



incider

September 1986
USA \$2.95/Canada \$3.95
A CWC/I PUBLICATION

16 WINNING IDEAS!

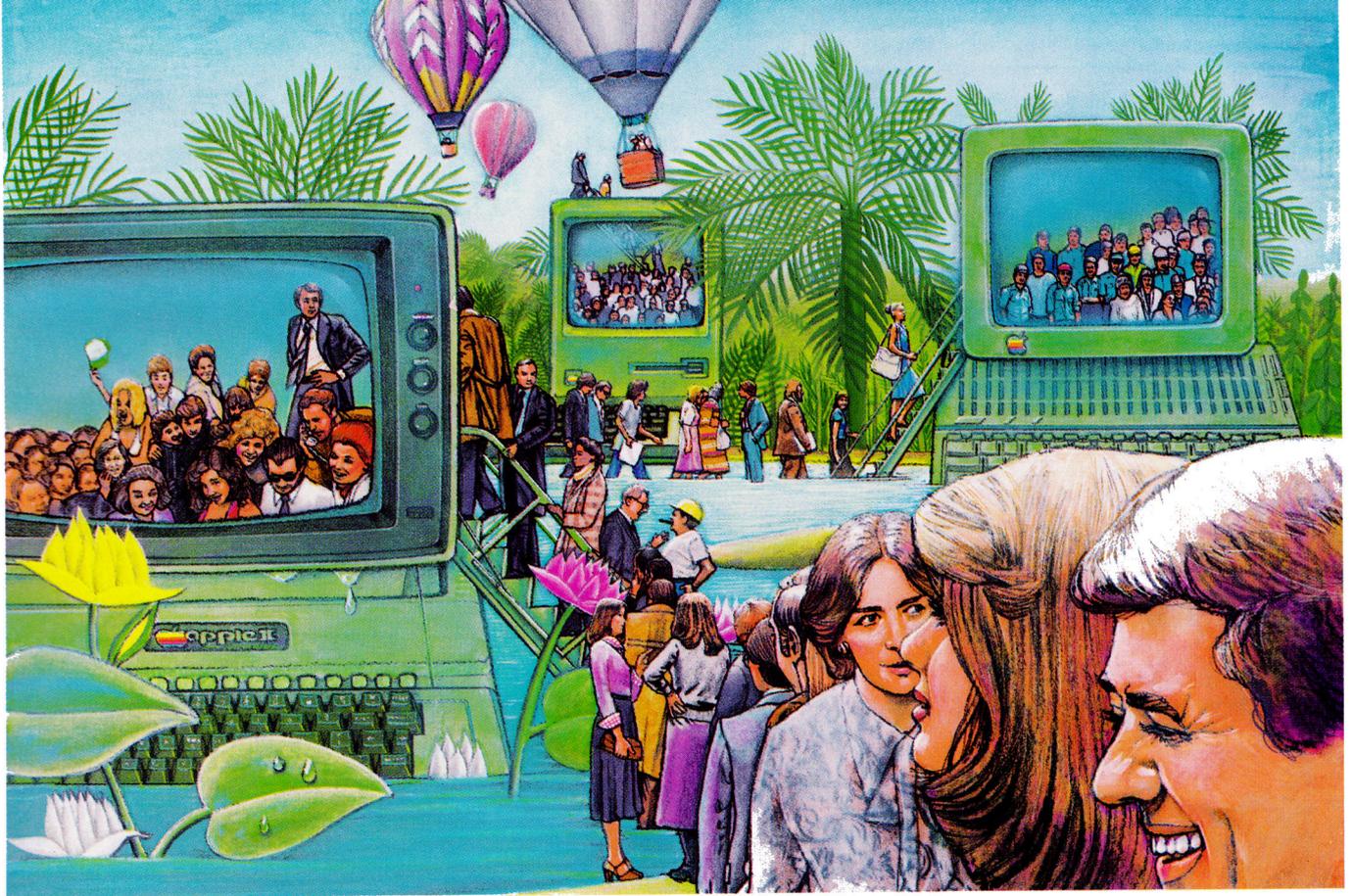
TEACHERS TELL WHAT WORKS WITH KIDS

A FRESH LOOK AT FIVE SPREADSHEETS

CONTROL YOUR PRINTER WITH BASIC

APPLEWORKS AT RAM SPEED





USE THE BRAINS YOUR APPLE WASN'T BORN WITH.

Right at your fingertips in CompuServe's Apple® Forums.

Join the CompuServe **Apple II and III Forum** to swap everything from tall tales to short cuts with other users, and explore thousands of classic programs stockpiled since 1979.

Swap programs and files with fellow Mac owners in our **Macintosh® Users Forum**. Questions? You'll get answers from the experts here!

Visit the **Macintosh Developers Forum**. Get updates to the "Inside Macintosh Software Supplement." Interact with the Mac "team" in Cupertino.

The **Apple User Groups Forum**, supported by Apple Computer, unites officers of Apple user groups—"ambassadors" for hundreds of thousands of Apple-active enthusiasts worldwide.

Easy access to free software.

- Download *First-rate, non-commercial, user-supported software and utility programs.*
- Take advantage of CompuServe's

inexpensive weeknight and weekend rates (when Forums are most active, and standard online charges are just 10¢ a minute).

- Go online in most major metropolitan areas with a local phone call.
- And receive a **\$25.00 Introductory Usage Credit** with purchase of your CompuServe Subscription Kit.

Information you simply can't find anywhere else.

Use the *Forum Message Board* to send and receive electronic messages, and pose specific questions to Apple owners.

Join ongoing, real-time discussions in a *Forum Conference*—with Apple luminaries like Bill Atkinson, Doug Clapp, Dan Cochran, Jean-Louis Gasee, Mark Pelczarski, John Sculley and Steve Wozniak.

Search *Forum Data Libraries* for free software, user tips, transcripts of previous CompuServe online conferences and more.

Enjoy other useful services like:

- **Popular Computer Magazines**—*electronic editions, for your reading pleasure. Including Apples Online, which reprints*

articles from leading user group newsletters nationwide and other Apple-related publications.

- **Other CompuServe Forums**—supporting *Jazz™* and other *LOTUS®* products. *Microsoft®, MicroPro®, Borland International®, Ashton-Tate®,* and other software. Also *Pascal, Basic, C, Forth, Assembly* and other programming languages.

All you need is your Apple computer and a modem ... or almost any other personal computer.

To buy your Subscription Kit, see your nearest computer dealer. Suggested retail price is \$39.95. To receive our free brochure, or to order direct, call 800-848-8199 (in Ohio, call 614-457-0802). If you're already a CompuServe subscriber, type GO MAUG (Micronetworked Apple Users Group) at any ! prompt to see what you've been missing.

CompuServe®

Information Services, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, Ohio 43220

800-848-8199

In Ohio, Call 614-457-0802

An H&R Block Company

Introducing the Most Powerful Business Software Ever!

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

50% OFF!



The VERSABUSINESS™ Series

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

VERSARECEIVABLES™

\$99.95

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

VERSAPAYABLES™

\$99.95

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

VERSAPAYROLL™

\$99.95

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

VERSAINVENTORY™

\$99.95

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

VERSALEDGER II™

\$149.95

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

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

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

FOR APPLE & MACINTOSH OWNERS ONLY!

Apple and Macintosh owners *only* may now take 50% off our listed price of any module(s) from our VersaBusiness Series. All sales are final (our normal 30-day money back guarantee does not apply to sale items).

To Order:

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

- * add \$3 for shipping in UPS areas
- * add \$4 for C.O.D. or non-UPS areas

- * add \$5 to CANADA or MEXICO
- * add proper postage elsewhere

DEALER INQUIRIES WELCOME

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



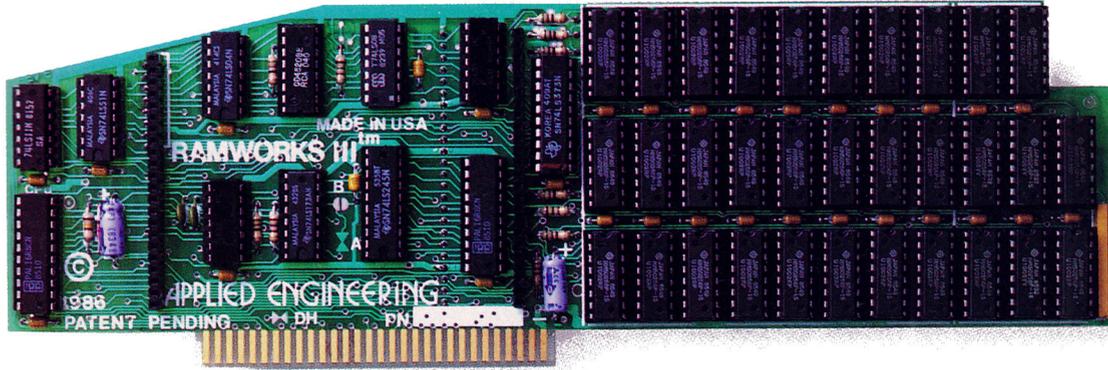
COMPUTRONICS

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

Circle 66 on Reader Service Card.

RamWorks III[®]

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



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

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

The AppleWorks Amplifier.

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

Only RamWorks eliminates Apple-

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

RamWorks, nothing comes close to enhancing AppleWorks so much.

The Most Friendly, Most Compatible Card Available.

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

RamWorks III is compatible with all

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

Highest Memory Expansion.

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

It Even Corrects Mistakes.

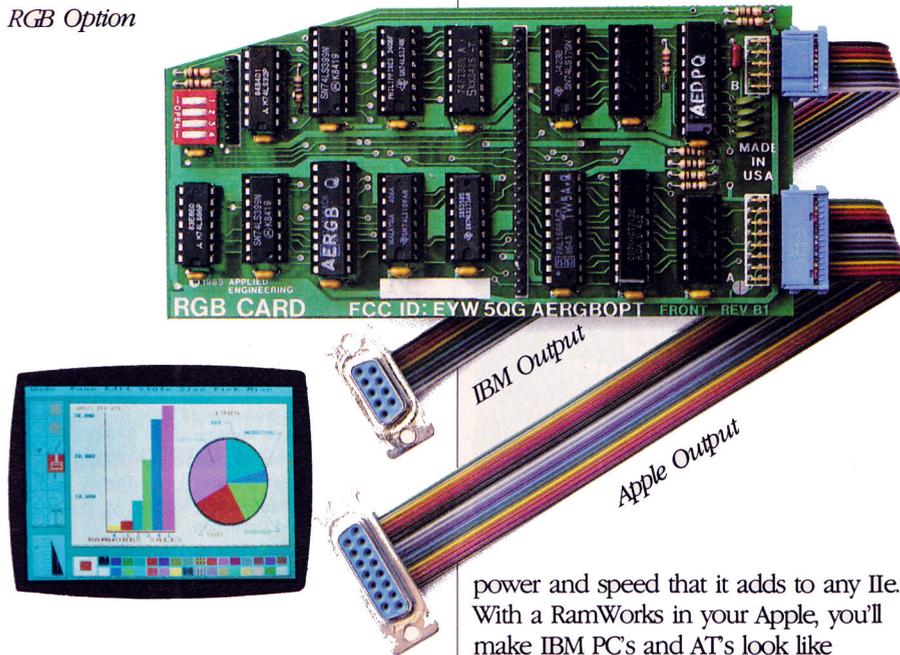
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

The Ultimate in RGB Color.

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

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

RGB Option



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

True 65C816 Bit Power.

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

Endorsed by the Experts.

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



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

Steve Wozniak, the creator of Apple Computer

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

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

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

Quality and Support of the Industry Leader

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

It's Got It All

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

coverage no matter where you purchase

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

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

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

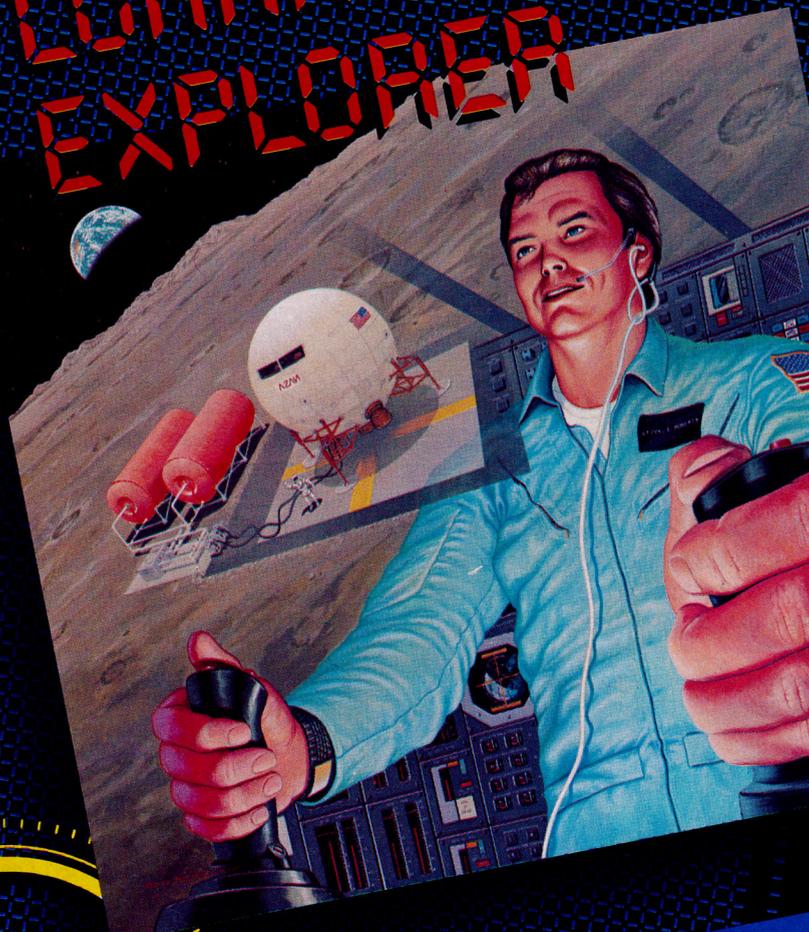
ORDER YOUR RamWorks III TODAY. 9 a.m. to 11 p.m. 7 days, or send check or money order to Applied Engineering.

MasterCard, Visa and C.O.D. welcome. Texas residents add 5%% sales tax. Add \$10.00 if outside U.S.A.

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

A Space Flight Simulator

Available for Apple II/III/IV/SE/PC (II & compatibles). Apple requires 48K, one 16-sector disk drive. IBM requires 128K, one disk drive. Color graphics card. Color monitor suggested but not required.



- Out-the-window 3-D color views. See the lunar landscape, constellations, moon bases, and the Apollo 11 landing site.
- Flight origin from 3 vantage points: landing pad, close approach, lunar orbit.
- Lunar Landing Vehicle realistically simulates flight dynamics of future NASA spacecraft.
- Cargo Run Game. After training, become part of a Mobile Mining Team.
- 96-page illustrated training manual.

From the publishers of WILDERNESS:
A Survival Adventure.

ELECTRIC TRANSIT

501 Marin Street, Suite 116
Thousand Oaks, CA 91360
805/373-1960



Publisher Terri Hamilton
Editor in Chief Deborah de Peyster
Managing Editor Dan Muse
Technical Editor Paul Statt
Senior Editor Eileen T. Terrill
Review Editor Eric Grevstad
Assistant Editor Lafe Low
Copy Editor Peter Bjornsen
Field Editor Babs Cringely

Advertising

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

Southeast and Central Sales Manager Dale Strang
(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

Sales Representative Fiona Davies
Advertising Coordinator Kim Labbe
(800) 441-4403

Marketing Services Manager Dawn F. Matthews

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 Circulation William M. Boyer
Circulation Manager Frank S. Smith
Direct & Newsstand Sales Manager Kathy Boghosian
(800) 343-0728
Direct-Marketing Manager Bonnie Welsh
Single-Copy Sales Manager Linda Ruth
Director of Credit, Sales, and Collection William M. Boyer
Audits and Statistics Manager Susan Hanshaw
Executive Creative Director Christine Destrempe

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. Second-class 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 44, 45, 56, 57, 58, 59, Frank Cordelle; page 42, Earl Keleny; pages 60, 61, Katherine Mahoney; page 128, Taurus Photo, Inc.

ON THE COVER

42 Teachers' Best: 16 Winning Ideas

How are computers being used in education? *inCider* attended Apple Computer's Pacesetters' Symposium on classroom computing and came away impressed with what teachers are doing with Apple II's.

ARTICLES

50 Orchestrating the School Office

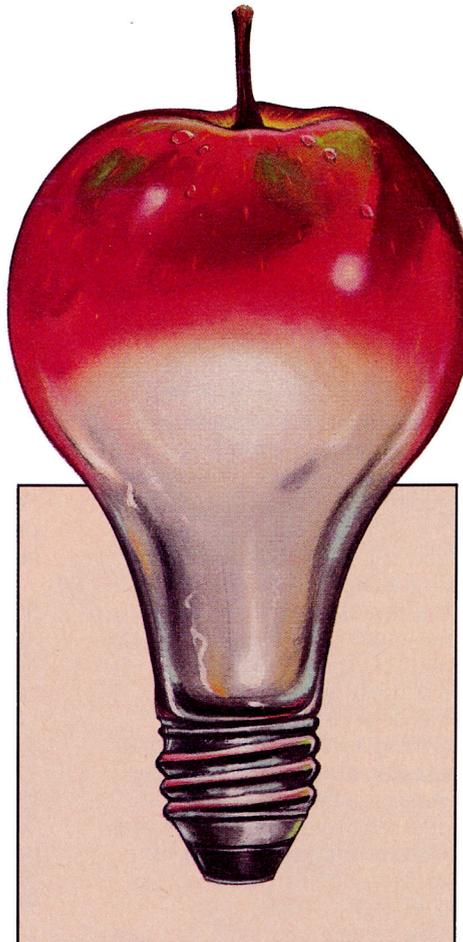
With an Apple II and the right business software, school administrators can manage everything from bus routes to departmental budgets.

56 Tapping the Potential of Special- Needs Students

For a child with special needs, a computer can mean the difference between frustration and inspiration.

60 Spreadsheets for All Reasons

There are as many uses for spreadsheets as there are people to use them. *inCider* looks at five leading Apple II spreadsheets and helps you decide which is best for you.



42

71 Design a Student Data Base

Keep track of student records with this AppleWorks data base.

TUTORIALS

Applesoft Adviser 74
BASIC Printer Control
by Dan Bishop

AppleWorks in Action 81
Working with a Customer Data Base—Part 2
by Ruth K. Witkin

Pascal Primer 86
Meet the Pascal 6502 Assembler
by Tom Swan

DEPARTMENTS

inCider's View 6
3-D and Beyond
by Deborah de Peyster

Letters 8

News Line 14

Extras for the //x; Capturing a Buffalo; Classrooms of Tomorrow; Let's Get Static; New ProDOS: Window Dressing?

Apple Clinic 20

Mousetext Characters; Colorful Characters; Special Characters; Your Own Characters; Buffer Headaches; Big-Blue Blues; Disk Tricks; Mini Problems
by Bob Ryan and Paul Statt

Reviews 30

Fisher-Price on Disk; Report-Works, MegaWorks, ThinkWorks; The Bard's Pro-Am Writing System; Titan III plus //e; MindPlay; Newsroom: The Scholastic Edition; CommWorks; Paul Whitehead Teaches Chess

New Products 106

Status Report 110

Marketing
by Paul Statt

Game Room 113

Star Fleet 1; Reach for the Stars; Carriers at War
by Brian J. Murphy

Hints/Techniques 118

Enhanced INPUT; Inverting Hi-Res Graphics; Running AppleWorks from Your RAM Disk

Coming Attractions 124

Reader Services 124

Editors' Choice 128

Talk Back: Telecommunications Made Tolerable

INCIDER'S VIEW

3-D and Beyond



"Leaping off the screen is exactly the next step in 3-D software."

by Deborah de Peyster

Just when you feel you've seen one too many spelling checkers, sorcerer adventures, and word processors and heard one too many promises of "all new features," something happens that gives you hope. One software developer (Infocom) offers you a pair of 3-D glasses to use in following along with its story (The Leather Goddesses of Phobos, to be released late this month), and suddenly 3-D enters the world of Apple II software.

Now that's a pretty simple use of 3-D, but it's just the beginning. Quality 3-D graphics is coming to the computer screen in a big way. Later this year, Mindscape will be distributing games developed by Master Designer Software, a company that views the computer monitor as a movie screen. We've seen horses gallop across the screen in all their full-color glory—horses that look so real you think you can reach right in and touch them. Characters move among the props, and cuts, pans, and closeups simulate real movie action. And, as Master Designer is currently developing for the Atari ST and Amiga, we expect that same quality to appear on the anticipated 16-bit Apple II.

Developers at Master Designer say, "The computer game will never be the same." And from what we've seen so far, we wholeheartedly agree. The images on the computer screen are so vibrant and alive they almost leap right off.

Leaping off the screen is exactly the next step in 3-D software. Leading the way with a new category of software that Activision's vice president of marketing Bill Cleary refers to as "CAD [computer-aided design] for the home" is Broderbund Software. Its new product called Toy Shop literally puts what you design on the screen into your hands.

It works like this. You custom-modify designs that come with the program, then print them on computer paper. You glue

the paper to sticky cardboard that comes with the software and construct the various projects, including 20 mechanical models from steam engines and balloon-powered jet dragsters—and they actually work.

Activision has a similar idea, code-named Paper Models, under development. This product lets you design and build small villages, airplanes, or ships.

While these programs are intended for hobbyists, they open up the potential for more directly useful products, such as home-addition design kits and home-decorator packages. Have you ever seen those kits advertised in the back of home magazines? They come with cardboard cutouts that let you move furniture around on a floor plan and get it right before actually budging a thing. Other kits let you knock down walls and build cardboard decks and additions before you destroy your house. Why can't you custom-design such tools on your computer?

We think you will. Computers such as the Macintosh already have software that lets you design floor plans and homes, but all the designs stay on the screen. We expect that the graphics and power of the anticipated new Apple II will spur developers to combine the best of design software with the Broderbund concept of taking it off the screen and putting it into your hands to help with a number of home CAD projects.

And, of course, the *n*th degree of 3-D is the actual existence of these images completely off screen. Famed developer Nolan Bushnell (a founder of Atari and Chuck E. Cheese, to name a few of his ventures) and our Apple II hero Steve Wozniak are said to be working together on projects that "take the video game from the screen and put it on the floor." Of course, once you've done that you don't need a computer at all, so we'll stop here. It's clear that the possibilities are endless. As Cleary says, "The future is just beginning." ■

Interlude II

COWGIRL CAPER—Interlude #125

Howdy, partner.

Howdy, partner???

You've got a date with a cowgirl tonight.

Uh oh. Have you been playing Interlude again?

Let's see ...I'll need a hat, boots, chaps...and maybe spurs.

What time does the rodeo start?

As soon as you walk through the door, Cowboy!

Interlude II. The long-awaited sequel to the first adult computer game in history is finally here. It's provocative and playful! Outrageous and romantic! It has all the excitement of the original Interlude, plus significant new features.

The computerized interview, which is taken by one or both players, has been greatly expanded. It probes your innermost desires to discern your mood of the moment, your secret longings, your special fantasies, and then suggests for your pleasure one of its more than 160 Interludes. You can ask the computer for an Interlude for now, or one for later. Special options give each player added control over surprises and special erotica hidden in the Interludes.

The original Interlude took the computer world by storm six years ago, creating a media sensation:

FORUM Magazine: "The Interludes are imaginatively and sensitively written... the computer's recommendations are uncannily appropriate."

US Magazine: "The most edifying third party to join couples between the sheets since The Joy of Sex."

Chicago Tribune: "This marriage of computer technology and sex is natural... erases forever the image of computer-users as dull guys with slide rules in their pockets and square roots on their minds."

Money Magazine: "Sometimes it's easier to tell a computer what you want than it is to tell your partner."

Interlude II will take you to the outer limits of fantasy and romance. And, if the computer selects Interlude #99 your love life may never again be the same.

Interlude II. Are you ready for it?

Recreational Technology, Inc., 11011 Richmond, Suite 600, Houston, TX 77042

Name _____ Age _____

Address _____

City/State/Zip _____

Accepted for payment:

MasterCard® Acct. # _____ Exp. Date _____

VISA® Acct. # _____ Exp. Date _____

Charge customers must sign here: _____

1-800-752-7001 ext. 829
(in Texas call 1-800-442-4799 ext. 829)

\$39.95 Interlude II
Shipping \$3.00 (outside U.S.A. \$10.00)

TX residents add 6 1/8% sales tax (\$2.45)

Available for Apple II, II+, IIc and IIe.¹

\$ _____ TOTAL INC

¹Trademarks of Apple Computer, Inc.

LETTERS

Dish It Out

Recently I purchased a satellite dish for receiving video programs. I've been told there are ways to pick up data, and I'd like to know if there is any information on this subject. How would I hook up my satellite dish to my Apple? There's been talk about scrambling video signals, and I wonder if someone out there in Apple computer land has software for descrambling these signals.

Larry Durnil
1325 Chestnut Street
Columbus, IN 47201

Picking up signals from space with your satellite dish and Apple II is a neat idea. We're not certain just what you're looking for, though—Dallas or data? We don't know at this time what kinds of data are transmitted via satellite.

Jim Sather, inCider Apple Clinic columnist, says in our May 1986 issue (p. 22) that although it might be possible to engineer video-descrambling circuitry for an Apple peripheral slot, no descrambling cards or programs are currently available for the Apple. If we really wanted to make our Apple a satellite peripheral, though, we'd call the wizard, Don Lancaster, at (602) 428-4073, and ask him which of his books addresses the problem. —eds.

Taming of the Files

Referring to the article "The Taming of the Screen" (April 1986, p. 67), I'm having a heck of a time trying to figure out how to put my own files under headings and choose files with the mouse. The author says you should change the program's delay statements and put in individual menu options, but I don't quite understand how. Do you use PRINTs, or what?

Jeff Trudeau
2613 South Santa Barbara
Mesa, AZ 85202

The information you need is found on pages 70 and 72. Line 100 of Listing 2 contains a REM statement:

Routines to Determine Mouse or Key-stroke. You have to build your own mouse routine in this section. Lines 500, 600, 700, 800, 900, and 1000 begin the display routines for individual menus. Once you've determined whether the mouse has been pressed, direct the program to one of those menus, depending on which selection was made with the mouse.

Explanations of the routines that handle the mouse and keyboard are on pages 70 and 72, under "Reading the Mouse," "Calculating the X,Y Position," "Pushing the Button," and "Reading the Keyboard."

There's a slight error in the four-line listing just above "Reading the Mouse" on page 70. Line 20 should read:

```
20 PRINT CHR$(27); INVERSE: REM  
ENABLE MOUSE TEXT
```

You should have moderate programming skills in ProDOS to use Menu-Control Demonstration—it would be difficult for novices. For further reference, check "The Mouse That Roars" in the October 1984 inCider (p. 72) and the series "Using ProDOS" by Lee Swoboda (February, April, May, June, July, and August 1985). —eds.

Good Choice

Having recently purchased an ImageWriter II, I was interested in your April Editors' Choice column. I agree with the editors that it's a fine printer.

Dawn Matthews said something that puzzled me, though: "I had a good time running the test for color printing and using the accompanying DiskWare utility to print pictures. . . ."

What accompanying utility? I didn't receive any with my ImageWriter, nor could my dealer find any information that any Tool Kit disk should have been packed with my printer. Did I read too much between the lines? Is this one of Apple's new promotions?

Of course, the Tool Kit won't work with the ImageWriter II. So where do I go from here, short of actually purchasing a good dumping program?

J.K. MacNeal, Jr.
1430 Marshall Road
Waterloo, NY 13165

Some printers are more choice than others. The ImageWriter II inCider received was an early model, and Apple included some items it later decided to hold out on, like the ImageWriter Tool Kit disk—sorry about that. It seems to be the same old ImageWriter Tool Kit that worked so well with the ImageWriter I (version 1.5, Apple part number 680-0225-B), though. Ask for it by name—you'll have the same tools with which Dawn was working. —eds.

A Fresh Start

My program, Super Startup (April 1986, p. 106), has caused a bit of confusion for some readers. There are three places in which there are supposed to be a certain number of spaces between two pairs of quotation marks. Because the beginning set of quotation marks is on one line and the end set is on the next, this isn't immediately obvious.

There's also a minor bug in the program that causes an error when you move to a subdirectory on disk, change disk drives, move to a subdirectory on the new disk, or move back a level with the backspace key.

Here are the modifications that should solve both problems:

```
340 IF KK = -11 THEN VTAB LP + 2 :  
HTAB 1 : CALL -868 : PRINT  
"SLOT:" : VTAB LP + 2 : HTAB 7 :  
GET SN$ : POKE -16368,0  
360 IF KK = -11 THEN SN = VAL  
(SN$) : DN = VAL (DN$) : PRINT  
D$:"PREFIX/" : SD = 1 : LE = 0 :  
GOTO 60  
370 VTAB LP + 2 : HTAB 1 : CALL  
-868 : PRINT "TYPE 'LETTER' YOU  
WISH TO ";OP$ : POKE -16368,0  
520 HTAB 1 : VTAB LP + 2 : CALL  
-868 : POKE -16368,0 : PRINT B$;  
OP$; " "; DI$ : PRINT D$; B$; OP$;  
DI$ : B$ = "" : RETURN
```

The formula should read:

$$ME = 768 + (P * 128) + (KK * 128) - (768 + (P * 128) + (KK * 128) > 1921) * 984 - (768 + (P * 128) + (KK * 128) > 2945) * 984$$

Sorry about any inconvenience this may have caused.

Scott Bowers
Route 5, Box 1338
College Station, TX 77840

Sharpen Your Sailing Skills Without Getting Your Feet Wet.



Head for the Silicon Bay and be the captain of your own keyboard.

In Mindscape's *The American Challenge: A Sailing Simulation*,™ you'll learn to pilot an Apple® IIe or IIc, IBM PC®, or Commodore® 64/128 through eight challenging courses.

This wind-blown sailing simulation will challenge and thrill beginners and old salts alike. Race against the stiff competition supplied in the program. Challenge another skipper head-to-head. Or race an opponent via modem from coast-to-coast.

Complete the preliminaries and you'll face the Aussies in the closest thing to a

real race for The Cup this side of Perth.

You may even win an expense-paid trip to Perth, Australia and course-side seats to watch the Yanks reclaim the America's Cup next January. Runners-up will receive Hayes™ Modems. Contest details are inside every package or available from your retailer.

Hoist a sail on your monitor. And sit down at the keys. *The American Challenge: A Sailing Simulation*™ will make you a better sailor with a few short strokes.

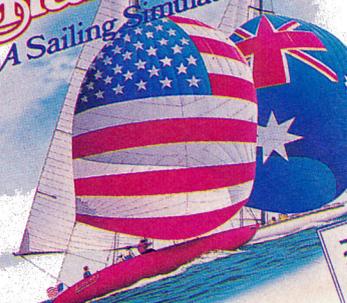
Mindscape
Software that challenges the mind.  MINDSCAPE INC.

Visit your retailer or call 1-800-443-7982 (in Illinois, 1-800-654-3767) for VISA or MasterCard orders. To purchase by mail, send VISA or MasterCard number with expiration date, check or money order to Mindscape, P.O. Box 1167, Northbrook, IL 60065. Add \$3.00 for shipping and handling. Allow 3-5 weeks for delivery. *The American Challenge* is \$39.95 for Apple and IBM versions; \$29.95 for C64/128.

Copyright © 1986 Mindscape, Inc. Mindscape is a trademark of Mindscape, Inc. Apple, IBM, and Commodore are registered trademarks of Apple Computer, Inc., International Business Machines, and Commodore Electronics Limited respectively. Hayes is a trademark of Hayes Microcomputer Products, Inc.

Circle 126 on Reader Service Card.

The American Challenge
A Sailing Simulation™



Learning Languages

This letter is to applaud you, on one hand, for your plea to use computers to make students think ("Do Drills Make Drones?" April 1986, p. 52). We must certainly work to meet that challenge.

On the other hand, I take strong issue with your statement (p. 54) that "some areas of learning, such as arithmetic and foreign languages, are best served by rote memorization of facts. . . ." There seems to be a rampant misconception of the nature of language acquisition, repeated throughout literature.

Language is a communicative activity, and in most situations is best learned by active use, not by rote memorization. A self-taught student thousands of miles from English-speaking people may need to do a lot of textbook memorization. But in most other situations, memorization is the least effective approach to learning a language. Effective instructors are now creating materials and activities designed to teach functional language use.

Therefore, computer programs for learning language, no less than programs for social studies or other subject areas, must be interactive, providing many opportunities for students to use the language in a real context. Simulation games, for example, make for excellent language practice. Critical-thinking skills are as important for language as they are in any other area. Rote memorization for language learning is not enough.

**Helen L. Jorstad, Associate Professor
Second Languages
& Cultures Education
University of Minnesota
159 Pillsbury Drive SE
Minneapolis, MN 55455**

A Quick Copy

I was very interested in your review of Sylvia Porter's *Personal Financial Planner* (April 1986, p. 36). After purchasing the program, I was also disappointed that side 1 of the program disk was copy-protected. After several days of wondering how to deprotect the disk, I believe I've come up with the answer.

First, copy the original disk with a standard disk-copying program (I used Copy II Plus). Then boot the copied disk and press control-C immediately. Next, type LOAD HELLO, then LIST. You'll see the following:

```
5 &
10 PRINT CHR$(4)"EXEC START"
```

You'll need to delete line 5, which would make the ampersand run the last loaded program. Since DOS doesn't recognize SAVE, you'll have to use CALL 41881 "HELLO". The disk drive will load the revised program and return with ?SYNTAX ERROR. Verify that the program has been saved correctly by typing LOAD HELLO. You should now see the following line:

```
10 PRINT CHR$(4)"EXEC START"
```

Now you have an unprotected copy of the program you can store on a UniDisk 3.5 or a hard disk.

**Clark H. Gabriel
909 North Chelton, #1205
Colorado Springs, CO 80909**

No Free Lunch

I'm sure everyone has heard the expression, "There's no such thing as a free lunch." Well, the same holds true in the world of telecommunications.

When I purchased my modem a year ago, I found ads from Dow Jones News/Retrieval Service and NewsNet enclosed in the instructions. NewsNet offered \$50 worth of free use, which I graciously accepted. Within a month, I had the starter kit and all the other necessary information to go on line with NewsNet.

On a Saturday evening, I logged on and downloaded a file of free-access bulletin boards and looked through some other directories. After 76 minutes on line, I knew this wasn't something I could really afford. Don't get me wrong—it's easy to use and stocked with enough variety to satisfy anyone, but I really couldn't justify it for myself.

That week, I wrote to the company's representatives to thank them for my free time and ask them to cancel my membership. One year later, I received a letter from a collection agency asking for the \$68 I owed NewsNet. Add that to the \$50 worth of free time I received, and that's \$118, or \$1.55 per minute—more than \$93 per hour.

Now, I could accept that if somewhere in the starter kit or advertisement the company had mentioned that its evening rate was \$93-plus per hour, but the starter kit said its evening/weekend rate was \$18. Seventy-six minutes at that rate is \$22.80,

plus a one-month subscription fee of \$15—\$37.80 total. Somewhere, an extra \$80 was added to my account.

After three unanswered letters and two months, I called NewsNet's toll-free subscription hotline (by this time, I had received another \$50 free-use ad). After ten minutes on the phone with three different people, I was told that no one knew exactly what the problem was, but they assured me they'd take care of everything. One month later, I received another collection notice.

I'm still not sure what's going on here, but let me remind you, "There's no such thing as a free lunch, and watch out for NewsNet." Keep up the good work with your magazine.

**Rod Christen
1337 Schultz
Waterloo, IA 50702**

Easy Enhancement

After reading letters from discouraged, frustrated readers throwing up their hands about the enhanced //e, I decided to share this with you. About two months ago, I was in the same boat. I found a solution in the Switchback board, from Computer Accents. This board is absolutely the greatest piece of hardware I've bought for my Apple //e.

Switchback holds enhanced and unenhanced ROM chips (not micro-processor chips) and plugs into the sockets of the unenhanced ROM chips on the motherboard. This way, it doesn't use up a valuable slot in your computer. A pushbutton switch on the cable that fastens to the outside of your computer lets you go from enhanced to unenhanced and vice versa. The board costs \$59.95, and that's all you spend—not \$20 to \$50 for updates to each of your unenhanced programs.

The company's address is Computer Accents, P.O. Box 5905, Kingwood, TX 77325, (713) 664-9727. I hope this information will help all those users in the same situation.

