

Flight Simulator II Apple 11 Apple 11 X Apple 11 C



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

See your dealer . . . or write or call for more information. For direct orders enclose \$49.95 plus \$2.00

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

Order Line: 800 / 637-4983

Corporation 713 Edgebrook Drive Champaign IL 61820 (217) 359-8482 Telex: 206995 Buy an Accelerator IIe, get Pinpoint free!

That's right! For a limited time when you buy the Accelerator IIe<sup>™</sup> (now available at a new low price!) you'll get Pinpoint<sup>™</sup>\*—a \$69 value—absolutely free!

The Accelerator gives
AppleWorks™ a high performance
engine, boosting your processing
speed up to 3½ times. Pinpoint
gives AppleWorks the works with
eight high performance desktop
accessories. They're the high
performance team that puts your
machine ahead of the pack.

The Titan Accelerator IIe has been the industry standard in acceleration since 1982. When you drop an Accelerator IIe under the hood of your Apple®, you get a high speed 3.6 MHz 65C02 engine. That replaces Apple's modest 1 MHz 6502, giving you a speed increase of up to 3½ times.

But it takes more than a fast engine to drive in the fast lane. It takes fast memory too. The Accelerator's got it—80K of high speed RAM. On board memory ensures that *all* programs will run fast, contrasting dramatically

with the hit-or-miss

approach employed by the competition's memory caching scheme.

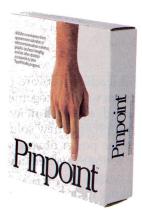
And the Accelerator IIe boosts your performance without the compatibility problems that plague memory caching accelerator imitations. The Accelerator is compatible with virtually all your Apple software. It's also right at home with the optional equipment in your machine including the Apple IIe Memory Expansion Card, RamWorks II™, ProFile™, modems, clock cards, and more.

Now, add Pinpoint for power accessories to complement the Accelerator's high performance. Pinpoint gives you these eight accessories to enhance Apple-Works and other selected Pro-DOS applications: notepad, envelope addresser, appointment calendar, GraphMerge, telephone dialer, communications window, calculator, and typewriter.

The Accelerator IIe and Pinpoint. They're the high performance team that puts your machine ahead of the pack. So go ahead, break the speed limit.

Call (313) 662-8542 for the Accelerator IIe-Pinpoint showroom near you.

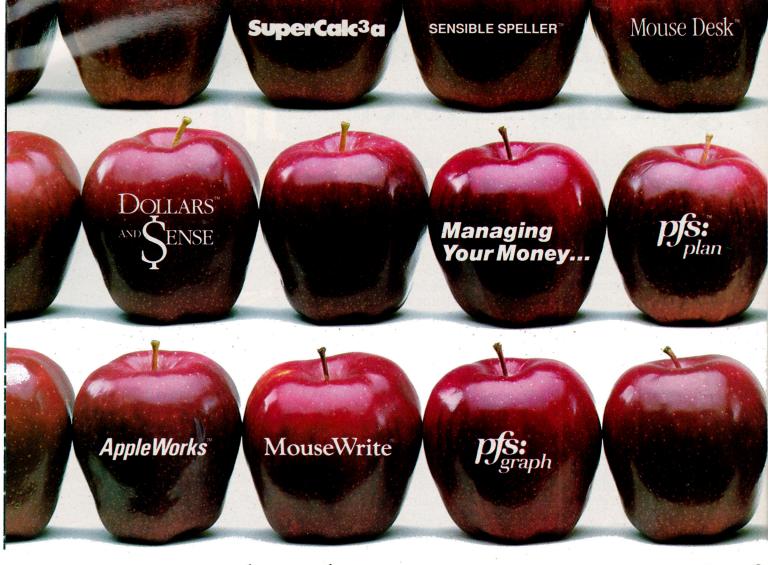
\*Pinpoint requires an Enhanced Apple IIe (or Apple IIe with Pinpoint upgrade) with 128K or Apple IIc



Registered Accelerator IIe owners: Purchase Pinpoint at a special low price. Call (800) 227-6703 or (800) 632-7979 (CA).

Apple is a registered trademark—Apple Computer, Inc. ProFile and AppleWorks are trademarks—Apple Computer, Inc. Accelerator IIe is a trademark of Titan Technologies, Inc. Titan is a registered trademark of Titan Technologies, Inc. RamWorks is a trademark of Applied Engineering, Inc. Pinpoint is a trademark of Pinpoint Publishing.





# Why The Biggest Names In Soft AST's SprintDisk® Memory

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

In making their hardware compatibility choices - choices that can make or break their companies – the

\*The most current versions

\*The most current versions
SprintDisk, SprintCache trademarks and SixPakPlus registered trademark of AST Research, Inc. Apple registered trademark and Apple II, Macintosh, AppleWriter II, AppleWorks and ProDOS trademarks of Apple Computer, Inc. BusinessWorks is a trademark of Manzanita Software Systems. MouseWrite is a trademark of Roger Wagner Publishing, Inc. Dollars and Sense is a trademark of Monogram. BPI and BPI Systems are trademarks of BPI Systems, Inc. Sensible Speller is a trademark of Sensible Software, Inc. Mouse Calc and Mouse Desk are trademarks of Version Soft. SuperCalc <sup>3</sup>a is a registered trademark of Sorcini/IUS Micro Software, A Division of Computer Associates International, Inc. PFS: William PFS. Report, PFS: Fila not PFS: Graph are registered trademarks of Software Publishing Corporation. Catalyst is a trademark of Megahouse Corporation. Pinpoint is a trademark of Pinpoint Publishing and Virtual Combinatics, Inc. Managing Your Money registered trademark of Micro Education Corporation of America.

Copyright © 1986 AST Research, Inc. All rights reserved.

software leaders look to AST, the hardware leader with the proven track record. So should you.

AST is the world's leading supplier of enhancement products for personal computers with a well-earned reputation for outstanding quality and reliability. We offer a full-line of products for the Apple II and Macintosh™ families. And you've heard of our award-winning SixPakPlus® multifunction card for the IBM PCthe defacto industry standard with well over 500,000 shipped.



### Introducing SprintDisk: Up To 2 MB Of Memory **Expansion And All The** Software Compatibility, With None Of The Modifications.

The new generation memory card is here, now you can break the 64K barrier with all the software compatibility you need. Designed for use as a rapid-access, mass-storage device, SprintDisk provides up to 2 Megabytes of desktop workspace for your spreadsheets, word processing documents and databases.

Good-bye Software Patches. With SprintDisk you can take advantage of expanded memory while saying "good-bye" to the hassles of modi-



# tware Are 100% Compatible With Expansion For The Apple II."

fications. All your favorite applications software\* (those illustrated above and more) are completely, automatically and immediately compatible. Of course, SprintDisk is ProDOS,™ DOS 3.3 and Pascal 1.3 compatible.

The Speed of AST's

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

**Hardware Facts.** SprintDisk is compatible with the Apple II Memory

Expansion board. It's fully socketed and user-upgradeable with 256 Kb chips. And it comes with its own RAM diagnostic software.

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

For more information call (714) 476-3866 or circle the reader service below.

**FEATURES** 

SprintDisk

- Up to 2 MB Total Memory
- 256 Kb to 1.0 MB on mainboard
- Up to 1.0 MB additional memory on piggyback card
- Apple II Memory Expansion board compatible
- SprintCache for fast, user-transparent disk/ tape caching
- ProDOS, DOS 3.3 and Pascal 1.3 compatible
- No application software modifications necessary
- Fits any I/O slot except #3 in II, II+ or IIe
- Fully socketed and user-upgradeable





# SENSATIONAL **SOUNDS**



### EXTRA EXTRA Hear All About It!!!

Let MOCKINGBOARD bring SENSATIONAL SOUNDS to your Apple, with staffs full of music and additional software! MOCKINGBOARD A is a stereo music and sound synthesizer with six voices. Suggested retail price \$99.00. This model can be upgraded for speech synthesis with the purchase of a MOCKINGBOARD B speech upgrade. Suggested retail price \$89.00

MOCKINGBOARD C is all of the above in one package. Suggested retail price \$179.00. MOCKINGBOARD A, B and C are compatible with the Apple II, II+, and IIe.

**MOCKINGBOARD D** is a stereo music, sound and speech synthesizer for the Apple IIc. Suggested retail price \$195.00. A-MAX brings new dimensions of sound to your Apple or IBM, by replacing the internal speaker with a stand alone case. It contains stereo speakers, a headphone jack and dual volume controls. MOCKINGBOARD may also be used with A-MAX. Suggested retail price \$39.95.

THE DEVELOPERS' TOOLKIT - \$29.95 **SPEECH DEVELOPMENT SYSTEM** — \$39.95 **FOREIGN LANGUAGE RULE TABLES** — \$24.95

LISTEN for these new and exciting titles available at your local dealer!...

- **BANK STREET MUSIC WRITER** by Mindscape Software A top notch music composing program which naturally plays music through MOCKINGBOARD. Compatible with MOCKINGBOARD A, C and D.
- **THE BAND SERIES** by MasterSoft The makers of Guitar Master have expanded their line of excellent music tutorials with these additions: Saxophone Master; Trumpet Master; Flute Master; Clarinet Master and Singing Master. All provide interactive tutorials for fingerings with in depth coverage of scales, thirds, and intervals. Compatible with MOCKINGBOARD A and D.
- **ADVENTURE CONSTRUCTION SET** by Electronic Arts This program lets you create your own full blown graphic adventures complete with MOCKINGBOARD music and sound effects. Compatible with MOCKINGBOARD A and C.
- \* The MOCKINGBOARD D supports Music Construction Set, Under Fire, Operation Conrad and Bank Street Music Writer. Check with your dealer for new titles that are being written for this MOCKINGBOARD.

To hear MOCKINGBOARD perform, visit your local dealer or call (401) 941-1130. For the name of your local dealer that carries MOCKINGBOARD and a complete list of MOCKINGBOARD enhanced software, call 1 (800) 341-8001.

Apple™ is a registered trademark of the Apple Computer Company.





SWEET MICRO SYSTEMS, INC. 50 Freeway Drive, Cranston, RI 02920

Publisher Terri Hamilton Editor in Chief Deborah de Peyster

Managing Editor Dawn F. Matthews Technical Editor Paul Statt

Senior Editor Eileen T. Terrill Assistant Editor Lafe Low

Proofreader Peter Bjornsen West Coast Editor Wendy Lea McKibbin (415) 328-3470

Field Editor Babs Cringely

### Advertising

Sales Manager/Northeast Paul Boulé Sales Representative (800) 441-4403 (603) 924-7138

Southeast and Central Fiona Davies Sales Representative (800) 441-4403

Sales Manager/Northwest Donna Pomponi 1060 Marsh Road Menlo Park, CA 94025 (415) 328-3470 (800) 344-4636 in CA

Sales Manager/Southwest

Sanford L. Fibish 1060 Marsh Road Menlo Park, CA 94025 (415) 328-3470

(800) 344-4636 in CA Advertising Coordinator Kim Labbe (800) 441-4403

Marketing Services Manager Michael Duran

### Design

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

### **Graphic Services**

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

### **Special Products**

Special-Products Director Jeff DeTray Special-Products Manager Craig Pierce

### CW Communications/Peterborough

President/CEO James S. Povec Vice President/Finance Roger Murphy Assistant General Manager Matt Smith V.P. of Planning and William P. Howard

Circulation Circulation Manager Frank S. Smith Direct & Newsstand Raino Wirein Sales Manager (800) 343-0728

Direct-Marketing Manager Bonnie Welsh Single-Copy Sales Manager Linda Ruth Director of Credit, Sales, William M. Boyer and Collection

Audits and Statistics Manager Susan Hanshaw **Executive Creative Director** Christine Destrempes Founder Wayne Green

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

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

Photo & Illustration credits: Cover, pages 42, 44, 45, 46, 120 Frank Cordelle; pages 51, 57 Gary Postrech; pages 65, 66, 68, 69 Chris Demarest.

inCider

### ON THE COVER

# 42 Beginners' Luck

by Pat Haley
From running a small business
to educating their children, the
Morgan family is getting the
most out of its Apple //c.

### ARTICLES

# BBS and Business: A Profitable Pair

by Wendy Lea McKibbin What do Ray's Bayou Doughnuts and the Mouma, Louisiana, ComputerLand have in common? Both are benefiting from their own bulletin-board system.

# BBS and Education: Reaching Beyond the Classroom

by Lafe Low Bulletin-board systems are providing new ways for educators, parents, and students to communicate.

# 60 Learner's Permit

by Dan Bishop When it comes to BASIC programming, a little knowledge is not a dangerous thing. In fact, a working knowledge of BASIC can

# Ten Reasons Not to Buy a Computer

save time, aggravation, and money.

by David Nimmons
There are some things a computer can't or shouldn't do. This article takes a humorous look at ten of them.





### **TUTORIALS**

AppleWorks in Action
Making Decisions with
Price-Volume Analysis
by Ruth K. Witkin

Applesoft Adviser
Generating High-Resolution
Graphics
by Dan Bishop

Beginner's Page

Right of Assembly
Assembly-Language Compari-

sons: Reading the Keyboard

by Roger Wagner

### DEPARTMENTS

inCider's View The Myth of Programming	6
by Deborah de Peyster  Letters	10
News Line Apple's Report Card; Quibblis over DOS; "Home Market" Finally Appears; It's a Bird, It's a Plane; Calendar	16
Apple Clinic More Model Trains; Needs 80-Column Monitor; BASIC Graphics Problems; More Graphics Problems; CP/M Installation; Apple II Plus Low ercase; Audio Amplifier Con- nection; Applesoft Control Characters; 65C02 Addressin AppleWorks and UniDisk; 65SC02; CP/M and UniDisk; Osborne/Apple Compatibility by Jim Sather	
Reviews Flipster; Kache Board; Voice Master; The Works!; PROMAL Dow Jones Market Manager Plus; Equations Challenge Matches	<b>29</b>
<b>Game Room</b> AutoDuel; The Bard's Tale by Brian J. Murphy	105
<b>Stattus Report</b> Flight of the Bumblebee by Paul Statt	108
<b>New Products</b>	110
Hints/Techniques Binary-to-Text Converter; Key- board Control in the //e and //c; A Customized AppleWorks Accessory	115
<b>Coming Attractions</b>	119
Reader Services	119
Editors' Choice Program Writer: A Word Processor for BASIC	120







# INCIDER'S VIEW



### The Myth of Programming

"We'd guess that most students would like to feel in charge of their learning instead of a computer."

### by Deborah de Peyster

e've heard a lot of talk about the potential of the school market, and how Apple's future depends on securing that market. Well, "the market" is really people and what they need to do their jobs better. So we decided to look at how educators are using computers.

From conversations with teachers and market researchers, we learned that on average, only three to five teachers in a given school use computers.

"You're kidding," we say. "Only three or four?"

"Hey, that's a dramatic improvement," responds Ann Wujcik, director of educational research at Link Resources' Talmis program in New York. "It was only one teacher about a year and a half ago."

In high schools the computers tend to remain in small clusters: in the computer-science lab, maybe in a business lab, and, if the school is particularly aggressive with computers, in an applications area where computers are accessible to anyone. But in senior high school that adds up to about 25 computers per school—not very many.

And what are those three to five teachers teaching with computers? Programming. Why? Because they think that's what they should teach.

"I don't program myself, but I suppose everybody should learn," says Linda Moriarty, a teacher in Boston, Massachusetts.

"It would be nice to teach everybody to program, I guess, but I don't even program myself," says Jeff Babcock, a teacher in Alaska.

It's time to debunk the myth that everyone needs to learn programming. They don't. Programming basically teaches you how to interact with the machine, not with the world around you. Children should be taught how to use the computer to arrive at some end—whether it's a better-written paper or research that's more in-depth. Learning BASIC is interesting and fun, but we don't believe it helps students function in the larger world.

Interestingly, grade school is where some of that programming myth is debunked. Possibly, Ms. Wujcik says, that's because teachers don't know what to do with computers in the classroom, and they let themselves think creatively about them. In high school, there's a "correct" way to teach computers, and that means programming.

In any event, in grade school you still find relatively few computers—an average of ten per school building. But those computers tend to be in the classroom instead of a dedicated room. In very aggressive classrooms, as many as four or five computers may be in use. And that's exciting to hear.

But what's even more exciting is that computers are viewed as tools to enhance education. Students use them for drill and practice, tutorials, and simulations. But in the third grade and up children are also being taught something called "process writing"—how to use a word processor to communicate ideas young hands are too slow or clumsy to write. Students may also learn how to use a data base to research information, just as we learned at that age how to use the Dewey Decimal System to glean information from the library.

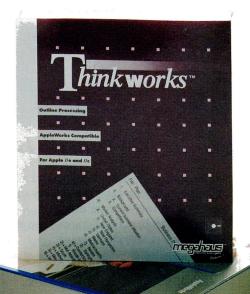
Remember the fun we had exploring the world once we understood how to make that classification system work for us? We could find books on everything from astronomy to zoology. We felt we were in command of our learning.

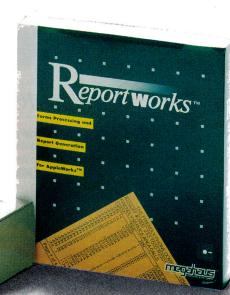
We'd guess that most students would like to feel in charge of their learning instead of a computer. That's the difference between using the computer as a link to a world of knowledge and just learning to program.

But it's a difference that's beginning to be understood. Educators aren't rushing out to buy more computers right now, nor are they rushing to buy more software. They're pausing, re-evaluating, and deciding on new directions for computing. We encourage them to move computing in a direction that puts the power of the computer into enhancing education, rather than let it become an end in itself.

# The Complete Works With AppleWorks Market M







### MegaWorks with Apple Works.

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

### Report Works with Apple Works.

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

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

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

### NOW, Think Works with Apple Works.

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

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

If you know how to use AppleWorks, you already know how to use the Complete Works.

Try the Complete	Works for only \$10 !!
and receive a	coupon worth up to
\$135.00 & vo	our \$10.00 back!

receive all 3 demo copies of MegaWorks. ReportWorks and ThinkWorks

- or - better yet - cal	upon & mail with your check, money order, M/C or Visi I us at (619) 450-1230 & say
	"I want DemoWorks"
Name	
Address	
City/State/ZIP	
Phone (Days) (	_)
\$10 check enclo	sed 🗆 M/C 🗎 Visa Exp
#	
Signature	



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

# RamWorks II®

The Best Selling, Most Compatible, Most Recommended, Most Expandable Card Available.



### 64K to 16 MEG! RamWorks II Is Number One.

Lt's simple, RamWorks II sells the most because it does the most.

### The AppleWorks Amplifier.

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

Only RamWorks II eliminates Apple-Works' internal memory limits, increasing the maximum number of records available from 1,350 to over 15,000. Only RamWorks II increases the number of lines permitted in the word processing mode from 2,250 to over 15,000. And only RamWorks II (256K or larger) offers a built-in printer buffer, so you won't have to wait for your printer to stop before returning to AppleWorks. Ram-

Works II even expands the clipboard. And auto segments large files so they can be saved on two or more disks.

RamWorks II, nothing comes close to enhancing AppleWorks so much.

### The Most Friendly, Most Compatible Card Available.

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

### **Highest Memory Expansion.**

Applied Engineering has always offered the largest memory for the IIe and RamWorks II continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 meg is about 500 pages of text)...but if you do ever need more, RamWorks II has the widest selection of expander cards available. Additional 512K, 2 MEG, or multiple 16 MEG cards just snap directly onto RamWorks II by plugging into the

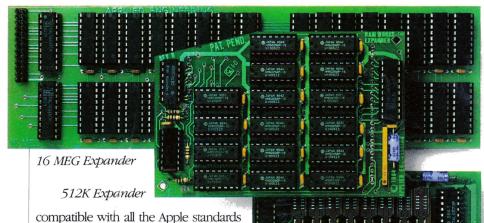
industry's only low profile (no slot 1 interference) fully decoded memory expansion connector. You can also choose non-volatile, power independent expanders allowing permanent storage for over 20 years.

### It Even Corrects Mistakes.

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

### The Ultimate in RGB Color.

RGB color is an option on RamWorks II and with good reason. Some others combine RGB output with their memory cards, but that's unfair for those who don't need RGB and for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks II RGB option offers better color graphics plus a more readable 80 column text (that blows away any composite color monitor). For only \$129 it can be added to RamWorks II, giving you a razor sharp, vivid brilliance that most claim is the best they have ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks II RGB option is more than just the ultimate in color output because unlike others, it's fully



compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the new RamWorks II RGB option provides both Apple standard and IBM standard RGB outputs (cables included). The RGB option plugs into the back of RamWorks II with no slot 1 interference (works on the original RamWorks, too) and remember you can order the RGB option with your RamWorks II or add it on at a later date.

### True 65C816 16 Bit Power.

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

### Endorsed by the Experts.

Steve Wozniak, creator of the Apple Computer said "I wanted a memory card for my Apple that was fast, easy to use, and very compatible; so I bought RamWorks." A+ magazine said "Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks...I like the product so much that I am buying one for my own system." inCider magazine said "Ram-Works II is the most powerful auxiliary slot memory card available for your IIe, and I rate it four stars...For my money, Applied Engineering's RamWorks II is king of the hill."

Apple experts everywhere are impressed by RamWorks II's expandability, versatility, ease of use, and the sheer power and speed that it adds to any IIe. With a RamWorks II in your Apple, you'll make IBM PC's and AT's look like slowpokes.

### 2 Meg Expander

### It's Got It All

- 15 day money back guarantee
- 5 year hassle free warranty insures coverage no matter where you purchase
- Built-in super sharp 80 column display, (with or without RGB)
- Expandable to 1 MEG on main card
- Expandable to 16 meg with expander card, with NO slot 1 interference
- Can use 64K or 256K RAMs
- Powerful linear addressing 16 bit coprocessor port
- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- The only large RAM card that's 100% compatible with all IIe software

- RamDrive™ the ultimate disk emulation software included free
- Memory is easily partitioned allowing many programs to be in memory at once
- Compatible, RGB option featuring ultra high resolution color graphics and multiple text colors, with cables for both Apple and IBM type monitors
- Built-in self diagnostics software
- Lowest power consumption (patent pending)
- Takes only one slot (auxiliary) even when fully expanded
- Software industry standard
- Advanced Computer Aided Design
- Used by Apple Computer, Steve Wozniak and virtually all software companies
- Displays date and time on the Apple-Works screen with any PRO-DOS compatible clock
- · Much, much more!

RamWorks II with 64K	\$179
RamWorks II with 256K	\$219
RamWorks II with 512K	\$269
RamWorks II with 1 MEG	\$369
RamWorks II with 1.5 MEG	\$539
RamWorks II with 3 to 16 MEG	CALL
65C816 16 Bit Card	\$159
RGB Option	\$129
256K Upgrade	\$ 50

RamWorks II. The industry standard for memory expansion of the Apple IIe.
ORDER YOUR RamWorks II TODAY.
9 a.m. to 11 p.m. 7 days, or send check or money order to Applied Engineering.
MasterCard, Visa and C.O.D. welcome.

Texas residents add 51/8% sales tax. Add \$10.00 if outside U.S.A.





### **Apple Aids**

I teach physically and multiply handicapped students (ages 5–15) in Georgia. I'm working on a research paper on the use of computers with the handicapped (physically handicapped and mentally retarded). I haven't narrowed my subject yet to the precise topic I'll be researching, so I'm gathering as much data as I can to choose an appropriate area.

If you have any information (bibliographies, reading lists, pamphlets, handouts, and so on) you could send me, I'd appreciate it very much.

Cathy Gambrell Central Primary School 175 Primary School Road Carrollton, GA 30117

I was recently contacted by a public-service volunteer asking if I knew of any system, already developed or under development, that would let a blind person use a computer. After searching and researching, I still haven't found anything that would serve the needs of the blind.

I just can't believe this field hasn't been explored. Someone, somewhere, must be developing a synthesizedspeech monitor and translator software.

So now I put the question to in-Cider. Can you tell us anything at all about this application? Could you turn Paul Statt loose on this?

Harry R. DeLong 152 Glen Road South Rome, NY 13440

Fortunately, you're right. Someone has been working on software for the handicapped. Computer Aids (124 West Washington, Lower Arcade, Fort Wayne, IN 46802, 219-422-2424) has developed products that let blind people use Apple computers.

Word-Talk is a word-processing program that enables the visually impaired to create and edit their own documents. It uses synthesized speech and the monitor screen. Text can be read back in full words, lines, or entire screens.

Braille-Talk allows standard text to be translated into accurate, fully contracted braille for embossing. No knowledge of braille transcription is needed to use this product.

The Prentke Romich Company (1022 Heyl Road, Wooster, OH 44691, 216-262-1984) and Unicorn Engineering (6201 Harwood Avenue, Oakland, CA 94618, 415-428-1626) offer substitute keyboards for handicapped students.

In addition, Access Unlimited (10622 Fairlane Drive, Houston, TX 77024, 713-461-1666) and Adaptive Peripherals (4529 Bagley Avenue North, Seattle, WA 98103, 206-633-2610) also provide a number of special-needs products for physically and developmentally disabled children and adults. —eds.

### Something's Missing

Where is the Right of Assembly column in the March 1985 issue of inCide? I hope to see it again in the future.

Walter A. Fay 22210 Bon Heur St. Clair Shores, MI 48081

Right of Assembly, by Roger Wagner, and Pascal Primer, by Tom Swan, now appear in alternating months. Right of Assembly is included in this issue. Look for Pascal Primer in July.

—eds.

### **Commendations**

I feel that both your readers and the programmers of MicroExpert were done a disservice by the review in your March 1986 issue (p. 74). Apparently, James McKelvey is unfamiliar with expert systems, or he would have realized that MicroExpert has the capabilities of programs that sell for two or three times as much and are only available for 16-bit computers.

Beverly and William Thompson, as well as McGraw-Hill, should be commended for bringing to the Apple user an affordable package that's quite useful for learning about this important new genre of software.

I hope this letter encourages readers to try the program.

Dr. Mark E. Davis 12724 Southwest 119 Terrace Miami, FL 33186

### **BBS Hunt**

I've been looking everywhere for a bulletin-board program to run on my Apple //c. I can't seem to locate a company that carries one. I did get a copy of one from a person in Las Vegas, but it was public domain, written for a II Plus, and it didn't work right. Could you steer me in the right direction?

My present system includes an Apple //c, a Scribe printer, and a Hayes Smartmodem 1200.

Richard L. Winslow P.O. Box 345 North Haven, ME 04853

See "BBS and Business: A Profitable Pair" in this issue, along with the accompanying Product Information box, for a discussion of electronic bulletin boards and bulletin-board software.

—eds.

### **Reluctant Robotics**

I've been a constant fan of your magazine ever since I bought my Apple II Plus two years ago. After trying unsuccessfully to write programs and communicate with various bulletin boards here in Singapore, I've decided to turn my efforts to miniature robotics. I went to my nearest computer and electronics store only to find it doesn't sell such products.

Well, back to square one. I know many companies in the U.S. sell miniature robotics for computer enthusiasts, but either they're too expensive or the company is too reluctant to deliver them to countries like mine.

My only hope is that *inCider* would have some information for computer enthusiasts like me who want to know about simple model robots and their various applications.

Abdul Halim Latip Apt. Block 34 Marsiling Drive 06-387 Singapore 2573

In our "Holiday Gift Guide," featured in the December 1985 issue of inCider, we mention the Memocon Crawler (p. 48). It's programmable through your Apple, and sells for \$74.95, from OWI, 1160 Mahalo Place, Compton, CA 90220, (213)

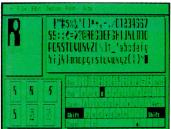
MultiScribe<sup>TM</sup>

Creative Writing for Your Apple® IIc™/IIe™

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

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

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







\$59.95

+ \$3.00 shipping & handling
Texas residents add 51/8% sales tax.
Outside U.S. add \$10.00.

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

		Styleware, Inc.		
900	Name	ige vietem i soc	red or site	
O T	Street	of development of		
o de se	City	State	Zip	
	☐ MasterCard® Card#	□ Visa □ Che	ck/Money Order Exp. Date	
	☐ 5 <sup>1</sup> / <sub>4</sub> " Diskette	□ 31/2′	' Diskette	
MultiScribe <sup>™</sup> Creativity at your fingertips.				
2		StyleWare Inc		

6405 Hillcroft, Suite 201, Houston, Texas 77081

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

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

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

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

### And best of all—the price.

MultiScribe is available for only \$59.95. Just complete and mail the coupon below or call our toll-free number, 1-800-233-4088 (in Texas call 1-713-771-4627).

In addition to can save y lodging to sut that: But that: Besides to begin to	all this one			
But that		hing from a	ces ere	
Besides to begin to prestigio	MEN.	ional servi	ergency ro	d service
And. you				
				Marine
DIR DRO	POSAL			

The following information constitutes our bid for the complete distribution rights for the Southwest regio for StyleWare's new word processing program.



Circle 239 on Reader Service Card.

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

# WITH THIS ONE PROGRAM YOU CAN EASILY DESIGN, ORGANIZE, FILE, SEARCH, SORT, CALCULATE, MERGE, AND PRINT USING FLOPPY OR HARD DISK.



# ALL FOR ONLY \$99.95.

### ProFILER 2.1 - A SINGLE-DISK DATA MANAGER/REPORT GENERATOR

With ProFILER 2.1, you get power, flexibility, and ease of use—all on one floppy disk. And you can easily transfer all your data to hard disk without additional data entry. To get a whole lot more out of your Apple—for a whole lot less—order today.

- Up to 1500 records per floppy— 65,000 on hard disk
- Multiple files per disk, multiple index files, full screen editor
- ProDOS generates reports 8 times faster than DOS 3.3
- AppleWorks compatible
- Optional data conversion program for PFS users

See your dealer or order today!

1-800-628-2828 Ext. 530

Plus \$3 shipping and 6% CA tax

### **Dealer Inquiries Invited**



17610 Beach Blvd. Suite 29 P.O. Box 1788 Huntington Beach, CA 92647 714-963-2221 • 714-841-7400

ProFILER 2.1 developed by Custom Computer Products. PFS is a registered trademark of Software Publishing Corp. Apple, ProDOS, and AppleWorks are registered trademarks of Apple Computer, Inc. Price shown reflects suggested retail.

### LETTERS

638-4732. Also listed in the Gift Guide is the Fischertechnik Robotic Computing Kit (p. 51). The kit includes everything you need to build your own computer-controlled robot. It sells for \$199 from Fischer America, 175 Route 46 West, Fairfield, NJ 07006, (201) 227-9283.

Are any inCider readers aware of computer-robotics organizations with which Mr. Latip may be able to get in touch? Let us know. —eds.

### Flexigraph Suggestions

I'd like to make a few suggestions regarding the Flexigraph program, by William W. Miller, from the March 1986 issue of *inCider* ("Graphs on the Fly," p. 45).

Dot graphs are nice, but they don't show a complete picture. To produce a line graph (plotting between the points), make the following changes:

- 1) Add line 235 IF T=XL THEN HPLOT X,Y:GOTO 250:REM This will prevent a retrace from the axes plot.
- 2) Change the HPLOT in line 240 to HPLOT TO.

240 IF Y = > 0 AND Y = < 191 THEN HPLOT TO X,Y

I'm not sure about the //e, but on my II Plus, functions such as -5.5 result in an error. If you eliminate lines 80 and 120, you can enter positive ranges, and then functions such as LOG(X1.75) will run without error. Of course, if you make this modification, change line 40 to reflect the new "rules."

Kenneth E. Mullenix 2190 NW 74th Avenue Sunrise. FL 33313

### The Supreme Choice

I am neither a hacker, nor do I desire to be one. I merely enjoy the significant benefits of my off-the-shelf micro, and fervently wish to continue to do so in the most efficient manner. Hence, my profound frustration with the vagaries of product compatibility! Your August 1985 issue helps define a case in point.

All indications are that Sorcim's SuperCalc3a (reviewed in inCider, August 1985, p. 28) is indeed a super piece of software for the serious number cruncher. The next logical step is a little extra RAM, such as that offered by Applied Engineering (see the RamWorks advertisement, ironically on

page 27 of the same issue), to aid in maximizing the potential of Super-Calc3a. But there are problems with that combination.

To run SuperCalc3a, my Apple //e must be fitted with the "//e enhancement package," whatever that is. Word is, though, that once the //e is so enhanced, it can no longer run the old //e software, or it becomes diminished to the extent that "white-on-black" features become invisible. Must one choose between Super-Calc3a and the rest of the //e library?

Second, Applied Engineering advises that SuperCalc3a, version 2, will automatically access 512K of a RamWorks card. Sorcim disavows any such knowledge. Privately, Sorcim hints that it may come out with a debugged SuperCalc that will access RamWorks.

Isn't there an easier way for us simple folk to upgrade our equipment? Can you help?

Richard A. Yarmey Canal Square 1054 31st Street N.W. Washington, DC 20007

We're afraid the only way you can run SuperCalc3a on an Apple //e is to upgrade it with the enhanced chip set (for details, see inCider, April 1985, p. 12). An enhanced //e will run most "old" //e software. The major compatibility problem is with inverse capital letters in 80-column mode—instead of letters, you get MouseText characters.

You'll have to decide what you want to do with your computer. If you need the power of SuperCalc3a, you'll have to upgrade your //e. If the software you have now satisfies your needs, don't bother upgrading. Without constantly swapping chips, you can't have it both ways. —eds.

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

### CORRECTION

The phone number for Elsevier Science Publishing is incorrect as it appears in our March 1986 issue (p. 84). The correct phone number is (212) 370-5520.

# The Apple II...

# A Plug-In 1200/300 Baud Single Card Intelligent Modem For Your Apple II... Just \$295 Including Software



ProModem 1200A is a 1200/300 baud Hayes compatible auto-dial modem card that plugs directly into any expansion slot in the Apple II, II+ or IIe. All you have to do is plug it in and connect the telephone cord.

Ours is the only 1200 baud modem to seriously consider for your Apple II. At just \$295, it's priced well below its nearest competitor, yet it does much more. No longer do you have to buy an external modem, a serial card, an RS232C cable and communications software which, combined, would cost you hundreds of dollars more. There's really no comparison.

ProModem 1200A is provided with convenient on-board communications software in ROM. For more advanced applications, disk based ProCom-A communications and word processing software is included. Automatic logon macro sequences are accessed from the directory by one keystroke to provide easy connection to databases such as The Source, Dow Jones, and the Electronic Airline Guide.

Features include: Auto-dial/Auto-answer, tone and pulse dial, help commands, built-in diagnostics, two phone jacks, line status detect with redial on busy, full and half duplex, and speaker with volume control.

You just can't lose when our plug-in ProModem 1200A comes ready to use, with on-board software, easy to understand documentation and a telephone cord — all for just \$295.

### **Menu-Driven Terminal Program**

- DECOMPTION OF THE PROPERTY OF
- O | 13 COMMUNICATIONS
  O | 23 FILE TRANSFER
  - ZNOITHO (E

0

- USE ESC TO EXIT
- O 2) BAUD RATE 1200 300
- 3) PARITY NONE ODD EVEN MARK SPACE
  USE ESC TO EXIT
  - USE ESC TO EXIT
- O | 13 TYPE XMODEM LINE
  O | 23 DIRECTION SEND RECEIVE
  O | 33 FILE NAME
- O USE ESC TO EXIT
- 1) PRINTER 53 CLOCK ON OFF BALL SUTATS (E ON OFF 43 KEYBOARD ON OFF 53 CAP LOCK OFF P3 ECHO ON OFF 0 7} LF AFTER CR ON USE ESC TO EXIT 0 ENTER SELECTION





4545 Cushing Parkway • Fremont, California 94538

### **PROGRAM3 PĽU3** ▷ 1-800-832-3201

Computers		Polarware The Quest, Ring Quest	20.75	Communications		TimeWorks	
Apple Computer		Coveted Mirror or Xyphus Sword of Kadash or The Crimson Crow	20.75	Apple Computer		Silvia Porter's Financial Planner	59.00
Apple / / e Color & Mono Systems Apple / / c Color & Mono Systems	Call Call	Random House Alpine Encounter Sierra-On-Line	24.00	Access / / (/ /e/ /c only) Compuserve	59.00	Educational Software	
Macintosh 512K Computers Macintosh Plus Computers	Call	Kings Quest or King's Quest II The Black Cauldron	30.00 24.00	Compuserve Starter Kit	20.00 69.00	Addison Wesley Smart Eyes	36.00
Central Point Software Lazer 128K Computer	349.00	Simon & Schuster Super Zaxxon or Frogger 3 Deep	21.00	Terminal Program (Smartmodem) Microstuff Crosstalk	59.00 99.00	Apple Apple Logo / / 128K (/ /e, / /c only)	79.00
The Lazer 128 includes an Expansion S RGB Video Output, Parallel Printer Port	Slot, , and a	Spy Hunter, Tapper or Star Irek Sir-Tech Wizardry	27.00 29.00	Quark lerminus / /e Softronics Softerm II	69.00 124.00	Bantam Books Fantastic Animals or Road Rally USA	24.00
10 Key Numeric Keypad! Most Apple Compatible Computer Available at Any	Price!	Knight of Diamonds Legacy of Llylgamyn	21.00 24.00	Source Telecomputing The Source On-Line Information		The Complete Scarsdale Medical Diet Barron's	24.00
BackUp Utilities/Boards		Rescue Raiders Wisiprint	21.00 15.00	Network United Software Industries	30.00	Computer SAT Revised Version Brainpower Chipwits or Think Fast	36.00 24.00
Alpha Logic Locksmith 6.0	59.00	Spectrum Holobyte Gato Synapse Software	21.00	ASCII: Express Pro: Prodos or Dos 3.3	74.00	Broderbund Science Tool Kit Master Module	36.00
Applied Technology Laboratory Copy Master II 128K w/Gr. Dump Central Point Software	92.00	Brimstone, Mindwheel, or Essex Strategic Simulations	27.00	Business Software		CBS Software Adventure Master America Coast to Coast	26.00 24.00
Copy II Plus Version 6 Wildcard II	20.00 70.00	Rings of Zilfin, or Colonial Conquest Phantasie II, or Panzer Grenadier	28.00 28.00	Advanced Logic Systems	-	Body in Focus or Dinosaur Dig Forecast! or T-Rex	24.00
Computer Applications	59.00	Baltic 85 or Gemstone Warrior Battalion Commander	20.50	SpellWorks	29.00 97.00	Goren's Bridge	48.00 59.00
Nibbles Away III/NADOL Golden Delicious Software LTD CIA Files	46.00	Battle For Normandy 50 Mission Crush or Broadsides	24.00		179.00 115.00	Mastering The SAT Success w/Algebra (ea.) Success w/Math (ea.)	21.00 15.00
Jtilico Software – E.D.D. IV E.D.D. IV Plus (II, II+, //e w/Disk II)	42.00 109.00	Geopolitique 1990 or Rails West Germany 1985 or Carrier Force Imperium Galactum	23.50 35.50 23.50	Applied Software Technology	75.00	Davidson & Associates Alge-Blaster, Classmate or Math Blaster	27.00
.D.D. IV Plus (//e w/DuoDisk or UniDisk)	119.00	Kampfgruppe or Reforger 88 North Atlantic '86	35.50 35.50	Versaform / /e, / /c Arrays/Continental Software	48.00	Speed Reader II Speed Reader Data A, B, C, or D	37.00 11.95
intertainment		Operation Market Garden War in Russia	30.00	Home Accountant / /e Home Accountant / /c	39.00 42.00	Spell-It or Word Attack!  Designware	27.00
Access Software		U.S.A.A.F. Battle of Antientam or Field of Fire	47.50 32.00 28.00	Tax Advantage 1985  Blythe Software Omnis 3	37.00 225.00	European Nations & Locations Grammer Examiner	24.00
Beach-Head or Beach-Head II accolade Dam Busters or Fight Night	21.00 20.00	Battle Group	42.00 31.00	DDI Custome	194.00	Remember Spellicopter or Spellakazam	42.00 24.00
lard Ball or Laws of the West si 5 Trading Co. or Sundog V2.0	20.00	Sublogic Flight Simulator II Tellarium Amazon or Dragon World Fahrenheit 451 or Shadow Keep	24.00 24.00	BPI AR/AP/PR or Inv. Dos 3.3 (ea.) BPI General Accounting ProDos	194.00 209.00	States & Traits or Mission Algebra The Body Transparent	26.00 26.00
Activision Alcazar or Master of the Lamps	24.00	Nine Princes in Amber Perry Mason: Mandarin Murders	24.00	broderbund	209.00	Alligator Mix or Demolition Division	18.50
Borrowed Time Countdown to Shutdown	24.00 24.00	Rendezvous with Rama Windham Classics	24.00	Bank Street Writer or Speller Bank Street Filer or Mailer	41.00 41.00	Create with Garfield! or Fraction Fuel Up Freddie's Puzzles or Number Farm	18.50
Shost Busters or Pitfall II Great American Road Race	24.00	Below the Root or Swiss Family Robinson	19.00	CBS Software Stockpak II Dow Jones Software	89.00	Spelling Wiz or Word Invasion Fisher Price	18.50
lacker or Space Shuttle ittle Computer People Discovery Kit	24.00	Treasure Island or Wizard Of Oz	19.00	Dow Jones Membership Kit Electronic Arts Cut and Paste	19.00	Alpha Ruild or Logic Levels	16.00
Mindshadow or Tracer Sanction Star League Baseball	19.00	Utility/Language Software		Financial Cookbook First Star The Works	32.00 30.00	First Man on the Moon Peter Rabbit Reading Groller Publishing EduCalc Friendly Filer or Easy Graph	18.00 30.00
Alter Ego (Male or Female) Avalon Hill Under Fire!	29.00 34.00	Apple Computer Apple II Instant Pascal	105.00	Hayden Software The Writer Human Edge Software	27.00	Friendly Filer or Easy Graph Science Island or Treasure Hunter Harcourt Brace Computer SAT	24.00 24.00 46.00
want-Garde Dave Winfield's Batter Up	22,00	Apple Pascal V1.3  Champanion Software Facelift 2	179.00 36.00	Communications or Management Edge	27.00	Learning Company Addition Magician	21.00
Bantam Publishing Cave of Time or Escape	22.00	Borland Turbo Pascal 3.0 Turbo Database Tool Box	39.00 31.00	Mind Prober Mind Over Minors	27.00	Bumble Plot or Reader Rabbit	24.00
ourth Protocol Damiano the Wizard of Partestrada	24.00	Turbo Tutor  Beagle Brothers	21.00	Sales or Negotiation Edge Howardsoft	27.00	Gertrude's Puzzles or Secrets Juggle's Rainbow Magic Spell or Word Spinner	18.00
Sherlock Holms: "Another Bow" Blue Chip Software	24.00	MacroWorks or Beagle Basic Beagle G.P.L.E.	18.00 27.00	Real Estate Analyzer III w/Tax Preparer International Solutions	30.00	Moptown Hotel or Number Stumper Robot Odyssey or Rocky's Boots	24.00
lillionaire, Tycoon, Barron or Squire roderbund Ancient Art of War	24.00 24.00	Big U, Double Take, or Pro-Byter D-Code or Extra K	18.00 21.00	MouseBudget MouseCalc MouseDesk	39.00 85.00 24.00	Milliken Addition or Division Sequences	21.00
aptain Goodnight & the Islands of Fear championship Lode Runner or Karateka	21.00	Disk Quick or I.O. Silver Dos Bos or Silicon Salad	16.00 13.00	MouseDesk MouseWord Intuit Quicken	69.00 49.00	The Miliken Word Processor  Mindscape Crossword Magic	42.00
lask of the Sun or Serpent's Star here in the World is Carmen,	24.00	Fat Cat	18.00 11.00	Kensington Microware Format II Enhanced	88.00	Keyboard Cadet or Luscher Profile Perfect Score SAT	24.00
San Diego?	24.00 25.00	Pronto Dos or Utility City Triple Dump	15.00 21.00	Living Videotext Think Tank II + or / /e	79.00	Tink's Adventure, Mazes or Sub. Fair Peachtree/Eduware	18.00
PataSoft Alternate Reality Bruce Lee, Conan, or Mr. Do	27.00 22.00	Funk Software Sideways Prodos & Dos 3.3	32.00	Manzanita BusinessWorks	70.00	Algebra 1, 2, 3, or 4 Algebra 5 or 6	21.00
The Goonies or Zorro	22.00	Lazerware Lisa V2.6 Meacom	53.00	System Manager (Required)	65.00 255.00	Compu-Read Compu-Math: Arithmetic Skills	16.00
Adventure Construction Set or Ogre	32.00 25.00	UniDos (Dos 3.3 for the UniDrive) Microsoft Applesoft Compiler	26.00 102.00	Payroll Module  The Business Accountant	290.00	Introduction to Counting	19.00 16.00
ge Of Adventure	22.00	Basic Compiler Nikrom	239.00	System Manager (Required)	69.00 199.00	PSAT or SAT Word Attack Skills PSAT/SAT Analogy Spelling Bee w/Reading Primer	18.00
arriers At War or Wilderness hessMaster 2000	32.00 25.00	Master Diagnostics / / e or II + Quality Software Bag of Tricks II	39.00	Payroll Module The Advanced Business Accountant	229.00	Writing Skills 1, 2, 3, 4 or 5 PinPoint Micro Cookbook (//e or //c)	21.00
urope Ablaze lurder on the Zindernauf	32.00 14.00	Roger Wagner Merlin Pro	25.00 57.00	System Manager (Required)	69.00 259.00	Appetizers, Desserts, Soups & Salads Random House	11.95
Music Construction Set	25.00 22.00	Merlin Assembler Merlin Combo Pack	39.00 64.00	Payroll Module MECA Managing Your Money	295.00 105.00	Charlie Brown Typing is a Ball Garfield Double Dares	24.00
Reach for the Stars or Bard's Tale Super Boulder Dash	28.00 22.00	Software Masters Visible Computer: 6502	29.00	Megahaus MegaWorks ReportWorks	69.00 69.00	Garfield Eat Your Words Mr. & Mrs. Potato Head	24.00 24.00
Cities of Gold or Skyfox solden Oldies or Lords of Conquest	25.00 22.00	The Byte Works ORCA/M Macro Assembler ProDos	59.00	ThinkWorks Monogram	Call	Peanuts Math Matcher Snoopy Writer	24.00
PYX oronis Rift or Eidolon	24.00	Videx AppleWorks Modify Plus 64K AppleWorks Modify Plus 128K	37.00 47.00	Dollars and Sense (/ /+, / /e) Dollars and Sense (/ /c)	68.00 68.00	Sensible Software Report Card Scarborough Systems Build A Book About You	33.00
allblazer or Rescue on Fractulus ummer Games II or Winter Games	24.00 24.00	Vilberg Brothers  DMP Utilities (ImageWriter or Epson)	39.00	Forecast (64K or 128K) Nolo Press Will Writer	36.00 29.00	Build A Book About You MasterType New & Improved MasterType's Writing Wizard	19.00
emple of Apshai Trilogy Vorld's Greatest Baseball	24.00 21.00	Woodchuck Industries P-Trial: Basic to Pascal Translation	119.00	Paladin Flashcalc PBI Software Graphworks 1.2C	59.00 59.00	MasterType's Writing Wizard MasterType's Filer Original Boston Computer Diet	48.00
/orld's Greatest Football irebird Elite	24.00 26.00	Zedcor ZBASIC	65.00	Jeeves Peachtree	38.00	Picture Writer or Songwriter	48.00 24.00
ayden Software computer Novel Construction Set	30.00	Graphics Packages	20.00	Back To Basics: GL/AR/AP Pinpoint Publishing Pinpoint	98.00 35.00	Scholastic Wizware Agent U.S.A. or Turtle Tracks	24.00
argon III, Holy Grail, or Inca	30.00 26.50	Activision Game Maker Baudville	30.00	PinPoint Pop-up Spelling Checker PM Software ProFILER 2.1	35.00 69.00	Fact & Fiction Tool Kit / /c Logo Robot or Kids at Work	15.00
utthroats, Seastalker, or Ballyhoo leadline or Starcross or SpellBreaker	23.50	Actors & Actions or Heros & Villains Blazing Paddles	18.00 27.00	Practicorp Practicals II Precision Software SuperBase	26.00 54.00	Math Assistant I or II Microzine 1,2,3,4,5,6,7, or 8	23.00
itchhiker's Guide to The Galaxy ifidel or Sorceror	23.50 26.50	Prince (C. Itoh or Epson) Pix-It	42.00 29.00	Quark Catalyst / le V3.0 Word Juggler & Lexicheck / le Roger Wagner Publishing Mouse Write	59.00 59.00	Microzine 1,2,3,4,5,6,7, or 8 Operation: Frog or Logic Builders Story Tree or Story Maker Simon & Schuster Chem Lab	24.00
fitness, Planetfall, or Enchantor ork I or Wishbringer	23.50	Shape Library 1, 2, or 3 Take 1 Records Brothers Alpha Plot	12.95 34.00	Mouse Write	72.00	Lovejoy's Preparation for SAT Typing Tutor III	24.00 42.00
ork II, Zork III, or Suspect	26.50	Beagle Brothers Alpha Plot Beagle Graphics	21.00 31.00	Satellite Software Wordperfect	27.00 79.00	Spinnaker Adventure Creator or Trains Counting Parade or Sum Ducks	30.00 18.00
licro League Baseball eneral Manager/Owner Disk	24.00 24.00	Flex Text or Frame Up Font Mechanic or Minipix Disk #1	15.00 15.00	Sensible Software Bookends – ProDos	65.00	Delta Drawing	18.00 24.00
licroprose olo Flight or Nato Commander	21.00	Shape Mechanic  Broderbund Dazzle Draw  Brief Shap or Fantavision	21.00 36.00	Sensible Grammar Sensible Speller—Dos or ProDos	55.00 69.00	File & Report or Spreadsheet Fraction Fever	35.00 15.00
-15 Strike Eagle or Acrojet sunship or Silent Service	21.00	Print Shop or Fantavision Print Shop Companion Print Shop Graphics Library	29.00 24.00	Sierra On-Line Homeword Plus or HomeWord Filer	42.00	Grandma's House Homework Helpers: Math Word Problems	
rusade in Europe or Conflict in Vietnam	25.00	I, II, or III	14.95	Homeword Speller Screenwriter Professional Simon & Schuster	30.00 77.00	Homework Helpers: Writing In Search Of	24.00
lindscape leja Vu: "A Nightmare Comes True" lick Francis High Stakes	34.00	Print Shop Paper Refill  Data Transforms Fontrix 1.5  Font Pake 1.13 ea	12.95 52.00	JK Lasser's Money Manager	47.00	Kidwriter or Alphabet Zoo Kindercomp or Kids on Keys	18.00
orbidden Castle or Voodoo Island	29.00	Font Paks 1-13 ea. Electronic Arts Movie Maker	11.95 26.00	JK Lasser's Income Tax Software Publishing	47.00	Mathbusters Snooper Troops Case I or II	18.00
ames Bond: "A View To Kill" Racter or The Halley Project	24.00	Penguin Software New Complete Graphics System The Graphics Magician	47.00	All Programs For / le With 128K or / lc PFS: Workmates	400.00	Word Processor Springboard	30.00
Rambo: "First Blood Part II" Stephen King's "The Mist" The American Challenge	24.00	The Graphics Magician Sensible Software	35.00	(File/Report/Plan/Write) PFS: File, Graph, Report PFS: Write or Plan (/ /e, / /c)	139.00	Early Games or Music Maestro Fraction Factory or Make a Match Mask Parade or Easy as ABC	17.00
Omnitrend Software	29.00	The Graphics Department Simon & Schuster	65.00	Sorcim/IUS SuperCalc 3a	69.00 99.00		20.00
Omnitrend's Universe I Omnitrend's Universe II	62.00 39.00	Great INTL Paper Airplane Const. Kit	24.00	State of the Art Electric Checkbook	59.00	Terrapin Terrapin Logo V3.0 TimeWorks	45.00
One Step Software Golf Best Pinehurst	30.00	Springboard Newsroom Newsroom Clip Art Collection Vol. 1 Newsroom Clip Art Collection Vol. 2	32.00 17.00	Stoneware	285.00	Evelyn Wood Dynamic Reader Weekly Reader Chivalry	41.00
Origin Systems Moebius AutoDuel	37.00 38.00	Graphics Expander Vol. 1	21.00 24.00	DB Master Business Writer	185.00 85.00	Exploring Tables & Graphs 1 or 2 Pic.Builder	20.00 24.00 24.00
Ultima III: Exodus or Ultima IV	36.00	Weekly Reader Stickybear Printer	24.00	DB Master Version Four Plus	165.00	Stickybear Series (ea.)	

### In Connecticut Call 378-3662 or 378-8293

Modems		Clock/Calendar
Anchor Automation Signalman Express 1200	229.00	Applied Engineering TimeMaster H.O.
Signalman Lightning 2400 Volksmodem 12	349.00 179.00	BSR Interface // c System Clock
Apple Computer Apple Personal Modem Apple / /e,/ /c, or Mac Cable	279.00	Practical Peripherals Proclock / le or / lc
Hayes	25.00	Quadram Pro Dos Clock/Calend
Hayes Micromodem / /e Hayes 300 Baud Smartmodem / /c Hayes 300 Baud Smartmodem	135.00 155.00	Creative Peripherals Seiko Datagraph 2001 Time Trax / le or / lc
Haves 1200 Baud Smartmodem	135.00 359.00	/ /c System Clock
Hayes 2400 Baud Smartmodem Transet 1000	575.00 269.00	Street Electronics Liv Thunderware Thunder
Novation Novation Apple Cat II	189.00 355.00	Video Cards
Novation Apple Cat II Novation 212 Apple Cat II Novation 212 Upgrade Novation 2400 Baud	219.00	Color Enhancer / /e w
Standalone Modem Prentice	479.00	Draw Color Enhancer / /c Screen Enhancer / /e
Popcom X-100 (1200 Baud) Prometheus	245.00	Screen Enhancer / /c
Pro Modem 1200 (External) Pro Modem 1200A (Internal) Pro Modem 300c	269.00 239.00	Accessories
Pro Modem 300c U.S. Robotics	129.00	Kensington System Society Cool + Time
U.S. Robotics U.S. Robotics Password 1200 U.S. Robotics Courier 2400	199.00 389.00	Curtis Diamond Curtis Emerald
Zoom Telephonics Zoom/Modem / /e Zoom/Modem / /e Plus	115.00	Curtis Ruby Curtis Sapphire
	120.00	Pico Products Tilt & Swivel Monitor
Accelerators/Ramcards/Z-80/80 Advanced Logic Systems	) Col.	Center Touch Window by Per
Add-Ram 16 Add-Ram 80/64	65.00 52.00	Apple Mouse / /e Apple Mouse / /c
Add-Ram 80/256 Z-Engine 2.2 CP/M Card	145.00 125.00	Pico Universal Joystic Hayes Mach II Joystic Hayes Mach III Joystic
CP/M Card Apple Computer Apple II Memory Expansion Card	225.00	Hayes Mach III Joystic Kraft Quickstick / /c
Annie / le Extended 80 Col Card	225.00 115.00	Kraft Quickstick / /c Kraft Joystick Digital Paintbrush Sys
Applied Engineering RamWorks II (64K to 3MB) Z-Ram / Ic (256 or 512K) Ramworks RGB Option & 16 Bit Option	Call	Muppet Learning Keys Koala Pad Plus
Ramworks RGB Option & 16 Bit Option	Call Call on Call	KeyTronic Keyboard Ki
TransWarp 16 Bit Upgrade	Call	Trackhouse Keypad Mockingboard A Boar Mockingboard C Boar Mockingboard D Boar Echo II Plus
ViewMaster 80 Z-80 Plus	109.00	Echo II Plus
Apricorn Apricorn 64K Extend-It Apricorn 16K Ramcard II + AST Research MegaRamPlus w/64K	89.00 68.00 125.00	The Cricket / /c Rainbow Paper Pak (3 ImageWriter Ribbon-B
MegaRamPlus w/256K SprintDisk w/256K	179.00 199.00	ImageWriter Ribbon-C ImageWriter Rainbow
Caribbean Computer Extend 80	78.00	Environmental Softwar
Checkmate Technology Multiview 80/160	179.00	Apple / / c or / / e w/N Apple / / c w/Color Mo Apple / / e Profession
MultiRam CX (256K) MultiRam CX (512K)	149.00 189.00	Apple / / c, / / e or Ur
MultiRam / /e (128K) MultiRam / /e RGB (128K)	129.00 159.00	Blank Media
MultiRam / /e (256K) MultiRam / /e RGB (256K)	149.00 179.00	51/4" Blank Media BASF 5.25" SS/DD (b
MultiRam / /e (512K) MultiRam / /e RGB (512K)	179.00 215.00	Elephant 5.25" SS/DD
Zee-80A Greene Gate, Inc. Flipster-RamCard	55.00	Sony 5.25" SS/DD (bo Maxell 5.25" SS/DD (to Mashua 5.25 SS/DD (to Memorex 5.25" SS/DD (box
Flipster-RamCard Information Appliance SwyftCard	275.00 69.00	Nashua 5.25 SS/DD ( Memorex 5.25" SS/DD
Information Appliance SwyftCard Micro Sci Micro Sci 80/64e Micro Sci 80/256e	69.00 149.00	Dysan 5.25" 55/00 (L
	265.00 159.00	3½" Blank Media BASF 3.5" DS/DD (box Sony 3.5" DS/DD (box
MTC MTC Speed Demon Titan Industries Saturn 128K Ram Neptune 80 Col. w/64K Accelerator / /e	175.00 185.00	Sony 3.5" DS/DD (box Fuji 3.5" DS/DD (box
Videx Videx Videoterm w/SS Inv.	199.00	Fuji 3.5" DS/DD (box of Verbatim DS/DD (box Maxell 3.5" DS/DD (box
Videx Ultraterm	189.00	3M 3.5" DS/DD (box o
Multifunction Cards AST Research	National Land	Printers
Multi I/O Clock/Calendar Multi I/O Clock/Calendar/2 Ser. Ports Checkmate Technology Gambit	99.00 139.00	Apple ImageWriter II Color F
Prometheus VEHSAcard	Call 135.00	ImageWriter II 32K Bu ImageWriter II Cut Sh
Quadram Multicore w/OK Multicore w/256K Extended Multifunction Board (64K)	149.00 179.00	ImageWriter (Wide Ca Brother
Extended Multifunction Board w/RGB	159.00 189.00 45.00	HR-15XL (20cps) Daisy HR-25 (23 cps) Daisy
RGB Upgrade Street Electronics Business Cord Parallel		HR-25 (23 cps) Daisyv HR-35 (35cps) Daisyw TwinWriter 5 Dual Hea
Business Card Parallel Business Card Serial Videx PSIO Dual Function	155.00 135.00	Fortis/Dynax DH45 Dual Head Prin
Interface	135.00	120-D (120cps) W/NLC
Printer Interface Cards		MSP-10 (160 cps) 10" MSP-15 (160 cps) 15"
Apple Apple Super Serial Card	109.00	MSP-20 (200 cps) 10" MSP-25 (200 cps) 15"
Apricorn Apricorn / /c Super Serial Card	49.00 79.00	LX-80
Interactive Structures Pkaso/U Interface	115.00	LX-90 F FX-85 N
Orange Micro Serial Grappler Plus Grappler +	75.00 74.00	FX-286 Re LQ-800/1000/1500 Low
Grappler + Buffered Grappler + Grappler / /c	74.00 135.00 78.00	SQ-2000 Pr Juki 6000 (10cps) Dai
Hot Link	78.00 49.00	6100 (18cps) Daisywhe 6200 (30cps) Daisywh
Practical Peripherals Graphicard PrinterFace	59.00	6200 (30cps) Daisywh 6300 (40cps) Daisywh NEC SpinWriter e.l.f.: SpinWriter 2030B (20
PrinterFace SeriALL Interface Card Quadram	49.00 95.00	SpinWriter 2030P (20 SpinWriter 3530P (35 P-660 (216cps) Paralle
A-PIC Parallel Interface A-PIC Parallel Interface w/Color Gr.	65.00 75.00	P-660 (216cps) Paralle P-760 (216cps) Paralle P-560 (240cps) Paralle
Serial Interface (AB-400) Buffered Serial Interface (64K)	71.00 99.00	Okidata Okimate 20 C Microline 182P
Spies Labs Nice Print TextPrint	105.00	Microline 183P Microline 192P Microline 193P
Print-It! (Parallel or Serial) Thirdware	125.00	Microline 193P Microline 192 Apple
Finger Print Plus II + ,/ /e,/ /c	89.00	Microline 193 Apple

schout Ca	" 3
Clock/Calendar Peripherals	
Applied Engineering TimeMaster H.O. BSR Interface // c System Clock Practical Peripherals Proclock / le or / lc	99.00 39.00 65.00
Quadram Pro Dos Clock/Calendar Card	119.00 59.00
Creative Peripherals Seiko Datagraph 2001 w/Time Trax Time Trax / le or / lc / lc System Clock Street Electronics Livewire Thunderware Thunderclock Plus	149.00 79.00 55.00 70.00 105.00
Video Cards Color Enhancer / /e w/Dazzle	
Olor Enhancer / le WiDazzie Draw Color Enhancer / lc Screen Enhancer / lc Screen Enhancer / lc	119.00 89.00 89.00 49.00
Accessories	
Kensington System Saver Cool+ Time Curtis Diamond Curtis Emerald Curtis Ruby Curtis Sapphire Pico Products Till & Swivel Monitor Stand/Power Center Touch Window by Personal Touch Apple Mouse / /e Pico Universal Joystick II+, / /e, / /e Hayes Mach II Joystick Hayes Mach II Joystick Kraft Ouickstick / /e Kraft Oujckstick I/c Kraft Joystick Kraft Oujckstick Vic Kraft	60.00 69.00 30.00 30.00 36.00 54.00 47.00 179.00 115.00 79.00 25.00 27.00 42.00 42.00 77.20 180.00 175.00 42.00 42.00 72.00 180.00 175.00 125.00
Blank Media 51/4" Blank Media	
BASF 5.25" SS/DD (box of 10)	10.50

Apple / / c, / / e of Official Drive Oover	7.00	
Blank Media		
51/4" Blank Media BASF 5.25" SS/DD (box of 10) Elephant 5.25" SS/DD (box of 10) Verbatim 5.25" SS/DD (box of 10) Verbatim 5.25" SS/DD (box of 10) Maxell 5.25" SS/DD (box of 10) Maxell 5.25" SS/DD (box of 10) Memorex 5.25" SS/DD (box of 10) Memorex 5.25" SS/DD (box of 10) My 5.25" SS/DD (box of 10) Dysan 5.25" SS/DD (box of 10) 31/4" Blank Media BASF 3.5" DS/DD (box of 5)	10.50 10.95 12.50 12.50 13.50 12.50 13.50 12.00 19.95	
Sony 3.5" DS/DD (box of 10) Fuji 3.5" DS/DD (box of 10) Verbatim DS/DD (box of 10) Maxell 3.5" DS/DD (box of 10) 3M 3.5" DS/DD (box of 10)	29.00 28.00 31.00 31.00 29.00	

	Printers	
i	Apple	
	ImageWriter II Color Printer	459.00
	ImageWriter II 32K Buffer	79.00
	ImageWriter II Cut Sheet Feeder	175.00
	ImageWriter (Wide Carriage)	475.00
	Brother	
	HR-15XL (20cps) Daisywheel	309.00
	HR-25 (23 cps) Daisywheel	489.00
	HR-35 (35cps) Daisywheel	729.00
	TwinWriter 5 Dual Head Printer	839.00
	Fortis/Dynax	
	DH45 Dual Head Printer	839.00
	Citizen	
	120-D (120cps) W/NLQ 10" Carriage	179.00
	MSP-10 (160 cps) 10" Carriage	239.00
	MSP-15 (160 cps) 15" Carriage	359.00
	MSP-20 (200 cps) 10" Carriage MSP-25 (200 cps) 15" Carriage	329.00 489.00
	Epson	409.00
	LV 90	000 00

ImageWriter (Wide Carriage)	
RR-15XL (20cps) Daisywheel	.00
HR-26 (23 cps) Daisywheel 488 HR-35 (35cps) Daisywheel 729 TwinWriter 5 Dual Head Printer Fortis/Dynax 81945 D445 Dual Head Printer 883 H45 Dual Head Printer 883 H45 Dual Head Printer 983 H45 Dual Head Printer 983 H45 Dia Head Printer 983 H54 Dia Head Printer 983 H54 Dia H45 Di	00
HR-36 (35cps) Daiswheel 728 TwinWriter 5 Dual Head Printer 829 TwinWriter 5 Dual Head Printer 829 Thits Dual Head Printer 829 Titzen 120-D (120cps) W/NLQ 10" Carriage 1720-D (160 cps) 15" Carriage 1720-D (160 cps) 15	
TwinWriter 5 Dual Head Printer         839           FortIs/Dynax         839           DH45 Dual Head Printer         839           Citizen         839           MSP-10 (190cps) W/NLQ 10" Carriage         179           MSP-10 (160 cps) 10" Carriage         359           MSP-20 (200 cps) 10" Carriage         329           MSP-25 (200 cps) 15" Carriage         489           Epson         489	
Fortis/Dynax           DH45 Dual Head Printer         839           Citizen         170-D (120cps) W/NLO 10" Carriage         179           MSP-10 (160 cps) 10" Carriage         239           MSP-15 (160 cps) 15" Carriage         359           MSP-20 (200 cps) 10" Carriage         329           MSP-25 (200 cps) 15" Carriage         489           Epson         489	
Citizen         172-D (120cps) W/NLQ 10" Carriage         17           Jack D (120cps) W/NLQ 10" Carriage         17           MSP-10 (160 cps) 10" Carriage         359           MSP-15 (160 cps) 15" Carriage         359           MSP-20 (200 cps) 10" Carriage         329           MSP-25 (200 cps) 15" Carriage         489           Epson         489	
120-D (120cps) W/NLQ 10" Carriage MSP-10 (160 cps) 10" Carriage MSP-15 (160 cps) 15" Carriage MSP-20 (200 cps) 10" Carriage MSP-25 (200 cps) 15" Carriage MSP-25 (200 cps) 15" Carriage MSP-25 (200 cps) 15" Carriage	.00
MSP-10 (160 cps) 10" Carriage MSP-15 (160 cps) 15" Carriage MSP-20 (200 cps) 10" Carriage MSP-25 (200 cps) 15" Carriage Epson 489	
MSP-20 (200 cps) 10" Carriage 329 MSP-25 (200 cps) 15" Carriage 489 <b>Epson</b>	
MSP-20 (200 cps) 10" Carriage 329 MSP-25 (200 cps) 15" Carriage 489 <b>Epson</b>	
MSP-25 (200 cps) 15" Carriage 489 Epson	
Epson	
	.00
LX-80 Call 209	.00
	Call
Juki 6000 (10cps) Daisywheel/Par. 179	
6100 (18cps) Daisywheel/Par. 339	
6200 (30cps) Daisywheel/Par. 509	
6300 (40cps) Daisywheel/Par. 649	
NEC SpinWriter e.l.f. 360 399 SpinWriter 2030P (20 cps) 669	
SpinWriter 2030P (20 cps) 669 SpinWriter 3530P (35 cps) 779	
P-660 (216cps) Parallel 10" 479	
P-760 (216cps) Parallel 15" 619	
P-560 (240cps) Parallel 1049	
	Call
Microllie 193 Apple	ıalı

Panasonic		
	00 cps) NLQ Mode	199.00
	20cps) NLQ Mode	239.00
	30cps) NLQ Mode	299.00
	Ocps) NLQ Mode	419.00
	40cps) NLQ Mode	569.00
	cps) Daisywheel	259.00
	3cps) Daisywheel	399.00
Silver Reed		
	4cps) Daisywheel	189.00
EXP-500P (1	6cps) Daisywheel	189.00
	Ocps) Daisywheel	319.00
	Ocps) Daisywheel	659.00
Star Microni		040.00
SG-10 (120cp	os) Parallel	219.00 379.00
SG-15 (120c		379.00
SD-10 (160cp SD-15 (160cp	os) Parallel	449.00
SD-15 (160C)	Derellel	489.00
SR-10 (200cp SR-15 (200cp	os) Parallel	585.00
Toshiba	os) raiallei	363.00
	(216cps) Par. 10"	499.00
P-341 24 Pin	(216cps) Par. 15"	779.00
P-341 24 Pin	(216cps) Par./Ser. 15	
	(288cps) Par. 15"	1049.00
	(288cps) Par./Ser. 1	
	(Loospe, rainoon n	. 370.00
D1-1-D-1	41 LEC 1	
DISK DIN	es/Hard Disks	

(2000)	
Disk Drives/Hard Disks	
Apple Apple ProFile (10 Meg) w/Access. Kit Apple / /c External Drive Apple DuoDisk w/Accessory Kit Apple UniDisk 3.5 w/Apple / / Utilities Apple UniDisk 3.5 w/Catalyst Apple UniDisk 3.5 w/Catalyst Apple Unidisk 3.5 cccssory Kit (II + // AST Research MicroStor 10MB Tape Backup Only MicroStor 10 MB Hard Disk Only	229.00 449.00 359.00 385.00 (e) 59.00 939.00 939.00 1449.00 iks Call 599.00
AD-3C Slimline / /e or / /c Pico Products	129.00
Apple Half-Height II+,/ /e, / /c Turn Apple II+, or / /e, Into / /c Compatible Drive	139.00
Apple Disk Drive Adaptor Plug Quark	14.00
	799.00 1119.00

Monitors	
Amdek Video 300G 12" Green Monitor Video 300A 12" Amber Monitor	115.00 119.00

Color Monitor 300 (Composite)	209.00
Color Monitor 600 (RGB)	385.00
DVM III RGB Interface	119.00
Apple	
Color Monitor / /e	289.00
Color Monitor / /c	289.00
Princeton Graphics	
HX-9 9" RGB Color	389.00
HX-12 RGB 12" RGB Color	409.00
RGB-80 Interface	140.00
Sakata	
SG-1000 Green	105.00
SA-1000 Amber	115.00
SC-100 Composite Color	149.00
SC-200 RGB Color	379.00
SWI International Systems	
CVUE Flat-Panel Display / /c	389.00
Taxan	
115 12" Hi-Res Green	115.00
116 12" Hi-Res Amber	119.00
220 14" Composite Color	209.00
610 12" Hi-Res RGB Color (510x200)	345.00
620 12" Hi-Res RGB Color (640x200)	
410-80/64 RGB-II Interface	169.00
Teknika	
MJ-22 RGB Color Monitor	199.00

### **Ordering Instructions**

VISA AND MASTERCARD ACCEPTED
To order, call us anytime Monday thru Friday 9:00
to 9:00, Saturday 10:00 to 6:00. For fast delivery
if ordering by mail, send cashier's check, certified
check or money order. Fortune 1000 & Government checks honored immediately—Personal and
other company checks allow 2 weeks to clear.
Mastercard & Visa include card # & expiration
date. Connecticut residents add 7:5% sales tax.

uate. vonnecticut residents add 75% sales tax.

