
8. The Cider Press	_	-	-	_
9. Fudge It!	51	56	61	66
10. Ask inCider	52	57	62	67
11. The Apple Clinic	53	58	63	68
12. Apple Extract	54	59	64	69
L. If you are not a subscriber please		-		70
circle 500.	55	60	65	70
	76	81	86	91
	77	82	87	92
	78	83	88	93
	79	84	89	94
	80	85	90	95
	101	106	111	116
	102		112	117
	103		113	118
	103	109	114	119
	2115	933		
	105	110	115	120
	126	131	136	141
	127	132	137	142
	128	133	138	143
	129	134	139	144
	130	135	140	145

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.

Cit											_s	tat	e_			Z	ip.			
Ad	dre	988	3						1											
Na	me																			
			140				285							445		100000			595	
	128	133	138	143	148	278	283	288	293	298	428	433	438	444	448	578	583	588	593 594	598
			136			75.00	281 282	-						441			-		591 592	
	110	933	115	0.00			260							420					570	
			113				258 259							418					568 569	
			111				256 257	-						416					566 567	
	79 80	84 85	89 90	94 95	100		234 235							394 395		55.50			544 545	
	78	83	88	93	98	228	233	238	243	248	378	383	388	393	398	528	533	538	543	548
	76 77	81 82	86 87	91 92	96 97		231 232							391 392					541 542	
	54 55	59 60	65	69 70	75		210							370		0.000			520	
	53	58	63	68	73 74	203	208	213	218	223				368 369					518 519	
	51	56 57	61 62	66 67	71 72		206							366 367		22 177 447			516 517	
	29 30	34 35	40	45	50		184 185							345					495	
	28	33	38 39	43	48 49		183							343					493 494	
	26 27	31 32	36 37	41	46 47		181							341					491	
eat 1	5	10	15	20	25	155	160	165	170	175	305	310	315	320	325	455	460	465	470	475
	3	8	13	18	23 24		158							318					468 469	
	2	7	12	17	22	152	157	162	167	172				317		100000			467	
	1	6	11	16	21	151	156	161	166	171	301	306	311	316	321	451	456	461	466	471

inCider • December 1984

ader 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.

					i.				1										
1	6	11	16	21	151	156	161	166	171	301	306	311	316	321			461		
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			486		
27	32	37	42	47	177	182	187	192	197			337				-	487		
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			339					489		
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			511		
52	57	62	67	72	202	207	212	217	222	352	357	362	367	372			512		
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				241				386					536		
77	82	87	92	97	227	232	237	242	247			387			(2000)	100	537		
78	83	88	93	98				243				388					538		
79	84	89	94	99		-		244	A-140			389					539		
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				266		100000		411					561		
	107							267				412					562		
103	108	113	118	123				268				413					563		
104	109	114	119	124				269				414			500.000		564		
105	110	115	120	125	255	260	265	270	275	405	410	415	420	425	555	560	565	570	575
	131							291				436					586		
	132				-			292	700			437					587		
	133							293				438			(A) A) A		588		
	134							294				439					589		
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	

inCider • December 1984

PLACE STAMP HERE

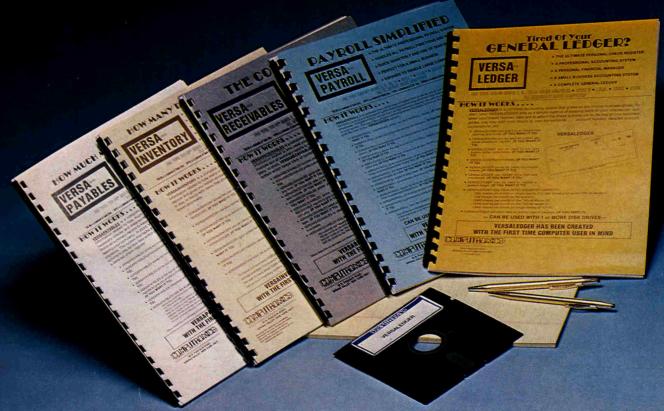
inCider P.O. Box 336 Dalton, MA 01227

> 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**

PRACTICALLES

TESARECEIVABLES

a complete menu-driven accounts receivable, invoicing, and onthly statement-generating system. It keeps track of all information related to who wes you or your company money, and can provide automatic billing for past due accounts. VERSARECEIVABLES

prints all necessary statements, invoices, and summary ports and can be linked with VERSALEDGER II

and VERSALNVENTORY

".

VERSAPAYABLES"

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** is a powerful and sophisticated, but easy to use payroll system that seeps track of all government-required payroll information. Complete employee records are maintained, and all necessary payroll calculations are performed entomatically, with otals displayed on screen for operator approval. A payroll can be ru, totally, automatically, or the operator can intervene to prevent a check from being printed, or to alternormation on it. If desired, totals may be posted to the VERSALEDGER IT* system.

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 tems 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 novices directly or to link with the VERSARECEVABLES* 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.

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

Versaledger II*

VERSALEDGER II™

S149.95

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 VERSA BUSINESS" 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.

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

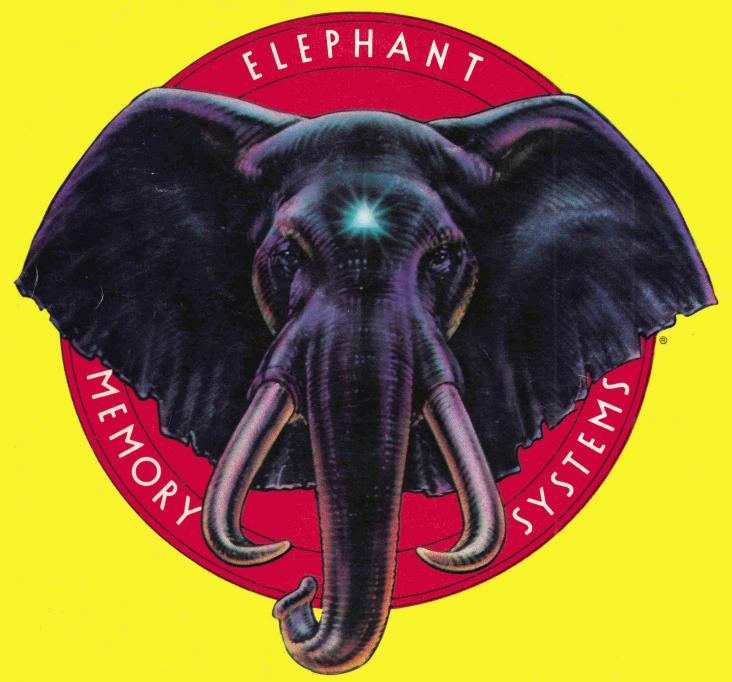


DEALER INQUIRIES WELCOME

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

* 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. Circle 66 on Reader Service card. *CP/M is a trademark of Digital Research - *XEROX is a trademark of Xerox Corp.

APPLES AND ELEPHANTS.



Nothing goes with the new Apple IIc® like Elephant Floppy Disks. And because Elephant never forgets, they'll go with them for a long, long time. In fact, they're 100% guaranteed to maintain their high quality for a lifetime of heavy use. Apples and Elephants. You could almost say that they were made for each other. For the Elephant dealer nearest you, call 1-800-343-8413. In Massachusetts, call collect [617] 769-8150.



ELEPHANT NEVER FORGETS.