**Carl Inpyin
2 Maria Lane
Kinnelon, NJ 07405**

See this month's Apple Clinic, p. 20, for Jim Sather's additional comments on the Switchback board.

—eds.

A disk each month delivered to you... packed with ten programs for your Apple.

DISCOVER UPTIME

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 & get more from your computer.

Organize your life and be more productive with **home management** and **finance programs**. Have fun learning with **educational** programs and fun relaxing with **games** and **adventures**. You'll find **business, graphics, utilities** & more!

Ten programs and more on every disk — **a wealth of information**. What's the opposite of "downtime"? 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.

Take advantage of our introductory offer!

Subscribe and receive UTILITY TIME

FREE! Seventeen programs to put work gloves on your Apple, including **Banner Maker, Musical Keys, Graphix Fun** and **Windows**.

For immediate service, call toll-free: **1-800-437-0033** anytime, day or night.



LESS THAN
60¢ PER
PROGRAM

NOW
FOR ALL
APPLE II
COMPUTERS

Volume 11, No. 1

Micro Crossword Puzzle ■ Disk Verifier ■ Line Runner ■ Einstein Energy ■ Millisecond ■ Calorie Counter ■ What To Take ■ The Arcade ■ Ellipsoid Maker, and more!

Circle 15 on Reader Service Card.

I'LL BYTE!!!

12

I'm an Apple enthusiast who wants more. Please start my subscription to **UPTIME** immediately.

Disk Issues \$66.00

(Add \$2 per issue in foreign countries, except Canada and APO)

6

Disk Issues \$48.00

3

Disk Issues \$30.00

1

Disk Issue \$11.95

Name _____ Address _____ City _____

State _____ Zip _____
Please send my **FREE Utility Time** disk (\$18.45 value)
Bill my: Visa MC Exp. Date _____
Signature _____ Account No. _____

Send to:
UPTIME - PO Box 299
Newport, RI 02840
(401) 849-4923

A Quick PEEK

I typed in the short, but useful, program Peek to Poke (*inCider*, September 1985, p. 71) without first examining it, and was very surprised by lines 40 and 50. Portnoy must be a meticulous labeler—he carefully marked the beginning and ending addresses of each binary program. I don't, and I suspect others don't, either.

Therefore, I deleted lines 40 through 120, and replaced them with the following:

```

40 HOME: PRINT "THE LAST BLOADED
PROGRAM STARTS AT "; BA =
PEEK (43634) + PEEK (43635) * 256:
PRINT BA ; " DECIMAL "; A$ =
STR$(BA): GOSUB 530 : PRINT "AND
$"; HX$: " HEXADECIMAL
ADDRESS" : PRINT
50 PRINT "LENGTH IS "; L =
PEEK(43616) + PEEK(42617) * 256:
PRINT L ; " DECIMAL "; A$ =
STR$(L): GOSUB 530: PRINT "AND$";
HX$ ; " HEXADECIMAL"
260 PRINT SL;"REM POKES FOR ";F$;
" SUBROUTINE AT ADDRESS:";BA;
" LENGTH:";L;" BYTES"
    
```

I could have alternately calculated EA, or end address. By creating a variable input CA for changed address, and making BA into CA in lines 260 and 270 (but not 310), I can alter the memory location of the file loaded from Applesoft. I probably don't need the routines at 420 and 520 with this modification, but I usually BSAVE with A\$, L\$, so I like to see it.

Richard J. Greenwood, M.D.
 Chester County Medical Building
 606 East Marshall Street
 West Chester, PA 19380

Editor's note: Dr. Greenwood's modifications will work only in DOS 3.3.

To the Point

I've recently started using Pinpoint, and I think it's an excellent program. My only complaint is that I have to change disks on my dual-drive system.

I have an Applied Engineering RamWorks II card, so I load AppleWorks into memory (except the print module). The AppleWorks start-up disk is almost empty (195 of 280 blocks are free), so I copied the printer section and the Pinpoint modules to it. This lets me boot with the start-up side, flip the disk, and load the main AppleWorks modules. Then I flip the disk back to the start-up side.

This means I never have to change disks for Pinpoint or the AppleWorks printer module. Drive 2 is free for a data disk, and Pinpoint is in memory at all times.

The entire operation is pretty simple, and it makes AppleWorks with Pinpoint a joy to use.

Wes Wyrick
 Box 5253
 APO SF 96366-006

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, Elm Street, Peterborough, NH 03458.

PERSONALIZED MAIL ORDER FOR APPLE PERIPHERALS

UNIQUE PRODUCTS AND LOWEST PRICES



APPLE //c

C-Vue LCD Flat Panel \$349.00
 C-Vue Back Lighting \$250.00
 Multiram //cx Card 512K \$225.00

APPLE //e

Enhancement Kit \$60.00
 1024K Multiram \$280.00
 Unidisk 3.5/Controller \$399.00

MACINTOSH

Keyboard Extension Cable \$19.95
 400W Standby Pwr Supply \$420.00
 1 Meg MacMaster \$499.00

CALL US FOR THE NEWEST PRODUCTS AND LATEST PRICES!

- Toll Free order line (HI, AK & OUTSIDE CA)
- Open 7 days a week, 7 AM - 7 PM (PST)
- Free Technical Support
- Free Appleworks support
- Free Checkmate Technology software updates
- Next day delivery available
- Personalized customer service
- No surcharge for credit cards
- Lowest prices with next day shipment
- Editorial Board Member of the "National Appleworks Users Group"

ROGER COATS

Tel. 619-274-1253 (Inside CA)
 1-800-438-2883
 (HI, AK & Outside CA)

P.O. Box 171466
 San Diego, CA 92117

CORRECTION

In our July issue, we failed to list a phone number for The Engineering Department ("Industry Skeptics Look at 'Little Blue,'" p. 16). The number is (408) 446-1444.

APPLE HARD DISK UPGRADES. ONE SIZE FITS ALL.



It's also reassuring to know that the ProApp 10 and 20 are designed and manufactured by some of the same team of experienced professionals who helped the industry leaders perfect their hard disk systems.

MONEY-BACK GUARANTEE.

Each ProApp 10 and 20 hard disk comes with a "no risk" money-back guarantee. Order the ProAPP and use it for up to 10 days. If you're not 100% satisfied with its performance, return it for a complete refund.

ORDER TODAY. CALL 800-424-2425.

To order your ProAPP 10 or 20, or for additional information, call toll-free. Use the coupon below and charge it to your VISA, MasterCard or American Express card, or send money order and get next week, UPS surface delivery. Allow approximately 30 days for personal checks to clear.

PROAPP™ 10005 Muirlands, Suite 0
Irvine, CA 92718

Apple is a registered trademark, MAC and Macintosh are licensed trademarks, and ProDOS, Pascal 1.3, Ile and IIC are trademarks of Apple Computer, Inc. ProAPP is a trademark of ProAPP, Inc. All disk capacities are listed as formatted. ©1986 ProAPP, Inc.

FULLY COMPATIBLE WITH APPLE® MACINTOSH™ 128 AND 512, MACINTOSH PLUS, IIc™ AND IIc.

Finding a reliable and affordable hard disk for your Apple computer is easier than you think thanks to the new ProAPP™ 10 and 20 megabyte hard disk systems.

- 10MB HARD DISK SYSTEM—\$795.
- 20MB HARD DISK SYSTEM—\$995.

Attractively styled and priced to match, the compact ProAPP 10 and 20 are designed to work with all popular Apples. Everything you need is provided: cables, easy-to-use manuals and software. Simply plug in and run.

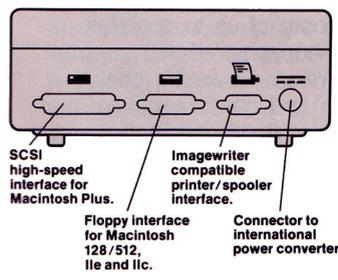
The ProAPP 10 and 20 come ready to support the following Apples and operating systems: Macintosh 128 and 512, Macintosh Plus; IIc and IIe using ProDOS; DOS 3.3 or Pascal 1.3*

BUY DIRECT AND SAVE.

Right now, you can purchase the ProAPP 10 and 20 direct. This not only gives you the lowest possible price, but allows for faster, more responsive support.

ONE YEAR LIMITED WARRANTY.

The ProAPP 10 and 20 are rugged, reliable hard disk systems, incorporating the latest engineering advances like our SCSI interface and print spooler. That's why we can back them with a full 12-month limited warranty. And a toll-free hotline to answer any installation and operating questions you might have.



Yes! Rush me the ProAPP hard disk system specified below, including all cables, manuals and software.

- _____ ProAPP 10MB Hard Disk(s) at \$795 each (includes shipping, handling and sales tax).
- _____ ProAPP 20MB Hard Disk(s) at \$995 each (includes shipping, handling and sales tax).

To receive correct cable kit, please specify your machine:

I have a MAC Plus MAC 128/512 IIc IIc

Name _____ Company _____

Shipping Address _____

City/State/Zip _____

Phone (____) _____

I've enclosed my check or money order for \$ _____

Please bill the following credit card account for \$ _____

VISA MasterCard American Express Card Exp. Date _____

Card # _____

Signature _____

Mail to: ProAPP, Inc., 10005 Muirlands, Suite 0, Irvine, CA 92718

IN 9/86

NEWS LINE

edited by *inCider* staff

Extras for the //x

When the new 16-bit Apple //x arrives this month, it will be accompanied by a new version of AppleWorks, designed to take advantage of the machine's larger memory, and a number of peripherals, software and hardware developers say.

The new edition of AppleWorks, dubbed 2.0, will run faster than current versions and have a much larger desktop. It will also automatically copy itself into memory, to save disk-access time, sources say.

AppleWorks 2.0, though, will not have the full mouse-driven, icon-enhanced user environment (similar to a Macintosh's) industry observers expected. Development of that feature-rich

AppleWorks has been delayed about six months because of problems between Apple and original developer Rupert Lissner, software developers report. Apple has contracted with a new developer to design the Mac-like version of AppleWorks.

Meanwhile, software will be available when the new machine appears on retailers' shelves sometime in September. According to our sources in software development, the list of vendors planning to introduce new versions of existing Apple II packages grows longer every month. It includes Satellite Software International in Orem, Utah, with a new version of its WordPerfect word processor; VIP Technologies in Bakersfield, California, with

its 16-bit VIP Professional integrated spreadsheet; Haba Systems in Van Nuys, California, with an expected AppleWorks-style product; and International Solutions in Sunnyvale, California, with a mouse-driven, menu-rich, integrated, AppleWorks-style package.

And major Apple II software developer Software Publishing in Mountain View, California, has been showing some interest in developing for the new II, but won't divulge specific details.

According to developers, the only hardware lacking in the new //x is a hard-disk drive. (The new II includes most of the standard enhancements already.)

The AST-2000, a 20-megabyte hard-disk drive that uses the small computer systems interface port, was introduced in May for the MacPlus (which has a built-in SCSI port) and the //e (which uses AST's own SCSI-port enhancement). Sources expect the AST 2000 will also work with the new II's anticipated built-in SCSI port.

AST is expected to introduce three new products for the Apple //x and sell the SCSI-port enhancement for the //e as an upgrade.

The popular Sider hard-disk drive and B-Sider tape backup from First Class Peripherals (Xebec) work without modification on the new //x, sources say.

Memory expansion isn't as important with the new //x, because it's expected to have at least 256K of built-in memory. As a result, companies such as Applied Engineering and Checkmate Technology, which make memory add-in boards, are looking to broaden their

product lines. Applied Engineering's president Dan Pote notes with a touch of irony that "Apple's cooperating with third-party developers wonderfully now—and leaving them very little to develop with the new //x."

—D.de P. and P.S.

Capturing a Buffalo

When one software company acquires another, is the result a stronger company or fewer creative forces in the marketplace?

Two software-company executives recently involved in mergers and acquisitions maintain that increased cash flow and the melding of ideas lead to greater creativity and stability in the market. But not everyone agrees. Tom Snyder, president of Tom Snyder Productions and author of *Snooper Troops*, believes that something is lost when smaller companies lose their independence.

Joel Berez, president of Infocom, a Cambridge, Massachusetts-based software company recently purchased by Activision (Mountain View, California), thinks the user benefits when two companies with complementary product lines and philosophies come together. "Whenever you get different groups of people together, new ideas tend to emerge, and ideas tend to get traded back and forth. One of the effects of the merger will be for both of us to broaden our horizons," Berez says.

William Bowman, chairman and chief executive officer of Spinnaker Software Corporation in Cambridge, Massachusetts, agrees that everyone benefits when smaller companies become



Courtesy of Taurus Photos/Richard Burda

part of a larger firm. (Spinnaker bought out Lowell, Massachusetts-based Hayden Software Corporation in May.) Bowman says some companies have imaginative products, but can't afford to market them. Users benefit when those companies' product lines are supported by larger firms with more resources. For example, Bowman says, "The graphics and sound of the new Apple II will allow us to enhance the capabilities of [Hayden's] chess series."

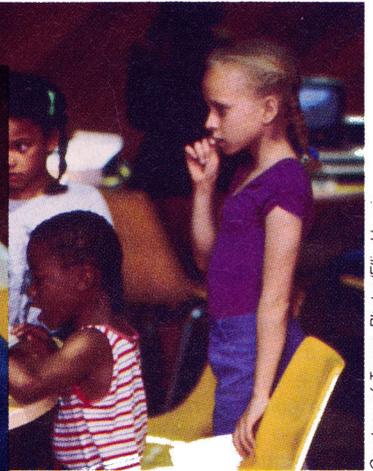
Tom Snyder, though, sees a down side to these types of mergers and acquisitions. "It's like capturing a buffalo and expecting it to be a buffalo. Have you ever seen one in a cage? It's depressed, and it doesn't act like a buffalo anymore."

The Infocom-Activision merger brings together two companies with different approaches to game software. Infocom is known for its line of interactive text-only fiction games. Activision produces a wide range of home-computer software, including games that use lively, sophisticated graphics.

"We've been spending a fair amount of time talking to each other, sharing ideas. We're looking at graphics a lot," says Infocom president Joel Berez.

Sources at Infocom say Activision is interested in Infocom's parser capability. (A parser is software that interprets English-language input and lets a program formulate an appropriate response.) Infocom's parser technology makes a product much easier to use, sources say. Activision is expected to use parser software in future products.

While Infocom has become a wholly owned sub-



Courtesy of Taurus Photos/Ellis Herwig

sidary of Activision, the two companies will retain separate headquarters and will market products under their own names, according to Infocom's Berez.

The purchase of Hayden, however, will have no direct effect on Spinnaker's product line, according to Bowman: "We will continue to support and enhance Hayden's Apple II and Macintosh product line [notably Scholastic Aptitude Test preparation programs and the Sargon series of computer chess games]."

In addition, Bowman says, "The move will increase Spinnaker's presence in the Apple II specialty-channel market." (Spinnaker is known primarily as a mass merchandiser, according to the company chairman.) "This demonstrates our commitment to the Apple market," Bowman adds.

Does the outspoken Tom Snyder ever see the day when his company will be owned by a conglomerate? "I refused to be bought out by Gillette Personal Care Products Division," he says, "but we are working on a mouse-based software product." —D.M.

Classrooms of Tomorrow

Apple's Advanced Development Group is conducting a series of research projects nationwide to gain first-hand information about how computer-equipped classrooms can function most effectively.

"We're trying to gain knowledge about knowledge workers, namely students," explains Martin Engel, education manager of Apple Computer's Classroom of Tomorrow project. "A lot of people write papers about the computer-based classroom, but no one really has hard data, which is why we developed what are essentially little laboratories at school sites."

Apple is using seven classroom sites around the country to explore issues surrounding computer-equipped classrooms. Apple has contributed 60 computers (30 //e's for school use and 30 //c's for home use) to each participating classroom, as well as a supplemental income for the computer coordinator for each of the seven projects.

According to participating

computer coordinator Sam Miller at the Collin Kelly Middle School in Eugene, Oregon, "We want to answer questions like: Is this worth the investment? What's the toll on teachers? What do students and teachers really want? And what works best? What's the reaction of parents, staff, and students to a computer-dominated environment? We're not looking to raise test scores, but to explore the best way to use the computer as a teaching tool."

Miller has done some preliminary tests, though, on the 26 sixth-graders who participated in the year-long project at Collin Kelly; he's discovered a slight improvement in students' attitudes toward school, and improvement in their math scores and the quality and quantity of their writing.

So far, Miller notes, the most important lesson he's learned is that the teacher is the critical factor in making the computer-equipped classroom a success: "It is possible to do a great deal for math, science, and writing classes with existing software, such as Logo and AppleWorks, but only if the teacher knows how to plan

and prepare and is willing to invest the necessary time."

Another insight Miller has gleaned from the project is that the home-school link is not really that important to children's success in a computer-dominated classroom. He observed that after being in front of a screen all day, children want to go outside and do physical things, like play football or take bike rides, instead of working on their home computers. "I think that's healthy," Miller says.

The students at each site were selected randomly to create a cross-section of high achievers and average performers, reports Apple. Schools were chosen on the basis of their previous work in teaching total curriculum on a computer.

The other six participating schools are Blue Earth Public School in Blue Earth, Minnesota; West High School in Columbus, Ohio; Stevens Creek School in Cupertino, California; Black Middle School in Houston, Texas; Lester Elementary in Memphis, Tennessee; and Dodson School in Hermitage, Tennessee.

—W.L.McK.

Let's Get Static

What can load AppleWorks in a flash, wait five years, and load it again? It's not a floppy disk. It's not a hard disk. It's not a RAM disk, one of the fast phantom drives set up by memory-expansion cards, though that's close. It's static RAM (SRAM), a storage device that combines a RAM drive's lightning speed with a physical disk's stability—and, says Checkmate Technology of Tempe, Arizona, it should be on sale by the time you read this.

Checkmate's SRAM drive, promised for fall delivery at less than \$300, is

a box resembling a half-height floppy drive with four slots for cartridges holding 128K, 256K, or 512K apiece, emulating a ProDOS hard disk except for its nearly instantaneous response. That's nothing a good //e memory-expansion board can't do—until you turn off the computer, tuck the three-inch capsules into your pocket, and walk away. The cartridges' lithium batteries keep the low-power CMOS memory intact for up to ten years.

At first glance, SRAM may look like a technology in search of a market: The capsules are too expensive to replace floppy disks, though their write-protect switches are handier than sticking and unsticking adhesive tabs over a disk notch, and the unit's 2-megabyte maximum (four times 512K) is no threat to 10- or 20-meg hard drives. But no other storage medium matches RAM speed. Putting that speed into a portable, palm-sized capsule is convenient, and overcoming RAM disks' volatility—their instant obliteration in the briefest power failure—has irresistible appeal.

As for portability, while the SRAM drive will initially connect to a socket on Checkmate's MultiRam RGB memory card for the //e expansion slot, the firm doesn't intend to slight the potential market among non-MultiRam owners—or non-Apple owners, for that matter. Besides a version that plugs into a regular Apple peripheral slot, Checkmate's vice president of marketing, Richard Blanco, told *inCider*, there'll be one that plugs into an IBM PC or compatible. While the drives' hardware connectors may differ, they'll use the same cartridges, opening the possibility of home-to-office commuters' transferring data files.

The SRAM drive was announced at the Comdex/Spring '86 trade show in April; by late May, Blanco said Checkmate was within a month of finishing work on the hardware and waiting for production quantities from its cartridge supplier. *inCider* will review a production model when one becomes available. —E.G.

New ProDOS: Window Dressing?

There'll be icons and mouse support, but the version of ProDOS planned for the new 16-bit Apple II will be something of a disappointment for the original author of the operating system.

"At the risk of sounding like an emotional programmer, I'm afraid that Apple is not going to do some things that would give maximum flexibility and power to the user," says James Huston, who, as an Apple employee from 1977 to 1984, wrote the original ProDOS kernel and BASIC.SYSTEM. "Instead, [the new ProDOS will have] an emphasis on user friendliness, which admittedly may be more important to some users than the features I want to see."

Huston, now vice president of software engineering at The Engineering Department in Campbell, California, explains that he planned ProDOS with future hardware in mind, ranging from 16-bit processors to optical compact disks for mass storage: "There were hooks put into the software to encompass future applications requiring larger memory." Most of his plans, Huston told *inCider*, involved "being able to add network capability, device drivers [for more sophisticated input/output

management], and larger volumes. That'll become important as CD-ROMs become more available; the 32-megabyte volume limitation is probably the biggest problem when you're talking about 400- or 800-megabyte disks."

Instead of his power users' wish list, Huston says, Apple is pursuing the Macintosh tradition of ease of use. "The file system will definitely be ProDOS; [Apple's] not changing that at all in terms of the way files are stored on the diskette, though they'll probably have some new file types. I'm not sure exactly what [else] will happen, but my overall impression from discussions with them... is that what you'll see is something more akin to the switchers or desktops around [such as Quark's Catalyst or International Solutions' Mouse Desk].

"It's not so much that they're not doing what I'm suggesting, it's that they've found priorities elsewhere," Huston says of Apple's decision to put a Mac-like shell around a basically unchanged ProDOS. "They have limited resources, and I think they pushed it more toward convenience [for now]. I think you'll see [technical] changes when there's market pressure for them, when there are CD-ROM's, when 40 or 80 megabytes is not uncommon."

—W.L.McK. and E.G.

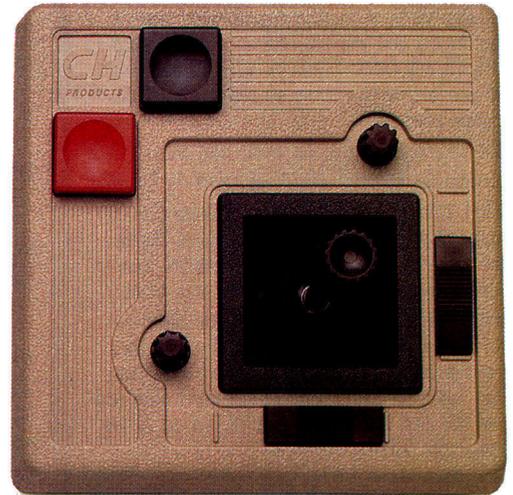
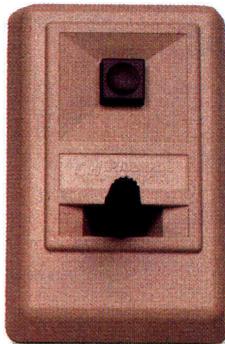
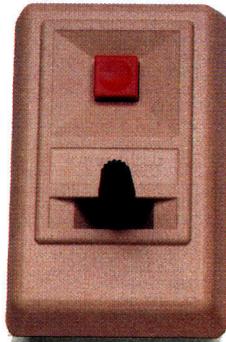
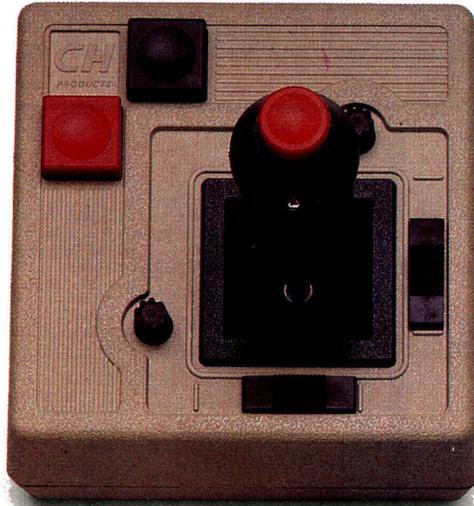
We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025.

Quality Products You Can Depend On

MACH III JOYSTICK™

MACH II JOYSTICK™

PADDLESTICKS™



Our controllers are the number 1 choice of retailers and consumers today. They provide more features, longer life cycles and greater precision than all others. With compatibility across a wider range of programs — from games to business to graphics to cad applications.

CH Products, the leading manufacturer of precision analog joysticks for industry and home delivers the highest quality computer peripherals available today. With over 24 years of joystick manufacturing and experience you can expect the best from CH Products.

CH Products 1225 Stone Drive, San Marcos, California 92069 (619) 744-8546



MACH III \$54.95 MACH II \$44.95 available for Apple II, II+, IIE, IIC and IBM PC.
PADDLESTICKS \$44.95 AVAILABLE for Apple II, II+, IIE, and IIC.

Apple II, II+, IIE, IIC and IBM PC are registered trademarks of Apple Computer Inc., and International Business Machines respectively.

CALL TOLL FREE 1-800-382-2242

NORTHEASTERN SOFTWARE

7 Trap Falls Rd. Shelton, Connecticut 06484 (See Below) **WE WILL BEAT PERFECT DATA**

- Tap our unmatched selection and inventory of software/hardware for the Mac and Apple (as well as the IBM PC and Commodore Amiga).
- School and corporate purchase orders are welcomed. CALL 1-800-874-1108.
- Special/rush orders. If something you need is not listed, hard to find, or needed in a hurry, CALL 1-800-874-1108.
- Order Status. CALL (203) 375-3860.
- Ask for System Sales when ordering a complete system.
- FREQUENT PURCHASER PROGRAM. Any repeat customer will automatically receive \$1 off any order he or she places with us. Please mention to your operator that you are a repeat customer. We value your continuing business. Send in \$1,000 worth of invoices (representing previous purchases) and you will receive a coupon worth 1% off any future purchase. With \$5,000 worth of invoices, receive a coupon worth 5% off any future purchase.
- No additional charges for credit card orders.
- Convenient hours. 7 days/week: 9AM-11 PM EST.
- FREE AIR EXPRESS SHIPPING. Purchase \$150 or more of software and for no additional charge we will ship your products by air courier. Mention this to your operator as you place your order.
- FURTHER DISCOUNTS BY MAIL. Circle the items in our ad you want, send the aid in with the coupon below and receive \$.50 off each item! Cut out a competitor's ad with a lower price and we will give you \$1 off his price (subject to the conditions below).

Send coupon and list of items desired to:
DISCOUNT BY MAIL DEPARTMENT
 Northeastern Software, 88 Ryders Lane, Stratford, CT 06497

To be eligible for the \$1.00 per item discount you must:
 1. Fill out all items. 2. Send in our ad with the items you desire circled.

Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone No. at above address _____
 Check form of payment: Visa MasterCard C.O.D. Personal Check Certified Check Money Order
 Card No. _____ Exp. Date _____
 Computer Model _____

Personal and company checks allow 3 weeks to clear. For faster delivery, send cashier's check, certified check, or money order. Shipping—Software (\$3.00 minimum), Shipping—Hardware (please call 203-375-3860), COD—Add an addition \$2.00. Alaska, Hawaii, Canada, PO, APO, and FPO \$5.00 minimum. Foreign orders—\$15.00 minimum and 15% of all orders over \$100. Mastercard and Visa (please include card no. and expiration date). Connecticut residents add 7.5% sales tax. Prices subject to change without notice. All returns must have a return authorization number. Call 203-375-3860 to obtain one before returning goods for replacement. Defective merchandise replaced with same item only. We do not guarantee compatibility. All sales are final. "Comparable advertised price" does not include typographical errors on the part of other vendors or prices that do not reflect higher shipping costs, credit card charges, or membership fees. The \$1 off offer only applies to items where Northeastern's price is not already the lowest. Final judgment remains with the manager on duty.

SPECIALS

ORIGIN SYSTEMS

Maebius	36.50
Ultima IV	35.50
MICROPROSE	
Silent Service	20.00
ALS	
Spellworks	28.00
MEGAHAUS	
Reportworks	73.00
Megaworks	73.00
MICROSOFT	
Applesoft Compiler	101.00
OKIDATA	
ML 92	315.00
ELECTRONIC ARTS	
Autoduel	30.00
PBI	
Jeeves	35.00
PINPOINT PUBLISHING	
Pinpoint	34.50
MINDSCAPE	
Rambo	23.00
STEDIWATT	
Stediwatt 4 Outlet	27.00
AVANTE GARDE	
Dave Winfield's Batter Up	21.50
AVALON HILL	
Under Fire	33.50
BASF	
Boss SS/DD	10.00
Y TECH	
Laser 128	411.00

COPY PROGRAMS / BOARDS

Back It Up III	40.00
CIA Files	35.00
Copy II+	18.00
Copy Master II 128K W/GR Dump	90.00
Edd IV Plus II/II+/IIE	40.00
EDD IV PLUS IIE/W/DOO/UNI DISK	56.00
Locksmith 6.0	59.00
Wildcard II	69.00

BUSINESS

ADVANCED LOGIC SYSTEMS

The Handlers Package	65.00
List or Word Handler	37.00
Spellworks	27.00
APPLE	
Appleworks	CALL
Applewriter II	CALL
Apple Access	CALL
Quickfile	CALL
APPLIED SOFTWARE TECHNOLOGY	
Versaform	46.00
ARTSCI	
Magic Office Systems	146.50
Magic Calc 3.3	59.00
Magic Windows	88.00
ASHTON TATE	
Dbase II	299.00
BPI	
Gen. Acctg. Ar, Ap, Gl, Pay	193.00
Gen. Acctg. Ar, Ap, Gl, Pay Pro Do	208.00
BRODERBUND	
Bank Street Filer	40.00
Bank Street Speller	40.00
Bank Street Writer 64K or 128K	40.00
Bank Street Mailer	40.00
CBS SOFTWARE	
Stockpak II	88.00
CONTINENTAL SOFTWARE	
Home Accountant IIC	38.00
Home Accountant IIE	38.00
Tax Advantage	36.00
DOW JONES SOFTWARE	
Investor's Workshop	78.00
Market Analyzer or Microscope	181.00
Mkt. Mgr. or Spreadsheet Link	130.00
Membership Kit	18.50
ELECTRONIC ARTS	
Financial Cookbook	31.00
Cut & Paste	21.50

FUNK

Sideways	31.00
Sideways Pro Dos	31.00
HAYDEN SOFTWARE	
The Writer	24.00
HOWARDSON	
Real Estate Analyzer III	179.00
INTERNATIONAL SOLUTIONS	
Mouse Budget	37.00
Mouse Calc	83.00
Mouse Desk	23.00
Mouse Word	67.00
Mouse File	CALL
INTUIT	
Quickan	49.00
KENSINGTON	
Format II Enhanced	87.00
LIVING VIDEOTEXT	
Think Tank II/IIe	77.50
MEGAHAUS	
Megaworks	73.00
Reportworks	73.00
Thinkworks	73.00
MANZANITA	
Business Accountant System Man	68.00
Business Accountant GL/APAR/I	208.00
Business Accountant Payroll	245.00
Adv. Business Acct. System Man	68.00
Adv. Business Acct. GL/APAR/I	280.00
Adv. Business Acct. Payroll	280.00
Businessworks Syst. Manager	64.00
Businessworks GL/APAR/IN	225.00
Businessworks Payroll	255.00
MECA	
Managing Your Money	104.00
MICROPRO	
Wordstar	179.00
MICROSOFT	
Multiplan	60.00
MONOGRAM	
Dollars & Sense IIE	68.00
Dollars & Sense IIC	68.00
Forecast	35.00
NOL PRESS	
Will Writer	28.00
PBI SOFTWARE	
Graphworks	57.00
Jeeves	35.00
PEACHTREE	
Back to Basics	97.00
PINPOINT PUBLISHING	
Pinpoint	34.50
Pinpoint Spelling Checker	34.50
Pinpoint Toolkit	CALL
PRACTICORP	
Practicalc II	25.50
PRECISION SOFTWARE	
Superbase	53.50
QUARK	
Word Juggler w/ Lexicheck	58.00
Catalyst IIE	58.00
ROGER WAGNER PUBLISHING	
Mouse Write	71.00
The Write Choice	26.00
SATELLITE SOFTWARE	
Word Perfect	78.50
SCARBOROUGH	
Net Worth	46.00
SENSIBLE SOFTWARE	
Bookends or Sensible Speller	64.00
The Graphics Department	64.00
Sensible Grammar	54.00
Report Card	31.00
SIERRA-ON-LINE	
The General Manager II	128.00
Homeward/Speller Bundle	41.00
Screenwriter IIE	76.00
Homeward Filer	41.00
SIMON & SCHUSTER	
JK Ladders Income Tax	46.00
JK Ladders Money Manager	46.00
SORCIM	
Supercalc 3A	98.00
SOFTWARE PUBLISHING	
PFS: Access	43.50
PFS: File or Graph	68.50
PFS: Report or Write	68.50
PFS: File & Report	72.00
PFS: Worknotes	138.50
STATE OF THE ART	
Electric Checkbook	58.00

STONEWARE

DB Master 4 Plus	164.00
DB Bus. Pack or Mast Bus Team	184.00
DB Master Business Writer	84.00
TIMWORKS	
Silvia Parter's Financial Plan	58.00
Swiftcalc with Sideways	99.00
TURNING POINT	
Time Is Money	57.00
UNISON	
Printmaster	28.00
PINPOINT	
Micro Cookbook II/IIe	22.00
VISICORP	
Flashcalc	54.00

ANIMATION / GRAPHICS SOFTWARE

ACTIVISION

Game Maker	29.00
BAUDVILLE	
Actors and Actions	17.00
Blazing Paddles	26.50
Heros and Villains	17.50
Pix II	28.00
Prince	41.00
Shape Library 1, 2 or 3	12.00
Take 1	33.00
BEAGLE BROTHERS	
Beagle Graphics	30.50
Frame Up	14.50
Alpha Plot	20.50
Flex Text	14.50
Shape Mechanic	20.50
BRODERBUND	
Dazzle Draw	35.00
Fantovision	28.50
Print Shop	28.50
Print Shop Companion	23.50
Graphics Library 1	14.50
Graphics Library 2	14.50
Graphics Library 3	14.50
Refill Paper Pack	12.50
DATA TRANSFORMS	
Fontrix	51.00
Font Packs 1-13	11.75
ELECTRONIC ARTS	
Movie Maker	25.50
PENGUIN	
New Complete Graphics System	46.00
Graphics Magician	34.50
Cal Graphics	21.00
SENSIBLE SOFTWARE	
Graphics Department	64.00
SOFTWARE PUBLISHING	
PFS: Graph Dos or Pro Dos	68.50
SPINNAKER	
Delta Drawing	25.00
SPRINGBOARD	
Clip Art Collection Vol. 1	16.50
Clip Art Collection Vol. 2	20.50
Graphics Expander	23.00
Newsroom	31.00
WEEKLY READER	
PIC Builder	20.50
Zoom Graphics	37.50

Pronto Dos	14.75
Silicon Salad	12.75
Triple Dump	20.50
Type Faces	11.75
Utility City	14.75
BORLAND	
Turbo Pascal	38.00
Turbo Database Toolbox	30.50
Turbo Tutor	20.50
KENSINGTON MICROWARE	
System Saver	58.50
LAZERWARE	
Lisa V2.6	52.50
MICROSOFT	
Applesoft Compiler	101.00
PERFECT DATA	
Perfect Data Head Cleaning Kit	8.00
QUALITY	
Bag of Tricks II	29.00
ROGER WAGNER	
Merlin	38.00
Merlin Combo	63.00
Merlin Pro	56.00
Visible 6502	CALL
VIDEX	
Ultratrem w/SS Inv.	190.00
Video 7 RGB Interface IIE	115.00
Video 7 RGB Interface IIC	83.00

EDUCATIONAL

ADDITION WESLEY	
Smart Eyes	35.00
APPLE	
Lingo II	CALL
BANTAM BOOKS	
Road Rally USA	23.00
Scarsdale Diet	23.00
BARRONS	
Barrons SAT	35.00
BRAINPOWER	
Chipwits	23.00
Thinkfast	23.00
BRODERBUND	
Science Toolkit	35.00
CBS	
Adventure Master	19.00
Body in Focus	23.00
Dinosaur Dig	23.00
Mastering the SAT	57.00
America Coast to Coast	23.00
Goren's Learning Bridge	43.00
Forecast or T-Rex	28.00
DAVIDSON AND ASSOCIATES	
Alge Blaster	26.00
Speed Reader II	36.00
WORD ATTACK, MATHBLASTER	
Or Spell It	26.00
All Davidson Data Disks	11.50
Classmate	26.00
DESIGNWARE	
Spellcopter or Spellakazam	23.00
States & Traits and European N	24.00
Body Transparent or Mission AL	24.00
Grammar Examiner	24.00
Remember	41.00
DLM	
Alien Addition or Alligator MI	18.00
Meteor Mult. or Minus Mission	18.00
Demolition Division or Dragon	18.00
Spelling Whiz or Word Invasion	18.00
Freddies Puzzles	18.00
Create With Garfield	18.00
EDU-WARE/ PEACHTREE	
Compu Read	15.50
SAT Word Attack Skills	15.50
Spelling Bee Games	20.50
D-Code	20.50
Algebra 1, 2, 3, or 4	20.50
Dos Basic	25.50
Algebra 5 & 6	20.50
Writing Skills 1, 2, 3, 4, 5	20.50
Hands on Basic	25.00
Introduction to Counting	18.50
Fractions or Decimals	20.50
FISHER PRICE	
Alpha Build	15.50
Peter Rabbit Reading	23.50
HARCOURT BRACE JOVANOVICH	
Harcourt SAT	44.50
Harcourt GRE or ACT	50.50