Shipping Charges: Software – \$3.00 Minimum charge U.S. Mainland. With C.O.D. shipments add an additional \$2.00 U.S. Postal, APO, and FPO add 3% (\$5.00 Min.). Alaska or Hawaii add 6% (\$10.00 Min.). Canadian orders add 10% (\$15.00 Min.). Foreign Orders except Canada—Add 18% (\$25.00 Min.).

Hardware - Please call for shipping charges.

Hardware – riease call for shipping charges.

Our Policy: We do not guarantee machine compatibility. All products are new and include factory warranty, therefore ALL sales are final. Defective software will be replaced by the same item only. Defective hardware will be replaced or repaired at our discretion. Prices & availability subject to change without notice. Products purchased in error, subject to 20% restocking fee. All returns must have an authorization number. Call (203) 378-3662 to obtain one before returning defective products for replacement.

**Visit Our New Showroom:** Exit 32 off I-95



Visit Our New Showroom: Exit 32 Off I-95

Station House Square 2505 Main Street

Stratford, Conn. 06497 Telephone Hours: Monday-Friday 9-9;

Saturday 10-9 Showroom Hours: Monday-Friday 9-6;

Saturday 10-6

Orders Only TOLL-FREE 1-800-832-3201

MACINTOSH 512K/MACPLUS SYSTEMS CALL APPLE II E PROFESSIONAL SYSTEMS . CALL APPLE II C SYSTEMS ......CALL
Up to 60% Off Retail

Thirdware Finger Print Plus II + ,/ /e,/ /c

# NEWS LINE

edited by Wendy Lea McKibbin, inCider staff

### Report Card

In Apple's report for the first quarter of 1986, John Sculley promised, "If Apple is to stay at the forefront of the personal-computer industry, we must continue to develop and market products that make technological advancements available and affordable to our customers."

Sculley stresses the importance of products in areas like desktop productivity, communications, and publishing to Apple's future. To show he means what he says, Sculley offers us the first-quarter report, typeset with a Mac, pagemaker, and LaserWriter. It's a neat—and a cheap—trick, but the book doesn't have the quality you'd expect from a company with \$441,000,000 in the bank.

That's right. Revenues are up at Apple, even as sales are down. Apple admits on page one of the quarterly report that Apple II sales are responsible for its financial health, then goes on to stress the importance of the Mac market. Strange company.

### **Quibbling over DOS**

Apple DOS licensing continues to be a bone of contention between Apple and its user groups, who dislike being regulated by the same policies that apply to commercial software developers.

In an attempt to ward off software abuse and retain some measure of control, the company charges an annual \$50 fee for each type of Apple DOS-based volume a user group develops.

Many user groups, though, are either not bothering to obtain a license or are ignorant of the policy, according to an observer inside Apple. The difficulty appears to be aggravation with the red tape more than the sum of money involved, plus an underlying sentiment in the user community that they're "doing Apple a favor" when they comply.

One irate user who wrote to inCider summed up his dissatisfaction this way: "While Apple is within its rights under the law to protect corporate secrets, this regulation doesn't sound like the action of a company that's attempting to increase consumer consciousness."

Unofficially, Apple agrees. The company is evaluating site licensing as a way to resolve the problem.

### "Alleged Home Market" Finally Appears

Home-computer software made an extraordinary showing in 1985, accounting for 89 percent of the total Apple software sales of the members of the Software Publishing Association. The SPA consists of 51 firms representing a broad range of home, entertainment, and educational software.

According to executive director Ken Wasch of the Washington, D.C.-based SPA group, the home market appeared out of nowhere.

"The home-software market, which was virtually



Ken Wasch of SPA.

nonexistent before 1985, suddenly blossomed and vaulted past educational software during the calendar year," Wasch observes. "No one anticipated that products such as The Print Shop, Dazzle Draw, and The Newsroom would be so enormously successful."

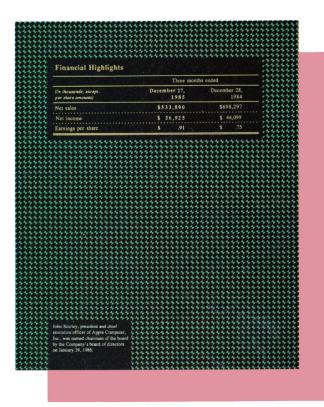
Winners in the home-software market boom for 1985 were Broderbund, Springboard, Spinnaker, Scarborough, Timeworks, and several others.

Besides the home market, other significant areas of growth for Apple software firms included recreational software, operating systems, languages, and vertical-market packages.

Business-software sales were "not significant," and educational-software sales were flat.

### lt's a Bird, It's a Plane. . .

Apple Computer Inc., the company that began in a garage with the profits from the sale of a VW bus and a pocket calculator, purchased a Cray X-MP/48 supercomputer for a cool \$14.5 million last March to "accelerate new-product development," according to Del Yocam, executive vice president at Apple.



Apple says it hopes to maintain a competitive edge against upstarts like Commodore and Atari by using the big computer to "simulate future hardware and software architectures." That means that Apple doesn't need to build a prototype—or pawn a bus and a calculator—every time it considers a new type of hardware or software.

The Cray X-MP/48 is no off-the-shelf computer. Forget the cost; another reason there are only 12 of them in the United States is that the Defense Department loses sleep wondering where they are. The DOD



Apple Computer executive vice president Del Yocam.

considers the Cray X-MP/48 a sensitive piece of military hardware. The Soviets have none, and Cray is none too quick to ship an X-MP/48 to Europe.

Yocam says the Cray X-MP/48 "will help us continue to bring revolutionary products to the market-place." By using a simulation of each new product before building it, Apple will make the revolution less of a risk.

### Is It Real?

It's an Apple //e compatible with 16-color capability, it's lightweight and portable, and it comes with mouse interface, 128K of RAM, 80-column text display, modem interface, and more. It costs less than \$400.

Do you believe it? We're not sure we do, but it's certainly interesting. The product is the Laser 128, and we first saw it at the Consumer Electronics Show in Las Vegas in January.

The Laser 128 is made in Hong Kong by Video



Laser 128, from Central Point Software.

Technology, a Chicagobased company. The U.S. distributor is Central Point Software of Portland, Oregon. The Laser 3000, the company's first product, is compatible with the II Plus. That machine has been available for about a year and is sold primarily through mail order, but it hasn't developed much of a market, observers say.

It did get Apple's attention, though. The company is currently involved with Apple in legal discussions concerning possible patent infringements with the design of the 3000. Apple observers expect the Laser 128 to encounter similar legal problems. But executives at Video Technology say, "We

don't foresee legal problems holding us up."

Laser 128's are imported in 100-lot shipments, and by late March company officials reported "several hundred" had been shipped. Officials say they haven't heard from Apple, but "wouldn't be surprised if Apple had one."

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

## CALENDAR

### June 2-5 SYNTOPICAN XIV

San Francisco, CA contact: Association of Information Systems Professionals Conference Services 1015 North York Road Willow Grove, PA 19090 (215) 657-6300

### June 4-6 NECC '86

San Diego, CA contact: National Educational Computing Conference 11 West 42nd Street New York, NY 10036 (212) 869-7440

### June 7-8 AMATEUR FAIR '86

Hopkins, MN contact: Amateur Fair P.O. Box 857 Hopkins, MN 55343 (612) 566-4000

### June 22-August 1 NATIONAL COMPUTER CAMPS

Simsbury, CT Atlanta, GA Cleveland, OH contact: National Computer Camps Box 585-CA Orange, CT 06477 (203) 795-9667

# (See Below) WE WILL BEAT 88 Ryders Lane, Stratford, Connecticut 06497

19.50 30.00 35.00 35.00 33.00 65.00 65.00 22.50 32.00

18.00 18.00

18 00

22.00 22.00 22.00 22.00 22.00

32.00

22.50

22 50

19.50 19.50 19.50

21.75

21.00 18.50

30.00

27.00

30.00

24.00 24.00

22.50 22.50 21.50

27.25

00

**SPECIALS** 

- 1. Tap our unmatched selection and inventory of software/hardware for the Apple, Mac(as well as the IBM PC, and Commodore Amiga).
- 2. School and corporate purchase orders are welcomed. CALL 1-800-874-1108.
- 3. Special/rush orders. If something you need is not listed, hard to find, or needed in a hurry, CALL 1-800-874-1108.
- 4. Order Status. CALL (203) 375-3860.
- 5. FREQUENT PURCHASER PROGRAM. Effective 10/14/85, any repeat customer who has placed an order after 9/4/85 will automatically receive \$1 off any order he or she places with us. Please mention to your operator that you are a repeat customer. We value your continuing business. Send in \$1,000 worth of invoices (representing previous purchases) and you will receive a coupon worth 1% off any future purchase. With \$5,000 worth of invoices, receive a coupon worth 5% off any future purchase.
- 6. SOFTWARE RENTAL LIBRARY. For 25% of our price, rent any program for two weeks. Apply your rental fee toward purchase if you choose.
- 7. No additional charges for credit card orders.
- 8. Convenient hours. 7 days/week: 9 AM-11 PM EST.
- 9. Technical experts on duty.
- 10. FREE AIR EXPRESS SHIPPING. Purchase \$150 or more of soft ware and for no additional charge we will ship your products by air courier. Mention this to your operator as you place your order.
- 11. FURTHER DISCOUNTS BY MAIL. Circle the items in our ad you want, send the ad in with the coupon below and receive \$.50 off each item! Cut out a competitor's ad with a lower price and we will give you \$1 off his price (subject to the conditions below).

To be eligible for the \$ .50 1. Fill out all items. 2. \$	O per item discount you send in our ad with th	ou must: e items you desire cird
Name		,
Address		
	[Include Company Name] State	

Parsonal and company checks allow 3 weeks to dear. For faster delivery, send cashier's check, certified check, or money order. Shipping—Software (\$3.00 minimum). Shipping—Hardware (please call 203-373-3869). C0D—Add an additional \$5,00. Allosko, Hawaii, Lanodo, PO, ARO, and FPO \$5,00 minimum, Foreign orders—\$10. Una minimum and 15% of all orders over \$100. Mostercard and Yiss (please include card no. and expiration date). Connecticut residents add 7.5% sales from. Expires subject to hange without notice, All returns must have a return authorization number. Call 203-375-38661 to obtain one before returning goods for replacement please with time time and, We do not guarantee compatibility. All sales are final. "Comparable advertised price" does not include typographical errors on the part of other vendors or prices that do not reflect higher shipping costs; credit tord charges, or membership less. The \$1 off offer only applies to tiens: where Northeostern's price is not already the lowest. Final judgement remains with the manager on duty.

### Ultima IV Silent Service Spellworks Moebius Pinpoint . . Reportworks Megaworks Uunder Fire BASF SS/DD **COPY PROGRAMS** AND BOARDS Bock It Up III Copy Master II 128K W/Gr Dump Edd IV Locksmith 6.0 Nibbles Away III Wildcard II **ENTERTAINMENT** ACCOLADE Reachhead II Fight Night Hardball Law of the West ... PSI #5 Trading Post Borrowed Time Countdown to Shutdown Ghostbusters or Zenii ..... Mindshadow or Space Shuttle The Tracer Sanction or Hacker AVALON HILL AVANT GUARD Dave Winfield's Batter Up BLUE CHIP illionaire, Baron or Tycoon RRODERRIIND Captain Goodnight Championship Loadrunner Lode Runner or Karateka. Murder by the Dozen or Felony DATASOFT Alternate Reality Bruce Lee or Conan ELECTRONIC ARTS

Planetfall or Enchanter Sorcerer, Suspect or Infidel Witness or Seastalker Zork II or Zork III MICROPROSE	
Crusade in Europe Decision in the Desert F-15 Strike Eagle or Solo Flight MATO Commander MICRO LEAGUE SPORTS	
Micro League Managers Disk	22.50 22.50
Crossword Magic Holley Project James Bond View to a Kill Rombo Steven King The Mist Voodoo Island ODESTA	28.00 25.50 22.50 22.50 22.50 22.50 22.50
How About a Nice Game of Chess?	20.50
ORIGIN SYSTEMS Auto Duel Moebius Ultima III Ultima IV PENGUIN	33.25
PENGUIN Coveted Mitror Crimson Crown Expedition Amazon The Quest or Ring Quest Xyphus or Transylvania SEGA	20.50 19.50 19.50 19.50 19.50
Xyphus or Transylvania	19.50
Frogger 3-Deep or Super Zaxxon Spy Hunter or Buck Rogers Topper or Star Trek SIERRA ON LINE	19.50 25.75 25.75
King's Quest I or II	28.00
Wizordry I Wizordry II Wizordry III or Wizordry IV Wizprint	26.75 19.50 22.50 14.25
SPECTRUM HOLOBYTE Gato	20.50
STRATEGIC SIMULATIONS 50 Mission Crush Bathic 85 or Gemstone Warrior Bathalion Commander Bathe for Normandy, Geopolitique 1990 Germany 1985 or Carrier Force Imperium Galbachicum or Broadsides North Atlantic 86. Objective Kursk or Phantosie Operation Marker Garden Questron Reforger 88 or Kampfgruppe USAAF War in Russia SUB LOGIC Flight Simulator II Night Mission Pinball	22.50 19.50 22.50 22.50 22.50 33.50 22.50 33.50 22.50
Operation Market Garden Questron Reforger 88 or Kampfgruppe USAAF Wor in Russia SUB LOGIC	28.00 28.00 33.50 32.00 45.00
TEL ARILIM	
TEL ARILIM	
TELARUM Dragonworld or Shadowkeep Fohienheit 451 or Amazon Rendezvous with Rama  PRINTERS  APPLE Imagewriter II. W/Acc. Kit Imagewriter IS' W/Acc. Kit Imagewriter Is' W/Acc. Kit	22.50 22.50 22.50
TELARUM Dragonworld or Shadowkeep Fohrenheit 451 or Amazon Rendezvous with Rama  PRINTERS  APPLE Imagewriter II W/Acc. Kit Imagewriter 15'' W/Acc. Kit Izaerwriter BROTHER HR-15 XL 3: HR-25 44 HR-35 6	22.50 22.50 22.50 22.50
TELARUM Dragonworld or Shadowkeep Fohienheit 451 or Amazon Rendezvous with Rama  PRINTERS  APPLE Imagewriter II W/Acc. Kit Imagewriter S'' W/Acc. Kit Imagewriter BROTHER HR-15 XL 33 HR-25 44 HR 35 66	22.50 22.50 22.50 22.50

FX-185	CALL
FX-185	CALL
U-1500	1 ( ) ( )
DX-10 DX-20 AP-80 Imagewriter	CALL
AP-80 Improprietor	CALL
luki 5500 Color	CALL
luki 6100	340.00
luki 5500 Color luki 6100 luki 6300 WANNESMAN TALLY	650.00
WANNESMAN TALLY MI-85 MI-86 MI	340.00
MT-86	410.00
NEC INFORMATION SYSTEMS	
2030	615.00
353U	9/5.00
2	490.00
If 360	375.00
OKIDATA	
82P 92P 92 Imagewriter	CALL
192P	CALL
93P	CALL
Okimate 20 Color	CALL
NUSVAV	
(XP 1091	225.00
(XP 1092	345.00
XXP 1091 XXP 1092 XXP 3131 XXP 3151	375 NO
etter Pro 20	395.00
xp 400P	200.00
xn 550P	245 00
xp 770P	669.00
xp 770P TAR MICRONICS	669.00
xp 400P xp 500P xp 550P xp 550P TAR MICRONICS	669.00
Xp 770P TAR MICRONICS 6 10	669.00 215.00 369.00
xp 770P TAR MICRONICS G 10 G 15 D 10	215.00 369.00 329.00 439.00
G 15	369.00 329.00 439.00
G 15	369.00 329.00 439.00
G 15 D 10 D 15 R 10 r 15	369.00 329.00 439.00 479.00 579.00
G 15 D 10 D 15 R 10 r 15	369.00 329.00 439.00 479.00 579.00
G 15 D 10 D 15 R 10 r 15	369.00 329.00 439.00 479.00 579.00
G 15	369.00 329.00 439.00 479.00 579.00
G 15 D 10 D 15 R 10 r 15 SOSHIBA 351 340P 341	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
G 15 D 10 D 15 R 10 r 15	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
6 15	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
6 15 D 10 D 15 R 10 t 15 SOSHIBA 351 340 PRINTER INTERFA	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
6 15	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
6 15 D 10 D 15 R 10 t 15 SSHBA 3331 PRINTER INTERFA  RRANGE MICRO  uffered Groppler rappler Plus PIES LABS	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00
6 15 D 10 D 15 R 10 t 5 R 10 t 15 SSHIBA 351 340P 341 PRINTER INTERFA  RANGE MICRO uffered Grappler toppler Plus PIES LABS tice Print EXTPRINT	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00 CES
6 15 D 10 D 15 R 10 t 5 R 10 t 15 SSHIBA 3351 340P PRINTER INTERFA RANGE MICRO offered Grappler rappler Plus PIES LABS	369.00 329.00 439.00 479.00 579.00 1025.00 395.00 785.00 CES

ACCESSORIES/

TURBO BOARDS

APPLE COMPUTER

Appleworks Modifier 64K . Appleworks Modifier 128K CH HAYES

INNOVATIVE TECHNOLOGIES

KOALA TECHNOLOGIES

pet Learning Keys....

26.00

157.50

Math Sequences (each) . . . . . Number Chase or Pop R' Spell Milliken Word Processor . . . . .

Apple Mouse IIC Apple Mouse IIE

KEYTRONICS

### **EDUCATIONAL** APPLE BARRONS BRAINPOWER BRODERBUND Science Toolkit . Adventure Master Mastering the SAT . . . America Coast to Coast Goren's Learning Bridge Success with Algebra . . Success with Math . . . . DAVIDSON AND ASSOCIATES Alge Blaster . . . Speed Reader II Word Attack, Mathblaster DESIGNWARE Spellicopter or Spellakazam . . States & Traits and European Alien Addition or Alligator Mix Meteor Mult. or Minus Mission Demolition Division or Dragon Mix Whiz or Word Invasion Spelling Whiz or word in EDU-WARE/PEACHTREE Compu Math SAT Word Attack Skills Spelling Bee Games . . . Algebra 1,2,3 or 4 . . . Algebra 5 & 6 . . . . Writing Skills 1,2,3,4,5 Hands on BASIC . . . . . Introduction to Counting FISHER PRICE Alpha Bi HARCOURT BRACE JOVANOVICH Harcourt SAT ...... Harcourt GRE or ACT GROLIER Science Island or Treasure Hunter Easy Graph or Friendly Filer CALL HAYDEN 47.50 LEARNING COMPANY ROCKY'S Boots or Robot Odyssey Number Stumper or Reader Robbit Magic Spells or Word Spinner Bumble Games or Bumble Plot Gertrude's Puzzles or Secrets MAGNUM 18.00 Super Speed Reading . . 185.00 70.50 Elementary Series (each) ... Math or Health Series (each MICROSOFT 41.50 Typing Tutor II .

STREET ELECTRONICS

TITAN TECHNOLOGIES

Accelerator IIE ...... Saturn 128K RAMCard

Mockingboard A or B

Mockingboard

91.00

104 00

203.00

50.50

33.00

52.50 20.50 42.00

22.00

21.00

17.50

15.00

26.00 15.00 21.00

20.00 25.00 20.50 25.00 19.00

44.00

52.00

23.00 23.00 28.00

12.00

30.00

29.00 29.00

14.75

Adventure Construction Set Archon

Bard's Tale or Reach for the Stars Carriers at War

Archon II or Skyfox

Music Construction Set One-on-One

Pinball Construction Set Seven Cities of Gold EPYX

Summer Games I or II .

Cutthroats or Zork 1

Temple of Asphai Trilogy
Winter Games
World's Greatest Baseball Game

World's Greatest Football Game HAYDEN

Deadline, Suspended or Starcross Hitchhiker's Guide to the Galaxy

Europe Ablaze

# ASIFERN

# ANY COMPARABLE ADVERTISED PRICE BY \$1

VIRTUAL COMBINATICS
Micro Cookbook 11/115

TURNING POINT

MINDSCAPE	
Perfect Score SAT SCARBOROUGH SYSTEMS Build a Book About You	. 40.00
SCARBOROUGH SYSTEMS	
Build a Book About You	. 18.00
Boston Computer Diet	. 45.00
Mastertype's Writing Wizard	. 42.00
Boston Computer Diet Mastertype's Writing Wizard Mastertype's Filer Mastertype's New and Improved Run for the Money or Songwriter SCHOLASTIC WIZWARE	222.00
Pun for the Money or Conquistor	15 00
SCHOLASTIC WIZWARE	. 13.00
Microzine 1-8 (each) Story Tree or Story Maker Turtle Tracks or Agent USA Operation Frog or Logic Builders Loga Robot or Kids at Work	20.50
Story Tree or Story Maker	20.50
Turtle Tracks or Agent USA	. 22.00
Operation Frog or Logic Builders	20.50
Logo Robot or Kids at Work	. 14.25
SIMON AND SCHUSTER	
IMUN AND SCHUSTEK Lovejoy's Preparation for the SAT Typing Tutor III SPINNAKER SOFTWARE	. 23.00
Lovejoy's Preparation for the SAT	. 40.00
Typing lutor III	. 28.50
SPINNAKER SOFTWARE	
Fraction Fever or Face Maker File and Report or Spreadsheet Snooper Troops 1 or 2 Story Machine or Grandma's House Kindercomp or Kids on Keys Spinnaker Word Processor	. 14.50
File and Report or Spreadsheet	. 33.50
Snooper Iroops 1 or 2	. 19.00
Story Machine or Grandma's House .	. 14./5
Chinadar Word Processor	22 50
Alphabet Zoo or Kidwriter	. 16.75
CDDINGROADD	
Mask Parade Easy As ABC Mothusters	16.00
Make a Match or Fraction Factory	. 16.00
Mask Parade	. 21.00
Easy As ABC	. 21.00
Mathbusters	. 17.50
TERRAPIN	
TERRAPIN Terrapin Logo	. 52.00
TIMEWORKS	1//.00
Evelyn Wood Dynamic Reader	20 75
WEEKIV DEADED	
Exploring Tables and Graphs Sticky Bear Series (each)	19.00
Sticky Renr Series (ench)	21.00
J , 2001 501103 (00011)	21.00
DITCINIECC	
BUSINESS	
ADVANCED LOGIC SYSTEMS	
The Handlers Packeage	80.00
List or Word Handler	40.00
Snellworks	30.00

Sicky bear Series (each) 21.00
BUSINESS
ADVANCED LOGIC SYSTEMS
The Handlers Packeage
List or Word Handler 40.00
Spellworks
APPLE
Appleworks CALL Applewriter II CALL
Annie Arrecc [All
Quickfile CALL
Quickfile CALL APPLIED SOFTWARE TECHNOLOGY
Versaform
Magic Office Systems 142.00
Magic Calc 3.3         55.00           Magic Windows         76.00
ASHTON TATE
DBase II
RPI
Gen. Acctg. AR, AP, GL, PAY 194.00 Gen Acctg. AR, AP, GL, PAY Pro Dos 209.00
Gen Acctg. AR, AP, GL, PAY Pro Dos 209.00
BLYTH
Omnis III
Rank Street Filer 39 00
Bank Street Speller 39.00
Bank Street Filer         39.00           Bank Street Speller         39.00           Bank Street Writer 64K or 128K         39.00
CONTINENTAL SOFTWARE
Home Accountant or Tax Advantage 37.25
DOW JONES SOFTWARE
Investor's Workshop
Mkt Mar or Sprendsheet Link 147 00
Membership Kit
ELECTRONIC ARTS
Financial Cookbook
ELECTRONIC ARTS           Financial Cookbook         30.00           Cut & Paste         21.00
FUNK
FUNK Sideways
The Writer
Real Estate Analyzer III 175.00

Mouse Budget	. 40.00
Mouse Calc Mouse Desk Mouse Word Mouse File	87.00 22.50 75.00
Mouse Desk	. 22.50
Mouse File	CALL
KENSINGIUN	
Format II Enhanced LIVING VIDEOTEXT	86.00
Think Tank II/IIE	. 75.00
MEGAHAUS	. 75.00
Megafinder	. 89.00
megaworks	65.00
Reportworks	65.00
MANZANITA	
Business Accountant System Manage Business Accountant GL/AP/AR/IN	r 67.00
Business Accountant GL/AP/AR/IN	r 67.00 195.00
Business Accountant Payroll	225.00
Adv. Business Acct. System Munager Adv. Business Acct. GI/AP/AR/IN	255.00
Adv. Business Acct. Payroll	290.00
Businessworks Syst: Manager	. 67.00
Businessworks GL/AP/AR/IN	255.00
Business Accountant GLAPAR/IN Business Accountant Payroll Adv. Business Acct. System Monager Adv. Business Acct. GlAPAR/IN Adv. Business Acct. Payroll Businessworks Syst. Monager Businessworks GLAPAR/IN Businessworks Payroll MECA	290.00
managing four money	100.00
MICROPRO	
Wordstar	168.00
MICROSOFT Multiplan	. 54.00
MONOGRAM	. 34.00
Dollars & Sense	. 66.50
Dollars & Sense IIC	. 66.50
Forecast	. 34.00
Will Writer	. 28.50
Will Writer	. 20.30
Graphworks	. 58.00
Jeeves	. 35.00
Back to Basics	. 98.00
PINPOINT PUBLISHING	. 70.00
Pinpoint	. 35.00
PRACTICORP	
PRACTICORP Practicals	. 25.00
PRACTICORP Practicalc	
PRACTICORP Procticalc	. 25.00
PRACTICORP Procticalc	. 25.00
PRACTICORP Procticalc	. 25.00
PRACTICORP Procticalc PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Cotolyst IIE ROOMER WAGNER PUBLISHING Mouse Write	. 25.00 . 53.00 . 56.00 . 55.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Jugler W/Lexicheck Cotolyst IIE ROGER WAGNER PUBLISHING Mouse Withe The Write Choice	. 25.00
PRACTICORP Procticolc PRECISION SOFTWARE Superbose OULARK Word Juggler W/lexicheck Cotolyst ITE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLLODER ROLLODER	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50
PRACTICORP Procticolc PRECISION SOFTWARE Superbose OULARK Word Juggler W/lexicheck Cotolyst ITE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLLODER ROLLODER	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Corabyst IIE. ROGER WAGNER PUBLISHING Mouse Write. The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE	. 25.00 . 53.00 . 56.00 . 55.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler W/Lexicheck Cotalyst TIE ROGER WAGNER PUBLISHING Mouse Withe The Write Choice ROLODEX Rolodex Longle Express SATELLITE SOFTWARE Word Perfect	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50
PRACTICORP Practicol PRECISION SOFTWARE Superbose Oldark Word Juggler W/lexicheck Catalyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Compucard Rolodex Inbel Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler W/Lexicheck Coralyst Tile ROGER WAGNER PUBLISHING Mouse Write Into Write Choice ROLODEX Roldex Computant Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUARK Word Juggler Wlexicheck Coralyst Tile ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Computant Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBORDUGH NEY WORT SENSIBLE SOFTWARE ROWERS SOFTWARE ROWERS SOFTWARE ROWERS ROWER	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler Wilexicheck Cotalyst Tile ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Longurard Rolodex Longurard Rolodex Longurard SAFELITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Deportment	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Corabyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Ner Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 65.00 . 53.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Corabyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Ner Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIFRRA-ON-LINE	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Computord Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE The Graphics Department Sensible Sopelier The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 37.70 . 45.00 . 65.00 . 33.00 . 33.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Computord Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE The Graphics Department Sensible Sopelier The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 65.00 . 65.00 . 53.00 . 33.00 . 27.00 . 40.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Computord Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE The Graphics Department Sensible Sopelier The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 37.70 . 45.00 . 65.00 . 53.00 . 33.00 . 33.00
PRACTICORP Procticol PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Computord Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE The Graphics Department Sensible Sopelier The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 65.00 . 65.00 . 53.00 . 33.00 . 27.00 . 40.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Corabyst IIE ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLIDEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Ner Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Gramma Report Card SIERRA-ON-LINE The General Manager II Homeword Homeword Homeword Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 37.70 . 45.00 . 65.00 . 53.00 . 33.00 . 33.00
PRACTICORP PROCISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Corabyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLIDEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Ner Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Report Card SIERRA-ON-LINE The General Manager II Homeword Homeword Homeword Bundle SUPPLIE SUP	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 65.00 . 65.00 . 65.00 . 33.00 . 27.00 . 40.00 . 73.00 . 73.00 . 73.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIERRA-ON-LINE The General Manager II Homeword Speller Screenwriter III Homeword Speller Screenwriter III Homeword Speller Superciol 30  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 30.00 . 73.00 . 30.00 . 73.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIERRA-ON-LINE The General Manager II Homeword Speller Screenwriter III Homeword Speller Screenwriter III Homeword Speller Superciol 30  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 30.00 . 73.00 . 30.00 . 73.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIERRA-ON-LINE The General Manager II Homeword Speller Screenwriter III Homeword Speller Screenwriter III Homeword Speller Superciol 30  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 30.00 . 73.00 . 30.00 . 73.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIERRA-ON-LINE The General Manager II Homeword Speller Screenwriter III Homeword Speller Screenwriter III Homeword Speller Superciol 30  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 30.00 . 73.00 . 30.00 . 73.00
PRACTICORP Procticol PRECISION SOFTWARE Superbase QUARK Word Juggler Wilexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammara Report Card SIERRA-ON-LINE The General Manager II Homeword Speller Screenwriter III Homeword Speller Screenwriter III Homeword Speller Superciol 30  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33  CESTWARE BURLISHING SUPERCIOL 33	. 25.00 . 53.00 . 55.00 . 72.00 . 26.50 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 30.00 . 73.00 . 30.00 . 73.00
PRACTICORP PROCISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROIDDEX SAFELLITE SOFTWARE WORD PERFECT SCARBOROUGH NOR WORTH SENSIBLE SOFTWARE BOOKENS BOOKENS SOFTWARE ROIDDEA SIERRA-ON-LINE HORMOROF HORMOROF HORMOROF ROIDDEA SORCIM ROIDDEA SORCIM ROIDDEA SORCIM ROIDDEA SORCIM ROIDDEA ROIDD	. 25.00 . 53.00 . 55.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 45.00 . 33.00 . 127.00 . 40.00 . 30.00
PRACTICORP PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROIDDEX Roldex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBORDUGH Ner Worth SENSIBLE SOFTWARE Word Perfect The Graphics Department Sensible Grammar Report Card Sensible Sopelier Inhe Graphics Department Sensible Grammar Report Card Homeword Homeword Homeword Homeword Speller Screenwriter IIE Homeword Writer and Speller Supercals 3A SOFTWARE PUBLISHING PFS: First Success PFS: Access PFS: Access PFS: Reje or Graph PFS: Report or Write STATE OF THE ART Electric Checkbook CIARNAPINION or Payorlol	. 25.00 . 53.00 . 55.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 45.00 . 33.00 . 127.00 . 40.00 . 30.00
PRACTICORP PRECISION SOFTWARE Superbase OUJARK Word Jaggler W.Lexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write. The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller SUBLICE SOFTWARE PUBLISHING PSS- First Success PSS- Access PSS- Access PSS- Report or Write STATE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANESHAPINN or Payroll STANESHAPIND OR STANESHAPINN or Payroll STANESHAPINN or Payr	. 25.00 . 53.00 . 56.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 65.00 . 73.00 . 65.00 . 73.00
PRACTICORP PRECISION SOFTWARE Superbase OUJARK Word Jaggler W.Lexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write. The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller SUBLICE SOFTWARE PUBLISHING PSS- First Success PSS- Access PSS- Access PSS- Report or Write STATE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANESHAPINN or Payroll STANESHAPIND OR STANESHAPINN or Payroll STANESHAPINN or Payr	. 25.00 . 53.00 . 56.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 65.00 . 73.00 . 65.00 . 73.00
PRACTICORP PRECISION SOFTWARE Superbase OUJARK Word Jaggler W.Lexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write. The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller SUBLICE SOFTWARE PUBLISHING PSS- First Success PSS- Access PSS- Access PSS- Report or Write STATE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANESHAPINN or Payroll STANESHAPIND OR STANESHAPINN or Payroll STANESHAPINN or Payr	. 25.00 . 53.00 . 56.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 65.00 . 73.00 . 65.00 . 73.00
PRACTICORP PRECISION SOFTWARE Superbase OUJARK Word Jaggler W.Lexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write. The Write Choice ROLODEX Rolodex Compucard Rolodex Label Express SATELLITE SOFTWARE Word Perfect SCARBOROUGH Net Worth SENSIBLE SOFTWARE Bookends or Sensible Speller The Graphics Department Sensible Grammar Report Card SIERRA-ON-LINE Homeword Speller Screenwriter IIE Homeword Speller Screenwriter IIE Homeword Speller SUBLICE SOFTWARE PUBLISHING PSS- First Success PSS- Access PSS- Access PSS- Report or Write STATE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANE OF THE ART Electric Checkbook GLANAPINN or Payroll STANESHAPINN or Payroll STANESHAPIND OR STANESHAPINN or Payroll STANESHAPINN or Payr	. 25.00 . 53.00 . 56.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 65.00 . 73.00 . 65.00 . 73.00
PRACTICORP PRECISION SOFTWARE Superbose OUJARK Word Juggler Wlexicheck Coralyst IIE. ROGER WAGNER PUBLISHING Mouse Write The Write Choice ROIDDEX Roldex Compucard Rolodex Label Express SAFELLITE SOFTWARE Word Perfect SCARBORDUGH Ner Worth SENSIBLE SOFTWARE Word Perfect The Graphics Department Sensible Grammar Report Card Sensible Sopelier Inhe Graphics Department Sensible Grammar Report Card Homeword Homeword Homeword Homeword Speller Screenwriter IIE Homeword Writer and Speller Supercals 3A SOFTWARE PUBLISHING PFS: First Success PFS: Access PFS: Access PFS: Reje or Graph PFS: Report or Write STATE OF THE ART Electric Checkbook CIARNAPINION or Payorlol	. 25.00 . 53.00 . 56.00 . 55.00 . 72.00 . 26.50 . 33.75 . 33.75 . 77.00 . 45.00 . 45.00 . 45.00 . 65.00 . 65.00 . 40.00 . 73.00 CALL 100.00 . 126.00 . 43.00 . 68.00 . 68.00 . 56.00 . 275.00 . 167.00 . 235.00 . 87.00 . 187.00 . 187.00 . 187.00

INTERNATIONAL SOLUTIONS

Flashcalc	. 57.00
MONITORS	
APPLE Color Monitor IIE or IIC AMDEK Color 300 Color 600 Video 300A Amber Video 300A Green VVM III PRINCETON VV. 9	
Color Monitor IIE or IIC	CALL
Color 300	205.00 373.50
Video 300A Amber	115.00 110.00
DVM IIIPRINCETON	115.00
	389.00 409.00
HX-12 RGB Interface	140.00
115 Green	105.00 110.00
610	300.00 350.00
IAAAN 115 Green 116 Amber 510 520 530	405.00
540	460.00
MULTIFUNCTION	1
BOARDS	
APPLIED ENGINEERING	CALL
	CALL
RGB Option ! RAM IIC System Clock	100.00 . CALL . 62.00 102.00
/iewmaster fimemaster H.Q.	102.00
3SR Option	105.00
APRICORN	103.00
Apricorn 16K KAM Card	. 84.00
AST Mega RAM Plus	CALL
AST Micro Star (10MG HD 3.5")	1249.00
AST Micro Star (10MG B.U.) AST Micro Star (10MG HD W/B.U.)	1025.00
HECKMATE TECHNOLOGIES	152.00
heckmate ZEE-80A Card	. 64.50
heckmate Multiram C (256K) heckmate Multiram C (512K)	245.00 310.00
heckmate Multiram IIE	129.00 205.00
REATIVE PERIPHERALS ime Trox IIE or IIC	. 77.50
// Information   10    See Option   2.58 Option   2.50 Opt	. 69.00
wyftcard DHIO KACHE SYSTEMS CORPORATI ache Board (256K)	ON CALL
IHIO KACHE SYSTEMS CORPORATI ache Board (256K) IKSC Optional Power Supply RACTICAL PERIPHERALS eirall Interface Card tricleck IIE or IIC tricleface.	CALL
RACTICAL PERIPHERALS  erial Interface Cord	
roclock IIE or IIC	. 90.75 116.50 . 47.00 . 57.00
raphicard	57.00
Juddram Pro Dos Clock/Calendar	59.00
luadram Buffered Serial Int. (64K)	95.00
luadram Parallel Card W/Graphics	70.00
luadram Multi-Core Board W/256K	175.00
IJADRAM  Juadram Pro Dos Clock/Calendar  Juadram Extended Multifunction Car  Juadram Buffered Serial Int. (64K)  Juadram Parallel Interface  Juadram Parallel Card W/Graphics  Juadram Bo Column 64K Card  Juadram Multi-Core Board W/256K  Juadram E-RAM 80  TREET ELECTRONICS  Johabhits II	70.00
lphabits II ivewire W/Clock	CALL . 70.50

Business Card Serial . Business Card Parallel THUNDERWARE

### **MODEMS**

ANCHOR AUTOMATION	
	177 5
Volksmodem 1200	11.0
NOVATION	
	185.0
Apple Cat II 212 Upgrade Kit	215 0
212 Applecat	353.00
	030.0
APPLE COMPUTER	
Apple IIe, IIC or MAC Connector Kit.	. 23.00
Apple Personnel Modem	260.0
HAYES	
Hayes Smartmodem 300	132.0
Hayes Smartmodem 300 IIC	152.00
Hayes Smartmodem 300	128.00
Hayes Smartmodem 1200	360.00
Hayes Smartmodem 2400	570.00
PRÉNTICE	
Popcom X-100 Modem	244.00
PROMETHEUS	
Prometheus 1200 External	267.00
Prometheus Internal IIE/II+	255.00
ZOOM TELEPHONICS	
Zoom Modem IIE	114.00
Zoom Modem IIE Plus	120.00
ANUMATION (CDADI	ucc

### ANIMATION/GRAPHICS SOFTWARE

BAUDYILLE	BAUDVILLE	
Section   10   Sect	Actors and Actions	16.25
Section   Sect	Blazing Paddles	25.75
Section   Sect	Heroes and Villains	16.25
Section   Sect	Pix It	28.00
Section   Sect	Shape Library 1,2, or 3	10.75
Section   Sect	Take 1	31.50
Section   Sect	BEAGLE BROTHERS	
Section   Sect	Beagle Graphics	30.00
Section   Sect	Frame Up	15.00
Section   Sect	BRODERBUND	
DATA TRANSFORMS	Dazzle Draw	34.00
DATA TRANSFORMS	Fantavision	27.00
DATA TRANSFORMS	Print Shop	26.75
DATA TRANSFORMS	Print Shop Companion	22.50
DATA TRANSFORMS	Graphics Library 1	14.25
DATA TRANSFORMS	Graphics Library 2	14.25
DATA TRANSFORMS	Graphics Library 3	14.25
Fontix	Refill Paner Pack	12 25
Fontix	DATA TRANSFORMS	
PENGUIN	Fontrix	50.00
PENGUIN	Font Packs 1-13	11.00
New Complete Graphics System		
Print   Prin	New Complete Graphics System	44 75
Print   Prin	Granhies Magician	33 75
Print   Prin	SENSIBLE SOFTWARE	00.73
Print   Prin	Graphics Department	63.00
Print   Prin	SOFTWARE PUBLISHING	0
Print   Prin	PES: Granh Dos or Pro Dos	67.50
Delto Drowing   22.75   SPRINGBOARD   16.25   Clip Art Collection Vol. 1   16.25   Clip Art Collection Vol. 2   19.00   Graphics Expander   22.25   Newscoom   30.00   WEKLY READER   PIC Builder   21.75   Zoom Graphics   29.50	SPINNAKER	07.50
SPRINGBOARD   1	Delta Drawina	22 75
Clip Art Collection Vol. 1   16.25	CPRINGROADD	
PIC Builder 21.75 Zoom Graphics 29.50  DISK DRIVES  APPLE Unidsk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL	Clin Art Collection Vol. 1	16 25
PIC Builder 21.75 Zoom Graphics 29.50  DISK DRIVES  APPLE Unidsk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL	Clin Art Collection Vol. 2	19.00
PIC Builder 21.75 Zoom Graphics 29.50  DISK DRIVES  APPLE Unidsk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL	Granhirs Evanader	22 25
PIC Builder 21.75 Zoom Graphics 29.50  DISK DRIVES  APPLE Unidsk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL	Nawsroom	30.00
PIC Builder 21.75 Zoom Graphics 29.50  DISK DRIVES  APPLE Unidsk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL	WEEKLY READER	30.00
DISK DRIVES  APPLE Unidisk W/Catolyst	PIC Ruilder	21 75
DISK DRIVES  APPLE Unidisk W/Catolyst	Zoom Graphics	29 50
APPLE Unidisk W/Catalyst CALL Duo Disk W/Acc. Kit CALL	Loom orapines	27.50
APPLE Unidisk W/Catalyst CALL Duo Disk W/Acc. Kit CALL	DICK DDINEC	
Unidisk W/Catalyst	משאח אכוח	
Unidisk W/Cotalyst CALL Duo Disk W/Acc. Kit CALL IIC Add On CALL	APPLE	
Duo Disk W/Acc. Kit CALL IIC Add On CALL	Unidisk W/Catalyst	. CALL
IIC Add On CALL	Duo Disk W/Acc. Kit	. CALL
	IIC Add On	. CALL

APPLE																
Unidisk	W/C	ato	ply	st		 								(	AL	l
Duo Dis	k W	/Ac	c.	K	ät									C	AL	l
IIC Add	On.													C	AL	1
MICRO	SCI															
A2 143	K											1	5	2.	0	0
Slimline	IIE											1	5	2.	0	0
Slimline	IIC											1	5	9.	0	0
Controlle	er Ca	ırd											4	7.	0	0
QUARK																
QC-10 H	lard	Di	sk									9	9	9.	0	0
QC-20 H	ford	D	isl	٠.							1	13	7	5.	0	0

### UTILITY SOFTWARE/ LANGUAGES

15.00

BEAGLE BROTHERS

apple Mechanic	15.00
Beagle Basic	18.00
)-Code	20.00
D-Code Disk Quick	15.00
Oos_Bos	12.00
Oos Bos Oouble Take	18.00
xtrn K	20 00
at Cat lex Text	18.00
lex Text	15.00
SPLE	25.00
PLE	15.00
Aini Pix ont Mechanic	14.75
ont Mechanic	15.00
Sig U	17.00
ro Byter	18.00
ig U Pro Byter Pronto Dos	15.00
ilicon Salad	12.75
rinle Dumn	19 00
ype Faces	10.75
Itility City	15.25
BORLAND	13.23
OUKLAND	25.00
urbo rascai	35.00
Urbo Darabase 100100X	28.00
urbo Pascal urbo Database Toolbox urbo Tutor CENSINGTON MICROWARE	20.50
ENSINGION MICKOWAKE	57.50
ystem Saver	57.50
AZERWARE isa V2.6	
ISO V2.6	52.50
AICROSOFT	
pplesoft Compiler	102.00
remium_Sottcard_IIE	247.00
EKFECI DAIA	
erfect Data Head Cleaning Kit	18.00
IUALITY lag of Tricks lag of Tricks II OGER WAGNER	
ag of Tricks	23.50
ag of Tricks II	23.50
OGER WAGNER	
Aerlin Pro	33.75
Merlin Pro	55.00
isible 6502	28.00
Itraterm W/SS Inv	75.00
ideo 7 RGB Interface IIE	93.00
Iltraterm W/SS Inv	84.00

### TELECOMMUNICATIONS SOFTWARE

APPLE COMPUTER								
Apple Access							. (	AL
COMPUSERVE								
Compuserve Starter Kit							14.	00
DOW JONES								
Spreadsheet Link	œ.					1	147.	00
Spreadsheet Link							18.	00
HAYFS								
omartcom 1							69.	00
tayes Terminal Program							54.	00
MICROSTUF								
rosstalk							95.	00
DIJARK								
erminus							53	75
OFTRONICS								
						1	22.	00
OFTWARE PUBLISHING				ĺ	•			
PFS: Access							43.	n
OURCE TELECOMPUTING	•						10.	
Source Subscription Kit							25.	۸ſ
JNITED SOFTWARE INDUS	TI	RIE	ς				23.	U
SCII Express Pro (Dos or P	m	D.	6				72	51
Cocii Express (10 (DOS OF 1)	U	ı	ıs]				12.	JU

### **BLANK MEDIA**

Elephant SS/DD									
Elephant DS/DD									
Verbatim SS/DD									
Verbatim DS/DD									
Memorex SS/DD									
BASF SS/DD									. 9.9
Maxell SS/DD									13.0





### **SUMMER GAMES.®**

Want some great play action? This award winning best seller brings you eight great events, including Swimming, Diving, Track, Gymnastics, and more. Compete against world records. Or get together with a group of up to eight for some good competitive fun. Realistic, graphics and action will challenge you again and again to go for the gold.

### SUMMER GAMES II.™

You asked us for more great events. Here they are. Rowing, Triple Jump, Javelin, High Jump, Fencing, Cycling, Kayaking, even Equestrian. Like SUMMER GAMES, you get spine tingling action and challenge for one to eight players. These aren't just games. They're the games. And you're the star.

### WINTER GAMES.™

You've got to see the graphics, and feel the knot in your stomach as your bobsled careens along the walls of the run to know why people are wild over WINTER GAMES. Seven events give you a variety of action—from the endurance of the Biathlon to the timing of the Ski Jump, and more.

### What are you waiting for?

Play your favorite events over and over. Play all 22. Set up teams. Challenge your friends. These great actionstrategy games are sure to be the stars of *your* collection.

At your local Epyx dealer.

	APPLE	MAC	ATARI	C64/128
Summer Games	~		~	~
Summer Games II	~			~
Winter Games	~	~		~



Strategy Games for the Action-Game Player®

# APPLE CLINIC

### by Jim Sather

Apple Clinic is a forum for discussing Apple II hardware, software, and related subjects. If you have questions or answers or want to make a statement, write to Jim Sather, Apple Clinic, inCider, 80 Pine Street, Peterborough, NH 03458.

### **More Model Trains**

I noted C. de Gier's query (inCider, August 1985, p. 106) on using computers with model railroads, and Andy Sperandeo's reply (December 1985, p. 101) concerning *Model Railroader*'s C/MRI series.

While the Model Railroader series is excellent, it describes just one particular system. The group I represent, the Computers in Model Railroading Special Interest Group (CMR-SIG), is a SIG of the National Model Railroad Association. Our purpose is to provide a forum for persons interested in both computers and model railroads. We publish a newsletter six times a vear, and membership is not restricted to NMRA participants. Interested readers should send a SASE for information to NMRA CMR-SIG. 8431 Timber Glen, San Antonio, TX 78250.

We support the C/MRI series in the newsletter, along with other control interfaces. Incidentally, the author of the *Model Railroader* series, Dr. Bruce Chubb, is also a member of the SIG. I've enclosed a copy of our newsletter for your information.

### Richard F. Dermody Coordinator, CMR-SIG San Antonio, TX

I continue to be impressed by the vitality of the model-railroading community. The newsletter I received contains information, schematics, and listings that would interest anyone who wants to interface a model railroad or comparable electrical system with a computer. I've forwarded the newsletter to C. de Gier.

### **Needs 80-Column Monitor**

I recently purchased an 80-column card for my Franklin Ace 1000. The card came with no instructions, so it took me a while to figure out how to activate it. The result is 80 columns of illegible text, with the cursor out of sight below the bottom of the screen.

An article I recently read indicated that my Amdek Color I monitor could be the problem. Unless you can suggest a cheaper alternative, it looks as if I'll have to buy a green monitor or the 64K card to which you alluded in the December 1985 inCider (p. 101). Your help would be greatly appreciated.

### Ed Cooley Chester, CT

Indeed, the monitor is your problem. The Amdek Color I is not designed for 80-column text display, and no interface card will make it display 80 columns clearly. Your cheapest option is to purchase a monochrome (not color) high-frequency monitor. You can connect both your color and monochrome monitors to the Apple video output through an RCA male/female/female Y adapter, which you can buy at an audio/video electronics store. You can then use whichever monitor is appropriate.

The best advice for choosing a monochrome monitor is to look at an 80-column display on the monitors you're considering, and judge the clarity for yourself. Besides clarity, important features to look for are a nonglare screen, wide contrast- and brightness-adjustment range, screen size, and the phosphor color of your choice. Accessible horizontal- and vertical-size controls are nice, but not critical.

If the literature accompanying a monitor states that it has medium-frequency response, be suspicious. Since display clarity increases with frequency response, you should buy a high-frequency response monitor. If you're lucky enough to find a computer salesperson who can tell you the actual frequency response of his or her monitors, look for one of 18 MHz (megahertz) or more, though 14–18 MHz would be okay. If you buy one that's less than 14 MHz, ask for free eye drops.

A monochrome monitor is your cheapest (\$100–150) path to clear 80-column text display, but not your only one. You can also purchase an Apple Color Monitor //e (\$379) or an RGB interface card and RGB color monitor (\$600 and up). Check them out at a computer store, and remember to look at the display before you buy.

### **BASIC Graphics Problems**

I have an Apple //c and a Scribe printer. When I try to print graphics, the Scribe always prints the most significant bit, even though I'm sending values that are less than 128 decimal For example, the following program should print one heavy line. Instead, prints the heavy line with a light line below it. Why does the most significant bit always seem to be set?

10 PRINT CHR\$(4);"PR#1": PRINT CHR\$(27);"n"

20 PRINT CHR\$(27);"V00728" : REM 00111000

### Timothy D. Witham Ottawa, KS

For those not versed in Scribe graphics programming, line 20 in Timothy's program is supposed to print the vertical-dot pattern represented by the ASCII code for the numeral eight 72 times. ASCII for 8 is \$38, so the vertical pattern should be 00111000, a heavy horizontal line when printed 72 times adjacently.

The problem is that the Applesoft BASIC PRINT statement always sets the most significant bit (MSB) of the text strings it sends to COUT, the character-output routine. Even with PRINT CHR\$(56) in your Applesoft program, CHR\$(184) will be sent to COUT (184 = 56 + 128). One way around this problem is to use seven-point graphics dumps instead of eight. Many commercial programs do this because a few Apple interface cards out there will send only 7 bits, ignoring the MSB.

Another way around the problem is to relay your graphics patterns to COUT via a short machine-language routine instead of a PRINT statement (see the **Program listing**). The codes LDA \$300, JMP \$FDED stored at \$301-\$306 should do the trick.

### **More Graphics Problems**

I own an Apple Dot Matrix printer and a Prometheus Graphitti interface card. I'm now attempting to program custom characters. My problem is that I don't know how to send the most significant bit; I'm getting sevendot patterns instead of the eight-dot patterns I need.

My Graphitti board lets me specify MSB on or MSB off, but I need a card that echoes all 8 bits of any code I send it. Does such a card exist? Also, I'm using an old reference sheet with very meager data about custom character sets. Is an expanded reference manual available for the Apple DMP?

### Bruce Hahne Midland, MI

If you're programming in BASIC, you may have the same problem as Timothy Witham. If so, try the method of relaying printer output described in **Program listing.** Relaying printer output.

- 10 POKE 769,173 : POKE 770,0 : POKE 771,3
- 20 POKE 772,76 : POKE 773,237 : POKE 774,253
- 3Ø PRINT CHR\$(4);"PR#1" : PRINT CHR\$(27);"n"
- 40 PRINT CHR\$(27); "VØØ72";
- 50 POKE 768,56 : CALL 769 : REM SEND CHR\$(56)

my response to Tim (see the Program listing).

I believe that most interface cards will echo all 8 bits to the printer. You may have to reconfigure a jumper or DIP switch, and you may have to send special MSB-enabling code, like the control-I "H" of the Grappler+ Look through your Graphitti's manual very carefully for this capability. I own a card that has MSB-active jumpers that aren't mentioned in its documentation. You have to be hardware-savvy to figure out what the jumper is for.

If you determine that your card doesn't have 8-bit capability and de-

cide to buy one that does, work with your computer dealer to find the card you want. Most dealers will let you read the documentation prior to purchase, so you can verify that the card meets your needs.

I'm not sure how bad that old manual of yours is, but Apple is pretty good about updating old, inferior documentation. Try writing the company you might be pleasantly surprised. You also should get your hands on an ImageWriter manual. That book is pretty polished documentation, and ImageWriter control is identical to DMP control in most respects.

### **CP/M** Installation

I've recently purchased WordStar and Starcard (a CP/M card) from Micropro. I'm having great difficulty with the "install" function—providing computer and printer-interface information to WordStar. Does any company perform this installation function for you?

Joseph E. Harbuck Brundidge, AL

### Finally, an end to the wait for low-cost memory

What You Get	Price	Product	Compatibility
256K plus 80 columns	\$199	ADD-RAM 80/256 <sup>™</sup>	Apple IIe®
64K plus 80 columns*	\$ 99	ADD-RAM 80/64 <sup>™</sup>	Apple IIe
16K	\$ 99	ADD-RAM™	Apple II, II Plus®
80 column screen	\$179	SMARTERM II™	Apple II, II Plus, IIe®

<sup>\*</sup>can be upgraded to 256K

### ► ADD-RAM 80/256 and ADD-RAM 80/64 Advanced Memory Boards

Until now if you wanted more speed and memory you had to buy another disk drive. Or another computer. Or you could just wait patiently as the disk drive hummed and the red light glowed.

Now, you can get speed and 64K or 256K additional memory by just slipping an ADD-RAM memory board from Advanced Logic Systems into your Apple Ile. Simply back-up your programs onto the ADD-RAM board for faster access to files and applications. And still retain 80 column screen width.

### ► ADD-RAM and SMARTERM II: Rounding Out the Family

To upgrade your Apple II or Apple II Plus from 48K to 64K, take advantage of the original ADD-RAM. Or if memory is adequate, upgrade to 80 columns with SMARTERM II for your Apple II, II Plus or IIe.

Visit your Apple Dealer today to see ADD-RAM and SMARTERM II in action. Or contact us directly.

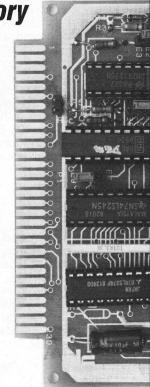
If you knew what we know about our products, you'd be our next customer.

Apple, Apple IIe, Apple II, Apple II Plus are registered trademarks of Apple Computer, Inc.

ADD-RAM 80/256, ADD-RAM 80/64, ADD-RAM and SMARTERM II are trademarks of Advanced Logic Systems, Inc.



Advanced Logic Systems, Inc. 1195 E. Arques Ave., Sunnyvale, CA 94086. (408) 730-0307



I talked to the Micropro people, and they don't know of any company that provides the service you request. They suggest you call the Micropro technical support line, (415) 499-8320. The person I talked to warns that the line is very busy, but once you get on, the support people will be willing and able to talk you through the installation.

Micropro also offers a toll-free premium technical service for \$60 per half year or \$95 per year—not expensive compared to a consultant's fee. In fact, it's a real bargain if you need a lot of help.

### Apple II Plus Lowercase

I've just installed a switch on the speaker of my II Plus so that I can turn the sound on and off. Is it safe to use the switch while the computer is on, or only when it's off?

Also, I want lowercase capability, but my parents don't want to shell out the bucks to get a //e. I've heard of different ways to get lowercase on a Il Plus. Can you list them and give some prices?

### Ken Blair Houston, TX

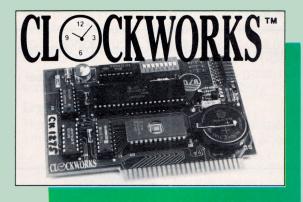
It's probably okay to operate your speaker switch with the power on, Ken. Assuming your switch is wired in series with the speaker, damage to your circuits is unlikely. Of course, I haven't seen your installation, so I can't say for sure.

It is better to install a 2500-ohm or larger potentiometer, rather than a switch, in series with the speaker. This gives you continuous control of the computer tooter, from silence to full volume.

I won't list all the ways to achieve Apple II Plus lowercase capability, only the best way. Buy a cheap 80column card and install the shift-key mod. Go to a computer show or look carefully at computer-magazine ads to locate an 80-column card for less than \$100.

Many programs recognize the shiftkey mod for upper- and lowercase keyboard input. Most Apple dealers will install it for you, or you can do it yourself. It consists of a jumper between the SHIFT' line of the keyboard and the PB2 input to the game I/O socket. If you have a two-board keyboard, install a spring-loaded jumper between pin 4 of your paddle/joystick plug and pin 24 of the exposed pin connector between the keyboard and the little piggyback encoder board. Pin 24 is the second pin from the left as you look in at the keyboard from the back of the Apple.

If you don't have the two-board keyboard, it's best to solder a jumper in. With the power off, remove the keyboard and motherboard from the Apple. Solder jumpers between keyboard connector pin 4 and SHIFT' on the keyboard, and between keyboard connector pin 4 and game I/O-socket pin 4 on the motherboard. If you place the keyboard upside down with the keyboard-connector pins visible at your upper left, the SHIFT' line is connected to the left terminal of switch 53 (switch 51 of the two-board keyboard).



### How much better is the new ClockWorks card than the other clock cards? Just compare...

FEATURES	CLOCKWORKS"	TIMEMASTER"	THUNDERCLOCK"
PUTS TIME & DATE ON APPLEWORKS SCREENS & FILES	YES	YES	NO!
HAS YEAR INFO	YES	YES	NO!
STAYS ACCURATE THRU LEAP YEARS	YES	NO!	NO!
BUILT-IN PARALLEL I/O PORT	YES	NO!	NO!
SIMPLE ONE COMMAND TIME SETTING	YES	NO!	YES
FIRMWARE MAINTAINS INTERRUPT SETTING	YES	NO!	YES
BSR OPTION	\$39	\$49	\$49
PRICE	\$99	\$129	\$149

...and ClockWorks comes complete with full documentation, 2 diskette sides full of useful software, a 5 year warranty, and a 15-day money back guarantee!

Now avaiable at your favorite local dealer. To order direct call or send CHK/M.O. In the USA add \$2.50 for 1st unit and \$.50 for each additional unit. Foreign orders add \$10. VISA/MC/COD accepted. All products made in U.S.A., include full documentation, 5 year warranty, and are available for immediate delivery. Call for free programming/technical consultation.

Apple, Timemaster, Thunderclock are the respective trademarks of Apple Computer Inc., Thunderware, Applied Eng.

### RAM 80e<sup>TM</sup>



- Extends the Apple Ile™ to 128K RAM
- Adds crisp 80 column video display
  Enhances spreadsheet and wordpro-
- cessor viewing

   Allows double high resolution graphics

   Acts as high speed disk drive with
- Acts as high speed disk drive with ProDOS.

Easily installs in the Aux. slot of the Apple Ile™. Comes with full documentation.
\$79.

### MICROPORT 32"

An advanced digital I/O interface card for the Apple™. Provides four 8-bit ports and two additional lines for handshake per port. Has interrupt arbitration circuit, interrupt routing switches, and more. Excellent choice for monitoring and control applications. New low price \_\_\_\_\_\_\_\$65.



### EXTEND-50™



Reliably extends all 50 signals at internal slots to a 50 pin DIP. One side plugs into an Apple™ slot, the other plugs into any breadboard/protoboard. Now you can easily wire an interface card circuit without tedious wirewrapping or soldering techniques. A must for every designer. Only \_\_\_\_\_\_\$34.



404/928-9394

### GOLEM COMPUTERS

APPLE SOFTWARE/HARDWARE AT SUPER SAVINGS

PLACE ORDERS TOLL FREE 1-800-345-8112

PA 1-800-662-2444 GOLEM

HARDWARE SPECIALS	
212 APPLE CAT II SYSTEM (NOVATION)	365.00
MICROMODEM IIE/SMARTCOM I (HAYES)	135.00
SMARTMODEM 300/SMARTCOM IIC (HAYES)	155.00
SMARTMODEM 1200 RS-232 (HAYES)	374.00
PROMODEM 1200A W/SOFT (PROMETHEUS)	284.00
PROMODEM 300C IIC (PROMETHEUS)	135.00
MACH III JOYSTICK W/FIRE BUTTON (CH PROD)	. 32.00
BUFFERED GRAPLER + (ORANGE MICRO)	136.00
PRINTER KX-1091 (PANASONIC)	242.00
PRINTER MSP-10 (CITIZEN)	250.00
DISK DRIVE SLIM IIc (MICROSCI)	165.00
MONITOR VIDEO 300A AMBER (AMDEK)	
BLANK MEDIA SS/DD 10 (GOLEM)	. 11.00
EDUCATION	
TYPING TUTOR III 49.95	29.70

TUKBU TUTUK	23.10
MASTER TYPE 39.95	23.60
MIND PROBE 49.95	29.70
WORD ATTACK! 49.95	29.70
WHERE IS CARMEN SAN DIEGO 39.95	23.65
HOME	
DOLLARS AND SENSE II+/IIe 64K 100.00	59.00
DOLLARS AND SENSE Ile/Ilc 128K 119.95	66.00
CROSSWORD MAGIC49.95	30.10
NEWSROOM 49.95	29.70
CLIP ART VOL. 1 FOR NEWSROOM 29.95	18.20
MICROCOOK BOOK 40.00	23.60
UTILITIES	
THE PRINT SHOP	29.60
THE PRINT SHOP GRAPHICS I, II ea. 24.95	14.25

THE PRINT SHUP GRAPHICS I, II ea. 24.55	14.23
SIDEWAYS 60.00	33.00
TURBO PASCAL	41.35
TURBO TOOLBOX	35.20
CROSSTALK 195.00	138.70
WORD PROCESSING	
SENSIBLE SPELLER IV 125.00	66.00
HOMEWORD 125.00	70.00
PFS: WRITE IIe	70.00
BANK STREET WRITER 69.95	41.30
BANK STREET SPELLER 69.95	41.30
WORDSTAR	197.90
BUSINESS	
PFS: REPORT, FILE, GRAPH ea. 125.00	70.00

BACK TO BASICS ACCT. SYS. IIc	195.00	97.90
THINK TANK	150.00	80.00
BPI GA. AP. AR PAYROLL		
(PRO DOS)	ea. 425.00	250.00
RECREATI	ON	
GATO	39.95	23.35
SARGON III	49.95	29.70
FLIGHT SIMULATOR II		31.90
WISHBRINGER		23.35
SPY HUNTER		26.65
KARATEKA		21.00
F-15 STRIKE EAGLE		21.00
ZORK I	39.95	23.35
ZORK II, III	ea. 44.95	26.65
LODE RUNNER		21.00
ULTIMA II, III	ea. 59.95	35.50
WIZARDRY		29.70
HITCHHIKERS GUIDE		23.60
LEGACY OF LLYLGAMYN		23.60
KNIGHT OF DIAMONDS		20.90
KING'S QUEST		29.60
DRAGON WORLD		23.60

### PLACE ORDERS TOLL FREE 1-800-345-8112 • PA 1-800-662-2444

ALL ITEMS SUBJECT TO AVAILABILITY

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

To order call toll free or send check or money order VISA/MC C.O.D. orders welcome. Personal and company checks allow 10 working days to clear. Specify if to backorder or to send refund. California residents add 6% sales tax. Include phone number with order. Shipping and handling: All shipments U.P.S. if possible. Continental U.S. add \$2.50 for 1 to 3 items. 4 to 6 items add \$5.00. APO, FPO Alaska, Hawaii and Canada add \$3.00 per item. 2nd day air add \$3.00. All hardware purchases are prepaid or VISA/MC; shipped U. P.S. - include 5% for shipping & handling. C.O.D. orders all \$1.90.

### GOLEM COMPUTERS

P.O. BOX 6698 • WESTLAKE VILLAGE, CA 91359 Apple is a trademark of Apple Computers, Inc.

### **Audio Amplifier Connection**

I own a Franklin Ace 1200, and have heard that you can attach a small stereo amplifier to the computer to get better-quality sound. Could you tell me an easy way to attach an external amplifier to the computer so I can use a music program without getting an earache?

### Todd Blakaitis Randolph, NJ

29.70

I've connected Apples to audio amps before, and been surprised by the improvement in sound. Another benefit is the full volume and tonal control normally built into the amplifier. Unfortunately, you can't simply connect most amplifiers directly to the speaker jack of an Apple II-compatible computer, because one of the jack's pins is connected to +5 volts. The Apple //c is an exception-it has an external speaker/phone jack you can connect directly to an audio amp.

You could connect an amplifier to the speaker lack through an audio transformer or other adapter, but I've gone about it in a different way. I tap into the audio signal at a point at which it's at a low voltage level with reference to ground. This point is at

the cathode of a clipping diode, which is in the base circuit of the audio amplifier of every Apple II-compatible for which I have a schematic. Diode identification for several computers is given in the accompanying Table.

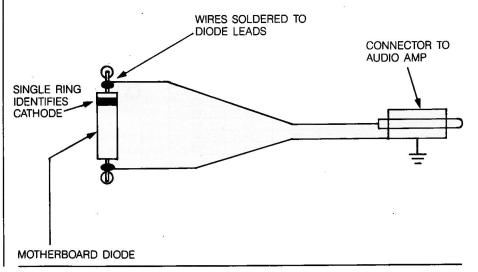
While referring to the Figure, connect one end of a length of twin-lead wire or coax cable to a plug that fits your amplifier's input jack (probably an RCA phono plug). Solder the other end of the wire that's connected to the center pin of the phono plug to the cathode of the motherboard audio clipping diode (a single ring around one end of the diode identifies that end as the cathode). Solder the wire connected to the shield of the phono plug to the other end (the anode) of the diode.

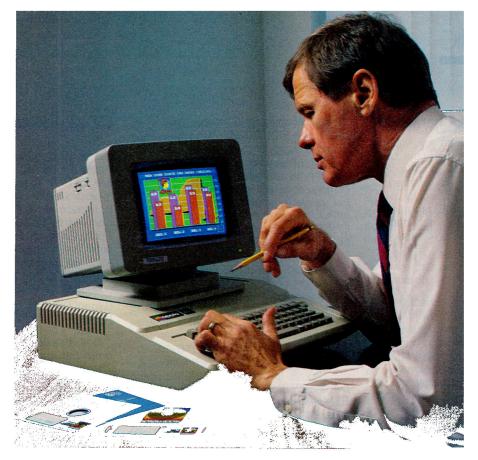
Disconnect the built-in speaker from the speaker jack, turn the computer on, and verify that it operates properly. If the computer won't come on, turn it off immediately and check your wiring. The wires to the diode are probably reversed, shorting +5 volts to ground. Also, if you're using a very old vacuum-tube amplifier with a two-prong power plug, you might have to reverse the power plug in the wall socket.

Table, Identification of audio clipping diode for Apple and compatible computers.

Computer	Diode	Part Number
Apple II/II Plus	CR1	1N914
Apple //e	CR4	1N914
Basis 108	D1	?
Franklin 1000/1200	CR1	1N914
Franklin 1000/1200 Rev A	CR81	1N4148

Figure. Computer connection to an audio amplifier.





### **Bring your Apple II Out of the Dark Ages**

### Display images of clearly superior quality

View colorful images with sharp, clear definition. The Princeton HX-9 gives you super sharp 80-column text and graphics in up to 16 brilliant colors\* on a fine .28mm dot pitch tube. (By comparison, the Apple Color 100 has a dot pitch of .38mm). Princeton's dark-glass, nonglare screen further enhances viewing capability.

### **Ergonomically designed**

The small footprint and sleek, professional styling make it the monitor of choice for your workplace where space

is at a premium.



Adjust the HX-9 to a comfortable viewing angle with the built-in tilt and swivel base. A built-in green/amber switch allows you to switch from color to green or amber modes. Use the IBM/Apple color switch to select IBM or

Apple color modes when creating graphic displays.

### \*Apple IIc or IIe, when used with an RGB interface card such as the Video 7 Color Enhancer IIc or IIe, and others. Check with the board manufacturer for complete compatibility and installation information.

### Princeton quality is built in

The Princeton HX-9 is manufactured under tough quality control standards. And backed by a full one-year warranty.

### Proven market acclaim

"When I started this comparative review, I convinced myself there was no way to select a clear-cut "best" RGB monitor...I was wrong...Princeton Graphic System's HX-9 is an outstanding choice. It beats the rest by a wide margin."

—InCider, Oct. '85

"Its cabinet is stylish, and it takes up very little room... Overall I found the HX-9 to be an excellent product and give it a high recommendation."

-Computer & Software News, Nov. 18, 1985

### Visit your local computer store today

Inquire about the HX-9 High Resolution Color Monitor and the rest of our line of high performance color monitors. To find the name of the dealer nearest you, call toll-free, 800-221-1490 ext. 5 (609-683-1660 NJ only). Telex: 821402 PGSPRIN

Princeton Graphic Systems, 601 Ewing Street, Building A. Princeton, NJ 08540



### **Applesoft Control Characters**

While experimenting with my Apple //e, I found that I could make the bell sound by including CTRL-G in an Apple-soft PRINT statement. I was amazed because I didn't know you could use control characters in BASIC programming. Can you tell me why this happens and if there are other control-character functions?

John Baust St. James, NY

You can include control characters directly in BASIC strings or REM statements. When you execute or list PRINT "CTRL-G" or list REM CTRL-G, the control character is sent to the primary output-device driver, usually the COUT1 video driver and/or a printer driver.

In Applesoft, you usually use CHR\$() to represent control codes, but you can type the control character directly into the string, as you discovered. PRINT "CTRL-G" gives exactly the same result as PRINT CHR\$(7), but the two statements look

different when listed. Generally, you should use PRINT CHR\$(7) in your programs to make them understandable.

Control characters in PRINT statements have unlimited uses, but three primary ones are video-display control, printer control, and DOS-command identification (CTRL-D = CHR\$(4)). An example of display control is PRINT "CTRL-K" with 80-column firmware active, which clears the screen from the current cursor position. Other COUT1 display control codes are given in Table 3.3 of the Apple Reference Manual for I/e Only and similar tables in all Apple II reference manuals.

Examples of BASIC printer control are given in most printer reference manuals. A favorite of mine is to place a CTRL-N at the beginning of REM statements containing subroutine titles, causing my Epson-compatible printer to print the titles in double width. Another trick is to use properly placed REM CTRL-L statements—they cause most printers to space over the perforations.

### 65C02 Addressing

The introduction to the Apple Language Card manual states that the Apple II Plus can have only up to 64K of RAM, because that's all the microprocessor can address. If I were to replace my 6502 chip with a Rockwell 1-MHz 65C02 (see the May 1985 Apple Clinic, p. 117), would my computer then have 128K capability? Also, will the Rockwell 65C02 work in my Apple II Plus with all but two slots occupied?

Gilbert Ramirez, Jr. Houston, TX

Both the 6502 and 65C02 can address 64K memory locations directly. Therefore, all Apple II-family computers were designed with a 16-line address bus (216 equals 65,536 equals 64K). It's a fundamental feature of these computers that the motherboard microprocessor can directly address only 64K.

It's possible to address more than 64K of memory in a 64K machine through bank-switching schemes. The Apple //e and //c have RAM bank switching built in—the motherboard circuitry totally supports 64K of motherboard RAM and 64K of auxiliary-card RAM. Through bank-switching circuitry on auxiliary- or peripheral-slot RAM cards, it's possible to access many megabytes of RAM in a II Plus or //e.

With some simplification, bank switching works like this: A program activates one of two or more banks by accessing a control address on the motherboard, peripheral card, or auxiliary card, typically \$C00X, \$C08X, or \$C07X. Motherboard, peripheralcard, or auxiliary-card circuitry responds to this control access by disabling all but one 64K bank. Then, when the microprocessor addresses one of 64K locations, only the location addressed on the active bank responds.

I haven't received much reader feedback on Rockwell 65C02s, but you'll probably have to try modifications similar to those mentioned in the January 1986 Apple Clinic (p. 107) to make any 65C02 operate in an Apple II Plus.

### AppleWorks and UniDisk

Is there a way I can store data to my UniDisk with AppleWorks version 1.2?

Wayne Chamberlin, M.D. Helena, MT



No, there isn't. Go to your Apple dealer and ask for a free update to AppleWorks version 1.3 (or later, if one is released). Version 1.3 is Uni-Disk-compatible.

### 65SC02

I recently purchased and installed the Apple //e enhancement kit. The microprocessor is marked GTE G65SC02P-2, which I interpret as meaning I have a GTE 65SC02 MPU.

The article in the March 1986 *in-Cider* (p. 38), "Franklin Clones the //e," states that the 65SC02 is a close relative of the 65C02. Just how close is it? Did Apple supply the correct processor in the enhancement kit, and will it cause any compatibility problems? Also, the instructions quote part number 342-0304 for the CD ROM, but my new chip is labeled 341-0304A. Should I be concerned?

### William G. Tsarones Elyria, OH

Everything's kosher, William. Western Design Center, which originally designed the 65C02, calls it a 65SC02. Rockwell and NCR choose to call their versions 65C02, while GTE sticks with the original 65SC02. These are all generally referred to as 65C02s.

There are operational differences between Rockwell 65C02s and NCR/GTE 65C02s. Basically, the Rockwell 65C02 executes a few instructions the NCR/GTE 65C02 doesn't have. Apple has always supplied the NCR/GTE 65C02, so it's unlikely that any commercial Apple programs using the extra Rockwell instructions will be released. Therefore, any 65C02 should correctly execute programs written for the enhanced Apple //e.

The correct part number for the enhanced CD ROM chip is 341-0304A. To my knowledge, that's the only enhanced CD ROM Apple has shipped.

### CP/M and UniDisk

Can Apple's new 3½-inch UniDisk operate in CP/M mode with any Apple equipped with a Z-80 card? Especially, can an Apple //c equipped with Applied Engineering's Z-RAM card work with the UniDisk?

Daniel Pauly Manila, Philippines

CP/M wouldn't be CP/M if you couldn't make it work with any I/O device. There are many different Z-80 cards, though, and most of them re-

quire their own version of CP/M—and each version of CP/M must be updated to work with the UniDisk. If the manufacturer of your Z-80 card supplies and updates Apple-based CP/M software as a matter of policy, then a UniDisk version of CP/M is probably available.

If your Z-80 card came without software, you'll have to figure out with which "major" Z-80 card yours is compatible, and obtain an appropriate UniDisk version of CP/M from the same place you got your other versions of CP/M—that is, you'll probably have to borrow it. I don't condone or recommend this; I'm just saying I don't think you can buy open-market versions of CP/M without the Z-80 hardware it was designed to support.

People I talked to at Applied Engineering thought their UniDisk CP/M software for Z-RAM would be ready by May 1986. Contact them if you own a Z-RAM and UniDisk, but lack the correct CP/M software.

### Osborne/Apple Compatibility

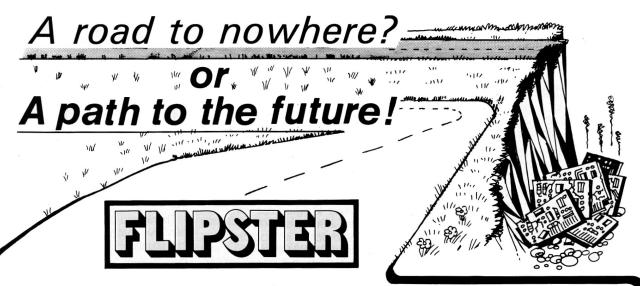
I own an Apple //e, and the church I attend uses an Osborne. As I understand it, the Osborne runs CP/M, so I can't use programs for it on my //e. If I install a Z-80 card in my //e, would I then be able to use the Osborne's program and data disks in the Apple?

Thank you for any information you can give that will help me understand this situation.

### Don Seifert Maple Valley, WA

Even though CP/M is designed to be a standard system, no force in the universe appears capable of making computer manufacturers standardize disk hardware. The built-in Osborne disk drive and the Apple Disk II/controller combination are incompatible. Furthermore, I know of no Osborne-compatible drives and controller commercially available for the Apple. Even with a Z-80 card installed, Apples and Osbornes still can't read each other's disks.





### LET'S FACE IT, A RAMCARD'S FUTURE DEPENDS ON COMPATIBI

That's why **FLIPSTER** is designed to the new Apple standard, guaranteeing compatibility with all the big names in software, TODAY and TOMORROW!

### Why FLIPSTER?

Not only does FLIPSTER look forward, but it's also really easy to use with your existing software. So whether you prefer to use DOS 3.3, ProDOS, PASCAL or CP/M based programs, FLIPSTER is with you all the way. FLIPSTER is the only RAMCARD which comes complete with software allowing you to organize the ONE MEGABYTE of memory into handy workareas and switch between them IN AN INSTANT. JUST IMAGINE; spreadsheets, databases, word processors, graphics programs, all in your Apple, INSTANTLY READY, WHEN YOU WANT TO USE THEM!!!

### What FLIPSTER will do for you

MEMORY - A growing range of today's advanced programs automatically take advantage of the extra memory on **FLIPSTER** (e.g. APPLEWORKS 1.3 which gives a Desktop size of 1012K, Pinpoint, the latest versions of Mouse series, PFS series and many more).

SPEED - Run programs like APPLEWORKS, dBASE, WORDSTAR, FINGERTIPS, etc. from FLIPSTER, at LIGHTENING SPEED. AND, using FLIPSTER as a temporary storage device, it's quick & easy to access frequently used data.

SWITCHING - Instant switching between programs/operating systems in different workareas using the unique Program Manager. No need to reload programs you use more than once a day!

CONVENIENCE - Save time reloading programs/data from floppy or UniDisk into FLIPSTER by using the Program Manager's fast back-up and restore facilities.

FLIPSTER is easily installed in any standard slot of your Apple //e or IL+ and comes complete with a full ONE MEGABYTE of memory. There are no hidden extras, no more outlays for patches, just a fully compatible product to safely see you through to the future.



FLIPSTER - TECHNOLOGY FOR TOMORROW (and for TODAY!) ONLY \$399.00

CIRTECH ' lead the way not only in RAMCARD design but also with a complete range of products for your Apple //e, II+ or //c. Whether you need a printer interface (with or without buffer), a high speed (8MHz Z80) CP/M co-processor with the superb CP/M PLUS System, an Eprom Programmer or a 64K extended 80 Column Card, CIRTECH ' peripherals provide the QUALITY and VALUE



GREENGATE productions Inc 🚄 2041 Pioneer Crt, # 15, SAN MATEO, CA 94403 Tel: (415) 345 3064

CIRTECH (UK) LTD., Currie Road Industrial Estate, Galashiels, Selkirkshire, Scotland, TD1 2BP Tel: 0896 57790

Telex: 265871 (MONREF G) ATTN 84:CPD001 Source Mailbox AAH555

Pinpoint is a registered trademark of Pinpoint Publishing and Virtual Combinatics, Inc. FINGERTIPS is a registered trademark of Ampro. Apple :e. 11 . . c. Appleworks, ProDOS, UniDisk and DOS 3.3 are registered trademarks of Apple Computer Inc. CP M and CP:M Plus are registered trademarks of Digital Resort Inc. Wordstar is a registered trademark of MicroPro International. dBASE is a registered trademark of Software Publishing Inc. Mouse series is a registered trademark of Vision Software.

# REVIEWS

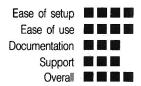
Flipster, Kache Board, Voice Master, The Works!, PROMAL, Dow Jones Market Manager Plus, Equations Challenge Matches

### **Dedicated RAM**

### **FLIPSTER**

Cirtech (U.K.) Ltd., U.S. rep.: Greengate Productions, 2041 Pioneer Court #15, San Mateo, CA 94403

Expanded-memory card; Apple II Plus, //e \$399



Cirtech products are distinguished by excellent hardware and competent support software, and the Flipster is no exception.

The Flipster is a 1-megabyte expanded-memory card for the Apple II Plus and //e: You can configure it for up to four independently bootable, partitioned storage devices (a smaller-RAM version of The Sider, if you will). It's not an extended-memory card that increases your machine's usable memory.

### **Dedicated Work Areas**

Start by booting the Flipster's filemanagement software. When you first access the Flipster, the screen asks you the number of work areas you want to create. Any number between one and four is valid, and the Flipster will partition its 1 megabyte of memory accordingly. From then on, you can dedicate any of the work areas to a particular application.

After you choose a number, the software displays the main operations menu. You can select, restore, back up, or clear any of the work areas. Select and name one of the areas, then place a bootable application disk in your drive, and press the return key.

That's phase one of the Flipster's operation. While you're running an application, the Flipster appears as a large disk drive (up to the partitioned size for ProDOS, CP/M, and Pascal, but not larger than 800K—two 400K drives—for DOS). You can repeat the procedure for any of the four supported operating systems, or use the same operating system for all the work areas you've created.



When you're ready to exit the current work area, press control-open apple-reset and type PR#<<n>> (<<n>> being the number of the slot in which you've installed the card). You can install the Flipster in any slot, but slot 7 is preferable. In this slot, you auto-boot from the Flipster when you press control-open apple-reset, rather than use <math>PR#<<n>>. You then continue from the operations menu.

**Booting Up** 

An alternative approach is to use the Flipster's work areas as boot drives for nonprotected software. Instead of placing an application's boot disk in the floppy drive, use a disk containing just the operating system under which the application runs. Once in the operating system, format the Flipster's current work area and copy the application software (plus any system files for ProDOS or Pascal) into it.

Whenever you warm-boot your Apple and select a work area, the Flipster takes you to a RAM disk with the application you've copied to it (without reverting to floppies). If the application normally runs when you boot its disk (perhaps from a HELLO program or SYS file), it will automatically boot from the Flipster.

Flipster is fast, as you might expect from a RAM device. And by alternating applications, you can cut down on disk-access time. When you warmboot into a new work area, though, you effectively terminate any application you've left in another area. This isn't a concurrent system.

### **Flipdisks**

À third possibility is to simply use the Flipster without the file-management software. ProDOS recognizes the card automatically, and support software Cirtech provides makes it DOS-, Pascal-, and CP/M-compatible (Softcard or Cirtech CP/M systems only).

The back-up option from the main operations menu lets you create "flip-disks" of the contents of a particular work area. When you turn on your Apple, you can then restore the programs and data to a work area with

### inCider's Ratings

Above average
Good enough
Not up to standards
The empty set



Flipster's main menu, instead of the lengthy booting and copying process just described.

DOS, Pascal, and ProDOS 1.1.1 and up work correctly, but early versions of ProDOS seem to produce an interesting anomaly when you run them from a Flipster work area. In theory, the Flipster's file-management software protects the boundaries of the work areas you've created, yet ProDOS insists you have 1 megabyte in which to work.

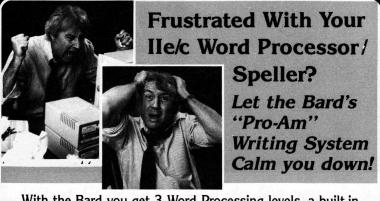
Fortunately, the file-management

software does its job-you can't overwrite other work areas-but the freespace display is misleading. If you bypass the Flipster card, though, and boot directly from a ProDOS disk, you void the boundary protection.

Overall, at \$399, the Flipster is a sight cheaper than buying a disk drive (even the UniDrive), and a whole lot faster than any floppy or hard disk I've vet seen.

Bill O'Brien Fort Lee. NJ

Editor's note: According to Ken Swenson of Ampro, Ltd., the Flipster is compatible with the Franklin Ace 2000. "This compatibility offers Franklin Ace 2000 owners who use AppleWorks an increased desktop. The board expands the Franklin's memory to 838K with AppleWorks in memory, and 1012K when AppleWorks is not in memory," Swenson says. He adds that on the back of the program-manager disk is a software patch for AppleWorks version 1.3. Earlier versions don't require a patch. For more information, call Ampro's toll-free number, (800) 828-3399. According to John Robertson of Cirtech in Edinburgh, Scotland, "The Flipster documentation has been rewritten and expanded-it's about three times as large now."



With the Bard you get 3 Word Processing levels, a built-in 50,000 Spell Checker and Animated Graphic Tutorial. ... All for the tranquilizing price of only \$69.5 (Add \$3.50 for postage & handling)

If you're skeptical, read what some of our customers say about the Bard's "Pro-Am."

"I have never thanked a company for making a product before this time . . . Thank you for giving me an easy-to-use Apple Writing System for my whole family. The BARD is a winner++! I have never been able to get my wife to touch a word processor. Before the BARD, she found the world of word processing beyond her. Now she uses it (the Starter's level) several times a week (to write letters). Our daugher (the youngest) has gone through the tutorials and is our Experienced (level) user less than half an hour she was rolling.

Our sons have now switched (from AppleWorks to the BARD). The Spell Checker was instrumental in this decision. I am an article writer for magazines . . . and write every day. The BARD (Professional level) has made my work easier and fun again! One simply sits down and uses the BARD. A few checks here and there . . . the program rolls. I learned it in about a half hour and have been using it ever since. The speed of the editing and formatting keeps me moving ... the "Quick" function macros let me keep a barrel of usable goodies a keystroke away. The simple use of different printer fonts unleashes the printer (this is the first program which included my Gemini 10x as a regular part of the program).

Thank you for living up to your advertising and the support you offer. Please consider me an automatic new customer for any of your new products. Just send them (The Rev. Philip G. Houghton, Waynesburg, PA.)

"I congratulate you and your staff for a marvelous program that everyone who owns an Apple (lle/c) ought to have.

(Alex Golsalves, San Francisco)

The BARD Professional is absolutely the best small office word processor we have ever tried! The spellchecker is a terrific improvement over others I have had to teach our attorneys to use.'

(Jackie Belker, Law Office Word Processing Trainer, Denver, CO)

Bard features include: Preview full pages before printing • 30 Popular Printers Set-up Automatically • 50,000 Word Spell Checker built in • 40/80 Column Versions • Macros, Cut & Paste, Find & Replace • Destructive Overwrite • Illustrated Manual & much more.

### 90 DAY WARRANTY

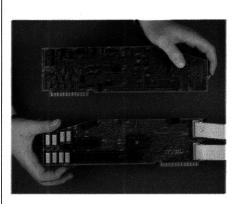
When ordering, specify ProDOS or 3.3 versions.

For Demo Disk send \$5 plus .75 postage & handling. Refundable with purchase.

### Writing Software International

To order direct send \$69.95 + \$3.50 p.&h.

110 E. Broadway • Suite 600 Missoula, MT 59802 (406) 543-3141



### Speed at a Price

### KACHE BOARD

Ohio Kache Systems, 4166 Little York Road, Dayton, OH 45414

Direct-memory-access hard-disk controller; Apple II Plus or I/e, SCSI-standard hard disk \$695

> Ease of setup Ease of use Documentation Support Overall

One look at the price tells you that not everyone will want a Kache Board. Actually, not everyone needs one, and not everyone who needs one can actually use it. If that isn't cryptic enough, even the board's function might be unfamiliar to you, although the name tends to give it

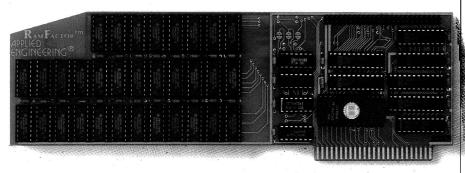
The Kache Board is a DMA (direct memory access) hard-disk controller board. If that were all it did, you'd still see a significant improvement in

# **RamFactor**<sup>™</sup>

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

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

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



### **Very Compatible**

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

### AppleWorks Power

There are other slot 1-7 cards that give AppleWorks a larger desktop, but that's the end of their story. But RamFactor is the only slot 1-7 card that increases AppleWorks internal memory limits, increasing the maximum number of lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 514", 31/2", and hard disks. All this performance is available to anyone with an Apple IIe or II+ with an 80 column card.

RamFactor, <u>no</u> other standard slot card comes close to enhancing AppleWorks so much.

### True 65C816 16 Bit Power

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

### Powerful Program Switcher

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

### Quality and Support of the Industry Leader

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

### Features:

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

\$239
\$289
\$389
CALL
\$179
\$159

Order RamFactor today . . . with 15 day money back guarantee and our "no hassle" five year warranty. *Call* 9 a.m. to 11 p.m., 7 days, *or send* check or money order to Applied Engineering, MasterCard, Visa and C.O.D. welcome. Texas residents add 51/6% sales tax. Add \$10.00 if outside U.S.A.

### Applied Engineering

The Apple enhancement experts (214) 241-6060

P.O. Box 798, Carrollton, TX 75006

access times with your hard-disk work. DMA techniques bypass byte-by-byte transfer of information in favor of block transfer. For a brief instant, a DMA device takes control of the Apple's memory and literally dumps data into it all at once.

The term *cache* means "hiding place." Its use in computers refers to adding subliminal memory. The Kache Board contains 256K of RAM usable as cache memory. As you request information from your hard disk, it's loaded into cache memory, then into the Apple.

This two-step process may seem unreasonable, but the Kache Board also includes software in ROM that makes it intelligent. It tries to anticipate your disk requests. If you open a data file, it might read in more of the file than you asked for, waiting for your next read assignment. If you're looking for disk free space, that information might be immediately available, having already been extracted from the disk during the last access.

When you combine cache memory

with direct memory access, you're looking at an overall 25 to 30 percent decrease in access time. Considering the already-low access times you achieve with hard disks in general, that figure approaches the virtual-memory environment found in minicomputers such as the VAX.

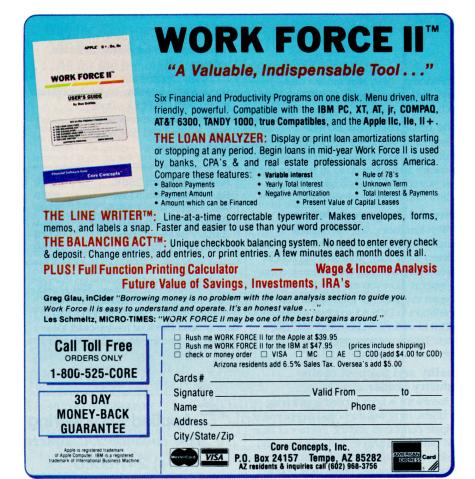
The Kache Board has relatively few IC's (only eight memory chips, two PROMs, a Z-80 CPU, and two controller IC's) socketed on the component side. On the solder side, though, it's peppered with surface-mount devices. These reduced-size IC's allow greater device density-and the corresponding increase in power the board demands (about as much as a Videx video board). But the \$695 price also includes a separate power supply for the Kache Board. Although Ohio Kache Systems indicates the power supply isn't necessary, it will be in any system that would use a Kache Board. (Using the power supply requires that you cut a small jumper on the Kache Board. It's a simple procedure and very well documented.)

Buying the board presupposes you have a hard disk with which to use it. In general, any hard disk that uses SCSI communications standards is compatible. Apple's ProFile doesn't, Quark's QC10 and QC20 don't, and the Corvus OmniDrive doesn't: They all use a serial communications interface.

The Sider is different. It uses a parallel data-transfer interface (apparent from its 50-pin connector). In fact, the Kache Board and The Sider have been tested together quite effectively. The Kache Board replaces The Sider's controller card and boot menu with one of its own. Even the installation procedures (supplied on floppy disk) are strikingly similar. The board supports DOS, Pascal, ProDOS, and CP/M.

Even with The Sider's low price, the combination of the two parts makes for an expensive whole. If you're not what's commonly called a "power user," the Kache Board will do nothing significant for you except empty your wallet a little faster. But if you depend on fast or repeated disk access, you might want to pay some attention to this product.

Bill O'Brien Fort Lee, NJ





### What Did You Say?

### **VOICE MASTER**

Covox, 675-D Conger Street, Eugene, OR 97402

Voice-recognition system; any 64K Apple II, one disk drive \$89.95

Ease of setup	
Ease of use	
Documentation	
Support	
Overall	

The idea of turning on my Apple

# **Come See a Demonstration** At the Following Locations:

### ALABAMA

The Computer Store Opelika 205 749 6166

ARIZONA Digital Deli Mesa 602 831 5064 Data IV Yuma 602 344 4440 Compushare Computer Phoenix 602 943 2938 Mesa 602 898 0610 602 953 1884

CALIFORNIA Software Supermarket Los Angeles 213 207 1494 Lawndale 213 542 3801 South Oaks 818 783 3233 Dino Computer Pasadena 818 795 6783 Pasadena 818 795 6783 Computer Village Camarillo 805 388 0342 Ventura 805 644 5220 Agora Hills 818 707 0330 Friendly Software San Carlos 415 593 8275 San Carlos 415 593 8275
Computer Discount Products
San Mateo 415 571 1658
Software City
San Francisco 415 676 6662
415 543 0543
Affordable Computer
San Jose 408 251 0102
408 458 1644
408 249 4221
408 458 1644

408 458 1644 Microage Computer San Mateo 415 348 2983 Discount Computer Warehouse Sunnyvale 408 737 0646 Garden of Eden Westminster 714 841 4994

COLORADO

DMA Computer Solutions
Colorado Springs 303 475 2488 303 548 8656
Software + More
Littleton 303 773 2264
Colorado Computer Shop
Westminster 303 426 5880
Renaissance Computers
Colorado Springs 303 634 3051

CONNECTICUT
Programs Plus
Stratford 800 832 3201 203 378 3662 HPK Educational Hartford 800 243 7724 800 842 2165 Northeastern Software Stratford 800 382 2242 Shelton 800 382 2242 HPN Educational

ComputerLand Clearwater 813 785 7503

Hartford 203 549 6210

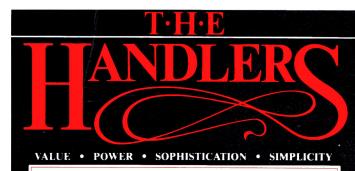
Software Library Honolulu 808 533 1123 Computerage Hilo 808 961 6161

### ILLINOIS

Computer Software Connection
Moline 309 762 0282
Glen Ellyn Computer Ctr
Glen Ellyn 312 858 6692
Computer Corner
Glen Carbon 618 692 0622
Fairview Heights 618 398 6980
Midwest Computer Ctr
Niles 312 965 7670
Data Domain
Schaumburg 312 397 8700 Schaumburg 312 397 8700

Modular Education Program Tyner 219 936 8731 Computer Corner Fort Wayne 219 493 6505

Iowa City 319 338 3681 Cedar Rapids 319 390 3516 319 393 8956



- The Handlers is a software package of three programs; word processing, file management and a spell checker for the Apple II, II+, IIe
- The Handlers is the answer to programs that cost a lot, take a lifetime to learn and then don't deliver!
- The Handlers delivers the power and sophistication of large scale mainframe systems.
- The Handlers makes immediate sense to the beginner and the experienced computer user.
- More and more people are selecting the Handlers over Appleworks. Why? Because the Handlers beats Appleworks for power, ease of use and price! We took the difficulty out of the program when we engineered it so you get what you want out of the Handlers without wasting time.

### WORD HANDLER

This best selling WP is surprisingly powerful and yet easy to use.

- Global search & replace
- Block moves
- 40, 66 & 80 column
- Form generator
- · Easy to remember mnemonic commands
- Unlimited tabs
- Bold, underline. superscript, iustification
- · What you see on screen is what you get

### LIST HANDLER

A truly fast & efficient file management program.

- Over 3,000 records per disk • Up to 200 characters
- per field and 255 fields per record
- · Unlimited sorting fields · Sorts alpha, numeric
- and date sorts · Merges with word processors, create
- form letters Sorts 3.000 records in under 45 seconds

### SPELL HANDLER

The spell checker that works hand in glove with the Word Handler

- 90,000 words on one diskette
- Add up to 2,000 of
- your own words No disk swapping
- · Scans 10 words per
- second
- Word count
- If you knew what we know about our products, you'd be our next customer!

Advanced Logic

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

KANSAS Wilber E. Walker Co. Wichita 316 267 2231 Team Electric Garden City 316 276 2911

KENTUCKY ComputerLand of The Appalachians Pikeville 606 432 0086

Heath/Zenith Computers & Electronics
Louisville 502 245 7811

LOUISIANA Computers S.O.S. Shreveport 318 865 7188 Statewide Teaching Aids Baton Rouge 318 445 2572

MASSACHUSETTS ComputerLand Shrewsbury 617 757 3180 The Whiz Westboro 617 366 2030

### MICHIGAN

Micro Station Southfield 313 358 5820 Troy 313 689 5575

### MINNESOTA

Hagen Office Equipme Rickfield 612 866 3441

### MISSOURI

MISSOURI Heath/Zenith Computers & Electronics Bridgeton 314 291 1850 Software City St. Louis 314 434 3311 Besco Office Products Columbus 601 328 6860

NEBRASKA The Computer Works Bellvue 402 291 7809

Computer Base Carson 702 885 9000 South Lake Tahoe 916 544 6502

NEW JERSEY Family Computer Ctr South Orange 201 762 6661 Fairfield 201 882 8780 Computer Discount of N.J. W. Milford 201 529 4026 8 Mahwah 201 529 4026 800 526 5313

NEW MEXICO Sterling Computer Gallup 505 722 2950 Computer Network Carlsbad 800 621 0937

NEW YORK Ex-El Enterprises Ltd. New York 212 889 6676 Future-Comp Tech Inc. Staten 718 984 3145 Computer Misc. Hewlett 515 872 6447 Compusult Johnstown 518 762 8483

### OHIC

Bexley Dist.
Bexley Dist.
Bexley 614 239 1611
Silicon Express
Columbus 800 225 0755 614 868 6868
Computer Discount Ctr
Reynoldsburg 614 863 6700

### OKLAHOMA

Dowling Inc. Oklahoma City 405 528 2933

PENNSYLVANIA
Design Wear
State College 814 234 3586
Professional Computer Ctr
Allentown 215 821 4359
Harrisburg 717 564 9307
Wilkes-Barre 717 825 9548
OSF Computers
Indiana 412 349 8770
Computer Source Computer Source West Reading 215 375 4231

TEX AS Hardin Computers Arlington 817 572 2775 Yes Computers College Station 409 693 8080 ComputerLand
Wichita Falls 817 761 1103 The Software Place Houston 713 781 1488

### UTAH

Computer Store Bernal 801 789 9513 Ogden 801 479 3131

VIRGINIA Manassas 703 369 6346

WASHINGTON
Software Center of Tukwila
Seattle 206 575 2222
Computer Store
Spokane 509 747 8700

WEST VIRGINIA Computer Horizons of West Virginia Morgantown 304 594 1855 Wheeling 304 233 2484 304 255 7474

### WISCONSIN

Communicators Ctr. Green Bay 414 435 2335 Software City Racine 414 633 9193 Team Electronics
Eau Claire 715 834 1288
Computer Warehouse Milwaukee 414 321 3120

### DISTRIBUTORS

### **CALIFORNIA**

Softeam Compton 800 847 6383

### ILLINOIS

Computer Software Service Elk Grove 800 331-soft in Ill 800 422 4912 outside

### MARYLAND

P.C. Micro Dealers Baltimore 301 889 1000

### MASSACHUSETTS

First Software Lawrence 617 689 0077 in MA 800 343 1290 outside MA

### OHIO

Bexley Dist. Bexley 614 239 1611

and being greeted with "Good morning, Steve," has always fascinated me. Now Voice Master, from Covox, can be taught to recognize and respond to your spoken commands. It also features digitized speech recording and playback.

The Voice Master unit is encased in a small metal box about the size of a thick pack of three-by-five-inch index cards. Controls are sparse but sufficient—there's a small hole for calibration adjustments and a knob for gain/volume control. The unit has jacks for a microphone, an earphone, and a Sound Master circuit board (sold separately). Sound Master offers improved speech and music output (compared to what you get through the Apple's internal speaker) and can be connected to a II Plus or //e.

The Voice Master headset has an easily positioned miniature microphone and a single padded earphone, like the ones on popular Walkman-type radios. It's tight but comfortable, and although it chains you to your Apple, it doesn't notice-

ably restrict your freedom of movement within that area.

Voice Master is connected to your computer through the game port via a nine-pin plug—II Plus owners will have to purchase a game-port adapter to be able to use it.

When you first boot the disk that comes with Voice Master, a loader program takes over and determines whether you have 64K or 128K, and whether a Sound Master is connected. It then installs the appropriate Voice Master machine-language modules. Your Apple announces "Covox Voice Master," and gives you instructions for calibrating it. (Generally, once you calibrate the Voice Master, you don't need to do it again.)

A demo menu lets you try out the Voice Master features. It includes options for a general demo (recording and playback of speech, voice recognition, variable-speed speech playback, and a spectrum display that varies according to speech input), a talking clock, two talking calculators (one that speaks each key pressed

and another that responds to voice input), a voice-recognition demo that changes the color of the screen to match color names you speak, a blackjack game, and a music-creation and playback program.

The demos are an excellent introduction to what Voice Master can do. They're not flashy, and they're a quick way to learn about the unit—even if you haven't read the manual yet. Although it's designed to work with any Apple II computer, II Plus owners will have to add a lowercase adapter to be able to read many of the demo instructions. Even without the adapter, I was able to quickly check out all the demos, except the blackjack game.

### Programming for Speech Recognition

Except for the demos, all the work you'll do with Voice Master must be in Applesoft BASIC. By adding special ampersand (&) commands, Covox has extended BASIC to include a small set of voice-training, recognition, and playback commands. For instance, a program statement that uses the keyword &TRAINn (where n is a number between zero and 31) gives you a chance to speak into the microphone and record a word or short phrase. You can enter a maximum of 32 words or phrases this way. Using &RECOG later in a program will compare the next word or phrase you speak with all previously "trained" words and phrases. The result of the comparison will be deposited in memory location 25. By including a PEEK(25) in the program, you can determine if the words you spoke were matched correctly.

Some of the other new commands include &TPUT and &TFIND (saving and loading trained words to disk), &BLANK (eliminating previously trained words), &RESET (clearing the present vocabulary from memory), &LEARN and &SPEAK (recording and playing back a recorded word), &SPEED (altering the speed of playback), &PAUSE (setting delays between words during playback), and &SAMPLE (setting the sampling rate when learning/training words).

The manual includes several small program segments illustrating new commands, and you can list and study all the demo programs. Covox has promised to send an additional disk of sample programs (unavailable at the time of this review) to all registered Voice Master owners.



### THE BEST, MOST COMPLETE ProDOS-DOS UTILITIES.

- Copy files, disks, even entire subdirectories.
- Undelete ProDOS and DOS files.
- Fast 2-pass disk copy on Apple IIe, IIc or Laser 128.
- Tree display for selecting subdirectories—no need to type lengthy "prefixes."
- Alphabetize catalog.
- Convert DOS to ProDOS & vice versa.
- · And many more.

### BACKUP YOUR PROTECTED SOFTWARE.

With COPY II PLUS' fully automatic bit copier, simply type in the name of the program you want to backup and COPY II PLUS does the rest. (We update COPY II PLUS often to handle new protections; you as a registered owner may update at any time for \$15 plus \$3 s/h.)

Parameters for hundreds of programs are right on disk. Also includes a track editor, sector editor and HI-RES disk display.

COPY II PLUS is supplied on a standard ProDOS diskette. Runs on Apple II, II+, IIe, IIc and Laser 128. Requires at least 64K and one or two disk drives.

Call 503/244-5782, M-F, 8-5:30 (West Coast time) with your in hand. Or send a check for \$39.95 U.S. plus \$3 s/h, \$8 overseas.

\$39.95

Central Point Software, Inc. 9700 S.W. Capitol Hwy., #100 Portland, OR 97219

Central Point Software

Backup utilities are also available for the IBM, Macintosh and Commodore 64/128.

# What the Experts are Saying About RamWorks II!

"In an informal competition called '640K vs. 640K' AppleWorks running on a RamWorks equipped Apple IIe outperformed Symphony running on an IBM PC."

-InfoWorld

"AppleWorks wiped out Symphony...
The competition was set up partly to show off another of Wozniak's favorite things, the RamWorks II memory expansion board from Applied Engineering ..."

—San Jose Business Journal

"There are huge differences among the AppleWorks modifying programs sold with the cards. Without doubt, RamWorks II is the most powerful."

---inCider

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

—A+ Magazine

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

-inCider



As you can see, it's easy to tell who sets the pace in Apple memory expan-

sion. In fact, if you read the competition's ads, you'll notice that many even claim to be as good as RamWorks. Some say they're "RamWorks compatible". At least they agree on one thing. RamWorks is the one they have to measure up to. But the truth is there aren't any substitutes for RamWorks.

Because RamWorks and Z-RAM have a mesmerizing list of characteristics that, as you use them, will change your perceptions of an Apple computer forever. Achieving a level of speed and per-

formance most critics claim is the best they've ever seen. But we want to do more than impress the experts, we want to impress you!

Applied Engineering stands ready to solve your expansion needs today and tomorrow with the largest and best supported product line in the industry.

Call Applied Engineering at 214-241-6060, 9 am to 11 pm. To get the very best.



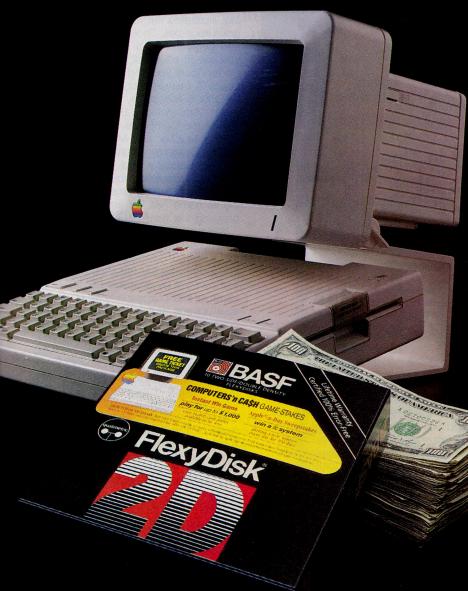
# RamWorks II

The recognized industry standard for memory expansion in the Apple IIe.





# LOOK WHAT'S IN IT FOR YOU!



Now more than ever, there's more for you when you buy BASF Qualimetric™ FlexyDisks. There's a special two-part game ticket that not only gives you 100 chances to win an Apple® IIc Computer in our Apple-a-Day Sweepstakes, but is also an exciting scratch-off game with 14,110 chances to instantly win cash prizes up to \$1,000. What else is in it for you? Only the best...the BASF FlexyDisk, certified 100% error-free and warranted forever. See your BASF dealer today and look for the specially-marked boxes of 5.25" and 3.5" BASF FlexyDisks.





"Voice Master is reasonably priced and a lot of fun to use."

The speech that comes through the Apple's built-in speaker is recognizable, but not of very high qualityimagine a tape recording made underwater and mixed with a dose of "white noise." If you're expecting the robotic voice you've heard demonstrated on many other speech devices, you'll be disappointed. The manual states that the Sound Master board (though not yet tested) will improve the speech quality, so if you're anticipating any serious work with the Voice Master, you should check out this additional board.

Without any special effort, Voice Master routinely recognized between 80 and 90 percent of the words I attempted to teach it. By blanking and retraining the unrecognized words, you can easily bring this number closer to 100 percent. Apparently, the key is to be sure to speak in your natural voice. Tone and inflection during the "training" phase are critical. If your voice rises at the end of a word (as if you were asking a question), the program probably won't recognize the same word if you speak later with a flat voice.

Voice Master is reasonably priced and a lot of fun to use. A good working knowledge of BASIC is required. If you haven't gotten very far into programming yet, purchasing a Voice Master may provide that final push to get you going.

# Steven Schwartz Framingham, MA

Editor's note: Voice Master has been redesigned since this review was written. According to Brad Stewart of Covox, the new version requires no calibration, and a lowercase adapter is no longer necessary to use the product with the II Plus. The software has been improved, also: Tone and inflection during "training" are reportedly not as critical-voice recognition is more flexible and more accurate. according to Covox. Stewart points out that Voice Master also includes music capability-the Voice Harp Composerwhich was not reviewed here.

# STATISTICS SERIES

# FLEXIBLE • ACCURATE EASY-TO-USE

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



# **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

VISA

Dealer Inquiries Invited



# REVIEWS



# All in One

# THE WORKS!

First Star Software, 18 East 41st Street, New York, NY 10017

Text processor with personal-finance, educational, calculator, graphics, calendar, and address-book modules; any 64K Apple II \$49.95

Ease of learning
Ease of use
Documentation
Support
Overall

A computer isn't the only thing you need to transform your home into an electronic productivity center. You also need software: basic tools like a word processor, a family-finance package, and an address book. A high-speed number cruncher might come in handy, too. While you're at it, the kids could use software to check their math homework, practice typing, draw pictures, and compose music.

If you're reluctant to shell out the heavy cash required for all this, if you'd rather spend your time doing instead of learning, take heart. There's a way to get all these applications in a single package, one that's fun, easy to learn and operate, and surprisingly powerful. Even better is the price—a paltry \$50. It's called The Works!, and, despite some obvious limitations, it might be worth more than just a second look.

The package consists of a single floppy disk and a clearly written 78-page manual. It runs on any Apple II with 64K of RAM. The program is copy-protected, but you can purchase a backup by mailing proof of purchase and \$4 to First Star Software. Should the disk fail within the 90-day warranty period, the company will replace it free; after 90 days, a replacement costs \$7.

# The Lineup

Once past the title page, the main menu comes into view, a hi-res animation routine (with sound effects) that illustrates the four groups of program modules: Tools, Arts, Learning, and Organizers. It's cute the first time you see it; after that, it's annoying. Under Tools you find Letter Writer, Loans & Investments, Calculator, Weights & Measures, and Math Formulas. Arts includes Graphics Painter and Music Composer; Learning has Typing Teacher and Math Races programs. Organizers contains Family Finances, Calendar Pad, Address Book, and Stock Portfolio. You can run any one of the 13 programs by highlighting its name (via the arrow keys) and pressing the return key.

When you make a selection, five horizontal bars appear at the top of the screen. In descending order, these bars display the date (which you can set by pressing D), the name of the program, a list of available options, a brief description of the option currently highlighted, and additional instructions, if necessary. If you need it, you can get help by pressing escape-H at any point in any program; this opens a Macintosh-like window in which relevant command information scrolls upward.

Without question, Letter Writer is the heart of The Works!. While it's hardly a full-featured word processor, it does offer word wrap, search and replace, and block move, copy, and delete. The arrow keys move the cursor one character at a time in any direction; control-T and control-B move it to the top or bottom of the screen page. Since text is displayed in 40 columns, moving through long documents takes time. Letter Writer holds about 15 screen pages of text-roughly six double-spaced pages printed at 80 columns. You type in text in continuous-insert mode only; to remove the character at the cursor, press the delete key or control-D. Embedding control codes in the text lets you activate printing enhancements such as underlining or boldface, as well as set left, right, top, and bottom margins.

A nice feature is the ability to open a window and merge information—an address or calculation, for example—from another program. You can't access the Graphics Painter and Music Composer programs via the window option, nor can you use it to view or merge text from another Letter Writer file. Another problem is that Letter Writer documents are saved as

# MultiRam" RGB

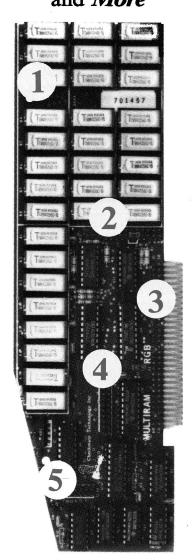
# The //e Memory Card That Outdoes The Rest!

MultiRam™ RGB's standard features include an exclusive 10 year battery backed RAM port, up to 1 Megabyte of RAM expandable to 4 Megs, RGB Video, and *More* 

The MultiRam™ RGB Card offers more standard features than any other //e auxiliary RAM card, features simply not available with other RAM cards or available only as expensive options.

# The Hardware

- 1. With *I Megabyte capacity*, Multi-Ram™ RGB is available in sizes from 64K to 1 Meg. Plug in your own 256K or 64K dynamic RAM when you need more memory. Then use our sophisticated, unique hi-res RAM test to show the exact location of any bad RAM on the card while testing. Apple Computer says it's the best RAM test available for any memory card.
- 2. The SRAM Port can be connected to an optional SRAM Pack containing 128K to 2 Megs of Static RAM with 10 year battery backup. Shut off the Apple and all programs and data in SRAM will be there when you turn on the Apple tomorrow. Or next week. Or next year. The SRAM option makes MultiRam™ RGB the only //e memory card that remembers what was stored in it when you turn off the Apple. SRAM Pack options will be available later this year. Multi-Ram™ RGB is the first and only Apple RAM card to offer the SRAM port.
- 3. Expand MultiRam™ RGB up to 4 Megs using the *memory expansion pins* on the card's back. Add a ¾ Meg MultiRam™ //e card for a 1¾ Meg total. Or add a 3 Meg MultiRam™ Plus card for a 4 Meg total, the most memory available in one slot for the Apple. Because either expansion card fits on the RGB's back (the power supply side), they never touch or interfere with cards in slot 1, another exclusive MultiRam™ feature.
- 4. The 65C816 CPU Port allows the MultiRam™ EX 65C816 card, a 16-bit option, to directly address all memory on the MultiRam™ cards without bank-switching. Advanced 16-bit software, like VIP Professional, a Lotus 1-2-3 compatible spreadsheet, can use this memory for power spreadsheets. Another MultiRam™ exclusive.
- 5. The RGB Video connector links the card to any Apple compatible RGB monitor for crisp, vivid 80-column and double hi-res displays. RGB video is standard with the card, an option others charge hundreds for. Of course MultiRam™ RGB also provides you with regular 80-column and double hi-res graphics because it's a direct replacement for the Apple extended 80-column card.



# The Software

6. Apple Works expansion
software is included with MultiRam™ RGB
to expand AppleWorks from 55K to 3,034K, the
largest Desktop available. AppleWorks expansion
software lets you ● automatically segment and
save large files to floppy ● load all or parts of
AppleWorks into RAM (even printer routines)
for supercharged speed ● easily use a RAM disk
along with an expanded Desktop to store Pinpoint
and Jeeves accessories for immediate response
● create databases of more than 23,000 records
vs the ordinary 1,350 records ● create word
processor files over 5,000 lines (more than 100
pages) ● and show date and time on screen with
any ProDOS clock and enter them into databases with one keystroke. And we're adding new
features all the time.

7. RAM Disk software for ProDOS and DOS 3.3 is included with the card. Programs are also included to partition and customize the RAM disks as well as to quickly copy files to and from the immense, lightning fast RAM disk (20 or more times faster than floppies) that can be created from MultiRam\*s memory. Pascal and CP/M RAM disk software is available at nominal cost.

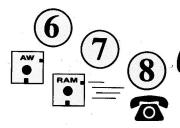
# The Service

8. We don't forget you after you buy.

Customer Support is as important a

MultiRam<sup>TM</sup> feature as any other. Get free software upgrades from your dealer as we improve our software. Call us on our Customer Support line if you have a question, to see what new programs support more memory, or to tell us your suggestion for improving our hardware or software. We listen to you. We respond. MultiRam<sup>TM</sup> RGB is just one example of what we do when we listen!

Ask your dealer for MultiRam™ From \$199.95 with 64K RGB cable extra



Checkmate Technology

509 S. Rockford Dr. ● Tempe, AZ 85281 (602) 966-5802 ● (800) 325-7347 MCI Telex: 6502788652

In Canada Contact EDP Marketing (403) 482-3014

Montmole A BED OF ROSES-INTERLUDE # 136 Why did you bring me so many roses? It was Interlude's idea. Oh? Imagine lying in a bed of roses... Sounds a bit thorny. Just the petals, darling...cool, velvety, fragrant. Oh. Oooooooh. Interlude II. The long-awaited sequel to the first adult computer game in history is finally here. It's provocative and playful! Outrageous and romantic! It has all the excitement of the original Interlude, plus significant new features. The computerized interview, which is taken by one or both players, has been greatly expanded. It probes your innermost desires to discern your mood of the moment, your secret longings, your special fantasies, and then suggests for your pleasure one of its more than 160 Interludes. You can ask the computer for an Interlude for now, or one for later. Special options give each player added control over surprises and special erotica hidden in the Interludes. Six years ago the original Interlude took the computer world by storm, creating a media sensation: FORUM Magazine: "The Interludes are imaginatively and sensitively written...the computer's recommendations are uncannily appropriate. US Magazine: "The most edifying third party to join couples between the sheets since The Joy of Sex. Chicago Tribune: "This marriage of computer technology and sex is natural... erases forever the image of computerusers as dull guys with slide rules in their pockets and square roots on their minds." Money Magazine: "Sometimes it's easier to tell a computer what you want than it is to tell your partner." Interlude II will take you to the outer limits of fantasy and romance. And, if the computer selects Interlude #99 your love life may never again be the same. Interlude II. Are you ready for it? Circle 253 on Reader Service Card. Send your check or charge information to: INTERLUDE, 11011 Richmond, Suite 600, Houston, TX 77042 ADDRESS STATE CHARGE CUSTOMERS MUST SIGN HERE \_ FXPIRATION\_ \_\_ MASTERCARD \_\_\_\_\_ VISA ACCOUNT NO. \_\_\_ CHARGE CUSTOMERS: \$ 39.95 Interlude II Shipping (\$3.00 or 1-800-752-7001 ext. 829 \$10.00 outside U.S.A.) (in Texas call 1-800-442-4799 ext. 829) TX residents add 61/8% Available for Apple II, II +, IIc and IIe.1 sales tax-\$2.45 TOTAL <sup>1</sup>Trademarks of Apple Computer, Inc.

binary files, not ASCII text. This means that a "real" word processor, which you'll probably need sooner or later, can't read the documents you create with The Works!.