ASTER

ANY COMPARABLE ADVERTISED PRICE BY \$1

GROBLER Science Island or Treasure Hunt 23.50 Easy Graph or Friendly Filer 23.50 Educatic 29.50	HAYDEN Word Challenge 10.50	LEARNING COMPANY Rocky's Boats or Robot Odyssey 28.50 Number Stumper or Reader Rabbit 23.00 Magic Spells or Word Spinner 20.00 Bumble Games or Bumble Plot 23.00 Germude's Puzzles or Secrets 25.50 Additional Magician 20.00 Juggles Rainbow 17.50 Magician Hotel 23.50	MAGNUM Super Speed Reading 30.00	MECC Elementary Series (Each) 29.00 Math or Health Series (Each) 29.00	MICROSOFT Typing Tutor II 16.00	MILLIKEN Math Sequences (Each) 20.00 Millikan Word Processor 41.00	MINDSCAPE Perfect Score SAT 41.00 Keyboard Cadet 23.00 Laserch Profile 23.00	SCARBOROUGH SYSTEMS Build a Book About You 18.00 Boston Computer Diet 47.00 MasterType's Writing Wizard 47.00 MasterType's Filer 23.00 MasterType's New and Improved 23.00 Run for the Money 22.00 Picture Writer 23.00	SCHOLASTIC WIZWARE Fact and Fiction Toolkit 22.50 Microzine 1-8 (Each) 22.00 Story Tree or Story Maker 21.00 Turtle Tapes or Agent USA 23.00 Operation Frog or Logic Builder 23.00 Iago Robot or Kids at Work 14.00	SENSIBLE SOFTWARE Report Card 32.00	SIMON AND SCHUSTER Chem Lab 23.00 Lewey's Preparation SAT 41.00 Lewey's Preparation GMAT 45.00 Typing Tutor III 29.00	SPINNAKER SOFTWARE Fraction Fever or Face Maker 14.50 File and Report or Spreadsheet 34.00 Snooper Troops 1 or 2 19.00 Story Machine or Grandma's Hou 14.50 Kindercamp or Kids on Keys 14.50 Spinmaker Word Processor CALL Alphabet Zoo or Kidwriter 17.50 In Search Of 19.00 Adventure Creator 17.50 Trains 17.50 Counting Parade 17.50 Sum Dicks 17.50 Delta Drawing 23.00 Homework Helper: Math Problems 23.00 Homework Helper: Writing 23.00	SPRINGBOARD Early Games or Piece of Cake 20.00 Make a Match or Fraction Facto 16.00 Wasi 21.50 Easy As ABC 21.50 Mathbusters 17.50 Music Maestro 19.00 Rainbow Painter 19.00 Zippy Master 19.00	TERRAPIN Terrapin Logo 51.00 Terrapin Logo 10 Pack 155.00	TIMEWORKS Evenly Wood Dynamic Reader 40.00	WEEKLY READER Exploring Tables and Graphs 19.00 Sticky Bear Series (Each) 23.00	Law of the West 19.50 PSI #5 Trading Post 19.50 Sunday 19.50 ACTIVISION Alcator 23.00 Alter Ego 28.50 Master of the Lamps 23.00 Pitfall II 23.00 Great American Road Race 23.00 Computer Discovery Kit 23.00 Star League Baseball 18.00 Borrowed Time 23.00 Countdown to Shutdown 23.00 Ghostbusters or Zeni 23.00 Mindshadow or Space Shuttle 23.00 The Tracer Sanction or Hacker 23.00	GAMEMAKER AVALON HILL Under Fire 33.50 AVANT GUARD Dave Winfield's Better Up 21.75 Joe Theisman's Football 21.00	BANTAM PUBLISHING Escape or Cove of Time 21.00 Fourth Protocol 23.00 I'Damiano The Wizard 23.00 Sherlock Holmes Another Bow 23.00	BLUE CHIP Millionaire, Baron or Tycoon 23.00 Squire 23.00	BRODERBUND Captain Goodnight 20.00 Championship Loderunner 20.00 Lode Runner or Karateka 20.00 Mask of the Sun 23.00 Serpents Star 23.00 Where... Is Carmen Sad Diego 23.00	CB5 SOFTWARE Murder by the Dozen or Felony 15.00	DATASOFT Alternate Reality 23.50 Bruce Lee or Conan 21.00 Korion Rift 23.00 Zorro or the Goonies 21.00	MR. DO	ELECTRONIC ARTS Adventure Construction Set 30.00 Archon 21.00 Archon II or Skyfox 24.00 Autoduel 35.00 Bard's Tale or Reach for the Stars 27.00 Moebius 36.00 Carriers at War 31.00 Europe Ablaze 31.00 Music Construction Set 23.00 One-On-One 24.50 Pinball Construction Set 21.00 Seven Cities of Gold 24.00 Chessmaster 2000 24.00 Murder on the Zinderneuf 13.00 Super Boulder Dash 21.00 Skyfox 24.00 Lords of Conquest 21.00 Ogre 31.00	EPYX Ballblazer 23.00 Eidolm 23.00 Rescue on Fractalus 23.00 Summer Games I or II 23.00 Temple of Asphai Trilogy 23.00 Writer Games 23.00 World's Greatest Baseball Game 20.00 World's Greatest Football Game 23.00	HAYDEN Sargon III 29.00 Computer Novel Const Set 29.00 Holy Grail 29.00 Inca 29.00	INFOCOM A Mind Forever Voyaging 25.00 Ballyhoo 22.50 Sorcerer, Suspect or Infidel 22.50 Spellbreaker 27.00 Foobitzky 22.50 Wishbringer 22.50 Trinity CALL Deadline, Suspended or Starro 28.00 Hitchhiker's Guide to the Gala 22.50 Planetfall or Enchanter 22.50 Sorcerer, Suspect or Infidel 26.00 Witness or Seastalker 24.50 Zork II or Zork III 26.00	MICROPROSE Crusade in Europe 23.00 Decision in the Desert 23.00 F-15 Strike Eagle or Solo Flig 20.00 Gunship 20.00 Silent Service 20.00 NATO Commander 20.00 Conflict in Vietnam 24.00 Arcadet 20.00	MICRO LEAGUE SPORTS Micro League Baseball 23.00 Micro League Managers Disk 23.00	MINDSCAPE Crossword Magic 29.00 Halley Project 26.00 James Bond View to a Kill 23.00 Rambo 23.00 Steven King The Mist 23.00 Voodoo Island 23.00 Deja Vu 32.00 Forbidden Castle 23.00 Racter 26.00	ONE STEP SOFTWARE Golf's Best Pinehurst 29.00 Golf's Best St Andrews 29.00	ORIGIN SYSTEMS Auto Duel 36.00 Moebius 36.00 Ultima III 33.00 Ultima IV 33.00	PENGUIN Coveted Mirror 20.00 Crimson Crown 20.00 Ootopos 20.00 The Quest or Ring Quest 20.00 Xyphus or Transylvania 20.00	POLARWARE Sword of Kadash 20.00	RANDOM HOUSE Alpine Encounter 23.00	SEGA Frogger 3-Deep or Super Zaxxon 20.00 Spy Hunter or Buck Rogers 26.00 Topper or Star Trek 26.00	SIERRA ON LINE King's Quest I or II 29.00 The Black Cauldron 23.00 Championship Boxing 20.00	SIMON AND SCHUSTER Frogger 3 Deep 20.00 Spy Hunter, Topper or Star Trek 25.50 Paper Airplane Const. Set 36.00	SIR TECH Wizardry I 28.00 Wizardry II 23.00 Wizardry III or Wizardry IV 20.00 Wizprint 14.50	SPECTRUM HOLDBYTE Gato 20.00	STRATEGIC SIMULATIONS 50 Mission Crush 23.00 Baltic 85 or Gemstone Warrior 20.00 Battalion Commander 23.00 Battle for Normandy 24.00 Battle of Antientam 27.00 Battle Group 33.00 Field of Fire 23.00 Geopolitique 1990 23.00 Germany 1985 or Carrier Force 23.00 Imperium Galacticum or Broadsi 23.00 Nam 23.00 North Atlantic 86 34.00 Norway 85 30.00 Objective Kursk or Phantasia 23.00 Phantasia II 22.00 Operation Market Garden 29.00 Question 29.00 RDF 1985 29.00 Reforged 88 or Kampfgruppe 34.00 Six Gun Shootout 21.50 USAAF 31.00 War in Russia 46.00 Wizard's Crown 22.00	SUB LOGIC Flight Simulator II 30.50 Night Mission Pinball 22.00	SYNAPSE SOFTWARE Brimstone 26.00 Mindwheel or Essex 26.00 TELARIUM Dragonworld or Shadowkeep 23.00 Farenheit 451 or Amazon 23.00 Rendezvous with Rama 23.00	Nine Princes in Amber 23.00 Perry Mason 23.00	WINDHAM CLASSICS Below the Root 18.00 Swiss Family Robinson 18.00 Treasure Island 18.00 Wizard of Oz 20.00	BLANK MEDIA Elephant SS/DD 9.00 Elephant DS/DD 11.00 Verbatim SS/DD 14.00 Verbatim DS/DD 17.50 Memorex SS/DD 12.00 BASF SS/DD 9.50 Maxell SS/DD 13.00	ACCESSORIES/TURBO BOARDS APPLE COMPUTER Apple Mouse IIC CALL Apple Mouse IIE CALL Appleworks Modifier 64K 36.50 Appleworks Modifier 128K 46.50	CH HAYES Hayes Mach II 26.00 Hayes Mach III 32.00	INNOVATIVE TECHNOLOGIES Flig N File 50 10.00	KEYTRONICS KB 200 179.00	KOALA TECHNOLOGIES Koala Pad 71.00 Gibson Light Pen CALL	KRAFT Kraft Joystick IIC or IIE 24.00 Kraft Quick Stick IIC 48.00	STEDIWART Stediwart 4 Outlet 27.50 Stediwart 6 Outlet 30.00 Stediwart 8 Outlet 33.00	MCT MCT Speed Demon 136.00	STREET ELECTRONICS Echo II Plus 92.50 Crockett IIC 79.00	TITAN TECHNOLOGIES Accelerator IIE 203.00 Saturn 128K Ramcard CALL	SWEET MICRO Mockingboard A or B 64.00 Mockingboard C 113.00 Mockingboard D 123.00	DISK DRIVERS APPLE Unidisk w/Catalyst CALL Duo Disk w/Acc. Kit CALL IIC ADD ON CALL	AMERICAN MICRO A2 143K 147.00 Slimline IIE 147.00 Slimline IIC 147.00 Controller Card 45.00	QUARK QC-10 Hard Disk w/Catalyst CALL QC-20 Hard Disk w/Catalyst 1109.00	PRINTER INTERFACES ORANGE MICRO Hot Link 45.00 Buffered Grappler 129.00 Grappler Plus 69.00	TEXTPRINT Print It (Serial or Parallel) 123.00	THIRDWARE Fingerprint Plus 85.00	MONITORS APPLE Color Monitor IIE or IIC CALL	AMDEK Color 300 202.00 Color 600 380.00 Video 300A Amber 115.00 Video 300G Green 110.00 DVM III 115.00	PRINCETON HX-9 CALL HX-12 CALL RGB Interface CALL 115 Green 113.00 116 Amber 117.00 610 335.00 620 380.00 630 415.00 640 485.00	MULTIFUNCTION BOARDS APPLIED ENGINEERING Trans Warp Accelerator CALL Ramworks II CALL RGB Option 97.00 Z RAM IIC CALL System Clock 59.50	VIEWMASTER Viewmaster 107.00 Timemaster H.Q. 99.00 BSR Option 38.00 Z-80 Plus 107.00	APRICORN Apricorn 16K Ram Card 65.00 Apricorn 64K Extend It 45.00	AST RESEARCH AST Micro Star (10MG HD w/B.U.) 1750.00 AST Multi I/O 138.00	CHECKMATE TECHNOLOGIES Checkmate Zee-80A Card 68.00 Checkmate IIE-80 Ram Card 59.00 Checkmate Multiram C (256K) CALL Checkmate Multiram C (512K) CALL Checkmate Multiram IIE 135.00	INFORMATION APPLIANCE, INC. Swiftcard 68.00	PRACTICAL PERIPHERALS Dejaco IIE or IIC 99.00	QUADRAM Quadram Pro Dos Clock/Calendar 58.00 Quadram Extended Multifunction 155.00 Quadram Buffered Serial Int. (..... 97.00 Quadram Parallel Interface 65.00 Quadram Parallel Card w/Graphi 73.00 Quadram 80 Column 64K Card 97.00 Quadram Multi-Core Board w/256 175.00 Quadram E-Ram 80 96.00	STREET ELECTRONICS Alphabits II CALL Liveswire w/Lock 67.00 Business Card Serial 133.00 Business Card Parallel 154.00	THUNDERWARE Thunderclock Plus 103.00 CREATIVE PERIPHERALS Time Trax IIE or IIC 78.00	TELECOMMUNICATION SOFTWARE APPLE COMPUTER EXP 500P CALL COMPUERVE EXP 500 365.00 EXP 800 365.00 Compuerve Starter Kit 19.00	STAR MICROCNICS NX 10 CALL SG 10 215.00 SG 15 335.00 SD 15 445.00 SR 10 479.00 SR 15 579.00	TOSHIBA P351 1075.00 P341 795.00	SOFTWARE PUBLISHING PFS: Access 44.00	SOURCE TELECOMPUTING Source Subscription Kit 29.00	UNITED SOFTWARE INDUSTRIES ASCII Express Pro (Dos or Pro) 74.00	MODEMS ANCHOR AUTOMATION Volkmodem 1200 177.50 Volkmodem IIE, IIC or Mac Cabl 8.00	NOVATION Apple Cat II 187.00 212 Upgrade Kit 215.00 212 Applenet 349.00	TAXAN Apple Cat II 113.00 116 Amber 117.00 610 335.00 620 380.00 630 415.00 640 485.00	PRENTICE Popcom X-100 Modem 244.00	PROMETHEUS Prometheus 1200 External CALL Prometheus Internal IIE/II+ CALL	ZOOM TELEPHONICS Zoom Modem IIE 103.00 Zoom Modem IIE Plus 109.00
---	---	---	--	---	---	---	--	---	--	---	--	--	--	--	--	--	--	--	--	--	--	--	---	---------------	---	--	---	---	---	---	---	---	--	---	---	---	---	--	---	---	--	---	--	--	--	---	---	---	--	--	--	---	--	--	--	---	---	---	---	--	---	---	--	--	--	--	---	--	---	--	--	---	---	---	--	--	---	--	--	---	---	--	---	---	---	---	--	--	--

APPLE CLINIC

by Bob Ryan and Paul Statt

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 Apple Clinic, inCider, Elm Street, Peterborough, NH 03458.

Mousetext Characters

I recently purchased an Apple IIe enhancement kit to expand the range of usable software for my IIe. I've encountered a problem, though, with WordStar 3.31 on my Microsoft Softcard II. WordStar's menu selections utilize inverse capital letters, but with the enhancement kit installed, they're now displayed in mousetext. The enhancement kit's documentation says this problem occurs with certain software, but cheerily suggests that you can still use the program—it'll work just fine!

I want to know if I can reinstall the original character-generator ROM and still take advantage of the other features the enhancement kit offers. WordStar is virtually useless without the capital-letter menu displays. Any ideas?

Jerry Patterson
Huntsville, AL

Character-generator ROM's contain the pixel patterns of all the letters, numbers, and special characters your Apple can display on its text screen. The character-generator ROM that comes with the IIe enhancement kit has mousetext characters as its alternate character set instead of inverse capitals. (All Apple II character-generator ROM's have two character sets: the primary set and the alternate set.) The old character-generator ROM was produced before mice became a part of the computer user's menagerie.

You can easily replace the enhancement kit's character-generator ROM with the old one. Reinstalling an old ROM chip won't harm your machine or affect operation of any software package. It will have a definite effect on the "look" of any software you run that uses mousetext characters, though.

As an experiment, I replaced the enhanced character-generator ROM in Paul Statt's IIe with an old one. The computer booted without a hitch, and Apple Writer 2.0 (the ProDOS version) ran like a charm. I next booted MouseWrite from Roger Wagner Publishing. Once again, the program ran just fine, but, since MouseWrite accesses the alternate character set, the screen display was a mess. Instead of the arrows, lines, and boxes of mousetext characters, I got what I expected—a display full of inverse capital letters.

If you want to run mouse-driven software on your Apple, resign yourself to getting used to strange WordStar menus—or get a new word processor. If you enhanced your IIe to boot from hard disks, use the mini-assembler, and use lowercase in Applesoft, then by all means replace the new character-generator ROM with the old one. You can't have it both ways—unless you want to swap the character-generator ROM chip every time you go from WordStar to a program that uses mousetext. (By the way, I left the old ROM chip in Paul's machine—I wonder how long it'll take him to notice the difference?) —R.R.

Colorful Characters

I use a Taxan RGB monitor with the Taxan RGB-IIIB interface card with my Apple II Plus. I'm unhappy with the quality of the text. As you can see from the pictures I've enclosed, it's multicolored instead of monochrome. Is this the best I can expect? Should I replace the interface card, or is there a simple adjustment I can make to improve the quality?

Eugene H. Eisman
North Miami, FL

The pictures you sent show that your software doesn't use the Apple's built-in text characters—it uses Apple hi-res graphics to produce text characters.

It's nearly impossible to ensure that graphics-produced characters will appear white on the screen. The color of an individual pixel on the Apple hi-res screen is affected by the byte

(even or odd) and the state of neighboring pixels. Thus, although all the graphics can be produced with the color set to white, the final result will be a mixture of white, green, and violet. While a good graphics programmer can minimize this "color clash," it's difficult to eradicate from graphics-produced text.

If your monitor has a switch for monochrome display, you could use that to force the display into one color. This would be a handicap, of course, if your program also displays graphs or other nontext graphics. The other solution is to get a different software package—one that uses true text characters or double hi-res graphics. Because the even and odd rows of bytes that make up a double hi-res screen reside in different banks of memory, color clash isn't a problem with double hi-res graphics.

*If your monitor doesn't have a monochrome switch and you don't want to change software, I know of only one other solution. Don Lancaster's book, *Enhancing Your Apple II* (volume I), describes a quick hardware modification that lets you kill the color in your color-graphics displays. You control the color-kill switch with a simple POKE before running your software. If you have an aptitude for fiddling with hardware, check out Don's solution. —R.R.*

Special Characters

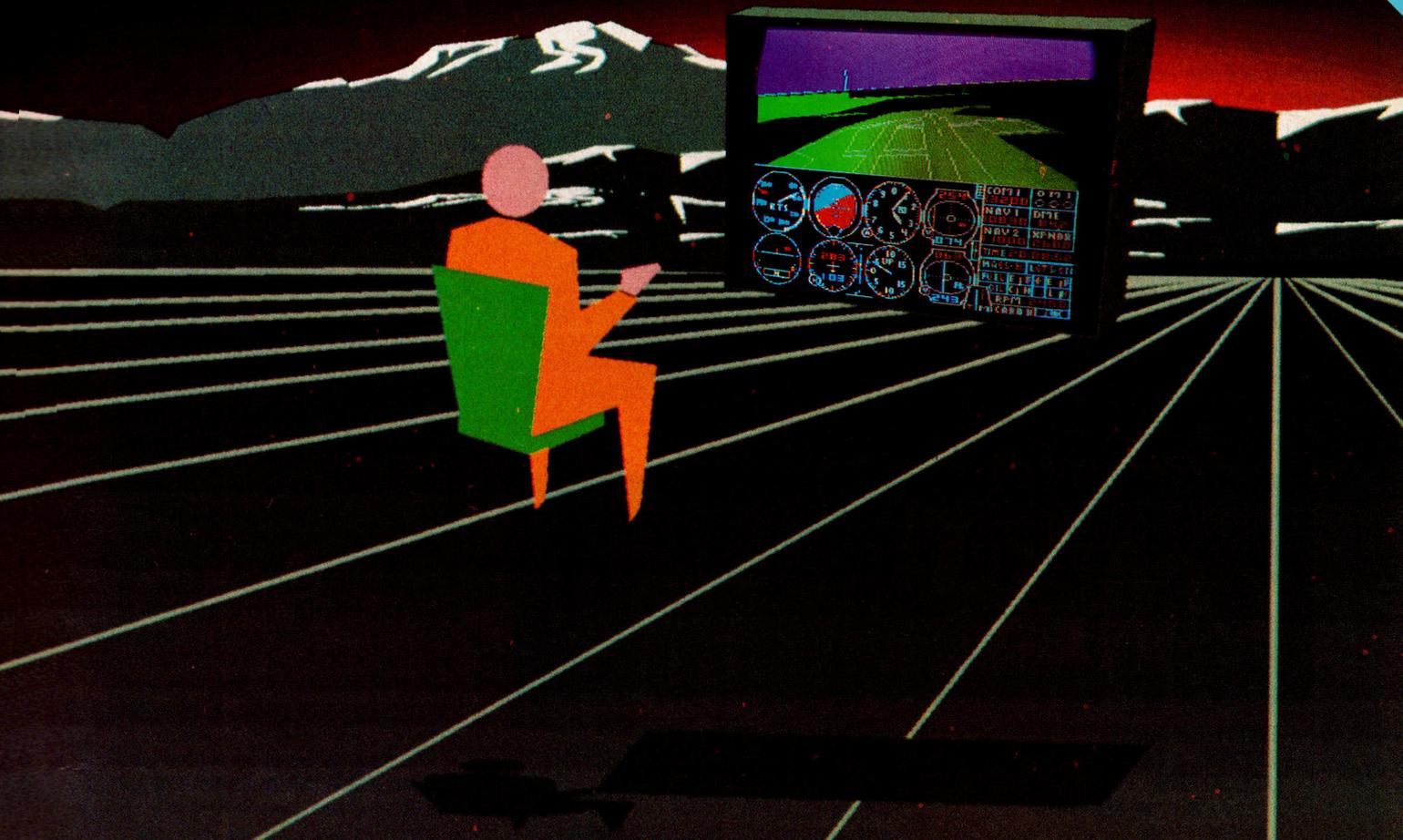
I own a 64K Apple IIe with two disk drives and a printer. I've seen several disk-catalog listings with unusual filenames. Some begin with special characters such as exclamation points or asterisks; others begin at the left margin, where the file type and size are usually displayed. Still others show inverse and flashing filenames and other effects. How can I modify my disk directories to do these tricks?

Vinay Bhaskar
Cupertino, CA

The directories you describe are possible only on DOS 3.3 disks, with which you can use any character in a legal filename. These filenames have been modified with some type of

Flight Stimulator II

For Apple II+,
Apple IIe, & Apple IIc



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

See your dealer . . .

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

Order Line: 800 / 637-4983

subLOGIC

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

disk-zap utility, which lets you directly modify bytes on a disk. If you know how a disk is laid out, you can easily modify filenames and perform tricks such as personalizing the disk-volume message.

Assuming you can get your hands on a disk-zap utility, the information you want to modify is on track 17 (the catalog track) of a DOS 3.3 disk. Filenames are stored beginning in sector 15, and working back to sector 1, if needed. By inserting a control-H character into a filename, you can backspace the name so that it begins at the left margin. You can produce flashing and inverse characters by using the correct ASCII codes. In catalog listings, decimal values between zero and 63 produce inverse characters; values between 64 and 126 produce flashing characters.

I don't know of any practical reason to use these characters in your own filenames, since you can't reproduce these effects when loading a program from the keyboard. They do

add a splash of life to otherwise dull catalog listings, though. —R.R.

Your Own Characters

How can I create my own characters for the text screen? I want to display special characters when I hit a key, instead of the built-in ones. Can you help?

Travis Jones
Hinckley, UT

The only solution that would work under all circumstances is to produce a custom-made character-generator ROM for your Apple. Unless you're into EPROM burning, though, I don't suggest you take on such a project.

The other solution is less comprehensive, but you may find it useful. You can design a custom character set to be displayed on the graphics screen. In the July and August 1984 issues of *iNcider* (pp. 92 and 112), Don Fudge tells you how to display text on the hi-res screen. In addition,

special graphics programs such as *The Complete Graphics System* from Penguin Software let you create and edit hi-res character sets for your system. They're not available to most commercial programs, but you can use them in any program you write.

—R.R.

Buffer Headaches

I have an Apple IIe with 5¼- and 3½-inch UniDisk drives. I plan to eventually convert all my software to the 3½-inch format. To this end, I've been using the conversion utility on the User's Disk to convert from DOS to ProDOS. In several cases, I've received the message NO BUFFERS AVAILABLE when trying to run converted programs from the 3½-inch disk. Can you tell me what I need to do to make a converted program run properly?

Robert J. Kolouch
Vienna, WV

ProDOS generates the message NO BUFFERS AVAILABLE in two situations. The first is when you try to open more than eight files at one time. ProDOS allocates a 1K buffer to each file it opens, and allows only eight open files at a time. If you try to open a ninth, ProDOS will tell you there are NO BUFFERS AVAILABLE.

Remember that the CATALOG, EXEC, and - commands all temporarily open a buffer. If you try to invoke one of these commands with eight open files, you'll once again wind up with NO BUFFERS AVAILABLE.

The second situation occurs when you issue a ProDOS command that alters a reserved area in memory. This is a little involved, so bear with me.

At the top of user memory, just below the hardware memory beginning at location \$C000, you'll find the ProDOS System Global Page. This page contains pointers that let ProDOS communicate with the hardware and system software of your Apple. Tucked away in this area is the System Bit Map, a 24-byte chunk of memory that tells ProDOS which pages of memory it's allowed to alter, and which ones are sacrosanct. Each bit of the 24 bytes of the System Bit Map refers to one page of memory in the lower 48K of an Apple II system. If the bit is set, ProDOS won't perform any operation that alters the corresponding page. This doesn't mean that a program can't alter a page of memory reserved by the System Bit

COPY II PLUS™

THE BEST, MOST COMPLETE ProDOS-DOS UTILITIES.

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

BACKUP YOUR PROTECTED SOFTWARE.

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

Parameters for hundreds of programs are right on disk. Also includes a track editor, sector editor and HI-RES disk display. COPY II PLUS is supplied on a standard ProDOS diskette. Runs on Apple II, II+, IIe, IIc and Laser 128. Requires at least 64K and one or two disk drives.

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

\$39.95

Central Point Software

INCORPORATED

9700 S.W. Capitol Hwy., #100
Portland, OR 97219

Winner of A+ Readers' Choice Awards!

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

800K for Apple //, Laser 128 Only \$285

Now you can add 800K of Apple Unidisk 3.5 compatible storage to your Apple // *at an affordable price.* Our Universal Disk Controller™ allows you to directly connect virtually any drive made for any Apple (even Macintosh) to your Apple // Plus, //e or Laser 128.

Universal Disk Controller

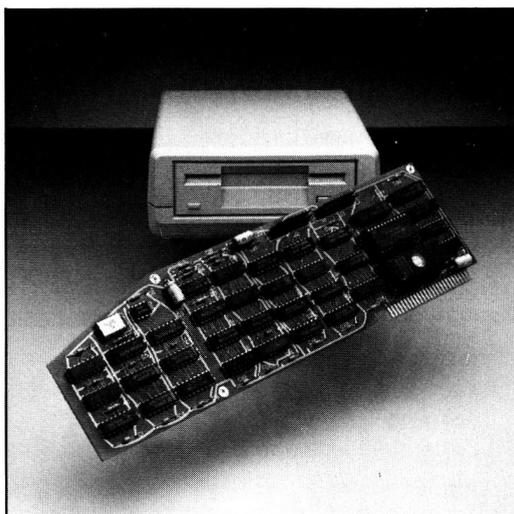
This new controller card combines the functions of 3½ and 5¼ inch drive controllers into one card. Plug in any 5¼ inch disk drive (it supports both old-style 20 pin connectors and //c style DB-19 plugs). Or directly connect an Apple Unidisk 3.5. But most remarkable, the Universal Disk Controller directly accepts Macintosh compatible 800K and 400K external drives.

Unidisk 3.5 compatible

When used with a Mac compatible drive, you still get the identical 800K format used by Apple's Unidisk 3.5—at a considerable price savings. Disks created in Apple's Unidisk 3.5 will work with a Mac drive connected to the Universal Disk Controller and vice-versa. Data Transfer rate is up to par, too. The Universal Disk Controller talks to any drive at full speed.

Mix and Match

You pick what two drives to connect. Plug in two 5¼ inch drives and use it as a standard floppy disk controller. Or connect two Mac drives for a total of 1.6 megabytes of storage. Of course, you can combine drives of different types, too. Connect a 5¼ inch drive and a Mac



800K drive, or an Apple Unidisk 3.5 and a Mac drive, or . . .

COPY II PLUS, Free!

Copy II Plus is included free with every Universal Disk Controller. This package of DOS/ProDOS utilities works with 5¼ and 3½ inch drives and was voted the utilities winner of the A+ Readers' Choice Awards.

Everything is Included

No matter what type of Apple compatible drive you have or plan to buy, everything needed to connect it to the Universal Disk Controller is included. Even older Apple // Plus drives plug in directly without adapter cables.

Available NOW!

Call today and order your Universal Disk Controller. Find out just how inexpensive it can be to add an 800K disk to your Apple!

*Central Point
Software*
INCORPORATED

9700 SW Capitol Highway, #100
Portland, OR 97219

(503) 244-5782

Yes, please send me the Universal Disk Controller Card and drives indicated below.
And include Copy II Plus—free!

Universal Disk Controller—\$150

For Apple //+, //e, and Laser 128.

800K 3.5 inch drive—\$195

(Works great with Macintosh, too!)

Or save on these combos:

Universal Disk Controller & 1 drive—\$285

Universal Disk Controller & 2 drives—\$475

And ship them to me at this street address ASAP:

Name _____

Address _____

Daytime phone # (____) _____

To Order By Mail:

Simply send in this order form with a check (add \$15 s/h, \$30 overseas), or provide your Visa/MC

and expiration date _____

To Order By Phone:

Just call us at **503/244-5782**
8-5:30 (West Coast time), M-F, with
your   in hand!

*Central Point
Software*
INCORPORATED

9700 SW Capitol Hwy., #100
Portland, OR 97219

Map; it just means that the reserved page can't be altered by a ProDOS function or command.

If you get a NO BUFFERS AVAILABLE message, and you know you don't have more than eight files open, then you've probably run afoul of the System Bit Map. One explanation is that the program has tried to BLOAD a file into an area ProDOS uses. Remember that ProDOS takes up more room than DOS 3.3 (DOS uses memory down to \$9600, ProDOS to \$9000), so binary files that fit nicely beneath DOS 3.3 in memory might conflict with ProDOS. You'll have to give such files new BLOAD addresses.

Other sources of conflict are programs that try to BLOAD files directly to text-page 1, which begins at location \$0800. For some reason, ProDOS doesn't mess with the text page. If you have a program that loads a file directly to the text screen, you can get around the problem by BLOADing the file elsewhere in memory, then

PEEKing and POKEing it to the screen.

Another alternative is to alter the System Bit Map to "unreserve" any memory you want to use. This can be dangerous, so I suggest you limit yourself to altering the reserved status of text-page 1. You can find information on the System Bit Map in the ProDOS Technical Reference Manual. Your local user group may have a public-domain program that lets you play with the System Bit Map. If not, MicroSPARC can sell you one called RAM Reservation Center. —R.R.

Big-Blue Blues

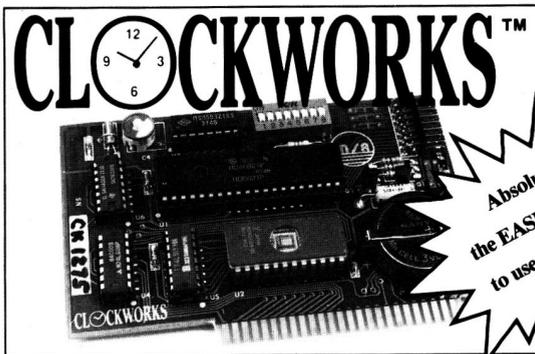
Like many other Apple users, I face a frustrating computing situation. At home, I use an Apple; at work, nothing but "Big Blue." So far, the only solution I've found is to use CP/M on both machines. This isn't practical, though, since most of the software I use at work is written for MS-DOS. Since it's possible to use CP/M on an

Apple, is it also possible to run MS-DOS on an Apple?

Keith Mankins
Austin, TX

There have been a number of attempts to make the Apple MS-DOS compatible, but I don't know of any that have succeeded. The most visible failure was a box from Rana Systems that contained a PC clone. The only parts of the Apple the box used were the keyboard and video display. The problem is that you'd have to spend as much to make the Apple run MS-DOS as you would to build a PC clone. Consequently, it's just as cheap, and eminently wiser from a compatibility standpoint, to buy a PC clone instead of an add-on box that probably can't run a lot of MS-DOS software. Rana Systems is now out of business because it failed to realize that.

Currently, the best "MS-DOS board" for the Apple II comes from The Engineering Department, a company in Campbell, California (408-446-



Absolutely
the EASIEST clock
to use and program!

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

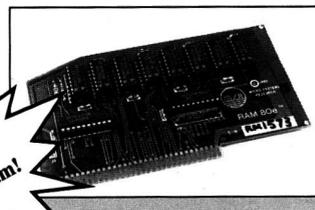
FEATURES	CLOCKWORKS™	TIMEMASTER™	THUNDERCLOCK™
PUTS TIME & DATE ON APPLEWORKS SCREENS & FILES	YES	YES	NO!
HAS YEAR INFO	YES	YES	NO!
STAYS ACCURATE THRU LEAP YEARS	YES	NO!	NO!
BUILT-IN PARALLEL I/O PORT	YES	NO!	NO!
SIMPLE ONE COMMAND TIME SETTING	YES	NO!	YES
FIRMWARE MAINTAINS INTERRUPT SETTING	YES	NO!	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 available 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.

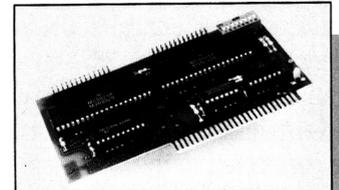
RAM 80e™



- Extends the Apple IIe™ to 128K RAM
 - Adds crisp 80 column video display
 - Enhances spreadsheet and wordprocessor viewing
 - Allows double high resolution graphics
 - Acts as high speed disk drive with ProDOS.
- Easily installs in the Aux. slot of the Apple IIe™. Comes with full documentation.

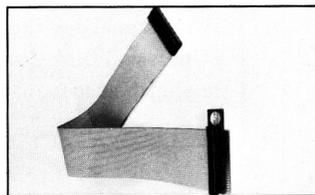
\$79.

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.



Micro Systems Research

4099 Maxanne Drive Kennesaw, Georgia 30144

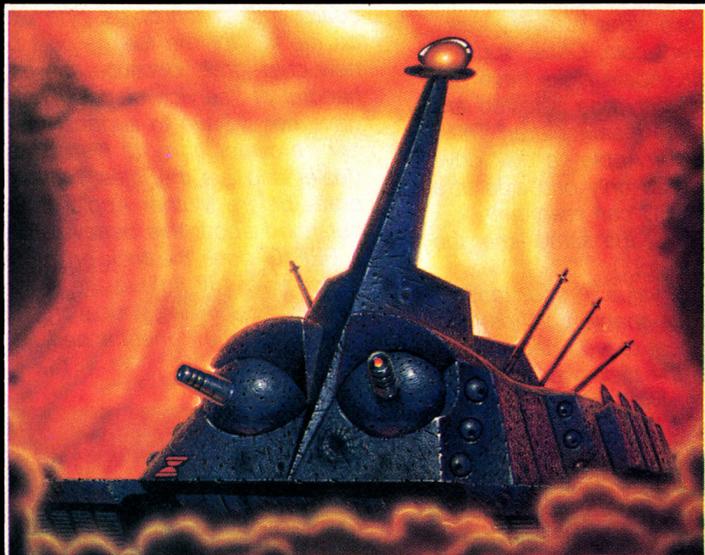
404/928-9394

Origin Systems,
creators of the award-winning Ultima® series, presents:

OGRE

Available on Apple®

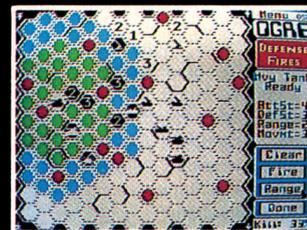
Total war against a juggernaut fighting machine by Steve Meuse



A strategy game for one or two players, OGRE pits an array of infantry and armored forces against a single cybernetic supertank, bristling with weapons—the OGRE.