# The Extras

As for the other programs that make up The Works!, here's a brief rundown.

Loans & Investments figures periodic payments, calculates interest, determines future values, and charts annuities.

Calculator lets you add, subtract, multiply, divide, raise to a power, find sine, cosine, and tangent, compute square roots, and send the results to the calculator's memory or your printer. It's handy, but you probably already have a pocket calculator.

Weights & Measures gives you six conversion categories: linear, square, cubic, volume, weight, and temperature, each of which contains a list of appropriate units of measurement. Select a category, type in a value, and Weights & Measures instantly performs the conversion. It's helpful in the kitchen.

Math Formulas computes solutions to simultaneous equations with two or three unknowns, solves quadratic equations, and calculates the sides of a right triangle. Algebra and geometry students will love it.

Family Finances keeps track of expense and income by category, date, or your own three-character code. Type in date, amount, type of transaction (cash, check, or credit card, for instance), category (income versus expense, plus another identifier), name of the person/company you paid or from whom you received money, and a brief description. Once you've saved it to a data disk, you can search this information, scan it, modify or delete it, and selectively print it in any of several formats.

Calendar Pad lets you type in and file information by date, title, number, or color. While it's intended to be an appointment secretary, you could also use it to organize research notes.

Address Book is your basic electronic Rolodex. Records consist of nine data fields (title, last name, first name, street, city, state, zip, phone, and remarks). Once you've created them, you can selectively search, amend, delete, or print them as three-line mailing labels or as a standard telephone-and-address directory.

With Stock Portfolio, you type in transactions, update daily closing quotes, and produce reports on cur-

rent and past holdings. The program automatically revises totals, calculates profit and loss percentages, and provides annual yields for comparison or tax purposes. Summary reports are available for both current portfolios and stocks you've sold; you can generate them for one company, all companies, or the entire portfolio.

With Graphics Painter, you can doodle on the hi-res screen, plant a "seed" graphic the program uses to generate kaleidoscopic effects, save

patterns and screens, and move graphics between hi-res pages. There's no provision for screen dumps—one of Graphics Painter's many shortcomings. Dazzle Draw it's not.

Music Composer is a simple utility offering two octaves and no-part harmony. Typing Teacher tests your speed with either random or usergenerated text; you can specify various keyboard sectors and set speed goals and word length. Math Races offers integer or decimal practice in the Continued on p. 98.

# MultiRam CX

Adds 256K or 512K to your Apple IIc for under \$260!

The MultiRam CX memory card fits inside the IIc, just under the keyboard. Installation and testing require only a screwdriver and few minutes time. Using the big memory of the MultiRam CX is just as easy as installing it.

Expand your AppleWorks Desktop and file sizes to a possible 425K. But



MultiRam's AppleWorks expansion software (included with every card) does more for

AppleWorks than just add more memory. It also:

- Automatically saves and loads files larger than one floppy disk to multiple disks
- Loads all or parts of AppleWorks into RAM (even printer routines) for supercharged speed
- Uses a large RAM disk along with an expanded AppleWorks
- Creates 23,000+ record databases versus the standard 1,350 records
- Creates 5,000+ word processor line files (more than 100 pages) versus the 2,250 line standard
- Shows the date and time on screen with most IIc clock cards
- Enters the date and time into database fields with 1 keystroke
   And we're adding more features to
   AppleWorks all the time.

Create a huge, fast RAM disk from the large memory of the MultiRam CX.
RAM Disk software for ProDOS and DOS 3.3 is included with the card as



well as programs to
customize RAM and
copy files to and from
the immense, lightning
fast RAM disk (20 or

more times faster than floppies). Pascal RAM disk software is also available.

Run an ever-growing number of programs with MultiRam's" expanded memory. Supercalc3a, Locksmith, Catalyst, MouseDesk, Sensible Speller, Pinpoint, Jeeves, CopyII+, MegaWorks, Word Perfect, Sensible Grammar, BusinessWorks, MouseWrite, MouseCalc, MacroWorks and many more programs now use or will soon use the added memory of the MultiRam" CX.

A lso, you can easily add the 65C816 option to your MultiRam CX to run new, powerful 16-bit software like VIP Professional, a Lotus 1-2-3 workalike.

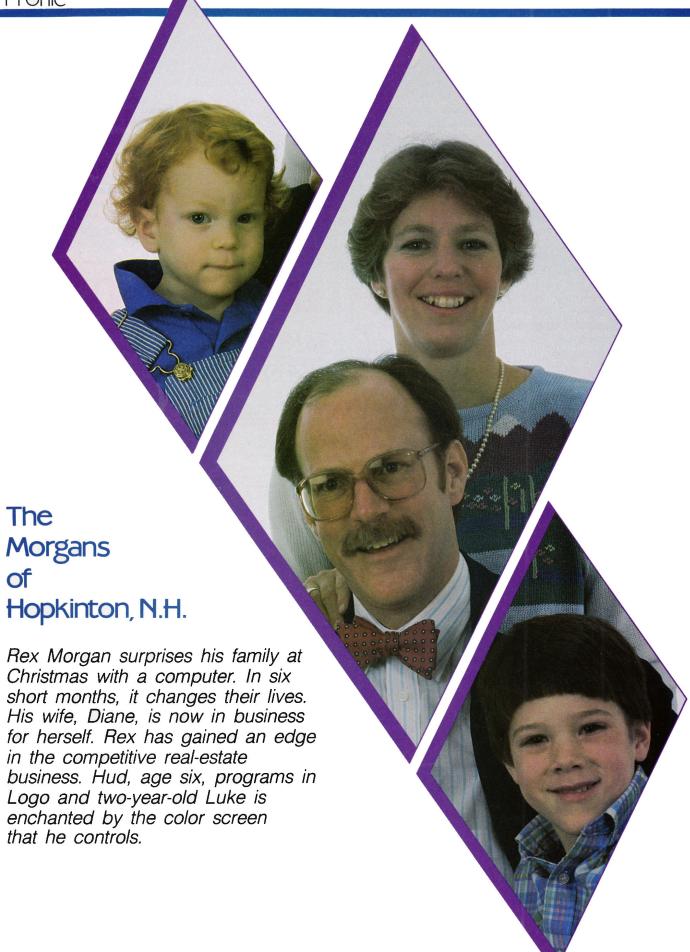
Best of all, the MultiRam CX card s as inexpensive to buy as it is easy to install and use: \$199.95 for 256K and \$259.95 for 512K.

Ask your dealer for MultiRam" CX



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





# BEGINNERS' LUCK!

# by Pat Haley

Rex and Diane Morgan are raising their children in the kind of town artists look for when they want to show a quaint New Hampshire community. White houses, white churches, space, greenness, tidiness, neighborly talk down at the store—it's all there in Hopkinton. There's never been a need to pave the road that leads to the Morgan house just outside the village, but somehow it's important that Diane stencil the walls of her dining room, to keep pace with Hopkinton's slower movement through time.

And these days, in the corner of the same room, a new Apple //c is propelling the Morgans into their future. It arrived only last Christmas, but it's already helping this family establish a home-based business. They're using it for direct mail, list management, real-estate sales, bookkeeping, even the production of 12-foot-long greeting cards. Around the house, it helps with meal planning and serves as a teaching aid. For 6-year-old Hudson Morgan and 2½-year-old Luke, it's homework, play, and a school-away-from-school. The whole family is exploring applications, software, and accessories as if it were still Christmas. The only limits they've noticed so far are a young family's budget and a venturesome family's imagination.

# Planning for the Future

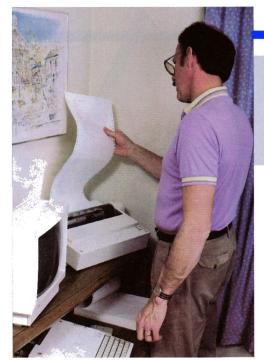
When Rex Morgan bought a computer, he was in a future-building frame of mind: "I know the computer will be part of our children's lives just about as much as the telephone has been part of ours. Hud and Luke will use computers in school, in college, in their work. Hud was started on an Apple //c in kindergarten."

Rex was also thinking about his own future. His chimney-sweep business is thriving, because in this part of New England people who heat with wood need a reliable chimney sweep as much as a dentist. But Rex recognizes that climbing on rooftops may not be as much fun when he's 50. He's building a career in real estate, too.

"By the time I shopped for the computer, I knew I was going into real estate, a fast-paced business," Rex explains. "I suspected a computer could help me get a competitive edge in many ways."

Rex bought the Apple //c as a surprise, a special splash for Diane and Hud for Christmas 1985. "I did a lot of shopping. I went to two Apple dealers in Concord, another in Manchester," Rex recalls. He visited the computer department at a local discount store, too. "Then I bought the Apple computer where the dealer put together the best package."

Ordinarily outgoing and articulate, Rex was smitten with the widely known First Computer Jitters as the couple assembled their //c: "Like most people, I was awestruck." But Diane took the lead because she had worked with computers and was unafraid to use the tutorial disks. "You soon learn that you can't hurt a computer unless you do something like pour coffee on it," she says.



"I was going into real estate. I suspected a computer could help me get a competitive edge in many ways."

Rex persisted and was rewarded with a growing awareness of the applications—direct-mail marketing, for instance. He had used direct mail when he was circulation manager for *The New Hampshire Times* and later at *Wood 'n' Energy*, a national trade magazine for the woodstove industry. At *Wood 'n' Energy*, he maintained the magazine's circulation audit and did test marketing through direct mail. He also promoted his chimney-sweep business through the mail.

A computer, Rex says, can fine-tune any mailing list to make it more effective: "You can create very specific lists by identifying an affluent neighborhood and using the professions of the residents as part of the key. Then, for example, the local Saab dealer could target the right customers and not waste money mailing to people who are unlikely to buy that car."

The possibilities for list management with the Apple //c are exciting for Rex. "At the real-estate office, we stay in touch with a lot of people and do mailings on a regular basis," he notes. "I can now send out my share of the Coldwell Banker newsletter with the mail-merge program of our **Bank Street Mailer**."

Rex believes using personalized letters in a direct-mail campaign increases the chances of recipients reading the material. "People get barraged with so much mail today that a letter has to be personalized or it'll be thrown away," he observes.

Rex is planning a mailing to convert his chimney-sweep customers into real-estate prospects: "I took a lot of care with my customers, teaching them how their wood stoves work. Now I'll write them personalized letters telling them what I'm doing, how I can help them buy or sell their homes."

The Morgans may have already outgrown Bank Street Mailer, which files up to 255 names and addresses. As they consider offering list-management service, they're thinking about **List Handler**, which can sort 3000 names.

For word processing, Rex enjoys working with **Mouse-Write**: "I like playing with the pull-down menus. On the other hand, Diane is a touch-typist and finds working with the mouse distracting."

Other software packages Rex finds useful include **The Print Shop** and **The Newsroom**: "The Print Shop has an

incredible array of graphics." And Rex has actually used The Print Shop to keep warm: He made an instant, friendly sign to remind people to close an office door and keep out the draft. Rex adds, "We also have The Newsroom, which can teach children how to publish their own newspaper. I think it might be fun to publish a Morgan family newsletter to keep in touch with people."

When the Morgans purchase more software, they'll probably shop by mail. Rex remarks, "I was really surprised by the great disparity in prices between retail and mail order. According to the ads I see in *inCider*, the prices are all over the road. You see software that sells for \$120 in a retail store available for \$58 by mail. You call a toll-free number and it's delivered to your door. I can't imagine paying retail prices for software anymore. I guess this is something dealers are going to have to come to grips with."

Rex has also learned to shop around for disks. "There are wild fluctuations in price. And another way to save money is buying paper at a business-form dealer rather than a computer store. You can get 2500 sheets (fanfold, 8%-by-11 inches) for \$17."

Like most computer owners who regularly print text, data, and graphics, Rex is annoyed that ribbons fade so quickly. The **ImageWriter II** uses a ribbon that retails for about \$7. Rex knows about home re-inking kits and services, but he thinks they're too much bother. "We've been looking for new ribbons that will last longer. Dealers know about this problem, but many of the ribbons are made by the same manufacturer. I know one dealer who's searching for a new ribbon manufacturer," he says.

Rex is an organized person who thinks a computer can help hopelessly disorganized people cope with filing large amounts of information: "I was in an office the other day and watched someone hunt for a name and address in an incredible mess of scraps of paper and matchbook covers. I don't see why that person couldn't buy a list manager to sort it all out."

But there's more than rescuing the muddled in Rex's computer future. Both he and Diane crackle with additional ideas they're eager to try. "Imagine developing and marketing all kinds of businesses right out of your own home," Rex says. "All you need, really, is a plug in the wall. And maybe UPS."

# **Building a Home Business**

Diane Morgan is no stranger to computers. When she worked for the New Hampshire legislature, she used an IBM OS6. She spreads her arms as she describes the machine: "It was huge, but we thought it was amazing because it could deal with the names of all the legislators."

Today, Diane's Apple //c can perform that task and much more. But seven years ago, sorting out all 400 members of the largest state legislature in the nation was an astonishing feat.

44 June 1986

Since then, Diane has moved on to *Wood 'n' Energy*. She's in charge of the editorial department's special projects, including *The Buyer's Guide*, an annual directory. She used the company's Radio Shack computer, recently replaced by an IBM PC-AT.

Although the Apple //c was a surprise, she's pleased with her husband's choice. The Morgans had discussed buying a computer and had consulted friends who used Apples, but hadn't set a purchase date.

"We felt Apple was a good company, and that if anything went wrong, we were sure they would correct it," Diane says. The Morgans set up the computer without a glitch. "The Apple products and the software had no flaws, so we didn't need any dealer support. Besides, the manuals are clear," she adds.

Within weeks Diane and Rex discovered **The Print Shop**, and they were literally in business. At first, they printed 12-foot-long greeting cards for the fun of it. Then they saw the commercial possibilities and decided to sell the banners, calling their business "Great Big Greeting Cards."

"For \$9.95 we'll mail one of these banners anywhere in the United States or Canada," Diane says. The **Image-Writer II** printer is fitted with a bright blue ribbon, and the illustrated message is personalized in 8-inch letters on brilliant-yellow 60-pound paper.

"Flowers wilt and balloons lose their air, so we're offering a more permanent message," Diane explains. "We know we're not the only ones in the country doing this, but we're also offering a special service. We'll take over people's greeting-card lists for an entire year and send a Great Big Greeting Card on every special occasion."

To get the word out, the Morgans send the cards to friends for birthdays and anniversaries. An order form is included. Using The Print Shop, Diane and Rex also print their own letterheads.

Diane is considering buying Apple's **AppleWorks** package, because it offers word processing, a data base, and a spreadsheet that can be used for business and family money management. "It seems as if half of our needs could be answered by AppleWorks. We have some other business ideas, too, and an integrated package would be just right," she says.

She's checked mail-order prices for AppleWorks, but notes that the ads often carry the instruction "Call for prices." "Like lobster on a restaurant menu," she laughs.

For shopping the market, Diane recommends the **Apple** //c **Handbook** from Ballantine: "It's very useful for finding out what's available."

Diane never expected to be shopping for computer software this spring. In fact, there was only one item on her 1985 Christmas wish list: "All I asked for was a decent set of measuring spoons."

In one way, her wish was granted. A software-package gift from Rex included **Micro Cookbook**. "It's very useful," she says. "The other night I had some cooked chicken left over. I checked Micro Cookbook and came up with four different recipes."

Micro Cookbook includes a shopping list, and can even

adapt the serving size of any of its recipes. If at the last minute Diane invites two people to stay for dinner, she can accurately adjust her chicken recipe to serve six instead of four. She and Rex have also begun adding their own favorite recipes to Micro Cookbook. It beats a set of measuring spoons.

Diane sees further business possibilities, including list management for local businesses: "There's a woman who owns a small fabric shop in town, for instance. She could use a computer-based mailing service to keep in touch with her customers." Diane sews and knits and looks forward to the day a computer program will simplify pattern design and adjustment.

Working at home at your own business—everybody's fantasy—may become an enduring reality for Diane. And she's found other applications at home, as well. Her //c has even turned out to be a useful parental teaching aid.

For instance, there's nothing like trying to get children to write thank-you notes, right? Not if you're 6-year-old Hudson Morgan growing up with a //c.

According to Diane, "It began when my sister's kids—they're 12, 10, and 8—sent computer-generated thank-you's within a week of receiving their Christmas gifts from us. Hud was excited and wanted to write his notes on the computer, too, so he typed in 'Thank you for the truck,' and marveled when it printed out the same way."

Miss Manners, no doubt, would approve.

# **Turtles and Lemonade**

When 6-year-old Hudson Morgan entered kindergarten last fall, he soon became familiar with the Apple //c.

At the Harold Martin School in Hopkinton Center, the children go two-by-two to the computer. "The programs they have at school require two users, and it's good socially for the children to work together and not be isolated with a computer," says Diane, who volunteers two mornings a month in her son's class.

The kindergartners use **Logo**, an educational computer language that has a turtle for a cursor. The children write their own programs and record them in program books.

Hud also uses Logo programs at home. He claps his hands when the computer praises his latest move by flashing "Turtle-riffic!" on the screen.

"It's fun for him," noted Diane as she watched him play **Space Quarks** from the **Apple at Play** program. Hud moved his index finger rapidly between two keys as pink and green creatures surfaced on the screen like bubbles in champagne.

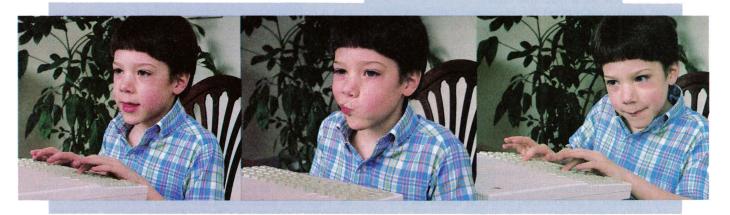
"It seems as if half our needs could be answered by AppleWorks."



"I'm trying to get Hud to use two fingers simultaneously rather than moving back and forth between keys," Diane commented. She's considering buying a program to teach the children touch typing.

Hud moved on to **Lemonade Stand**, a game that teaches you that even kiddy lemonade sales can go sour—as when Mom cuts off the free sugar or the rains come. The day Hudson Morgan played Lemonade Stand,

"He knew he'd won when the computer played We're in the Money."



he knew he'd won when the computer played We're in the Money.

"One of the nice things about the Apple //c is the volume control," says Diane. "There are times I don't want to hear Hud's games."

Hud shifted to **MousePaint**. He began drawing, then rotated his design 180 degrees. He reached for the manual to check an editing function (he's bright and can already read). When I asked what he was doing, he answered, "I want to change something." He clicked the mouse and continued to draw. Diane says he's already worked out several shortcuts in other programs.

"Children aren't intimidated by computers," Rex observes. "They don't stand there and think, "Well, I don't understand how this thing works, so I can't do it." They just do it."

But children can quickly lose interest when faced with a monochrome monitor. "We got a color monitor for the children. You have to have color to keep kids tuned in," Rex says. "They're used to color TV."

Diane finds the color monitor distracting when she types, though, so she switches off the color.

Hud finished his sketch, and Diane turned on the

**ImageWriter II.** The drawing rolled off the printer—all in bright blue. Why just one color? "To print in several colors you need a program like Dazzle Draw and a multicolor ribbon in the printer," she explains.

Next it was Luke's turn. At the age of 2½, he uses **Elf Paint**, a computer "coloring book." With coaching from Diane, he keyed colors and textures from a field of swatches, then applied them to a plump hen—she glowed in pink, green, and sky blue.

"He knows his alphabet—he learned it from Sesame Street," Diane notes. "But it takes forever for him to locate each letter."

Elf Paint has its limitations, Diane says. "But it was only \$17.50. And you have to choose any children's software carefully because they can quickly outgrow some programs."

Just like skates and skis.

Pat Haley is a writer living in New Hampshire. Her Nine Seasons Cookbook was published this year by Yankee Books, and she's currently using her Apple //e to work on her second cookbook. Write to her at Atherton Hill Road, Spofford, NH 03462.



June 1986



# **Product** Information

Apple at Play

Apple Computer 20525 Mariani Avenue Cupertino, CA 95014 (408) 996-1010 Included with //c

Reader Service Number 300

Apple Logo, \$100 AppleWorks, \$250 ImageWriter II, \$595 MousePaint (with Apple Mouse), \$149 (//e), \$99 (//c) Apple Computer 20525 Mariani Avenue Cupertino, CA 95014 (408) 996-1010

Reader Service Number 301

# Apple //c Handbook

Ballantine Books 201 East 50th Street New York, NY 10022 (212) 751-2600 \$14.95

Reader Service Number 302

Bank Street Mailer, \$69.95 Dazzle Draw, \$59.95 The Print Shop, \$49.95 Broderbund Software 17 Paul Drive San Rafael, CA 94903 (415) 479-1170

Reader Service Number 303

### **Elf Paint**

Elfware P.O. Box 118 Pollock Pines, CA 95726 \$17.50

Reader Service Number 304

# LogoWriter

Logo Computer Systems 9960 Côte de Liesse Road Lachine, Quebec Canada H8T 1A1 \$299

Reader Service Number 306

# Micro Cookbook

Pinpoint Publishing 2823 Steinmetz Way Oakland, CA 94602 (415) 654-3050 \$49.95

Reader Service Number 307

# **MouseWrite**

Roger Wagner Publishing 10761 Woodside Avenue Suite E Santee, CA 92071 (619) 562-3670 \$125

Reader Service Number 308

### The Newsroom

Springboard Software 7807 Creekridge Circle Minneapolis, MN 55435 (612) 944-3915 \$49.95

Reader Service Number 309

# Typing Tutor III

Simon & Schuster Electronic Publishing 1230 Avenue of the Americas New York, NY 10020 (212) 245-6400 \$49.95

Reader Service Number 310

# **Typing Well**

Learning Well 200 South Service Road Roslyn Heights, NY 11577 (516) 621-1540 \$49.95

Reader Service Number 311

# **Great Software** for Under \$700

Now is your chance to build your software library at a very reasonable cost! For ONLY \$6.99 you can get software for your Apple computer. Choose from entertainment, home management or education titles. As an added BONUS: For any merchandise order over \$10.00 you will receive one FREE blank diskette!

# For the Apple II+, IIc, IIe

### **Entertainment Series**

- A-1 Beginner's Cave, an Adventure A-2 Cave of the Mind, an Adventure
- A-3 River Adventure, an Adventure
- A-4 Fore!, Golfing Simulator
- Lady Luck
- Space Adventure A-6
- Classic Games
- A-8 Android Invasion
- A-9 Championship Gambler
- A-10 Chess Champion
- A-11 Memory Quest A-12 Wizard & the Princess
- A-13 Ulysses & the Golden Fleece
- -14 Mission Asteroid
- -15 Passport to London
- A-16 Passport to Paris

### **Home Management**

- A-17 The Addresser-Mailing List
- -18 Financial Planner
- -19 General Ledger -20 Monthly Budgeter
- A-21 Nutrition Monitor
- A-22 Securities Portfolio
- A-23 Recipe Box A-24 Database Manager
- A-25 Disk Library A-26 Electronic Calendar A-27 Electronic Phone Book
- -28 Family Tree
- A-29 Personal Spreadsheet
- A-30 JWriter, Word Processor
- A-31 Utility Master
- A-32 Vital Data Keeper
- A-33 Typing Tutor

A-34 Tax Record Organizer A-35 Checkbook Balancer A-36 JBase

### **Education Series**

A-37 Mr. Math A-38 Speed Reading A-39 Beginning Counting A-40 Counting Skills

- A-41 Addition I
- A-42 Addition II
- A-43 Addition III
- A-44 Addition IV
- A-45 Subtraction I
- A-46 Subtraction II
- A-47 Subtraction III A-48 Multiplication I
- A-49 Multiplication II A-50 Multiplication III
- A-51 Division I
- A-52 Division II
- A-53 Division III
- A-54 Division IV
- Electric Book Co. **Education Series**
- A-55 Why?
- A-56 When?
- A-57 The Three Bears
- A-58 Gingerbread Man A-59 Baby Animals
- A-60 Hoppy the Curious Kangaroo
- A-61 Wild Animals
- A-62 Tom Thumb A-631 Was a Second Grade Werewolf
- A-64 Tough Eddie

# Plus these Super Accessories

- Universal Blank Diskettes (for Apple or Commodore) compatible with any 51/4" disk drive. Double-notched, DS/DD disks give singlesided users twice the storage at the same great price! Box of
- Blank Diskettes: 100% certified, DS/DD, Box of 10: \$7.50.

# CALL TOLL-FREE



In Minnesota CALL:

(612) 829-1911



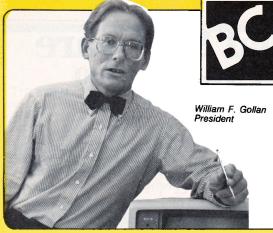


Firstline Software, Inc. P.O. Box 5297 Hopkins, MN 55343-2297

# **ORDER FORM**

Please list the ordering number(s) (C-1, A-3, etc.) of the program(s) you wish to order and return this order form along with your check, money order or VISA/MasterCard information to: Firstline Software, P.O. Box 5297, Hopkins, MN 55343-2297.

I'm ordering the following programs:	Total number of software pigsx \$6.99 each
100 100 100 100 100 100 100 100 100 100	Boxes of 5 Universal blank disks x \$6.99 per box \$
No. of the last of	Boxes of 10 blank disks \$
Check or money order	Total amount of order \$
	Postage/handling \$ 2.00
□ VISA □ MasterCard	MN Residents add 6% state sales tax
Card Number	Total (enclose check, money order or fill
Expiration Date	in VISA/MC information at left) \$
Name	Money orders/Credit card orders shipped immediately.
SigDate	Allow 4-6 weeks for delivery for check orders.
Name	Address
City	StateZip



# **BUSINESS COMPUTERS**

OF PETERBOROUGH Gollan Co., Inc. Upper Union St. P.O. Box 94 W. Peterborough, NH 03468-0094

# We will match price in

"We'll support, service, and warranty everything we sell and stand behind it 100%.

MODEMS	
D.C. Hayes Micro Modem Ile w/sw Smart 1200 Smart Modem 2400 Prometheus	144.95 374.95 584.95
Pro 300 lic w/sw Pro 1200 Pro 1200 A w/sc	129.95 289.95 269.95
PERIPHERALS	
Amdek 300 G 12" Green Color 300 Composite Color 600 RGB	124.95 224.95 389.95
Apple II E's & II C's & Macs Checkmate Tech	CALL
Multiram II E 64K + 80 Multiram II E 256K + 80 Multiram II E 256K + 80 Multiram II E 512K + 80 Multiram II E 64K RGB + 80 Multiram II E 512K RGB + 80 Multiram II E 512K RGB + 80 Multiram II E 512K RGB + 80 Multiram II E 1024K RGB + 80 Multiram II E 1024K RGB + 80 Multiram II C24K RGB + 80 Multiram II CX W/256K Multiram II CX W/256K Multiram II CX W/512K Multiram II CX 16 W/258	129.95 169.95 209.95 249.95 179.95 229.95 309.95 249.95 249.95 329.95 329.95 329.95
Curtis Diamond Emerald Ruby	35.95 39.95 59.95
Verbatim Bonus SS/DD Verbatim Bonus DS/DD Verbatim Datalifes SS/DD Verbatim Datalifes DS/DD Verbatim Datalifes DS/DD Maxell MD1 SS/DD Maxell MD2 DS/DD Scotch 3m DS/DD Scotch 3m DS/DD	12.95 16.95 19.95 25.95 16.95 24.95 17.95 23.95
Kensington Printer Stand System Saver Koala Technologies	19.95 64.95
Koala Pad + Joysticks	77.95
Kraft Kraft Quickstick Hayes Mach III's Titan	39.95 54.95 39.95
Accellorator 128K Ram	224.95 179.95
GRAPHIC INTERFAC	ES
Orange Micro Grappler + Grappler + w/64k Grappler + RS-232C Grappler C Hot Link ltc	84.95 154.95 84.95 84.95 54.95
Image Buffer II w/64k Textprint	74.95
Print It	134.95
NA	
V	
- Lank	
shipping	•
Free in our price	
or prior	

vice, and warranty	ev	er
GRAPHIC INTERFACI	ES	1
Fingerprint + IIC	99.98 99.98	5
PRINTERS DOT MATE	RIX	
Apple* Imagewriter II 10"	CALI	-
Citizen MSP 120D MSP 35 Premier MSP 10 160 MSP 15 160 MSP 20 200 MSP 25 200 Epson America	209.95 409.95 269.95 379.95 349.95 519.95	555
AP 80 Image LX 80 LX 80 F/T FX 85 FX 286 LQ 800 LQ 1000 Okideta	279.95 249.95 279.95 409.95 589.95 579.95 699.95	5555
ML 192 ML 192 Image. ML 193 ML 193 Image	349.95 379.95 484.95 554.95	5
BUSINESS SOFTWAR	RE	
Spellworks Apple	37.9	5
Appleworks Arrays	199.9	
Appleworks Buddies Home Accountant Tax Advantage BPI Software	55.99 47.99 44.99	5
AR, GL, PR, AP, IC (ea) Prodos Versions (ea)	209.99 219.99	
Bank Street Writer Bank Street Speller Bank Street Filer Bank Street Mailer	46.99 46.99 46.99	5
Compuserve Subscription Kit Dow Jones	20.9	
Investors Workshop + IIc Market Analyzer Market Manager + Howardsoft	89.99 199.99 129.99	5
RE Analayzer III  Human Edge  Mind Prober	199.9	
Int'l Solutions  Mouse Budget  Mouse Desk  Mouse Word  Mouse Calc	59.95 39.95 94.95 109.95	5
Quicken Kensington	54.9	5
Format II Living Videotext	94.9	5
Inink Lank	84.9	5
GL,AR,AP,IC (ea) PR Business Master	264.9 309.9 74.9	5
Megahaus MegaWorks Report Works Microsoft	74.9 74.9	5
Multiplan Monogram	69.9	5
Dollars & Cents Dollars & Cents IIc Forcast	63.99 73.99 43.99	
Peachtree Back to Basics Back to Basics A/R, A/P, G/L (ea) PBI	114.99 64.99	
JEEVES Graphworks Quark	43.98 64.98	5

ything we sell and	star
BUSINESS SOFTWAI	RE
Word Juggler 3.0 Roger Wagner	134.95
Mouse Write Sensible Software	80.95
Bookends	84.95
Sensible Speller IV Graphics Dept.	74.95 74.95
Sensible Grammar Sierra On Line	69.95
Homeword + Home Word Filer	47.95
Screenwriter Pro	47.95 84.95
Software Publishing PFS:WR, GR RP, PL (ea) Sorcim/IUS	74.95
Super IIIA SSI	109.95
Word Perect United Software	84.95
ASCij Express	84.95
UTILITIES & LANGUA	GES
Activision Kitchen's Game Maker Baudville	34.95
Actors & Actions	23.95 33.95
Business Blazing Saddles	33.95
Heroes & Villans Pixit	23.95 35.95
Prince Color (Epson) Prince Color (Prowriter)	47.95 47.95
Shape Lib. 1,2,3 (ea) Take 1	13.95 39.95
Beagle Brothers	
Alpha Plot Apple Mechanic	27.95 20.95
Bag Basic	20.95 24.95
Big U Graphics	24.95 37.95
D-Code	27.95
Diskquick DOS Boss	20.95 18.95
Double-Take Extra K	24.95 27.95
Fat Cat Flex Text	24.95 21.95
Font Mechanic Frame-Up	20.95 21.95
GPLE	32.95
I.O. Silver Macro Works	20.95 23.95
Mini Pix #1 Pro-Byter	21.95 24.95
Pronto DOS Shape Mechanic	20.95 27.95
Silicon Salad	27.95 18.95 13.95
Tip Disk # 1 Triple Dump	27.95
Typefaces Utility City_	15.95 20.95
Borland International	44.95
Turbo Tool (Reg. cpm) Turbo Tutorial (Reg. cpm) Turbo Game Works (Reg. cpm)	34.95 29.95
Turbo Game Works (Reg. cpm)  Broderbund	25.95
Dozzlo Drow	41.95 34.95
Print Shop Companion	29.95
Print Shop Print Shop Companion Print Shop GL 1,2,3 (ea) Print Shop Refill Paper Central Point	19.95 13.95
Copy II + Data Transforms	24.95
Fontrix Font Set(s) (ea)	59.95 19.95
Funk Sideways	37.95
Microsoft Basic Compiler	244.95
COBOL-80 Fortran-80	419.95 129.95
Crosstalk	109.95
Mindscape Mister Pixel's	1

TODAY-ORDERS ONLY 1-800-845-3003

d behind it 100%.	
UTILITIES & LANGUA	GES
Cartoon Kit	23.95
Paint Set Color Me (Main)	23.95 23.95
Rainbow Brite Shirt Tales	9.95 9.95
Hugga Bunch	9.95
Tink Tonk Penguin Software	9.95
Cat Graphics	24.95
Complete Graphics System Graphics Magician	54.95 42.95
Magic Paintbrush	24.95
Pinpoint Pinpoint	44.95
Pinpoint Spellchecker Pinpoint Toolkit	49.95 34.95
Pinpoint Ram Exp.	13.95
Roger Wagner Merlin Assembler	40.95
Merlin Pro	64.95
Merlin Combo Springboard	69.95
Newsroom	37.95 22.95
Newsroom Clip Art V1 Newsroom Clip Art V2 Newsroom Graphic Exp V1	26.95
Newsroom Graphic Exp V1 Terrapin	29.95
LOGO	64.95
EDUCATIONAL&PERS	ONAL
Bantam	
Scarsdale Diet Barrons	29.95
Computer SAT	59.95
Goren's Bridge	54.95
Mastering SAT	64.95
Success Series (ea)  Davidson Associates	25.95
Classmate Math Blaster	33.95 33.95
Speed Reader II	45.95
Alge Blaster Spell It	33.95 33.95
Word Attack	33.95
Designware European Nations	31.95
Grammer Exam.	31.95
Remember Spellcopter	49.95 29.95
Spellakazam States & Traits	29.95 31.95
Body Transparant	31.95
All Products	CALL
Electronic Arts Cut & Paste	
Financial Cookbook	27.95 37.95
Movie Maker Fisher Price	31.95
Alpha Build	21.95
1st Man on Moon Jungle Reading	23.95 23.95
Logic Levels	21.95
Peter R. Reading Peter W. Music	23.95 23.95
Sea Speller	18.95
SAT Math	36.95
SAT Verbal Learning Company	36.95
Addition Magician	26.95
Bumble Plot Gertrudes Puzzle	29.95 31.95
I Gertrudes Secrets	31.95 23.95
Juggle's Rainbow Magic Spells	25.95
Moptown Hotel Moptown Parade	29.95 29.95
Number Stumper	29.95
Reader Rabbit	29.95 34.95
Robot Odyssey Rocky's Boot	34.95
Word Spinner Meca	25.95
Managing Your \$ Milliken	109.95
Addition Seq.	26.95

# any mail order this issue. 99 66 or

66 Our prices hide nothing 99\*

.....that's my promise."

<b>DUCATIONAL&amp;PER</b>	SONAL
Division Seq.	26.95
Word Processor	47.95
Mindscape	
Perfect Score Keyboard Cadet	47.95
Lusher Profile	29.95 29.95
Lusher Profile Bank St. Music	37.95
Bank St. Story B.	29.95
Pinpoint Micro Cookbook	31.95
Added Menue's (ea)	13.95
Random House	
Charlie Brown's ABC's	29.95i 29.95i
Charlie Brown Typing Charlie Brown 1,2,3's	29.95
Garfield Dbl. Dares Garfield Eat Words	29.95
Garfield Eat Words Maze Marathon	29.95 29.95
Potato Head	29.95
Peanuts Math	29.95
Peanuts Maze	29.95
Picture Puzzle Reading Machine	29.95 29.95
Shifty Sam	29.95
Snoppy Writer Snoopy Rescue	29.95
Snoopy Rescue	29.95
Twart Scarborough	29.95
Boston Diet	53.95
Build a Book	29.95
Build Refills 1,2 (ea)	16.95
Mastertype New Improved	29.95
Figures & Formulas	21.95
Filer	29.95
Writing Wizard Run for the \$	53.95 29.95
Songwriter	29.95
Personal Net W.	54.95
Simon & Schuster Great Paper Air'P	27.95
Typing Tutor III	35.95
JK Lasser \$ Mng. Webster's Spelling Ck.	54.95
Webster's Spelling Ck.	42.95
Spinnaker Adv. Creator	23.95
Alphabet Zoo	24.95
BW Wordproc.	39.95
BW File/Report BW Spreadsh.	39.95 39.95
Counting Parade	23.95
Delta Drawing	29.95
Fraction Fever Grandma's House	21.95 21.95
Homework Math/Word	29.95
Homework Writing	29.95
In Search of	25.95
Kids on Keys Kid Writer	20.95 19.95
Kindercomp	20.95
Math Busters	23.95
Rhymes & Riddles Snooper Trooper1,2 (ea)	19.95 25.95
Story Machine	27.95
Sum Ducks	23.95
Trains Springboard	23.95
Early Games	25.95
Easy ABC Fraction Factory	29.95
Fraction Factory Mask Parade	23.95 29.95
Music Maestro	25.95
Piece Cake Math	25.95
Puzzle Master	25.95
Rainbow Painter Stickers	25.95 25.95
Timeworks	
Silvia Porter \$ Planner	74.95
Evelyn Wood Reader	46.95
Sticky Bear	
ABC	29.95
ABC Basket Bounce	29.95 29.95
Sticky Bear ABC Basket Bounce Bop Math	29.95 29.95 29.95
ABC Basket Bounce Bop	29.95 29.95

ZDUCATIONAL&PERSON	IAL
Shapes Speligrabber	29.95
Town Builder	29.95 29.95
Typing	29.95
Codes & Cyphers Basic	29.95 29.95
Math 2	29.95
GAMES SOFTWARE	
Access	
Beach-Head I,II (ea) Accolade	27.95
Hard Ball	25.95
Laws of West Psi 5	25.95 25.95
Sundog V 2.0	25.95
Activision Alcazar	29.95
Borrowed Time	29.95
Countdown to Shut.	29.95
Designer's Pencil Ghostbuster's	29.95 29.95
H.E.R.O.	29.95
Master Lands Mindshadow	29.95 29.95
Pitfall	29.95
Road Race Rock N Bolt	29.95 29.95
Space Shuttle	29.95
Tracer Sanction Zenii	29.95 29.95
Avaion Hili	
Under Fire Avant Garde	41.95
Dave Winfield  Blue Chip	29.95
Barron	29.95
Millionaire Squire	29.95 29.95
Tycoon	29.95
Art of War	29.95
Championship Lode R.	25.95
Choplifter Captain Goodnight	25.95 25.95
Fantavision	35.95
Karateka Mask of Sup	25.95 29.95
Mask of Sun Serpent's Star	29.95
Where in the World CBS	29.95
Murder by Doz.  Datasoft	28.95
Alternate Reality	34.95
Bruce Lee Conan	28.95 28.95
Dallas Quest	24.95
Dig Dug Goonies	21.95 28.95
Mr. Do	28.95
PacMan Zoro	21.95 28.95
Electronic Art	BO
Reach For Stars Archon	34.95
7 Cities Gold	27.95 30.95
Sky Fox	30.95
Europe Ablaze Murder Zindernaul	37.95 19.95
Music Const. Set	29.95
Archon II: Adept	29.95
Archon II: Adept Carrier's At War	37.95
Wilderness 1 on 1	37.95 29.95
Adv. Const. Set	37.95 24.95
Cavers Calisto Golden Oldies	24.95 29.95
Mail Order Monster	CALL
Racing Dest. Set	CALL
Realm of Impossibility Epyx	CALL
Koronis Rift Summer Games	29.95 28.95
Pitstop	28.95
Baseball	25.95

ST CAMED COLTUM	25
GAMES SOFTWA	
Winter Games Football	29.95 29.95
Temple Apshair	21.95
Eidolon Crush, Crumble	29.95 20.95
Fax	20.95
Mission Impossible	24.95
Hayden Holy Grail	35.95
Sargon III	35.95
Infocom Cutthroats	20.05
Deadline	28.95 33.95
Enchanter	28.95
Fooblitsky Hitchhiker's G.	29.95 28.95
Infidel	31.95
Mind Voyaging	31.95
Seastalker Starcross	28.95 33.95
Sorcerer	30.95
Spell Breaker	33.95
Suspect Wishbringer	30.95 28.95
Witness	28.95
Zork 1	28.95
Zork 2,3 (ea) Micro Lge. Sports	30.95
Baseball	29.95
Microprose F-15 Strike	25.95
NATO Commander	25.95
Silent Service	25.95
Solo Flight Crusade in Europe	25.95 28.95
Crusade in Europe Decision Desert	28.95
Conflict Vietnam	28.95
Kennedy Approach Gunship	25.95 25.95
Acro Jet	25.95
Mindscape	22.05
Halley Project Stephen King Mist	32.95 30.95
James Bond View K.	30.95
American Challenger	29.95 29.95
D. Francis High Staker Forbidden Castle	30.95
Jaines Bond Gold F.	29.95
Voodoo Island Racter	30.95 32.95
Tink's Adventure	22.95
Tonk in Buddy Bots Tuk Goes Town	22.95
Tinka's Mazes	22.95 22.95
Tinka's Sub. Fair	22.95
Crossword Magic	35.95
Deja Vu Rambo Part II	39.95 29.95
Voodoo Island	29.95
One Step Golf's Best St. Andrew's Old	37.05
Golf's Best Pinehurst	37.95 37.95
Origin	
Ultima 3 & 4 (ea) Moebius	41.95
Autoduel	42.95 37.95
Orge	CALL
Penguin Pensate	19.95
Quest	25.95
Swords Kadash	25.95
Crimson Crown (New)	25.95 25.95
Sierra On Line	
King's Quest King's Quest II	35.95 35.95
Black Caldron	29.95
Simon & Schuster	100
Super Zaxxon Frogger 3 Deep	26.95 26.95
Spy Hunter	32.95
Trapper	32.95
Sir Tech Wizardry 1	34.95
Wizardry 2	25.95
Wizardry 3	28.95
Wizardry 4 Rescue Raiders	27.95

	-	
GAMES SOFTWARE		ľ
Gato	28.9	5
Spinnaker/Telarium		_
Amazon Dragon World	29.9	
Fahrenheit 451	29.5	
Rendezvous w/Rama	29.9	
Shawdow Keep	29.9	
Strategic Simulations	_0.0	
Baltic 85	25.9	95
Battalion Comm.	29.9	
Battle Normandy	29.9	
Carrier Force	39.9	
Computer Ambush	37.9	
Computer Quarterback Computer Baseball	27.9	
Geopolitique	28.9	
Germany 85	39.9	
Imperium Galactum	28.9	
Kampfgruppe	39.9	
Mission Crush	28.9	5
N. Atlantic 85	39.9	
Objective Kursk	28.9	
Operation Mkt. Gardn.	35.9	
Phantaise Rings Ziffin	28.9 CAL	
Questron	34.9	
War with Russia	54.9	
Gemstone Warrior	25.9	
Mech Brigade	39.9	
Broadsides	28.9	
Six Gun Shootout	CAL	
Battle of Antietam	CAL	
Colonial Conquest	CAL	L
Sublogic Flight Simulator II	35.9	5

# **Customer Service** (603) 924-9406

Our Terms and Conditions
Shipping UPS: Incl. in our price
Handling: Incl. in our price
Credit Card Surcharge: 0%
Purchase Orders: FOB NH, and hdlg.
Matches: products with "ball for price" N/A



CALL TODAY—ORDERS ONLY 1-800-845-3003`

# BBS and BUSINESS: A Profitable Pair

inCider looks at a profitable new trend in marketing: doing business by bulletin board.

by Wendy Lea McKibbin, inCider staff

lectronic bulletin boards are all the rage in Houma, Louisiana. At least four local establishments, ranging from Ray's Bayou Doughnuts to the local Computer-Land franchise, maintain computerized information forums for their customers or other interested callers. And the parish school board is considering a bulletin board so that housebound children can communicate with their teachers.

"Ray [of doughnut fame] probably started it," says sales representative Mike Blanchard of ComputerLand, in tracing the development of BBS's in town.

The Bayou Board, which advertises the doughnut shop while providing a community service, operates 24 hours a day, 365 days a year, "except for Mardi Gras and hurricanes." Since 1984, owners of Apple, Tandy, and assorted MS-DOS computers have been dialing up Ray Barnes' board to receive system support information and try their hand at winning a few free French crullers.

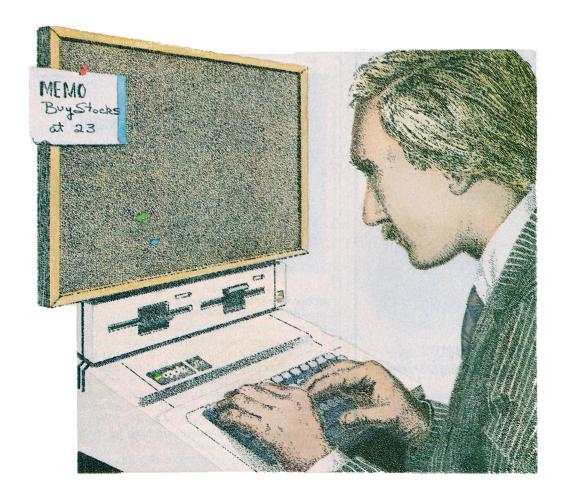
Somewhat less accessible are the part-time bulletin boards of ComputerLand and its competitor, The Computer People. Even with shorter BBS operating hours, both retailers are strong advocates of on-line communications as a way of reaching out to current and prospective customers.

"It's really a way of making friends in the community," explains Blanchard, whose bulletin board receives 25 callers a night. "If you've been helpful to people and answered their questions, then sooner or later they're going to come to you when they're ready to buy new equipment and supplies."

Customer outreach via computer is an idea that independent professionals and a number of small establishments around the country are repeating with varied success. A stockbroker in Denver, Colorado, maintains a daily listing of stock quotes for his clients on a dedicated Apple II Plus computer. A couple in Santa Fe, New Mexico, who have retired from the CIA advertise their tax-consulting business on a bulletin board they created to provide information on ski conditions for tourists. They also let local businesses place ads on the BBS for \$35 per month. A full-service insurance agency in Washington, New Jersey, sells personal-computer policies on line to state residents. And a computer bookstore in Sunnyvale, California, sells books on line and holds open discussions for bulletin-board customers.

Not all "BBS for business" stories have a happy ending, though. A critical factor would appear to be the computer literacy of the clientele. For example, the rock station KGON of Portland, Oregon, organized a bulletin board several years ago when the personal-computer market was at the height of its growth, but abandoned the project a year later.

According to KGON program director Peter Bolger, the board never received enough callers to justify the cost and effort of operation. The station's full-time systems operator (sysop) had little to do except remove messages



from the board. In retrospect, Bolger says it boiled down to a problem of market saturation: There were simply not enough listeners with personal computers.

The plight of KGON illustrates what Ted Landberg of the National Bureau of Standards in Gaithersburg, Maryland, identifies as the principal factor you should consider when starting a bulletin board—namely, the match between client population and personal-computer owners.

"A company can sell almost any type of product or service and still be a good candidate for a bulletin board, if a critical mass of its customers or clients own a personal computer with dial-up capabilities," Landberg says.

### Is a BBS Right for Your Business?

Bulletin boards are particularly effective for companies that regularly handle several hundred products or whose printed price lists speedily go out of date. Firms with large populations of bargain-hunting customers might also be good prospects for a BBS, Landberg suggests. (He points out that the federal government is a perfect candidate for a bulletin board, since the data in many government catalogues become obsolete very quickly.)

Bulletin boards can act as public-information officers for a company by dispensing product announcements and news releases or answering frequently asked questions. They can act as service representatives providing roundthe-clock software support or as departmental message centers for traveling staff members. A BBS can become an on-line sales tool, giving customers an easier way to select and pay for items, while reducing staff requirements for invoicing and purchasing.

"For the modest investment of 3000 low-risk, high-payback advertising dollars, a small business can create the image of being a state-of-the-art establishment," Landberg declares.

"The bulletin board is really the precursor of electronic product delivery," he continues. "It allows the businessperson the opportunity to gain valuable experience in electronic marketing for very few dollars."

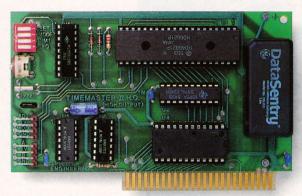
### Profit on the Side

A bulletin board is also an ideal sideline business, given the right circumstances. It can operate unattended, you can maintain and update it on nights and weekends, and it costs very little to set up.

Landberg recommends that the prospective BBS operator give careful thought to a topic area. A bulletin board needs a theme or a well-focused, well-defined purpose. And anyone considering this step should first make certain that a sufficient audience exists to justify the purpose of the board.

Next, the operator should have excellent resources or expertise in the subject matter. Barring personal reservoirs

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



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

It's the smart way to put the time and date on your Apple II+® or IIe®. Because only the Timemaster H.O. packs *ALL* the features of all the competition *combined*, including leap year, year (not just in PRO-DOS), month, date, day of week, hours, minutes, seconds and milliseconds. It's totally PRO-DOS, DOS 3.3, PASCAL and CP/M compatible. And of course, it works better than any other clock with AppleWorks.

If you're using or writing software for other clock cards, you're still covered. Because the H.O. will *automatically* emulate them. And the Timemaster H.O. adds 14 new commands to BASIC. The H.O. even comes complete with two disks full of sample programs, including a computerized appointment book, a DOS dating program, interrupt programs, and over 30 programs that others charge extra for — or don't even offer.

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

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

 Clock price
 \$129.00

 BSR option (may be added later)
 \$ 49.00

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 51/4% sales tax. Add \$10.00 outside U.S.A.

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



"A bulletin board needs a theme or a well-focused, well-defined purpose."

Ted Landberg

of talent, you should have a group of collaborators to help provide information. "Otherwise, the well will run dry very quickly, and you'll have a stale product," Landberg cautions.

The revenue base for a bulletin-board business may be modest at first if it depends on on-line advertisements to generate income. Given time and the right mix of products and clients, though, it can operate quite profitably.

For example, Yellow Data Company of Boston, Massachusetts, is a videotext operation that essentially runs a sophisticated bulletin board. Retailers, theatres, transportation companies, and investment firms list their wares on line for \$300 per month.

Yellow Data averages about 600 ads per year. Although it's a much more costly and complicated enterprise than a single, dedicated microcomputer, Yellow Data's success illustrates that firms will pay to advertise on an electronic medium if they're convinced they're reaching an important audience.

Another approach to revenue generation for the BBS moonlighter is to use the bulletin board as an on-line mail-order house for your own or others' products. Or you could direct callers to needed goods and services in the area and negotiate a commission with the vendor for each placement. Better yet, for a modest fee you could offer to create and maintain a bulletin board for a small local business that lacks the time and resources to produce its own.

Whether it's an individual or a small business taking a first crack at a BBS, Landberg says it will be three to six months before traffic picks up on the board. Things will move a little more quickly if the operator engages in an aggressive advertising campaign.

# Spreading the Word

How can an establishment or a sole professional spread the word that a bulletin board is open for business? One of the easiest ways is to advertise on other bulletin boards in the area or nationwide.

An individual in Boulder, Colorado, maintains a BBS called the Professional Board, which provides a yellow-pages directory of professional bulletin boards. Interested parties can reach the sysop, Bob Voorhees, by voice at (303) 673-7133 or by modem at (303) 740-2223.

Other possibilities for promotion are to get a free listing in *The Computer Shopper* by mailing a notice to "Bulletin

52 June 1986

# **Product Information**

**Bulletin-Board Software** 

### CommuniTree First Edition

Synergetic Communications P.O. Box 9964 Berkeley, CA 94709 (415) 548-0967 \$145, plus \$5 shipping

CommuniTree Software creates a hierarchical data base of files and subfiles that makes it especially applicable for computer conferencing and dissemination of information. It can handle 20 different topics and lets callers do full-text or string searches. It also includes a browse function, which lets users scan topics for the whole tree or just one branch. CommuniTree requires an Apple II, II Plus, or //e with at least 48K of RAM and one drive, although it can support up to six drives.

Reader Service Number 323

GBBS II and GBBS-Pro Micro Data Products 5739 South Olanthe Court Aurora, CO 89915 (303) 699-1161 \$95 (II), \$125 (Pro)

GBBS II and GBBS-Pro. an enhanced version, are comprehensive BBS packages that provide messaging, multiple boards, and private-mail capabilities. GBBS II is user-modifiable. It has 120 security levels and a text editor, and gives the sysop remote-access capabilities. GBBS II supports the Apple II, II Plus, or //e with 48K or 64K, and the Apple /// in emulation mode. GBBS-Pro is the ProDOS version of the product, enhanced to run at machine-language speed. It provides a "global quick scan" to show new messages on each board, mail forwarding, batch mailing, and a profanity filer. A datacompaction feature lets the

sysop save up to 40 percent more space on each disk. GBBS-Pro requires two floppy-disk drives and a minimum of 64K. It doesn't run under Apple /// emulation.

Reader Service Number 324

### Let's Talk

Russ Systems 320 Dufour Street Santa Cruz, CA 95060 (408) 458-5080 \$175

Let's Talk requires an Apple I/c or I/e with 128K of memory and an auto-answer modem. The program provides public and private data boards, electronic mail, conferencing, uploading and downloading of files in text and binary format, and information directories according to topic.

Reader Service Number 325

# Networks II

High Technology Software Products P.O. Box 60406 Oklahoma City, OK 73146 (405) 848-0480 \$99

Networks II provides standard features such as private and public mail, mail waiting, text editor, and automatic password assignment to new callers. It's been around since 1981, and some users consider it the best proven and most reliable bulletin-board software. A BBS running on Networks II can receive program or text files and can handle eight different topic areas. It requires a minimum of 48K of memory, one drive, and a Hayes Micromodem II, //e, or compatibles. Networks II works with an Apple II, II Plus, or //e.

Reader Service Number 326

# With Z-80 Plus, run CP/M-the largest body of software in existence.



# Now, get two computers in one, and all the advantages of both.

E nter the CP/M world with the new Z-80 Plus card from Applied Engineering, and introduce your Apple IIe® or II+® to the thousands of CP/M programs. Only the Z-80 Plus comes standard with the new 4.0 software, the most advanced system ever for running CP/M programs.

The new 4.0 boasts advanced features like built-in disk emulation for popular memory expansion boards, boosting both system speed and storage capacity. And menu-driven utilities that let you get to work faster. The Z-80 Plus also lets you run older CP/M programs — all the way down to Version 1.6 (2.2 is the most popular).

The Z-80 Plus is the only card on the market capable of accessing more than 64K in an Apple IIe. If you have an extended 80-column card, all 128K is usable, and if you have RamWorks, up to 1088K is available.

Each Z-80 Plus comes with our CP/M Ram Drive software, enabling IIe owners to use an extended 80-column card or a RamWorks card as a high-speed Ram disk which runs CP/M software up to twenty times faster. So packages like WordStar and dBASE II run at blinding speed.

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

• Fully compatible with MLL CP/M software

most hard disks, including Corvus and the Sider
with Microsoft disks (no pre-boot required)
with Microsoft disks (no pre-boot repaired)
with Microsoft disk

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 51/8% sales tax. Add \$10.00 outside U.S.A.

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



Our IIc System Clock offers automatic time and date stamping, puts time, year, month, date and day of week right on your screen!

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

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

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

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

Call 214-241-6060 TO ORDER TODAY 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 51/8% sales tax. Add \$10.00 outside U.S.A.

P.O. Box 798, Carrollton, TX 75006 (214) 241-6060 Board," *The Computer Shopper*, P.O. Box F, Titusville, FL 32781. A second publication that carries BBS listings is *Bulletin Board Systems* magazine, from Meckler Publishing (111 Ferry Lane West, Westport, CT 06880). The computer trade journals are also an effective, if costly, alternative.

Ted Landberg suggests getting the word out to local computer clubs, or putting ads in newspapers or the telephone yellow pages. And if it's a small business establishing the BBS, the proprietor can always spread the word at a Chamber of Commerce meeting.

Finally, a modern manufacturer may be willing to pack fliers in its product boxes. Or perhaps local computer retailers can post BBS listings in their stores.

Ingenuity can supplement even the most modest advertising budget. But, fortunately, there are a number of inexpensive ways to get the message out to the world of electronic communicators.

# **Getting Started**

The minimum materials required for establishing a bulletin board are a computer system you can dedicate to the BBS, a dedicated phone line, a modem, and bulletin-board software (see the accompanying Product Information sidebar). Two optional features that come highly recommended are a clock card, so that the sysop doesn't have to manually change the date on the board every day, and a printer, also for the convenience of the sysop.

Aside from the physical requirements, the operator must be willing to make a substantial time commitment toward maintaining a bulletin board.

"Try to imagine how much time it's going to take, and then double it," says Bill Christison, who runs a ski-information BBS in Santa Fe, New Mexico, with his wife, Kathy.

Some sysops say they spend as much as three hours a day reading messages, adding and deleting information, and cleaning up the files. You must also consider normal computer maintenance and standard security issues.

Almost every BBS operator around admits to having trouble with prank callers and vulgar messages. The sysop must be prepared to police the message board for unacceptable material. Some boards have software programs that will automatically reject obscene words, but this isn't a universal feature.

### Avoid the Bandwagon

A bulletin board isn't a marketing tool every business can use. As mentioned earlier, the most important guideline when considering a BBS to enhance your business is the match between computer owners and your clientele. Of course, there's always the option of creating an information center of data unrelated to your business, then using the bulletin board as an advertising vehicle for your products or services, à la Ray's Bayou Board in Houma, Louisiana. Just be sure you have a clear idea of your audience, or you may end up wasting money, as happened in the case of KGON radio in Portland.

Perhaps the most intriguing aspect of setting up a BBS is that it provides experience in an important new area of marketing. If, as Ted Landberg predicts, the bulletin board is a precursor of business practices to come, then your own BBS might be the perfect opportunity to prime your business for the future.



"Machine barriers are beginning to break down."

# A Good Investment

Jim Pritula is a full-time stockbroker and vice-president of Eagle Securities in Denver, Colorado. Yet he finds time on the side to maintain a 24-hour-a-day bulletin board called the Stock Market BBS, which operates as a public service for 400 steady users.

About ten callers a day dial up for information about their favorite stocks or to trade on line. The BBS includes general text files about the stock market that cover such topics as "over-the-counter stocks" and "new legislation." An on-line library tracks important books about the market, and there's even an electronic dictionary for ready reference. (For example, did you know that arbitrage means "a simultaneous transaction"?)

Pritula explains that you can create a file on any stock you want to watch. Brokers type in the closing quotes for the day, and they're captured in the file. The information may not be as comprehensive as that the Dow Jones News/Retrieval Service would provide, but, on the other hand, it's free.

New callers can sign up on the board for passwords, and even open a brokerage account through the bulletin board.

The board operates at 300 to 2400 baud and is based on an Apple II Plus computer, although Pritula occasionally uses a Franklin instead. The system uses GBBS-Pro, bulletin-board software developed by Micro Data Products, another Denver-based company.

Pritula says bulletin boards are a promising medium for communications and are sure to attract more callers in the future. They're popular because they let people with Apples and IBM's talk to each other, he points out. The BBS phenomenon signals that "machine barriers are beginning to break down."

Has the Stock Market BBS brought to this Rocky Mountain stockbroker customer traffic he might otherwise not have had?

"Without a doubt," Pritula declares. "Unquestionably, it's been a good investment."

Interested callers can dial up the Stock Market BBS at (303) 369-8397. — **W.L.McK**.

# Viewmaster 80,<sup>™</sup> the sharpest 80 column card of them all.



VIEWMASTER 80	/ 3	\ \ \	<b>/</b>	1	<b>/</b>	\ \ \	<b>/</b>	/	
SUPRTERM		/					/	/	
WIZARD 80					/		/	1	
VISION 80	/	1			/				1000
OMNIVISION		1					/	/	
VIEWMAX 80	/	1			/			/	
SMARTERM	/	1	NOTE:	GY W		/	/		
VIDEOTERM		1	1		/	1		/	

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

One look at the chart will give you some of the reasons there's only one smart choice in 80 column cards for your Apple. But the real secret to Viewmaster 80's success is something even better: Total compatibility.

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

And the Viewmaster 80 delivers a super sharp, state-ofthe-art display with a  $7 \times 9$  character matrix for clear, easily readable characters. Here are just a few of the powerful features the Viewmaster 80 delivers for a great price (\$139):

• 80 Characters by 24 lines · Fully compatible with all Apple languages and software • Super sharp 7×9 character matrix with true descenders · Highest compatibility with existing 80 column software · Power and · Very low power coninput connector for light pen • High speed (18 MHZ) scroll rate sumption and lower case characters with true descenders, both inverse and normal; all on-screen editing functions are supported · User-definable cursor shape with Apple II, II + and IIe · Five year warranty

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering.

MasterCard, VISA and C.O.D. welcome. Texas residents add 51/4% sales tax. Add \$10.00 outside U.S.A.

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

# BBS and EDUCATION:

# Reaching Beyond The Classroom

A BBS can be a valuable resource at any level of education. Here's a look at two schools that have made their systems work.

by Lafe Low, inCider staff

s computers become a more integral part of the U.S. educational system, teachers and administrators are finding more ways to use them. Besides programming, word processing, and computer-aided instruction, bulletin-board systems (modem and software hookups to telephone lines) and on-line services are becoming an important part of the computer's role in education.

Let's look at the way two schools at different levels have used telecommunications and BBS's with equally successful results. A senior high school in Pennsylvania has made its BBS available to the students and adults in the community, and thus expanded the school's sphere of influence. An education department at a college in New Hampshire subscribes to a nationwide BBS for special-education administrators, which helps organize resources throughout the state and the nation. Both schools have benefited.

Tom Pryts (pronounced *pritz*), microcomputer director at Reynolds High School in Greenville, Pennsylvania, has set up a BBS that students, parents, and teachers in his school district are all using and to which they're contributing quite actively.

"A state grant allowed us to create a fairly sizable computer lab," Pryts says, to serve a large rural district consisting of four elementary schools, a junior high, and Reynolds High School. The Reynolds BBS uses Apple

//e's and GBBS communications software (the DOS version of the system *inCider*'s bulletin board uses), developed by Greg Schaefer. With its new BBS, Reynolds High School can communicate with school districts in other areas of the state.

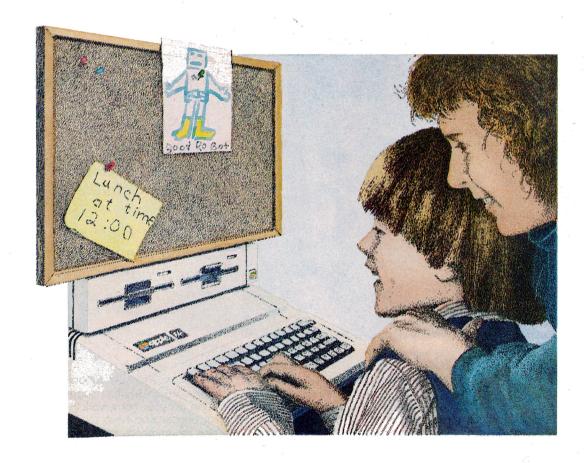
Plymouth State College (PSC) in Plymouth, New Hampshire, also has a BBS, but it's part of a highly specialized system. Dr. Stephen Weissmann, associate professor of education at PSC, logs on to SpecialNet, a BBS/E-mail system that provides his department with a tie-in to sped (special education) administrators nationwide.

A special-education grant from the state of New Hampshire allowed PSC to hook in to SpecialNet. Now Weissmann travels around the state to train other sped administrators in use of the system.

# A BBS for All Reasons

The Reynolds High School BBS "just got started," Pryts says enthusiastically. "We went on line October 4, 1985, and we've already noticed benefits in having this system." An "exchange of ideas and information" has been the focus, he adds.

This BBS is for both parents and kids. "Johnny and Mom and Dad can log on and see what's on next week—from lunch menus to basketball schedules to when that bio exam is coming up," according to Pryts. So far, the number of adults using the system has been roughly equal to the number of students logging on.



Not all information on the board has to do with computers, Pryts explains. There's "everything from pen-pal lists for fifth-graders to stories for senior-high students" on the BBS at any given time. "It's already developing a personality," Pryts says like a proud parent.

Some BBS's are for exchange of special-interest or technical information. The Reynolds BBS provides mail exchange for all users, plus articles written for the BBS newsletter, *The Computer Forum*.

The newsletter is formatted at the high school and produced on a Macintosh using ReadySetGo, MacDraw, and MacWrite programs, according to Pryts. It involves both students and adults who use the system. They upload students' articles from their homes, and send out surveys to other Mercer County schools for updated information about what's happening in those locales.

"The newsletter is an outgrowth of what the BBS is about," Pryts explains. "It's a way of communicating. The BBS and the newsletter go hand in hand."

At the student level, a BBS can be an effective, enjoyable way to learn from each other through increased communication and interaction. Students from neighboring districts have even put files on the Reynolds BBS. It's created something of a competition: Two nearby school districts have "suddenly found the funds to open their own BBS's," Pryts reports.

Many schools also use BBS's and E-mail at the administrative level, to keep the channels of information open and easily accessible to those who coordinate educational activities and policies.

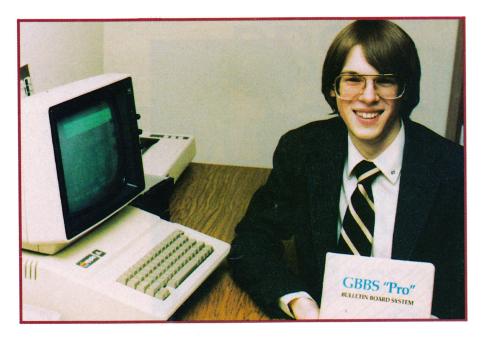
For instance, the New Hampshire SpecialNet Plymouth State College uses includes E-mail and two statewide BBS's, as well as access to 36 SpecialNet BBS's across the country. The nationwide BBS's cover specific topics ranging from employment opportunities and software to special early-childhood education and federal legislative news. The nationwide system runs on GTE Telenet's mainframe computer, based in Virginia.

Hundreds of schools are involved in the SpecialNet system, according to Stephen Weissmann. The network is designed mainly for administrators, rather than teachers, although teachers benefit indirectly, he explains. But SpecialNet is for "those setting policy and paying the bills."

The SpecialNet system "allows isolated sped administrators access to national information," Weissmann says. "Say you're sitting in Colebrook, New Hampshire. You can dial up a BBS and access all this information without leaving your office."

# Reach Out and Log On

The Reynolds BBS is on line after school hours, from 4 to 7 p.m. If school isn't in session, it's up 24 hours a day.



"The Reynolds BBS uses Apple //e's and GBBS communications software, developed by Greg Schaefer. With its new BBS, Reynolds High can communicate with other schools."

"I think we've logged on every type of computer ever made," Pryts says. "Someone actually called using a Timex 2000."

Some businesspeople who travel in the area have even been using it to leave messages for their clients and fellow employees back at the office. Pryts has received calls from some of them thanking him for starting the BBS and asking if there were any charge for the service.

The Pennsylvania Association of Business Officials has asked Reynolds High to put on a demonstration of what a small BBS can do, as an initial training step for business professionals interested in starting BBS's. Pryts is looking forward to the presentation. He says, "Our system is friendly enough to take the fear out of going on line."

The more he talked to students before installing Reynolds' BBS, the more students Pryts found buying personal computers and modems. The students can now bring the school into their homes through the Reynolds BBS. "Eventually we'd love to use the BBS for taking courses at home for kids and adults," Pryts says. And according to Pryts, a number of people in the community were waiting for a service they could call without incurring high long-distance rates, as there's no local CompuServe number in that area of Pennsylvania. "It's really filling a need," he says.

When asked if there were any problem with the current system, Pryts chuckled, "Not enough phone lines." Students and adults alike sometimes try all night long to log on to the Reynolds High School BBS. In response, Pryts has introduced a 15-minute time limit for users, though he says he's considerate and waits until a user is out of a file before ending a call.

Stephen Weissmann reported a different sort of difficulty with his system. As most sped administrators using SpecialNet are first-time users of BBS's—or computers in general—the lack of technical skill among users is a problem, Weissmann explains. Some find the procedure confusing, he says, but overall, the network is an excellent

means of improving access to information.

Pryts has three points of advice for any school system interested in starting its own BBS. "My first suggestion would be to go slowly and do your homework," he says. "Find out the number of people who have modems and no place to call." He also recommends that schools keep their BBS's strictly organized and regulated. He allows no aliases on the Reynolds BBS, and he scans it often for such illicit users.

A BBS should have a full-time sysop (systems operator) to take care of it so that it meets its defined goal, Pryts says. It shouldn't become a "pirate's nest," he warns, adding that an amateur board may dissolve because of a loose setup and lack of control. "You shouldn't have a problem," Pryts concludes, "if you stick to these three things."

The greatest benefit of starting the BBS has been involvement with people who may not even have kids in school, according to Pryts. It has "extended the reach of the school," he says. In fact, Reynolds has dubbed its new telecommunications network the Outreach Program. This type of interaction tends to have a positive effect on the community, Pryts observes. "People are more supportive of the school even if they don't have kids."

The Reynolds High School BBS and Plymouth State College's connection to SpecialNet thrive on interaction. Using the communications capabilities of their computers, these two institutions have increased the flow of information between the school and the larger world for the benefit of students, parents, teachers, and administrators—and it hasn't been prohibitively expensive.

Weissmann encourages subscribing to a system like SpecialNet: "The costs are so low that even a reasonably sized school can afford it." And as more schools add a line for telecommunications to their computer-education budgets, the number of BBS's will grow, bringing with them expanded access to new and varied information.



# HOW PEOPLE WITH COMMON INTERESTS FIND AN INTERESTING COMMON GROUND.

# Presenting CompuServe Forums. Where people from all over get together, without even leaving home.

Now thanks to CompuServe Forums, computer owners are sharing common interests by talking to each other through their computer keyboards. Software users, computer enthusiasts, ham operators, french cooks, fire fighters, science fiction lovers and other special interest groups are already in touch, online.

Because when you subscribe to CompuServe, you're able to reach people who want to talk about the things you do. As many people as you like. For as long as you like. Whenever you wish.

Join a conversation already in

progress or start one on your own. Ask questions. And get answers.

All it takes is a modem, most any personal computer and CompuServe.

# Forum members across the country are as close as a local phone call.

You can go online with just a local call in most major metropolitan areas. And normal usage fees for weekday nights and weekends are just 10¢ a minute

# Of special interest to all Forum participants is software that's FREE for the taking.

Public domain software. For all sorts of activities, from games to business programs. And it's just as easy to copy a piece of software as it is to participate in a Forum.

# Become a CompuServe subscriber and get a \$25 Usage Credit to start you off.

Becoming a subscriber is as easy as contacting your local computer dealer. Or you can call us and order direct. Suggested retail price is \$39.95.

And if you'd want more information about CompuServe, we'll be happy to send you a free brochure. Because with all that CompuServe offers—we think it's in your best interest.

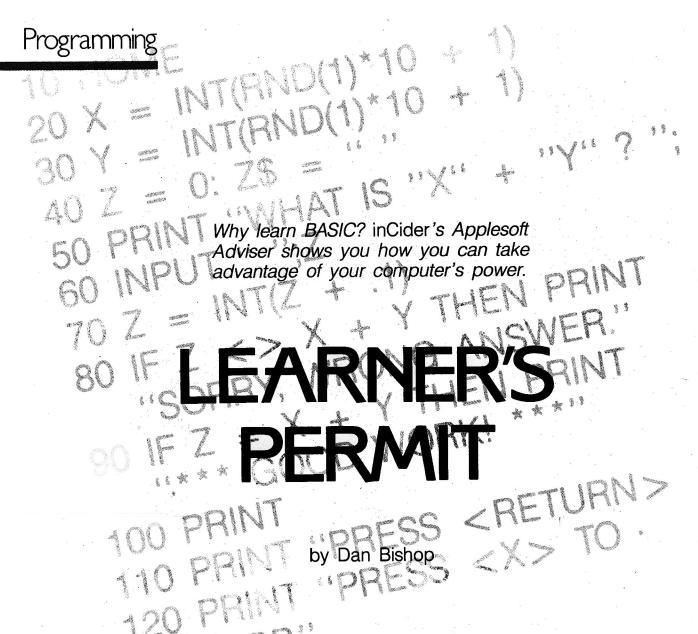
# **CompuServe**

Information Services, P.O. Box 20212, 5000 Arlington Centre Blvd., Columbus, OH 43220

800-848-8199

In Ohio, call 614-457-0802

An H&R Block Company



"Why should I take the trouble to learn BASIC? With all the super programs available nowadays, I'll leave the programming to the experts."

-frequently overheard remark

hen the personal computer first came on the scene some ten years ago, learning to program in BASIC was a necessity for the new computer owner. But as more and more application software began to appear, computer retailers took up the "user-friendly" slogan, downplaying the need for any knowledge of programming. The popular argument ran, "You don't have to be a mechanic to drive a car!"

Though it's true that you can make good use of your computer and still know nothing about programming, I've made some interesting observations in the years I've worked as a microcomputer-systems consultant and custom programmer. I've installed systems and developed programs for businesses in which employees knew nothing about BASIC. I've also had clients whose knowledge of BASIC, though slight, was sufficient to make minor program alterations and enhancements to suit changing needs.

The difference between these two types of situations is tangible. Tension and anxiety in the workplace are noticeably lower when someone can fix simple problems and recognize the more serious ones that need an expert. Opera-

tions are more efficient, since the delay in waiting for the expert to arrive is eliminated for the simple tasks. And the person who has learned something of programming can often provide the expert with enough information about a problem so that he or she can make an accurate diagnosis over the phone, and solve it without the inconvenience and expense of a "house call."

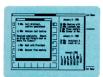
Based on these firsthand experiences, I suggest that the analogy for learning to program in BASIC is closer to learning to drive a car. The expert programmer who writes detailed programs for sale is the mechanic who works on the engine. Mass transit (the application program you purchase) is always available for long distances (such as payroll or word processing), and should be as "user-friendly" as possible. But for the simple trips, such as changing the tab positions in a PRINT command to fit a new invoice form, or altering a DATA statement to reflect a change in the state sales-tax formula, you should be able to get from point A to point B on your own. You can do it if you have a fundamental understanding of BASIC programming.

### 'Rithmetic

For example, suppose you just bought a fantastic program to help your first-grade class learn simple addition.

# Pinpoint makes all the difference for your Apple.

# UseIt!



PINPOINT Desktop Accessories Instant power tools. Desktop Accessories pop-up from inside AppleWorks: calendar, notepad, telecommunications, graphic and text merging, plus four others.

\$69

AST SprintDisk"



POINT-TO-POINT"
Call me, anytime. Set your clock;
powerful macros do everything without you being there. AppleWorks
filecard interface, XMODEM binary/
text file transfers, 2400 Baud modem support and more

\$129











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

and reformats in place. \$69 Titan Accelerator IIe "



INFOMERGE®

INFOMERGE
High-output sales manager. Onscreen, direct merge-printing for
AppleWorks. Automatic/manual record selection, keyboard input, auto reformatting, preview/review and multiple print options. \$79

Street Electronics BusinessCard









PINPOINT™ Desktop Accessories The big picture. Desktop Accessories pop-up from inside AppleWorks: graphic and text merging, envelope addressing, communications plus five others. \$69

Checkmate MultiRam IIe™



Get the mail out. Automatically select names from AppleWorks, or manually scan data files forward/ backward, add keyboard inputs, preview, then print. Again and again.





First Class Peripherals Sider 154



PINPOINT™ Desktop Accessories The prince of power. Open architec ture, limited multi-tasking desktop manager with 8 convenient accesso ries. With Pinpoint Toolkit you can add your own. \$69

Applied Engineering RamWorks II

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

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



\$125 Pinpoint Desktop Accessories and the Spelling Checker.

Be sure to include the \$29 RAM Enhancement Kit, FREE.

- \$129 Point-to-Point.
  - \$79 InfoMerge.

- \$69 Pinpoint Desktop Accessories.
  - \$69 Pinpoint Spelling Checker.\*
- \$29 Pinpoint Apple IIe Upgrade Kit.
- \$29 Pinpoint RAM Enhancement Kit.\*
- \$29 Pinpoint Modem Enhancement Kit.\*
  - \$8 Pinpoint Graphic Printing Kit.\*

Pinpoint's software requires an Apple IIc, Enhanced Apple IIe with 128K, or Apple IIe with Pinpoint Apple IIe Upgrade Kit and 128K. We recommend two floppy disk drives, a UniDisk 3.5,114 hard disk

\*Requires Pinpoint Desktop Software.

Pinpoint Publishing, Box 13323, Oakland, CA 94661 **2** (415) 654-3050

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

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

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

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

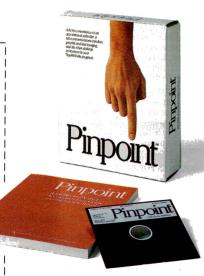
Not only will our software make you a great deal more productive; it costs a good deal less than you might think.

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

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

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

Order by telephone direct using your credit card...Or get the name of your nearest dealer.



24 Hour Toll Free Order Phone

 $800-633-2252/_{\text{Ext.}}580$ 

# PINPOINT AppleWorks Desktop Accessories/Pinpoint Spelling Checker ◀

Computer Systems: Apple IIc Enhanced Apple IIe with 128K Apple IIe with Pinpoint Apple IIe Upgrade Kit Franklin 2000\* Video Technologies, Laser 128

### PINPOINT IS FOR YOU

Whether you're one of over 800,000 satisfied AppleWorks users, own a RAM card, high-capacity disk drive, accelerator card or high-speed modem, or just need to get more work done every day, PINPOINT's Desktop Accessories are

for you.

This product information report was prepared to help you confirm your decision to purchase Pinpoint's Desktop Accessory software programs for the Apple II computer.

No other one piece of software does more to improve the performance and productivity of your Apple II than PINPOINT AppleWorks Desktop Accessories.

### THE NEXT LEVEL FOR APPLE II

The next level in integrated software, Pinpoint offers unparalleled ability to realize the performance potential of

- your system. Pinpoint supports:

  ▲ 128K to 16MB RAM from Apple, AST, Applied Engineering and Checkmate
- High-capacity UniDisk 3.5 floppy disks
- ▲ ProFile, Sider and Corvus hard disks
- Titan Accelerator IIe, Applied Engineering Transwarp and
- MCT Speed Demon accelerator cards Apple, Hayes, Prometheus, and Zoom internal/external 300/1200 baud modems
- ▲ Graphics and text printing with Apple, Epson, Hewlett-Packard, Okidata and other printers ▲ Compatibility with dozens of interface cards

# HERE'S WHAT PINPOINT DOES TODAY

The next level in convenience, no other software works from inside AppleWorks, Business Works, and other selected ProDOS software, to add the functionality of Pinpoint's Desktop Accessories. For starters, Pinpoint includes:

- ▲ Appointment Calendar Four-function Calculator
- **▲ Modem Communications Window**
- ▲ Smart Telephone Dialer

# HERE'S WHAT'S COMING FOR PINPOINT TOMORROW

The next level in open-architecture, Pinpoint can grow beyond the original set of eight Desktop Accessories to include up to 16 Accessories on the Pinpoint Desktop. For example, when they actually become available, you may want to add new programs like:

A Pop-up Thesaurus

A Pop-up Grammar Checker

- ▲ Pop-up Grammar Checker
  ▲ Instant Macro Keys
- ▲ Personal Check Writing
- ▲ Things to do Quick Lists ▲ Telephone Call Accounting
- ▲ Home Security and Appliance Control

  A Travel Planner with Online Ticket Buying

In fact, some of these programs are just now becoming

available from Pinpoint and other software developers.

# VALUE THAT'S HARD TO BELIEVE

The next level in value, Pinpoint and optional Pinpoint Accessories are available nearly everywhere Apple Computers and Apple software is sold. Great software that becomes more valuable the more you use it, available today at very affordable prices.

With Pinpoint you get all this:

# PINPOINT'S POP-UP FEATURES

- ▲ RAM resident with extended RAM support or disk-based Accessories.
- Pop-up from inside AppleWorks, Business Works, and other selected ProDOS software.
- ▲ Work with Catalyst, Mouse Desk and Prosel desktop managers.
- ▲ Always available. Closed-Apple-P pops-up PINPOINT's main menu can display up to 16 Accessory titles (8 supplied with the original Pinpoint program).
- AppleWorks' 55K desktop remains undisturbed with PINPOINT installed in RAM (basic 128K Apple 11 configuration).
- ▲ Open-Architecture. Uses ProDOS system files for Accessories—up to 16MB RAM each using segmented memory architecture.
- ▲ Write new Accessories all your own with the Pinpoint

- ▲ File and command compatible with AppleWorks.
- ▲ Open-Apple command support, with pull-down menus and dialog boxes.
- ▲ Context-sensitive, online help screens.
- ▲ Convenient 'Drag Mode' moves the pop-up menu anywhere on the screen.
- Customized Pinpoint disks can include one accessory, several, or all as desired to save floppy disk or available RAM disk space.
- ▲ Use with any ProDOS device.
- ▲ Not copy protected.

### USE PINPOINT WITHOUT APPLEWORKS

Individual Pinpoint Desktop Accessories can be used as stand-alone applications without AppleWorks, Business

Works or other primary application.
Select ProDOS BASIC from the Pinpoint menu to load BASIC. Pressing Open-Apple-P pops-up Pinpoint's main menu. Select the Accessory you wish to run and press

Customized Pinpoint Disks
Pinpoint Desktop Accessories may be used individually,
or in sets. All accessories are regular ProDOS system files,
except the Dialer which is a RAM resident portion of the Pinpoint Dispatcher.

Accessories can be moved to and from any ProDOS 'working disk' to suit your individual requirements. This saves space on your 'working disks' and conserves valuable RAM disk space.

For example, you may wish to include only the Note-pad, QuickLabel and Communications Accessories on your AppleWorks Database disks. Or just the Calendar, Notepad, Calculator, Typewriter and QuickLabel Accessories on your Word Processing and Spreadsheet disks. Or just use GraphMerge all by itself.

Copying Accessories
Use ProDOS Filer or Copy II Plus for copying Accessories on floppy disks; or you may use the Pinpoint RAM
Enhancement Kit to automatically upload selected Accessories onto your partitioned RAM disk.

### PINPOINT'S POP-UP SPELLING CHECKER

One bungled word can spoil your entire document. But not with Pinpoint's pop-up Spelling Checker by your side.

The Spelling Checker is a new optional accessory that is added to the Pinpoint Desktop. Absolutely the most conven-

ient way to produce letter-perfect AppleWorks documents.

The Spelling Checker requires PINPOINT or it will not run. Because the Spelling Checker actually uses AppleWorks own editing power for automatic on-screen spelling corrections and page reformatting, the Spelling Checker works only with AppleWorks (word processing, spreadsheet and database modules)

Like other PINPOINT Accessories, the Spelling Checker pops-up from inside AppleWorks, ready anytime you want to check your work.

# POP-UP SPELLING CHECKER FEATURES

- ▲ Checks documents of any size in memory.
- ▲ 60,000 word dictionary, refined from seven years of extensive use by over 250,000 people. Thorough testing has eliminated thousands of awkward, obscure, and antiquated words that might be incorrectly accepted as roperly spelled words.
- ▲ Unlimited word capacity personal dictionary can be used for proper names, specialized terms, and frequently used abbreviations. This dictionary is limited only by ProDOS' 16MB maximum file size or the capacity of your disk.
- ▲ RAM resident Quick-Check list of frequently used words greatly speeds spell checking.

  A Four spell checking codes: check individual words,
- paragraphs or documents; and optionally, elect not to display alternative spellings (i.e., for classroom use).
- A Spell checking summaries: # words checked, # suspect words, # words corrected, and # added to personal dictionary. Summary display is optional.

  ▲ Configure default mode settings, including sound option, and paragraph/document spell checking summaries.

  ▲ One single-sided Apple 5.25" floppy disk can store the spell checking software, main dictionary and approximately
- a 3,000 word personal dictionary.

  One UniDisk 3.5™ can store AppleWorks, all eight original
- PINPOINT Desktop Accessories, the Spelling Checker plus both dictionaries at maximum capacity
- ▲ For maximum performance, install the Spelling Checker on either a Hard Disk or partitioned RAM Disk using Pinpoint's RAM Enhancement Kit.

# \*Contact Pinpoint for more information.

# USING THE SPELLING CHECKER

- ▲ On command, check individual words, paragraphs or entire documents. Also checks words in spreadsheets and database entries.
- ▲ When an 'unknown' (misspelled) word is located a list of up to 10 suggested alternative words pops-up next to the unknown word.
- ▲ Highlight an alternative word, then press RETURN to automatically correct the word in place.
- ▲ 'Unknown' words may be added to your personal diction-
- ary, edited in place, or left unchanged.

  ▲ Exit the Spelling Checker to PINPOINT or AppleWorks

### **NEW FOR SPRING 1986\***

InfoMerge \$79. On screen, direct printing mailing program for AppleWorks. Automatically select names from AppleWorks, or manually scan data files forward/backward, add keyboard inputs, automatic reformatting, on-screen preview, then print. Again and again. Works with AppleWorks and with Pinpoint Installed!

Point-to-Point \$129. Powerful telecomunications software with AppleWorks filecard interface, send/receive mail unattended (with clock), amazing conditional macros. XMODEM binary/text file transfers, 2400 Baud modem support and more. Works with Pinpoint installed!

Pinpoint Toolkit \$49. Ten handy new desktop accessories include programmer's calculator, pop-up Filer, accessory mover, video resource editor, resource converter, two screen print accessories, memory dump (window), the new RUN-RUN desktop environment, calendar printing accessories, plus a copy of "Inside Pinpoint", and complete reference manuals. For use with MICOL BASIC, KYAN PASCAL (available from Pinpoint) or ProDOS Assembler.

- Pinpoint Apple IIe Upgrade Kit \$29.00

  ▲ Permits Pinpoint and many 'new' Apple IIe software programs to run on plain Apple IIe's with 128K.
- A Solves many of the compatibility problems older software programs have with the Enhanced Apple IIe.

  ▲ includes Mouse Text Video ROM, exact copy of Apple's Character Generator ROM #342-0265 approved by Apple.

  ▲ includes GTE or Rockwell 65C02 microprocessor.

  Handy chip puller included.

- A Handy chip puller included.
   ▲ Does NOT include Apple's proprietary 'CD' and 'EF' ROM required for most mouse-based software. Apple Computer requires us to inform you that this Kit does not "Enhance" the Apple IIe, this Kit is only to be used on Apple IIe's, and this upgrade is performed at users' own risk.

# Pinpoint RAM Enhancement Kit \$29.00

- A Configures partitioned RAM disks.

  A Automatically uploads non-copy protected ProDOS applications and files to partitioned RAM disks.

  Includes a ProDOS RAM switcher for AppleWorks with
- Pinpoint and other ProDOS applications uploaded into RAM, such as Business Works accounting software, Pointto-Point communications software, or InfoMerge mail merge and print formatting program.
- ▲ Requires Pinpoint.

# Pinpoint Modern Enhancement Kit \$29.00

- ▲ Advanced modem software enhancement for Pinpoint's Communications Window.
- Logon macros with default communications setups. ▲ Keyboard and video character remapping (for encryption
- or terminal emulations).
- Selective character filtering.
   Required for Novation, Microcom and other non-standard external/internal modems or interface cards. Contact Pinpoint for details.
- ▲ Requires Pinpoint.

# Pinpoint Printer Enhancement Kit \$8.00

- ▲ Advanced installation utilities for non-Apple standard
- Advanced installation unities for hon-Apple standard printers and interface cards.
   ▲ Simultaneous text and graphics printing.
   ▲ Epson FX, RX, LX, and MX-80 with GraphTrax +; Okidata 84, 92, 93, 192; H-P Thinkjet; Panasonic KX P1091, Smith-Corono D-200, Star Micronics SD-10 and SG-10 printers with standard interface cards, require the Pinpoint Printer Enhancement Kit to print graphics and text.
- A Printer interfaces supported include: Generic BASIC Standard, Generic Pascal 1.1 Standard, Orange Micro Grappler Serial and Grappler + Parallel Cards, Star Micronics Grafstar and Grafstar II, Microtek Dumpling 64, Dumpling-GX, and RV-611C, Interactive Structures PKASO/U, and RC Systems Slot Buster.
- Contact Pinpoint for details.
- ▲ Requires Pinpoint.

24 Hour Toll Free Order Phone



The program works so well that after a couple of weeks, your brightest student asks if you can make the computer teach multiplication, too. Since you know something about BASIC, you don't hesitate to give it a try. You know that you can LIST the program, and you'll see the code presented in the accompanying **Program listing**.

Looking at the program, you see that line 10 tells the computer to clear the screen, while lines 20 and 30 generate two random numbers, called X and Y, whose values lie between one and ten. Line 40 "initializes" two other

Program listing. Sample BASIC program.

```
10 HOME
20 X = INT(RND(1)*10 + 1)
30 Y = INT(RND(1)*10 + 1)
40 Z = 0: Z$ = ""
50 PRINT "WHAT IS "X" + "Y" ? ";
60 INPUT " ";Z
70 Z = INT(Z + .1)
80 IF Z <> X + Y THEN PRINT "SORRY, WRONG ANSWER."
90 IF Z = X + Y THEN PRINT "*** GOOD WORK! ***"
100 PRINT
110 PRINT "PRESS <RETURN> FOR ANOTHER PROBLEM."
120 PRINT "PRESS <X> TO STOP."
130 INPUT Z$
140 IF Z$ = "X" THEN END
150 GOTO 10
```

variables to zero and null, which keeps values you type in during one problem from being carried over into the next.

The PRINT command in line 50 displays the problem on screen. See the plus sign in this line? To change the program so that your example is displayed as a multiplication problem, retype line 50, using a multiplication sign (x) instead of the plus sign. This, of course, only changes the displayed question. You know that the INPUT command in line 60 makes the program wait for the student to enter an answer. You also note that the program stores the student's answer as the variable Z, so you aren't surprised that Z also appears in lines 80 and 90.

Line 80 tells the computer to display "Sorry, wrong answer" if the student's response (Z) isn't equal to X plus Y. Line 90 tells the computer to display \*\*\* Good Work! \*\*\* if Z does equal X plus Y. So you realize that you must retype lines 80 and 90, using BASIC's multiplication symbol, which is the asterisk (\*), in place of the plus signs.

Having made these three simple changes, you now SAVE the program to disk, using a different name so that the computer doesn't overwrite the old addition program. You now have a program for drill and practice in simple multiplication, and it didn't cost you one penny more!

# **Editing Your Program**

What other changes could you make? Suppose you want to challenge your students further by having the program generate larger numbers. Simply change the number 10 in lines 20 and 30 to, say, 99. The rest of the

program remains unchanged but it now generates addition problems that use numbers between one and 99.

Do you want to change the computer's responses to the student's answers? Easy—modify the messages inside the quotation marks in lines 80 and 90. Do you want to count the number of problems a student answers correctly? That, too, is easy. Add line 5 to initialize the counter: 5 CT = 0. Then change line 90 to read:

90 IF Z = X + Y THEN CT = CT + 1: PRINT "GOOD WORK! YOU HAVE "CT" CORRECT ANSWERS."

Now, feeling full of confidence, you SAVE a subtraction version of the original program in which you've changed the plus signs in lines 50, 80, and 90 to minus signs. But then one of your first-graders tugs at your sleeve. "How can you subtract eight from four?" Whoops! a problem. The second random number generated, Y, must always be less than or equal to X (at least for first-graders). So you LIST your subtraction program, and add line 35: 35 IF Y > X THEN GOTO 30

That's all there is to it. Your program now compares the values of Y and X, and if Y's value is greater than that of X, the computer generates a different value for Y in line 30. The program compares the values again (line 35), and the cycle repeats itself until the computer produces a valid value for Y.

The above solution to the subtraction problem is the "brute-force" method, but it works just fine. A more elegant solution would be to replace the number 10 in line 30 with the letter X. In this way, the randomly selected value for Y will always be between one and X, and there will be no need to test Y's value.

# Conclusion

This sample program is, of course, far simpler than any package you might purchase. But it's useful code that a novice programmer with only a "learner's permit" can write. And it serves to illustrate quite clearly that with some programming knowledge, you have more control over what your computer can do for you.

The home computer is a truly awesome tool. Yet few of us have taken full advantage of the power waiting at our fingertips. The potential to change our lives in ways we can only begin to imagine is right there. We must be willing to invest our time and energy in learning to use this tool effectively if we expect it to help us achieve our goals. And on the way we need to be ready to recognize new paths and opportunities our developing computer skills may open up for us

Happy programming!

See Dan Bishop's monthly column, Applesoft Adviser, on page 84 in this issue. Write to him at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

TO JE ZORRY WRONGEN

# POWER UP YOUR

SUCCESS WITH APPLEWORKS!

An exclusive collection of 10 easy-to-use templates on a disk that will get the power of AppleWorks working for you!

Here's the kind of "computer-ease" that goes right to your bottom line! Ten time-saving, work-saving templates that make AppleWorks a full time partner in your business. Instant know-how you can apply immediately to a wide range of valuable business needs, including:



☐ Personalized Form Letter

■ Build a Mailing List

- ☐ Create a Customer ☐ Figure a Loan **Database**
- Plan a Home or **Business Budget**

Newsletter

- Amortization
- ☐ Publish a Company ☐ Analyze your Personal or **Business Balance Sheet** 
  - □ Prepare an Annual **Expense Summary**

**Imagine!** Any one of the applications included would be worth the low cost of this unique disk all by itself. But you get all ten, ready-to-run templates for just \$29.97. Less than \$3.00 each, PLUS a detailed documentation booklet that guides you quickly and easily into each application.

# Start Boosting Your Personal Productivity Now!

Complete the coupon or attached Order Card and mail with payment or CALL TOLL FREE and charge it to your credit card for quickest service and the surest way to boost your productivity...turn your Apple II into a profit center for your business!

CALL TOLL FREE 1-800-258-5473 (In NH, dial 1-924-9471)

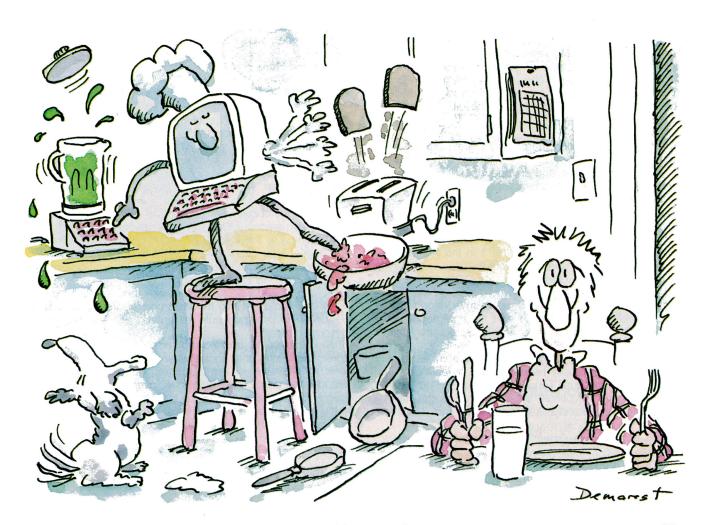


tine dot around the hi-res time screen, the higher will be the time space bar sets the point at the time and moves the cursor one space to the			
28			44.00
YES, send me SUCCESS WITH APPLE' Templates on a disk, booklet for just \$29.97 Foreign Airmail, add US \$1.50 pt ( ) Payment enclosed	plus compl er item.	lete docum	entation
Card #		. ,	Exp. Da
			8
Signature			
(print) Name			
Address			
City		State	Zi
Mail to: <b>hotCider</b> 80 Pine St.			

\*AppleWorks and Apple are registered trademarks of Apple Computer, Inc.

using FILL. be certain that the point you HPLOT before he routine is inside the object you want to fill. If the poin he border or outside of an object, you'll get some strange

6-86



# TEN REASONS NOT TO BUY A COMPUTER

Every once in a while it's good to pause and inject a little levity into the often all-too-serious pursuit of computing. While we at inCider may not agree with all the opinions expressed below, we certainly think they'll spur some humorous debate.

# by David Nimmons

fter you live with your home computer for a while, you come to realize that its intelligence falls somewhere between that of a toaster and a beagle puppy. This is good to keep in mind, because it will come as less of a shock when you discover that there are some tasks it's unwise to ask your computer to do. As coincidence would have it, many people notice that these are the tasks

they bought their computer to do in the first place.

Having lived with a machine for three years now, I would like to point out ten things computers don't do well at all.

Reprinted with the permission of David Nimmons and Workman Publishing Company, from Digital Deli, © 1984 by Steve Ditlea (ed.).

- 1) Banking at home by computer is one of those dubious phrases like "trimming six inches from your waistline overnight while you sleep." My research shows only two reasons people go to the bank: To get green paper money they can go out and spend (the first thing home banking can't do), and to physically deposit a paycheck to cover the check they wrote the night before (the other thing a computer can't do).
- 2) When it comes to listing the century's great orphaned ideas, the computerized checkbook will rank with the lava lamp. What's surprising is that anybody took it seriously in the first place. Consider that my checkbook was given to me free by the bank, has nice pictures of sunsets and waterfalls on the checks, weighs three ounces, measures five inches long, and fits in my pocket. Consider further that it takes 20 seconds to pull out and open this checkbook, write a check, sign it, and enter it in the stubs. Oh, yes, and I need only a pen to operate it.

My computer, on the other hand, cost upwards of \$1000, has no nature pictures anywhere in it, weighs about 12 pounds, and takes up most of my desktop. It requires 90 seconds to turn it on, find the right floppy disk, and load and access the checkbook program. I then have to find all the stubs of the receipts I wrote this month, type in the year, month, and day in numbers separated by slashes (I usually have to delete at least one line of the check because I made a mistake), exit the writing mode, turn on the printer, enter the print mode, find my checkbook, insert a check in the printer, and start it.

3) "Family-budget spreadsheet" programs exist because somewhere along the line software makers got confused between the "American family" and the "limited partnership." If they had their way, families would stop pasting up their albums and start issuing annual reports.

What the software people seem to have forgotten is that family finances are the single most persuasive argument for entropy yet known. The family budget, if it exists at all, consists of eight months' worth of bank statements thrown in a corner, some numbers scratched on old bank envelopes, and a limbic sense of how near the Ultimate Line is. Note that I've said nothing about recalculated, columnlogic variable summing, internal rate of return, or projected mortgage scenarios at three hypothetical interest rates plotted in four-color graphs. In short, these programs are the

software equivalent of a thermonuclear flea collar: impressive, but rarely worth the trouble.

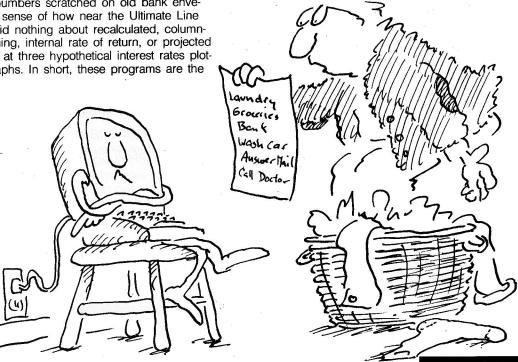
4) Next we come to the computerized electronic calendar. It doesn't let you make dates; you make "events." Can you imagine saying, "We fell in love on our first event?" Worse, it suffers from that picky literal-mindedness of

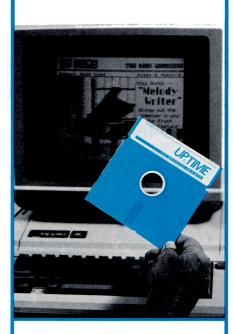
Worse, it suffers from that picky literal-mindedness of machine-think. For me, as for most folks, time unravels in a drinks-with-Chris-late-next-week sort of way. Electronic calendars are not that loose. To them, "late next week" means nothing. "Noonish" means nothing. They don't even know about "happy hours." But "07-08-86, 6:00 P" they understand. No wonder we don't get along.

- 5) The computerized address book is only slightly more useful, with spaces limited to name, address, zip code, and phone. I'm the type to jot entire dossiers on those tiny pages: birth dates, shirt sizes, the name and weekend phone number of my current Significant Other. Sometimes it's quite personal: "Hates pasta," "Don't mention Yankees," "Husband's an idiot," stuff like that. If I relied only on what I could put into the electronic address book, my personal relationships would fall apart.
- 6) Next there's the home-computer control center, the command central that knows when to turn on lights and lawn sprinklers, lower the thermostat, guard against intruders, call the police, teach the kids, inventory the kitchen, clean the bathroom, and water the poinsettia.

It's all very Buck Rogers, like air cars and dematerialization beams, and people like that sort of thing. But it boils down to this: Do you want to hand over control of your house to the same machines that keep sending those bills for charge accounts you never had?

7) Telecommunicating with friends over the phone is a fascinating use for your \$1000-plus computer. First you have





# THE DISK MONTHLY.

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

# A DISK EACH MONTH...

# DELIVERED TO YOU, PACKED WITH TEN PROGRAMS FOR YOUR APPLE!

You already know how expensive software is these days and how difficult it is to choose.

# We make it easy and inexpensive — a disk each month.

You deserve value. At **UPTIME** we believe in value. That's why each month 21,000 people like you enjoy a disk packed full of programs and information.

# Make your life easier and get more from your computer.

Organize your life and be more productive with our home management and finance programs. Have fun learning with educational programs and fun relaxing with games and adventures. You'll find business, graphics, utilities and more!

# Ten programs and more on every disk — a wealth of information.

What's the opposite of "down-time"? It's **UPTIME**, of course. Just imagine ... a disk each and every month — delivered right to your door and packed with programs for your Apple.

# Subscribe now!

Make the very next disk yours! Fill in the coupon and return it to us, or simply call. We'll start your subscription immediately, in addition to sending you a complimentary program that will make your current address book obsolete!

# Take advantage of this introductory offer!

Subscribe and receive "Mail Magic" FREE! Add, edit, or delete names and addresses; sort by name, city, state or zip; print labels and more. Yours with any purchase below.

For Immediate Service Call Us Toll-Free:

1-800-437-0033

In Rhode Island: 1-401-849-4926

# I'LL BYTE!!! I'm a computer enthusiast who wants more. Please start my subscription to UPTIME immediately. I want:

12 Disk Issues See See See See See See See See See S		50 M
Name		
Address		
City		Zip
☐ Please send my free <b>Mail Magic</b> disk		
Payment enclosed. (Please make che	cks payable to UPTIME.)	
☐ Bill my: ☐ VISA ☐ MASTERCARE		
Account No.	Expiration C	)ate

Send to: UPTIME, PO BOX 299, NEWPORT, RI 02840.

Subscribe now and save. You won't believe the value! Satisfaction guaranteed.

Circle 15 on Reader Service Card.

Signature .

to think of people you know who have a modem that allows them to communicate, and if you have any desire to "chat" with them. The next step is to call them up and see if they want to talk to you. Usually you talk for a few minutes to answer a few basic questions: Will you communicate in full, half-duplex, or simplex mode? What baud rate will you use? What kind of parity check? Who's in transmit and who's in receive mode? Simple, huh? Now hang up. Load your machine with the proper software and program it to dial your friend. Presto! You're ready to have a computer chat:

HI, EDDIE?
—HAVE YOU STARTED?
HELLO, EDDIE.
—CAN YOU READ ME?
YES, IS YOURS ALL IN BIG LETTERS?
—WHAT?
PLS. REPEAT.
—I DON'T UNDERSTAND. IT'S YOUR TURN.
REPEAT.
—WHAT?
OOPS. . .
Connection interrupted.

8) A subset of this silliness involves phone-line news services. The idea is for a small connect fee (roughly equivalent to the national debt of Ireland) you can snuggle up to the great electronic-information teat of news services like Dow Jones or UPI and be the first on your block to read the day's fast-breaking stories on, say, disposable paper products, dolphin research, or the situation in Lapland.

# "DateWorks""

# 12 YEARS OF CALENDAR TEMPLATES FOR THE APPLEWORKS DATABASE®

DATE INFORMATION INCLUDES: Years 1986 thru 1997 Month, Day, Year - Day of Week 30 Major Holidays Each Year

# USE AS:

Appointment Books • Expense Records • Diary Daily Reminder • Family Medical Record AND SO MUCH MORE!

### FINALLY:

A Calendar with the POWER and FLEXIBILITY of a database, the CONVENIENCE of "Desktop" availability and the HOLIDAY information that lets you plan ahead intelligently.

# **TECHNICAL SUPPORT:**

Mail and telephone support is available from David Sachs at any time.

# INTRODUCTORY PRICE: \$19.95

and thats less than \$1.67 per year. Please add \$2.50 for shipping U.S. and Canada. New York Residents add N.Y.S. Sales Tax. Sorry No CODs. Available on 3.5 UniDisk for \$29.95 - includes 2 BONUS YEARS 1998 & 1999.

- Order This Valuable Work Tool Today From -

DAVID SACHS ASSOCIATES 2274 56th Drive / Brooklyn, NY 11234 718 531-5737

AppleWorks and 3.5 Uni Disk are registered trademarks of Apple Computer, Inc.

9) The next most oversold computer idea is speech synthesis. A talking computer, say the yahoos, is a Helpful Thing. Didn't anybody else see 2001: A Space Odyssey? Remember how much wonderful help they got from HAL?

Not only does a computer take three times as long to organize your calendar, checkbook, and banking, but now it will nag you about the results. Recently, I tried to convince my 5-year-old niece how much fun a talking computer could be. I'd spent all day programming, testing, and debugging when her small, blonde head brushed my arm. "What does that toy do?" she asked.

Triumphant, I started the routine. "Hello, what's your name?" croaked the \$1000 machine. "I love you," it quaked. I beamed.

Without a word, my niece disappeared, then came back a minute later dragging her favorite doll by one leg. Taking her thumb from her mouth, she picked up the doll and pulled its ring. "Hello, what's your name?" it chirped. She pulled it again: "I love you." Then she looked at the computer expectantly: "Make it wet its pants."



10) Whoever thought up the electronic cookbook should be hoisted on his own paté. Ask yourself whether your \$1000 piece of sophisticated microelectronics was designed to deal with spilled apricot juice, spattering bacon drippings, whole-wheat flour, and melted chocolate. It turns out computer technicians get testy when they find things like vegetable shortening inside your machine's RS-232 port.

Electronic cookbooks are supposed to be great for expanding or contracting recipes. This feature is quite useful for those occasions when your Significant Other calls to say the 5th Airborne Division is coming to dinner and your Shrimp Gelée à la Turque recipe feeds only five. If you don't routinely cook for armies, or hospitals, however, it won't do you much good. Every cook worth his capers knows that halving the yeast in bread with only half as much everything else gives it the consistency of steel. And how does one add 2.3 eggs?

David Nimmons, former speech writer for Geraldine Ferraro, is a free-lance writer and avid computer user.

# Ten Reasons to Buy a Personal Computer

I can't argue with the facts: It's easier to write your friends in Fresno a letter than to telecommunicate. And recipe files are only a rationalization for the computer you already bought. But that doesn't mean you shouldn't buy a personal computer.

If I were looking for a reason to buy a home computer, I'd find some things I couldn't do without a computer. And there are many.

Take word processing, for instance. Writers who convert from a typewriter never go back: Word processing is easier, and many writers say it makes them better at their craft. Find a word processor that works the way you do, or make one. Buy a programmable word processor such as Apple Writer, which lets you have it your way, as does the SwyftCard if you learn BASIC. A programmable word processor takes the canned application (one that meets general needs) and tailors it to your liking. It's like eating canned beans brightened with fresh basil—it hides the taste of the can.

A canned program is essential, though, if you need integrated software—a word processor combined with a filing system and spreadsheet for businesses or busy families. You can't integrate a stack of letters and a shoebox full of canceled checks. But AppleWorks' interface is easily understood—that is, it makes sense—and it puts all your information together.

If you have AppleWorks at home, consider Quicken, a check-writing program that's impressive in its speed and ease of use. If you're already running AppleWorks, all the numbers are already there. So why not let the computer write the checks?

Of course, help with your finances is another reason to buy a computer. From on-line information from the Dow Jones News/Retrieval Service to tax-preparation packages, the computer can really help you keep an eye on things. It won't keep you solvent, but at least you'll know where your money is-or isn't.

And what about your will? You're going to need one someday, and WillWriter makes one for you without a lawyer. That's a reason to buy an Apple.

Not much for writing? You can print newsletters. birthday cards, banners, and so on at home with The Print Shop and The Newsroom. These two products make you a publisher overnight. Fantavision, an animation tool, makes you a moviemaker-like Walt Disney, and just as quickly.

Simulation games let you pretend you're almost anyone-a medieval wizard, a private eye in a blackand-white movie, or a circus clown. Players swear by Infocom's interactive fiction, Ultima fantasy by Lord British at Origin Systems (distributed by Electronic Arts), and the Wizardry series from Sir-Tech.

The KoalaPad is reason enough to buy an Apple. It works with Dazzle Draw as well as Fantavision, and holds your hand steady enough to scratch out a straight line on the video display.

A Fischertechnik robot kit from Germany requires an Apple //e to build traffic lights, solar panels, and industrial arms. This erector set for grownups might persuade you to purchase an Apple-and it makes a great excuse to present a young scientist with one.

The tenth reason to buy a home computer is programming. You can teach yourself BASIC or your kids Logo. Programming is the logically radical extreme of logic: It may be more reason than you want or need, but you can't program without a computer-and that's the last word. -Paul Statt

# **Product** Information

Apple Logo, \$100 AppleWorks, \$250 Apple Writer, \$149 Apple Computer 20525 Mariani Avenue Cupertino, CA 95014 (408) 996-1010

Reader Service Number 312

Dazzle Draw. \$59.95 Fantavision, \$49.95 The Print Shop, \$49.95 Broderbund Software 17 Paul Drive San Rafael, CA 94903 (415) 479-1170

Reader Service Number 313

# **Fischertechnik Robotics Construction Set**

Fischer America 175 Route 46 West Fairfield, NJ 07006 (201) 227-9283

Reader Service Number 314

# Infocom games

Infocom 125 Cambridge Park Drive Cambridge, MA 02140 (617) 492-6000 \$34.95-\$49.95

Reader Service Number 315

### KoalaPad

Koala Technologies 2065 Junction Avenue San Jose, CA 95131 (408) 946-4483 \$125 (with software)

Reader Service Number 316

# The Newsroom

Springboard Software 7800 Creekridge Circle Minneapolis, MN 55433 (612) 944-3915 \$49.95

Reader Service Number 317

# Quicken

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

Reader Service Number 318

# **SwyftCard**

Information Appliance 1014 Hamilton Court Menlo Park, CA 94024 (415) 328-5166 \$89.95

Reader Service Number 319

# Ultima games

Electronic Arts 2755 Campus Drive San Mateo, CA 94403 (415) 572-2787 \$49.95-\$59.95

Reader Service Number 320

# WillWriter

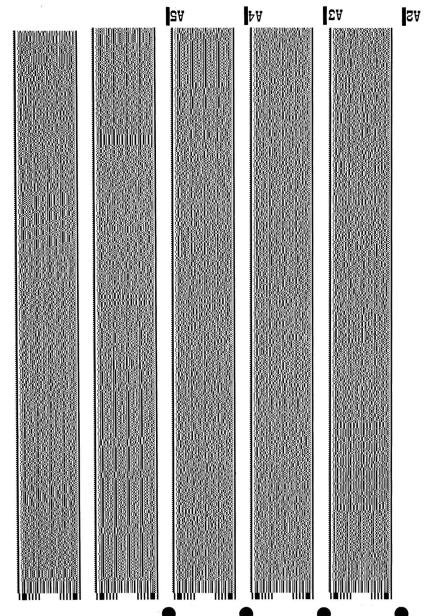
Nolo Press 950 Parker Street Berkeley, CA 94710 (415) 549-1976

Reader Service Number 321

Wizardry games Sir-Tech Software 6 Main Street Ogdensburg, NY 13669 (315) 393-6633 \$34.95-\$49.95

Reader Service Number 322

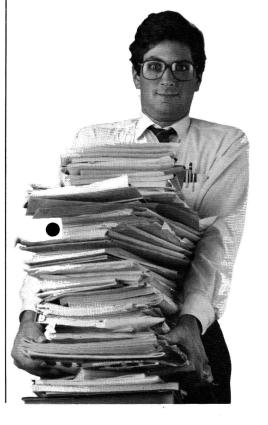
# HAVE YOUST



It's a question more and more Apple owners are asking. And no wonder. What everyone is talking about is Softstrip™. The revolutionary technology that is changing the shape of computer software.

The Cauzin Softstrip System is more than just software or data on paper. Because when you invest in this system, you can do much more with your computer, and for far less than you are probably spending now. You can even create and print out your own data strips.

But that's only the beginning of an offer that's going to make you wonder why you haven't stripped yet...





# RIPPED YET?

The data strips on these six pages feature a directory and six entertaining programs from inCider and Uptime magaines. Our collection includes:

- A STACK AT TACK\*

  it's you versus the machine in this hi-res strategy game
- B CIDER ZAP\*
  full-featured utility that lets you read raw data and examine it
- C-DIRECTORY
- D COMET QUIZ\*\*

  a challenging, educational
  game for astronomy buffs
- E COMET HALLEY\*\*

  an eye-catching tutorial about this celestial phenomenon
- F MAILING LIST MANAGER\*

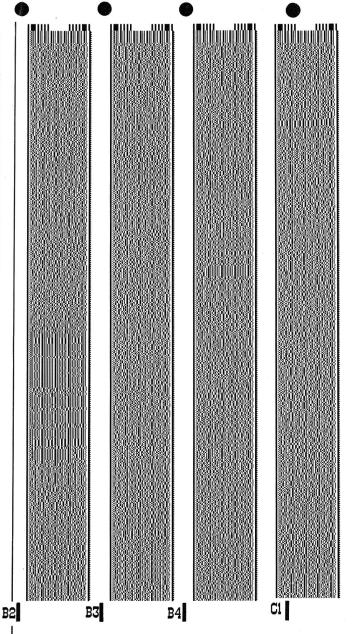
  organize names and addresses
  as well as print out labels and
  envelopes
- G DINO MATH\*

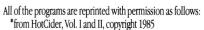
  basic math problems for

  pre-schoolers with colorful

  graphics and sound effects

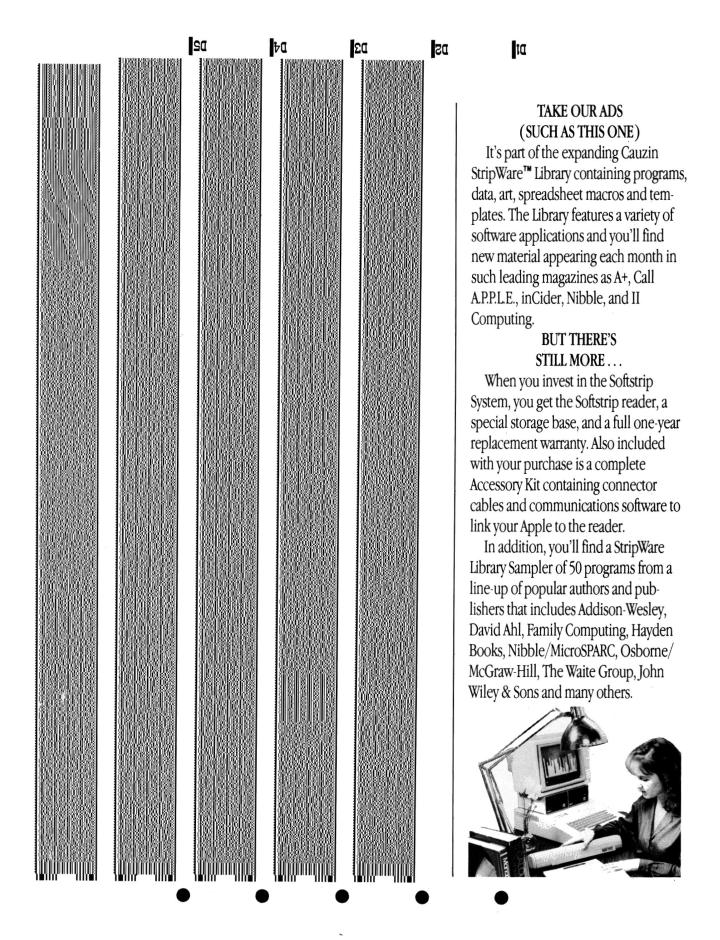
Bi





CW Communications/Peterborough

\*\*from Uptime Magazine, copyright 1985 Viking Technologies



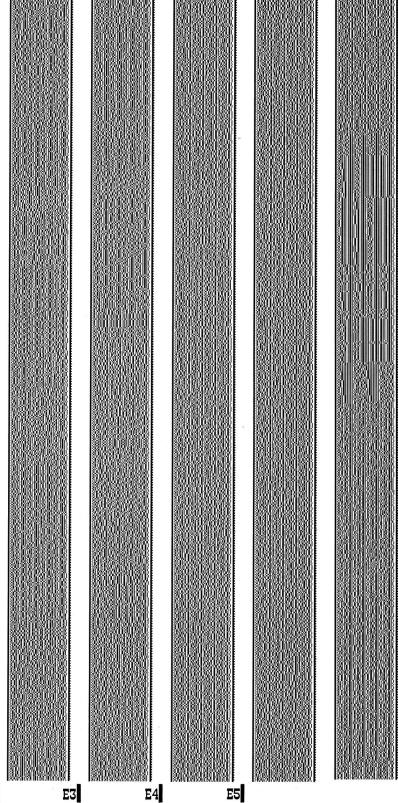
When you become a Softstrip reader owner, you also get a FREE one year StripWare Club membership with programs mailed to you monthly. You'll even receive a FREE Cauzin Effect Newsletter filled with the latest updates and news about Softstrip developments.

There's also StripWare™ brand software in authorized Softstrip dealers across the country. Our collection of titles include everything from utilities, graphics and entertainment to business

programs. All for only \$2.98 to \$19.98!







# AND IF THAT'S NOT ENOUGH TO START YOU STRIPPING...

Do you want to create you own data strips? Well, now you can with a special StripWare program called "STRIPPER"™ that lets you print your disk files as strips using your own Imagewriter printer. The printing software is only \$19.95, but just think of the things you could be stripping. Store backup files on your paper. Print, copy and mail your own programs to others easily and inexpensively. Even exchange ASCII or binary files between different types of computers.

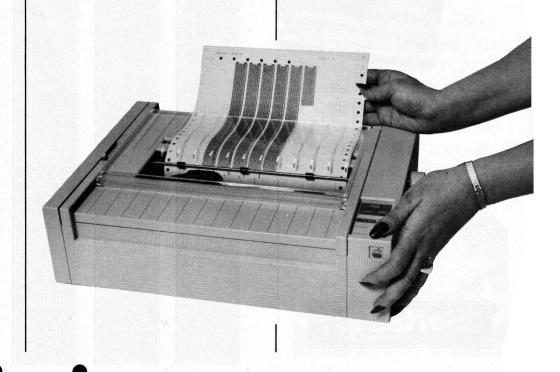
And all you need to start is the Softstrip System. You get everything you need to read strips (like the ones you're seeing in this magazine and others) for just \$199.95.

The CAUZIN SOFTSTRIP SYSTEM. It's what Macintosh owners everywhere are talking about. So what are you waiting for? Shouldn't you be stripping too?

For the Softstrip System Dealer nearest you (or if there isn't one in your area, to order), call toll free:

1-800-533-7323 (in Connecticut, 203-573-0150)

> Softstrip COMPUTER READABLE PRINT



#### **HOW TO STRIP**

It's easy to read strips.

- 1) Just load Cauzin's communications software into your Apple.
- 2) Pick up the reader and lay it on the strip.
- 3) To the side of the data strip you'll see a black dot and a short black line (such as the ones found on these pages). These are your alignment marks.
- Place the reader so that its loop fits over the black dot and the edge of the reader just touches the black line.
- 4) Just press a single key command and then RETURN to "Read Strip".
- 5) That's all you have to do. The strip is read automatically, and its contents are saved to disk. You can use the program in the same way as if it had come on disk originally.

# It's the make-it-yourself Softstrip\*\* data strip program. STRIPPER software lets you strip your disk files onto paper. Put up to 800 bytes on each strip and up to 7 strips on each page. And, if you use a good copier, duplicate the strips you've made. REQUIRES: — The Cauzin Softstrip System Reader — Apple II, Apple II Plus, Apple //e or Apple //c — Apple Imagewriter or Epson FX or RX printer — Printer interface card: either a Super Serial Card (built into the Apple //c), Grappler graphics card, or Dumpling graphics card

Epson is a registered trademark of Epson America, Inc.
StripWare and Softstrip are trademarks of Cauzin Systems, Inc.
Apple, Imagewriter and ImageWriter II are registered trademarks
of Apple Computer, Inc.

Macintosh is a registered trademark of Macintosh Laboratories, Inc., Licensed to Apple Computer, Inc.

Circle 233 on Reader Service Card.

# APPLEWORKS IN ACTION

#### Making Decisions with Price-Volume Analysis

#### by Ruth K. Witkin

Highest price equals greatest profit—right? Well, not necessarily. If your price is too high, sales volume can plummet. If you set too low a price, you may sell in greater quantity but not cover your costs. Price-volume analysis can help you strike the right balance.

Let's suppose you run the Johnson Toy Manufacturing Company. Your latest product is a programmable rubber duck. You expect strong interest in the marketplace. But what's the best selling price?

Figure 1 shows the price-volume spreadsheet. The numbers in rows 3 to 8 are your "what-if" playground. When you enter the fixed and variable costs of the duck, a starting price, starting volume, price increase, and how much that price increase reduces volume, the formulas calculate the volume, fixed costs per unit, total variable costs, sales income, total profit, and profit per unit in each of four price-volume tests.

In this session, you use the Window command, which lets you keep two distant areas of a spreadsheet on screen at the same time. While you work in one window, you can view the results in the other.

#### A Spreadsheet from Scratch

When you see such key combinations as OA-L, hold down the open apple key and type L. If you make a typo, press the delete key to back up the cursor and erase.

If you save to disk with a one-drive system, watch the screen for prompts that tell you when to swap the program disk for the data disk.

Use the AppleWorks Startup and Program disks to bring up a new spreadsheet screen. Name this file **PV ANALYSIS**. You should now see the Review/Add/Change screen.

Dashed lines make a spreadsheet easier to read. But putting several lines across many columns can be tedious. A simple technique is to enter one line and use the clipboard to enter the rest. Here's how to do it:

First, enter a line across row 2: Place the cursor on A2 and type quotation marks. Now hold down the What's the best selling price? Find out with price-volume analysis and your AppleWorks spreadsheet.

equal-sign key until the sign reaches the right edge of E2. Press Return.

Now copy row 2 to the clipboard. Leave the cursor on A2 and press OA-C, type **T**, and press Return. Next, copy the row from the clipboard and insert it before row 9: Place the cursor on A9, press OA-C, and type **F**. You can't see it now because the spreadsheet is empty, but you just inserted a whole new row.

And finally, insert a row before row 23: Place the cursor on A23, press OA-C, and type **F**.

Use a minus sign to enter the line in row 11: Place the cursor on A11, type quotation marks, hold down the minus-sign key until the sign reaches the right edge of E11, and press Return.

Use the following summary to set up the rest of the spreadsheet so that it looks like the one in **Figure 2**:

Column Widths. Each column is now nine characters wide. Use the Layout command (OA-L) to increase the width of column A by 17 characters and columns B-E by two each.

Labels. Enter the spreadsheet title in

B1, the labels in column A, and the Test labels in B10 to E10. Use OA-L to right-justify the Test labels.

Numbers. Most of the numbers are dollar amounts, but dollar signs often crowd a spreadsheet. Instead, use the Value command (OA-V) to set a standard value of Commas with zero decimal places. Then use OA-L to put the following cells into a Commas format with two decimal places: B3 and B4, B8, B12 and C12, B14, and B22. The format is copied into the other cells when you copy the formulas. Short Line. In B20, type quotation marks, press the space bar, type nine minus signs, and press Return. This line is also copied into the other columns with the formulas.

Now press OA-S to save.

Figure 3 shows the formula locations. First, read how the formula works. Then place the cursor on the cell receiving the formula. Move the cursor to the cell locations shown in the formula description and type everything else. When the formula is complete, press Return. If you have a problem building a formula, press the escape key and start again.

#### Formula 1: Selling Price per Unit (Test 1)

Formula 1 doesn't calculate anything. It just copies the number from

Figure 1. AppleWorks spreadsheet used for price-volume analysis.