Adapted from the classic Steve Jackson board game, Computer OGRE epitomizes simplicity and play balance. Players can use standard game maps or design their own.

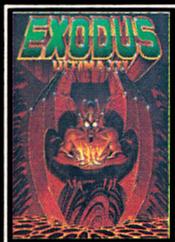
OGRE—the challenge of a lifetime is waiting.



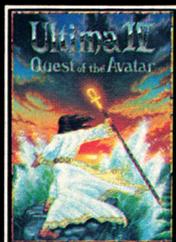
Using the RANGE option, a heavy tank considers its move and fire range.



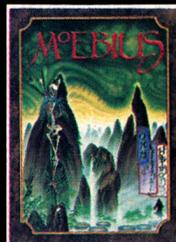
340 HARVEY ROAD, MANCHESTER, NH 03103 (603) 644-3360



ULTIMA™ III sends you on an incredible fantasy role-playing journey through monster-plagued Sosaria in search of the elusive Exodus.



ULTIMA™ IV is the long-awaited sequel to Ultima™ III. The Quest of the Avatar is a quest to the final frontier—the self.



MOEBIUS™ takes you through the elemental planes of a colorful Oriental world of fantasy and adventure in search of the Orb of Celestial Harmony.



AUTODUEL™ is a futuristic fast-paced strategy role-playing game where the right of way goes to the biggest guns.

OGRE and Autoduel are registered trademarks of Steve Jackson Games, Incorporated. Ultima is a registered trademark of Richard Garriott. Moebius is a trademark of Greg Malone.

Authors wanted. Call us today.

THE STATISTICS SERIES

**FLEXIBLE • ACCURATE
EASY-TO-USE**

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

NEW

REGRESS II

\$150

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

STATS PLUS

\$200

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

ANOVA II

\$150

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



HUMAN SYSTEMS DYNAMICS

To Order—Call
Toll Free (800) 451-3030
In California (818) 993-8536
or write:

HUMAN SYSTEMS DYNAMICS
9010 Reseda Blvd. Suite 222
Northridge, CA 91324



Dealer Inquiries Invited



APPLE CLINIC

1444), that was set up by some former Apple people. They're proud of their "Little Blue" card, but don't want to market it—guess why. Nobody else wants to try to sell it, either.

The cheapest, most practical solution to your problem is to buy a PC clone to use at home—or, better yet, buy an Apple for your office! —R.R.

Disk Tricks

I own an Apple //c and have a question about certain types of disks. Recently I obtained some new blank Nashua disks—double-sided, double-density, soft-sectored, with hub ring. Are there any limitations in using these disks? Must both sides be formatted alike, for instance?

Christopher Hash
Rising Sun, MD

There are two sides to every disk as well as every coin, Chris. Your plain old 143K Apple disks have two sides, too, but only one is tested and approved by the manufacturer. The trouble with your Apple //c disk drive is that it can read only one side at a time. (An IBM PC can read both sides of a disk at the same time; the Apple, only the top.)

To be of any value to you, those disks need write-enable notches on both sides, because you need to physically flip the disk over to get to the other side. No notches? Some folks cut their own, but for some reason manufacturers frown on that. If your disks have two write notches, however they got them, you should be able to do as you like with the disks—mix operating systems, have ProDOS on the top with Pascal on the flip side, merge price/volume analysis and love letters—it's up to you.

—P.S.

Mini Problems

I'm a new Apple //c user, teaching myself assembly language. I'm excited about the "mini-assembler" on my computer, but frustrated in my attempts to access it. I tried CALL - 151, followed by an exclamation point (!) and RETURN, but got only the asterisk Monitor prompt (*) back. The //c's at my local software store react the same way.

Of course I can boot the DOS 3.3 System Master, enter Integer BASIC, enter the Monitor, and type F666G, but that's a pain, particularly since I work in ProDOS. I hear that FEF1 works on the enhanced //e, but not

the //c. What's wrong? The only modification made to my //c was a motherboard swap that corrected the timing problem I had with a non-Apple 1200-baud modem. Any help? I'm going crazy.

James Gibson
Indio, CA

You're not crazy, Jim, just misinformed. Have you considered adding a UniDisk 3.5 to your system? I'm not trying to change the subject, but if you buy a UniDisk 3.5, your ever-helpful Apple dealer will swap yet another motherboard into your //c—Little Orphan Apple—and that motherboard will have Apple's latest ROM chips, including the instant mini-assembler. It's free with the UniDisk 3.5.

My dealer tells me it isn't necessary to actually swap the whole motherboard, just switch chips. She would do the job for me for the cost of the new chip—free, because she has a handful of "service chips" Apple gave her. I have to suggest that every //c owner hurry to his or her local dealer and get the latest motherboard gratis before Mother Apple changes her mind about this benevolent policy.

FEF1G does the trick on my enhanced //e; my //c's in the shop, though, so I'll take your word that it doesn't on the "unenhanced //c."

—P.S.

Product Information

The Complete Graphics System

Penguin Software
P.O. Box 311
Geneva, IL 60134
(312) 232-1984
\$79.95

Reader Service Number 322

Enhancing Your Apple II

(Volume I)
Howard W. Sams & Company
P.O. Box 7099
Indianapolis, IN 46206
(317) 298-5400
(800) 428-SAMS
\$15.95

Reader Service Number 323

RAM Reservation Center

MicroSPARC
45 Winthrop Street
Concord, MA 01742
(617) 371-1660
\$23.95

Reader Service Number 324

Fleet System 3™

Integrated Word Processing, Spell Checking and Thesaurus

**Super Value
\$79.95!**

John and Mary Customer
3 Fleet Lane
Productivity, USA

Dear John and Mary,

INTEGRATION is defined as "The act of bringing all parts together to make a better whole." Fleet System 3 has been carefully designed to bring you the most essential writing tools - Word Processing, Spell Checking and Thesaurus, all in one extremely powerful, wonderfully EASY TO USE integrated system.

Fleet System 3 provides you with every important word processing feature including Preview so "what you see is what you get," built-in Mail Merge for personalized letters, built-in Math Functions and much, much more.

In addition, Fleet System 3's integrated 90,000 Word Dictionary ensures that embarrassing misspellings are a thing of the past and gives your work a crisp, professional appearance. What's more, Fleet System 3's integrated Thesaurus provides you with tens of thousands of synonyms and helps students, writers, and business people to improve their reading, writing and vocabulary skills immediately!

Invest in the best Fleet System 3. The ultimate, integrated writing tool.

Sincerely,

The Staff of PSI

- **Powerful, Easy To Use Word Processing**
Helps you type, insert, delete and rearrange text. Perfect for book reports, term papers or full office use.
- **90,000 Word Dictionary**
Eliminates embarrassing misspellings, and can spell check a 10 page document in approximately 1 minute!
- **Integrated Thesaurus**
Provides thousands of synonyms and antonyms and helps improve your reading, writing and vocabulary skills immediately.

- #1 greatest, best, supreme, maximum
- #2 final, definitive, conclusive, end
- #3 peak, utmost, apex, extreme

Includes every important word processing feature, including Mail Merge and an Extra Text area— (a second 80 column screen) that works like a scratch pad for storing and merging information. Invest in the best. Fleet System 3... the VALUE PACKED integrated writing system. Required Hardware: Apple IIe or IIc with 128K • Disk Drive • Suitably interfaced printer.



CALL 1-800-343-4074 for the Dealer nearest you!
Over a quarter of a million programs in use worldwide since 1980
PSI, 51 Fremont Street, Needham, MA 02194 (617) 444-5224

Computers

Central Point Software
Laser 128K Computer 389.00
The Laser 128 includes an Expansion Slot, RGB Video Output, Parallel Printer Port, and a 10 Key Numeric Keypad! Most Apple Compatible Computer Available at Any Price!

Back-Up Utilities & Boards

Alpha Logic Locksmith 6.0 58.00
Central Point Software
Copy II Plus Version 6 20.00
Wildcard II 70.00
Computer Applications
Nibbles Away III/NADOL 59.00
Golden Delicious Software LTD
CIA Files 46.00
Utilico Software E.D.D. IV
E.D.D. IV Plus (I, II, III, IV w/Disk II) 105.00
E.D.D. IV Plus (Ile w/DuoDisk or UniDisk) 115.00

Entertainment

Access Software Beach-Head II 26.00
Accolade Dam Busters or Fight Night 20.00
Hard Ball or Laws of the West 20.00
Psi 5 Trading Co. 20.00
SunDog V2.0 23.00
Activision
Alcizar or Master of the Lamps 25.00
Alter Ego (Male or Female) 32.00
Borrowed Time 25.00
Countdown to Shutdown 28.00
Ghost Busters or Pitfall II 25.00
Great American Road Race 25.00
Hacker or Space Shuttle 25.00
Little Computer People Discovery Kit 25.00
Mindshadow or Tracer Sanction 25.00
Star League Baseball 20.00
Avant-Il Under Fire 36.00
Avant-Garde Dave Winfield's Batter Up 24.00
Joe Theisman's Pro Football 24.00
Bantam Publishing
Cave of Time or Escape 22.00
Fourth Protocol 25.00
I'Damiano the Wizard of Partestrada 25.00
Sherlock Holms: "Another Bow" 25.00
Baudville Video Vegas 18.00
Blue Chip Software
Millionaire, Tycoon, Barron or Squire 32.00
Broderbund
Captain Goodnight & the Islands of Fear 22.00
Championship Lode Runner or Karateka 22.00
Mask of the Sun or Serpent's Star 25.00
Where in the World is Carmen, San Diego? 25.00
Data East Karate Champ 24.00
DataSoft Alternate Reality 23.00
Bruce Lee, Conan, or Mr. Do 23.00
Mind Pursuit or Crosscheck 23.00
The Goonies or Zorro 23.00
The Never Ending Story 23.00
221B Baker Street 23.00
Electronic Arts
Adventure Construction Set 34.00
Amnesia 31.00
Age Of Adventure or One-On-One 11.00
Bard's Tale 31.00
Carriers At War or Wilderness 34.00
ChessMaster 2000 or Ogre 27.00
Europe Ablaze 34.00
Murder on the Zinderneuf 14.00
Music Construction Set 11.00
Pinball Construction Set 11.00
Reach for the Stars 31.00
Seven Cities of Gold 11.00
SkyFox or Archer II 24.00
Software Golden Oldies 24.00
Super Boulder Dash 11.00
Timothy Leary's Mind Mirror 24.00
EPYX
Ballblazer or Rescue on Fractulus 25.00
Barbie or G.I. Joe 19.50
Koronis Rift or The Eidolon 25.00
Summer Games II or Winter Games 25.00
Temple of Apsah Trilogy 25.00
World's Greatest Baseball Game 24.00
World's Greatest Football Game 25.00
Firebird Elite 25.00
Colossus Chess IV 25.00
Hayden Software Sargon III 32.00
Infocom A Mind Forever Voyaging 26.50
Cuthroats, Seastalker, or Ballyhoo 24.50
Deadline, or Starcross or SpellBreaker 30.00
Hitchhiker's Guide to The Galaxy 24.50
Infidel or Sorcerer 27.50
Witness, Planetfall, or Enchanter 24.50
Zork I, Wishbringer, or Foolsitzy 24.50
Zork II, Zork III, or Suspect 27.50
Micro League Sports
Micro League Baseball 24.00
General Manager/Owner 24.00
Microprose
Crusade in Europe or Conflict in Vietnam 25.00
Decision in The Desert 25.00
F-15 Strike Eagle or Arcrojet 22.00
Gunship, Silent Service, or Kennedy Approach 22.00
Solo Flight or Nato Commander 22.00
Mindscape Dick Francis High Stakes 25.00
Forbidden Castle or Voodoo Island 25.00
James Bond: "A View To Kill" 25.00
James Bond: "Goldfinger" 25.00
Racter 28.00
"Rambo: "First Blood Part II" 25.00
Stephen King's "The Mist" 25.00
The American Challenge Sailing 25.00
The Halley Project 19.00

Omnitrend Software
Omnitrend's Universe I 62.00
Omnitrend's Universe II 39.00
One Step Software Golf Best Pinehurst 31.00
Origin Systems Moebius 39.00
AutoDuel 34.00
Ultima III: Exodus or Ultima IV 39.00
Polarware
The Quest, Frank & Ernest or Oo-Topos 15.00
Coveted Mirror, Xyphus or Transylvania 15.00
Sword of Kadash or Crimson Crown 15.00
Random House Alpine Encounter 20.00
Sierra On-Line Championship Boxing 22.00
Kings Quest or King's Quest II 32.00
The Black Cauldron 25.00
Simon & Schuster
Spy Hunter or Tapper 19.00
Star Trek (Kobayashi Alternative) 25.00
Sir-Tech Wizardry 31.50
Knight of Diamonds 22.00
Legacy of Lylgamy 25.00
Rescue Raiders 22.00
Wisprint 16.00
Spectrum Holobyte Gato 22.00
Synapse Software
Brimstone, Mindwheel, or Essex 27.00
Strategic Simulations
Battalion Commander 24.00
Battle For Normandy 24.00
Battle Group 36.00
Battle of Antientum or Field of Fire 30.00
50 Mission Crush or Broadside 24.00
Gemstone Warrior, or Wizard's Crown 24.00
Geopolitique 1990 or Rails West 24.00
Germany 1985 or Carrier Force 36.00
Imperium Galactum 24.00
Kampfgruppe or Reforger 88 36.00
NAM or Professional Tour Golf 24.00
North Atlantic '86 36.00
Phantasia II, or Panzer Grenadier 24.00
Ring's of Zilfin, or Colonial Conquest 24.00
U.S.A.A.F. or Mech Brigade 36.00
War in Russia 48.00
Sublogic Flight Simulator II 35.00
Tellurium Amazon or Dragon World 24.00
Fahrenheit 451 or Shadow Keep 24.00
Nine Princess In Amber 24.00
Perry Mason: Mandarin Murders 24.00
Rendezvous with Rama 24.00
Windham Classics
Alice in Wonderland or Robin Hood 26.00
Below The Root or Swiss Family Robinson 26.00
Wizard Of Oz or Treasure Island 26.00

Utility/Language Software
Apple Computer
Apple II Instant Pascal 110.00
Apple Pascal V1.3 199.00
Beagle Brothers
MacroWorks or Beagle Basic 19.00
Beagle G.P.L.E. 18.50
Big U, Double Take, or Pro-Byter 26.00
D-Code or Extra K 21.00
DiskQuick or I.O. Silver 16.00
Dos Bos or Silicon Salad 13.00
Fat Cat 18.50
Tip Disk #1 11.00
Pronto Dos or Utility City 15.50
Triple Dump 21.00
Borland Turbo Pascal 3.0 42.00
Turbo Database Tool Box 34.00
Turbo Tutor 22.00
Funk Software
Sideways ProDOS & Dos 3.3 34.00
Mesacom
UniDos (Dos 3.3 for the UniDrive) 26.00
Quality Software Bag of Tricks II 32.00
Beneath Apple Dos or Beneath Apple ProDOS 13.00
Roger Wagner Merlin ProDOS 59.00
Merlin Assembler 42.00
Merlin Combo Pack 69.00
Software Masters
Visible Computer: 6502 36.00
The Byte Works
ORCA/M Macro Assembler ProDOS 59.00
Videx AppleWorks Modify Plus 128K 49.00
Vilberg Brothers
DMP Utilities (ImageWriter or Epson) 35.00
Zedcor ZBASIC 65.00

Utility/Language Software

Springboard Newsroom 34.00
Certificate Maker 34.00
Newsroom Clip Art Collection Vol. 1 17.50
Newsroom Clip Art Collection Vol. 2 23.50
Graphics Expander Vol. 1 23.50
Weekly Reader Stickybear Printer 24.00

Springboard Newsroom 34.00
Certificate Maker 34.00
Newsroom Clip Art Collection Vol. 1 17.50
Newsroom Clip Art Collection Vol. 2 23.50
Graphics Expander Vol. 1 23.50
Weekly Reader Stickybear Printer 24.00

Communications

Apple Computer Access II (Ile, IIC only) 62.00
Compuserve Compuserve Starter Kit 27.00
How Jones Dow Jones Membership Kit 22.00
Hayes Smartcom 72.00
Hayes Terminal Pgm. (Smartmodem) 59.00
Microstuff Prostack 105.00
Quark Terminus II 62.00
Softronics Softerm II 125.00
Software Publishing PFS: Access 47.00
United Software Industries
ASCII: Express Pro: ProDOS or Dos 3.3 79.00

Business Software

Advanced Logic Systems SpellWorks 29.00
The Handlers (I+, II, IIC) 72.00
Apple Apple Works (Ile, IIC) 199.00
Apple Writer II 2.0 ProDOS (Ile, IIC) 119.00
Quickfile (Ile only) 79.00
Applied Software Technology
Versaform II, Ile, IIC 49.00
BPI Systems
BPI General Accounting ProDOS 225.00
BPI AR/AP/PR or Inv. ProDOS (ea.) 225.00
Broderbund
Bank Street Writer (Ile, IIC) or Speller 43.00
Bank Street Filer (128K) or Mailer 43.00
CBS Software Stockpak II 79.00
Dow Jones Software
Dow Jones Membership Kit 22.00
Electronic Arts Cut and Paste 11.00
Financial Cookbook 32.00
First Star The Works 34.00
Good Software Investor III 149.00
Amortizer III 56.00
Haba/Arays Home Accountant 47.00
Home Accountant IIC 45.00
HabaWorks 109.00
AppleWorks Buddies 71.00
HabaCalc 'N' Graph 42.00
Haba Speller or HabaMerge 29.00
HabaFile 42.00
Human Edge Software
Communications or Management Edge 57.00
Mind Prober 28.00
Mind Over Minors 57.00
Sales or Negotiation Edge 57.00
International Solutions MouseBudget 39.00
MouseCalc 85.00
MouseDesk 24.00
MouseWord 69.00
Intuit Quicken 49.00
Living Videotext
Think Tank V1.1 (I+ or Ile) 79.00
Mananz
BusinessWorks
System Manager (Required) 65.00
GL/AR/AP/ or Inventory Control 255.00
Payroll Module 290.00
The Business Accountant
System Manager (Required) 67.00
GL/AR/AP/ or Inventory Control 195.00
Payroll Module 225.00
The Advanced Business Accountant
System Manager (Required) 65.00
GL/AR/AP/ or Inventory Control 255.00
Payroll Module 290.00
MECA Managing Your Money 109.00
Megahaus MegaWorks 69.00
ReportWorks 69.00
Thinkworks 69.00
Monogram Dollars and Sense (I+, I/e or IIC) 72.00
Forecast 64K (128K) 38.00
No Press Will Writer (Version 2.0) 29.00
PBI Software Graphworks 1.2C 45.00
Jeeves 29.00
Peachtree
Back To Basics Accounting System: GL/AR/AP 99.00
Back To Basics GL, AP, AR 52.00
Pinpoint Publishing Pinpoint V1.3 39.00
PinPoint Spelling Checker 28.00
PinPoint Toolkit 28.00
Point To Point 82.00
Infomerge 52.00
Pinpoint I/e Upgrade Kit 23.00
PinPoint Ram Enhancement 23.00
PinPoint Modem Enhancement 23.00
PM Software
ProFILER 2.0 69.00
Professional Software Fleet System 3 39.00
Integrated Word Processing
Spell Checking & Thesaurus 52.00
Quark Catalyst I/e V3.0 59.00
Word Juggler & Lexicheck I/e 59.00
Roger Wagner Publishing Mouse Write The Write Choice 29.00
Satellite Software WordPerfect 85.00
Sensible Software Bookends-ProDOS 69.00
Sensible Grammar 29.00
Sensible Speller-Dos or ProDOS 69.00
Sierra On-Line Homework Plus (128K) or HomeWord Filer 45.00
Screenwriter Professional I/e 79.00
Simon & Schuster
JK Lasser's Money Manager 49.00
JK Lasser's Income Tax 44.00
Webster's Spelling Checker 32.00
Software Publishing
All Programs for I/e with 128K or IIC PFS: Workmates 139.00
PFS: File, Graph, Report 74.00
PFS: File/Report BUndle 74.00
PFS: Write or Plan (I/e, IIC) 74.00

Sorcim/IUS SuperCalc3a 105.00
Styleware Multiscribe 51.00
Timeworks
Silvia Porter's Fiancial Planner 62.00

Educational Software

Addison Wesley Smart Eyes 38.00
Apple Apple Logo II (128K) (I/e, IIC only) 79.00
Bantam Books
Fantastic Animals or Road Rally USA 25.00
The Complete Scarsdale Medical Diet 25.00
Barron's Computer SAT Revised Version 32.00
Baudville Dizard Wizard 17.50
Ted Bear Discover...Rainy Day Games 17.50
Better Working
File & Report or Spreadsheet 38.00
Homework Helpers: Math Word Problems 32.00
Homework Helpers: Writing 32.00
Work Processor 37.00
Brainpower Think Fast 24.00
Broderbund
Science Tool Kit Master Module 38.00
CBS Software Adventure Master 14.00
America Coast to Coast 24.00
Body in Focus or Dinosaur Dig 24.00
Forecast! or T-Rex 29.00
Goren's Bridge 45.00
Mastering The SAT 56.00
Success w/Algebra (ea.) 19.50
Success w/Math (ea.) 13.50
Davidson & Associates
Algebra-Blaster, Classmate or Math Blaster 28.00
Gramer Gremlins 28.00
Speed Reader II 39.00
Speed Reader Data A, B, D, or D Spell-It or Word Attack! 28.00
DesignWare
European Nations & Locations 25.00
Gramer Examiner 25.00
Remember 45.00
Spellcopier or Spellakazam 24.00
States & Traits or Mission Algebra 25.00
The Body Transparent 25.00
DLM Alligator Mix or Demolition Division 19.00
Create with Garfield or Fraction Fuel Up 18.50
Freddie's Puzzles or Number Farm 19.00
Spelling Wiz or Word Invasion 19.00
Fisher Price Alpha Build or Logic Levels 15.00
Purr Rabbit Reading 25.00
Up & Add Em or Sea Speller 15.00
Grolier Publishing EduCalc 32.00
Friendly Filer or Easy Graph 26.00
Science Island or Treasure Hunter 26.00
Harcourt, Brace, Jovanovich
Computer SAT 52.00
Intracorp, Inc.
Intracourse Analysis Module 36.00
Intracourse Compatibility Module 29.00
Intracourse Analysis & Compatibility Module 59.00
Learning Company Addition Magician 23.00
Bumble Plot, Games, or Reader Rabbit 25.00
Gertrude's Puzzles or Secrets 28.00
Juggler's Rainbow 19.00
Magic Spells or Word Spinner 22.00
Moptown Hotel, Parade, or Number Stumper 25.00
Robot Odyssey I or Rocky's Boots 31.50
Miliken The Milliken Word Processor 45.00
Mindscape Crossword Magic 31.50
Keyboard Cadet or Luscher Profile 25.00
Perfect Score SAT 45.00
Peachtree/Eduware Algebra 1, 2, 3, or 4 23.00
Algebra 5 & 6 27.00
Decimals or Fractions 22.00
Compu-Read (V 3.0) 16.50
Introduction to Counting 12.50
PSAT or SAT Word Attack Skills 16.50
PSAT/SAT Analogies 19.00
Spelling Bee w/Reading Primer 22.00
Writing Skills 1, 2, 3, 4 or 5 22.00
PinPoint Micro Cookbook (I/e or IIC) 28.00
Appetizers, Desserts, or Soups & Salads 11.95
Random House Charlie Brown's ABC's 20.00
Charlie Brown Typing is a Ball 20.00
Garfield Double Dares 20.00
Garfield Eat Your Words 20.00
Mr. & Mrs. Potato Head 20.00
Snoopy Writer 20.00
Sensible Software Report Card 34.00
Scarborough Systems
Build A Book About You 16.00
MasterType New & Improved 25.00
MasterType's Writer (5 1/4 or 3 1/2") 45.00
MasterType's Filer 25.00
Original Boston Computer Diet 49.00
Scholastic Wizware
Agent U.S.A. or Turtle Tracks 25.00
Logo Robot or Math Shop 16.00
Poster or Square Pairs 22.00
Microzone 22.50
Operation: Frog 24.00
Logic Builders 22.00
Story Tree or Story Maker 26.00
Simon & Schuster Chem Lab 25.00
Lovejoy's Preparation for SAT 39.00
Typing Tutor III 32.00
Spinnaker
Adventure Creator or Trains : Counting Parade or Sum Ducks 19.00
Delta Drawing 25.00
Fraction Fever 17.00
Grandma's House 16.00
In Search Of... 21.00
Kidwriter 25.00
Alphabet Zoo 19.00
Kindercomp or Kids on Keys 16.00
Snoopy Snippets Case I or II 21.00
Springboard
Early Games or Music Maestro 21.00
Fraction Factory or Make a Match 17.00
Mask Parade or Easy as ABC 24.00
Rainbow Painter or Puzzle Master 21.00
Terrapin Terrapin Logo V3.0 59.00

Graphics Packages

Activision Game Maker 31.50
Baudville Blazing Paddles 28.50
Prince (C, Itoh or Epson) 42.00
Pix-It 29.00
Pix-It Shape Library 1, 2, or 3 12.95
Take 1 34.00
Take 1 Programmer's Toolkit 36.00
Actors & Actions or Heros & Villains 18.00
Beagle Brothers Alpha Plot 21.00
Beagle Graphics 31.00
Flex Text or Frame Up 15.50
Font Mechanic or Minipix Disk #1 15.50
Shape Mechanic 21.00
Broderbund Dazzle Draw 37.00
Print Shop or Fantavision 29.00
Print Shop Companion 25.00
Print Shop Graphics Library I, II, or III 15.50
Print Shop Paper Refill 12.95
Data Transforms Fontrix 1.5 54.00
Font Paks 1-13 ea. 13.00
Electronic Arts Movie Maker 27.00
Penguin Software
New Complete Graphics System 26.00
The Graphics Magician 26.00
The Graphics Magician Jr. 14.00
Roger Wagner Printographer 26.00
Sensible Software
The Graphics Department 69.00
Simon & Schuster
Great INTL Paper Airplane Const. Kit 25.00

TimeWorks	
Evelyn Wood Dynamic Reader	44.00
Weekly Reader	
Exploring Tables & Graphs 1 or 2	20.00
Pic.Builder	22.50
Stickybear Series: Sticky Bear ABC, Car Builder, Basket Bounce, Bop, Math, Numbers, Opposites, Reading, Shapes, Spellgrabber, Typing, & Townbuilder (each)	22.50

Modems

Anchor Automation	
Signalman express 1200	235.00
Signalman Lightning 2400	355.00
Volksmodem 12	179.00
Hayes Hayes Micromodem //e	139.00
Hayes 300 Baud Smartmodem //c	159.00
Hayes 300 Baud Smartmodem	139.00
Hayes 1200 Baud Smartmodem	359.00
Hayes 2400 Baud Smartmodem	579.00
Transet 1000	269.00
Novation Novation Apple Cat II	189.00
Novation 212 Apple Cat II	355.00
Novation 212 Upgrade	219.00
Novation 2400 Baud External	479.00
Prentice Popcom X-100 (1200 Baud)	245.00
Prometheus	
Pro Modem 1200 (External)	279.00
ProModem 1200G (Non Expandable)	199.00
Pro Modem 1200A (Internal)	249.00
Pro Modem 300c	89.00
Options Processor or Alphanumeric Display	69.00
U.S. Robotics	
U.S. Robotics Password 1200	199.00
U.S. Robotics Courier 2400	399.00
Zoom Telephonics Zoom/Modem //e	108.00
Zoom/Modem //e Plus	115.00

Accelerators/Ramcards Z-80/80 Col.

Advanced Logic Systems	
Add-Ram 16	65.00
Add-Ram 80/64	52.00
Add-Ram 80/256	145.00
Z-Engine 2.2	125.00
Apple Computer	
Apple II Memory Expansion Card	225.00
Apple //e Extended 80 Col. Card	89.00
Apple //e Enhancement Kit	45.00
Applied Engineering	
RamWorks II (64K to 3 MB)	Call
RamFactor (256K to 1MB)	Call
Phasor (//+ or //e)	215.00
Z-RAM //c (256 or 512K)	Call
Ramworks RGB Option & 16 Bit Option	Call
TransWarp Accelerator	Call
TransWarp 16 Bit Upgrade	Call
ViewMaster 80	109.00
Z-80 Plus	109.00
Applied Technology Laboratories	
EasyCard Advanced Set (//+ or //e)	239.00
Light Pen w/Cursor Control	159.00
Apricorn Apricorn 64K Extend-It	75.00
Apricorn 16K Ramcard II+	79.00
AST Research	
MegaRamPlus w/64K	125.00
MegaRamPlus w/256K	179.00
SprintDisk w/256K	189.00
SprintDisk w/512K	269.00
Checkmate Technology	
MultiRam CX (256K)	149.00
MultiRam CX (512K)	189.00
MultiRam //e (128K)	129.00
MultiRam //e RGB (128K)	159.00
MultiRam //e (256K)	149.00
MultiRam //e RGB (256K)	179.00
MultiRam //e (512K)	179.00
MultiRam //e RGB (512K)	225.00
Zee-80A	55.00
Cirtech Flipster-Ram-Card	275.00
Information Appliance SwaytCard	69.00
Micro Sci Micro Sci 80/64e	69.00
Microsoft Microsoft Softcard II	265.00
MCT MCT Speed Demon	155.00
Titan Industries Saturn 128K Ram Accelerator //e w/PinPoint	219.00

Multifunction Cards

AST Research	
Multi I/O Clock/Calendar	99.00
Multi I/O Clock/Calendar/2 Ser. Ports	139.00
Prometheus VERSAcad	129.00
Quadram Multicore w/OK	149.00
Multicore w/256K	179.00
<i>Specify Apple Or IBM RGB Cable:</i>	
Extended Multifunction Board (64K)	159.00
Extended Multifunction Board w/RGB	189.00
RGB Upgrade (Apple or IBM RGB)	45.00
Street Electronics	
Business Card Parallel	155.00
Business Card Serial	135.00
Videx PSIO Dual Function Interface	139.00

Printer Interface Cards

Apple Apple Super Serial Card	115.00
Apricorn Apricorn //c Super Serial Card	92.00
Interactive Structures	
Pkaso/II Interface	125.00
Orange Micro Serial Grappler Plus	75.00
Grappler+	75.00
Buffered Grappler+	119.00
Grappler //c	79.00
Imagebuffer 64K	119.00
(For Imagewriter II Printer)	69.00
Hot Link	49.00

Practical Peripherals Graphicard	62.00
PrinterFace	49.00
SerialII Interface Card	95.00
Quadram	
APIC Parallel Interface with Cable	69.00
APIC C/G Parallel Interface w/Color Gr.	75.00
Serial Interface (AB-400)	71.00
Buffered Serial Interface (64K)	109.00
Street Electronics Alphabits II	79.00
TextPrint Print-It! (Parallel or Serial)	125.00
Thirdware	
Finger Print Plus II+, //e, //c	89.00

Clock/Calendar Peripherals

Applied Engineering	
TimeMaster H.O.	99.00
BSR Interface	39.00
//c System Clock	65.00
Quadram	
Pro Dos Clock/Calendar Card	62.00
Creative Peripherals	
Seiko Datagraph 2001 w/Time Trax	149.00
Time Trax //e or //c	79.00
//c System Clock	55.00
Street Electronics Livewire	70.00
Thunderware ThunderClock Plus	109.00
X-10 (USA) Inc.	
X-10 Powerhouse Computer Interface	49.00
Extra Modules (For Lamps, Wall Switches, & Appliances)	15.00

Video Cards

Video 7	
Color Enhancer //e w/Dazzle Draw	125.00
Color Enhancer //c w/Dazzle Draw	89.00
Screen Enhancer //e	95.00
Screen Enhancer //c	55.00

Accessories

Kensington System Saver	59.00
Cool + Time	69.00
Curtis Diamond	30.00
Curtis Emerald	36.00
Curtis Ruby	54.00
Curtis Sapphire	47.00
Apple Mouse //e	119.00
Apple Mouse //c	85.00
Pico Universal Joystick II+, //e, //c	25.00
Hayes Mach II Joystick	29.00
Hayes Mach III Joystick	35.00
Kraft Quickstick //c	49.00
Kraft Joystick //e	21.00
Koala Pad Plus w/Graphics Exhibitor	79.00
Trackhouse Keypad (//e Standard)	74.00
Trackhouse Keypad (//e Programmable)	139.00
Mockingboard A Board	75.00
Mockingboard C Board	119.00
Mockingboard D Board (//c)	125.00
Echo II Plus	99.00
The Cricket //c	69.00
Rainbow Paper Pak (300 Sheets)	12.00
ImageWriter Ribbon-Black	4.50
ImageWriter Ribbon-Color	5.00
ImageWriter Rainbow Pack (6 Colors)	27.00
<i>Environmental Software: Apple Skins</i>	
Apple //c or //e w/Monitor II Cover	19.00
Apple //c w/Color Monitor Cover	21.00
Apple //e Professional System Cover	23.00
Apple //c, //e, or UniDisk Drive Cover	7.00

Blank Media

5 1/4" Blank Diskettes	
BASF 5.25" SS/DD (box of 10)	10.50
Elephant 5.25" SS/DD (box of 10)	10.50
Verbatim 5.25" SS/DD (box of 10)	10.50
Sony 5.25" SS/DD (box of 10)	10.25
Maxell 5.25" SS/DD (box of 10)	10.25
Nashua 5.25 SS/DD (box of 10)	12.50
Memorex 5.25" SS/DD (box of 10)	13.00
3M 5.25" SS/DD (box of 10)	12.00
Dysan 5.25" SS/DD (box of 10)	15.99
3 1/2" Blank Diskettes	
BASF 3.5" DS/DD (box of 5)	14.00
Bulk (Sony) 3 1/2" DS/DD (box of 10)	24.00
Centech 3 1/2" DS/DD Color Disks (box of 10)	24.00
Sony 3.5" DS/DD (box of 10)	27.00
Fuji 3.5" DS/DD (box of 10)	26.00
Verbatim DS/DD (box of 10)	28.00
Maxell 3.5" DS/DD (box of 10)	28.00
3M 3.5" DS/DD (box of 10)	28.00

Printers

Brother	
HR-15XL (20cps) Daisywheel	319.00
HR-25 (23cps) Daisywheel	519.00
HR-35 (35cps) Daisywheel	729.00
TwinWriter 5	839.00
Fortis/Dynax	
DH-25 (23cps) Daisywheel Par./Ser.	469.00
DX45 Dual Head Printer	839.00
Citizen	
120-D (120cps) W/NLQ 10" Carriage	189.00
MSP-10 (160 cps) 10" Carriage	289.00
MSP-15 (160 cps) 15" Carriage	389.00
MSP-20 (200 cps) 10" Carriage	329.00
MSP-25 (200 cps) 15" Carriage	489.00
Epson	
LX-80	Call
DX-10/20	For
FX-85	Most
FX-286	Recent
LQ-800/1000	Low/Low!
SQ-2000	Prices

Juki	
6000 (10 cps) Daisywheel/Par.	179.00
6100 (18 cps) Daisywheel/Par.	349.00
6200 (30 cps) Daisywheel/Par.	489.00
6300 (40 cps) Daisywheel/Par.	679.00
Okidata Okimate 20 Color Printer	Call
Microline 162P or 183P	Call
Microline 192P or 193P	Call
Microline 292 or 293P	Call
Microline 192 Apple or 193 Apple	Call
Panasonic	
KXP-1080AP (100 cps)	239.00
ImageWriter Compatible	239.00
KXP-1080 (100 cps) NLQ Mode	199.00
KXP-1091 (120 cps) NLQ Mode	249.00
KXP-1092 (180 cps) NLQ Mode	299.00
KXP-1592 (160 cps) NLQ Mode	429.00
KXP-1595 (240 cps) NLQ Mode	579.00
KXP-3131 (16 cps) Daisywheel	259.00
KXP-3151 (23 cps) Daisywheel	399.00
Silver Reed	
EXP-500P (16 cps) Daisywheel	169.00
EXP-550P (20 cps) Daisywheel	269.00
EXP-800P (40 cps) Daisywheel	659.00
Star Micronics NX-10 (120cps) Parallel	249.00
SG-15 (120cps) Parallel	389.00
SD-10 (160cps) Parallel	339.00
SD-15 (160cps) Parallel	449.00
SR-10 (200cps) Parallel	489.00
SR-15 (200cps) Parallel	589.00
Toshiba	
P-321 24 Pin (216cps) Par./Ser. 10"	499.00
P-341 24 Pin (216cps) Par./Ser. 15"	799.00
P-351 24 Pin (288cps) Par./Ser. 15"	1079.00

Disk Drives/Hard Drives

AST Research	
MicroStor 10MB Tape Backup Only	955.00
MicroStor 10MB Hard Disk Only	955.00
MicroStor 10MB Hard Disk w/10MB Tape Backup	1475.00
Corvus Systems	
OmniDrive Hard Disks	Call
H & M Disk Drive Services EquiDisk+	589.00
<i>737K of storage on each Drive!</i>	
<i>Includes 2-5.25" Drives w/Controller, Power Supply & Cables. Apple DuoDisk Side by Side Design!</i>	
Micro Sci A2 Full Height	149.00
A5 Slimline //e	149.00
A5 Slimline //c	159.00
Micro Sci C2 Controller	55.00
Mitac AD-1 Full Height //e	139.00
AD-3C Slimline //e or //c	129.00
Pico Products	
Apple Half-Height II+, //e, //c	139.00
Quark	
QC-10 Hard Disk //e, //c or Mac	799.00
QC-20 Hard Disk //e, //c or Mac	999.00

Monitors

Amdel	
Video 300G 12" Green Monitor	119.00
Video 300A 12" Amber Monitor	125.00
Color Monitor 600 (RGB)	399.00
Color Monitor 722 (RGB)	499.00

Precision International, Inc.	
C-Vue Flat Panel Display (Apple //c)	359.00
Princeton Graphics	
HX-9 9" RGB Color	399.00
HX-12 12" RGB Color	429.00
SA-1000 Amber	139.00
SC-100 Composite Color	149.00
SC-200 RGB Color	339.00
SC-300P RGB Color	589.00
Taxan 115 12" Hi-Res Green	119.00
116 12" Hi-Res Amber	129.00
220 14" Composite Color	139.00
620 12" Hi-Res RGB Color (640x200)	389.00
410-80/64 RGB-II Interface	179.00
Teknika MJ-22 RGB Color Monitor	259.00

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 2-3 weeks to clear. Mastercard & Visa, include card # & expiration date. Connecticut residents add 7.5% sales tax.