11	PRICE-VOLUME	ANALYSIS		
2 =====================================				
31Selling Price per Unit	22.75			
41 Selling Price Increase	1.00			
51Volume in Units	12,000			U
61Volume Decrease	650	5		
7lTotal Fixed Costs	26,500			
81Variable Costs per Unit	7.50			
9 =====================================	-25555555555			
10 Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
11				
12 Selling Price per Unit	22.75	23.75	24.75	25.75
131Volume in Units	12,000	11,350	10,700	10,050
14!Fixed Costs per Unit	2.21	2.33	2.48	2.64
15 Total Fixed Costs	26,500	26,500	26,500	26,500
16 Total Variable Costs	90,000	85,125	80,250	75,375
171				
18 Sales Income	273,000	269,562	264,825	258,788
19 Cost of Goods Sold	116,500	111,625	106,750	101,875
201				
21 Total Profit	156,500	157,938	158,075	156,912
22 Profit per Unit	13.04	13.92	14.77	15.61
23 ====================================				

# When you really want to see how Apple works...

### **AutoWorks** by Alan Bird (AUTOmatic AppleWORKS)

AutoWorks adds to AppleWorks several important time-saving features including mail merge, file organizing, macros, new AppleWorks commands and mouse control.

MAIL MERGE allows you to automatically print form letters and fill out forms from your Apple Works data base files. Form letters are reformatted to accommodate varying lengths of names, addresses, etc. Since AutoWorks is built-in, there is never any need to leave AppleWorks to do a mail merge.

AutoWorks allows you to use your MOUSE to make menu selections and to quickly scroll through and position the cursor in your document, data base file or spreadsheet. This feature alone is worth the price of AutoWorks.

With AutoWorks' powerful MACROS, you can automatically enter hundreds of keys including AppleWorks commands with a single keystroke. You can, for example, print out one or several reports by entering one key. The macros are easily updated instantly using the AppleWorks word processor. New AppleWorks commands are also included with macros such as forward delete, word delete, jump to beginning or end of line, etc. With macros you can even create your own AppleWorks commands.

The Disk Librarian helps you keep track of all your disk files. It reads ProDOS file information directly from your disks into an AppleWorks data base file where you may search for certain files and disks, sort on various file characteristics, find disks with free space, etc. AutoWorks is compatible with AppleWorks versions 1.1, 1.2, and 1.3.

#### FontWorks by Mark Simonsen

#### Good-looking Printing for AppleWorks

Now you can print your AppleWorks files in a variety of typestyles. FontWorks reads your Appleworks files directly (no need to save them in a different format) and prints them with the typefaces you choose. You can even print your files sideways — great for those wide spreadsheets.

There are no complicated commands to learn. FontWorks incorporates the same easy-to-use menu style as AppleWorks.

Choose from 20 typefaces of various styles and sizes, including Broadway, Delphin, Old English, Peignot, Script, Times, and many more. You can use up to 4 of these typefaces at one time when printing your AppleWorks files. And FontWorks comes with its own Font Editor, allowing you to customize our typefaces or create your own.

FontWorks works with any Apple IIe or IIc and is compatible with most popular dot-matrix printers, including ImageWriter, Epson, and Okidata.

Note: Owners of previous versions of FontWorks may upgrade for FREE by returning their original FontWorks (disk only) to The Software Touch.

#### THE SOFTWARE TOUCH™

9842 Hibert St., Suite 192 • San Diego, CA 92131 (619) 549-3091

+ \$3.00 shipping & handling, California residents add 6% sales tax Outside U.S. add \$5.00

For Orders Only

(800) 423-5660

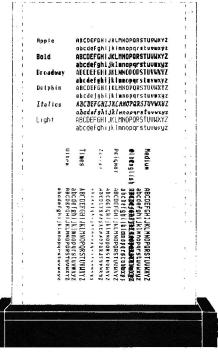
IN CALIF. CALL: (800) 367-0012

EXTENSION

(Apple, AppleWorks, and ProDOS are trademarks of Apple Computer, Inc.)



AutoWorks \$39.95



FontWorks \$49.95

# 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<sup>TM</sup> is a non-profit organization of Apple users and user groups and has been serving Apple users since 1979. We are dedicated to providing education, information and support to users of Apple technology.

The International Apple Core is comprised of thousands of individual members and hundreds of user group members. Get together with your fellow members and share information on new applications, keep up on Apple events, receive specialized training, or learn the latest on new software and hardware products.

If you'd like to join a local users group we can help you find one. Want to start a users group in your area? IAC can help.

# Support for your Apple and you.

Understand your computer better with such books as Beneath Apple DOS, Beneath Apple PRO-DOS, and Universal File Conversion, all discounted to members.

Interested in computer insurance to protect your hardware, software, and even your data? IAC can help you obtain coverage through "Data Security Insurance".

Discounts on hundreds of public domain software programs, as well as selected commercial software products.

#### Information, please.

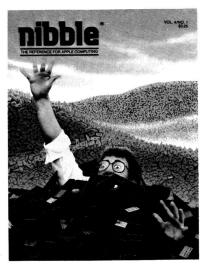
IAC provides many sources of information. Your \$30 yearly membership fee brings you IAC's newsletter "IAC Express", discounts on our many products, access to IAC's BBSs and a 12-issue subscription to Nibble magazine devoted to Apple systems and compatibles. Nibble magazine features more that \$50 dollars 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!

As a member, you may subscribe to our Disk of the Month (DOM); \$60 will bring you a one year subscription. The DOM is a disk of public domain software which is mailed directly to your home each month with themes such as utilities, education, games, or a potpourri of different programs.

# A membership That pays you.

As a member of the IAC you nearly get paid with what you will save. By joining you will save almost 20% on our AppleWorks Mailing Program which is used to create automated form letters from your AppleWorks database and word processing files.

Discounts on books, public domain software, and even IACcalc spreadsheet for under \$40.00.



Circle 157 on Reader Service Card.

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.

#### Get an education.

You'll receive many educational benefits from our software programs. You'll receive 20% off our 3PaK™ series of theme packaged programs which includes Educational, Financial, Games and the popular Logo. We have an Applesoft Tutorial and Education disk which is great for children.

Educational books are available to members at discounts of up to 20% off the cover price, with such titles as Understanding the Apple //, Understanding the Apple //e, Bag of Tricks and more.

### Invite your friends and save.

IAC offers user groups a special package. For \$90 your group receives a full year IAC membership, IAC Express, all members of your group will have access to our BBSs, a subscription to Nibble for your group's library, and also a subscription to our DOM (disk of the month). Your group will be listed among the other hundreds of IAC user groups so that other local IAC members and Apple users will be able to locate you easily.

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

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.

•	_	_	-	_	_	_	_	_	_	_	_	_	_	-	-	_	_	_	_	_	_	_	
	1	М	6.	m	h	e۲	sł	١i	n	A	r	'n	li	cs	at	iο	n						

\$30 USA Individual \$40 Canada

\$75 Elsewhere

\$90 USA Group package
\$155 User Group package elsewhere
I'm already a Nibble subscriber,
Please extend my existing subscription

User Group Memberships

Name	t that the	 
Address		 
ST/Zip	Country	
Phone #		 

All memberships include a 12-month subscription to Nibble magazine. Please allow 6-8 weeks for delivery of your first Nibble.



#### INTERNATIONAL APPLE CORE "

International Apple Core
Membership Dept. I-of
2278 Trade Zone Blvd.
San Jose, CA 95131 (OR phone) (408)-262-9419
Circle 157 on Reader Service Card.

Payment enclosed	(US	funds	drawn	on	a
US bank only)					
VISA	Mas	tercard			
Exp. Date			-,		
Card #					e

Signature \_\_\_

#### PPLEWORKS IN ACTION

B3 into B12, the selling price per unit in Test 1.

Cell Location: B12 Description: +B3

Formula 1 has no numbers to work with, so zeros appear.

#### Formula 2: Volume in Units (Test 1)

Formula 2 works the same as Formula 1, this time copying the volume in units from B5 into B13.

Cell Location: B13 Description: +B5

#### Formula 3: Fixed Costs per Unit

Formula 3 divides the total fixed costs (B7) by the volume in units (B13) and enters the fixed costs per unit in B14.

Cell Location: B14

Description: +B7/B13 You asked Formula 3 to divide by zero, which it cannot do, so ERROR appears and will remain until you enter the practice numbers.

#### Formula 4: Total Fixed Costs

Formula 4 copies the total fixed

Figure 2. Labels and lines in an AppleWorks price-volume analysis spreadsheet

=======================================	=====R======	====C=====	===D======	==F====
11	PRICE-VOLUME	•		
2 =====================================				
31 Selling Price per Unit				
41 Selling Price Increase				
51 Volume in Units				
61Volume Decrease				
71 Total Fixed Costs				
81Variable Costs per Unit				
9 =====================================	========			
10 Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
111				
12  Selling Price per Unit				
131 Volume in Units				
141 Fixed Costs per Unit				
151 Total Fixed Costs				
161 Total Variable Costs				
171				
18! Sales Income				
191 Cost of Goods Sold				
201				
211 Total Profit			¥	
221 Profit per Unit				
231 ====================================				
231				

costs from B7 to B15. Cell Location: B15 Description: +B7

#### Formula 5: Total Variable Costs

Formula 5 multiplies the variable

costs per unit (B8) by the volume in units (B13) and enters the total variable costs in B16.

Cell Location: B16 Description: +B8\*B13

Sensible

Speller

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

The new ProDOS Sensible Speller supports the Apple II Memory Expansion Card and is now supplied on the UniDisk 3.5, as well as on the 51/4" disk. Its huge vocabulary - 80,000 words in all - is derived from the official Random House Dictionary®

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

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

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

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

Sensible Speller ProDOS works with the following word processors. AppleWorks, AppleWinter-ProDOS version [Apple Computer, Inc.], Format II Enhanced-ProDOS (Rensington Microware), Mouse Write-lest files [Roger Wagner Publishing], MouseWord [International Solutions), PFS WRITE-ProDOS Software Publishing, Inc.], Word-Talk (Computer Adds) and WordePrefect [SSI Software]. Word Juggler (Jouan kin.), Wirang Wirang (Sandough Systems), Zardax-ProDOS (Computer Solutions), and others. Owners of trademarks indicated in parentheses. Black's Law Dictionary (West Publishing, Inc.), sterdmarks Medical Dictionary, (Wawerly Press, Inc.).



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



# Are you prepared for tomorrow?

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

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

Apple II user	Please s r for \$24.9	a well-informed send me 12 is- 97. I'll save 30%			
☐ Payment enclosed ☐ Bill me					
Name					
Address					
City	State	Zip			
Canada and Mexico S US bank. Foreign surf	face \$44.97, 1				

inCider, P.O. Box 911, Farmingdale,

#### Stay On Top Of The Trends

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

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

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

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

#### The Progressive "Apple II Journal"

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

Subscribe now and you'll get 12 issues of *inCider* for just \$24.97—a **30% savings** off the cover price! To order, just return the coupon, or call

**1-800-258-5473.** (In NH, call 1-924-9471.)

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

# **inCider**

allow 6-8 weeks for delivery.

Showing you the future that's taking shape today.

#### Formula 6: Sales Income

Formula 6 multiplies the selling price per unit (B12) by the volume in units (B13) to produce the sales income (B18).

Cell Location: B18 Description: +B12\*B13

#### Formula 7: Cost of Goods Sold

Formula 7 adds the total fixed costs (B15) and total variable costs (B16) to produce the cost of goods sold (B19).

Cell Location: B19 Description: +B15+B16

#### Formula 8: Total Profit

Formula 8 subtracts the cost of goods sold (B19) from the sales income (B18) to produce the total profit (B21).

Cell Location: B21 Description: +B18 - B19

#### Formula 9: Profit per Unit

Formula 9 divides the total profit (B21) by the volume in units (B13) to produce the profit per unit (B22).

Figure 3. AppleWorks price-volume analysis spreadsheet showing formula locations.

======================================			D	=E====
21	PRICE-VOLUME A	NALYSIS		
3  Selling Price per Unit 4  Selling Price Increase 5  Volume in Units 6  Volume Decrease			, ,	
·71Total Fixed Costs 81Variable Costs per Unit 91=======		* 0 * 1 * 1	, 4 y H	н
10 Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
12 Selling Price per Unit 13 Volume in Units	0.00 1	0.000	0.00	0.00
14 Fixed Costs per Unit	ERROR (3)	ERROR	ERROR	0 ERROR
15 Total Fixed Costs	0 4	0	0	0
16 Total Variable Costs 17	0 5	0	0	0
18 Sales Income	0 6	0	0	0
19 Cost of Goods Sold 20	07	0 .	0	0
21   Total Profit	0 8	0	0	0
22  Profit per Unit	ERROR 9	ERROR	ERROR	ERROR

Cell Location: B22 Description: +B21/B13

ERROR appears because you are again asking a formula to divide by zero.

#### Formula 10: Selling Price per Unit (Test 2)

Formula 10 increases the selling price in Test 2 (C12) by the amount in B4 and enters the result in C12.

# SPELL CHECKER AND MAILMERGE

# FOR APPLEWORKS

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

Spellworks was written exclusively for Appleworks...it fits Appleworks like a • 90,000 Words glove. Typing and spelling errors are a • Checks 10 words per second thing of the past when you use Spellworks!

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

- Utility that merges Appleworks Data Base with Appleworks Word Processor.

- Word count 10 per second
- · All on one diskette!

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

Advanced Logic



Systems, Inc.

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

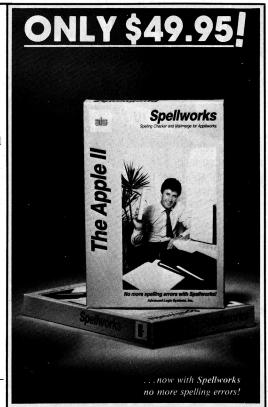


Figure 4. Practice entries in an AppleWorks price-volume analysis spreadsheet.

1	PRICE-VOLUME	ANALYSIS		
3 Selling Price per Unit 4 Selling Price Increase 5 Volume in Units 6 Volume Decrease 7 Total Fixed Costs 8 Variable Costs per Unit	22.75 1 12000 450 26500 7.5	9		
91====================================	Test 1	Test 2	Test 3	Test 4
111 121 Selling Price per Unit 131 Volume in Units 141 Fixed Costs per Unit 151 Total Fixed Costs 161 Total Variable Costs 171			1	ı
18 Sales Income 19 Cost of Goods Sold 20  21 Total Profit 22 Profit per Unit 23 ====================================				

Cell Location: C12 Description: +B12+B4

Formula 11: Volume in Units (Test 2)

Formula 11 decreases the volume in Test 2 (C13) by the amount in B6 and enters the result in C13.

Cell Location: C13 Description: +B13 - B6

Copying Formulas 10 and 11

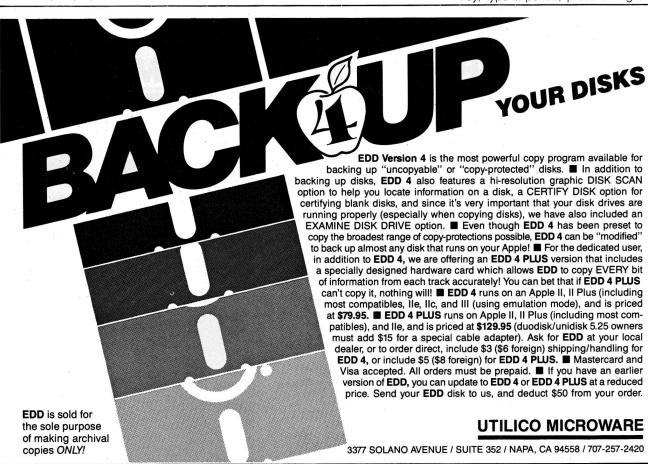
Formulas 10 and 11 can calculate

the selling price and volume in Tests 3 and 4. Follow these steps to start the Copy command, confirm Within worksheet, highlight C12 and C13 (the cells to copy from), and tell AppleWorks to copy into D12 and E12: Place your cursor on C12 and press OA-C. Now press Return, press the down arrow key, and press Return again. Press right arrow, type a period, press right arrow, and press Return.

AppleWorks highlights B12 and asks if it is a No change or Relative reference. To select No change, you press Return; to select Relative, you type R. To identify B12 as relative, type R. In turn, as the other cells are highlighted, press Return, type R, and press Return again.

#### Copying Formulas 3 to 9

The next step is to copy Formulas 3 to 9 (B14 to B22) and the line in B20 into Tests 2, 3, and 4. Place the cursor on B14 and press OA-C. Now press Return, press OA-9, and press Return again. Press the right arrow key, type a period, press OA-right ar-



PLICA D D)

row, and press Return.

AppleWorks now asks if B7 is No change or Relative. It's No change, so press Return. As the other cells are highlighted, follow this sequence to tell AppleWorks which cell reference is which: Type R, press Return twice, and type R (9 times). This completes the formulas. Press OA-S to store the spreadsheet on disk.

**Figure 4** shows the practice numbers. The total fixed costs of this product, \$26,500, and the variable costs per unit, \$7.50, are facts that come from financial reports.

Press OA-2 to jump the cursor to B3. Type **22.75** and press the down arrow key. Type the other numbers in B4 to B8 and press the down arrow key after each one. Because of the formatting you did earlier, AppleWorks produces the commas and decimal places. Your spreadsheet should now look like the one in **Figure 1**. These results are interesting. Though Test 4 shows the highest profit per unit, the pairing of price and volume in Test 3 shows the greatest profit potential. To

protect the formulas against change, press OA-5 to jump the cursor to row 12. It should be on B12. Press OA-L. Type **B**, press OA-8, then press down arrow twice. Press OA-right arrow, press Return, and type **PN**.

Next, prepare the spreadsheet for printing. Leave your cursor on B12. Follow these steps to bring up the Printer Options screen and set the left margin so the spreadsheet is centered: Press OA-O, type **LM**, press Return, type **.5**, and press Return.

Now press OA-S to save the spreadsheet and return to the Review/Add/Change screen. Turn on your printer and follow these steps to start the Print command, confirm All, select the printer, enter a date, and confirm one copy: Press OA-P, press Return, press Return (or type a printer number, then Return), type today's date, and press Return twice.

When you work with the "what if's", you can't see the effect on profits unless you move the cursor to row 22. But when you move it to row 22, you can't work with the "what if's."

Opening another window solves the dilemma. Here's how to do it:

First, press OA-1 to jump the cursor to row 1. You want rows 3 to 8 and rows 21 and 22 on the screen at the same time. Use the down arrow key to move the cursor to row 20. Row 3 should now be at the top.

Now place the cursor on row 9. Start the Window command and select *Top and bottom* by pressing OA-W and typing **T**. Move the cursor to B22. Both areas are on screen.

Press OA-J to jump the cursor into the top window. Change any numbers in B3 through B8 and watch the formulas go to work. When you're finished, close the second window: Leave your cursor where it is, press OA-W, then press Return. If you save the spreadsheet with a second window, it will have the window in place the next time you load it. The printed spreadsheet, however, won't show even a trace of another window. ■

Write to Ruth Witkin at 5 Patricia Street, Plainview, NY 11803.

# MacroWorks makes AppleWorks work the way it should have in the first place.

New Word Processing Power
MacroWorks streamlines AppleWorks word
processing with a multitude of new features.
For example, one quick keystroke now deletes
the character or the word at the cursor.

Return to our Work office: HARVEY R. SMITH TYPE ALMOST
\_ANYTHING
WITH JUST ONE
KEYSTROKE.

Use one keystroke to jump to the start or end of a text line. Another keystroke will erase an entire line. Change your mind? Apple-U will instantly "Undo" your last delete command!

**AppleWorks Macros** 

MacroWorks will convert any series of keystrokes into a new one-keystroke solid-Apple command (original open-Apple commands stay intact). Use our built-in macros, or define your own. For example, make Apple-N type your name and address. Or let Apple-X save or print *all* of your Desktop files, nonstop.

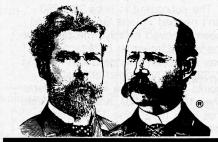
#### For the Word Processor, Data Base and Spreadsheet

Be creative! Set up macros to execute *any* often-repeated function. You can even skip unwanted questions like "How many copies?".

#### Flexible and Compatible

Use MacroWorks on a floppy disk, hard disk, Unidisk 3.5<sup>™</sup>or RAM disk. It is compatible with the Checkmate<sup>™</sup>and Applied Engineering (RamWorks<sup>™</sup>or Z-Ram<sup>™</sup>) Desktop Expanders.

MacroWorks is NOT a time-consuming "pre-boot" disk. You boot AppleWorks like you always do, but now you've got new features.





3990 Old Town Avenue, San Diego, California 92110 AVAILABLE AT MOST SOFTWARE STORES or by mail: Visa, MasterCard or COD orders, phone toll free 1-800-227-3800 ext. 1607

#### **Multi-Column Printouts!**

MacroWorks' Galley program prints your AppleWorks Word Processing files in side-by-side columns (two or three-wide) for faster and easier newsletter layouts.

#### **Analyze Your Files**

MacroWorks' File Analyzer program prints a sorted list of every word it finds, and reports the number of occurrences of each word and the average word-length. Great for making an index or for analyzing your writing style.

#### **Alphabetize Your Catalogs**

MacroWorks' Alpha-Cat program prints a sorted two-column list of all the file names on a disk. Perfect for disk I.D. labels!

#### \$3495 Friendly and Unprotected

MacroWorks works with all versions of AppleWorks on any Apple IIc or 128K IIe. And you can make disk backups without hassle. (AppleWorks is a trademark of Apple Computer, Inc.)

# APPLESOFT ADVISER

#### Line-Graph Generator

#### by Dan Bishop

Last month I presented Bar Builder II (inCider, May 1986, p. 85), a BA-SIC program for displaying data with bar graphs. That program uses low-resolution graphics, which is ideal for the "blocky" graph-construction needs of bar charts, or histograms. Histograms find their greatest use in situations in which you must compare actual values of related data from two or more sets.

You'll often be more interested in the changes between data points in a specific set of data, however. If you're following the performance of a specific stock on Wall Street, for example, you need a graphic representation that clearly reveals the changes in that stock's price, so that you can identify trends and decide whether to buy or sell. For this kind of application, line graphs are superior to bar graphs, and in this month's column I'll show you how to convert May's Bar Builder II program to plot line graphs.

The low-resolution graphics mode used for bar graphs will not provide the professional-looking, "smooth-line" display necessary for line graphs, though. By turning to high-resolution graphics, you can increase the horizontal resolution of the screen from 40 points to 280 points and the vertical resolution from 40 points to 160 points, while still leaving room for four lines of text at the bottom of the screen. This means that you can plot more points across the screen, and that each point is smaller. With smaller points, diagonal lines appear smoother, avoiding the "stair-step" appearance of low-resolution graphics.

Converting Bar Builder II to Line Graphics

If you've been following my last two columns, you'll be pleased to find that the only subroutines you need to replace in Bar Builder II are those that generate the display. Minor modifications are needed at other points, but for the most part, the data-handling subroutines are the same. You can save time typing in the **Program listing** (p. 88) by loading Bar Builder II, making the necessary alterations,

Modify Bar Builder II to generate line graphs with high-resolution graphics.

then saving it back to disk with a different name. Go through the program line by line, and change, delete, or add lines as needed until the program in your computer matches the one shown in the **Program listing**. Save the result as Line Graph. You now have both Bar Builder II and Line Graph saved to disk.

The first modifications you'll find are in the variable-initialization subroutine in lines 100-170. The program doesn't dimension any arrays for margin size, bar width (distance between the points), or color code; Line Graph calculates them uniquely for each graph it draws (lines 12450-12490). Since high-resolution graphics allows four colors (including black), Line Graph assigns one of two alternating colors to each line. This is the same approach used in the original Bar Builder program (inCider, March 1986, p. 92). Lines 110, 120, and 160 have been deleted.

(Note: To delete a line from a program listing, just type in the offending line number and press the return key. To delete a block of consecutive lines, type in DEL followed by the first and last line numbers in the block, separated by a comma, and press Return.)

The subroutine in lines 300–390 isn't needed in Line Graph and has been removed entirely. The range for the allowed number of data points has also been changed from 1–39 to 2–39, since you need at least two points to construct a line. This affects lines 10100, 10120, and 10130. Note that lines 10120 and 10130 have been reversed in Line Graph, to eliminate the need to test for a "1" being entered.

**Adding High-Resolution Graphics** 

The HGR command, added in line 3000, initiates high-resolution graphics. Prior to drawing any graph, Line Graph constructs a border around the screen (lines 3000–3060), then switches the display from text mode

to high-resolution graphics mode and clears the hi-res screen to black. One major difference between HGR and GR (for lo-res graphics) lies in the way they work. Unlike GR, which leaves the bottom four lines of the screen open for text, HGR uses the full screen for graphics. To reserve four lines at the bottom of the screen for text, use POKE – 16301,0.

Using the HCOLOR command, now set the color of the next points or lines to be drawn. Instead of values zero through 15 available for colors (as in lo-res graphics), you can use only values zero through 7, and the colors you choose for a given display must be in the zero to 3 range or the 4 to 7 range. Colors zero and 4 correspond to black; colors 3 and 7 correspond to white. Line 3010 sets HCOLOR equal to 3 for the border.

Plotting Points with HPLOT

The only additional command you need for hi-res graphics is HPLOT. To plot a point on the screen, use HPLOT x,y, where x is a number between zero and 279 that gives the horizontal location of the point on screen, and y is a value between zero and 159 (191 if you're using full-screen graphics) that denotes the vertical position for the point.

To plot a series of points in a straight line, use the HPLOT command with the word TO separating the x,y values for the starting and ending points of the line. For example,

HPLOT 25.12 TO 55.12

plots a horizontal line along row 12 between columns 25 and 55;

HPLOT 17,88 TO 17,159

plots a vertical line along column 17 (x = 17) from row 88 to row 159; and HPLOT 0.0 TO 279.159

plots a diagonal line from the upper left corner of the screen to the bottom right corner. Finally, an HPLOT command can have as many TO additions as needed, letting you connect lines end-to-end to draw figures. Line 3020 in the **Program listing** draws a box around the display screen:

HPLOT 0,0 TO 279,0 TO 279,159 TO 0,159 TO 0,0

# 6 Meg IIe/640k IIc

Don't buy vesterday's card that doesn't offer battery backed-up RAM or 65C816 new Appletechnology just because it's advertised a lot! You can buy Checkmate Technology's State-Of-The-Art MULTIRAM RGB RAM CARD™ with BATTERY BACKED-UP STATIC RAM options that can load & save programs (like AppleWorks) for 10 years! It is a FASTER & LESS EXPENSIVE REPLACEMENT FOR HARD DISKS, is USER EXPANDABLE TO 6 MEGABYTES, compatable with all (100%) 3rd party software/hardware, has an optional real 16-Bit 65C816 slot saver Co-Processor card, sharp 80 columns, super Double Hi-Res, & BUILT IN RGB\*! It's a direct substitute for Ramworks II™ or Apple Ext 80 column cards & has an amazing 5 year warranty! Unlike Ramworks II, MultiRam fits ALL (even Euro) Apples, can't interfere with slot 1 cards & has no soldered chips!

MultiRam RGB expands to 1 Meg main RAM + 3 Meg's piggyback RAM + 2 Meg's BATTERY BACKED-UP RAM. Multi-Ram IIe expands to 768k & can piggyback w/ MultiRam RGB. A POSSIBLE 6 MEGABYTES IN ONE SLOT - MORE THAN RAMWORKS II & Flipster™.

FREE APPLEWORKS EXPANDER SOFTWARE that loads ALL (even printer routines) or PARTS of AppleWorks, runs 30 x faster, increased Desktop over 3024k, auto-segments large files onto multiple disks, stores over 16,000 records! FREE APPLEWORKS TIME/DAY/DATE ON-SCREEN, AUTO-COPY TO RAM, ULTRA-FAST PRODOS/DOS 3.3 RAM DISK & RAM TEST, optional CP/M & Pascal Ram disk!

MultiDom MultiDom

	MultiRam	
	Card	
64k <b>MULTIRAM</b>	169.	129.
128k <b>MULTIRAM</b>	179.	139.
320kMULTIRAM (256k + 64k FREE)	209.	175.
576kMULTIRAM (256k + 64k FREE)	248.	214.
832kMULTIRAM	275.	239.
1024kMULTIRAM	284.	
1280kMULTIRAM	490.	
1536k <b>MULTIRAM</b>	525.	
1792k <b>MULTIRAM</b>	559.	
256k Memory Chips-1 yr warranty (8) .		55.
Apple Ile Enhancement Kit		
Accelerator Ile-350% speedup card		222.
Accelerator Ile + Pinpoint (special)		259.
Clockworks Card (Thunder/Time HO™ co	omp)	89.
Pico <sup>™</sup> Slimline Drive IIc, IIe, II+		178.
FD-100 Slimline Drive IIe, II+		
Pinpoint Program or Spell Checker (ea)		49.
65C816 EX Co-Processor Card		157.

Terms: Add \$4-Ground or \$6-Air shipping & phone # to each U.S. card order (foreign orders/FPO/APO extra). Add 3% for Master-Card/Visa (include #/expir) & P.O.'s (3% 7 Net 30). For fast delivery send Cashier's/Certified check, Money Order. C.O.D. (add \$5) & personal checks accepted (allow 16 days). Tex res add 6 1/8% tax.

MultiRam, Ramworks/Ramworks II/Timemaster II H.O./Z-ram, Pico, Flipster, respective trademarks of Checkmate Technology, Applied Engineering, WGE, Cirtech.

# Meg 16-Bit IIe 640K 16-Bit IIc

Checkmate Technology's State-Of-The-Art IIc cards easily expand your IIc up to 640k, are 100% compatable with all IIc software/hardware, & come with the SAME FREE SOFTWARE as MULTIRAM IIe (see above). MULTIRAM C is non-upgradable, MULTIRAM CX can be upgraded with a real 65C816 kit to likely run software for the new Apple computer!

- UNLIKE Z-RAM™, THERE ARE NO JUMPER WIRES, CLIPS TO ATTACH, SOLDERED CHIPS, OR DRIVE REMOVAL REQUIRED FOR INSTALLATION.
- USES ABOUT 50% LESS POWER than Z-RAM causing less power supply strain or battery pack drain!
- 15 DAY MONEY BACK SATISFACTION GUARANTEE. 5 YR WARRANTY, & LOWER PRICES - We sell lic cards for much less & our software updates are FREE & AUTOMATIC, while others charge \$10 or more!

#### **OUR LOWEST PRICE**

256k MULTIRAM C (While supply lasts)	159. 189.
256k MULTIRAM CX	
65C816 CX Kit (\$10 less w/ card)	117.
CP/M & Pascal Ram Disk (ea)	20.

WHY BUY FROM COIT VALLEY COMPUTERS RATHER THAN SOME MAIL ORDER HOUSES? Only we offer an exclusive 15 day money back satisfaction guarantee, double software, more support, free automatic software updates, free 64k with each 256k/512k card. We know the products well, & we have them in stock. CALL FOR DETAILS, CURRENT PRICES, QUANTITY DISCOUNTS, OR NEW FEATURES! SCHOOLS & GROUPS WELCOME.

#### RDE R 0

COIT VALLEY COMPUTERS (214) 234-5047 14055 Waterfall Way Dallas, Texas 75240 NAME\_ ADDRESS \_\_\_ \_\_STATE \_\_\_\_\_ CITY PHONE ( ) SIGNATURE QTY DESCRIPTION PRICE MC/VISA \_\_\_ SHIPPING TOTAL

#### COIT VALLEY COMPUTERS

4055 Waterfall Way

(214) 234-5047

Dallas, Texas 75240

To convert Bar Builder II to Line Graph, delete lines 12405-12750 and type in these lines directly from the Program listing, since they're quite different for the hi-res line-drawing function. Notice that Line Graph can normalize vertical distance to fill a 160-point column, while Bar Builder is restricted to 37 points. The greater resolution in hi-res mode is also apparent in lines 12450-12480 where the optimum margin and width (distance between points) are calculated.

The last major difference between Bar Builder II and Line Graph appears in the Plotter routine (lines 12500-12650). Bar Builder constructs the bars for the first point of each set before going on to the second point. Line Graph plots all of the points in the first set before going on to the second set. In Bar Builder II, the FOR. . . NEXT loop (loop H) controlling the data-point counter is the outer loop, while the J loop that controls

the set counter is the inner loop. In Line Graph, the order of the inner and outer FOR. . . NEXT loops is reversed, so that all the points for each set will be graphed together.

#### Running the Program

Line Graph begins by asking you to type in the number of data sets you want to plot (one to four) and the number of points in the largest set (two to 39). (Typing a zero in response to the second question ends the program.) The program then prompts you to type in three lines of text. which will appear at the bottom of the graph display. Simply press the return key to leave the line blank. To center text on the display line, place your entry in quotation marks and type in the appropriate number of spaces before the text.

Now type in the data points you want to graph. As listed, Line Graph uses the same approach as Bar Builder II, in which you type in all of the first data points for each set before going on to each set's second data points. If this is inconvenient for the data you're using, simply switch lines 12020 and 12030, and change line 12060 to NEXT I.J.

As with Bar Builder II, you can subtract a common value from all of the points in a given set to bring that set's data points into the same vertical range as those of the other sets. If you use this option, remember that the vertical-value relationships between the lines graphed are different.

Line Graph gives you an opportunity to modify any of the data elements or correct typos. It then displays the graph, with a command line at the bottom of the screen that asks you to enter C to continue or E to end the program. Pressing C lets you change any of the data points before redisplaying the graph. You can also alter the "subtraction factor" for any set during this process, by electing to change element zero in the desired set.

#### Conclusion

Next month, I'll take a new approach, directed toward beginning programmers and covering the basics of Applesoft BASIC. The first thing we'll do is turn your Apple into an interactive five-function calculator, and in the process learn a few elementary commands and expressions.

Write to Dan Bishop at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

#### ARE YOU SICK? SYMPTOMS: The fear of anything associated with the act of making backup copies of computer software, including: fear of removing copy-protection from commercial software so that one can examine, alter, improve, and copy (using Apple Computer's COPYA copy program) software. TREATMENT & CURE: Subscribe to COMPUTIST magazine. It shows even computiphobes how to do and undo copy-protection in simple, step-by-step articles for specific commercial programs SIDE EFFECTS: A feeling of security because valuable software is now backed up quickly, easily and reliably PRESCRIPTION FORM: 6 issue subscription rates: Name US \$20 Canada, Mexico \$34. Address US First Class \$24. Foreign air \$60. Sample copy: US \$4.75. Foreign \$8.00. City\_ State Zip US funds drawn on US bank. Country Phone Make check/money order payable to: VISA Contractors COMPUTIST PO Box 110846-I 16 Tacoma, WA 98411 Signature

C per disk?

Sold only in

sets of 25.

guaranteed.

reinforced

100%

<ul><li>Apple</li><li>Commodore</li><li>Atari</li><li>Epson</li><li>TRS-80</li></ul>	\$17  Permorced hubs  Write-protect tabs & Tyvek sleeves included.
Send your order to: Disk Offer SoftKey Publishing PO Box 110846-1 Tacoma, WA 98411	Please send me sets (25 disks per set) of 5 <sup>1</sup> / <sub>4</sub> " SS/DD diskettes. I have enclosed \$17 PLUS shipping & handling for each set. Make check/money order payable to SoftKey Publishing.  Name Address
Enclose \$3 shipping & handling for first set PLUS \$1 each for additional sets. Foreign orders add 20% shipping & handling US	City         State         Zip           Country         Phone
funds drawn on US bank. Washington orders add 7.8% sales tax. Orders shipped via UPS, use street address.	Exp

And that INCLUDES the Tyvek sleeve, too?

Verbatim disks

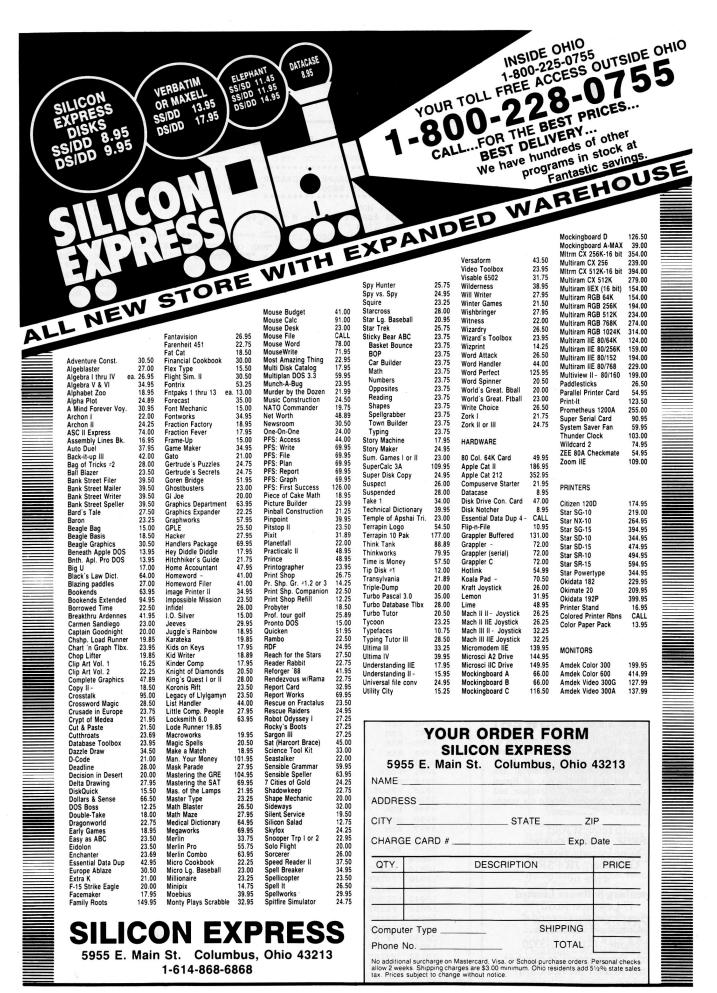
for only

SS/DD

5 1/4 "

for use

with:





#### IS YOUR APPLE II WORD PROCESSOR LETTING YOU DOWN? STEP UP TO **GUTENBERG®**

customized screen fonts - to display up to 115 extra user-defined characters on the screen and print them as special 7×12 dot graphics in your text, automatically.

IF YOU NEED...

downloaded printer fonts - to dynamically change the printer's character set. Gutenberg supports font downloading into the Apple Imagewriter or DMP of up to 21 different fonts at 14 print pitches in proportional print mode and still micro-justifies the print line.

special alphabets - to print text in many different languages, including: Danish, Finnish, French, German, Greek, Hebrew, Italian, Polish, Russian, Spanish, Swedish, Syriac, Ukrainian, etc.

scientific symbols - for any type of technical writing.

graphic pictures - embedded in your text, banner headings for newsletters or letterheads, or big display lettering.

flexible print layouts - for best reproduction of your document. Gutenberg's advanced formatting language allows unrestricted placement of text.

#### **GUTENBERG® SR IS THE ANSWER!**

Gutenberg runs on all Apple // computers or compatibles with 64K of memory. Gutenberg supports the Apple Imagewriter and Apple DMP with printer font downloading, the C.Itoh Prowriter, the NEC 8023, all Epson MX-100 compatibles with regular graphics, and most letter-quality printers without the graphics option.

> To request your FREE 16-page booklet "Your Introduction to Gutenberg JR + SR" write to:

#### **Gutenberg Software Limited**

47 Lewiston Road Scarborough, Ontario Canada – M1P 1X8

or phone: (416) 757-3320 or circle the appropriate number on the Reader Service Card.

Apple is a reg. trademark of Apple Computer, Inc.

Program listing. Line Graph.

APPLESOFT ADVIS

```
REM
            ***********
    REM
    REM
             LINE GRAPH GENERATOR
    REM
            MAIN PROGRAM
    REM
     TEXT : HOME
     GOSUB 10000: IF N = 0 THEN 90
25
     GOSUB 1300
     GOSUB 12300: GOSUB 12500

INPUT "CONTINUE <C> OR END <E>...";X$

IF X$ < > "C" AND X$ < > "E" THEN 40

IF X$ = "E" THEN 90
30
4Ø
70
     TEXT : HOME : GOSUB 1200
RØ
     GOTO 3Ø
     TEXT : HOME : END
90
95
     REM
97
             VARIABLE INITIALIZATION
     REM
98
     REM
99
     REM
      DIM D(40,4), ND(40,4), T$(3)
      FOR J = \emptyset TO 4\emptyset
FOR J = \emptyset TO 4
135
140 D(I,J) = 0:ND(I,J) = 0
150 NEXT J,I
17Ø
      RETURN
195
      REM
196
      REM
197
      REM
               INVALID ENTRY RESPONSE
198
      REM
199
      REM
      PRINT : PRINT "INVALID ENTRY. "
INPUT "PRESS <RETURN> TO CONTINUE..."; X$
200
210
      RETURN
220
1195
       REM
1196
        REM
               DATA ENTRY CORRECTION
1197
       REM
1198
       REM
1199
       REM
1200
       FOR J = 1 TO S
1210
       FOR I = 1 TO N
1220 D(I,J) = D(I,J) + D(0,J)
1230
       NEXT I
       NEXT J
1240
1300
       PRINT
       PRINT "DO YOU WISH TO CHANGE ANY DATA ENTRIES?"
1310
       PRINT DO 100 "101"; X$
INPUT "(Y/N)..."; X$
IF X$ < > "Y" AND X$ < > "N" THEN GOSUB 200: GOTO 1300
1320
1330
1340
1345
       PRINT : INPUT "WHICH DATA SET ... "; ES
       IF ES < 1 OR ES > S THEN 1345
INPUT "WHICH ENTRY NUMBER..."; EN
1346
135Ø
       IF EN < 0 OR EN > N THEN 1350
PRINT "ENTRY "EN" IN SET "ES" IS "D(EN,ES)"."
INPUT "WHAT VALUE SHOULD IT HAVE? ";NV
1351
1360
1370
      D(EN, ES) = NV: GOTO 1300
138Ø
1390
       RETURN
2995
       REM
2996
       REM
2997
       REM
                    GRAPH BORDER
2998
       REM
       REM
2999
3000
       HGR
3005
       POKE
              - 16301,0
      CØ = 3: HCOLOR= CØ
3Ø1Ø
3020
       HPLOT Ø,Ø TO 279,Ø TO 279,159 TO Ø,159 TO Ø,Ø
3060
       RETURN
9995
       REM
9996
       REM
       REM
9997
                GET NO. OF DATA SETS
9998
       REM
9999
       REM
10000
        10010
         PRINT "
         10020
10030
        PRINT GOSUB 100: PRINT PRINT "HOW MANY SETS OF DATA (1-4) DO YOU" PRINT "WISH TO PLOT SIMULTANEOUSLY?";
10040
10050
10060
         INPUT " ";S
10070
        IF S < 1 OR S > 4 THEN GOSUB 200: GOTO 10000
PRINT: PRINT "HOW MANY DATA POINTS IN YOUR LARGEST"
PRINT "SET (2-39. ENTER 0 TO END)...";
10080
10090
10100
         INPUT ""; N
10110
         IF N = Ø THEN RETURN
                                                                                 Listing continued.
```

```
Listing continued.
     10130
              IF N < 2 OR N > 39 THEN GOSUB 200: GOTO 10090
     10140
              PRINT
             FOR T = 1 TO 3
PRINT "ENTER TEXT LINE #"T": "
     10150
     10160
              INPUT ""; T$ (T)
     10170
     10180
              PRINT
     10190
              NEXT T
     11995
              REM
     11996
              REM
                     *************
     11997
              REM
                      DATA ELEMENT ENTRY
     11998
              REM
     11999
              REM
     12000
              PRINT
              PRINT
     12010
             FOR J = 1 TO S
FOR I = 1 TO N
     12020
     12030
              PRINT "DATA POINT #"I" FOR SET "J": ";
INPUT ""; D(I,J)
     12040
     12050
     12060
             NEXT I,J
     12070
              PRINT
     12080
             FOR J = 1 TO S
              PRINT "WHAT COMMON VALUE (OR Ø) IS TO BE SUB-"
     12090
     12100
             PRINT "TRACTED FROM EACH VALUE IN DATA SET "J":
              INPUT ""; D(Ø,J)
     12110
     12120
              PRINT
     1213Ø
1214Ø
             NEXT J
PRINT "THESE VALUES WILL BE STORED IN ELEMENT ZERO OF EACH SET."
     12150
              RETURN
     12295
              REM
     12296
              REM
                        NORMALIZE DATA INTO ND
     12297
              REM
              REM
     12298
     12299
             REM
     12300
             FOR J = 1 TO S
            D(1,J) = D(1,J) - D(\emptyset,J)

D(4\emptyset,J) = D(1,J)

NEXT J:HV = \emptyset
     1231Ø
     12320
     1233Ø
     12340 FOR J = 1 TO S
12350 FOR I = 2 TO N
12360 D(I,J) = D(I,J) - D(0,J)
             IF D(I,J) > D(40,J) THEN D(40,J) = D(I,J)
     12370
     1238Ø
             NEXT I
             IF D(40,J) > HV THEN HV = D(40,J)
     1239Ø
     12400 NEXT J
12405 NF = 160 / HV
12410 FOR J = 1 TO S
             FOR I = 1 TO N
     12415
     12420 ND(I,J) = INT (D(I,J) * NF)
12425 NEXT I,J
     12450 MG = 10
     12460 W = INT (259 / (N - 1))
12470 MG = INT ((279 - W * N) / 2)
12480 IF MG < 10 THEN MG = 10
     12490
              RETURN
     12495
              REM
     12496
              REM
                     ***********
                         PLOTTER ROUTINE
     12497
              REM
     12498
              REM
     12499
              REM
     12500
              REM
     1251Ø
              GOSUB 3000
     12520
              FOR J = 1 TO S
     1253Ø P = MG
             IF C\emptyset = 1 THEN C\emptyset = 3: GOTO 12550
     12540
     12545 \ CØ = 1
             FOR H = 1 TO N
     12550
              HCOLOR= CØ
     12560
     1257Ø
              HPLOT P,160 - ND(H,J) TO P + W,160 - ND(H + 1,J)
     12580 P = P + W
12585 IF H + 1 = N THEN H = N
     12585
             NEXT H,J
     12590
     12600 P = MG
     12610
             FOR H = 1 TO N
     12615
             HCOLOR= 3
              FOR J = 1 TO 160 STEP 3
     12620
     12630
             HPLOT P,J
     12635
             NEXT J
     12640 P = P + W
     12650
             NEXT H
     127ØØ
1275Ø
             HOME
              HTAB 1: VTAB 21
             PRINT T$(1)
     12760
             PRINT T$(2)
PRINT T$(3)
     1277Ø
     12780
              RETURN
     12790
                                                                                     End of listing.
```

# "TYPING TUTOR III is the best typing instruction program for personal computing that I have seen."

Erik Sandberg-Diment The New York Times 1/8/85

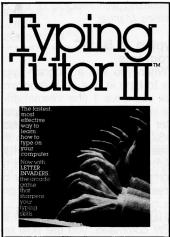
Your computer productivity is directly proportional to your speed at the keyboard. That's why Typing Tutor III™ with Letter Invaders™:

☐ Automatically adjusts to your abilities and progress;

□ Tests words, numbers, and full keyboard, as well as through a standard speed test;

☐ Features Letter Invaders, an arcade-style game that lets you take an entertaining break while sharpening your typing skills at the same time.

For the IBM PC, PC jr, XT, AT, (\$49.95\*); Apple II Series (\$49.95\*), Macintosh (\$59.95\*); and Commodore 64 (\$39.95\*) wherever software is sold. (\*Suggested Retail)



#### BY KRIYA SYSTEMS™INC.

#### SIMON & SCHUSTER

Typing Tutor III, Letter Invaders, and Kriya Systems, Inc. are trademarks owned by and licensed from Kriya Systems, Inc.

### Simon&Schuster

COMPUTER SOFTWARE One Gulf + Western Plaza New York, N.Y. 10023

Circle 196 on Reader Service Card.

# BEGINNER'S PAGE

From time to time *inCider* will run Beginner's Page—step-by-step instructions to help novice Apple users type in and enjoy the programs *inCider* publishes.

The instructions assume that you have an Apple II, II Plus, //e, or //c computer with one disk drive and either DOS 3.3 or ProDOS. You also need one blank, 5½-inch disk. If you're using the UniDisk 3.5, you will be restricted to ProDOS and, of course, you will need a blank 3.5 inch disk. To type in and run in-Cider's programs, just follow the instructions.

#### Creating a BASIC Programs Disk

The first step is to prepare a disk on which to save your programs. This process is called *formatting*. In addition, ProDOS requires you to copy two files, PRODOS and BASIC.SYSTEM, to create a start-up disk. For details about creating a DOS 3.3 disk, see the *DOS Programmer's Manual*. You will find information about creating a ProDOS start-up disk in *BASIC Programming with ProDOS* or the *System Utilities Manual*.

#### Typing in BASIC Programs

- ●When you find a program you'd like to type in, put your programs disk into drive 1 (the internal drive on the //c) and turn on your computer. After the disk stops, the Applesoft BASIC prompt "]" appears on the screen. At this point, type in HOME and hit the return key to move the prompt to the upper-left corner of the screen. Next, enter NEW and press the return key.
- Having cleared memory with the NEW command, you are now ready to enter the first line of the BASIC program. First, type in the line number (most BASIC programs begin with

line 10), and then type the rest of the line exactly as it appears in the magazine. Don't worry if the line is longer than the width of your screen display. The program line will automatically jump to the next line on your screen. Once you have entered the entire program line, hit the return key.

- Continue to enter program lines in this manner until the entire program is in memory. Now, even before you run the program, save it to disk so that all of your work won't accidentally be lost. The SAVE command copies a program from main memory (RAM) to disk. Just type SAVE file name (where file name is the name of the program) and press the return key.
- Since the program is still in memory, you can run it with the RUN command. Unless you are a very careful typist, you now face the task of removing syntax errors from the program. For example, if, when you run the program, you get a message saying SYNTAX ERROR IN 1050, it's a good bet that you made a typing error in line 1050. The simplest way to correct it is to retype the entire line. The computer will automatically delete the old line and replace it with the new one.
- •When you have the program running properly, save the corrected version by typing SAVE file name again. This command overwrites the old version of the program with the corrected version.

#### Typing in Machine-Language Programs and Shape Tables

Many programs in *inCider* use machine-language routines and shape tables. The listings for machine code consist of hexadecimal RAM addresses followed by the hex code (5E00- A9 04 30 65 FA 8C 1B 09, for example). To type in such a listing, follow the guidelines below:

- ◆Turn on your computer with your programs disk in drive 1.
- ◆From the Applesoft prompt, type in CALL -151 (the dash is a minus sign) and hit the return key.
- An asterisk, the Monitor prompt, now replaces the Applesoft prompt.

- At this point, get the first address of the machine-language program from the listing. This address is the first four characters in the listing.
- Type in this address, followed by a colon (not a minus sign!). Now type in the hex numbers as they appear in the magazine. For example, if the hex line shown above were the first line of a hex program, you would enter:

5E00: A9 04 30 65 FA 8C 1B 09

- and then hit the return key.

  For subsequent lines in the machine-language listing, you don't have to type in the address. Just type in a colon at the start of each line and then the hex bytes, followed by a return-key press.
- To check your typing before you save the listing, type in the starting address of the program and hit the return key. The number that appears is the content of the byte at the address shown. Hitting it again produces the rest of the first program line on the screen. Pressing the return key subsequent times makes additional program lines appear for your inspection. If any line requires changing, just retype that line, being sure to include the address and to use a colon in place of the minus sign.
- Once the entire listing is correct,
   you have to save it. First, type in
   3D0G and hit the return key to return to the Applesoft prompt.
- ●Now type BSAVE file name,Aa,L/ (where a is the starting address of the routine and I is the length). If these are hexadecimal instead of decimal values, a \$ will precede them. Don't worry about having to figure out the address and length parameters yourself; these are always published with the program.

You now know what it takes to type in and use the programs published by *inCider*.■

# RIGHT OF ASSEMBLY

# Assembly-Language Comparisons: Reading the Keyboard

#### by Roger Wagner

In the last installment of Right of Assembly ("Branching Out," April 1986, p. 87), I showed you how to use testing instructions like BEQ and BNE to create simple loops. You use the X- and Y-registers as counters, and increment or decrement by one for each cycle of the loop.

Now let's expand our repertoire of instructions by adding some new ones, and in the process add some flexibility to what you can do with loops and tests in general.

#### The Carry Flag

The programs in my last column wait for the counters to reach zero, then test via the Z-flag before taking appropriate action. Suppose, though, you'd like to test for a value other than zero. You can do this with the compare instruction and carry flag.

The mnemonic for the compare instruction is CMP #\$A0, which you can read, "Compare accumulator with an immediate \$A0." This tells the 6502 to compare the accumulator with the specific value \$A0. On the other hand, you may want to compare the accumulator with the content of a given memory location, indicated by CMP \$A0.

In this case, the 6502 checks the content of location \$A0 and compares it to the accumulator. It's important to understand that the content of \$A0 can be anything from \$00 to \$FF, and that the accumulator is compared against this value. In each case, the computer performs the comparison by subtracting the value in the accumulator from the specified value (the result, though, is invisible to you).

The 6502 uses the carry flag to determine the result of the comparison. Right next to the Z-flag in the status register is the bit called the CARRY (see the **Figure**), which the 6502

Figure. The CARRY bit in the status register.

 More on using loops to test for values and ranges.

Since the compare operation involves subtraction, the carry flag can test the result with two new branch instructions, BCC and BCS. BCC (Branch Carry Clear) branches appropriately if the accumulator is less than the value against which it's compared. BCS stands for Branch Carry Set, and is taken when the accumula-

uses during addition and subtraction.

#### **Testing for Ranges**

value used.

Now you can test for ranges, as well as specific values. Try the example shown in **Listing 1**.

tor is equal to or greater than the

Let's step through the program. After the JSR to the clear-screen routine, you load X with zero in preparation for reading a paddle. The #\$00 tells the routine to read paddle zero, and the answer is returned in the Y-register, which you then transfer to the accumulator with a TYA. At this point you use the "filter."

If the accumulator is less than the ASCII value for the letter A, you can avoid the printout by going back to LOOP. I've added \$80 to the ASCII value for A to get normal output on screen. If you test for \$41 instead, flashing characters will appear on screen.

You want the BCS to catch all values higher than the ASCII value for Z, so you must compare the accumulator with the ASCII value for the character after Z. You can use an ASCII-character chart (see the accom-

Listing 1. Testing for ranges in assembly-language paddle program.

				1	*****	*****	******	****	****
				2	*	PADDLE	PROGRAM	#2A	*
				3	*		6/1/86		*
				4	*		N ASSEMBI	ER	*
				5	*****	*****	******	****	****
				6	*				
				7		ORG	\$300		
				8	*				
				9	PREAD	EQU	\$FB1E		
				1Ø	HOME	EQU	SFC58		
				11	COUT	EQU	SFDED		
				12	*		• 0.00 10 95000000000		
ø3øø:	20	58	FC	13	START	JSR	HOME	;	CLEAR SCREEN
Ø3Ø3:	<b>A2</b>	ØØ		14		LDX	#\$ØØ	,	$PADDLE = \#\emptyset$
Ø3Ø5:	2Ø	1E	FB	15	LOOP	JSR	PREAD	;	READ PADDLE
Ø3Ø8:	98			16		TYA		7	PUT VALUE IN
									ACC.
Ø3Ø9:	C1	C1		17		CMP	#\$C1	;	CMP TO ASCII
									VALUE FOR
									"A"
Ø3ØB:	9Ø	F8		18		BCC	LOOP	;	TRY AGAIN IF
									LESS THAN
Ø3ØD:	C9	DB		19		CMP	#\$DB	,	CMP TO ASCII
									VALUE FOR
									"[" ("Z"+1)
Ø3ØF:	ВØ	F4		2Ø		BCS	LOOP	;	TRY AGAIN IF
									EQU OR
					1				GREATER
Ø311:	20	ED	FD	21		JSR	COUT	;	PRINT ASCII
									CHARACTER
Ø314:	4C	Ø5	ØЗ	22		JMP	LOOP	;	DO IT AGAIN
				23	* INFIN	ITE LOC	)P		

Table	1	ASCII	character	chart

# UniDOS 3.3 For the Apple UniDisk 3.5

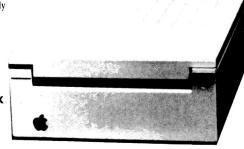
Apple's new 800K UniDisk drive gives you five times the storage capacity of floppy disks — but no DOS 3.3. Now you can have it — with UniDOS 3.3!

MicroSPARC's UniDOS 3.3 software lets you format 3.5 inch disks that automatically boot up Apple's DOS 3.3! This means:

- $\bullet$  You'll enjoy a 500 % + increase in disk capacity. . .800K per disk, for those BIG applications.
- You'll protect your investment in DOS 3.3 software\* and files.
- You can grow to 1.6 megabytes of disk capacity painlessly. . . without having to convert to ProDOS.

You don't have to wait any longer to buy the UniDisk 3.5...now that UniDOS 3.3 is here. Order now!

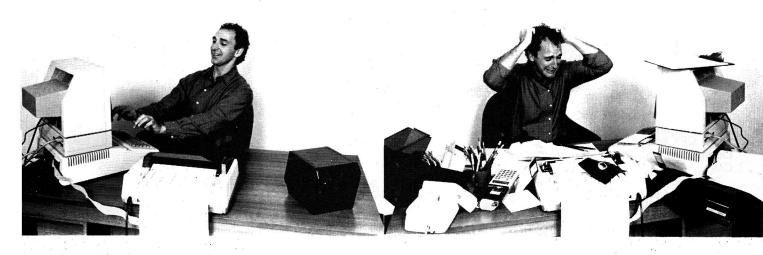
Check, M.O. (Payable in Mass. residents add 5% sales		Postpai
Name		
Address		
City	State	Zip
☐ MasterCard ☐ Visa		
Signature	Te	l. #
Charge Card #	Ex	p. Date



The UniDOS 3.3 facts:

- Two 400K volumes per disk.
- Supports one or two UniDisk 3.5's, addressable as Drives 1-4.
- Up to 434 Catalog names per disk.
- Mix 5.25" and 3.5" drives within the same system.
- Comes with Technical Data Sheet showing modified DOS 3.3 addresses.
- Uses only 1K of user memory.
- Developer licenses are available.
- For the Apple II Plus, //e and //c

\*Note: Full compatibility with Applesoft programs. However, UniDOS 3.3 may not operate correctly with machine language utility programs that directly use DOS 3.3 internal routines. Apple and UniDisk 3.5 are registered trademarks of Apple Computer, Inc.



# EasyCard... it makes your life easier.

EasyCard is a new hardware-software system intended to turn your Apple II, II+ and IIe into the next generation computer. It gives you an access to a variety of features previously available only on larger computers. Furthermore it also allows the existing Apple programs and hardware to be used in more efficient and user friendly manner. EasyCard is not just another peripheral card but a complete overhaul of the Apple operating system. It will turn your Apple into the computer you always wanted!

Featuring 7 Systems

★ SideJob

**★ InstaDOS** 

★ Clock

★ MacroKey

★ Screen Dumps

★ Light Pen

★ Copy Program

- ★ SideJob is to Apple what SideKick is to IBM PC. Modeled after the Borland's top seller of 1985 the SideJob will clean-up your desk in minutes. With a keystroke get into the SideJob window where you can run a Calculator with numerical and logical functions, jot down notes on a Note Pad, glance at the ASCII Table or do decimal-hex-binary conversions. When you are done, single keystroke gets you back to your application program as if nothing happened.
- ★ MacroKey is a perfect solution to repetitive typing of lengthy character strings. Just assign strings of characters to keys of your choice and every time you press these again while holding EasyCard's secret key the strings will be typed in automatically. To all application programs this will appear as if typed by you.
- ★ InstaDOS is like having DOS 3.3 or ProDOS built directly into your Apple. Now you can store each of these utilities in the EasyCard memory and download them without ever using the diskettes again. What a time saver! Your own programs may be also stored in EasyCard's EPROM or battery backed-up static RAM and downloaded into Apple at any time.
- ★ Screen Dump will give you a hard copy of what is on the screen. Exactly as you see it and any time you want it! Prints text, HI and DOUBLE HI RES graphics or mixed displays at a push of a button. Can even blow-up graphics to twice the size! Compatible with most popular printers and interface cards. Unlike other screen dump software or cards this system works also on protected programs.
- ★ Copy Program is an extensive utility software package. It allows you to make backup copies of all (including protected!) memory resident programs of up to 128k at a push of a button. Copying time is less than 30 seconds. The copy produced is unprotected and subject to study or change. Special software included allows the copy to run without the EasyCard in the Apple. Other functions can be used to single step and trace through any program.
- ★ Clock is of course ProDOS compatible. But now you can also check the time/date while in the middle of any application program. That is something no other clock can do!
- ★ Light Pen gives you means for rapid cursor control in word processors, spread sheets and data base. Pointing the pen at any place on text screen causes automatic relocation of the cursor to that position. No keystrokes required.

All of EasyCard software systems are resident in the card's EPROM so there are no diskettes to load. The card does not steal any memory from the Apple. EasyCard hardware and software is compatible with all 6502/650C02 and most CP/M application programs. Absolutely no modification is needed for your hardware or software.

Pricing Information: Starter Set (Card + SideJob, Copy Program & Screen Dump): \$199.95; Advanced Set (Starter Set + Clock, InstaDOS & MacroKey): \$269.95; Light Pen and Cursor Control software: \$169.95. Add \$5.00 for shipping and handling. Calif. residents please add 6% (L.A. County 6.5%) Calif. Sales Tax.

ATL's EasyCard,



don't use your Apple without it!

Circle 243 on Reader Service Card.

APPLIED TECHNOLOGY LABORATORIES 11926 Santa Monica Boulevard, Los Angeles, California 90025

(213) 477-6815

panying sidebar and **Table 1**) to see where these numbers come from. Only numbers from \$C1 to \$DA can be printed using COUT (\$FDED).

Since the loop is infinite, RESET is required to exit.

The X- and Y-registers can be compared in a similar manner by the codes CPX and CPY. Try to rewrite **Listing 1** to use CPY instead of CMP

BEQ and BNE are also still usable after a compare operation. See the summary in **Table 2**.

**Keyboard Memory** 

As you've probably noticed, I enjoy using the paddles as input devices. They're an easy way to send values \$00-\$FF into the system in a smooth, natural way. You can get similar data from the keyboard, though: The advantage is that you can jump from one value to another with no transition.

Large parts of many formal machine-language courses deal only with system I/O—getting data in and out via different devices. Writing printer drivers, disk- or tape-access routines,

#### The ASCII System

ASCII (American Standard Code for Information Interchange) is a coding scheme for transmitting text. The Apple also uses it for encoding text in memory, for screen display, disk files, printer output, and many other areas. **Table 1** lists text characters and their ASCII values. One important note: It's possible to encode alphabetic characters (upper- and lowercase), numerics, special symbols, and control codes with only 128 number values. This means that ASCII is considered a 7-bit code.

All the information required to determine the character that's been sent is contained in bits zero through 6 of the byte. Thus, \$8A is reasonably equivalent to \$0A as far as its ASCII interpretation is concerned. The matter of the high bit (bit 7) being set or clear, though, can create considerable confusion when you don't know what the computer or output device expects.

Generally, the Apple operates internally with the high bit set on all characters. That is, characters retrieved from the keyboard via \$C000, and characters stored in the screen area of memory (\$400 to \$7F8) and on disk, usually have the high bit set (values greater than \$80). This is also the way Applesoft stores data within program lines. (To keep you on your toes, though, strings within a program, such as A\$ = "CAT", have the high bit clear.) When using COUT (the Monitor output routine), the high bit should be set (load the accumulator with values greater than \$80) before calling COUT. -R.W.

Table 2. Reading data from the

keyboard.	×
Command	Action
CMP CPX	Compares accumulator Compares X-register
CPY BCC	Compares Y-register Branch if register < given value
BEQ	Branch if register = given value
BNE	Branch if register <> given value
BCS	Branch if register > =

# Introducing Kyan Pascal PLUS!

PLUS WHAT? ........ Plus KIX™, Kyan's New UNIX-like Operating Shell for the Apple II!

Kyan Software has done something no one has done before — brought the power of UNIX™ to the Apple II. Now, you can have a real operating system! Toss out the Filer. With KIX, you can perform complex file manipulations with simple command line instructions. KIX contains more than 28 UNIX commands plus options. With KIX it's simple to:

- · Create, Change, List, Print, and Delete Directories;
- · Copy, Search, Compare, Rename, Move, and Delete Files:
- Run Binary Files, Set the System Time/Date, Format Disks, and More;
   Rd KIX is fully compatible with ProDOS! It just picks up where

And  $\emph{KIX}$  is fully compatible with ProDOS! It just picks up where ProDOS stops!

But let's not forget Kyan Pascal (Version 2.0)! It's new, too! Now, it's a fully validated implementation of ISO Pascal (Level 0). Kyan Pascal has been expanded and improved:

- Full Screen Text Editor: 40 and 80 column modes;
- Pascal Compiler: lightning fast with full syntax checking;
- Macro Assembler: allows inline or included assembly source code;
- Users Manual (400 + pages): completely new and designed to meet the needs of all users. It contains a full Pascal tutorial (with 30 + sample programs) and complete instructions for getting started and using Kyan Pascal;
- Quick Guide to Kyan Pascal: a handy reference guide which lists Kyan commands and ISO Pascal syntax.

**Kyan Pascal** runs on any Apple II with 64K of memory and a single disk drive. It's not copy protected and includes a Pascal Runtime Library which can be used without royalty charges.

#### 15 DAY MONEY BACK GUARANTEE

Kyan Pascal PLUS (Version 2.0 plus KIX)	\$99.95
Kyan Pascal (Version 2.0 only)	\$69.95
Send Check or Money Order to:	Kyan Software Inc., Dept. B
Write for More Information	1850 Union Street #183
Or Call to Order: (415) 626-2080	San Francisco, CA 94123
Please be sure to enclose \$4.50 per order for shipping and har	ndling (\$15.00 outside North America). California

residents please add 6.5% sales tax. Visa and MasterCard Accepted

Other Programming Tools from Kyan Software: Mouse Text Toolkit

Graphic Toolkits • Programming Utilities • Macro Assembler/Linker

hardware-interface software, and so on, are areas hard-core programmers spend their youth trying to master. Using the Monitor routines on the Apple greatly simplifies this, because you don't have to write a lot of I/O details. You've already shown this by using the paddles (\$FB1E) for input and the screen (\$FDED) for output, without having to know how the actual operation works. The keyboard is even easier.

In the Apple's memory map, the address range \$C000-\$FFFF is devoted to hardware, in that running programs can't alter this memory range. (I'm ignoring RAM cards for the time being.) The ROM routines you've been calling use the range \$D0-\$FFFF. The range \$C000-\$CFFF is assigned to I/O devices. Typically, the second digit from the left gives you the slot number of the device. For instance, if your printer is connected to a card in slot 1, a look at \$C100 will reveal the machine-language code in the card's ROM. At \$C600 you'll probably find the code that makes the disk drive in slot 6 boot.

The range \$C000-\$C0FF is reserved not for slot zero, but for doing special things with the hardware portions of the Apple itself. An attempt to disassemble from \$C000 won't produce a recognizable listing, but will probably make your Apple act a bit oddly. This range represents a number of memory locations actually wired to physical parts of your Apple.

If you type \$C030 <RETURN> from the Monitor, the speaker should click, in addition to the monitor displaying some random value. Each time you access \$C030, the speaker will click in response.

The keyboard is also tied into a specific location. You can tell if a key has been pressed by looking at the content of \$C000. In BASIC, it's done with a PEEK (-16384). In machine language, you would load a register with the content of \$C000, such as LDA \$C000.

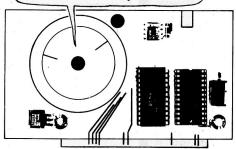
Because it's difficult to read the keyboard at exactly the instant someone presses a key, the keyboard holds the last key pressed until another key is pressed or you clear the *strobe*, as it's called, by accessing an alternate memory location, \$C010. The strobe is wired to clear any stray characters from the keyboard. When you check for a character, you don't want to pick up one you inadvertently entered before your inquiry.

- Votrax Announces

#### **VOTALKER IB & AP**

New Industry Standards For Talking Personal Computers. Exclusively for IBM PC and XT, Apple II, and Compatibles. From Votrax, The Pioneer in Synthetic Speech Systems.

#### Give your IBM PC and XT and Apple II the Power of Speech



Until Votalker IB and AP, synthetic speech systems for personal computers were like a piano with 50 keys, an eagle with a broken wing, and a singer with a two-octave range. When Votrax developed the SCO2 speech synthesis chip, it was the classic case of advanced technology in need of support systems to unlock its dormant powers. Now, Votalker introduces a revolutionary family of text-to-speech translators - the key to the lock. First members of the family are the Votalker IB for IBM PC and XT and the Votalker AP for Apple II, Apple IIe, and Apple Plus. With Votalker these units play the piano with all 88 keys. Soar through unlimited vocabulary, using 32 inflections and 4,100 pitch settings. Sing in five octaves. and generate sound effects in 16 amplitudes.

#### A Newly Designed Circuit Board includes:

- SCO2 chip speaker audio amplifier
- volume control external speaker jack. The board operates in the host computer slot, eliminating the need for serial ports and cable hookups. Internal editing and smoothing ensure clarity and integrity of speech.

The Text-To-Speech Translator sets Votalker above all other synthetic voice products. Text is generated through programs or keyboard and translated directly into spoken language. The sophisticated software on a diskette offers: • unlimited vocabulary • little use of system memory • exception table that stores and accurately pronounces

table that stores and accurately pronounces difficult words.

Other Votrax Products — the stand-alone Personal Speech System and Type 'N Talk — are currently used in thousands of applications.

Votalker Prices Begin at \$179
Call Votrax at (800) 521-1350\*



VOTRAX, INC. 1394 Rankin Troy, Michigan 48083 (313) 588-2050

\*In Michigan, Call Collect (313) 588-0341

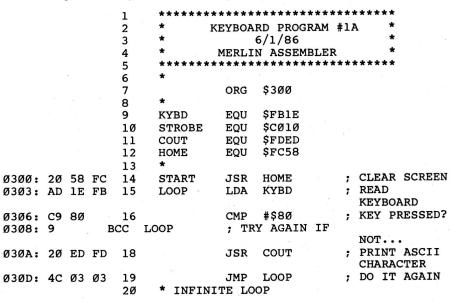
#### FREE?DISKETTES SAVE MONEY! Apple II series users can use the diskette flip side, if another 'write enable" notch is correctly made. TOP NOTCH by QUORUM quickly SOLVES that PROBLEM. It's like FREE DISKETTES! · Stainless Steel Guide Easy Leverage HandleClippings Catcher • Square Notch Cut Black Finish Lifetime Warranty Awarded the only A+ GRADE in a comparison test published by the INTERNATIONAL APPLE CORE. 'The best I've found. . .' IAC Reviewer BE SAFE! The flipside of a single sided disk may have flaws. Any disk is CERTIFIED 100% ERROR FREE with CERTIFIX. IT "LOCKS OUT" BOTH DOS 3.3 & ProDOS DISK FLAWS. LOCKS OUT ProDOS & DOS 3.3 FLAWS SAVES STATUS REPORT ONTO DISK **AUTOMATIC ProDOS/3.3 FORMATTING** CREATE 40 trk DISKS & SYSTEM MASTER RECORDS TEST DATE onto disk NOT COPYPROTECTED FREE CERTIFIX BONUS PROGRAMS Undelete DOS 3.3 files . Test and Adjust Disk Drive Speed Prevent Data Loss! CERTIFY & FIX every disk with CERTIFIX! **Get THE BEST!** Ask our Customers; U.S. National Bureau of Standard TRW • IBM • Digital Research • AT&T U.S.Naval Weapons Research Center Alcoa • Rockwell International General Electric Corporation FREE! 64 Write Protect Tabs 32 Diskette Labels If you get the DISKETTE FLIP-KIT which contain TOP NOTCH and CERTIFIX 100% Money Back Satisfaction Guarantee! DISKETTE FLIP-KIT only \$29.95 TOP NOTCH is \$14.95

#### RIGHT OF ASSEMBLY

It's a good idea to clear the keyboard when you're done with it; otherwise, the value for the last key pressed may interfere with whatever reads the keyboard next, such as a BASIC INPUT statement. Clear the strobe with either a read or a write operation—merely accessing the strobe in any manner will clear it. Thus, LDA \$C010 will work just as well as STA \$C010.

The last point to remember is that the keyboard will tell you when a key is pressed by the value it reads at \$C000. You might think the logical way would be to keep a zero in \$C000. Instead, you add \$80 to the

Listing 2. Reading data from the keyboard without clearing the strobe.



Listing 3. Clearing the strobe after each keypress.

				9 0. 0					inci
				1	*****	*****	******	***	****
				2	*	KEYBOAI	RD PROGRAM	#1F	3 *
				3	*	6	5/1/86		*
				4	*	MERLIN	N ASSEMBLER	8.	*
				5	*****	*****	******	***	****
				6	*				
				7		ORG	\$3ØØ		
				8	*				
				9	KYBD	EQU	\$FB1E		
				10	STROBE	EQU	\$CØ1Ø		
				11	COUT	EQU	\$FDED		
				12	HOME	EQU	\$FC58		
				13	*				
Ø3ØØ:	2Ø	58	FC	14	START	JSR	HOME	•	CLEAR SCREEN
Ø3Ø3:	AD	1E	FB	15	LOOP	LDA	KYBD	;	READ
									KEYBOARD
Ø3Ø6:				16		CMP	#\$8Ø		KEY PRESSED?
Ø3Ø8:	9ø	F9		17		BCC -	LOOP	;	TRY AGAIN IF
									NOT
Ø3ØA:	8D	10	CØ	18		STA	STROBE	;	CLEAR
									CHARACTER
~~~-	_ ~								FROM KYBD
Ø3ØD:	20	ED	FD	19		JSR	COUT	;	PRINT ASCII
~~1~	4.0	~^	~^	~~		71/7			CHARACTER
Ø31Ø:	4C	03	Ø3	20		JMP	LOOP	;	DO IT AGAIN
				21	* INFIN	ITE LO	OP.		

QUORUM INTERNATIONAL Unitd. INDUSTRIAL STATION PO BOX 2134 I C OAKLAND. CA 94614

Dealers Invited

CERTIFIX is just \$24.95
Add \$2 s/h • CA add 6.5% tax

For your nearest dealer
or to order direct.

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

# THE SMART WAY TO SAVE YOUR inCider

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

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

#### Order today!

**File Cases:** \$6.95 ea.; 3/\$20; 6/\$36. **Binders:** \$8.50 ea.; 3/\$24.75; 6/\$48.



Yes! Please send me	protection for my inCider:
File Ca	ses Binders
I enclose my check or mone	ey order for \$
Name	
Address	
City	State Zip
Outside US, add \$2.50 p	surrency only. er item for postage and handling. 4-6 weeks for delivery.

MAIL TO: Jesse Jones Box Corp., PO Box 5120, Dept. INCID, Philadelphia, PA 19141 ASCII value of the key you press. If a value less than \$80 is at \$C000, then a key hasn't been pressed.

#### Reading Keyboard Data

To illustrate all this, let's look at some sample programs that read data from the keyboard. In **Listing 2**, notice that the program continually prints the same character until you press another key. That's because you never cleared that "strobe" you thought I was just rambling on about. Once you press a key, it isn't cleared until you press another key.

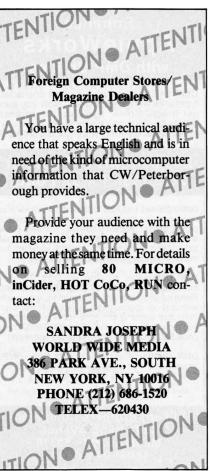
Listing 3 should work better. Here, the keyboard clears whenever you get a character and print it. Why not clear it right after the read in line 15? If you did, you'd barely see the character at \$C000 just as you pressed the key. In this case you can probably do it because of the loop's speed. If you go to another routine for a while, though, or otherwise delay getting back to the LDA \$C000, you'll probably miss it.

Try typing in enough characters to wrap around to the next line, and also try the arrow and return keys. You may think all this performs as expected (except for the missing cursor), but you shouldn't take it for granted. Without COUT's screen management, you'd have to do quite a bit more programming to keep things straight. Once more, this is the advantage of using the routine present in the Monitor, rather than worrying about the details yourself.

Also notice how STA \$C010 is used to access the strobe. The important part is that you somehow access the strobe location, not how you do it. You should choose STA because you don't want to lose the content of the accumulator in doing the access.

Examine your Apple reference manuals for listings of the "soft switches" and other goodies at \$C000-\$C0FF; your Apple uses them to communicate with the outside world. And don't forget about all the routines present in the Monitor and Applesoft itself, as I mentioned in previous installments of this column. They're fun to experiment with just to test your wings.

Roger Wagner is the author of Assembly Lines: the Book and is president of Roger Wagner Publishing, the publisher of Merlin and MerlinPro assemblers. Write to him at Roger Wagner Publishing, 10761 Woodside Avenue, Suite E, P.O. Box 582, Santee, CA 92071.



### The Best Ever Assembled! MERLIN PRO

#### The most popular macro assembler for the 128K Apple IIe and IIc

2 Disks: DOS 3.3 and ProDOS 2 Editors: Standard & Full Screen Supports 6502, 65C02 and 65802 Relocating Linker & Macro Library Sourceror - a symbolic disassembler Commented Applesoft source listing Unprotected & hard disk compatible One powerful package, One easy price \$99.95

#### ASSEMBLY LINES: THE BOOK by Roger Wagner

Designed for the novice, this book teaches Apple assembly language programming in plain English.

Disk access routines
Simple math operations
Reading and writing files
Keyboard and screen techniques
Sound generation routines
6502 command reference section
Let this best-seller
get you up and running. \$19.95

See your Apple dealer or call

Roger Wagner PUBLISHING. INC.

1-800-421-6526 Ext. 193 In CA call 619-562-3670 More Info avallable on request Apple is a trademark of Apple Computer, Inc.

#### **Enhance AppleWorks** with DMP Utilities

DMP Utilities lets you use new character typefaces with AppleWorks. Now you can get Italics, Greek, Symbols, the highest quality typeface we've ever seen, and many other fonts, all from within AppleWorks!!!

#### 24 Imagewriter Fonts or 20 Epson FX/JX Fonts

DMP Utilities includes menu-driven software to download the character sets, and to eliminate printer control problems forever. You also get a character editor (full descender, proportional ability) and a program to convert some of the many hi-res character sets for printer use.

DMP Utilities is supplied on DOS 3.3, unlocked, and includes a 67 page User's Manual. Because the fonts are downloaded, they work with *any* program, not just AppleWorks. Our thirty day warranty provides you a full refund if you're not happy with the programs. The Utilities costs \$50 (+\$2 p/h). MC/Visa gladly accepted.

**DMP Utilities** works *ONLY* with Apple DMP, Imagewriter I or II, or Epson FX/JX printers. Specify printer when ordering.

Apple, Imagewriter, AppleWorksTrademarks of Apple Computer, Inc. Epson is a Trademark of the Epson Corp.

Vilberg Brothers Comp. Inc. 4201 Hegg Avenue Madison, WI 53716 (608) 221-0842

Circle 135 on Reader Service Card.

And your Earls and Viscounts. If you've got royal ancestors, we have the noble software that can help you trace them down.

Family Roots and your Apple, IBM, Commodore, Kaypro\*, and many others, offer individual and group sheets, charts, name indices, general search and text

capabilities. Adapts Put up to most disk drives, printers, and screens. printers, and screens. You get more utility programs, plus lots of personal control. dukes! A comprehensive (new) manual is included.

All for just \$185.

Write or call today for more information and a free brochure.



#### Quinsept, Inc.

P.O. Box 216 Lexington, MA 02173 (617) 641-2930

American Express, Visa, and MasterCard gladly accepted.

Trademarks for Apple Computer Inc., International Business Machines, CBM, Inc. and Digital Research.

#### REVIEW

Continued from p. 41.

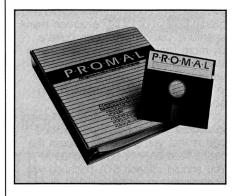
four arithmetic skills. Get the right answer and your horse moves ahead (two speeds, ten levels)-good for the kids.

#### **Technical Troubles**

I encountered a problem when I attempted to print mailing labels (from Address Book) on my ImageWriter. I called the manufacturer and was told (politely, I must admit) I probably didn't know what I was doing. A technical person called back and, after running through the steps with me (still without success), promised a replacement disk. Then came the third call. I wouldn't be getting another disk, said the public-relations representative, because "the problem seems to be with your printer, not our program." I'd have to change one of the DIP-switch settings, she said.

The payoff came when she said that no one was available at that time to tell me which DIP switch I had to change. If reviewers, whom software manufacturers generally coddle, get such sleazy treatment, what can other customers expect?■

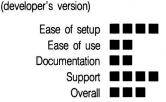
Wayne J. Sassano Wethersfield, CT



#### A Hybrid Language

#### PROMAL

Systems Management Associates, 3700 Computer Drive, Raleigh, NC 27619 Programming language; any Apple //c or 128K //e, extended 80-column card \$49.95 (versions 1.0 and 2.0), \$99.95



PROMAL (Programmer's Micro Applications Language) is the first major effort by Systems Management Associates to enter the under-\$100 compiled-language market. Although it didn't receive much attention when it was introduced, PROMAL has several useful features that may make it a good system for beginning programmers looking for the speed of a compiled language and the interaction of a language like BASIC.

PROMAL is a unique cross between Pascal and C, with a little UNIX input/output-redirection capability thrown in for good measure. Like Pascal and C, PROMAL is a structured language.

Decision and repetitive-execution constructs include IF. . .THEN, FOR . . .NEXT, CHOOSE (similar to GOTO/ GOSUB in BASIC and CASE in Pascal and C), WHILE, and REPEAT. Data entry isn't as versatile as it is in Pascal and C, though.

PROMAL supports only the data types BYTE, WORD, INT (integer), and REAL as constants (CON). It doesn't offer DATA enumerations (constants or arrays of BYTE, WORD, INT, or REAL data objects), or exotic data structures such as Pascal's RECORD and C's STRUCT.

The language supplies an extensive library of predefined procedures and functions. You can include these useful "subroutines" in your own programs to handle string functions, random and sequential file access, and formatted numeric output. The newest version of PROMAL (2.0) also offers a multidimensional-array language extension and library support of program overlays. A \$30 graphics and windowing library extension is also available.

Because the PROMAL environment is ProDOS, you also get a feature called the Executive, which lets you copy, rename, display, or print disk and file contents, manage any one of eight programs in memory, or do simple debugging. As with UNIX, you can also direct a program's input or output to and from another file, or run batch files (EXEC files in Applesoft).

#### Strict Syntax

During my six-month review of PROMAL (versions 1.0 and 2.0), I never got used to its forced structure. Unlike BASIC, Pascal, C, and most other languages, PROMAL programs must follow a very strict indented syntax. You must indent all statement sequences within PROMAL constructs and loops at least two spaces.

This can become quite annoying if you're used to another language. I always found myself wishing PROMAL required the END keyword as a construct or loop terminator. The full-screen, cursor-driven editor is functional and offers edit-after-error and on-line help features. I hated hitting the awkward control-I and control-W keystroke sequences to manipulate indentation.

Systems Management Associates claims that the PROMAL p-code compiler can compile a 100-line program in less than ten seconds. But you can run the p-code programs only from within PROMAL, so you can't create stand-alone program disks unless you purchase the \$100 developer's version of PROMAL.

The manual is very well written and organized, but it isn't an effective tutorial for the PROMAL language. The documentation and sample programs on the system disk are an attempt to simplify the learning process, but I don't think a BASIC programmer could jump into this manual and come out with enough knowledge to write anything more than very simple programs. And as far as I know, no learning materials or books are available to supplement the documentation.

Because of the limited programming capabilities of PROMAL and the total lack of third-party support, I'd have to restrict my recommendation of PROMAL. BASIC programmers who want an inexpensive compiled language for simple applications and aren't worried about outgrowing its capabilities may find PROMAL adequate. Otherwise, I'd recommend an established language like Pascal for more elaborate, unrestricted programming endeavors.

#### David W. Hoover Sacramento, CA

Editor's note: John Segner of Systems Management Associates reports that PROMAL Graphics Toolbox Version 1.0 is now available. The package costs \$29.95 (plus \$2.50 for shipping and handling) and works only with PROMAL Version 2.0.

#### In the Market

# DOW JONES MARKET MANAGER PLUS

*Dow Jones & Company*, P.O. Box 300, Princeton, NJ 08540

Stock-portfolio manager; any Apple //c or 128K //e, printer, RS-232 modem, one or two disk drives \$249

Ease of setup

Ease of use

Documentation

Support

Overall

Dow Jones Market Manager Plus is more than a communications package. It's a sophisticated, yet easy to use, portfolio-tracking and -management tool.

It can handle 26 portfolios at a time, track 150 open tax lots (and do all the related accounting, including calculation of commissions), and manage dividend distribution records and stock-split transactions. Coupled with the Dow Jones News/Retrieval Service, it can give you up-to-the-minute stock and securities pricing and related information, plus the ability to buy and sell on line. (Contact Dow Jones to get your password and a comprehensive guide to the on-line services available.)

The package provides for extensive reporting of your holdings (by portfolio or security), capital gains and losses, security and cash transactions, and various tax-related activities. It will alert you when a bond reaches maturity, when an option is expiring, or when the market on a security reaches the price limits you established.

#### **Program Operation**

The setup procedures for configuring your modem, including DIP switches and serial cards, are included in the manuals for Apple, Hayes, Novation, and SSM modems. If you set up the working disks on a two-drive system, you can never use them with one drive. As you can make only two copies of the program, you may want to save one in case you ever need the program and your second drive dies. The utilities disk that comes with the program isn't copy-protected.

Market Manager Plus is completely menu-driven, with a series of overrides and shortcuts using the almost-

# WITHOUT UNIDOS,™ YOUR UNIDISK 3.5 JUST WON'T RECOGNIZE

AN DOS 3.3 POLD FRIEND.

DOS 3.3 was a stranger to your Apple UniDisk 3.5. But no more!

UniDOS is DOS 3.3 for your UniDisk 3.5. It lets your 800k UniDisk 3.5 function as a dual 400k disk drive system while you work with your favorite DOS 3.3 programs and data. And it supports the Apple RAM extension cards and compatibles.

Introduce UniDOS to your UniDisk 3.5 right away. At \$35.00 they'll become fast friends.

#### meacom

P.O. Box 272591, Houston, TX 77277 (713) 526-5706, Telex: 4945935

Money Back Guarantee. VISA and MC accepted. UniDOS is written by David Hemmo and Marc Moini. For Macintosh Owners: Meacom also offers Mac+II, an Applelle emulator (128k, 80 column) for your 512k Mac or MacPlus. UniDisk 3.5 and Macintosh are trademarks of Apple Computer, Inc. UniDOS is a trademark of Meacom.

Circle 248 on Reader Service Card.

# BUY THE BEST BY FAR

Diversi-DOS™ \$30
DOS 3.3 enhancement

Diversi-COPY™ \$30
Hi-speed disk back-up/format

Diversified Accountant™ \$475
Job Cost System
Demonstration Disk \$5

Diversi-DIAL™ \$475
7-line C.B.-simulator
Demonstration Disk \$5

24-Hour Toll-Free Ordering
800 835-2246 ext. 127 (orders only)
For information call 313 553-9460
300-Baud Modem call 313 553-4466
FREE: Dogfight II arcade game included with Diversi-DOS and Diversi-COPY
All programs work on Apple //e, //c or 64K
Apple II+ compatible computers.
Sold by Mail-Order Only. Price includes
1st class or foreign airmail.
C.O.D., Visa/Mastercard (Include Exp. Date)
Personal Check, Purchase Orders accepted

Diversified Software Research, Inc. 34880 Bunker Hill Farmington, MI 48018-2728 standard open-apple/number-key interface. The main modules handle communication, portfolio maintenance, reports, pricing, utilities, and setup.

The communications module presents no problem. The program prompts you for information, and establishes an automatic log-on through DowNet, TeleNet, TymNet, or UniNet, using a local access number. The software includes defaults for all but the password, and you can change them at each prompt with a Lotusstyle menu.

Another system-configuration menu lets you establish the printer's character pitch, your definition of long-term gain (unless you'd like to accept the normal six-month default), any numerical rounding you want, and whether the software should sort reports by symbol or type. You can quickly make any subsequent changes by reentering this menu and correcting the information.

The entire set-up procedure takes less than 15 minutes. Once you get used to moving around in the data

base, obtaining price quotes and financial news on line is simple.

Establishing your own portfolio files is also screen-prompted. Once you type in buys, the program automatically matches sells. You can also log on and get automatic up-to-date pricing on the contents of any portfolio. The program flags any item above or below the price range you set. It also lets you maintain the tax classification of your holdings and any dividends or interest on them. Reports default to output on all portfolios the system maintains, but you can select individual portfolios.

Error trapping within Market Manager Plus is good. The program refuses to accept erroneous information, and warns you if a particular action could endanger your data.

#### **User Support**

The Market Manager Plus manual is concise and straightforward. It's not an introduction to investing. It does explain certain error messages the program may produce, along with

possible recovery procedures, and it includes an index. The Dow Jones people also provide toll-free support, with courteous, accurate answers to your questions.

Market Manager Plus carries a 60-day warranty with free replacement of disks. After that, there's a charge of \$30. The program also puts you on line with the News/Retrieval Service free (normally a \$75 charge with other portfolio programs) and provides one hour of free access time (to be used within 30 days of registration). As for subsequent costs, you must pay a \$3 access fee each time (or \$12 annually), plus the rates for your on-line time (20 to 90 cents per minute). There's an additional charge for 1200- or 2400-baud connections.

Dow Jones Market Manager Plus is a professional package that should accomplish most of what you'd need from a portfolio manager, and it's easy to use. At \$249, it's expensive, but you can write it off on your taxes, right?■

Douglas Landin-Young Washington, D.C.



EquiDisk + TM -

# We've got a lot in store for you!

The EquiDisk + is the next generation in 51/4" floppy disk storage — and it's here today! Unlike your old Apple drives that were probably too small for any real work, the EquiDisk + dual drive system gives you over 1.4 megabytes of immediately accessible on-line storage. Now you can store over 7 megabytes of data with that box of diskettes sitting on your shelf. That's over 3500 double-spaced pages, or 70,000 names and addresses, or complete payroll information for more than 4000 employees. And with that second box of diskettes on your shelf you can back it all up.

#### More than just Storage!

- + The EquiDisk + works with DOS 3.3, ProDOS and CP/M.
- + Standard 51/4" diskettes are all you need.
- + The entire unit fits neatly between your monitor and computer console.

Apple, Apple Logo, DOS 3.3, ProDOS and AppleWorks are registered trademarks of Apple Computer, Inc. CP/M is a registered trademark of Digital Research, Inc. TeleVideo is a registered trademark of TeleVideo Systems, Inc. Franklin Ace is a trademark of Franklin Computer Corp.

- + Each EquiDisk + comes with a surge suppressor, three built-in AC outlets on the back and a front-mounted power switch. You can turn everything on and off at the same time.
- + CP/M users can access software formatted for other computers. EquiDisk + drive 1 can be reconfigured to run TeleVideo software. Using one of the commercially available "transfer" programs, this feature allows you to access any CP/M software and run it on your Apple.
- + Works with the Franklin Ace 2000 series.

#### More for Everyone!

- AppleWorks now your data disk will hold 717K . . . checkbook records for 5 years; every term paper or book report you've ever done; every recipe in your kitchen and the Christmas mailing list . . . on one diskette.
- + Programmers all of your assemblers, linkers, compilers, editors and

CP/M cards supported; Microsoft Softcard (56K and 60K Versions); ALS Z-Engine; PCPI (Starcard and Appli-Card)

- debuggers, as well as your source code . . . on one diskette.
- + Business months of payroll, accounts receivable and payable, general ledger and daily correspondence . . . on one diskette.
- Educators consolidate all of your skill drills and tutorials, with room for individual work . . . on one diskette.



Minimum system configuration:

\*Apple II + or IIe with 64K RAM

\*One standard Apple or equivalent drive

HSM Disk Drives
1101 E. Pacifico
Anaheim, CA 92805

Anaheim, CA 92805 (714) 385-1146

15 day Money-back Guarantee

Dealer inquiries welcome.

#### A Simple Solution **EQUATIONS**

#### CHALLENGE MATCHES

Wff 'n' Proof Learning Games, 1490 South Boulevard, Ann Arbor, MI 48104 Educational math-game software; any 48K Apple II, one drive \$44.95

> Ease of setup Ease of use **Documentation** Support Overall

Most games claiming to be educational fail to deliver on their promises. They provide instead either unsound teaching based on a dazzling display of programming skill, or adequate teaching in poorly planned, bug-filled programs. Equations Challenge Matches is one of the rare exceptions. It's well written, and it can effectively teach mathematics.

In this computer variation of the board game of the same name, matches take place between the student and the computer, or between two players. The game randomly selects numbers and mathematical operations, and from these "resources" chooses a goal. You meet this goal by using resources no more than once each, along with parentheses, to form an equation.

On each turn, a player limits the possible equations by moving one of the resources to "permitted," "required," or "forbidden" status. The game ends when no legal move remains (a force-out), or when one player makes an error (flub) and is challenged successfully.

There are three types of errors: A P-flub prevents you from forming any valid equations; an A-flub unnecessarily lets you form a solution that uses exactly one of the resources; and a C-flub is a failure to challenge a previous flub.

The player who suggests a solution, whether as part of a challenge or in

the face of one, must prove it by producing the equation. If it's correct, the player wins and receives ten points.

#### A Tool for Math Teachers

The Equations package contains three disk sides on two floppies. The Diagnostics Instructional Gaming (DIG) program is a series of "set" matches, played between you and "Mate" (the computer). Mate moves in ways that let you win, occasionally making a flub, but always challenging a student's flub.

The Introduction to Equations tutorial program explains all the rules through actual game situations, showing the last move, and asking for the next appropriate move. Although there are a few errors in spelling and punctuation in this section, it's better than average on the whole. This is helpful, because the accompanying manual is too brief to be of much use.

The Equations Challenge Matches disk sets up a series of contests with resources already chosen. Here, a two-player game is established, with the

### We Make Measurement And Control Easy!

#### 12 BIT, 16 CHANNEL, PROGRAMMABLE GAIN A/D

- All new 1984 design incorporates the latest in state-of-art I.C. technologies.
- Complete 12 bit A/D converter, with an accuracy of 0.02%!
- 16 single ended channels (single ended means that your signals are measured against the Apple's GND.) or 8 differential channels. Most all the signals you will measure are single ended.
- 9 software programmable full scale ranges, any of the 16 channels can have any range at any time. Under program control, you can select any of the following ranges: ±10 volts, ±5V, ±2.5V, ±1.0V, ±500MV, ±250MV, ±100MV, ±50MV, or ±25MV.
- Very fast conversion (25 micro seconds).
- Analog input resistance greater than 1,000,000 ohms.
- Laser-trimmed scaling resistors.
- Low power consumption through the use of CMOS devices.
- The user connector has +12 and -12 volts on it so you can power your sensors.
- Only elementary programming is required to use the A/D.
- The entire system is on one standard size plug in card that fits neatly inside the Apple.
- System includes sample programs on **PRICE \$319**

PRICE \$319
A few applications may include the monitoring of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● soil moisture and many more.

#### A/D & D/A

- A/D & D/A Features:
- Single PC card 8 channels A/D
- 8 channels D/A
- Superfast conversion time Very easy programming Many analog ranges
- Manual contains sample applications

#### A/D SPECIFICATIONS

- On-board memory
- On-Doard memory
  Fast conversion (.078 MS per channel)
  A/D process totally transparent to
  Apple (looks like memory)
  User programmable input ranges are
  0 to 10 volts, 0 to 5, -5 to +5, -2.5
  to +2.5, -5 to 0, -10 to 0.

The A/D process takes place on a continuous channel sequencing basis. Data is automatically transferred to its proper location in the on-board RAM. No A/D converter could be easier to use.

#### D/A SPECIFICATIONS

D/A SPECIFICATIONS

0.3% accuracy
On-board memory
On-board output buffer amps can drive 5 MA
D/A process is totally transparent to the Apple (just poke the data)
Fast conversion (.03 MS per channel)
User programmable output ranges are 0 to 5 volts and 0 to 10 volts
The D/A section contains 8 digital to analog converters, with output buffer amplifiers and all interface logic on a single card, On-card all interface logic on a single card. On-card latches are provided for each of the eight D/A converters. No D/A converter could be easier to use. The on-board amplifiers are laser-trimmed during manufacture, thereby eliminating any requirement for off-set

#### SIGNAL CONDITIONER

Our 8 channel signal conditioner is designed for use with both our A/D converters. This Our of charmer signal collidationer is designed for use with both our A/D colliveriests. This board incorporates 8 F.E.T. op-amps, which allow almost any gain or offset. For example, an input signal that varies from 2.00 to 2.15 volts or a signal that varies from 0 to 50 mV can easily be converted to 0-10V output for the A/D.

The signal conditioner's outputs are on a high quality 16 pin gold I.C. socket that matches the one on the A/D's so a simple ribbon cable connects the two. The signal conditioner can be powered by your Apple or from an external supply.

- 4.5" square for standard card cage and 4 mounting holes for standard mounting. The signal conditioner does not plug into the Apple, it can be located up to ½ mile away from
- 22 pin.156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
- Large bread board area.
- Full detailed schematic included.

PRICE \$79

#### 1/0 32

- Provides 4, 8-Bit programmable I/O
- Any of the 4 ports can be programmed as an input or an output
- All I/O lines are TTL (0-5 volt)
- Your inputs can be anything from high speed logic to simple switches
- Programming is made very easy by powerful on-board firmware
- The I/O 32 is your best choice for any control application

The I/O manual includes many programs for inputs and outputs.

Some applications include:

Burglar alarm, direction sensing, use with relays to turn on lights, sound buzzers, start motors, control tape recorders and printers, use with digital joystick.

Please see our other full page ad in this magazine for information on Applied Engineering's Timemaster Clock Card and other products for the Apple.

Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products compatible with Apple II and //e.

Applied Engineering's products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle three year warranty.

Texas Residents Add 5% Sales Tax Add \$10.00 If Outside U.S.A.

Send Check or Money Order to: APPLIED ENGINEERING P.O. Box 798 Carrollton, TX 75006

Call (214)241-6060 9 a.m. to 11 p.m. 7 days a week MasterCard, Visa & C.O.D. Welcor No extra charge for credit cards



# Legend S' Card<sup>™</sup> Legend for the II,II+,IIe,III, Franklin for the IIe

- Slot-Independent. You pick the best slot for your RAM card.
- 1024K APPLEWORKS™ on Apple II, II+, IIe (That's right! Run AppleWorks™ with 1024K on your Apple II or II+).
- 256K to 1024 K RAM
- DOS, CP/M; PASCAL, SOS, PRODOS Disk Emulators Available

# Legend E'Card<sup>™</sup> for the *ll*e

- 256K to 1024K RAM
- 735K APPLEWORKS™on I/e
- 16 Levels of Gray Video.
   Near Photographic Quality
- RGB Double Hi-Res Color Video
- 80 column Display. Compatible with ALL software written for the Apple Extended 80 column card.

# SIMPLE TO INSTALL UP TO 1 MEGABYTE OF MEMORY FREE APPLEWORKS PATCH!

Ask for a Free demonstration \_\_\_\_\_ at your authorized dealer!

#### LEGEND INDUSTRIES, LTD.

(800) 5-LEGEND or (313) 674-0953 2220 Scott Lake Road, Pontiac, MI 48054 Turning Apples into Legends<sup>TM</sup> since 1981

Legend S' and E'Card are trademarks of Legend Industries, Ltd. Apple and AppleWorks are trademarks of Apple Computer, Inc.

Circle 28 on Reader Service Card.

# NOTICE

# Have FUN as a League Secretary Let your Apple Computer do the work BOWL-KEEPER II

\$49.95 + \$3.00 S/H (FL residents add sales tax)

**Bowl-Keeper II** is a league secretary's Data Base Manager. All you do is enter the scores. It does all the calculations, sorts and archives all data for 100 bowlers and 50 teams for 36 weeks. Double check the re-cap sheets with Bowl-Keeper II. Full edit capability. Maintain as many Scratch or handicap leagues as you wish.

For bowlers, **Bowl-Keeper II** calculates weekly average, running average, weekly series, handicap, total pins, sorts bowlers from high to low average, sorts for high scratch and handicap game and series for each bowler, and sorts high scratch and handicap games and series for the entire league. Archives each bowler.

For teams, **Bowl-Keeper II** calculates scratch weekly series, handicap weekly series, handicap, total pins, total games, total won/lost, team average, percentage wins, sorts teams from high to low based on won/lost and total pins, sorts each team high game and series, league scratch and handicap high games and series. Archives each team.

#### **BOWL-KEEPER II STANDING SHEET**

\$39.95 + \$3.00 S/H (FL residents add sales tax)

**Bowl-Keeper II Standing Sheet** uses the data generated by Bowl-Keeper II and produces the standard ABC/WIBC standing sheet. Ten bowlers allowed for each team. Full edit capability. Scratch or handicap leagues. Standard, legal or continuous paper. most printers supported.

Requires Apple\* II +, //e, //c with 48K of memory, one disc drive and printer To order send check or money order to CLAYTON & ASSOCIATES, INC.

P.O. BOX 6361, Clearwater, Florida 33518 C.O.D. ORDERS (813) 797-7815

\*Apple is a trademark of Apple Computer Inc. Program description available on request

#### <u>REVIEWS</u>

computer acting as game board, referee, and prompter. For instance, if you can't sustain a P-flub challenge when a solution exists, the computer might say, "You could have used 12 = 9/3/4."

You can use equations to teach mathematical concepts at several levels. The preview disks I reviewed contained a wide sampling of material, from simple addition and subtraction to polynomial factoring and logarithms.

#### No Pizzazz

Quality teaching and programming are evident here. None of the programs crashed, errors are well trapped, and the assistance the program provides is actually helpful.

There are some negative points, though. These materials are definitely outside the mainstream of computer gaming—there's no attempt to spruce things up with good graphics, the package keeps no running score or record of high scores, and the program includes no sound effects—in short, it lacks pizzazz. That will reduce Equations' appeal for students.

The program replies to wrong answers with a blunt "incorrect"—the developer should have used a gentler approach. And there's no warning that the preview disk won't boot if it's write-protected.

Equations poorly handles two mathematical concepts. It uses x for multiplication, which is satisfactory, but it uses an asterisk (which most systems use to indicate multiplication) rather than a caret for exponential notation. This is likely to be confusing for students who are familiar with programming. In addition, the notation A|B is explained as "the logarithm of B to the base of A." Both the poor wording and the choice of symbols are guaranteed to confuse you.

The P-system lurking behind the program is also evident. Things move along slowly through innumerable disk accesses, especially in the tutorial material, where the drive turns on every few seconds.

I rather like Equations, and may buy some of the disks for my children. For schools, the publisher offers a site license for the DIG math program, at a cost of \$100 per machine. (Singleitem purchase of the entire set would be unreasonably expensive.) The bottom line is that Equations gets a somewhat qualified nod of approval.

Rick Sutcliffe Aldergrove, B.C. Canada

# APPLE(II+)WORKS<sup>TM</sup> PLUS-WORKS<sup>TM</sup> It really Works!!

PLUS-WORKS not only allows you to have <u>all</u> features of AppleWorks<sup>TM</sup> on an Apple  $II^{TM}$ , II+ or compatible, but our extended memory versions give you capabilities far beyond the standard IIe/c versions. Its great for expansion on the **Apple IIe** as well.

Compare these features with other AppleWorks patch programs

- •Copyable make backups, transfer to hard disk
- •Up to 1 megabyte of desktop space available
- •Database expansion to more than 4,200 records
- •All IIe control codes available to printer with any keyboard
- •Supports Franklin computers and all full ASCI keyboards
- •Supports all major 80 column cards
- •Permanent and dynamic ram disk features
- •All versions of AppleWorks supported, even V1.3
- •Optional patch to help with printer problems
- •PLUS-WORKS \$19.95 plus \$3.00 ship/hand. Requires AppleWorks, 64K Apple II+ or compat, 80 col card and shift key mod. Maximum desktop 10K. Upgrade to XM for \$30.00 Special Laser 3000 10K only version available (Plus-Works-L) •PLUS-WORKS-XM \$49.95 plus \$3.00 ship/hand. Requires same as above with legend, saturn, or compatible ram card(Big board, know drive, prometheus, etc), Apple's memory card, Microtek, Orbital, PCPI & Micropro CP/M, IBS AP33, or Apple IIe with peripheral slot ramcard. Special Basis 108 version available (PLUS-WORKS-XMB)

PLUS-WORKS-XM & 256K Apple mem card (expandable to 1 meg) - \$295.00

MC/Visa add 4%

Orders only 1-800-221-3826

Information & NJ residents call 516-922-9584

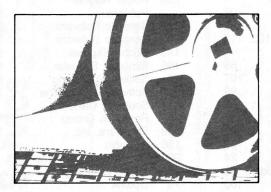
or send check or money order to:

Norwich Data Services Ltd. PO Box 356 • E. Norwich, NY 11732 NYS residents add sales tax

Apple & Appleworks are trademarks of Apple Computer Corp. PLUS-WORKS is a trademark of Norwich Data Services Ltd.

Circle 192 on Reader Service Card.

# This Publication is available in Microform.



#### University Microfilms International



#### THE AMAZING VOICE MASTER®

Speech and Music Processor

- Your computer can talk in your own voice. Not a synthesizer but a true digitizer that records your natural voice quality—and in any language or accent. Words and phrases can be expanded without limit from disk.
- And it will understand what you say. A real word recognizer for groups of 32 words or phrases with unlimited expansion from disk memory. Now you can have a two way conversation with your computer!
  - Easy for the beginning programmer with new BASIC commands. Machine language programs and memory locations for the more experienced software author.
    - **Exciting Music Bonus** lets you hum or whistle to write and perform. Notes literally scroll by **as you hum!** Your composition can be edited, saved, and printed out. You don't have to know one note from another in order to write and compose!

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

ONLY \$89.95 includes all hardware and software.

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

The Voice Master is available for the Commodore 64, 128, Apple IIc, IIe, II+, and Atari 800, 800XL, 130XE. Specify model when ordering. (Apple II+ owners must have joystick adapter. Available from Covox at only \$9.95.)

Apple IIe and II+ owners: Enhance speech quality and music capabilities with optional Sound Master hardware card. Installs in slot 4 or 5. Available separately for \$39.95 with demo software, or order with Voice Master for only \$119.95 (saves \$10 when ordered separately).

For telephone demo, additional information, or prompt service for credit card orders,





COVOX INC.

(503) 342-1271

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

### APPLE® II CLONE

Personal Computer System with AUTO-BOOT 20mb HARD DISK

Portable Style Computer with One Drive. 128k RAM. Serial. Parallel. Modern and Mouse Ports. Numeric Pad. 10 Function Keys and Expansion Slot. A Mono Monitor Plus 20mb Hard Disk and ProDOS Program Selector. Supports Hi-Res Video and most popular Apple\* IIc/IIe Software. Regular \$1895.00 Now Only \$1295.00

#### **APPLE HARD DISK**

APPLE II+, APPLE IIe & Compatibles 20mb Starting \$795.00

CMC Computer Systems 1514 East Edinger #H			/835-2462 . CA 92705
40mb Twin 20 Drives	a	\$1295.00	\$1795.00
30mb Complete System	a	\$1195.00	\$1695.00
20mb Complete System	a	\$ 795.00	\$1159.00
ProDOS and DOS 3.3		Now Only	Reg. Price

Circle 257 on Reader Service Card.





# INDEX TO ADVERTISERS

Rea	der Service	Page	Rea	der Service	Page
61	Advanced Logic	0.1		hotCider Back Issues	
26	Systems			Moving  Jessie Jones  Back Issues	97
23	Advanced Logic Systems		12 253	Interactive Microware .	114
*	Alf Products	104	157 226	Int'l Apple Core Jacobsen Software	
		52, 53,	91	Design	
243	Applied Technology Labs		28 248	Legend Industries Meacom	102
222 97	AST Research	2, 3	263 130	Megahaus	7
229 179	Beagle Bros		274	Micro Systems Research	23
*	Business Computers of Peterborough		110	Northeastern Software	18, 19
233	Cauzin Systems	74, 75	192	Norwich Data Services Ltd	
60	Central Point Software Cheatsheet Products	114	42 133	Origin Systems	61, 62
227 260 265	Checkmate Technology Checkmate Technology Cirtech	41	276 277 278	Pinpoint Publishing Pinpoint Publishing Pinpoint Publishing	119
103	Classified Ads Clayton & Associates .	109	247 249	PM Software Princeton Graphic	
257	CMC Computer Systems		128	Systems Programs Plus	
79 124	Coit Valley Computers CompuServe Information	85	268 16	Prometheus Products Quinsept	13
114	Services		41 250	Quorum Int'l Unltd Roger Wagner	
163	Peterborough Core Concepts	32	242	Publishing	27
261	Covox		143	Sensible Software Silicon Express	87
144	Davka	107	196 76 217	Simon & Schuster Softkey Publishing Software Touch, The	86
275	Dresselhaus Epyx Computer		*	Southern California Research Group	
259	Software First Line Software		239 156	Styleware, Inc Sublogic	11
146 139	Golem Computers Gutenberg Software Ltd	1 88	221 262	Sweet Micro Systems . Titan Technologies	4
254	H&M Disk Drives Human Systems		15 264	Uptime	
	Dynamics inCider Magazine		135	Vilberg Bros Computing	
	Subscriptions University Microfilm Foreign Dealers hotCider	103 97	7 174 270	Woodchuck Industries Writing Software Int'l	104

For further information from our advertisers, please use the Reader Service card.

Advertising Sales: East Coast Office (603) 924-7138 West Coast Office (415) 328-3470 \*This advertiser prefers to be contacted directly.

# GAME ROOM

#### by Brian J. Murphy

In Game Room, Brian Murphy tells us what's new in the world of Apple games. Look here for inCider's scoop on the latest fun.

#### inCider's Ratings

****	Excellent
***	Above average
**	Good enough
*	Not up to standards
☆	The empty set

#### **AutoDuel**

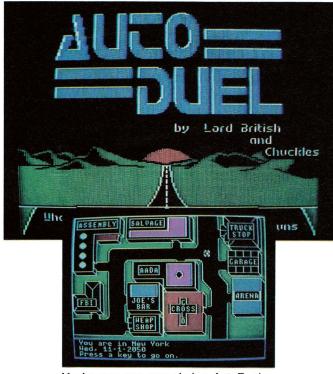
\*\*\*\*

Origin Systems
340 Harvey Road
Manchester, NH 03013
Fantasy/role-playing adventure
Any 64K Apple II, one or two
drives, joystick
\$49-\$60 (dealer-determined)

The most original concept for a fantasy/role-playing game in years forms the basis of **AutoDuel**, by Lord British and Chuckles. If the Ultima games were adapted for a Mad Max movie, the result would be AutoDuel.

There are no elves, gnomes, kobolds, or dragons in sight, just near-future bands of punks and outlaws on wheels, roaming the highways bent on murder for fun. You, of course, are a good guy, a courier for the American AutoDuel Association. Your car is heavily armored and bristles with such weapons as rockets, flamethrowers, and machine guns.

Your mission is to just survive. On the way you can accumulate cars, money, prestige, and fame, but the bottom line is survival. On the highways, you do battle in spectacular auto dogfights. In the cities,



You're on your own during AutoDuel.

you'll compete as a motorized gladiator in the arena, frequent the hangouts of other road warriors, and repair your combat car. You'll also pick up shipments of goods you must deliver to remote towns via the deadly highways.

There are 16 cities in eight Northeastern states to explore. The experience of travel between towns can be very quiet or very nerve-wracking as swarms of speeding bandits do their best to waste you—nothing personal, of course, it's just for fun.

AutoDuel deserves a lot more ink than I can give it here. It's refreshing to play a fantasy game that isn't set in an age of legend, swords, and sorcery.

AutoDuel offers a gaming challenge only marginally less difficult than that of the Ultima series, and the supporting manuals and docu-

mentation are fabulous. They explain the game clearly, and add substantially to the realism.

The world you have to explore is much smaller than the four Ultima games, but in every other way, Chuckles has constructed a game as challenging and exciting as the swords 'n' sorcery series. AutoDuel is an absolute must if you're a real game connoisseur—or if you just crave action and excitement.

#### The Bard's Tale

\*\*\*

Electronic Arts 2755 Campus Drive San Mateo, CA 94403 Fantasy/role-playing adventure Any 64K Apple II, one drive \$44.95

True game addiction is when you let everything

slide—your spouse, your kids, your career, meals, sleep, bathing, *The Cosby Show*, everything—just to clear time to sit at your computer and play a game. **The Bard's Tale** is for true game addicts. In the words of one fantasy-game freak I know, "It's like Wizardry, only more so!"

Michael Crawford, whose credits include Super Zaxxon and the Apple version of Donkey Kong, has taken what amounts to the Wizardry playing system, set the action in a mazelike city, and added full-color graphics.

For those of you not familiar with Wizardry's game system, much less that of The Bard's Tale, let's briefly review the setup as Crawford has adapted it.

As in most fantasy/roleplaying games, you find vourself controlling a band of adventurers seeking to free a city (Skara Brae-a name you'll recognize from the Ultima series) from bondage to an evil sorcerer. To do this, you'll have to find various magic items cleverly hidden in the labyrinthine depths of Skara Brae. You must explore the streets and houses, and search the temples, towers, and castles above and the cellars, dungeons, and catacombs below. Believe me, just finding your way in and out of these places will require some nimble mental gymnastics.

Monsters of every description, evil humans, and malignant, undead spirits will set upon your brave party at almost every turn from the moment you set foot out of the Adventurers' Guild, so be prepared. Your party of six seekers should include at least three fighters, two magic





Computer Supplies of Peterborough



#### SURGE PROTECTOR NOISE EMI/FILTER

- 15A Circuit Breaker
- 6FT Cord 14/3 AWG SJT
- 15A, 125V, 60Hz, 1800W
- Master Power On/Off Switch
- Lighted Rocker Switches Correspond to Five Individual Sockets on Rear Panel
- · High Grade Against Fire ABS Construction.
- Can Swivel & Tilts
- 11" x 10" x .75"

# All Titles only

Apple Clinic Football Forecast Ham Package Know Your Apple Night Flight Skybombers 11

Anchor Volks 12

Anchor Volksmodem 300 baud

Voodoo Castle Mortons Fork Mystery Fun House Savage Island **Routine Machine** 

#### MORE items at fantastic SAVINGS . . .

	List	Our Price/
Cut Throat	39.95	24.95
Enchanter	39.95	24.95
Bank Street Writer	69.96	39.95
Bank Street Storybook	39.95	24.95
Archon	40.00	24.95
Cut & Paste	35.00	14.95
Financial Cookbook	35.00	29.95
Basic Tricks for the Apple	24.95	13.95
Sky Fox	40.00	25.95
Murder on Zinderneuf	40.00	24.95
Seven Cities of Gold	40.00	24.95
Routine Machine	29.95	9.95
Merlin Apple IIE	30.95	9.95
Copycat Apple IIE	29.95	10.95
Sampler 1	29.95	11.95
Array	29.95	11.95
Pico Products		
Joysticks for ALL Apples	39.95	21.95
Modeme		

LIST SALE Diamond \$49.95 Emerald \$59.95 Sapphire \$79.95 Ruby \$89.95





# CURTIS

Priced at only

Protect Valuable electronic equipment and data files from damage. Surge and spike suppressor and noise combination converts one outlet into six

# FAN FOLD

SALE 20# 1000 Sheets LIST micro-perfed \$19.95 \$14.95

20# 2500 Sheets micro-perfed \$32.95

15# Green bar 3500 Sheets

\$47.95 \$37.95

\$26.95

# WE KNOW OF NO BETTER DRIVE AT ANY PRICE!!!!!

... Another Incredible PICO Product . . . Look at this great half-height 100% APPLE compatible disk drive. Suggested List Price \$269.95. Instant Software priced at only \$169.95.

The benefits of owning this drive to

you are:

·Faster, more precise tracking and larger capacity than standard Apple

 Quieter and smoother running. •100% Apple compatibility for II+, Ile, and IIc external drives.

Half-Height, compact design . . . saves you space.
 ONE YEAR WARRANTY.

•30 day moneyback guarantee

#### GLARE GUARDS FOR YOUR CRT

These screens are available for color or mono (please specify).

Fine nylon mesh-Easy attachment with velcro strips -Reversible black or cream color-prevents dust accumulation

#### Universal Joystick from PICO PRODUCTS

This great joystick will work with an Apple II, II+, IIe and comes

complete with: •2 operating modes to give you "Auto-Centering" or "FreeFloating."
•2 pairs of fire buttons for the left or

right-hand user New quick fire button!

•ONE YEAR WARRANTY, 30-day money back guarantee.
•ONE YEAR warrantee. List 39.95 Sale 21.95 Easy to use and extremely durable.



OUESTIONS? Call 603-924-9261 Ext. 133

Hours: M-F 8:00-5:00 EST

\$3.00 Postage & Handling. Quantities Limited. Selection may vary. All sales final. Returns need RMA. Allow 2-6 weeks for delivery

We reserve the right to substitute similar items.



**Our Price** 

List



MC VISA Money Order

Circle 114 on Reader Service Card.



# FAMOUS BRAND

•Quality Nationally Known Brand 51/4" disks

•Reliable, lifetime warranty •SS/DD only \$1.00 each

•DS/DD only \$1.15 each

Any quantity

GREAT SAULN65

#### **Brother M-1509 Serial Impact Dot Matrix Printer**



High speed output (180 cps)

Near Letter Quality printing
 Variety of printing fonts and functions
 Large buffer memory

Optional auto cut sheet feeder Compatible with IBM PC® and Epson FX-100+

One inch paper cut function Slim, compact, and attractively styled

■ Quiet Operation

Protect Your Saffware Protect Software from dus debris and moisture. Stores up to 15



List Price \$9.95 **Sale \$7.95** 

> SALF \$18.95

> \$16.95 \$34.95

\$14.95 \$ 7.95

\$39.95

Also Available Teak Roll Tops 51/4-50 Teak Roll Tops 31/2-45 LIST Teak Rolltop/100 Flip 'n' File/50 Flip 'n' File/15 \$19.95 Teak Roll Top/100 \$49.95

#### LOOK AT THESE GREAT

Philes & IIILES	List	Our Low Price
Star Trek: The Coviasni Alternative Dazzle Draw	\$39.95 \$59.95	\$28.95 \$42.95
Hitch Hikers Guide To The Galaxy Print Shop	\$39.95 \$49.95	\$25.95 \$32.95
Where Is Carmen San Diego? Newsroom Flight Simulator II	\$39.95 \$59.95 \$49.00	
Math Blaster	\$49.95	\$31.95



Explore a world of magic and mystery in The Bard's Tale.

users, and a utility member. such as a thief (who can easily open booby-trapped treasure chests) or a bard (whose songs have a magical effect in combat).

Wizardry alumni will find this game rather familiar. The big differences between Wiz and The Bard's Tale are refinements in the system and atmosphere of the game. The Bard's Tale uses color graphics far more extensively than the Wizardry games do, and color makes a big difference when you're exploring mazes and dungeons. Instead of boring white outlines on a black screen (à la Wizardry), dungeons and castle mazes look like realistic rock labyrinths. The doors to secret chambers are finely drawn to realistically depict heavy oak beams and wrought-iron hinges and handles. This attention to detail makes the experience convincing.

### **Exciting Graphics**

Have you noticed how claustrophobic Wizardry games are? That's because the only graphics in the game are found in the dungeons' mazes. In The Bard's Tale, there's a threedimensional world to explore outside the dungeons and castles. You wander down streets and lanes lined with quaint houses, inns, shops, and temples, and meet adventure along the way. There's even a day/ night cycle for extra realism (some of the shops and services will be shut down after dark).

It's very hard to establish a set of characters (just as in any good fantasy-adventure game). Given the many large gangs of monsters wandering the streets, it's easy to inadvertently lose your whole party in the early going, forcing you to construct new adventurers.

Fortunately for experienced players, there's a way around this—you can use Wizardry or Ultima III characters in The Bard's Tale. With heavily armored, experienced fighters and powerful magic users, you can get right into the main action of The Bard's Tale without undergoing a boring apprenticeship. It's a boon for experienced fantasy-game players, who find the process of establishing characters more tedious than entertaining. (The borrowing utility does not alter the characters as they appear on your Wizardry or Ultima III character disks.)

The Bard's Tale may not win any points for originality, but it's a solid winner in graphics, excitement, atmosphere, challenge, and entertainment.

Now for the tips and hints. Drink wine when it's an option. Explore every white building in the city. Even if nobody's drinking, make sure your exhausted magic users go bar-hopping. If the lights go out in a dungeon, back out the way you came immediately-you've struck an antimagic zone. And never enter a dungeon with less than full spell and hit points. They play rough in there.

Brian Murphy is anxious to learn what you think of the current state of computer games. Write him at inCider, 80 Pine Street, Peterborough, NH 03458, and let him know your opinion.

### THE BASEBALL DATABASE



LET YOUR COMPUTER KEEP TRACK OF YOUR TEAM'S BASEBALL STATS FOR YOU!

### EASY TO USE

- Clear Screen Directions
- Easy Data Entry and Correction
- Detailed Users Manual
- Fast Statistics Retrieval from Disk

### COMPREHENSIVE

- 23 Batting and Fielding Statistics
- 22 Pitching Statistics
- Up to 30 Players
- Unlimited Games
- Hits, Runs, Errors, LOB and ERs for Every Inning
- All Totals, Cumulatives, Averages Etc. Calculated

### DETAILED PRINTED REPORTS

- Player Rosters
- Game Summaries
- Pitching Cumulatives
- · And a lot more
- Win/Loss Records
- Team Cumulatives
- Player Histories
- \$49.95 APPLE IIe/IIc

\$39.95 COMMODORE 64

- 15 day money back guarantee
- · Check or money order please, plus \$2.50 shipping and handling
- · Program specs and details available upon request.

### JACOBSEN SOFTWARE DESIGNS

1590 E. 43rd Avenue Eugene, Oregon 97405 Phone: (503) 343-8030

Circle 226 on Reader Service Card.

### APPLE® //+ OWNERS...NOW YOU CAN RUN APPLEWORKS! For all the

thousands of Apple //+ owners who've been unable to run AppleWorks, Davka comes to the rescue with ItWorks™. ItWorks is simply the best software program available that makes your //+ AppleWorks compatible. Just slip ItWorks into the disk drive, and your trusty //+ will be able to smoothly run Apple's top-rated integrated software program. ItWorks will run with any //+ outfitted with an 80-column board and a minimum 64k memory. In fact, ItWorks enables AppleWorks to work with most memory boards available for the //+,-128k,256k, and more! ItWorks is available for only \$39.50. And, for a limited time. we're selling a combination package of and AppleWorks (newest version-1.3) for just \$229! Here's another special value—a genuine Apple 256k memory expansion board and Itworks for just \$239! To order, call 1-800-621-8227. Major credit cards accepted. All prices plus \$2 shipping. Dealer inquiries welcome.

**Davka Corporation** 845 N. Michigan Ave. Chicago, IL 60611 ITWORKS WORKS WITH FRANKLINS, TOO! Apple is a registered trademark of Apple Computer, Inc.

Circle 144 on Reader Service Card.

## STATTUS REPORT



### Flight of the Bumblebee

"Even if it means a little more work, you can make your Apple II do almost anything." by Paul Statt, inCider staff

umblebees can't fly. That's one of the first things budding aerophysicists and entomologists learn. Extensive research has shown that given its body size, musculature, wing speed, intelligence, and basic outlook on life, the bumblebee is more or less confined to its hive.

Any bright day in June will prove you wrong. Bees buzz everywhere. In fact, we felt stung last year when we began organizing a review of 2400-baud modems for Bill O'Brien (May 1986, p. 70).

A widely known maker of modems widely known the way Kleenex is a widely known brand of facial tissue—assured us that "our 2400-baud modem works with the Mac, but not the Apple II."

We might have gone on our way, resigned to a lack of 2400-baud modems for the II, sad that so few manufacturers support the most popular microcomputer in the world. But Bill persisted.

Bill's ears perked up when all the manufacturers said the same thing. "It won't work with the //e," they insisted. "Send me the modern anyway," he told them all. "I'll decide if it communicates with my Apple II."

The rest, as they say, is history. All the modems worked with Bill's Apple II—some better than others, some not as well.

If this were an isolated pain in the neck, it might pass without comment. But we're attacked by swarms of products—especially peripherals—that "don't support the Apple II." IBM-compatible RGB monitors, Mac modems, the letter-quality Lisa printer your dealer swears won't print anything from your II: Do you envy other users the ads in Byte? It's the Apple II owner who feels the bite—until, as Bill O'Brien discovered, "you plug it in and try it."

The pains of hardware incompatibility can be salved. Flip a couple of DIP switches on the Mac ImageWriter, for instance, et voilà, it prints Apple II documents with ease. You like the nifty Apple Personal Modem, or some other peripheral with a six-pin serial DIN connector? Buy a BusinessCard from Street Electronics and you've got two DIN ports for your //e—just like a //c.

Those Princeton Graphic RGB monitors surely show beautiful colors—I hated to give up my HX-9 when the review ("Screen Tests," October 1985, p. 16) was done. It's indeed an IBM RGB monitor, but with a little help from a Video-7 RGB interface, you can make almost any monitor and computer friends.

This kind of retrofitting and jerryrigging is what makes the Apple II great: Even if it means a little more work, you can make your Apple II do almost anything. Beyond peripherals, remember that all kinds of operating systems and interfaces are available to you—it's as easy as sliding in a drawer.

You may need some bizarre, mysterious cables and converters to work this Apple alchemy. But, more importantly, you need imagination and vision—the kind of vision that shatters myths.

Your dealer doesn't perpetuate those myths alone. For instance, Apple Computer Inc. keeps the fact that the Mac's Laser-Writer works with the //e, too, pretty quiet. Next month in *inCider*, Bill O'Brien will offer a LaserWriter primer. What he may not mention is the trouble he had making anyone at Apple believe in his LaserWriter/Apple Writer project.

All you need to start is PostScript, the LaserWriter language from Adobe Systems. Author and software developer Don Lancaster, guru of many who wouldn't give up because it seemed impossible, claims that the LaserWriter prints faster and more cleanly with an Apple II and Apple Writer II than with the Macintosh. Call him at (602) 428-4073 and hear what he has to say.

The moral of the story of the flight of the bumblebee, dear reader, is don't give up. Don't assume that what Joe at the computer store tells you is gospel, don't accept the hardware manufacturer's bald assertion that "it won't work with the II," and don't even take Apple's word for it. Try it, or at least get a second opinion.

Remember the bumblebee. Remember the Wright brothers, who couldn't fly, either.■

# **CLASSIFIEDS**

## Digitizers



### **COMPUTER EYES**

- Make custom T-Shirts
- Print computer portraits
- Join "free" public domain ART GALLERIES
- Capture real world images
   Digitize video signals from: Video Tape Recorders (VCR's), Video Cameras, etc.
- Hundreds of practical applications YES, I want my computer to "see" YES, Send me ComputerEyes as follows:

For VISA/MASTER CHARGE OR-DERS, Call Toll FREE: 1-(800) 523-2445, x 48) (PA Residents call 800-346-7511, x 48) or Send Check/ Money Order and all inquiries to:

HAL SYSTEMS P.O. Box 293 Scotch Plains, NJ 07076

Please Note: Prices include shipping & handling, (continental USA). One year parts & labor warranty. For COD orders, add \$5.00

NJ residents add 6% AVAILABLE for APPLE, ATARI,

C-64, AND IBM.

\*\*\*\*Dealer Inquiries Invited\*\*\*\*

## <u>Hardware</u>

### **NEW APPLE PERIPHERALS**

lle 64K/80 Column Bd. \$39. Joystick II/Ile/Ilc specify \$14.95. Mouse or Easy Pad Graphic Tablet w/software \$49.95. Cooling Fan II/Ile \$24.95. Add shipping \$3. COD \$2. Phone or Write for complete ill. price list.

NEXO DISTRIBUTION 8824 Golf Drive Spring Valley, CA 92077 (619) 589-7928

## Software

### DESIGN YOUR OWN LABELS

For disks, name badges, video cassettes, photos, personal property, slides, parts, home canning, advertising, and more. Set height, width & lines-per-inch, then use our unique on-screen edit system to design a label. Edit lines and set formats until it's just right, then print 1 or 1000 copies. Add special "fill-in" fields and PRO LABEL will prompt for new data each time the label's printed. Do serial numbers. Use our prestored designs or make new ones. Requires 128K IIe/IIc & 1 drive. Program, user guide, and 100 free labels: \$19.95 + \$1 shpg. CHK/MC/VISA

PRO LABEL/AP 16 E. Main/P.O. Box 631 Marshalltown, IA 50158 1-800-634-5463

## "SPEED UP" FOR HOME ACCOUNTANT

How would you like to:
READ the data and program files
four times faster?
SEARCH 1,000 transactions in less
than 3 seconds?
REDUCE garbage collection from
4.5 to .5 seconds?
LOAD the report program in 40 instead of 240 seconds?
GO directly from program to program?
USE a RAM disk or hard disk?
PLUS MUCH MUCH

PLUS MUCH, MUCH, MUCH, MORE!
Satisfaction Guaranteed or your

money back.

DOS 3.3 only, requires 64K. \$24.00 + \$2.50 S/H, VISA/MC. (48K version also available)

SOFTWARE SOLUTIONS 5516 Merritt Circle Edina, MN 55436 For orders only 1-800-835-2246 X131

### LOTTERY PLAYERS LOOK!!

You've got an edge in the Big Money State LOTTOS by using your computer to do a probability study of the past drawings. Don't waste your time with random numbers, this program performs an analysis of the past winning 6 digit numbers and tells you what numbers are due, what groups to play, any trends and much more! It's available on disk with instructions for all states and Canada. Most computer types \$19.95. The Super Macintosh Version is only \$29.95. VISA, MC, Checks, Fast Service!

SOFT-BYTE COMPUTER PROGRAMS P.O. Box 556 Forest Park Dayton, OH 45405 (513) 233-2200

## CHURCH PROGRAMS FOR APPLE IIe

CHURCH PEOPLE (\$100 or Demo \$10) Print Directory, Sorted Labels. Print Birthday/Anniv/Skills lists. CONTRIBUTIONS (\$100 or Demo \$10) Print Member & Summary Statements. Distribute Contributions by %. Both complete for \$150. Shipping free in USA. Calif. res. add 6%. Indicate Sat or Sun and # members. Need hard disk if over 700 members. PARADISE CHRCH PROG for COMP (PCPC) 14133 Racine Circle

## **Publications**

Magalia, CA 95954

(916) 873-3677

### MICROCOMPUTER BOOKS

Selected Apple II titles include:

- \*Apples for Teachers \$12.95
  \*Apple Logo for Kids \$8.95
- \*Apple Logo for Kids \$8.95 \*Apple II Basic Programs in Minutes \$11.95
- \*Basic Apple Basic \$15.95
- \*Data Base Management \$13.95
- \*Inside the Apple IIc \$17.95
- \*Inside the Apple IIe \$17.95
- \*Mastering Appleworks \$13.95
- \*Multiplan Models \$14.95 \*Visicalc Models for Business \$15.05
- \*1001 Things to Do With Your Apple \$8.95

Shipping/Handling extra. MC/VISA/AE. Send for FREE Directory.

MICRO BOOKS P.O. Box 4068 W. Richland, WA 99352 (800) 547-9755 Ext. 8 (509) 967-5084

## Spreadsheet

### APPLEWORKS SUPER GRAB BAG

Why pay more but get less? Send for SUPER GRAB BAG of professional-quality AppleWorks or SuperCalc3a spreadsheet templates and forms: Taxes, Buying a House or Income Property, College Fund, Shopping/Camping lists, Expert System, more. Easy to customize. Save hours of typing, learn new techniques. Send only \$12 ppd plus \$2 S/H. WI add 5%.

PETE PETIT'S SUPER GRAB BAG 1344 N. 31st St. Milwaukee, WI 53208 (414) 933-4627

## Games

### THE GODS HATE MAGICSOFT

They said it couldn't be done. We did it. Now, YOU can experience it. EXODUS CONSTRUCTION SET—The ONLY Ultima III SCENARIO editor \$28.50, (includes LAVALITE WORLD—A harsh new U3 scenario), WIZARDS WORKBENCH—The ONLY Wizardry I-III SCENARIO editor \$34.99, WIZI-SCOUT—inside editor \$34.99, WIZI-SCOUT—inside excoop on all monsters/items \$20, ATOMIC WASTELAND—A NEW Wizi-scenario set in the future \$20. Call 800-628-2828 ext. 5202 Now to order (VISA/MC) or send CHECK, MO. FAST delivery. Money back Guarantee.

MAGICSOFT P.O. Box 908-I Danville, CA 94526-0908 (415) 820-0711

### \$2.65 ADVENTURE HINT BOOKS.

Clues. solutions. maps, trivia: Ultima III. Starcross. Zork. Zork II. Zork III. Deadline. Witness. Coveted Mirror. Transylvania. The Quest. Death In Caribbean. Expedition Amazon. Mask of Sun. Serpent Star, (Original) Adventure. Wizard & Princess. Mystery House. Dark Crystal. Ulysses & Fleece. MAP SETS: Legacy Llylgamyn. Knight of Diamonds. Wizardry. Shadowkeep. Each title—\$2.65 postpaid. Our public domain library: copy onto YOUR disks—75¢/disk.

ASPEN APPLE SOFTWARE 729-1/4 E. Portland St. Phoenix, AZ 85006 (602) 253-0651

## Project Management

### **EVERYBODY'S PLANNER**

Project Management AND Flow-charts the easy way. Graphic PERT charts—54 tasks 216 resources, with critical path, early & late, start & finish dates, 7 reports with optional costing. Infinite Flowcharts with Activation, 20 rotatable shapes of 9 sizes, 3 font sizes, horizontal or vertical type. THE PLANNING TOOL FOR THE REST OF US. All 64K Apple // series, and IBM. \$99.95 + \$3 s/h. VISA/CK/MO. ABRACADATA, LTD. PO Box 2352-D Eugene, OR 97402 (503) 342-3030

edited by Lafe Low

### Hardware

### 68000 Plug-In

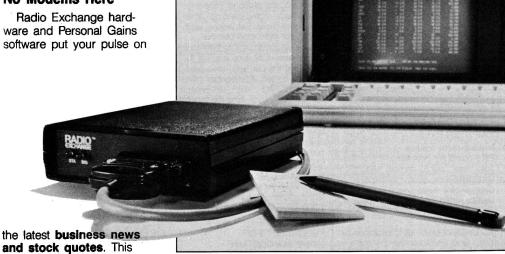
Add the advantages of the Motorola 68000 microprocessor to your Apple by plugging in the Rapid Systems R68 system. The R68 system combines a single-board, 68000based computer with a comprehensive software-development package. You can reboot your Apple and run any other program without affecting the board or the program. Cost for the total package, including hardware, software, 68000 manual, S-C assembler with manuals, and systems documentation is \$499, from Rapid Systems, 755 North Northlake Way, Seattle, WA 98103, (206) 547-8311. For more information circle number 366 on the Reader Service card.

### Color My World

Juki has come out with its first color dot-matrix printer. The Juki 5510-Color's color option comes already installed, so it can produce seven colors from a four-color ribbon right out of the box. It provides AS-CII, italic, and international character sets, and several printing modes, including double-emphasized. Suggested retail for the Juki 5510-Color is less than \$650, from Juki Office Machine Corporation, 299 Market Street, Saddle Brook, NJ 07662, (800) 932-0590. For more information circle number 367 on the Reader Service card.

### No Modems Here

Radio Exchange hardware and Personal Gains software put your pulse on



Radio Exchange/Personal Gains gives you the latest news.

digital radio interface receives data from broadcast transmission, rather than more costly telephone lines. You have unlimited access 24 hours a day, seven days a week, to current market and financial information. The interface and software together sell for \$394. Subscription fee for business news and market quotes is \$25 per month (\$299 per year), from Telemet America, 515 Wythe Street, Alexandria, VA 22314, (800) 368-2078. For more information circle



number 365 on the Reader

Service card.

The Juki 5510-Color will brighten up your computing.

### Orange Juice

Beef up your Image-Writer II with 64K of print buffer. The ImageBuffer is the first product in Orange Micro's ImageWare line of enhancement products for the Apple ImageWriter II. It provides a multiple-copy feature, which can be addressed from either software or the printer panel, and it's expandable to 128K, letting it hold up to 40 pages of text. The ImageBuffer retails for \$99 for the 64K version, from Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807, (714) 779-2772. For more information circle number 368 on the Reader Service card.



The ImageBuffer adds 64K of print buffer.

### Software

### **Useful Utilities**

Apple Writer Utilities can expand the capabilities of your Apple Writer word processor. Add such functions as deleting forward text by word or by paragraph, and moving the cursor by sentence or paragraph. Apple Writer Utilities also lets you change embedded commands for one printer to those of another printer. This package of utilities is available in ProDOS or DOS 3.3 for \$29.50, from Live Oak Software, P.O. Box 14814, Baton Rouge, LA 70898. For more information circle number 361 on the Reader Service card.

### This Land Is Your Land

Travel through the United States on your computer screen. MECC Dataquest: The Fifty States lets students learn geography by forming questions about our 50 states, searching for answers in a menu-driven data base, and formulating hypotheses from the search results. MECC Dataquest: The Fifty States will operate on any Apple II with at least 64K. Brush up on your geography-contact MECC, 3490 Lexington Avenue North, Saint Paul, MN 55126, (612) 481-3500 (price not available at press time). For more information circle number 352 on the Reader Service card.

### A Better Letter

Enhance your text files by printing in a variety of fonts. FontWorks incorporates the same easy-to-use interface and commands as AppleWorks. Mix and match up to ten fonts at a time, from a selection of more than 20. The Font-Works font editor lets you further individualize your printed output. Use Font-Works with all popular dotmatrix printers and interface cards on any ProDOS or DOS 3.3 Apple II. Suggested retail of FontWorks is \$49.95, from The Software Touch, 9842 Hilbert Street, Suite 192, San Diego, CA 92131, (619) 549-3091. For more information circle number 364 on the Reader Service card.

### Diversity Is the Key

The Diversified Accountant can handle your **cost accounting** for 1000 active jobs, 200 work codes, and 845 vendors or employees. Hold 380,000 transactions on a 10-megabyte hard disk or 3000 transactions on a floppy disk. You can type in each transaction in

less than ten seconds, and generate a variety of reports. The Diversified Accountant is available by mail order only, for \$475, from Diversified Software Research, 34880 Bunker Hill, Farmington, MI 48018, (313) 553-9460. For more information circle number 359 on the Reader Service card.

### Superpower Struggle

Avalon Hill's acclaimed wargaming simulation Gulf Strike is now available for the Apple II. Gulf Strike is set in 1987. The Soviet Union has invaded Iran, and U.S. forces must retaliate. Take either side or play against the computer as you help decide the fate of the Middle East. Test your military strategy as you maneuver armies, aircraft, submarines, and special forces with joystick or keyboard commands. Gulf Strike retails for \$30 from Avalon Hill, 4517 Harford Road, Baltimore, MD 21214, (800) 638-9292. For more information circle number 355 on the Reader Service card.

### **Keep Your Spirits Up**

Students can analyze compositions with Ghost Writer, a utility program that helps young authors find problems that interfere with clear, effective writing. Ghost Writer works with six popular word processors, including Apple Writer II and Bank Street Writer. Ghost Writer sells for \$89 from MECC, 3490 Lexington Avenue North, Saint Paul, MN 55126, (612) 481-3500. For more information circle number 351 on the Reader Service card.



Touch 'n' Write teaches letters on screen.

### The Magic Touch

Kids can get the "feel" of their writing exercises with Touch 'n' Write, a new penmanship program that works with the Touch Window screen attachment (reviewed in inCider. March 1986, p. 66), Children can draw brightly colored letters directly on screen with their fingers, following a complete 23-lesson curriculum. There's also an electronic coloring book, and reward certificates showing letters or words learned are printed. Touch 'n' Write sells for \$69 from Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570, (800) 431-1934. For more information circle number 356 on the Reader Service card.

Product descriptions contained in this section are based on information supplied to us by the respective manufacturers. These announcements are provided solely as a service to our readers and do not constitute endorsement by inCider of any given product.

### An Open Book

The Comprehend interactive-novel series features graphics and some new and updated titles. An enhanced version of Transylvania is available now, and Polarware/Penguin Software has added the Crimson Crown, Oo-Topos (a science-fiction adventure), and Frank and Ernest's Adventure, based on the comic strip Frank and Ernest. Also appearing this year will be Margaritaville, based on an upcoming Jimmy Buffet movie, and updated versions of The Quest and The Coveted Mirror. These interactive computer novels will retail for \$34.95, from Polarware/ Penguin Software, 830 Fourth Avenue, P.O. Box 311, Geneva, IL 60134, (312) 232-1984. For more information circle number 357 on the Reader Service card.

### The Graph Electric

Use your Apple II and the Voltage Plotter to measure, record, and graph voltage levels. Additional circuits described in the manual let you monitor pH, force (with strain gauges), and temperature (with a thermocouple). Use the Voltage Plotter with either a voltage input unit (available as a kit or already assembled) or an advanced interfacing board from Vernier Software, Voltage Plotter and other laboratory interfacing programs are available from Vernier Software, 2920 SW 89th Street, Portland, OR 97225, (503) 297-5317. For more information circle number 360 on the Reader Service card.

### **Roots**

Trace your family's background and record it in your Personal Ancestral File. This genealogical record-keeping package features three programs: Family Records, Research Data Filer, and GEDCOM (Genealogical Data Communications). With GEDCOM, you can share Family Records data with another computer, facilitating research among family members in different areas. Follow your roots for \$35, from Ancestral File Operations Unit, Genealogical Department, 50 East North Temple, Salt Lake City, UT 84150, (801) 531-2584. For more information circle number 358 on the Reader Service card.

### Of Mice and Graphics

If you don't have an ImageWriter, printing MousePaint-generated graphics can be a chore. MousePrintz, from Dark Star Systems, is a patch for MousePaint that lets you print pictures on virtually any printer, and adds some on-screen editing features, like full-screen viewing and cropping, rotation, shading, centering, and other adjustments. MousePrintz is compatible with the 128K Apple //e and //c. for \$35, from Greengate Productions, 2041 Pioneer Court, #15, San Mateo, CA 94403. (415) 345-3064. For more information circle number 362 on the Reader Service card.

### Get the Right Angle

Proportions in Geometry. a high-school math package, covers topics ranging from basic definitions and theorems to proportions in triangles and circles. This program is one of four geometry packages in a series; the others include Coordinate Geometry, Angles of a Circle, and Trigonometry of a Right Angle. Proportions in Geometry retails for \$169, from Bergwall Educational Software. 106 Charles Lindbergh Boulevard, Uniondale, NY 11553, (516) 222-1111. For more information circle number 350 on the Reader Service card.

### 2 0

MIDI, Maestro Bring a complete MIDI system under the control of one master keyboard-an electronic maestro. Synthestra, a MIDI sequencer and controller program, lets you independently assign each key on the master keyboard to any preset voice of any synthesizer in your MIDI system. Control up to 16 MIDI keyboards, drum machines, expanders, or other MIDI devices from one keyboard. Synthestra supports unlimited keyboard splitting, layering, and echoing. You need a 64K Apple //e or II Plus, a MIDI interface card, at least one MIDI-equipped keyboard, and \$120. Contact Decillionix, P.O. Box 70985, Sunnyvale. CA 94086. (408) 732-7758. For more information circle number 363 on the Reader Service card.

### **Testing Success**

Help has arrived for those who have trouble taking tests. Skills for Successful Test Taking analyzes your responses and gives you tailored instruction. The program is broken into seven segments: pretest, how to prepare for tests, improving one's attitude, following test directions, objective questions, subjective questions, and a post-test. Improve your score for \$54.95, from Microcomputer Educational Programs, 157 South Kalamazoo Mall, Suite 250, Kalamazoo, MI 49007, (800) 421-4157. For more information circle number 354 on the Reader Service card.

### **Easy Keys**

Type Right, an easy, complete keyboarding course, can help you improve your typing skills. Lessons are based on correct fingering habits, emphasizing accuracy, then speed. The package includes directions displayed on screen, a teacher's manual, and a student's handbook. Spelling games and words-per-minute testing are also included. Type Right is \$39.95, from Barron Enterprises, 714 Willow Glen Road, Santa Barbara, CA 93015, (805) 687-5973. For more information circle number 353 on the Reader Service card.

## \$5 TALKING DISK

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

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

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

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

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



covox inc.

675 Conger St., Dept. IN Eugene, OR 97402 Telephone (503) 342-1271

### Resources

### The Educational Choice

Choose from more than 150 teacher-recommended programs in Evanston Educators' Family Software Catalog. The company's fifth catalog includes 25 new packages, plus educational programs for all ages. Evanston Educators is a network of computer and educational experts, including teachers, parents, and children. For a look at the Evanston Educators' choices, send \$1 to Evanston Educators, 915 Elmwood Avenue, Department TS. Evanston, IL 60202, (312) 475-2556. For more information circle number 369 on the Reader Service card.

## SCRG-

### SOUTHERN CALIFORNIA RESEARCH GROUP

# WILL YOUR PROGRAMS BE READY WHEN YOU ARE?

The **quikLoader**<sup>™</sup> provides *absolute* security of programs. The program can be put onto an EPROM chip, plugged into the quikLoader, and the quikLoader plugged into any slot of the APPLE<sup>™</sup> ][, ][+, or //e. The program <u>cannot</u> be changed from the keyboard.

Any program that can be loaded as files can be stored on the quikLoader with the aid of an EPROM programmer board (such as the PROmGRAMER $^{TM}$ ), and our new PROGRAMMERS AID program. Up to 512K of programs can be stored on each quikLoader. Access to these programs can be as easy as turning on the computer.

An example of practical business applications is APPLEWORKS<sup>™</sup>. We can copy your copy of APPLEWORKS for an additional \$89.50, and the program will be up and running within 2 seconds after turning on the computer. There is no need to use either the startup or program disks.

This is ideal for work stations with only one drive. Production is increased, since no time is wasted loading the program, swapping disks, or changing modules as you go along.

The quikLoader provides many other benefits. As soon as power is applied, DOS loads automatically from the card. Included with the quikloader are the popular programs FID and COPYA.

Installation is easy, just plug it into any peripheral slot. Installed programs can be called up by a keypress, or through a special catalog routine.

SYSTEM REQUIREMENTS - The quikLoader will work in an APPLE ][, ][+, or //e. If used in a ][ or ][+, a slightly modified 16K memory card is highly recommended in slot Ø. A disk drive is required to save data.

### \$179.50

APPLEWORKS and APPLE //e are trademarks of APPLE COMPUTER INC. quikt.coder (designed by Jim Sather) is a trademark of S.C.R.G. DOS 3.3, 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 quikt.coder.

### OTHER PRODUCTS

WRITE GUARD

Use both sides of diskettes without cutting holes. Write protect any diskettes without tabs. Write enable diskettes for update without removing tab. LED to verify write protect status without removing diskette. Easy installation, no cutting or soldering. For use only on APPLE™ DISK ][.

\$45.50

### DUAL KEYBOARD ADAPTER FOR APPLE ][ AND ][+ ONLY

Allows the use of a second keyboard without disabling the main keyboard. Use either one with no switching necessary No soldering is needed, and installation is as easy as plugging in the second keyboard.

//c KEYPAD kit

This kit gives you an "embedded" keypad within your built-in keyboard. You may instantly switch between the keypad or the standard keyboard. CAUTION – Requires <a href="expert">expert</a> soldering ability, and disassembly of the computer. Estimated installation time - about one hour. Comes with step-by-stp instructions, new keyboard PROM, solder, socket, and a set of decals for the keycaps. \$29.95

### **PROMGRAMER™**

Designed by Bob Brice Software by Bob Sander-Cederlof

The PROMGRAMER is an inexpensive EPROM (Erasable Programmable Read Only Memory) programmer for the APPLE ][, ][+, and //e computers. The unit plugs into any slot of the computer, and allows the user to program any standard 5 volt, 27 series EPROM. The ZIF (zero-insertion force) socket allows rapid programming, copying, duplication, or modification of EPROMs.

\$149.50

### SLOT 3 CLOCK™

Designed by Chuck Shaffer

The **SLOT 3 CLOCK** is designed to work in the APPLE ][, ][+, or //e. Unlike other clocks, it can plug into slot 3 of the //e without interfering with the operation of the auxillary memory card. **PRODOS™** is fully supported, and the card is APPLESOFT™ compatible. Installation software and a long-life DURACELL™ lithium battery are included.

\$79.50

### **BOOKS BY JIM SATHER**

Understanding the APPLE ][ - The definitive source of information about how the APPLE ][ works. Forword by Steve Wozniak. \$22.95

Understanding the APPLE //e - The companion volume to "Understanding the APPLE j[". Covers the additional information needed to know details of the hardware of the computer \$24.95

"Understanding the Apple //e leaves no stone unturned in the search into the inner workings of the Apple //e computer" – Steve Wozniak

# TEN DAY TRIAL — SIX MONTH WARRANTY TOLL FREE ORDER LINES | SOUTHERN CALIFORNIA From California (800) 821-0774 | RESEARCH GROUP

Rest of U.S.

(800) 821-0774 (800) 635-8310

Outside of U.S. or for information, call (805) 529-2082

U.S. and Canada shipping charges - all items, \$2.50 Other countries: SWITCH-A-SLOT: \$10 suface, \$25 air.

Other items: \$5 suface, \$10 air.

### SOUTHERN CALIFORNIA RESEARCH GROUP Post Office Box 593-R Moorpark, CA 93020

Post Office Box 593-R Moorpark, CA 93020 Telephone (805) 529-2082 Telex 658340-SCRG (Intertel SNC) VISA - MASTERCARD ACCEPTED

### **SWITCH-A-SLOT**

The SWITCH-A-SLOT is an expansion chassis, which allows the user to plug in up to four peripheral cards in one slot. One of these cards is selected for use, and only that card draws power.

This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers. \$179.50

SWITCH-A-SLOT and EXTEND-A-SLOT work well with most slow to medium speed cards, such as modems, printers, clock, music, etc. They are not recommended for high speed data transfer devices such as disk drive controllers, alternate processor, and memory cards.

Due to the nature of these products, and unit-to-unit variations of computers and peripherals, we are unable to guarantee that these products will work with any particular system. However, as with all our products, we offer a ten-day trial period. If our product does not operate to your satisfaction, return it for a prompt refund.

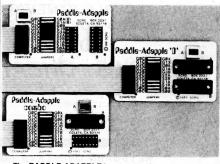
### **EXTEND-A-SLOT**

The EXTEND-A-SLOT brings a slot outside your APPLE™, allowing an easy change of cards. The 18" (45cm) cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability. \$34.95

## Paddle-Adapple

The PADDLE-ADAPPLE is a game plug expansion adapter that plugs into the interior game I/O socket, and is designed to operate in one of two modes. In the first, it allows you select between one of two devices, such as Koala Pad™ and joystick. The device is selected by the flip of a switch. In the second mode, the PADDLE- ADAPPLE, with appropriate software, allows the use of two joysticks simultaneously.

The are three versions to adapt to any combination of the newer type APPLE connector (the 9-pin D sub-miniature), or the older 16-pin plug.



- The PADDLE-ADAPPLE has two 16-pin
- The PADDLE-ADAPPLE 'D' has two subminiature 'D' (9-pin) connectors
- The PADDLE-ADAPPLE COMBO has one 'D' subminiature and one 16-pin connector.

\$29.95

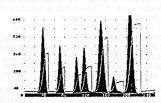
## 9-16 Adapter

The 9-16 adapter permits the use of most 16-pin I/O devices with the APPLE //e or //c. Plugging this adapter into the subminiature 'D' connector allows the use of 16-pin device, such as the PADDLE-ADAPPLE, paddles, joystick, 16 pin Koala Pad™, etc. The only limitations are those devices that use the annunciators or the \$CØ4Ø strobe. NOTE—the //c does not support the simultaneous use of two joysticks.

## 16-9 Adapter for APPLE ][ and ][+

With this adapter, owners of early APPLEs can take advantage of the newer 9-pin game products, such as paddles, joysticks, MUPPET LEARNING KEYS™, etc. NOTE — If you have more than one game I/O device, consider purchasing our PADDLE-ADAPPLE COMBO or PADDLE-ADAPPLE "D' instead.

### Scientific & Graphic Software For Your Apple\* I Computer



VIDICHART II-Enhanced data acquisition, processing and display of spectra, chromatograms, rate curves, etc. Fast plots, scrolling and zoom scaling on 4 data sets. Includes analog, digital and timer I/O (using ADALAB), fast math package, integrate, differentiate, auto commands......\$110

VARICALC - Powerful equation solver for numerical modeling of complex physical, chemical and math processes. Solves for any variable in an equation with up to 19 variables, LOG, EXP and TRIG functions. Also evaluates 3 dependent equations and plots graphs. Interactively change variables via a joystick, arrow keys or loops. Supports IMI's ADALAB data acquisition card

QUICK-DRAFT-Design slides, diagrams, flowcharts, etc. Easily draw lines, arrows, arcs, ellipses, rectangles, polygons. Also features 19 text fonts, 22 colors, object macros, multi-screen scroll and print feature. . . . \$ 55



QUICK-SHAPE-Create shape tables from any hi-res picture, edit enlarged images. Includes 18 shape tables for large text,

different fonts, math, music and electronic symbols . . . . . . . . . \$ 28

Add \$2.50 shipping on all U.S. orders. VISA or MASTERCARD accepted.

CALL OR WRITE FOR FREE BROCHURE about these products and other IMI software and hardware for laboratories and businesses. \*Trademark of Apple Computer, Inc.

INTERACTIVE MICROWARE, INC. P.O. Box 139, Dept. 52

State College, PA 16804

Phone: (814) 238-8294 • Telex: 705250

Circle 12 on Reader Service Card.

### HAVING TROUBLE REMEMBERING ALL THE **COMMANDS FOR YOUR PROGRAMS?**

YOU NEED LEROY'S CHEATSHEET



KEYBOARD OVERLAYS FOR THE

Apple® IIe & IIc
THE QUICK AND EASY SOFTWARE DOCUMENTATION

Forget about constantly referring back to the manual for operating commands. Discover all the "special" commands buried in the manuals. LEROY'S CHEATSHEETS" are sturdy plastic laminated help sheets designed for use with popular software, hardware and languages for APPLE IIe & IIc computers. Commands are grouped together for logical use. You learn and use your programs laster and easier.

Ile Cheatsheets are DIE CUT overlays designed to fit over the

only

IIc Cheatsheets are 7" x 10 3/4" reversible plastic laminated reference cards

With LEROY'S CHEATSHEETS® you will never have to hunt for a command again

OKIDATA 92 & 93

APPLEWORKS	
APPLE WRITER II (Pro	DOS)
BASIC (Dos 3.3)	
BASIC (PRODOS)	CIRCLE YOUR CHOICE
BLANKS (SET OF 3)	MAL
FLIGHT SIMULATOR	11 1
FOR THE BEGINNER	(DOS 3.3) NEW
GRAPPLER +	- The Mark
LOGO (APPLE)	h MA.
LOGO (TERRAPIN)	WORDSTAR
MULTIPLAN	IMAGEWRITER
PRACTICALC II	<b>EPSON RX &amp; FX 8</b>
SCREENWRITER II	<b>GEMINI 10X &amp; 15X</b>

☐ Ile (overlay)	☐ IIc (card)
QTYX	\$ 5.95=\$ .
	SHIPPING \$ 1.00*
* U.S. & CANADA \$1.00	6% TAX \$
FOREIGN ORDERS \$3.0 CHECK, M.O., MC/VISA U.S. FUNDS NO C.O.D.	
MC/VISA#	
EXPIRATION DATE	1 3/1 3A PHEN
NAME	
ADDRESS	
CITY	alloun
STATE Z	IP
CHEATSHEET PRO	
P.O. Box 111368 (412) 781-19	100

## NEW PRODUC

## **Product Updates**

- If you can't get by with just one or two disk drives, check out Ohio Kache Systems' new disk controller, which can handle as many as six. OKS adds a halfmegabyte of RAM to boot. Ohio Kache Systems. 4166 Little York Road, Dayton, OH 45414-2566, (513) 890-3913.
- Look for clones of the Franklin Ace 2000 in selected Sears outlets this summer-maybe the sleek compatible will be in the Christmas Wish Book, too?
- The FischerTechnik robot kit from Germany, a BMW among bicycles of hardware toys, comes in a "sophisticated" model now: It has a three-axis training arm for big projects. \$299 from Fischer America, 175 Route 46 West, Fairfield, NJ 07006, (201) 227-9283.
- If you run a "qualified" BBS, U.S. Robotics has a half-price offer for you on its Courier 2400, a 2400baud modem. Call U.S. Robotics at (312) 960-5928 for more information. That's a voice line, by the
- If you hurry up and buy an Accelerator //e before July 15, Titan Technologies will throw in Pinpoint, the popular AppleWorks desk accessory, at no cost. For \$299, you get the \$69 Pinpoint package and \$20 off the accelerator board. Waste no time-call Titan, 310 West Ann Street, Ann Arbor, MI 48104, (313) 662-8542.
- Infocom is now a division of Activision. Activision, a visionary among game makers, brought innovations like Hacker, Little Computer People, Countdown to Shutdown,

- and Borrowed Time to the market. The marriage with Infocom should make both partners happy. Infocom is located at 125 Cambridge Park Drive, Cambridge, MA 02140, (617) 492-6000; Activision at 2350 Bayshore Frontage Road, Mountain View, CA 94043, (415) 960-0410.
- Polarware/Penguin Software did readers a favor and rescued Softalk Books from the dread fate of "out of print." Applesoft Isn't Hard, by one of our local heroes, Doug Carlston, Roger Wagner's Assembly Lines (it might be cheaper to read his Right of Assembly column in inCider), and Graphically Speaking, by "Graphics Magician" Mark Pelczarski, are priced at \$14.95 each. Polarware/Penguin, 830 Fourth Avenue, Geneva, IL 60134, (312) 232-1984.
- The latest versions of PlusWorks and Plus-Works XM let Apple II Plus users run any version of AppleWorks, from 1.0 to 1.3. The XM edition also expands the Apple-Works desktop up to a megabyte, adds a RAM disk, and offers as many as 4222 records in the data base. Both from Norwich Data Services, P.O. Box 356, East Norwich, NY 11732, (516) 922-9584.
- Users of the ADALAB data-acquisition board and other laboratory input/output devices for the Apple Il should be reading Interactive Microware's Newsletter. Sure, the company has products to sell, but it gives away lots of tips and tricks for laboratory computerists, too. Interactive Microware, P.O. Box 139. State College, PA 16804, (814) 238-8294.

SCREENWRITER II

SPEEDSCRIPT

SUPERBASE

VISICALC

# HINTS/TECHNIQUES

Apple users know that there's always an easier way to get the job done. A shortcut here, an elegant twist there. That's what Hints/Techniques is all about. It's an information swap for readers who want to share their programming pointers, DOS tips, hardware secrets, AppleWorks applications, WPL enhancements, and all those other insights that make you go "Aha!" in the night. So read on and see if you don't find just the solution you've been looking for.

Binary-to-Text Converter

by Thomas L. Muller

Have you ever had a hot game you wanted to upload to your favorite bulletin board, but you didn't know how to transfer the binary shape tables when only ASCII (text) transfers were available? You couldn't face the thought of typing all those addresses and hex codes into a text file, so you forgot the whole idea.

Your problems are now solved. The Applesoft program presented here (see the **Program listing**) converts any binary file to a text file, but, unlike some conversion routines, doesn't require an additional program to regenerate the binary file (for example, Listing 5 in "Private Lines," *inCider*, May 1985, p. 38). Instead, this program regenerates the original binary file from the text file and stores it to disk with only the EXEC command.

**Details of Operation** 

Binary-to-Text Converter first loads the binary file, then performs four PEEKs to determine its starting address and file length. Beginning at the starting address, the program reads the value in each memory location, converts each value to hex code, and writes it to a text file. The converter generates the hex code by splitting each byte into two 4-bit parts, each representing a number from zero to 15. IF statements convert the number to a string from zero to 9 or A to F. String addition of the two parts then produces the hex code. The program calculates hex code for the addresses the same way, except that four parts must be determined.

To make the text file EXECable, the program adds CALL – 151 to the beginning of the text file to put the computer into Monitor mode. The commands 3D0G and BSAVE at the end of Binary-to-Text Converter take the computer out of Monitor mode and save the binary file to disk.

The only hitch with any conversion program that loads a binary file is the possibility that the binary file may occupy the same memory as the program. If you don't get the message

FINISHED at the end of the program, that's probably what happened. Just type in the three POKEs listed in line 6, reload the program, and run it again. These POKEs let the program load into memory above the second high-resolution graphics page. That should leave plenty of room below for all but the largest binary file.

Write to Thomas Muller at 156 Starr Road, Newark, DE 19711.

### Program listing. Binary-to-Text Converter.