Shipping Charges — Software Only — \$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.

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 or they will not be accepted. Call (203) 378-3662 to obtain one before returning defective products for replacement.

Visit Our New Showroom:
Exit 32 off I-95

PROGRAMS PLUS

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

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

YOUR
APPLE
TODAY,
KEEPS THE
DOCTOR
AWAY.



HOUSECALL

THE COMPUTERIZED
HOME MEDICAL ADVISOR

- Written By Physicians.
- Over 400 Diagnoses.
- Concise Information accessed directly or through branching questionnaire.
- Educational—background and treatment for each condition diagnosed.
- Closely Related Diagnoses follow computer's initial choice.
- A Ready "Second Opinion".
- Fast, Easy and Fun to use.
- Self Contained—Multiple disk data base—no modem needed.
- Always Current—yearly updates available at nominal cost.

Great For Business Offices As An Employee Benefit. Also Helps Reduce Absenteeism

HOUSECALL Will Run On APPLE II +, c, e, IBM PC Family, and 100% Compatibles. Dealer inquiries invited.



**Rocky Mountain
Medical Software, Inc.**

To Order Call Toll Free
(800) 233-3556
For More Information Call
(303) 773-1237

List Price \$79.95 **SPECIAL \$49.95**

Please send _____ copies of **HOUSECALL**
@ \$49.95 + \$5.00 shipping (\$12.00 foreign).
(Colorado residents add \$1.80 tax). 20 Day Money
Back Guarantee. For Unprotected Add \$20.00.

Type of Computer _____

Name _____

Address _____

City/State/Zip _____

Check VISA MC Exp. Date _____

No. _____

Signature _____



**Rocky Mountain
Medical Software, Inc.**

5680 S. Syracuse Circle, Suite 500 I
Greenwood Village, CO 80111

Circle 214 on Reader Service Card.

REVIEWS

meaning of a new vocabulary word, and you often have to choose the best title for a story or pick out a moral.

If you get any answers wrong, the program lets you go back and see why. When all your answers are correct, Baloo applauds you and gives you an adventure assignment: looking for one of the five animals you must pass in the jungle to locate Bagheera the panther and win the game. You guide Mowgli through dense tropical forests; when he finds the animal, he makes it hide by speaking the magic words given to him by Baloo the bear.

The software actually "talks" at this point, but the words are sometimes difficult to understand unless the speaker volume is turned all the way up. Even then, you might be surprised by the "adult" voice that comes from such a little boy. A highlighted area on the package box claims "This Program Talks." It does, but not much, and not too clearly. ■

*Cynthia E. Field
Wakefield, RI*



Enhancing AppleWorks

ReportWorks

MegaWorks

ThinkWorks

Megahaus, 5703 Oberlin Drive, San Diego, CA 92121

AppleWorks report-generator, mail-merge, and outliner programs; Apple IIc or 128K IIe (enhanced for ThinkWorks and ReportWorks), two disk drives, printer, AppleWorks (except ThinkWorks)

\$125 each

	ReportWorks	MegaWorks and ThinkWorks
Ease of learning	■ ■	■ ■ ■ ■
Ease of use	■ ■	■ ■ ■ ■
Documentation	■ ■	■ ■ ■ ■
Support	■	■
Overall	■ ■ ■ ■	■ ■ ■ ■

Megahaus' trio of AppleWorks accessories bring new possibilities to your word processor, spreadsheet, and data-base files. ReportWorks, the most complicated of the three, retrieves information from AppleWorks spreadsheet or data-base files, then manipulates it in reports you design. MegaWorks offers a simple spelling checker with an easy-to-use mail-merge. ThinkWorks automatically draws up outlines to help you organize your ideas.

These three programs aren't integrated and don't use identical AppleWorks commands, but they do share the familiar AppleWorks-desktop format. ReportWorks and ThinkWorks can take advantage of hard-disk storage, the Apple UniDisk 3.5, and the Apple II Memory Expansion card. Since both programs require frequent access to disk (making them slow), you'll be happier if you can copy them to a RAM disk.

Megahaus provides 30 days' free support to registered owners, but charges \$50 for an extra year of support for one program and \$25 more for each additional program. Guaranteed updates and backups cost \$25 per program per year. In three calls to Megahaus, I found the staff courteous and helpful. Not until the third call, though, did I find someone who could tell me why field names weren't working in ReportWorks (a bug in version 1.0). The support people promised to call back with answers to other questions, but didn't.

ReportWorks: Versatile but Complex

Imagine a program that retrieves customers' names and addresses from one file, outstanding balances from a second, current orders from a third, and prices from a fourth, then automatically enters the current date, calculates the number of days overdue (with interest penalty), and prints complete customer bills in zip-code order. Finally, the program summarizes all the orders, amounts, and maximum, minimum, and average numbers of days overdue.

That's just one small example of what you can do with ReportWorks. Although it's definitely harder to use than AppleWorks itself, ReportWorks is unique among Apple II programs. If you need its features, ReportWorks is worth the money and effort.

Each report requires one master file for the primary information and can

match corresponding information from as many as eight other "lookup" files. You can get text or data from any column or category in the lookup files as long as it has a field in common with the master file.

The program is flexible, letting you create simple or complex reports. Every report can begin with a title page and end with a summary, with numbered pages or entries in between. (There's also work space for information required by calculations that won't appear in the report.) Each entry can be a single line—like the list of calls on your phone bill—or a page long; you can determine page size, layout, headers, and footers. Version 1.1 reports can be as many as 256 pages; version 1.2, released at presstime, allows 60,000 pages.

You format each entry by creating fields for ReportWorks to fill with information. After you've determined the size of a field (up to 255 characters), ReportWorks lets you position it on the page. A menu takes you step by step through the process of naming the field, establishing its type (text, number, date, time, or "any"), and identifying its source. Your report can include information from four sources—spreadsheet, data bases, the keyboard, and formulas that manipulate data or text.

At each decision point, a window drops down to present your options. For instance, if you've established that a particular field will hold a number, the window shows you the formatting possibilities: Precede the number with a dollar sign, separate numbers with commas, add a percent sign to the number, and set the number of decimal places. You need to remember the columns in which spreadsheet data are stored, but ReportWorks fetches filenames and data-base categories from disk for your selection.

A comprehensive range of formulas and functions allows sophisticated manipulation of information. A partial list includes arithmetic operations, number functions that operate on particular values (including rounding up and down), and those that operate on a range of values (such as averaging, counting, and returning maximum or minimum). You can convert numbers to text, and text to uppercase, lowercase, or initial capitals.

Other functions calculate the difference between two dates, add a number of days to a date, or extract the day, month, or year from a date. A

variety of logical operators (such as "greater than," "equal to," "begins with," and "contains") work with the IF function in any type of field.

These logical operators also help you define the criteria of your printed report. For example, you could restrict your report to customers in a certain zip-code range or a particular state, or to customers whose names begin with M. You can sort report entries alphabetically or numerically before printing.

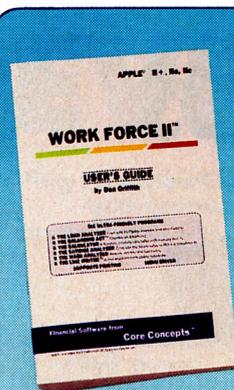
Criticisms

Most of ReportWorks' features do what they're supposed to. In version 1.0, the program sometimes has trouble finding fields named in the workspace for calculations, though. (Reports created with version 1.0 must be completely reconstructed with version 1.2 to avoid "buggy" results.) And ReportWorks may save part of your file to disk before discovering there isn't enough room for the whole file.

The 100-page manual, while clearly written, includes only a minimal index and isn't detailed enough in some areas. It took me hours, for example, to discover that a field must be large enough to contain not only its text, but also any special printer codes.

Although I appreciate ReportWorks' fail-safe features, it's frustrating to have to move ponderously back and forth between designing and building a report when you just want to check a design change. Even with a hard disk and accelerator card, producing reports is a slow process.

ReportWorks adds to this complexity by redefining such standard AppleWorks commands as OA-F and OA-S. OA-P means "print" in one part of the program, but serves a different function in another area. Even with the handy quick-reference card, it took me more than an hour to use the program comfortably if I hadn't used it for a few days.



WORK FORCE II™

"A Valuable, Indispensable Tool..."

Six Financial and Productivity Programs on one disk. Menu driven, ultra friendly, powerful. Compatible with the IBM PC, XT, AT, jr, COMPAQ, AT&T 6300, TANDY 1000, true Compatibles, and the Apple IIc, IIe, II+.

THE LOAN ANALYZER: Display or print loan amortizations starting or stopping at any period. Begin loans in mid-year. Work Force II is used by banks, CPA's & and real estate professionals across America.

Compare these features:

- Variable interest
- Rule of 78's
- Balloon Payments
- Yearly Total Interest
- Unknown Term
- Payment Amount
- Negative Amortization
- Total Interest & Payments
- Amount which can be Financed
- Present Value of Capital Leases

THE LINE WRITER™: Line-at-a-time correctable typewriter. Makes envelopes, forms, memos, and labels a snap. Faster and easier to use than your word processor.

THE BALANCING ACT™: Unique checkbook balancing system. No need to enter every check & deposit. Change entries, add entries, or print entries. A few minutes each month does it all.

PLUS! Full Function Printing Calculator — Wage & Income Analysis
Future Value of Savings, Investments, IRA's

Greg Glau, inCider: "Borrowing money is no problem with the loan analysis section to guide you. Work Force II is easy to understand and operate. It's an honest value..."

Les Schmetz, MICRO-TIMES: "WORK FORCE II may be one of the best bargains around."

Call Toll Free
ORDERS ONLY
1-800-525-CORE

30 DAY
MONEY-BACK
GUARANTEE

Apple is a registered trademark of Apple Computer. IBM is a registered trademark of International Business Machine

- Rush me WORK FORCE II for the Apple at \$39.95
 Rush me WORK FORCE II for the IBM at \$47.95 (prices include shipping)
 check or money order VISA MC AE COD (add \$4.00 for COD)
 Arizona residents add 6.5% Sales Tax. Overseas add \$5.00

Cards # _____

Signature _____ Valid From _____ to _____

Name _____ Phone _____

Address _____

City/State/Zip _____

Core Concepts, Inc.
P.O. Box 24157 Tempe, AZ 85282
AZ residents & inquiries call (602) 968-3756



With only a few keystrokes, ThinkWorks will arrange and—more importantly—rearrange your facts and ideas. You can use it with or without AppleWorks.

As you're organizing, ThinkWorks creates a standard outline form:

- I. Microcomputer
 - A. Software
 - 1) Apple
 - a) Apple II
 - 1) ThinkWorks
 - B. Hardware
- II. Minicomputer

Beginning with the first line, you can add entries at the same level or any lower level. You can, if you like, create all the top-level (Roman-numeral) headings first, then fill them in. Or you can work from the top level down to small details, one section at a time, or go back and forth among levels. With open apple-Z, you can change the number of visible levels, leaving only the top-level headings, two levels, and so on. (You can't have more than 950 entries at any one level.)

The real power of ThinkWorks lies in its ability to help you rearrange your ideas and to automatically renumber the outline. You can manipulate entries with open-apple commands, including *Move*, *Edit*, *Copy*, *Insert*, *Find*, *Replace*, and *Delete*. You can *Get* all or part of another outline from disk and insert it into the one in memory at any level. And you can *Save* all or *Keep* part of the current outline on disk.

With most of these commands, you have only to identify the highest heading of the block you want to manipulate, and ThinkWorks will automatically move, copy, delete, or insert all subordinate parts. You've now learned almost all of ThinkWorks' commands, and, if you forget, you can find them listed on your screen.

Finally, you can print the entire outline or select the number of levels you want to print (only Roman numerals, for example) and the range of levels (say, I to X). You can print hard copy or to disk as an AppleWorks word-processor file. You can print with the outline tabs or, if you want to turn the outline into regular prose, print it left-justified.

The program's restructuring power makes ThinkWorks particularly valuable. When a topic requires only a brief outline, though, many people prefer Arabic numbers and decimals:

- 1. Microcomputers
 - 1.1 Software
 - 1.2 Hardware

Some word processors, such as HomeWord Plus, include automatic outlining and allow a selection of outline styles. That choice would add significantly to ThinkWorks' versatility.

My other criticisms are relatively minor. ThinkWorks wouldn't configure properly to work with my C. Itoh F-10, although the Apple Dot-Matrix Printer worked perfectly. (Since you

can print the outline from AppleWorks, that's not too serious a problem.) Although ThinkWorks lets you change the active drive, the program would be improved if you could change file-names, create directories, and format and catalog disks.

It's not hard to be organized when you have ThinkWorks. While it's slow and clumsy compared to sophisticated Macintosh outliners, ThinkWorks fills an important need for Apple II users. ■

Tom Sherman
Swarthmore, PA

APPLE MODEM. WITH EVERYTHING.

**Plug-in Modem Card
with Software
for the Apple II, II+, IIE**

\$69

**Order Now!
Includes Over \$275
in Database Offers!**

Buy two for only \$99!

The NETWORKER™ Modem

An incredible price on a great little modem. 300 baud full duplex, manual originate/answer with carrier detect LED. Just plug into any slot in your computer. Complete with DOS/ProDOS compatible Communications Software, Phone Cord, Instructions, and over \$275 in discounts and connect time for CompuServe, the Source, Dow Jones, and more. Communicates with any modem, including any Hayes modem. Made in USA. 1 year warranty. **Only \$69. Special offer! 2 for only \$99!**

NETMASTER™ Advanced Software

Add NETMASTER Advanced Communication Software for File Transfer with Xmodem automatic error-checking, a Full-screen Text Editor, Dialing Directory, Printer Control, Disk Storage and Retrieval and more. Full documentation in an attractive 3-ring binder. Not copy-protected. Requires only 48K RAM memory. Originally \$79. **Now only \$29!**

15-day no-questions-asked money-back guarantee

Send this coupon with your check, money order or credit card information to:

TELSTAR, 145 Lincoln St., Boston, MA 02111

Please send me	NETWORKER Modems (1 @ \$69 or 2 @ \$99)	\$	_____
	NETMASTER Advanced Software @ \$29	\$	_____
	Postage & Handling	\$	2.00
	Total	\$	_____
<input type="checkbox"/> MC	<input type="checkbox"/> VISA	<input type="checkbox"/> AMEX	No. _____ Exp. Date _____
<input type="checkbox"/> I enclose a check or money order to: TELSTAR Communications			
Name	_____ (Phone) _____		
Address	_____		
City	State	Zip	

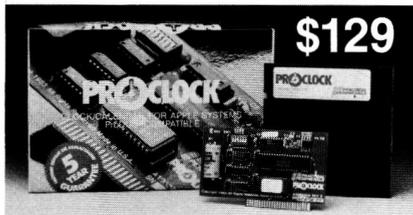
Or Call Toll Free MC, VISA, AMEX Accepted			
1-800-344-3311 In MA 1-617-423-1237			

© 1986 Telstar Communications
Apple is a registered trademark of Apple Computer, Inc.
Networker, Netmaster trademarks ZOOM Telephonics, Inc.

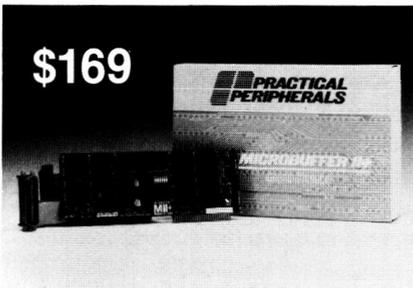
MAKE YOUR APPLE MORE PRACTICAL. RIGHT TO THE CORE.

Save time, make time, even keep time with cost-effective Apple upgrades from Practical Peripherals.

Ordinary apples just don't cut it anymore. But there are plenty of practical ways to increase their performance. Each designed to add convenience at prices that are irresistible.



PROCLOCK and PROCLOCK IIc™ are timely ProDOS add-ons. Once installed, they go to work immediately on applications that automatically use a clock. Writing your own programs is just as simple. It'll save money, too, by timing your modem to transmit when rates are cheapest. And its battery back-up keeps the clock accurate even when not in use for long periods of time.



MICROBUFFER II+™ lets you lose wait easily, inexpensively. This unique buffer lets you print and process simultaneously with either serial or parallel printers or both. The compact board works perfectly with your Apple II or IIe to provide complete software selectable text and graphics. And you can select the buffering capacity you want... from 16 to 64K.



The SeriALL™ printer/modem RS232C interface affordably provides a complete range of functions. It's ideal for any type of printer or plotter, modem, external video terminal or any other RS232C serial I/O device. 27 formatting commands provide text/graphics printing versatility with any serial dot matrix or daisywheel printer. It has a full terminal package on board. And the graphics command set is compatible with virtually all popular printers.



SWITCHPORT IIc™ converts serial into parallel for Apple IIc users. This compact unit is completely software transparent; it never interferes with printer commands. Word length is switch-selectable. A low power design means no external power is needed. You can print high-resolution graphic images on most popular printers with a unique utility disk which includes graphic drivers that function with all popular software.



Printerface™ makes high performance affordable. It provides 27 easy commands that let you send formatted text and controls to the printer, even dump 80 column text screens. Optional kits add complete graphics, too.



GraphiCard™ gives greater graphics capabilities to 37 of the most popular parallel printer models. 35 commands permit a variety of text and graphics functions.

Both interfaces are: hardware/software compatible with Apple Parallel Card; slot independent fitting into any slot but zero; features available in DOS, Pascal, and CP/M; Supports all printers with Centronics interface.

Each and every Apple upgrade from Practical Peripherals comes with a full five year parts and labor guarantee. In fact, not one of our customers has ever paid a penny for repair or replacement of a Practical Peripherals product. How do you like them apples?

For all the details, ask your dealer or call us toll free: 1-800-641-0814.

PRACTICAL PERIPHERALS™

31245 La Baya Drive
Westlake Village, CA 91362
(818) 991-8200 • TWX 910-336-5431



Three in One

THE BARD'S PRO-AM WRITING SYSTEM

Writing Software International, 110 East Broadway, Suite 600, Missoula, MT 59802

Word processor with spelling checker; Apple //c or 128K //e, DOS 3.3, one drive for Apprentice level, two drives for Professional level, printer
\$69.95

Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■
Support	■ ■ ■ ■ ■
Overall	■ ■ ■ ■

If your budget and your writing needs are both on the light side, you should give The Bard's Pro-Am Writing System a whirl. While the "Am" in the name "Pro-Am" should be emphasized, that's not necessarily a put-down of the program. Some users will consider this three-in-one word processor a welcome change from strictly command-driven programs like Apple Writer II or overly easy entries like Bank Street Writer.

At home or at school—the disk-based word-processing tutorial is good enough for classroom demonstrations—The Bard provides software that can grow with you and with your hardware. The system is composed of three word processors with different capabilities.

The first two programs, found on the Apprentice disk, offer Starter and Experienced levels, respectively. The first, suited for beginners of all ages, includes only the most basic functions: Type, Print, Save, Load, and New. Since the package includes a formatted data disk, you won't even have to prepare one, although formatting is an easy job at any level of The Bard's System.

At the Starter level, commands are practically nonexistent. Everything you need to know is printed in big, friendly letters on screen: "Press Esc to see things you can do," for example, compared to the Experienced screen's "Press Esc for command menu." Both levels show program functions in pop-up windows, with a highlighting cursor controlled by the arrow keys. Help screens ("Advice and Helpful Hints") are a few key-strokes away.

Ascending Levels

Moving up from the skimpy Starter level, the Experienced level offers block operations, find and replace functions, and one-shot cursor moves to the beginning and end of a file. Extra utilities let you catalog a disk, print the catalog, delete files, hide or show carriage returns, and work with various file types—saving your work in Bard or ASCII format and importing files from Apple Writer II, Bank Street Writer, HomeWord, and other DOS 3.3 word processors.

"Our Apple was collecting dust until we discovered SOFTDISK."

IN THE HOME

"It only took one issue of SOFTDISK to convince the whole family it's a terrific buy. We couldn't believe that so many ready-to-run programs and applications were included for one low price. How do you do it?"

IN THE CLASSROOM

"I've been a SOFTDISK subscriber since 1981. I can't believe how far you've come! My class can hardly wait for the mail man to deliver our new issue each month. Beginners and advanced students alike love SOFTDISK — we've learned more from the variety in SOFTDISK than from any other source."

EVERY MONTH IS NEW

Each issue of SOFTDISK, published monthly on two double-sided diskettes, is chock-full of ready-to-use educational programs, games, tutorials, business and financial applications, as well as live software demos and objective product reviews...

...PLUS an exclusive Polarware/Penguin complete original hit game that alone would cost more than a single issue!



SOFTDISK



The Apple™ Magazine on Disk. A must for Apple II+ IIe IIc owners!

SUBSCRIBE NOW AND SAVE UP TO 50%

I'M READY! Please () enter () extend my subscription to SOFTDISK for

24 MONTHS
(48 DISKS)
\$159.95

12 MONTHS
(24 DISKS)
\$89.95

6 MONTHS
(12 DISKS)
\$49.95

- PAYMENT ENCLOSED
- VISA
- MASTERCARD
- AMERICAN EXPRESS
- CHECK HERE TO EXTEND YOUR PRESENT SUBSCRIPTION

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
CREDIT CARD _____ EXP _____

ORDER TOLL - FREE 1-800-831-2694 OR MAIL TO:

SOFTDISK / P. O. Box 30008 / Shreveport, LA 71130-0008

In Louisiana Call (318) 868-7247 Satisfaction Guaranteed! 8-5 Central Time

The Experienced level (like the third, or Professional, level) lets you view the page as it would appear if printed. Unlike other word processors that print formatted text to the screen, The Bard's System splits the screen vertically. The left side depicts a white piece of paper with words represented by blackened blocks, giving you a clear view of page-layout features such as justification, extra carriage returns, or widow lines. The right half of the screen lists commands you can use to tidy up the page then and there, ensuring that printouts will look the way you want.

Another feature shared by the Experienced and Professional levels is the spelling checker, whose pop-up menu options let you skip a suspect word, correct it immediately, or mark it for later correction. The 50,000-word dictionary can be expanded if necessary (while *mongoose* is there, *boysenberry* isn't). The checker is reasonably fast, though one-drive users have to shuffle among program, data, and spelling disks.

The Professional level adds certain editing and formatting options the Experienced level lacks. You can toggle between insert and overstrike cursors, specify a footer or header, or append individual files for long documents. If your printer supports different fonts, you can typeset a block of text.

Another "Pro" feature is the ability to prepare "quicks," what many word-processing programs call *macros*—words, phrases, or print-command sequences (up to 255 characters each), kept in files similar to Apple Writer II's glossaries. To use a "quick," you type in a short code instead of the entire phrase.

Experienced and Professional writers can use control commands to invoke functions. Typing control-S will save your file faster than going to the command menu and moving the highlighting cursor to the 11th option.

An Old-Fashioned Value

The Bard's manual is somewhat cluttered, though easy to read and understand. There's no index, how-

ever, so looking for a specific item can be a chore. The system's three "flippy" disks are noncopy-protected, and free technical support (there's no toll-free number, but you're invited to call collect) is as close as your phone.

My only reservation about this program is that it's DOS-based, when the Apple world seems to be moving to ProDOS. The Bard's System doesn't support peripherals like Apple's Uni-Disk 3.5, for instance.

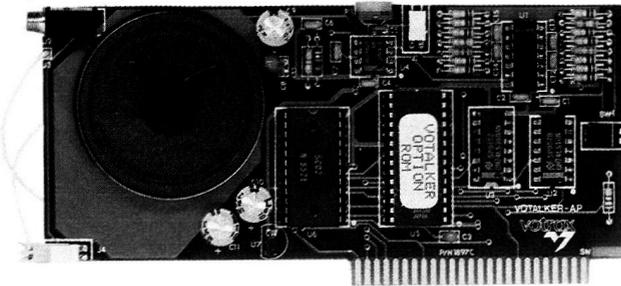
Otherwise, the Pro-Am Writing System seems to combine Apple Writer's features with a simple AppleWorks-like interface and Bank Street Writer's ease of learning. Throw in the essentially free spelling checker and you have a remarkably good software value the whole family can use. ■

Cynthia E. Field
Wakefield, RI

Editor's note: According to vice president Richard Cummins, Writing Software International is finishing a ProDOS version of Bard's Pro-Am that requires only one disk drive and (at the Professional level) supports wide-carriage printing. Other planned upgrades include footnoting, a two-column newsletter format, and legal-sized page preview and line numbering.

YOUR COMPUTER WAS MADE TO BE SEEN AND HEARD

BUT HOW YOU SAY IT IS EQUALLY IMPORTANT AS WHAT YOU SAY



Why bother giving your Apple® computer the power of speech if the core of the synthesizer has limited capabilities? The **Votalker-AP** uses the new SC-02 speech chip combined with a superb text-to-speech algorithm to enhance your educational and other computer applications with voice versatility and clarity. With the Votalker-AP your Apple* computer acquires unlimited vocabulary with 32 inflections and 4,100 pitch settings. The Votalker-AP also sings in five octaves and generates sound effects in 16 amplitudes. It's all the flexibility you need in speech synthesis, and more. Because with Votalker-AP you get state-of-the-art technology and a surprisingly low price.

Contact Votrax today for all the flexibility you need at a price you can afford.

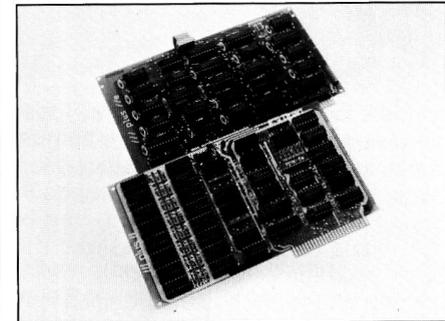
*Apple II® Apple IIe® Apple II Plus®



Votrax International, Inc., 1394 Rankin, Troy, Michigan 48083
Call (800) 521-1350. In Michigan call collect (313) 588-0341

For demonstration call: (313) 588-2926
"Technology that Talks"

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



And II for All

TITAN III PLUS IIe

Titan Technologies, 310 West Ann Street,
Ann Arbor, MI 48104

Apple IIe emulation board; Apple III
\$499

Ease of setup	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■

Apple III owners tend to be somewhat fanatic about the validity and

Continued on p. 94.

VIP Professional™

The New Generation Spreadsheet

For the New Generation Apple® //e & //c

There's an all new Apple //, an Apple // with almost unlimited memory and almost unlimited power—even a new sixteen-bit CPU.* And a REAL Macintosh™ style interface is no longer just a dream. It's a mouse click away!

VIP Professional is an all-new program made possible by the new //, and designed specifically for it. Professional brings to the Apple // the most popular, most powerful spreadsheet for any computer—Lotus 1-2-3™ version 1A. But to the integrated spreadsheet, database and graphics of 1-2-3, Professional adds a full-blown Mac-style interface.

Beyond Lotus Compatibility

VIP Professional not only has the same commands and features as 1-2-3, you can also type the same keys to do the same things. Lotus files can be read and written, and all functions can be used, including the powerful macros.

But Professional goes beyond Lotus, making it oh so easy to use—and even more powerful. Pull-down menus, dialogue boxes, mouse ranging, scads of icons, scroll bars, column "grabbers", grids—everything you need for ease of use, everything Lotus lacks. Plus, Professional adds things that were left out of Lotus, like a giant 8,192 row by 256 column spreadsheet, and the ability to use up to four megabytes of memory.

	1981	1982	1983	1984	1985
000	\$20,000	\$22,000	\$24,200	\$26,620	\$29,223
000	\$18,000	\$16,200	\$14,500	\$13,122	\$11,725
000	\$15,000	\$13,500	\$12,150	\$10,935	\$9,782
000	\$10,000	\$1,400	\$1,200	\$1,134	\$1,021
000	\$410,000	\$34,400	\$32,300	\$31,630	\$31,049
000	\$27,200	\$26,480	\$26,032	\$25,832	\$25,849
000	\$40,000	\$20,000	\$20,000	\$20,000	\$20,000
000	\$47,200	\$46,480	\$46,032	\$45,832	\$45,849
000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000

Professional Power

Don't be fooled by the pretty face. Professional packs a tremendous punch. Like its ability to address up to four megabytes of data; Or its 50-plus built-in financial and mathematical functions; Or its database with up to 8,192 records, each with up to 256 fields; Or its five different types of graphs with tens of options; And its Lotus 1-2-3 macro programming language that

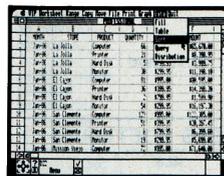
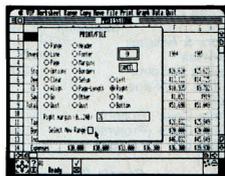
lets you automate your spreadsheet for specific tasks such as classroom exercises, experiments, or business applications such as accounting.

Of course you get variable column width, split screens, frozen titles, sorting, data query, file combine and extract, copy, move, range naming, justification for doing business form letters, statistical analysis, a full range of numerical formatting, engineering graphics precision, local and global protection of cells, header and footer control. In short,

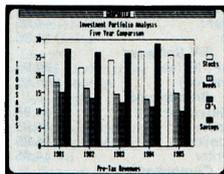
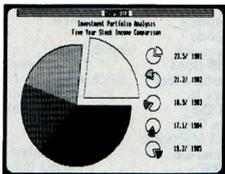
Professional matches the power of any spreadsheet for any computer!

Just Minutes to Learn

Professional comes with a user-sensitive tutorial for the newcomer. And help is built right into the program. With the handy tutorial you will be able to create your first worksheets in just minutes.



Do your finances, keep your inventory, graph your sales and a whole lot more.



No Other Spreadsheet Compares

Feature	VIP	SuperCalc3™	Mouse Calc™	AppleWorks™
Sheet Size	256x8192	63x256	63x254	153x999
Usable Memory	4 Meg	500K	42K	61K
Lotus Spreadsheet	Yes	No	No	No
Lotus Database	Yes	No	No	No
Lotus Graphs	Yes	No	No	No
Lotus Macros	Yes	No	No	No
Uses Lotus Files	Yes	No	No	No
Uses Mouse	Yes	No	Yes	No
Uses Icons	Yes	No	No	No
Math Functions	51	49	24	13
Fast Natural Recalc	Yes	No	No	No
Speed	Fast	Fast	Slow	Fast
Supports 16-Bit*	Yes	No	No	No

*Works with but does not require Checkmate and Applied Engineering 16-bit boards. VIP Professional is a trademark of VIP Technologies Corp.; Apple is a registered trademark of Apple Computer, Inc.; Macintosh is a trademark of McIntosh Laboratory, Inc. used with express permission; AppleWorks, ProDOS, and Expanded Memory Card are trademarks of Apple Computer, Inc.; SuperCalc3 is a trademark of Sorcim/US; Mouse Calc is a trademark of Version Soft; Lotus and 1-2-3 are trademarks of Lotus Development Corp.; RamWorksII, Z-RAM & TransWarp are trademarks of Applied Engineering; SprintDisk is a trademark of AST Research, Inc.; MultiRam is a trademark of Checkmate Technology.

Copyright © 1986 VIP Technologies Corporation.

VIP Technologies Corp. (805) 968-9567
132 Aero Camino, Santa Barbara, CA 93117

Get the Power of 1-2-3 for only



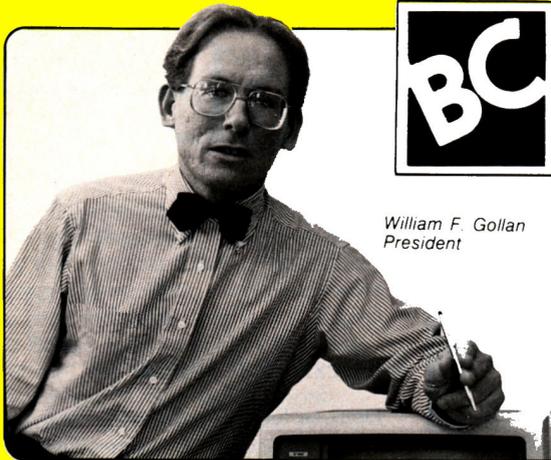
\$249.⁹⁵



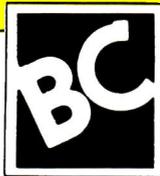
If Your Dealer is Out of Stock, Order Direct

Send your check or money order, together with \$3 for shipping and handling. CA residents add 6% sales tax. Orders by personal check are held for three weeks for the check to clear. COD's and purchase orders not accepted. All prices subject to change without notice.

SYSTEM REQUIREMENTS: Enhanced Apple //e or //c with at least 256K; Uses ProDOS; Can be used with popular hard disks; Works with MultiRam, RamWorksII & Z-RAM; Apple Memory Expansion Card and AST SprintDisk only work if other memory card added; Mouse and second drive recommended; Double hi-res required; Color monitor required for color features; Uses 16-bit boards with 65C816; Compatible with TransWarp speedup card; To be used, Lotus .WKS files must be transferred to ProDOS diskettes with a communications program.



William F. Gollan
President



BUSINESS COMPUTERS

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

“One price . . . ,
and that’s

“We’ll support, service, and warranty everything we sell and stand behind it 100%.”

MODEMS	
D.C. Hayes	
Micro Modem IIe w/sw	139.95
Smart 1200	369.95
Smart Modem 2400	579.95
Prometheus	
Pro 300 IIc w/sw	129.95
Pro 1200	289.95
Pro 1200 A w/sc	264.95
US Robotics	
Password 1200	209.95
Courier 2400	399.95

PERIPHERALS	
Amdek	
Color 300 Composite	219.95
Color 600 RGB	395.95
Apple	
II E's & II C's & Macs	CALL
AST	
Megaram + w/64k	130.95
Megaram + w/256k	184.95
Sprint Disk w/256k	194.95
Sprint Disk w/512k	274.95
Checkmate Tech	
Multiram II E 64K + 80	124.95
Multiram II E 256K + 80	154.95
Multiram II E 512K + 80	184.95
Multiram II E 768K + 80	234.95
Multiram II E 64K RGB + 80	159.95
Multiram II E 512K RGB + 80	219.95
Multiram II E 1024K RGB + 80	319.95
Multiram II 1792K RGB + 80	479.95
Multiram II CX w/VIP	249.95
Multiram II CX w/256K	159.95
Multiram II CX w/512K	199.95
Multiram II CX16 w/256	299.95
Multiram II CX16 w/512	349.95
Multiram CX 16 Kit w/VIP	209.95
Central Point	
Laser 128	359.95

Diamond	34.95
Emerald	40.95
Ruby	59.95
Uni Printer Stand	17.95
Disks	
BASF SS/DD	15.95
Maxell MD1 SS/DD	15.95
Memorex 3.5"	29.95
Memorex SS/DD	17.95
3m SS/DD	15.95
Verbatim Bonus SS/DD	13.95
Verbatim Datalife SS/DD	18.95
Kensington	
Printer Stand	19.95
System Saver	64.95
Koala Technologies	
Koala Pad +	70.95
Joysticks	
Kraft	35.95
Kraft Quickstick	54.95
Hayes Mach III's	35.95
Princeton	
HX 9 RGB	399.95
HX 12 RGB	419.95
Taxan	
115 Green	124.95
116 Amber	129.95

GRAPHIC INTERFACES	
Orange Micro	
Grappler +	77.95
Grappler + w/64k	149.95
Grappler + RS-232C	77.95
Grappler C	83.95
Hot Link IIc	50.95

GRAPHIC INTERFACES	
Image Buffer II w/64k	74.95
Print II	129.95
Fingerprint +	94.95
Fingerprint + IIC	94.95
PRINTERS	
Apple*	
Imagewriter II 10"	CALL
Citizen	
MSP 120D	209.95
MSP 35 Premier	499.95
MSP 10 160	309.95
MSP 15 160	399.95
MSP 20 200	349.95
MSP 25 200	499.95
Epson America	
AP 80 Image	319.95
LX 80	309.95
LX 80 F/T	329.95
FX 85	439.95
FX 286	609.95
LQ 800	609.95
LQ 1000	799.95
Okidata	
ML 93	339.95
ML 182	249.95
ML 183	399.95
ML 192	369.95
ML 192 Image.	389.95
ML 193	494.95
ML 193 Image	554.95
ML 292	509.95
ML 293	639.95
Silver Reed	
Exp 500	199.95
Exp 550	329.95
Exp 800	669.95

BUSINESS SOFTWARE	
ALS	
The Handlers	99.95
Spellworks	34.95
Apple	
Appleworks	194.95
Arrays	
Appleworks Buddies	55.95
Home Accountant	44.95
Tax Advantage	41.95
BPI Software	
AR, GL, PR, AP, IC (ea)	199.95
Prodos Versions (ea)	214.95
Broderbund	
Bank Street Filer	44.95
Bank Street Mailer	44.95
Bank Street Speller	44.95
Bank Street Writer	44.95
Compuserve	
Subscription Kit	22.95
Howardsoft	
RE Analyzer III	194.95
Int'l Solutions	
Mouse Budget	49.95
Mouse Calc	99.95
Mouse Desk	34.95
Mouse Word	84.95
Intuit	
Quicken	53.95
Kensington	
Format II	91.95
Living Videotext	
Think Tank	82.95
Manzanita	
Businessworks/Advanced (spec.)	260.95
GL/AR/AP/IC (ea)	295.95
Payroll	69.95
System Mng.	69.95
Business Accountant	204.95
GL/AR/AP/IC (ea)	234.95
Payroll	234.95
MegaHaus	
MegaWorks	72.95
Report Works	72.95
Thinkworks	CALL
Microsoft	
Multiplan	60.95
Monogram	
Dollars & Cents IIc. II+ (ea)	71.95
Forecast	39.95
Peachtree	
Back to Basics	104.95
Back to Basics A/R, A/P, G/L (ea)	99.95

BUSINESS SOFTWARE	
PBI	
Graphworks	60.95
JEEVES	37.95
Quark	
Catalyst 3.0	62.95
Word Juggler 3.0	62.95
Roger Wagner	
Mouse Write	73.95
Write Choice	30.95
Roladex	
Compucard	38.95
Label Express	38.95
Sensible Software	
Bookends	71.95
Graphics Dept.	71.95
Sensible Grammar	58.95
Sensible Speller IV	71.95
Sierra On Line	
Homeward +	45.95
Home Word Filer	45.95
Screenwriter Pro	80.95
Software Publishing	
PFS:WR, GR RP, PL (ea)	73.95
Sorcim/IUS	
Super IIIA	104.95
SSI	
Word Perect	82.95
United Software	
ASCii Express	79.95
UTILITIES & LANGUAGES	
Activision	
Kitchen's Game Maker	33.95
Baudville	
Actors & Actions	21.95
Business	33.95
Blazing Saddles	30.95
Heroes & Villans	21.95
Pixit	33.95
Prince Color (Epson)	45.95
Prince Color (Prowriter)	45.95
Shape Lib. 1,2,3 (ea)	14.95
Take 1	37.95
Beagle Brothers	
Alpha Plot	25.95
Apple Mechanic	20.95
Bag	20.95
Basic	22.95
Big U	22.95
Graphics	35.95
D-Code	25.95
Diskquick	20.95
DOS Boss	17.95
Double-Take	22.95
Extra K	25.95
Fat Cat	22.95
Flex Text	20.95
Font Mechanic	20.95
Frame-Up	20.95
GPL	30.95
I.O. Silver	20.95
Macro Works	22.95
Mini Pix #1	19.95
Pro-Byter	22.95
Pronto DOS	20.95
Shape Mechanic	25.95
Silicon Salad	17.95
Tip Disk #1	14.95
Triple Dump	25.95
Typefaces	15.95
Utility City	20.95
Borland International	
Turbo Game Works (Reg. cpm)	25.95
Turbo Pascal 3.0 (Reg. cpm)	42.95
Turbo Tool (Reg. cpm)	34.95
Turbo Tutorial (Reg. cpm)	25.95
Broderbund	
Dazzle Draw	39.95
Print Shop	32.95
Print Shop Companion	27.95
Print Shop GL 1,2,3 (ea)	18.95
Print Shop Refill Paper	17.95
Central Point	
Copy II +	24.95
Wildcard	74.95
Data Transforms	
Fontrix	57.95
Font Set(s) (ea)	14.95
Funk	
Sideways	35.95
Microsoft	
Applesoft Compiler	107.95
Basic Compiler	244.95
Fortran-80	129.95

BUSINESS SOFTWARE	
PBI	
Graphworks	60.95
JEEVES	37.95
Quark	
Catalyst 3.0	62.95
Word Juggler 3.0	62.95
Roger Wagner	
Mouse Write	73.95
Write Choice	30.95
Roladex	
Compucard	38.95
Label Express	38.95
Sensible Software	
Bookends	71.95
Graphics Dept.	71.95
Sensible Grammar	58.95
Sensible Speller IV	71.95
Sierra On Line	
Homeward +	45.95
Home Word Filer	45.95
Screenwriter Pro	80.95
Software Publishing	
PFS:WR, GR RP, PL (ea)	73.95
Sorcim/IUS	
Super IIIA	104.95
SSI	
Word Perect	82.95
United Software	
ASCii Express	79.95

UTILITIES & LANGUAGES	
Activision	
Kitchen's Game Maker	33.95
Baudville	
Actors & Actions	21.95
Business	33.95
Blazing Saddles	30.95
Heroes & Villans	21.95
Pixit	33.95
Prince Color (Epson)	45.95
Prince Color (Prowriter)	45.95
Shape Lib. 1,2,3 (ea)	14.95
Take 1	37.95
Beagle Brothers	
Alpha Plot	25.95
Apple Mechanic	20.95
Bag	20.95
Basic	22.95
Big U	22.95
Graphics	35.95
D-Code	25.95
Diskquick	20.95
DOS Boss	17.95
Double-Take	22.95
Extra K	25.95
Fat Cat	22.95
Flex Text	20.95
Font Mechanic	20.95
Frame-Up	20.95
GPL	30.95
I.O. Silver	20.95
Macro Works	22.95
Mini Pix #1	19.95
Pro-Byter	22.95
Pronto DOS	20.95
Shape Mechanic	25.95
Silicon Salad	17.95
Tip Disk #1	14.95
Triple Dump	25.95
Typefaces	15.95
Utility City	20.95
Borland International	
Turbo Game Works (Reg. cpm)	25.95
Turbo Pascal 3.0 (Reg. cpm)	42.95
Turbo Tool (Reg. cpm)	34.95
Turbo Tutorial (Reg. cpm)	25.95
Broderbund	
Dazzle Draw	39.95
Print Shop	32.95
Print Shop Companion	27.95
Print Shop GL 1,2,3 (ea)	18.95
Print Shop Refill Paper	17.95
Central Point	
Copy II +	24.95
Wildcard	74.95
Data Transforms	
Fontrix	57.95
Font Set(s) (ea)	14.95
Funk	
Sideways	35.95
Microsoft	
Applesoft Compiler	107.95
Basic Compiler	244.95
Fortran-80	129.95

UTILITIES & LANGUAGES	
Microstuff	
Crosstalk	103.95
Mindscape	
Mister Pixel's	23.95
Cartoon Kit	23.95
Paint Set	23.95
Color Me (Main)	23.95
Hugga Bunch	10.95
Rainbow Brite	10.95
Shirt Tales	10.95
Tink Tonk	10.95
Polarware	
Complete Graph. Sys.	29.95
Graph. Magician Paint/Anim.	29.95
Graph. Magician Jr.	14.95
Pinpoint	
Infomerge	49.95
Modem Enh. Kit	19.95
Pinpoint	39.95
Pinpoint Ram Exp.	19.95
Pinpoint Spellchecker	39.95
Pinpoint Toolkit	30.95
Point to Point	74.95
Roger Wagner	
Merlin Assembler	41.95
Merlin Combo	68.95
Merlin Pro	60.95
Springboard	
Certificate Maker	35.95
Newsroom	35.95
Newsroom Clip Art V1	20.95
Newsroom Clip Art V2	23.95
Newsroom Graphic Exp V1	27.95

EDUCATIONAL & PERSONAL	
Bantam	
Fantastic Animals	28.95
Road Rally USA	28.95
Scarsdale Diet	28.95
Barrons	
Coast to Coast	28.95
Computer SAT	56.95
CBS	
Adventure Master	29.95
Body in Focus	28.95
Coast to Coast	28.95
Dinosaur Dig	28.95
Goren's Bridge	53.95
Mastering SAT	61.95
Success Series (ea)	25.95
Davidson Associates	
Alge Blaster	30.95
Classmate	30.95
Grammar Gremlin	CALL
Homeworker	CALL
Math Blaster	30.95
Speed Reader II	41.95
Spell It	30.95
Word Attack	30.95
Designware	
Body Transparent	29.95
European Nations	29.95
Grammar Exam.	30.95
Remember	46.95
Spellcopter	28.95
Spellkazam	28.95
States & Traits	29.95
Electronic Arts	
Cut & Paste	25.95
Financial Cookbook	35.95
Movie Maker	31.95
<	

free freight... in stock, my promise.™

Member
Better
Business
Bureau



Absolutely
NO Additional
Charges *

EDUCATIONAL&PERSONAL	
Juggle's Rainbow	21.95
Magic Spells	25.95
Mopdown Hotel	28.95
Mopdown Parade	28.95
Reader Rabbit	27.95
Robot Odyssey	31.95
Rocky's Boot	31.95
Word Spinner	25.95
Meca	
Managing Your \$	108.95
Milliken	
Addition Seq.	24.95
Division Seq.	24.95
Word Processor	46.95
Mindscape	
Bank St. Music	37.95
Bank St. Story B.	29.95
Keyboard Cadet	28.95
Lusher Profile	28.95
Perfect Score	46.95
Pinpoint	
Added Menu's (ea)	13.95
Micro Cookbook	29.95
Random House	
Charlie Brown's ABC's	29.95
Charlie Brown Typing	29.95
Charlie Brown 1,2,3's	29.95
Garfield Dbl. Dares	29.95
Garfield Eat Words	29.95
Maze Marathon	29.95
Potato Head	29.95
Peanuts Math	29.95
Peanuts Maze	29.95
Picture Puzzle	29.95
Reading Machine	29.95
Shifty Sam	29.95
Snoopy Writer	29.95
Snoopy Rescue	29.95
Twart	29.95
Scarborough	
Boston Diet	50.95
Build a Book	28.95
Build Refills 1,2 (ea)	16.95
Chem Lab	28.95
Lovejoy SAT	46.95
Masterytype	21.95
Figures & Formulas	28.95
Filer	28.95
New Improved	28.95
Writing Wizard	50.95
Personal Net W.	51.95
Run for the \$	28.95
Simon & Schuster	
Chem Lab	25.95
Great Paper Air P	27.95
JK Lasser \$ Mng.	50.95
Lovejoy's SAT	45.95
Make A Match	22.95
Math Buster	22.95
Typing Tutor III	33.95
Webster's Spelling Ck.	42.95
Spinnaker	
Adv. Creator	23.95
Alphabet Zoo	21.95
BW File/Report	38.95
BW Spreadsh.	38.95
BW Wordproc.	38.95
Counting Parade	23.95
Delta Drawing	27.95
Fraction House	19.95
Grandma's House	21.95
Homework Math/Word	29.95
Homework Writing	29.95
In Search of	24.95
Kids on Keys	19.95
Kid Writer	21.95
Kindercomp	19.95
Math Busters	23.95
Rhymes & Riddles	19.95
Snooper Trooper1,2 (ea)	24.95
Story Machine	27.95
Sum Ducks	23.95
Trains	23.95
Springboard	
Early Games	22.95
Easy ABC	28.95
Fraction Factory	22.95
Mask Parade	28.95
Music Maestro	25.95
Piece Cake Math	22.95
Puzzle Master	25.95
Rainbow Painter	25.95
Stickers	25.95
Timeworks	
Evelyn Wood Reader	43.95

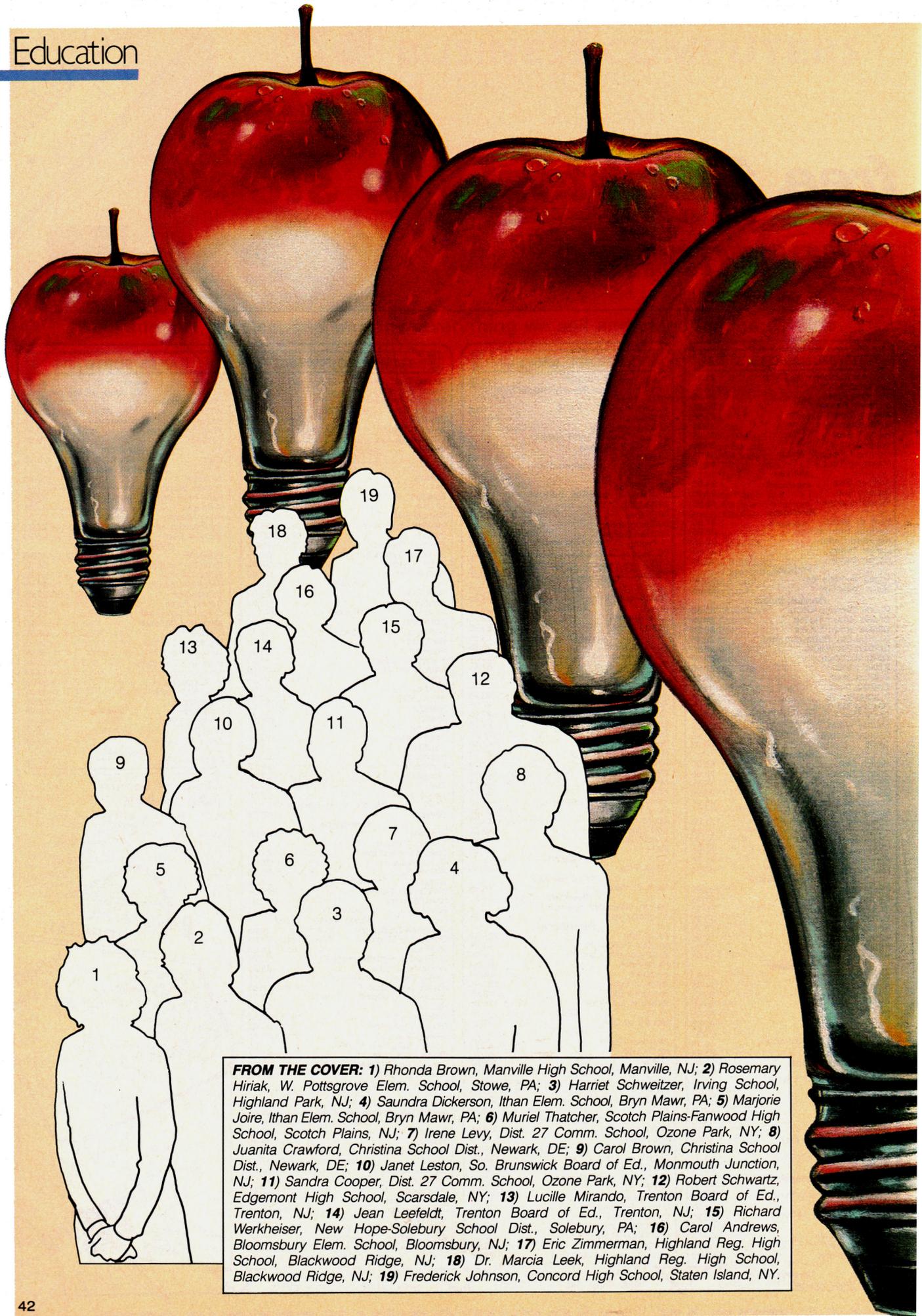
EDUCATIONAL&PERSONAL	
Silvia Porter \$ Planner	73.95
Xerox/Weekly Reader	
Sticky Bear	28.95
ABC	28.95
Basic	28.95
Basket Bounce	28.95
Bop	28.95
Codes & Cyphers	28.95
Math	28.95
Math 2	28.95
Numbers	28.95
Opposites	28.95
Printer	28.95
Reading	28.95
Shapes	28.95
Spellgrabber	28.95
Town Builder	28.95
Typing	28.95
GAMES SOFTWARE	
Access	
Beach-Head II	26.95
Accolade	
Dam Busters	23.95
Fight Night	23.95
Hard Ball	23.95
Laws of West	23.95
Pai 5	23.95
Sundog V 2.0	27.95
Activision	
Alcazar	27.95
Alter Ego	33.95
Borrowed Time	27.95
Countdown to Shut.	27.95
Designer's Pencil	27.95
Ghostbuster's	27.95
Hacker	27.95
H.E.R.O.	27.95
Little CPU Disc.	27.95
Master Lands	27.95
Minshadow	27.95
Pitfall	27.95
Road Race	27.95
Rock N Bolt	27.95
Space Shuttle	27.95
Star Lge. Baseball	23.95
Tracer Sanction	27.95
Zenii	27.95
Avalon Hill	
Under Fire	37.95
Avant Garde	
Dave Winfield	26.95
Blue Chip	
Barron, Millionaire, Squire,	
Tycoon (ea)	29.95
Broderbund	
Art of War	28.95
Captain Goodnight	24.95
Championship Lode R.	24.95
Fantavision	32.95
Karateka	24.95
Mask of Sun	27.95
Serpent's Star	28.95
Where in the World...	28.95
CBS	
Murder by Doz.	27.95
Datasoft	
Alternate Reality	30.95
Bruce Lee	26.95
Conan	26.95
Cavers Calisto	24.95
Dallas Quest	24.95
Dig Dug	21.95
Goonies	26.95
Mr. Do	26.95
Zoro	26.95
Electronic Art	
Adv. Const. Set	35.95
Age of Adv.	26.95
Archon	27.95
Archon II: Adept	28.95
Bard's Tale	32.95
Carrier's At War	35.95
Cavers Calisto	24.95
Chessmaster	28.95
Europe Ablaze	35.95
Golden Oldies	29.95
Lords Conquest	25.95
Mail Order Monster	CALL
Murder Zindernaal	19.95
Music Const. Set	29.95
1 on 1	28.95
Orge	35.95
Pinball Const. Set	26.95

GAMES SOFTWARE	
Racing Dest. Set	CALL
Reach For Stars	32.95
Realm of Impossibility	CALL
7 Cities Gold	28.95
Sky Fox	28.95
Super B. Dash	25.95
Wilderness	35.95
Wizard	32.95
Epyx	
Baseball	25.95
Eidolon	29.95
Fax	20.95
Football	28.95
Gl Joe	21.95
Koronis Rift	29.95
Mission Impossible	24.95
Pitstop	28.95
Summer Games	28.95
Summer Games II	28.95
Temple Asphair	26.95
Winter Games	26.95
Hayden	
Holy Grail	32.95
Sargon III	32.95
Infocom	
Cutthroats	26.95
Deadline	32.95
Enchanter	27.95
Fooblitsky	29.95
Forbidden Quest	28.95
Hitchhiker's G.	27.95
Infidel	29.95
Mind Voyaging	31.95
Planet Fall	27.95
Seastalker	27.95
Starcross	32.95
Sorcerer	29.95
Spell Breaker	33.95
Suspect	29.95
Suspendo	32.95
Wishbringer	28.95
Witness	27.95
Zork 1	27.95
Zork 2,3 (ea)	29.95
Micro Lge. Sports	
Baseball	28.95
Microprose	
Acro Jet	24.95
Conflict Vietnam	27.95
Crusade in Europe	27.95
Decision Desert	25.95
F-15 Strike	25.95
Gunship	25.95
NATO Commander	25.95
Silent Service	25.95
Solo Flight	25.95
Mindscape	
American Challenger	29.95
Crossword Magic	33.95
Deja Vu	39.95
D. Francis High Staker	32.95
Forbidden Castle	29.95
Halley Project	31.95
James Bond Gold F.	29.95
James Bond View K.	27.95
Racter	32.95
Rambo Part II	27.95
Stephen King Mist	27.95
Tinka's Mazes	22.95
Tinka's Sub. Fair	22.95
Tink's Adventure	22.95
Tonk in Buddy Bots	22.95
Tuk Goes Town	22.95
Voodoo Island	27.95
One Step	
Golf's Best Pinehurst	35.95
Golf's Best St. Andrew's Old	35.95
Origin	
Autoduel	42.95
Moebius	42.95
Ultima 3 & 4 (ea)	39.95
Polarware	
Coveted Mirror	12.95
Crimson Crown	12.95
Oo-Topos	12.95
Sword Kadash	12.95
Transylvania	12.95
Xyphus	12.95
Sierra On Line	
Black Caldron	29.95
King's Quest I,II (ea)	33.95
Simon & Schuster	
Frogger 3 Deep	26.95
Spy Hunter	32.95
Super Zaxxon	26.95

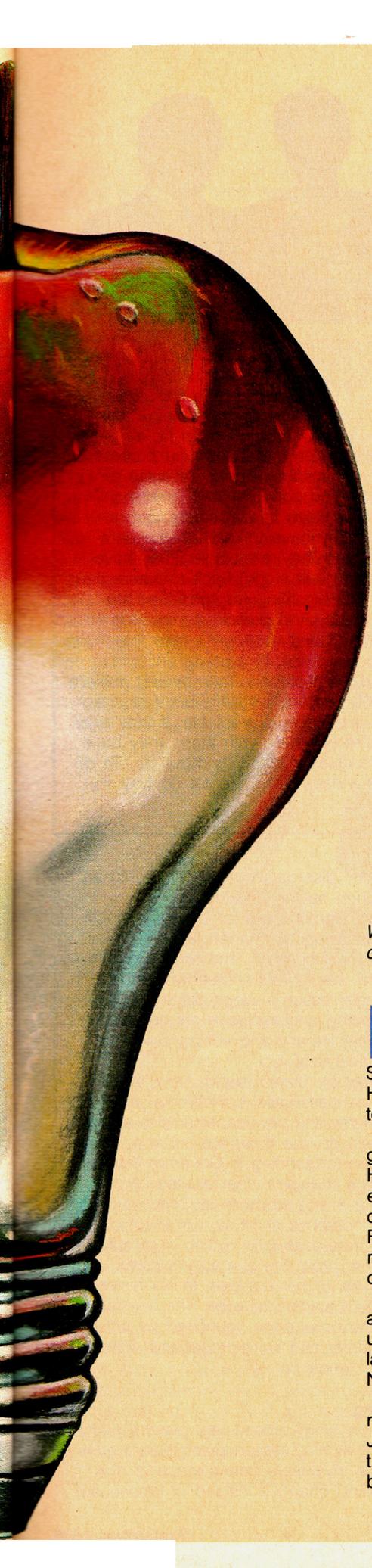
GAMES SOFTWARE	
Tapper	32.95
Sir Tech	
Rescue Raiders	27.95
Wizardry 1	31.95
Wizardry 2	25.95
Wizardry 3,4 (ea)	28.95
Wizardry	19.95
Spectrum	
Gato	25.95
Spinnaker/Telarium	
Amazon	27.95
Dragon World	27.95
Fahrenheit 451	27.95
9 Princes	27.95
Perry Mason	27.95
Rendezvous w/Rama	27.95
Shadow Keep	27.95
Strategic Simulations	
Battle 85	24.95
Battalion Commander	28.95
Battle Group	46.95
Battle Normandy	28.95
Broadsides	27.95
Carrier Force	39.95
Colonial Conquest	32.95
Computer Baseball	27.95
Field of Fire	32.95
Gemstone Warrior	24.95
Geopolitique 1990	28.95
Imperium Galactum	28.95
Kampgruppe	39.95
N. Atlantic 86	39.95
Panzer Grenadier	32.95
Phantasia II	32.95
Rails West	28.95
Rings of Ziffin	32.95
USAAF	35.95
War in Russia	49.95
Sublogic	
Flight Simulator II	34.95
Customer Service	
(603) 924-9406	
* Our Terms and Conditions	
* Shipping UPS Ground; FREE (Lower 48 only)	
* Credit Card Surcharge: 0%	
* Purchase Orders: FOB NH, Handling	
* APO/FPO: FOB NH & Handling	
* Prices & Availability Subject to Change	
MONTHLY SPECIAL	
RIBBONS 6 Pack	
Apple Imagewriter III	Black 30.95
Apple Imagewriter II	Colors 30.95
Citizen MSP 10/20	39.95
Citizen MSP 15/25	39.95
Epson LX 80/90	39.95
Epson FX 80/95	39.95
Okidata 824/920/3	39.95
Okidata 192/193	39.95
Colors: GR, BR, PU, BL, RD, YL	
* 2.50 S&H	
Handling Free	

CALL TODAY—ORDERS ONLY 1-800-845-3003





FROM THE COVER: 1) Rhonda Brown, Manville High School, Manville, NJ; 2) Rosemary Hiriak, W. Pottsgrove Elem. School, Stowe, PA; 3) Harriet Schweitzer, Irving School, Highland Park, NJ; 4) Saundra Dickerson, Ithan Elem. School, Bryn Mawr, PA; 5) Marjorie Joire, Ithan Elem. School, Bryn Mawr, PA; 6) Muriel Thatcher, Scotch Plains-Fanwood High School, Scotch Plains, NJ; 7) Irene Levy, Dist. 27 Comm. School, Ozone Park, NY; 8) Juanita Crawford, Christina School Dist., Newark, DE; 9) Carol Brown, Christina School Dist., Newark, DE; 10) Janet Leston, So. Brunswick Board of Ed., Monmouth Junction, NJ; 11) Sandra Cooper, Dist. 27 Comm. School, Ozone Park, NY; 12) Robert Schwartz, Edgemont High School, Scarsdale, NY; 13) Lucille Mirando, Trenton Board of Ed., Trenton, NJ; 14) Jean Leefeldt, Trenton Board of Ed., Trenton, NJ; 15) Richard Werkheiser, New Hope-Solebury School Dist., Solebury, PA; 16) Carol Andrews, Bloomsbury Elem. School, Bloomsbury, NJ; 17) Eric Zimmerman, Highland Reg. High School, Blackwood Ridge, NJ; 18) Dr. Marcia Leek, Highland Reg. High School, Blackwood Ridge, NJ; 19) Frederick Johnson, Concord High School, Staten Island, NY.



In every area of computing—from telecommunications to music to desktop publishing—teachers and students are coming up with lively, creative new ways to use Apple II's in the classroom.

TEACHERS' BEST: **16** WINNING IDEAS

by Eric Grevstad, *inCider* staff

We never really did drill and practice. My opinion is, if I'm going to sit at a computer for 45 minutes, it's got to be creative. —Dorothy Johnson, teacher, The Wilson School, Mt. Lakes, NJ

Kids at the West Pottsgrove Elementary School in Stowe, Pennsylvania, are passing notes in class—not to each other, but to students in New South Wales, Australia. Third-graders in Highland Park, New Jersey, have outgrown Stickybear ABC; they're shuffling files through AppleWorks' clipboard. At the New Hope-Solebury (Pennsylvania) Elementary School, a learning-disabled class mastered Newsroom well enough to teach the gifted and talented kids.

What's going on? Computers are coming out of computer rooms, the segregated housing for 75 percent of micros in U.S. schools (according to a Johns Hopkins study cited by Apple vice president Thomas Marano), and taking seats in everyday classrooms. Educational software has expanded to include "real" applications such as AppleWorks along with beginners' tools like Bank Street Writer. Finally, today's computing lessons are grass-roots ideas from teachers in all fields, not top-down dicta from school boards or technical experts. Computers are in more courses than ever, and classes are freer and more fun to boot.

Apple Computer sees these trends as cause for applause—to quote educational account executive Marlene Teichert, "[We want] to celebrate teachers who [are] using computers as tools, with application-type software, in the classroom on a regular basis." The first such Apple celebration drew nearly 800 teachers to Teaneck, New Jersey, on May 2 for a "Pacesetters' Symposium" on classroom computing.

Besides sharing ideas with each other, the teachers came to hear success stories: presentations of 19 Apple-selected lessons from schools in New York, New Jersey, Pennsylvania, and Delaware. Three winners used Macs in class, but the trusty Apple II accounted for 16, ranging from a Junior Achievement-style printing business to synthesizer riffs for a music class.

These ideas weren't theoretical suggestions, but ongoing projects—real applications being used by teachers and kids (by a lot of teachers and kids; Apple received entries from almost 100 school boards in the four states during its two-week talent hunt). *inCider* attended the symposium looking for something different from drill and practice, and found teachers taking more innovative steps than we'd imagined—and students sometimes running ahead of teachers. Here are sketches of the 16 Apple II-using paceseters.

AppleWorks in Action

To many IIe or IIc owners, the phrase "application-type software" stands for AppleWorks. In Highland Park, New Jersey, according to Bartle School principal Ronald Erikson, the usually adult program has proven so popular that third-graders threatened to go on strike to get more than one computer for their classroom. Not only has AppleWorks made the writing process less painful, it's combined data-base and math theory and tracked kids' resolutions for behavior modification.

Project Tool/Chest, created at Highland Park's Irving Elementary (the project, the third grade, and Erikson moved to the Bartle School this year), begins as a writing workshop. Each student receives a data disk for revisions of a story first written by hand and typed (misspellings and all) into AppleWorks by an adult. The Sensible Speller program is available, but not for automatic corrections—kids paste its list of suspect words to their stories, then head for the dictionary to do their own spelling check.

Besides learning the convenience of word processing compared to manual editing—classroom posters list open-apple commands as equivalent to erasers or paste; the save command, copying a file to disk before further changes, is the "copying machine"—children use the clip-



Mel Sonier, Linda Loughran, Richard Werkheiser, New Hope-Solebury Elementary School, Solebury, PA (*Learning-Disabled Newsroom*).

Richard Werkheiser:

"[My class] has really gotten into the writing process. Before it used to be just two-dimensional—give me a rough copy, give me a good copy. Now with so many steps—a beginning, many steps in the middle, and an end—[it's opened up]. They have to read on the computer and know which step they're at; when they have problems, they can [trace their steps] back to where they were before. That's a real big thing for special-ed students; they don't like to fail. And particularly my kids—they don't read well, they don't write well—here they have to do both.

"From the special-ed point of view, [computers] make a student concentrate 100 percent, where a book or a lecture doesn't—the kids are highly distractable. If they're at the computer and you're not there with them, they have to read and do it themselves in order to move on. To do something like that on a daily basis, there's no way you can't make progress."



Yakov Epstein, Harriet Schweitzer, Ronald Erikson, The Bartle School, Highland Park, NJ (*Project Tool/Chest*).

Ronald Erikson:

"We think we've found the way to make computers the kind of instrument everyone's dreamed of: [Just have it] in the room. You don't use the blackboard or the dictionary or the thesaurus all day, but it's there. Now the computer's there like anything else in the room when you need it. [And how the third-graders have responded] has been mind-boggling. It's been beyond our wildest dreams.

"When I was a kid, I might get 100 on a spelling test, but when I wrote a paper I'd get some of those same words wrong because it wasn't spelling [class. Now our students have] made that transition that what you learn in one area should be carried over into another. That's something we didn't teach; it's come about."

board to move their drafts' disorganized sentences into an outline, simultaneously open on the desktop.

Others use AppleWorks' spreadsheet for behavior modification, listing goals or behaviors to change, entering a "1" in the daily column for successes, and receiving a printout of their daily and weekly totals. Meanwhile, the data base supports a math lesson in Venn diagrams, the circular charts of overlapping and exclusive set contents. What began with computer literacy and editing skills has become an all-purpose analytical tool.

At Concord High School on Staten Island, New York, Frederick Johnson's civics class uses AppleWorks' word processor to transcribe notes and newspaper articles about air pollution. From the desktop, the notes are cut and pasted into a letter suitable for sending to Governor Mario Cuomo or (with mail-merge changes) other elected officials.

Michael Blyth's creative-writing students at Concord High also use AppleWorks to compose short stories about characters they create on a data-base-style outline or template: It lets them pick everything from the character's name, address, and hair color to his or her hobbies, family history, and religious beliefs before starting to write. The finished stories wind up in a literary magazine, launched by proud authors at a combined party and word-processing demonstration for parents and friends.

Beyond Word Processing

Writing, as enhanced by word processing, plays a major role in many of the prize-winning lesson plans. Every adult computer user knows the invaluable convenience of making quick, on-screen editing changes instead of laboriously

rewriting entire drafts. For children, teacher after teacher told *inCider*, word processing can make the difference between a creative pleasure and being turned off writing for life. In addition, word processors and printers are great equalizers: A child with poor handwriting or coordination can produce work that looks as good as the class valedictorian's, with a corresponding boost in self-esteem.

In Trenton, New Jersey, Mott Elementary first-graders divide their time between Lucille Mirando's language-arts class and Jean Leefeldt's computer center. After learning noun and verb structure from chalkboard exercises and flash cards, kids progress to typing their own sentences on a //e with Spinnaker Software's animated Story Machine.

Next, it's on to more vocabulary practice and longer sentences. Soon, students are creating pictures with Delta Drawing—first learning its cursor-movement commands by drawing letters of the alphabet—and using Bank Street Writer to type stories about them. The pictures and stories form a booklet for the classroom library.

New Jersey's Hopatcong Borough Schools adopted a "process-oriented" writing model in 1983: After choosing a topic and writing random ideas about it, seventh- through twelfth-graders progress to a formal outline, a rough draft, corrections, and a finished version. Created for composition paper, the process proved even better when Susan O'Banion, Lawrence Schroth, John Sissick, and Carol Ferri adapted it for The Write Choice word processor.

From a stream-of-consciousness "idea chart," writers



Sandra Cooper, Irene Levy, P.S. 215, Far Rockaway, NY (*Electronic Pen Pals*).

Irene Levy:

"The kids have taken to it beautifully. I have two Chinese children in my class who came in not speaking very much English, and now they're writing letters on the computer with everybody else. It's a terrific thing; I can't imagine not having a computer in my class again.

"There are a lot of differences between these children [and their pen pals], and so far it hasn't made any difference at all. [The other] class has more girls than boys; I thought that'd be a problem, but no one said, 'Yuck, I've got a girl pen pal.' I've got some kids in my class who are not great at discipline, and I've never had a problem with them when they're at the computer. They approach it with respect and treat each other with respect around it.

"I'm not saying that we couldn't do it without the computer, but it's made something that could have been a tedious experience into a pleasure. We are doing all the things that you'd do in a fourth-grade class, we have our curriculum and everything, but we are enriched by having this instrument in our class."