```
THIS ROUTINE CONVERTS A BINARY FILE TO A TEXT FILE
 CAN BE EXEC'ED .
6 REM IF THIS PROGRAM DOESN'T WORK, IT MAY BE THAT THE BINARY
TRY POKE 103,1:
  FILE OCCUPIES THE SAME MEMORY AS THIS FILE. TRY POKE 10 POKE 104,64: POKE 16384,0 THEN RELOAD THIS PROGRAM AND TRY
                                                                                                                                                                                                                                                                              TRY POKE 103,1 :
   AGAIN.
                      DIM H$(8),A$(2)
CLEAR :D$ = CHR$ (4)
INPUT "BINARY FILE NAME? ";FILE$
20 INPUT "BINARY FILE NAME?"
30 PRINT D$; "BLOAD"; FILE$
40 TFILE$ = "T-" + FILE$
50 AD = PEEK (43634) + 256 *
60 LN = PEEK (43616) + 256 *
70 PRINT D$; "OPEN"; TFILE$
80 PRINT D$; "DELETE"; TFILE$
90 PRINT D$; "OPEN"; TFILE$
100 PRINT D$; "WRITE"; TFILE$
110 PRINT CALL -151"
                                                                                                                                                                          PEEK (43635)
PEEK (43617)
                             FOR J = 0 TO LN - 1
 140 I = I + 1
150 IF I = 1 THEN GOSUB 300
 160 Y% = PEEK (J + AD)
170 N2% = Y% / 16
180 N1% = Y% - N2% * 16
180 N1% = Y% - N2% * 16
190 IF N1% < 10 THEN H1$ = STR$ (N1%)
200 IF N1% > 9 THEN H1$ = CHR$ (N1% + 55)
210 IF N2% < 10 THEN H2$ = STR$ (N2%)
220 IF N2% > 9 THEN H2$ = CHR$ (N2% + 55)
230 H$(I) = H2$ + H1$
240 IF I = 8 OR J = LN - 1 THEN GOSUB 430
                            NEXT J
                             GOTO 460
260 GOTO 460
300 AR% = AD + J
310 A%(2) = AR% / 256
320 A%(1) = AR% - A%(2) * 256
330 HA$ = "": FOR L = 1 TO 2
340 N2% = A%(L) / 16
350 N1% = A%(L) - N2% * 16
360 IF N1% < 10 THEN H1$ = STR$ (N1%)
370 IF N1% > 9 THEN H1$ = CHR$ (N1% + 55)
380 IF N2% < 10 THEN H2$ = STR$ (N2%)
390 IF N2% > 10 THEN H2$ = CHR$ (N2% + 55)
400 HA$ = H2$ + H1$ + HA$
 400 HA$ = H2$ + H1$ + HA$
410 NEXT L
  420
                            RETURN
 420 RETORN
430 PRINT HA$;":";H$(1);" ";H$(2);" ";H$(3);" ";H$(4);" ";H$(5);" ";H$(6);" ";H$(6);" ";H$(7);" ";H$(8)

440 I = 0:H$(1) = "":H$(2) = "":H$(3) = "":H$(4) = "":H$(5) = "":H$(6) = "":H$(7) = "":H$(8) = "":H$(8) = "":H$(1) = "":H$(2) = "":H$(1) = "":H$(1) = "":H$(1) = "":H$(2) = "":H$(1) = "":H$(1) = "":H$(2) = "":H$(1) = "":H$(2) = "":H$(2) = "":H$(2) = "":H$(3) = "":H$(1) = "":H$(2) = "":H$(2) = "":H$(3) = "":H$(1) = "":H$(2) = "":H$(1) = "":H$(2) = "":H$(1) = "":H$(2) 
 450
                           RETURN
                           PRINT "3DOG"
PRINT "BSAVE ";FILE$;",A";AD;",L";LN
 460
 470
                           PRINT D$;"CLOSE";TFILE$
PRINT : PRINT CHR$ (7);"FINISHED"
 480
 490
500
                            END
```

## Keyboard Control in the //e and //c

by David A. Rachlin

In certain applications it would be handy if your program could determine whether or not you were holding down a key. A peculiarity in the wiring of the Apple //e and //c allows for just such detection.

Let's look first at how the keyboard is designed to work. When you press a key, its ASCII value, a number from 128 to 255, appears in the keyboard input, memory location 49152. This value remains either until you press another key, when the new value is substituted, or until the keyboard input is cleared by reading from or writing to the keyboard strobe at location 49168. (The keyboard input is considered cleared when it contains a value of less than 128.)

Reading from the keyboard input lets a program detect that you've pressed a key, but not whether the key remains in the down position. A reasonable solution would seem to be to activate the keyboard strobe just before reading from the keyboard input. But this doesn't work. If you press a key and the program then activates the strobe, the keyboard input remains cleared even if the key stays down. You have to either press the key again or use the built-in repeat.

As it turns out, however, the keyboard strobes of the Apple //c and //e are rather peculiar. While reading from the strobe clears the content of the keyboard input, this operation also returns the ASCII value of any key you're holding down. If you're not currently holding down a key, a value of less than 128 is returned.

The following simple BASIC program takes advantage of this eccentricity to determine the true state of the keyboard. It indicates a keypress by repeatedly displaying on screen the character associated with the key only while you're holding it down:

10 A = PEEK(49168)

20 IF A > 127 THEN PRINT CHR\$(A); 30 GOTO 10

Try this program on the Apple II Plus to verify the difference in the //e and //c. Although it doesn't work on the older machine, the results are at least entertainingly bizarre.■

Write to David Rachlin at 0-85 Morlot Avenue, Fair Lawn, NJ 07410.

### A Customized AppleWorks Accessory

by Neil J. Stone

One AppleWorks accessory that really comes in handy is a Notes/Calculator/Calendar file you can create on a spreadsheet. First, set up a spreadsheet file and call it A.calc.calendar (see the **Figure**). The first several rows are reserved for notes; the middle section can accommodate calculations; and the final area contains a calendar.

When you set up your accessory file, the following points are important to remember. Within the Notes section, list rows with lowercase letters instead of numbers. This will prevent your spreadsheet cell from treating the number 1 as a value rather than a label. If you want to number your items you must type shift-" first, so that the cell will contain a label, not a value.

In the middle portion, Calculator, it's helpful to have frameworks for repeated calculations. For example, if you need to calculate body-mass index (BMI), you can set up weight/ height² (as in the **Figure**) so that the spreadsheet immediately yields the value for BMI.

Finally, type in Month, Day (number), Day, and a space for the event you want to note (called Important to

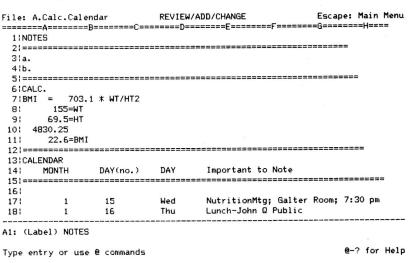
Note), and fill them in to produce a sequential calendar of events. Using open apple-A, you can arrange your calendar according to any column: Even if you haven't typed in the dates in order, the AppleWorks spreadsheet can order them. And with open apple-I and open apple-D you can type in and delete lines for events.

The result is a file you can access easily with open apple-Q while you're working on other files. With headings such as Calc and Calendar, you can use open apple-F to guide you to the section you want to access, or you can just scroll down using the openapple key and the numbers 1–10. Although fancier accessories are available, this one offers the advantages of customization and speed—with no extra disks.■

Write to Neil Stone at 707 North Fairbanks Court, #1210, Chicago, IL 60611.

Got a hint of your own? inCider would like to see it. If we can use it in Hints/Techniques, we'll buy it from you. Send your tip to inCider, 80 Pine Street, Peterborough, NH 03458.

Figure. Notes/Calculator/Calendar accessory for AppleWorks.



## Beagle Bros Apple Software Report

Ad Number 252

"All the News That Fits"

Spring 1986

### TRIPLE-DUMP

Print any Apple image on your dot-matrix printer.

Use Triple-Dump with any Apple II and your dot matrix (graphics capable) printer to print:

- Hi-Res graphics Double Hi-Res graphics
- Lo-Res graphics Double Lo-Res graphics
- 40-Column text 80-Column text

Make "hard copies" of all kinds of images with absolutely no programming knowledge. Or, if you're a programmer, use Triple-Dump's print routines in your own Applesoft programs.

Triple-Dump offers many special graphics effects options such as picture cropping, rotating and magnifying, plus the ability (on many printers) to adjust the print density.

**BIG BANNERS TOO:** Triple-Dump puts your printer to work making giant-letter 81/2"-high signs for all occasions.

\$39.95 Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II Written by Mark Simonsen and Rob Renstrom



### SHAPE MECHANIC

Hi-res shape animation and fancy hi-res typefaces



Shape Mechanic converts your hi-res drawings

into "shape tables" so you can create title screens, charts and animation with Apple's builtin Draw and Xdraw commands. "List and Learn" demos on the Shape Mechanic disk teach you how to create your own hi-res programs.

HI-RES TYPE: 30 proportionally spaced hi-res screen display fonts (both large and small) are included on the Shape Mechanic disk. Each character may be redrawn as you choose.

## SUADOR DUTLINE CHOMP MODS COMPUTE SKINNY FATSO L.E.D. EMBUSSE Penman BROADWAY BOW SOURRE 200L004@st

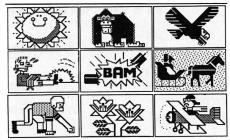
Shape Mechanic's new "SHAPE CAPTURE" feature lets you convert a section of any normal hi-res picture into a shape table.

No fee required to use Shape Mechanic's fonts & routines in programs that you sell. Just credit Beagle Bros in your program and manual.

39.95 Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II Written by Bert Kersey and Mark Simonsen

### MINIPIX Disk#1

200 pictures for The Print Shop™ and other graphics programs



Here are 200 copyright-free pictures on disk, for you to use with the most popular Apple graphics programs, including...

- MousePaint ■ The Print Shop
- Shape Mechanic
- Alpha Plot
- Apple Mechanic
- Beagle Graphics

...and almost any other Apple graphics program that deals with unprotected hi-res pictures.

### Attention, PRINT SHOP owners!



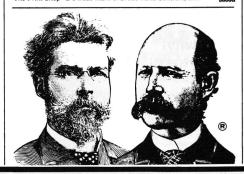
Use Minipix pictures straight from the Minipix disk on your greeting cards, banners and signs. And now you can convert part of anu

normal hi-res picture into Print Shop format! And use Minipix's picture editor to create special graphics effects like instant mirror images, negatives, distortions and blowups:



MousePainters can load Minipix directly from the disk. Alpha Plotters can "clip" Minipix off the screen and "paste" them onto their own pictures. Shape Mechanic and Apple Mechanic fans can use Minipix in shape table format.

29.95 Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II
Minipix pictures by Fred and Sara Crone "The Print Shop" is a trade mark of Broderbund Software, Inc.



### 3990 OLD TOWN AVENUE SAN DIEGO, CA 92110 PHONE 619-296-6400

BUY BEAGLE BROS DISKS AT YOUR SOFTWARE STORE. Or Visa/MasterCard or COD, phone toll free (orders only) 1-800-227-3800 ext. 1607

### **BEAGLE GRAPHICS**

Double-high resolution plus 16 hi-res colors!

### DOUBLE HI-RES FOR THE ARTIST...



Beagle Graphics lets you use your 128K Apple to draw and label impressive double hi-res images (up to 560 pixels horizontally) using the Apple

keyboard or, optionally, a joystick, AppleMouse, Koala Pad or Graphics Tablet. And you can display 16 hi-res colors with over

200 color-mixes and fast area "color fills".

A Variety of Typestyles is included for labeling double hi-res pictures and charts.

Beagle Graphics' CUT AND PASTE feature makes graphic manipulations a snap—Any



picture section may be individually altered or relocated to a new position on the screen. Or onto a completely different picture!

### ...OR FOR THE PROGRAMMER

You get 33 new commands for drawing, filling and manipulating double-res images. You can convert normal hi-res programs and pictures into



double hi-res, save and load any image section, compress picture data to 1/3 disk space, produce double hi-res "slide shows" and more.

READ THE REVIEWS: Family Computing. Feb. 86, gives its highest rating (★★★) to Beagle Graphics in \$-Value, Graphics Quality, Documentation and Overall Performance.

\$59.95 Unprotected, ProDOS and DOS 3.3 Compatible with any Apple IIc or 128K IIe Written by Mark Simonsen



10 HGR2: CLEAR: ONERR GOTO 10 20 P=1+(P=1): POKE 49238-P,Z 30 POKE 230,32\*P: POKE 28,C 40 CALL-3082: POKE 49235+P,Z 50 C=C+1: GOTO 20

### **FONT MECHANIC**

30 new hi-res typefaces for Shape Mechanic (and Apple Mechanic)

Font Mechanic's fonts work with all of the programs on Shape Mechanic and Apple Mechanic:

Old English CRATE FINE ZERRA UNCLE BRANDING Caesar 🖈 MOLLLYIUOOD BELLS **SANDWICH** TIMES

U.S. OPEN EDISON CA COUNTDOWN ROOSEVELT

FONT UTILITIES: Font Mechanic lets you convert fonts from other disks (DOS Tool Kit, the Penguin disks, etc.) into fonts for Shape Mechanic and Apple Mechanic. Distort fonts too (s-t-r-e-t-c-h, COMPRESS, etc.) for

hi-res copy-fitting and special effects. 29.95 Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II Written by Mark and Jon Simonsen



# Hints and Techniques~ in Cider's Best

## Creative Apple II Utilities On One Disk!

Expand your productivity and bolster your Apple II\* power with over two dozen top-notch utilities from **inCider** Magazine's "Hints and Techniques" column

In just minutes, you and your Apple II will accomplish more tasks than ever before—productivity that until now you've only dreamed of! And you'll do it all with one high-quality disk!

### inCider Favorites That Give You The Edge!

The **hotCider** March edition helps you do everything from setting the control codes on your printer to keeping track of all the files on all your ProDOS disks

"Hints and Techniques—inCider's Best" features such great favorites as:

- Peek to Poke—convert machine language subroutines and shape tables into Applesoft BASIC.
- **Ditto**—Apple Writer word processing language that lets you **automatically** print multiple copies of your documents.
- Multiprogrammer—now you can have three BASIC programs in memory at the same time...ideal for program development and subroutine testing.
- Ampersand Number Converter—you've never used a more convenient DEC-HEX converter than this one!

### **Greater Productivity is Easy!**

And that's just for starters—you'll get nearly two dozen **more** great **inCider** utilities! And with **hot-Cider**'s ready-to-run format and easy-to-read documentation booklet, creative productivity has never been easier. No more time-consuming references to back-issues, and no more painstaking do-it-your-self keyboarding and debugging.

Expand your productivity and your Apple II by expanding your software library today. Simply return the coupon or attached order card, or call **TOLL FREE, 1-800-258-5473.** (In NH, dial 1-924-9471).

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



## YES!

### I want more productivity!

Please send me **hotCider**'s special new edition\*\* at \$21.47 ea.

Dovement	Enclosed	- VICA	T NAC

Card # Exp. Date

Signature

Name

Address

City State Zip

\*\* Available in March 1986

hotCider • 80 Pine Street • Peterborough, NH 03458

6-86BI

inCider magazine is published monthly by CW inCider magazine is published monthly by CW Communications/Peterborough, Inc. Entire contents copyright 1986 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. inclider is a member of the CW Communications/inc. group, the world's largest publisher of computer-related information. The group publishes over 50 computer publications in more than 20 major countries. Nine million people read one or more of the group's publications each month. Members of the group include: ARGENTINA'S Computerworld/Argentina, ASIA'S Asian Computerworld, AUSTRALIA'S Computerworld Australia, Australian PC World, and Macworld, BRAZIL'S DataNews and PC Mundo, CHINA'S China Computerworld and China Comput-Macworld, BHAZIL'S DataNews and PC Mundo, CHINA'S China Computerworld and China Computerworld Monthly, DENMARK'S Computerworld' Danmark, PC World, and Run (Commodore); FINLAND'S Mikro; FRANCE'S Le Monde Informatique, Golden (Apple), OPC (IBM), Theoreme, and Distributique, GERMANY'S Computerwoche, Infowelt, PC Welt, Computer Business, and Run; HUNGARY'S Computerworld Informatika, ITALY'S Computerworld Italia and PC Magazine, JAPAN'S Computerworld Japan; MEXICO'S Computerworld Netherlands and PC World; NORWAY'S Computerworld Norge and PC Mikrodata; SPAIN'S Computerworld Norge and PC Mikrodata; SPAIN'S Computerworld SWEDEN'S ComputerSweden, Mikrodatorn, and Svenska PC World; SWITZERLAND'S Computerworld Schweiz, THE UNITED KING-DOM'S Computer News, PC Business World, and Computer Business; VENEZUELA'S Computerworld Venezuela; THE U.S.'S AmigaWorld, Computerworld, inCider, InfoWorld, MacWorld, Micro Marketworld, PC World, Run, 80 Micro, Focus Publications, and On Communications.

Problems with Advertisers: Send a description of Problems with Adventisers: 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 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. Or call (800) 645-9559, (800) 732-9119 in New York, between 9 a.m. and 5 p.m. E.S.T., Monday through Friday. If you have a problem with payment, please have your mailing label and your cancelled check or credit card statement in front of you.

Change of Address: Send an old label or a copy of your old address and new address to: in-Cider, 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 Raino Wirein, Direct and Newsstand Sales Manager, inCider, Route 101 and Elm Street, Peterborough, NH 03458. Call (800)

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

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.

- Power users of the Apple II: a majorleague baseball team, an aircraft-sales firm. and an insurance company
- Desktop publishing with your Apple II: making laser\*magic
- Debate among educators: How many computers should we have per classroom? Who should control them?
- Stattus Report: Paul Statt talks about CD-ROM
- Reviews: UniDisk 3.5. Pinpoint, Cauzin Softstrip, ProFiler, Epson AP-80
- Hints/Techniques: a ProDOS utility

## **MOVING?** PROBLEM?

Get help with your subscription by calling our new toll free number:

1-800-645-9559

between 9 a.m. and 5 p.m. EST, Monday-Friday.

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If moving, please give both your old and new address.

> \*New York State residents call 1-800-732-9119.

On-screen, direct-print mail merge program. Uses AppleWorks database and word processor files, direct database manipulation.

Local/global keyboard inputs, field calculations, automatic reformatting, optional on-screen formatted print preview, and more.

Works with Pinpoint!

## Pinpoint

24 Hour Toll Free Order Phone  $800\text{-}633\text{-}2252/_{\text{Ext.}}580$ 

Circle 276 on Reader Service Card.

## Micro Cookbook

Instant Menu Planner 3,000 Recipes Available Adjusts Ingredients for Number of Servings Valuable On-Line Reference **Automatic Shopping Lists** 

## **Pinpoint**

24 Hour Toll Free Order Phone

800-633-2252/Ext. 580

Circle 277 on Reader Service Card.

## Point A Point

Powerful telecomunications software with AppleWorks<sup>™</sup> filecard interface.

Send/receive files unattended (with clock). powerful progamming macros eclipse AE Pro.

XMODEM binary/text file transfers. 2400 Baud modem support and more.

Works with Pinpoint on your Apple IIc/IIe!



Pinpoint

24 Hour Toll Free Order Phone 800-633-2252/Ext. 580

Box 13323, Oakland, CA 94661

# EDITORS' CHOICE

Program Writer: A Word Processor for BASIC

Every month, hardware and software manufacturers release dozens of new products into the Apple II market. Editors' Choice singles out one product each month that the inCider editors feel is a significant addition to the Apple II family of products. Products evaluated in Editors' Choice are among the most recent releases and may not be available yet for retail distribution.

ne of the recent major advances in artificial-intelligence research is computer software that writes, or helps you write, other code: in other words, programs that program. **Program Writer**, from The Software Touch, brings that research home.

Program Writer is a full-screen BASIC program editor. Don't make the mistake we did when Program Writer arrived at inCider: Program Writer is not a BASIC line editor. Programs such as Beagle Bros' GPLE and MicroSparc's GALE have been editing BASIC line by line for years now.

Former Beagle sibling Alan Bird has left home and done his little brothers one better: He's written a word processor for BASIC that does tricks some English word processors don't attempt.

Take macros, for instance. Imagine pressing a two-key combination that automatically writes ONERR GOTO or PEEK() + 256\*PEEK(). You can create as many as 25 macros—and if you can't think of that many, Program Writer offers a sample macro file that breaks through

some of the more common BASIC bottlenecks.

Program Writer's find and replace functions are suited to BASIC: This word processor looks for garbage, control characters, ends of lines, and literal matches in addition to the usual words and phrases. It can even look for anything that is *not* a certain character—a feature that's useful for discovering, say, every PRINT not followed by

You can also cut and paste parts of your BASIC programs—move them from one place to another, just as in AppleWorks.

In fact, Bird admitted to

us that he went out of his way—sometimes "a long way out of the way"—to make Program Writer work like AppleWorks. "There's a reluctance to use new products, because every new product takes so long to learn. By making Program Writer work like AppleWorks we make the learning easier," he explains. For instance, you'll find Program Writer's open-apple com-

For instance, you'll find Program Writer's open-apple commands quite familiar if you're used to AppleWorks. Some are precisely the same, like the open-apple-digit commands that take you to ten corresponding places in your text or program. (If AppleWorks' command structure isn't your favorite, though, you can reconfigure Program Writer to work like your word processor.)

You can even wander through your Applesoft programs with a mouse, if you have one. That's more than you can say for AppleWorks (but watch Alan Bird and his buddy Marc Simonsen for some rodential changes in the Apple-Works interface this summer).

Program Writer is memory resident and compatible with DOS 3.3 and ProDOS. It works with any Apple II. You can load the editor into the "language card" or the bankswitched memory of your 128K Apple—and that leaves plenty of room for your Applesoft programs.

And your programs will all but write themselves. "Bird imagines Program Writer as a tool for experienced programmers," Technical Editor Paul Statt notes, "but beginners have to get ahold of this package, too. It makes programming al-

most as easy as typing by taking away a lot of the silly hindrances built into Applesoft BASIC."

Bob Ryan, AmigaWorld's technical editor (formerly in-Cider's) and ace BASIC programmer, wished he were back at inCider: "This is great." When he recovered his wits, he admitted, "Okay, so it's about eight years late. It's still great. Nobody needs to buy one of those BASIC line editors anymore—they're a thing of

the past."
Program Writer is available for \$49.95 from The Software Touch, 9842 Hilbert Street, Suite 192, San Diego, CA 92131, (619) 549-3091.



a number.



## Get TransWarp™. The fastest accelerator you can buy for your Apple<sup> $^{\text{m}}$ </sup> IIe, II, or II+.

### Computing at warp speed!

It's an experience you shouldn't miss. And with TransWarp, you won't have to. Because TransWarp will run your software up to 3.6

wont nave to. Because TransWarp will run your software up to 3.6 times faster — leaving other accelerators in the stardust!

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



"I recommend Applied Engineering products wholeheartedly."

> Steve Wozniak, the creator of Apple Computer

### An important difference.

TransWarp's not the only speedup card on the market. But it's the only one that accelerates your Apple's main memory, ROM and auxiliary memory. And with more and more programs residing in auxiliary memory, buying anyone else's accelerator makes less and less sense. TransWarp even works with most D.M.A. devices including the Swyft card. There's one more difference. Since TransWarp doesn't use mem-

ory caching, it accelerates all software — and not just most of it.

Simply plug TransWarp into any slot in your Apple II, II + or IIe — including slot 3 in the IIe. Instantly you'll be computing at speeds you only dreamed about before. And should you ever wish

to run at normal speed, simply press the ESC key while turning your Apple on.

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

### **Speed = Productivity**

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

- 3.6 MHZ 65C02
- 256K of ultra-fast on-board RAM
- · Accelerates main and auxiliary memory · Low power consumption for
- cool operation
- Totally transparent operation with all software
- Plugs into any slot, including slot 3 on the Apple IIe
- Accelerated 16 bit option available

### Satisfaction guaranteed!

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

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

### For fast response:

Call Applied Engineering, 9 a.m. to 11 p.m., 7 days at (214) 241-6060. MasterCard, VISA and C.O.D. welcome. Texas residents add 51/8% sales tax. Add \$10.00 if outside U.S.A

Or mail check or money order to Applied Engineering, P.O. Box



P.O. Box 798, Carrollton, TX 75006

(214) 241-6060

# From Origin, source of the classic, award-winning Ultima $^{TM}$ series, comes

A futuristic, fast-paced strategy roleplaying game by Lord British and

Chuckles. Based on the award-winning Car Wars® board game by Steve Jackson.



Drive the freeways of the future where the right of way goes to the biggest gun. Somewhere within the 16 cities and outlaw-infested highways are the clues you will need to complete the ultimate mission.

Step into the arena on Amateur Night and earn the right to custom-build your combat vehicles.

The AADA will offer you courier missions. The FBI and the underworld will vie for favors. But watch out! To survive you'll need road experience, the ability to decipher clues, gambling skills, money, a super car—even a clone.

The final gauntlet will test your tactical skills and hair trigger reactions to the limit. But with triumph comes honor, and entry into the elite circle of AutoDuellists. The challenge of AutoDuel® awaits you. Are you ready?



DRIGIN LI SYSTEMS INC.

SYSTEMS INC. 340 HARVEY ROAD, MANCHESTER, NH 03103 (603) 644-3360



ULTIMA™ III sends you on an incredible fantasy roleplaying journey through monster-plagued Sosaria in search of the elusive Exodus.



ULTIMA<sup>™</sup> IV is the longawaited sequel to Ultima<sup>™</sup> III. The Quest of the Avatar is a quest to the final frontier—the self.



MOEBIUS<sup>™</sup> takes you through the elemental planes of a colorful Oriental world of fantasy and adventure in search of the Orb of Celestial Harmony.



OGRE® is a strategy game fought on the nuclear battlefield of tomorrow as an inhuman juggernaut Cybertank battles conventional forces.

Ultima and Lord British are trademarks of Richard Garriott. Moebius is a trademark of Greg Malone. Ogre and AutoDuel are registered trademarks of Steve Jackson Games, Inc. Car Wars is a registered trademark of Texas Instruments. Apple is a trademark of Apple Computer Inc.

Authors wanted. Call us today.