Jeff Hohman, Rosemary Hiriak, Chuck Forsythe, Holly Jobe, West Pottsgrove Elementary School, Stowe, PA (*The Australian Connection*).

Rosemary Hiriak:

"Most of [our] projects started out as reading or language-arts activities, where the computer was pulled in as an enhancement; they didn't start as word-processing activities. [Now, our district has] the lowest income per student in the county, but kids are just blossoming. We're producing writers I would not have imagined five years ago. We had two fifth-grade essay-contest winners, and the superintendent said, 'If it can happen at West Pottsgrove, it can happen anywhere.'

"Not only are our kids disadvantaged materially, but culturally, they don't know there's a world beyond Pottsgrove. It just flipped the kids out that [the Australians would] write to us and we'd get it the day before they sent it, that they were going on summer vacation at Christmas; it went from what we thought would be a kind of academic exchange to where the kids took over. They wanted to know what [the Australian kids] did at home, what clothes they wore, what music they listened to, and what they found was that they're a lot like us. Except Australia doesn't have Halloween, so they had their first Halloween party with us. We sent M&M's and they sent Smarties."

move to a chronological outline of topic sentences and ideas, which in turn is expanded with the insertion of supporting text. As headings are deleted, the computer file changes from an outline to a rough draft, then to a final one.

The Art of Writing

Writing is too important a skill to restrict to writing classes. Marjorie Joire and Saundra Dickerson's "Writing Across the Curriculum" project (Ithan Elementary, Bryn Mawr, Pennsylvania) encourages teachers to promote writing in all subjects—for example, to assign a compare-and-contrast essay instead of a fill-in-the-blanks quiz. For students, the project includes tricks to overcome blank-page anxiety for any topic, whether a fairy tale or a geography report.

While Joire and Dickerson use Magic Slate, their ideas work with any word processor. Here are some of their suggestions: To make students concentrate on their ideas instead of how their writing looks, try five minutes' brainstorming with the monitor turned off. Use editing commands to join columns of prefixes and root words, or to tie simple pairs ("Milk has calcium," "Calcium helps build bones and teeth") into complex sentences.

Children who hardly glance at textbook sentences pay close attention to search-and-replace puzzles, decoding text whose every e has become an asterisk. Creative writers are challenged by putting a story's first and last sentences at the top of the screen, with the cursor between "One day, Elizabeth looked out of the window" and "She

wondered whether Sarah would escape the shark." The assignment: to insert the body of the story, ending before the last sentence scrolls off the screen.

While the Ithan program stresses writing in all classes, Apples supply a specific cross-curricular link at Manville, New Jersey, High School, where computer coordinator Rhonda Brown has joined Linda Silvonek's English and Lucille Soffel's art classes. Silvonek's students, formerly unexcited at the prospect of writing poetry, are more enthusiastic and even willing to polish their poems at home when they get to type their final versions on a word processor—and when they know Soffel's students will see their work, illustrating the poems with Mouse Paint or another graphics program. The poems and pictures are exhibited in a prominent location such as the library.

Stop the Presses

What's better than different classes sharing their respective words and pictures? One class mixing graphics and text on a daily basis. Barbara Youngman's journalism students at Concord High on Staten Island use Springboard Software's Newsroom to produce a monthly school newspaper, complete with crossword puzzles created with Mindscape's Crossword Magic.

At New Hope-Solebury Elementary in Solebury, Pennsylvania, teacher Richard Werkheiser, assistant Linda Loughran, and principal Mel Sonier gave the school's first crack at Newsroom to a learning-disabled class. After studying newspaper concepts and terms, kids follow outline-style flow charts to write short articles, assembled with Newsroom graphics into *The New Hope News*. They also use Newsroom clip art to compile comic strips, and even share their expertise with another resource-room class and the school's gifted class in team-teaching workshops.

Carol Andrews' students at Bloomsbury (New Jersey) Elementary School are experts with Broderbund's Print Shop. In fact, they've formed "Fifth-Grade Enterprises," selling Print Shop-created notepaper, posters, greeting cards, and letterheads. Student customers appreciate the bargain prices (35 cents a card), but the young entrepreneurs have to learn business from the ground up: learning the software, choosing patterns and clip art to offer along with custom or personalized orders, designing a catalog, developing and market testing a mistake-proof order form, planning a distribution campaign, and remembering to include a new order form with each delivery.

Charting a Course

The Newsroom and Print Shop lessons illustrate a theme that runs through many of the Pacesetters' projects: Computer literacy (learning software or running a program) is a straightforward but secondary part of the classroom experience. The point is to produce a product with the computer, to promote teamwork, managerial or analytical skills, or self-esteem. The computer becomes a means instead of an end. To use the symposium's most popular noun, it's a tool to keep on hand, whose potential uses are kept in mind.

For instance, just as Ithan Elementary promotes writing across the curriculum, Scotch Plains-Fanwood High School (Scotch Plains, New Jersey) encourages applying Apple graphics to different courses. Arlene Marasco, Elinor Peter, and Manuel Cancellia use PFS:Graph, Apple Logo, and the KoalaPad for a variety of projects, from plotting weather patterns in science class to graphing survey results from a marketing questionnaire or social-studies poll.

Art students visit the Metropolitan Museum of Art to study Islamic and primitive patterns, then use Logo to create their own. Other art students use the KoalaPad in an advanced drawing class, while a social-studies unit draws Koala diagrams of tombs and pyramids for their Egyptian Studies reports.

For more conventional computer graphics, visit the industrial-arts department at Scarsdale, New York's Edgemont High School. Since the mechanical-drawing class started too late to use computer instructor Kathleen Greenberg's purchase of T&W Systems' CAD (computer-aided design) software, shop teacher Robert Schwartz borrowed it for his students, who've hardly touched pencils or T-squares since. Regardless of their drawing skills, students can use the software, a mouse, and a plotter to design plastic or woodworking projects.

On-Line Adventures

Pen-pal letters to other schools are nothing new, but fourth-grade classes in Far Rockaway and Ozone Park, New York, trade letters via the Apple Modem. With a little help from computer coordinator Sandra Cooper, Irene Levy and Barbara Dubler's students find pen pals by matching interests or data-base entries (such as "Hobbies," "Pets," or "Favorite TV Program") on PFS:File disks sent between schools. Once correspondents are paired up, they leave messages on the school district's bulletin board—mastering data-base, word-processing, and telecommunications work while comparing notes on bikes, cats, and He-Man.

If that's not impressive enough, consider that Ozone Park's P.S. 64Q is primarily white and middle-class, while Far Rockaway's P.S. 215 is mostly black and Hispanic—but, as Dubler says, "In [the kids'] letters they have the same interests. They're developing friendships, they're very excited to meet each other. That's one thing I see [again and again] in the letters—I really want to meet you,' 'Can you call me?', 'Can we keep in touch?' " When *inCider* called after the symposium, the two classes were planning a party together, meeting to celebrate eight months' correspondence and the end of the school year.

In Monmouth Junction, New Jersey, schools are taking even greater advantage of telecommunications. According to coordinator Marylu Simon, there's an Apple with a modem in the library of each school in the South Brunswick School District—five elementary, one middle, and one high school, plus several more in individual classrooms. The district specializes in on-line data-base work, accessing information from Dow Jones News/Retrieval; a high-school chemistry class scans the science news instead of a dull periodic table to learn about elements and their uses, while elementary language-arts students study movie reviews for examples of critical thinking, evaluation, and bias.

At Stowe, Pennsylvania's West Pottsgrove Elementary School, principal Jeffrey Hohman, reading coordinator Rosemary Hiriak, and computer specialist Holly Jobe use everything from Magic Slate to AppleWorks for lessons similar to those described above: alphabet practice, stories illustrated with Print Shop graphics for a classroom booklet, a school newspaper, or a story on disk passed from one school's third-graders to another, each class adding a paragraph.

But West Pottsgrove's most ambitious project is "the Australian connection"—14 talented fourth- and fifth-graders, sending letters via The Source and Telenet to a

MultiScribe™

Creative Writing for Your Apple® IIC™/IIE™

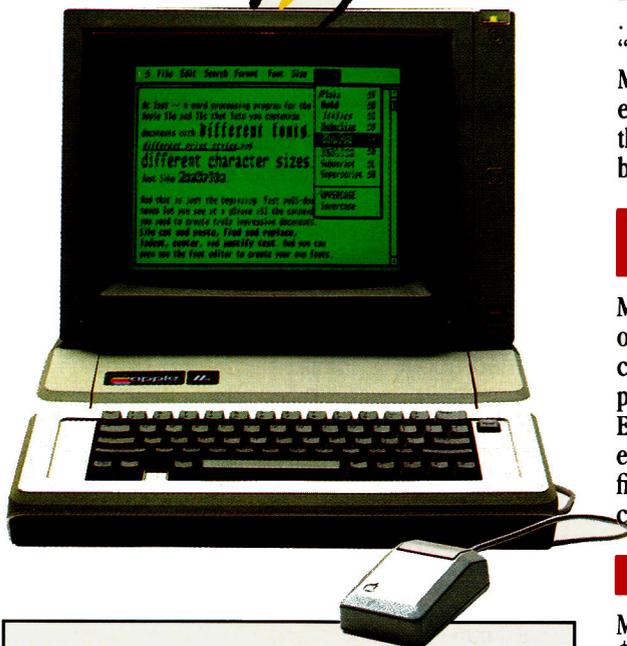
Now your Apple IIC or IIE can offer you the type of creativity that you might have thought was available only with a Macintosh.™ MultiScribe is a full feature word processor that uses double hi-res and proportional spacing to give your Apple all the character of a Mac.

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.™



Pictured above: MultiScribe's font editor.



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).

\$59.95

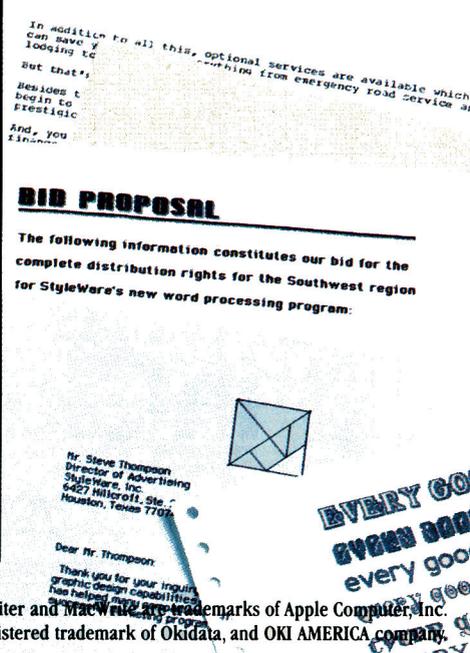
+ \$3.00 shipping & handling
Texas residents add 5½% sales tax.
Outside U.S. add \$10.00.

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

Name		
Street		
City	State	Zip
<input type="checkbox"/> MasterCard®	<input type="checkbox"/> Visa	<input type="checkbox"/> Check/Money Order
Card#	Exp. Date	
<input type="checkbox"/> 5¼" Diskette	<input type="checkbox"/> 3½" Diskette	

MultiScribe™
Creativity at your fingertips.

StyleWare, Inc.
6405 Hillcroft, Suite 201, Houston, Texas 77081



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.

Yes. I want to be a well-informed Apple II user! Please send me 12 issues of *inCider* for \$24.97. I'll save 30% off the newsstand price.

Payment enclosed Bill me

Name _____

Address _____

City _____ State _____ Zip _____

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

**inCider, P.O. Box 911, Farmingdale,
NY 11737 369B5**

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

Showing you the future that's taking shape today.

school in New South Wales. To minimize connect charges, files are written ahead of time rather than typed interactively or on line (the Aussies are asleep during U.S. school hours anyway). According to Hohman, even the traditional introductions get kids thinking cross-culturally: "My name is Bill and I'm five feet two inches"; "My name is Paul and I'm 160 centimeters."

Music, Science, Mind Expansion

Besides connecting to other Apples, the //e can connect to a six-voice Roland CMU-800 music synthesizer. Juanita Crawford, music teacher at the John R. Downes School in Newark, Delaware, uses hers to accompany first- through third-graders. She plays the bass line to their melody, and patiently loops through a tune to help them sing rounds, or plays different parts on different channels.

Besides easing her orchestration ("I've done this before and I've had to have eight arms"), Crawford says the //e and synthesizer have genuinely helped kids' performance: "The instrumental groups play better, they feel the beat better—[the Roland] will go as slowly as they need to to learn. The children have better intonation, a better key feeling; they carry the tune better and their voice quality has improved."

If all these innovative applications make you think no one teaches programming any more, visit Joan Kahn, Margo Wolfson, and John Yeakley of the Science/Engineering Specialized Learning Center in the Freehold Regional High School District (Englishtown, New Jersey). Their biology simulation, "Was Mendel Right?", gives students the necessary mathematical formulae and challenges them to write Pascal programs to calculate standard deviation and chi-square statistics for testing Mendel's genetic laws. That done, students use a genetics program from COMPRESS Software to simulate hundreds of generations' cross-breeding and find where the 19th-century botanist's observations do and don't match today's knowledge of chromosomes and crossovers.

Programming also plays a part in teacher Eric Zimmerman and science supervisor Marcia Leek's "Holistic Teaching" project, although learning the basics of AppleSoft is only part of the Highland Regional High School (Blackwood Ridge, New Jersey) course titled Science Exploration. Students also try everything from Typing Tutor II to AppleWorks, PFS:File, and math and chemistry software in the process of fulfilling myriad assignments.

Writing assignments include an essay on computer applications or careers, a laboratory report, and a scientific-research report; a timed typing exercise makes sure students' word-processing skills are up to snuff. There are also critical-thinking exercises, mathematical and graphing tasks, and scientific work such as lab-interface data collection for spreadsheet presentation. By term's end, students have been exposed to almost every aspect of the scientific method—and become pretty fair Apple applications users as well.

Overall, that's the impression *inCider* took away from the Pacesetters' Symposium: Not only are teachers coming up with more original ideas, but kids are eagerly keeping up with adult-level applications. Between that and Apple's renewed dedication to a market it once seemed to take for granted, anyone who thinks classroom computing is dull these days should go back to school. ■

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. **Save \$1.00** on a 10-pack of DS/DD **Blank Diskettes** with any merchandise order over \$10.00

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
- A-5 Lady Luck
- A-6 Space Adventure
- A-7 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
- A-14 Mission Asteroid
- A-15 Passport to London
- A-16 Passport to Paris

- 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

Home Management

- A-17 The Addresser—Mailing List
- A-18 Financial Planner
- A-19 General Ledger
- A-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
- A-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

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 Hopping the Curious Kangaroo
- A-61 Wild Animals
- A-62 Tom Thumb
- A-63 I Was a Second Grade Werewolf
- A-64 Tough Eddie

Plus these Super Accessories

- **Universal Blank Diskettes** (for Apple or Commodore) compatible with any 5¼" disk drive. Double-notched, DS/DD disks give single-sided users *twice* the storage at the same great price! Box of 5: \$6.99.
- **Blank Diskettes:** 100% certified, DS/DD, Box of 10: \$8.50.

CALL TOLL-FREE
CREDIT CARD ORDERS ONLY
1-800-257-9411



In Minnesota CALL:
(612) 829-1911

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

IC9

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:

_____ x _____ = _____

Check or money order enclosed

VISA MasterCard

Card # _____

Expiration Date _____

Phone (____) _____

Name _____

Sig. _____ Date _____

Name _____

City _____

Total number of software pkgs. _____ x \$6.99 each \$ _____

Boxes of 5 Universal blank disks _____ x \$6.99 per box \$ _____

Boxes of 10 blank disks _____ x \$8.50 per box \$ _____

Total amount of order \$ _____

Postage/handling \$ 2.00

MN Residents add 6% state sales tax \$ _____

Total (enclose check, money order or fill in VISA/MC information at left) ... \$ _____

U.S. FUNDS ONLY

Money orders/Credit card orders shipped immediately.

Allow 4-6 weeks for delivery for check orders.

Address _____

State _____ Zip _____

ORCHESTRATING THE SCHOOL OFFICE

by Wendy Lea McKibbin, *inCider* staff



Each new academic year brings a fresh challenge to the school administrator: how to scale a veritable Mount Everest of data. Keeping track of students generates volumes of paperwork. Each student must be tracked for daily attendance, scheduled into a class, assigned to a bus route, graded, evaluated, and channeled into the proper curriculum. Books must be purchased and inventoried, the science-club budget managed, and teachers paid. Likewise, teachers must be monitored according to work load, sick leave, employee performance, and special curricular and extracurricular activities.

Traditionally, this information was stashed away on the regional or county mainframe, where local school administrators couldn't find it or use it. Thus, like their counterparts in commerce, educational administrators are turning to personal computing as a way to harness the power of timely information. Like other managers, school principals want to see graphs, charts, and reports that accurately depict the state of affairs in their spheres of authority.

An ample supply of software awaits the administrator who has chosen to run his or her office using the Apple II. More than 100 programs specially tailored to the needs of the school office, and at least 70 packages that fall within the category of general administrative software—accounting programs, word processors, spreadsheets, database managers, and so on—are available, according to *Swift's Educational Software Directory 1984-5* (Apple II edition). (This guide will not be published this year, however.)

Other resources for finding administrative and educational software include the EPIE Institute's *Educational Software Selector*, the Teachers' College Press, and organizations such as Trade Service Publications, Inc., of San Diego, which provides program evaluations. (See the Product Information box on p. 70 for details.)

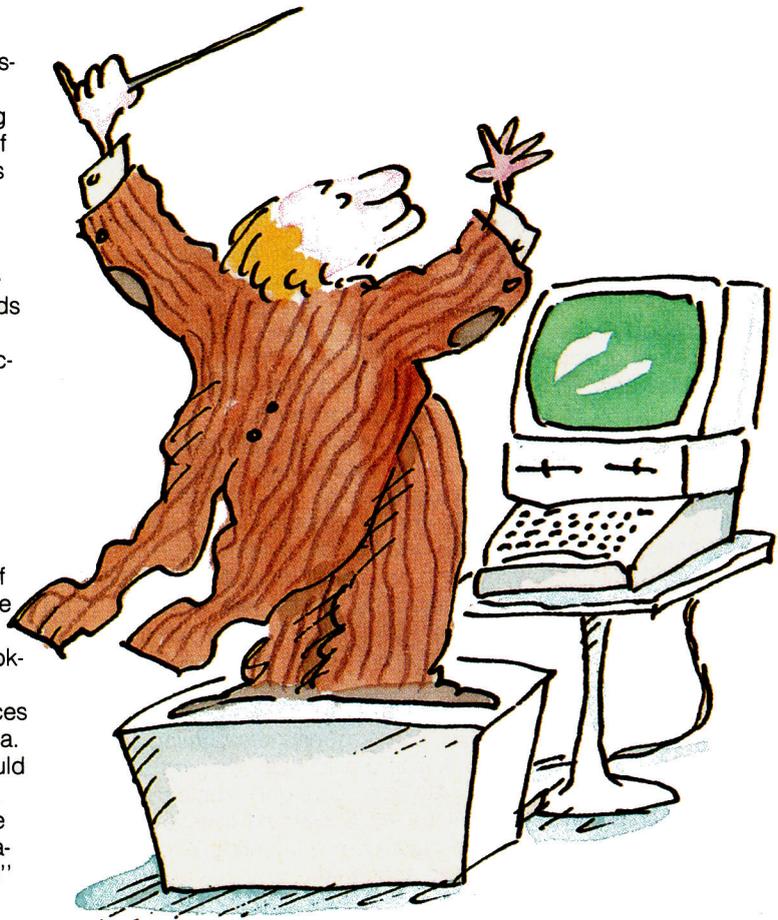
Perhaps the best place for an administrator to start looking for software is to talk to colleagues, suggests Violet Hakola, coordinator of the administrative computer services of the Mounds View School District in St. Paul, Minnesota.

"The person who wants to computerize his office should start by talking to a school district that's been through it already, which is not to say he should blindly follow what he hears," Hakola notes. "The administrator should merely analyze, research, and review as much information as possible."

Hakola's district has six Apple II's installed in school libraries, where they're used in conjunction with Corvus

hard disks. The libraries, two at secondary schools and four at elementary sites, use Winnebago's Library Circulation Systems software to maintain book inventories and monitor student checkouts. The software is used with a bar-code reader, which saves a lot of time. It's one of the main reasons the district selected the Winnebago package, according to Hakola. It also chose this software because it generates year-end inventory reports, she says.

Another eight Apple II/e systems are used in administrative offices at three secondary and five elementary schools to run the Minnesota Educational Computing Corporation's





An array of specialized and general-business software products for the Apple II can help the busy school administrator manage scheduling, inventory, recordkeeping, and budgeting.

Student Record Keeping and Student Attendance modules. The software has eased the headache of tracking and reporting the attendance activities of 2000 students, then compiling that information into a format for state reporting, Hakola says.

She adds that plans are underway to add M.E.C.C.'s class-scheduling software next year, but on a more powerful system than the Apple IIe. "We tried using a scheduling package on the Apple II, but it was just too slow for handling so many kids," she says.

Priming for Performance

One way to reduce disk-access time and thus speed throughput on the Apple is to add a memory-expansion card, as Kirk R. Lewis, dean of the Community Educational Services division of the Riverside Unified School District, of Riverside, California, discovered. Lewis fortified two of his ten Apple IIe's with AST SprintDisk cards, which can ultimately be upgraded to 2 megabytes of memory per card. These AST memory upgrades have reduced the time staff members spend on report generation with PFS:Report from an hour and 15 minutes to 45 minutes.

Lewis has also increased the efficiency of his office by adding networking capabilities. Networking lets the staff share large data files and handle them in a more timely fashion than floppy-disk storage permits. His ten Apple IIe's are on a Corvus network with two 20-megabyte Corvus hard disks.

Lewis was prompted to investigate networking when six staff members needed to share identical data on a rapidly growing student population—which blossomed from 66 enrollees in the 1983-84 school year to its current 380 members. He explains that he decided to install a network a year ago when his staff complained of being "overwhelmed" by the challenge of locating student files on three separate floppy disks.

At the same time, teachers in different rooms often needed access to the same information, he says. And, of course, the master floppies and extra sets had to be updated nightly with new additions.

"Networking has been the right answer for us, particularly since we work in different rooms and frequently need to look at the same records," Lewis says.

Although a great deal of software tailored for school administrators is available, Lewis prefers AppleWorks and the PFS:Write, File, Graph, and Report series for running the business of his office. He and his staff use these programs to process attendance information, transcript data, program evaluations, and assorted student records. "I like the flexibility of more generic software," Lewis states.

Lewis relates that computerization has done more than speed up tedious recordkeeping: It has given him the ability to examine trends and make correlations that would be otherwise impossible. For example, using PFS:File, Report, and Graph, he searched for performance data on his students. He used this information to develop a graph he could share with other staff members.

The evaluation revealed that regardless of current grade classification, many of the students corresponded to an eighth-grade achievement level. The data were essential in helping him plan curriculum needs for the coming school year, he says.

Customized Answers

Like Kirk Lewis, principal Earl Torris of Ontario High School in Ontario, Oregon, gives high marks to general-

Apple II's in Education

If the long-awaited 16-bit Apple II comes to market this month, Apple loyalists will have the powerful machine they want for crunching out business applications. But in the meantime, the trusty old 8-bit Apple II can still solve many an administrator's computing problems.

The success of that Apple II solution, though, will depend on your workload, support needs, and the amount of money you're willing to spend. In general, the II is most successful in elementary or small- to medium-sized secondary-school offices managing up to 1200 students, according to Apple Computer and users in education. School offices in that size range tend to not exceed the processing limitations, they say.

Moreover, the II can be expanded to meet greater processing needs. Apple recommends adding an internal memory card, accelerator card, and a hard disk. The internal memory will act as a RAM disk to load data faster or will provide a larger desktop for software such as AppleWorks; the accelerator card will speed up the microprocessor; and the hard disk will provide more storage and faster loading than a floppy. A hard disk also frees the user from the aggravation of loading, changing, switching, and swapping floppy disks.

Some of the more popular hard disks for Apple are Apple's own ProFile, the Quark QC10 and QC20, and The Sider in 10- and 20-megabyte versions. (For additional ideas on hard disks, see "Hard-Driving Disks" in *inCider's* September 1985 issue, p. 24.) Titan Industries makes an accelerator card that it says speeds up your processor by a factor of three to four; Apple, AST Research, Applied Engineering, and Checkmate Technology all make memory-expansion products that receive generally high ratings (see "Two Roads to Memory Expansion" and "Four Leading Choices," August 1986, pp. 46 and 54).

If price is your chief consideration, the Apple IIe is an attractive choice for the school office, according to Samuel J. Agronow, a research associate at Riverside Unified School District in Riverside, California. Apple's strategy is to provide a cost-effective solution, according to Betsy Pace, Apple's K-12 education marketing manager. Apple sells its IIe Administrative System bundle for less than \$2000, including a 128K IIe, two disk drives (a 5¼-inch and 3½-inch with Catalyst), 256K memory-expansion card, monitor, and ImageWriter printer.

Given the large installed base of Apples in K-12 classrooms, an added bonus for the school administrator is the ready source of skilled on-site support he or she is likely to find in the computer-lab teacher or a local computer buff, says Kirk R. Lewis, dean of the Community Educational Services division of the Riverside Unified School District. The large installed base of Apples might also appeal to an administrator who wants to share data among computers or make data collection easier since so many classrooms use the Apple II already, Lewis notes.

Administrators planning to enhance their systems might seize the opportunity to learn from others who can help them avoid costly mistakes. In addition to contacting colleagues who have already automated their organizations, a good way to locate experienced users is to log on to the Microcomputer-networked Apple User Group (MAUG) or visit a local computer club. Those not yet members of Apple user groups can contact International Apple Core in Santa Clara, California, at (408) 727-7652 for a listing of clubs in their areas. □

—W.L.McK.

SILICON EXPRESS DISKS
SS/ID 6.95
DS/ID 7.95

VERBATIM OR MAXELL
SS/ID 13.95
DS/ID 16.95

ELEPHANT
SS/ID 7.95
DS/ID 8.95

DATA CASE
7.95

INSIDE OHIO
1-800-225-0755
YOUR TOLL FREE ACCESS OUTSIDE OHIO
1-800-228-0755
CALL...FOR THE BEST PRICES...
BEST DELIVERY...
We have hundreds of other programs in stock at Fantastic savings.

SILICON EXPRESS

LASER 128—APPLE COMPATIBLE COMPUTER \$395.95

- Additional Fonts 8.95
- Adventure Const. 30.50
- Algebra I thru IV ea. 26.95
- Algebra V & VI 34.95
- Alphabet Zoo 18.95
- Alpha Plot 24.89
- A Mind Forever Voy. 28.95
- Archon I 22.00
- Archon II 24.25
- ASC II Express 72.50
- Assembly Lines Bk. 16.95
- Auto Duel 32.95
- Auto Works 27.95
- Back-it-up III 42.00
- Bag of Tricks -2 28.00
- Ball Blazer 23.49
- Bank Street Filer 38.95
- Bank Street Mailer 38.95
- Bank Street Writer 38.95
- Bank Street Speller 38.95
- Baron's Tale 27.50
- Baron 22.50
- Beagle Bag 14.95
- Beagle Basis 17.95
- Beagle Graphics 29.95
- Beneath Apple DOS 13.95
- Bnht. Apt. Pro DOS 13.95
- Big U 16.95
- Black's Law Dict. 27.95
- Blazing paddles 27.00
- Bookends 64.95
- Bookends Extended 94.95
- Borrowed Time 22.00
- Breakthru Ardennes 41.95
- Carmen Sandiego 22.45
- Captain Goodnight 19.45
- Cat Graphics 13.95
- Chshp. Load Runner 19.45
- Chart 'n Graph Tibx. 23.95
- Clip Art Vol. 1 15.95
- Clip Art Vol. 2 21.25
- Complete Graphics 27.95
- Copy II 18.50
- Coveted Mirror 11.95
- Crimson Crown 11.95
- Crosstalk 95.00
- Crossword Magic 28.50
- Crusade in Europe 22.95
- Crypt of Medea 21.95
- Cut & Paste 21.50
- Cutthroats 23.69
- Database Toolbox 23.95
- Dazzle Draw 33.95
- D-Code 19.95
- Deadline 28.00
- Decision in Desert 19.95
- Delta Drawing 27.95
- DiskQuick 14.95
- Disc Repair Kit 8.95
- Dollars & Sense 66.50
- DOS Boss 11.95
- Double-Take 17.95
- Dragonworld 22.75
- Early Games 15.95
- Easy as ABC 20.95
- Eidolon 23.50
- Enchanter 23.69
- Essential Data Dup 41.95
- Europe Abiaze 30.50
- Extra K 19.95
- F-15 Strike Eagle 19.95
- Facemaker 17.95
- Family Roots 149.95
- Fantavision 26.95
- Farenheit 451 22.75
- Fat Cat 17.95
- Financial Cookbook 30.00
- Flex Type 14.95
- Flight Sim. II 30.50
- Fontrix 53.25
- Fntpaks 1 thru 13 ea. 13.00
- Forecast 34.00
- Fontworks 34.95
- Fraction Factory 15.95
- Fraction Fever 34.95
- Frame-Up 14.95
- Game Maker 34.95
- Gato 20.45
- Gertrude's Puzzles 24.75
- Gertrude's Secrets 24.75
- Goran Bridge 51.95
- Ghostbusters 22.00
- GI Joe 19.95
- Graphics Department 64.95
- Graphics Expander 21.95
- Graphics Magician 26.95
- Graphworks 57.95
- GPL 24.95
- Hacker 27.95
- Handlers Package 69.95
- Hey Diddle Diddle 17.95
- Hitchhiker's Guide 21.75
- Home Accountant 17.95
- Home Connection 49.95
- Home Data Manager 41.00
- Homework 41.00
- Homework Filer 34.95
- Image Printer II 34.95
- Impossible Mission 23.50
- Infidel 26.00
- I.O. Silver 14.95
- Jeeves 29.95
- Juggle's Rainbow 18.95
- Karateka 19.45
- Kids on Keys 17.95
- Kid Writer 18.89
- Kinder Comp 17.95
- Knight of Diamonds 19.50
- King's Quest I or II 28.00
- Koronis Rift 23.49
- Legacy of Lyligamyn 22.50
- List Handler 39.95
- Little Comp. People 27.95
- Locksmith 56.95
- Lode Runner 19.45
- Magic Spells 20.50
- Man. Your Money 101.95
- Map Pack 8.95
- Mask Parade 20.95
- Mastering the GRE 104.95
- Mastering the SAT 69.95
- Mas. of the Lamps 21.95
- Master Type 23.25
- Math Blaster 26.95
- Math Maze 27.95
- Medical Dictionary 27.95
- Megaworks 64.95
- Merlin 33.69
- Merlin Pro 54.95
- Merlin Combo 63.95
- Micro Cookbook 21.45
- Micro Lg. Baseball 22.50
- Millionaire 22.50
- Minipix 14.69
- Moebius 39.95
- Monty Plays Scrabble 32.95
- Mouse Budget 39.95
- Mouse Calc 86.95
- Mouse Desk 22.45
- Mouse Word 74.95
- MouseWrite 71.95
- Most Amazing Thing 22.95
- Multi Disk Catalog 17.95
- Multipan DOS 3.3 59.95
- Munch-A-Bug 23.95
- Murder by the Dozen 21.99
- Music Construction 24.50
- NATO Commander 19.45
- Newsroom 30.50
- One-On-One 24.00
- OO- Topos 11.95
- Paper Graphics 13.95
- PFS: Access 44.00
- PFS: File 69.95
- PFS: First Success 126.00
- PFS: Graph 69.95
- PFS: Plan 69.95
- PFS: Report 69.95
- PFS: Workmates 174.95
- PFS: Write 69.95
- Piece of Cake Math 15.95
- Picture Builder 23.99
- Pinball Construction 21.25
- Pinpoint 39.95
- Pitstop II 23.50
- Pixit 31.89
- Planetfall 22.00
- Prince 48.95
- Printographer 23.95
- Print Shop 26.69
- Pr. Shp. Gr. -1.2 or 3 13.95
- Print Shp. Companion 21.95
- Print Shop Refill 12.25
- Probyter 17.95
- Prof. four golf 25.89
- Program Writer 34.95
- Prompto DOS 14.95
- Quicken 51.95
- Rambo 22.50
- RDF 24.95
- Reach for the Stars 27.50
- Reader Rabbit 22.75
- Reforger 88 42.95
- Rendezvous w/Rama 41.95
- Report Card 32.95
- Report Works 64.95
- Rescue on Fractalus 23.50
- Rescue Raiders 24.95
- Robot Odyssey I 27.25
- Rocky's Boots 27.25
- Sargon III 27.20
- Sat (Harcort Brace) 45.00
- Science Tool Kit 32.95
- Seastalker 22.00
- Sensible Grammar 52.95
- Sensible Speller 63.95
- 7 Cities of Gold 24.25
- Shadowkeep 22.75
- Shape Mechanic 20.00
- Sideways 29.95
- Silent Service 19.45
- Silicon Salad 12.69
- Skyfox 24.25
- Snooper Trp I or 2 22.95
- Solo Flight 19.95
- Sorcerer 26.00
- Speed Reader II 36.95
- Spell Breaker 34.95
- Spellcopter 23.50
- Spell It 26.50
- Spellworks 29.95
- Spitfire Simulator 24.75
- Spy Hunter 26.00
- Spy vs. Spy 24.95
- Squire 22.50
- Starcross 28.00
- Star Lg. Baseball 20.95
- Star Trek 27.95
- Sticky Bear ABC 23.75
- Basket Bounce 23.75
- BOP 23.75
- Car Builder 23.75
- Math 23.75
- Numbers 23.75
- Opposites 23.75
- Reading 23.75
- Shapes 23.75
- Spellgrabber 23.75
- Town Builder 23.75
- Typing 23.75
- Story Machine 17.95
- Story Maker 24.95
- Sum. Games I or II 22.45
- SuperCalc 3A 109.95
- Super Disk Copy 24.95
- Suspect 26.00
- Suspended 28.00
- Sword of Kadash 11.95
- Take 1 34.00
- Technical Dictionary 27.95
- Temple of Apsah Tri. 22.45
- Terrapin Logo 54.50
- Terrapin Utilities 14.95
- Think Tank 88.89
- Thinkworks 64.95
- Time is Money 57.45
- Tip Disk -1 12.00
- Transitions 13.95
- Transylvania 11.95
- Triple-Dump 18.95
- Turbo Pascal 3.0 34.95
- Turbo Database Tibx 27.95
- Turbo Tutor 20.50
- Tycoon 22.50
- Typing Tutor III 28.50
- Ultima III 33.25
- Ultima IV 33.25
- Understanding IIE 17.95
- Understanding II - 15.95
- Universal file conv 24.95
- Utility City 15.25
- Versaform 43.45
- Video Toolbox 15.25
- Visible 6502 31.75
- Wilderness 38.95
- Will Writer 27.95
- Winter Games 21.45
- Wishbringer 27.95
- Witness 22.00
- Wizardry 26.50
- Wizard's Toolbox 23.95
- Wizprint 14.25
- Word Attack 26.95
- Word Handler 39.95
- Word Perfect 125.95
- Word Spinner 20.50
- World's Great. Bball 19.95
- World's Great. Ftbll 22.45
- Write Choice 26.45
- Xyphus 11.95
- Zork I 23.75
- Zork II or III 24.75
- HARDWARE**
- 80 Col. 64K Card 49.95
- Apple Cat II 184.95
- Apple Cat 212 349.95
- CompuServe Starter 21.95
- Database 7.95
- Disk Notcher 4.95
- Disk Drive Con. Card 47.00
- Disk Drive Hi-Tech 139.95
- Essential Data Dup 4 10.95
- Flip-n-File CALL
- Grappler Buffered 114.95
- Grappler 71.95
- Grappler (serial) 71.95
- Grappler C 71.95
- Interface Disk Drive 144.95
- Interface IIC Drive 149.95
- Hotlink 44.95
- Koala Pad 70.45
- Kraft Joystick 25.95
- Laser 128 395.95
- Lemon 31.95
- Lime 48.95
- Mach II II - Joystick 26.20
- Mach II IIE Joystick 26.20
- Mach III II - Joystick 32.20
- Mach III IIE Joystick 32.20
- Micromodem IIE 139.95
- Mockingboard A 65.95
- Mockingboard B 65.95
- Mockingboard C 116.00
- Mockingboard D 126.45
- Mockingboard A-MAX 38.95
- Mltrim CX 256K 169.00
- Multiram CX 512K 209.00
- Multiram IIE X (16 bit) 154.00
- Mltrim CX 256K (16 bit) 354.00
- Mltrim CX 512K (16 bit) 394.00
- Multiram RGB 64K 154.00
- Multiram RGB 256K 194.00
- Multiram RGB 512K 234.00
- Multiram RGB 768K 274.00
- Multiram RGB 1024K 314.00
- Multiram IIE 80/64K 124.00
- Multiram IIE 80/256K 159.00
- Multiram IIE 80/512K 194.00
- Multiram IIE 80/768K 229.00
- Multiview II - 80/160 199.00
- Paddlesticks 26.50
- Parallel Printer Card 44.95
- Print-It 123.50
- Prometheus 1200A 254.95
- Prometheus 300C 99.95
- Super Serial Card 84.95
- System Saver Fan 59.95
- Thunder Clock 102.95
- Video 7 (SCG7) 109.95
- Wildcard II 69.95
- ZEE 80A Checkmate 54.95
- Zoom IIE 109.00
- PRINTERS**
- Citizen 120D CALL
- Star NX-10 279.95
- Star SG-15 394.95
- Star SD-10 344.95
- Star SD-15 474.95
- Star SR-10 494.95
- Star SR-15 594.95
- Star Powertype 344.95
- Okidata 182P 229.95
- Okidata 202 209.95
- Okidata 192P 399.95
- Printer Stand 16.95
- Colored Printer Rbns CALL
- Color Paper Pack 12.95
- MONITORS**
- Magnavox Monitors CALL
- Amdek Color 600 414.99
- Samsung Color 169.95

- Spitfire Simulator 24.75
- Spy Hunter 26.00
- Spy vs. Spy 24.95
- Squire 22.50
- Starcross 28.00
- Star Lg. Baseball 20.95
- Star Trek 27.95
- Sticky Bear ABC 23.75
- Basket Bounce 23.75
- BOP 23.75
- Car Builder 23.75
- Math 23.75
- Numbers 23.75
- Opposites 23.75
- Reading 23.75
- Shapes 23.75
- Spellgrabber 23.75
- Town Builder 23.75
- Typing 23.75
- Story Machine 17.95
- Story Maker 24.95
- Sum. Games I or II 22.45
- SuperCalc 3A 109.95
- Super Disk Copy 24.95
- Suspect 26.00
- Suspended 28.00
- Sword of Kadash 11.95
- Take 1 34.00
- Technical Dictionary 27.95
- Temple of Apsah Tri. 22.45
- Terrapin Logo 54.50
- Terrapin Utilities 14.95
- Think Tank 88.89
- Thinkworks 64.95
- Time is Money 57.45
- Tip Disk -1 12.00
- Transitions 13.95
- Transylvania 11.95
- Triple-Dump 18.95
- Turbo Pascal 3.0 34.95
- Turbo Database Tibx 27.95
- Turbo Tutor 20.50
- Tycoon 22.50
- Typing Tutor III 28.50
- Ultima III 33.25
- Ultima IV 33.25
- Understanding IIE 17.95
- Understanding II - 15.95

YOUR ORDER FORM SILICON EXPRESS

5955 E. Main St. Columbus, Ohio 43213

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CHARGE CARD # _____ Exp. Date _____

QTY.	DESCRIPTION	PRICE

Computer Type _____ SHIPPING _____

Phone No. _____ TOTAL _____

No additional surcharge on Mastercard, Visa, or School purchase orders. Personal checks allow 2 weeks. Shipping charges are \$3.00 minimum. Ohio residents add 5 1/2% state sales tax. Prices subject to change without notice.

SILICON EXPRESS
5955 E. Main St. Columbus, Ohio 43213
1-614-868-6868



**Now
You Can
Buy What
Apple has
Never
Sold...**

**A REAL
Operating System!!**

**KIX™ Adds the Power of
UNIX to ProDOS!**

KIX extends ProDOS with more than 25 commands. Forget Filer Menus! Now, at the prompt, enter simple KIX commands to:

- List, Change, or Delete Directories,
- Copy, Move, or Delete Files,
- Copy, Rename, or Format Volumes,
- Search for Files and Strings,
- Access System Peripherals,
- and much, much more!

**KIX is also a Powerful
AppleWorks Accessory!**

A simple keystroke opens the KIX window and gives you access to KIX commands and a growing set of desktop accessories.

**KIX is a Bargain at the
Introductory Price of \$49.95!**

Order your copy today and see what a real operating system can do for your Apple!

Also available: Kyan Pascal (\$69.95) Kyan Pascal PLUS (\$99.95) and a range of programming toolkits (\$29.95-\$69.95). Call or write for information.

415-626-2080

Send Check/Money Order to:

**Kyan Software Inc. Dept. 6
1850 Union Street #183
San Francisco, CA 94123**

Enclose \$4.50 for shipping; \$15.00 outside North America; Calif. residents add 6.5% sales tax. All Kyan products come with a 30 day money back guarantee.

KIX requires 64K; we recommend a RAMcard or second disk drive for use with AppleWorks.

purpose software and relates that AppleWorks, Bank Street Writer, and The Print Shop are popular items among his staff members for word processing, inventory management, and school-budget reporting.

Torris' office is equipped with four 128K Apple //e's to keep up with the paperwork demands of the 600 students who attend the school. Unlike Lewis, though, Torris uses specialized software to handle the bulk of his class scheduling, grading, and daily-attendance records. The HARTS III School Administrative System on which Torris relies is an integrated package offering scheduling, grade-reporting, enrollment, letter-writing, and attendance-reporting modules.

"With the HARTS system, we have transformed our office from a somewhat messy, 'hit-or-miss' operation into a cleaner, more businesslike environment," says Torris. "We've been able to eliminate many human errors and to cut down dramatically on our clerical time."

For instance, Torris says it used to take a clerk and an aide a half-hour every day to mark attendance records. Now that task is completed in five minutes.

Other significant time saving has been in the area of class scheduling. Torris explains he used to start preparing class schedules for the next school year at the end of February. The information had to be put on cards, batched, and sent to a computer company. It was usually well into the summer before this information came back to the school office. Now Torris can complete all his scheduling in April, a procedure that's not only faster, but gives him more control over the process.

"I wouldn't know how to translate our productivity improvements into dollars," says Torris, "but the time saving has been fantastic."

Torris likes the concept of "one-stop shopping" behind the HARTS system, particularly its ability to share data easily among its five modules. He also cites excellent support from the vendor. His only serious complaint is the excessive disk swapping required to execute the program. The vendor doesn't intend to address that problem by adding a hard-disk option, though, because floppies pose less of a danger of system downtime than a hard drive, according to a company spokesman.

Since the HARTS III system can operate with a minimum amount of hardware—a 48K Apple computer, two floppy-disk drives, and a printer—Torris reports he hasn't felt constricted by the processor limitations of his Apple systems. In fact, he says, his staff hasn't yet tapped the full potential of the four office machines.

The Right Solution

The experiences of these three administrators illustrate that the Apple II can be the right answer for school offices that handle small or moderately-sized student bodies and need a cost-effective means of automating their operations. Yet, the 65C02 processor may be too slow when data demands grow beyond a certain point. Meanwhile, as data files expand, administrators can take intermediate steps, such as adding a hard disk, enhancing their systems with memory-expansion and accelerator cards, and going to a networking solution to share identical data among many users.

As long as the administrator's "horsepower" requirements are within the range of the Apple //e, and the school principal has done his or her homework to clearly define business needs, the Apple II can be an appropriate, cost-effective solution for bringing greater order and efficiency to the school office. ■

What you should know about the International Apple Core.

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

So what's an IAC?

International Apple Core[™] is a non-profit organization of Apple users and user groups 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.

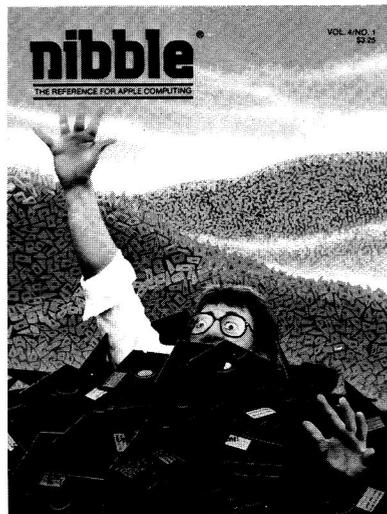
IAC provides many sources of information. Your \$30 yearly membership fee brings you IAC's newsletter "IAC Express", discounts on our many products, access to IAC's BBSs and a 12-issue subscription to *Nibble* magazine devoted to Apple systems and compatibles. *Nibble* magazine features more than \$50 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 *IACalc* 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.

IACalc and 3Pak are trademarks of International Apple Core. CPM is a registered trademark of Digital Research.

Nibble is a registered trademark of microSPARC, Inc.

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.

Membership Application

Individual Memberships

\$30 USA Individual
\$40 Canada
\$75 Elsewhere

Name _____
Address _____
City _____
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. 1-04
2278 Trade Zone Blvd.

San Jose, CA 95131 (OR phone) (408)-262-9419

User Group Memberships

\$90 USA Group package
\$155 User Group package elsewhere
____ I'm already a *Nibble* subscriber,
Please extend my existing subscription.

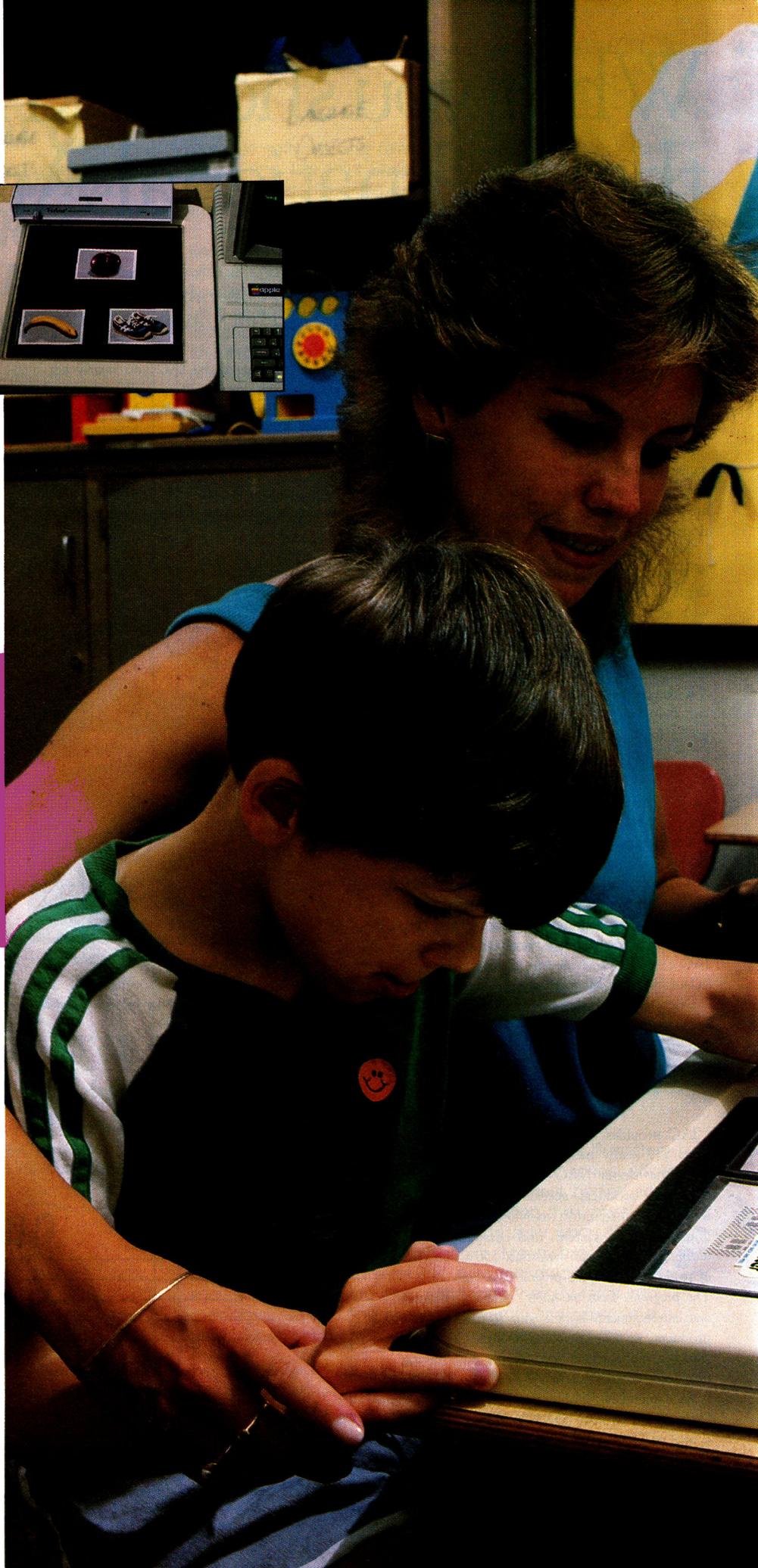
Payment enclosed (US funds drawn on a US bank only)

____ VISA ____ Mastercard

Exp. Date _____
Card # _____
Signature _____



For special-needs students at any level, Apple II's can mean the difference between apathy and a new motivation to learn.



Derek and teacher Susan Van Splinter work on improving Derek's verbal skills with the help of an Apple IIe, Chalk Board's PowerPad (see inset above), and the Votrax speech synthesizer.



TAPPING THE POTENTIAL OF SPECIAL-NEEDS STUDENTS

by Lafe Low, *inCider* staff



Brian has experienced many of the problems associated with special-education students. He was very withdrawn and often didn't even come to school. His emotional disturbances had led to unsuccessful early school years, so when he said he wanted to work with the Apple II's his school (the Cape May County School for Special Services) had recently received, he was sent to Ruth Brown's classroom.

He sat down with the computer and a manual and "just took off from there," according to his teacher. Brian slowly came out of his shell: He began to express his feelings through the stories he wrote and his intelligence through BASIC programming. His ability to interact with others and his class attendance improved dramatically. Within about six months, it was recommended that he return to the public school's computer class for an hour a day.

Brian's progress was "just amazing," Brown says. "He had the immediacy of the machine, he didn't have to interact on a personal level, and he was getting all this positive reinforcement." Whenever he switched classes, the other students would ask him what he was doing in the public school's computer section, Brown adds. "It built his ego right up. He's been a real success story."

A New Sense of Pride

For Brian and many special-needs students like him, using a computer means the difference between remaining an outsider and becoming a participating member of the class. For instance, computers can remove certain physical barriers, such as the need to hold a pencil, that may hold kids back. With a computer, a special student can print material that looks just like everyone else's, regardless of physical limitations.

Through the computer, many special-education students can overcome the handicaps that keep them from expressing their creativity and intelligence. They often experience a new pride in their work, greater motivation, and remarkable progress in learning.

The computer also makes the teacher's job easier. Assignments can be tailored quickly to meet a range of student needs, and progress can be monitored more closely.

As a result, the computer helps further the concept of *mainstreaming*—integrating special-needs students into a classroom of regular students. Donald Brady, a teacher at Highlands Elementary School in Highlands, New Jersey, says, "For the first time, the special-needs kids' handicaps become less visible."

Special Success

Mary Lou Purpura, an English teacher at the H.B. Whitehorne Middle School in Verona, New Jersey, uses Apple //e's in her classroom for both mainstreamed and regular students. The success of two of her special students is typical of what can be accomplished when computers become part of the classroom.

One boy was "almost incorrigible" and spent more time out of class than in, Purpura reports. Once he began working with the computers in her English section, though, he became "very proficient." With programs like Broderbund's Print Shop, he made signs and banners for bulletin boards and for teachers with whom he had previously had many problems. "He was so pleased with himself," Purpura observes.

One young multiply handicapped girl at the same school was frustrated in her desire to work on the school

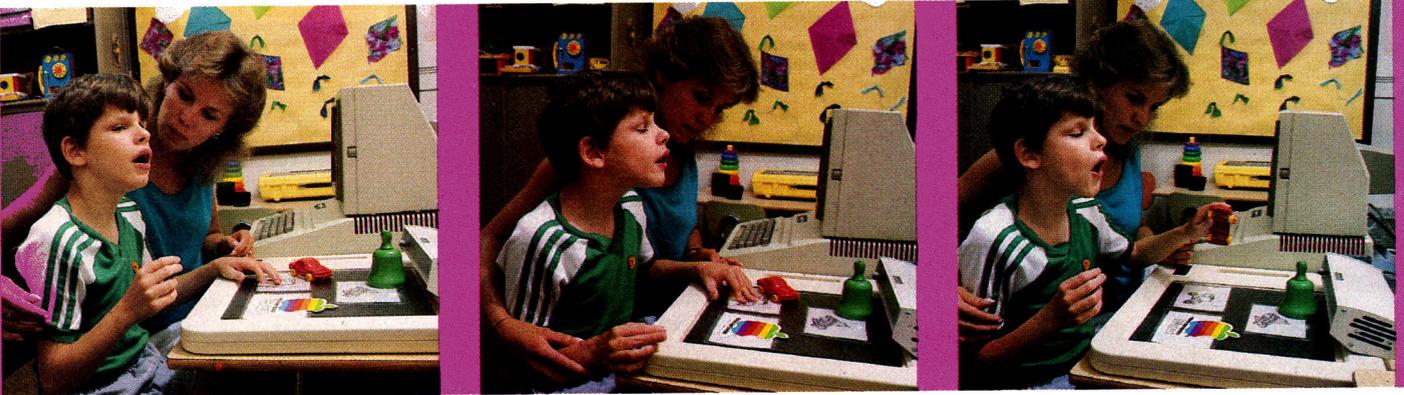
Motivation

Ask any special-education teacher what the greatest benefit of a computer in a classroom is, and the answer will be *motivation*. "If I can get them in there [her classroom] once or twice," says Ruth Brown, "I've got them hooked. That's our whole purpose here—to motivate kids to want to come to school."

Richard Sutor, computer coordinator for the Appoquinimink (pronounced *ap-o-kwin-i-mink*) School District in Odessa, Delaware, agrees that motivation is a key factor in the success of special-education students, but he urges educators to examine the "novelty and uniqueness" of the computer. He warns teachers "not to bank on the magical lure" of the machine keeping students interested forever. "The content has to do the job," Sutor observes.

Derek is a primarily nonverbal student in Susan Van Splinter's class at the Perkins School for the Blind in Watertown, Massachusetts. He mostly uses sign language to communicate, but his teachers wanted to stimulate his speech. Van Splinter also felt Derek had the potential to speak, so she used her Apple //e to try to bring out that ability.

A Votrax speech synthesizer and PowerPad (a large, square input tablet) are connected to the //e in her class-



At the Perkins School in Watertown, Massachusetts, students like Derek and his classmate Katie find learning easier thanks to the Apple //e.

newspaper because her perceptual and physical disabilities kept her from contributing legibly written material. Using a computer, she has become an accepted staff member. "I really don't think that without the use of the word processor, they'd have any respect for what she does," Purpura says.

For one recent article, she interviewed the chairman of Whitehorne's science department. She then used Bank Street Writer, a word-processing program, to put her information together, and the school paper published the story. Now she attends staff brainstorming meetings, and even selects her own article assignments. "It's let her be involved in something," Purpura notes. "It's been a wonderful experience for her."

Using a word processor gives special-education students protection from embarrassment and other children's criticism. "It has a way of equalizing a product. Somehow it looks professional," Purpura says.

Alex May, a teacher in Millville, New Jersey, had a mainstreamed student in his classroom for six weeks before he even realized it. "She kept right up with all the other students," he says. "When I found out this young lady was classified, I tried to keep an eye on her. I think she's built up her own self-esteem because she's been so successful in using this machine."

room. She programs words into the computer with Touch 'n' Speak software, so Derek just has to press a button on the PowerPad's picture overlay to make the Votrax say the word. "If he wants a cup, he'll press the picture of the cup, and the Votrax will say 'cup,'" Van Splinter explains.

The computer has been very effective as a "motivator and reinforcer," according to Van Splinter. With the //e and the Votrax, the variety of Derek's speech has gone from essentially nonexistent to a number of simple sentences. "He'll say things like 'More juice,' which for Derek is a lot," she reports.

Students like Derek, who have something to say but can't because of physical limitations, show remarkable growth with classroom computers. "The computer can help lessen or remove some of these communication barriers. It creates a new avenue of expression," Sutor says.

For other students, it's not speaking but writing that's difficult. Some students find that "a paper-and-pencil task presents an obstacle," says Phyllis Taistra, a teacher at Whitehorne Middle School, where Mary Lou Purpura also works. In cases in which motor difficulties have inhibited progress, the computer presents a different way of entering answers, so special-needs students see it as an easier task.

"You run into a real wall if you tell a kid to retype a ten-page paper," says Alex May. "If it's a ten-page file on

disk and he has to change only a few paragraphs, he's much more willing to try to make it perfect."

And when the product looks good, it encourages students to work at making their stories and essays longer. "The kids you can't get to put ten words together with a pen will go on and write three paragraphs with the machine. It keeps their attention much longer than we [teachers] can," Purpura adds.

Individual Attention

Not only is the computer a tool that gives the special-education student immediate benefits, but it also helps teachers focus on each student's particular requirements.

One of the best things about computers, according to May, is that they can provide for individual needs. For instance, May can easily prepare differentiated assignments. When he prints a set of easy, moderate, and difficult versions and passes them out to his students, they all look alike. "They [the students] aren't unaware, but it's not blatantly obvious that there's a hard one and an easy one."

The curriculum at Highlands Elementary School is specially geared to each child's instructional level. Teacher Donald Brady, who prepares fourth-, fifth-, and sixth-graders for mainstreaming in seventh grade, looks at each



child's learning profile to make an individual educational prescription.

Brady's computers seemingly allow him an extra set of hands when working with his special-education students. "They have audible cues," he says of his Apple II's, "so I can do what I'm hired to do, which is sit with the child and give individual instruction." If he hears a student making a number of mistakes, he knows he needs to spend more time with that child.

These educators and their colleagues have found the computer a most promising tool for special-education students and teachers. Increased motivation and the time for individual instruction the computer affords have enriched the education of special-needs students.

"When I first started using a computer, I was a little afraid of it, as a lot of teachers are," says Phyllis Taistra, "but the more I used it, the more I realized it really could be very valuable."

And, as Ruth Brown points out, a newfound sense of self-esteem is the Apple II's unique contribution to special-needs students: "Because they're working with computers, they think they're smarter." ■

Product information for education features on p. 70.

MODEM MGR™

\$49⁹⁰

plus \$3 ship/hand
plus tax (Calif. only)

- A new modem communications program
- For Apple II +, IIc, IIe, enhanced IIe
- Both DOS 3.3 and ProDOS support
- Supports most serial and modem cards
- Supports most smart and non-smart modems
- Fast operation (110 to 19200 baud)
- Text capture and auto disk-save
- Screen capture (snapshot)
- Full-screen editor
- Full- or split-screen display with block send (for CB, chat, packet radio)
- Macro script files for auto log-on
- Programmable function keys
- XMODEM error-free file transfer
- Supports Apple or Videx 80-column card
- On-screen time-of-day or elapsed-time display (with some clock cards)
- Unattended mode with password protection
- Emulates DEC VT-52, DG D200, others
- Supports most printer cards
- Choice of carrier or "smart" modem control
- Not copy-protected
- Available direct only. Send check to:

**MGR
SOFTWARE**

Suite 101
305 So. State College Blvd.
Anaheim, CA 92806
(714) 993-0294

Apple, ProDOS are trademarks of Apple Computer Inc.

Circle 251 on Reader Service Card.

AppleWorks™ Keyboard FlipTemp™

all for **\$9.95**
plus **\$1.00 postage**
& **handling**

*Set has Wordprocessor
Database
Spreadsheet
ProDOS utilities

AppleWorks. Spread Sheet FlipTemp

AppleWorks. Data Base FlipTemp

ProDOS. & Utilities FlipTemp.

ProDOS FILER UTILITIES

AppleWorks. Word Processing FlipTemp

ORDER FROM:

Software Simplified
1765 Knoxville Street
San Diego, CA 92110

Please send the following:

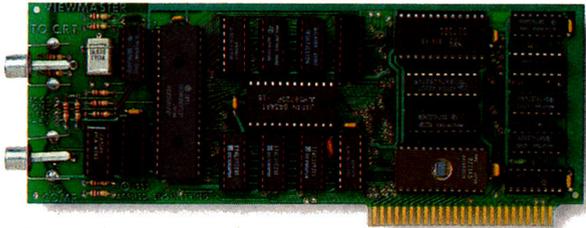
_____ AppleWorks Sets*	@ \$9.95	_____
_____ Apple Writer Iie	@ \$4.95	_____
_____ Flight Simulator II	@ \$4.95	_____
_____ GATO (Sub game)	@ \$4.95	_____
In California ONLY, add 6% Sales Tax		
Postage/Handling AppleWorks	\$1.00	_____
Others	.55	_____
Total enclosed (Checks/Money orders)\$ _____		

InC 9.86

*NOW AVAILABLE..... 14-1/2 HOUR APPLEWORKS Cassette Lessons and Practical problems w/DATA DISK and 150 page MANUALOnly \$151.00 plus 15.00 P & H

Viewmaster 80

Now run AppleWorks™ on your II+ and keep full 80 column compatibility!



	BUILD-IN SOFTWARE	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7 x 3 DOT MATRIX	LIGHT PEN INPUTS	80 COLUMN OVERMODE	INVERSE CHARACTERS
VIEWMASTER 80	✓	✓	✓	✓	✓	✓	✓	✓
SUPRTERM		✓					✓	
WIZARD 80				✓			✓	
VISION 80	✓	✓		✓				
OMNIVISION		✓					✓	✓
VIEWMAX 80	✓	✓		✓			✓	
SMARTERM	✓	✓				✓	✓	
VIDEOTERM		✓	✓	✓	✓	✓	✓	✓

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

Each Viewmaster 80 includes our powerful AppleWorks expand software, allowing AppleWorks to run on the II+ with only 64K (or more) memory. (We recommend the RamFactor memory card, but any compatible Apple memory card will work.) The software provides our full range of AppleWorks enhancements, including expanded records, word processor, multi-disk saving, time and date display on screen with any PRO-DOS clock, and more!

The Viewmaster 80 works with all 80 column applications, including DOS 3.3, PRO-DOS, CP/M, Pascal, WordStar, Format II, Applewriter II, dBase II, Visicalc, Multiplan, and *hundreds* of others—including AppleWorks.

Here are just a few of the powerful features the Viewmaster 80 delivers for a great price (\$139):

- 80 Characters by 24 lines • Fully compatible with all Apple languages and software • Highest compatibility with existing 80 column software • Very low power consumption • High speed (18 MHz) scroll rate • Upper and lower case characters and true descenders, both inverse and normal; all on-screen editing functions are supported • User-definable cursor shape • Compatible with Apple II, II+ and IIe • Five-year warranty

Call today to order or for more information, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 5% sales tax. Add \$10.00 outside U.S.A.

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



before the first dedicated gradebook program appeared on the scene. When it did, he stayed with his spreadsheet program because he found it more flexible.

The business of science is numbers. And spreadsheets handle numbers the way word processors handle words. For her master's-degree thesis project, Frances Lonardo, a graduate student at the University of Rhode Island, raised rainbow trout in tanks. She fed them various dietary supplements to improve their size and appearance. Both characteristics are important to gourmet restaurants that serve seafood.

She kept data in a standard laboratory notebook (fish farms can be tough on computer hardware). When it came time to determine if her volumes of data had any significance, Frances turned to VisiCalc Advanced and an Apple IIe to quickly and easily perform the statistical analysis.

On the home front, students use spreadsheet programs to budget allowances, keep track of science-fair projects, and tally payments from paper-route customers.

When kids aren't using the household Apple, parents boot up spreadsheet programs to design family budgets, monitor tax-deductible expenses, and manage club and organization accounts.

Investors, whether full-time or part-time, use spreadsheet programs to play what-if with real estate, stocks, postage stamps, and pork bellies. Some investment clubs use pre-configured files called templates that work with programs such as VisiCalc. These templates have most labels and formulas already built in. All you do is type in pertinent information at the prompts. Many users, like electrician Richard Ethier, create their own templates.

Spreadsheets can be productive additions to a small business. Not only can you prepare estimates, but you can also track income and expenses without purchasing an expensive accounting program. It's a snap to run off a copy of your spreadsheet *anytime* your accountant asks for one. One independent heating contractor in Fall River, Massachusetts, uses Magicalc and an Apple II Plus to get a grip on his bookkeeping chores.

While it may not be practical to set up an Apple and AppleWorks or SuperCalc3a next to a cash register, an electronic spreadsheet can do wonders for retailers. For instance, the proprietor of The Smoky Gazette, a newsstand in Providence, Rhode Island, wanted to keep track of the literally hundreds of magazines she sold when she learned that certain publishers give store owners royalties, in addition to the usual retail markup. To collect, she needed documentation, and VisiCalc provided it.

What's on the Shelves

Although the veteran spreadsheet program VisiCalc is no longer available, at least five other software packages fill the void: Magicalc, AppleWorks, SuperCalc3a, Mouse Calc, and PFS:Plan. Regardless of the hardware you have, the interface you like, and the features you need, at least one of these programs can give an immediate boost to your personal-computing power. (See the accompanying Product Information box for details on manufacturers

and prices; check the **Table** for *inCider's* ratings for each product.)

Anatomy of a Spreadsheet

When it comes to spreadsheets, the old saying, "If you've seen one, you've seen them all," generally applies. Most spreadsheet programs are so much like their progenitor, VisiCalc, that we refer to them as Visi-clones. The computer screen is divided into cells lined up in columns. Usually each spreadsheet can hold 63 columns and 254 rows. Each cell is named with a coordinate, such as A1 (the upper left-hand cell) or D5 (the fifth cell under the fourth column). You type labels (words), values (numbers), or formulas (mathematical expressions) into the cells.

Magicalc, the AppleWorks spreadsheet, SuperCalc3a, and Mouse Calc might all be considered Visi-clones. The first three programs require you to memorize some commands and use the keyboard at all times. Mouse Calc, with its pull-down menus, scrolling elevators, and mouse input is Macintosh-like in operation and requires little memorization.

The most avant-garde of the spreadsheet programs I've used is PFS:Plan. You don't see the usual "all-purpose" individual cells on screen. Instead, the display is divided into distinct "regions," where you enter values, column and row headings, or formulas. You don't type formulas using cell coordinates as you would in a Visi-clone. Instead, you type in formulas that use English-language words. The expression "@SUM(A1...A24)" in a clone might be expressed as "@TOTAL SALES" in PFS:Plan.

Fools Rush In...

At \$100 and up, you probably don't want to be impulsive about purchasing a spreadsheet program. Before you select the one that's best for you, you have to consider the hardware you have, what you want to do with the program now, and what you might use the program for later on. The following are some areas to consider to help ensure that your investment in a spreadsheet program pays off.

Hardware

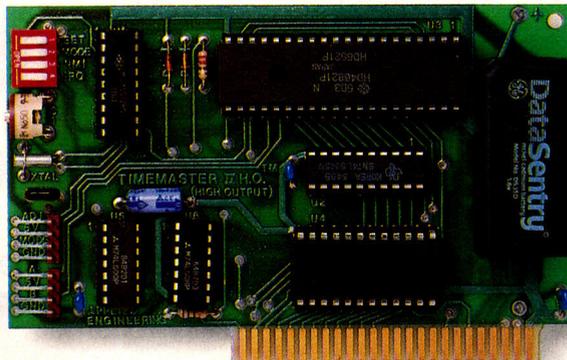
You don't have to own the latest and greatest Apple hardware to find a good spreadsheet program. The DOS 3.3 version of Magicalc runs fine on a 48K Apple II Plus. Artsci, Magicalc's publisher, has played a software trick that lets you see an almost 80-column display (actually, it's 70) without an 80-column card.

If you have a 64K Apple IIe, you could also choose the ProDOS version of Magicalc or the AppleWorks spreadsheet. If your computer is a IIc or 128K IIe, your range of options widens: You could select Mouse Calc or PFS:Plan. Only SuperCalc3a requires that your IIe be enhanced with the 65C02 chip, the one built into the IIc.

None of the spreadsheet programs reviewed here requires two drives, but life is a lot easier if you have two. Most programs, like PFS:Plan and Magicalc, use the second as a data drive.

AppleWorks, Mouse Calc, and the ProDOS version of PFS:Plan are provided in 5¼-inch and 3½-inch formats and are compatible with Apple's UniDisk 3.5. SuperCalc3a, an-

The first clock card to add time and date to AppleWorks™ screens and files.



Timemaster H.O. So many features its become the world's best selling clock card.

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

With the Timemaster H.O., you're assured of reliable, trouble-free operation along with simple, one-command time setting, accuracy through leap years, and a firmware maintained interrupt setting.

If you're using or writing software for other clock cards, you're still covered. Because the H.O. will automatically emulate them. And only the Timemaster H.O. adds 15 new commands to BASIC. The H.O. even comes complete with two disks full of sample programs, including a computerized appointment book, a DOS dating program, interrupt programs, and over 30 programs that others charge you extra for — or don't even offer. As a low-cost option, you can add true BSR remote control to the H.O., giving you remote control of up to 16 lights and appliances in your home or office.

- Time in hours, minutes, seconds and milliseconds; date with year, month, day of week and leap year
- 24-hour military format or 12-hour AM/PM format
- Eight software controlled interrupts so you can run two programs at the same time (many examples included)
- Can be set to the second
- Allows AppleWorks to time and date stamp all data automatically
- Displays time and date on AppleWorks screens and files
- Five-year warranty

Timemaster H.O. \$129.00
BSR option (may be added later) \$ 39.00

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering, Master-Card, VISA and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 outside U.S.A.

AE Applied Engineering
The Apple enhancement experts.

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

Table. Product ratings for five Apple II spreadsheets.

	Magicalc	Mouse Calc	SuperCalc3a	PFS:Plan	AppleWorks
Ease of learning	■ ■	■ ■ ■ ■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■
Ease of use	■ ■	■ ■ ■ ■ ■	■ ■	■ ■ ■ ■	■ ■
Documentation	■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■	■ ■ ■ ■ ■
Support	■ ■	■ ■ ■ ■	■ ■ ■ ■	■	■ ■ ■ ■
Overall	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■	■ ■ ■ ■

Announcing an Exciting Newsletter Exclusively for AppleWorks Users

Now *all* the applications... *all* the solutions... *all* the tricks and techniques of the most popular Apple II program are yours *every month* in **The Main Menu**.

Here in 8 to 12 pages of articles and features every month, you'll get the concentrated know-how to unleash all the power and promise that AppleWorks has to offer.

- **Use It!** Want to use your spreadsheet as an electronic checkbook? ... create a mailing list with your word processor? Those are just two examples of the many ways this hands-on tutorial will give you *real* solutions to *real* problems and "real world" applications, month after month!
- **Link Up.** Here's where you learn how to use different software and peripherals with AppleWorks. Discover how to use a mouse, plug in a modem, add extra memory or attach a different printer. Shift into a 3½" disk drive... or link your AppleWorks with software enhancements like Pinpoint, MegaWorks and others.

- **Focus on Function.** Want to cut and paste between applications? It's easy... when you know how it happens. Whatever AppleWorks functions you want to know more about, you'll find them all covered in depth right here in The Main Menu.
- **Answers.** And just in case your particular problem doesn't pop up right away, write away for answers to your special technical questions. You'll learn lots from others' questions, too.
- **PLUS!** Inside info on New Products, often before they're released... Heard Here First is an advance look at news, trends, gossip and more affecting AppleWorks or any compatible products... Reviews of major AppleWorks compatible software, books and other resources. And Favorites might be worth the Charter subscription price all by itself, with a quick-reading technical trick or special function that could make it happen for your home or business computing needs.

DON'T MISS EVEN ONE VALUE-PACKED ISSUE!

So much is happening in the fast moving world of AppleWorks, you won't want to miss a single, savvy issue of The Main Menu—and you don't have to! Just complete the coupon or order card and mail today. You'll hit the ground running with the very first issue of The Main Menu, and you'll save 50% off the regular subscription price with a special Charter rate of just \$49.97. Two good reasons to ACT NOW and get the power—and the promise—of AppleWorks working for you!

For immediate service, CALL TOLL FREE 1-800-258-5473 (In NH, dial 924-9471).

AppleWorks & Apple II are registered trademarks of Apple Computer, Inc.

YES! Send me 12 issues of The Main Menu for the low subscription price of \$49.97. I'll save 50% off the regular rate.

Payment enclosed Bill me

(print) Name _____

Address _____

City _____

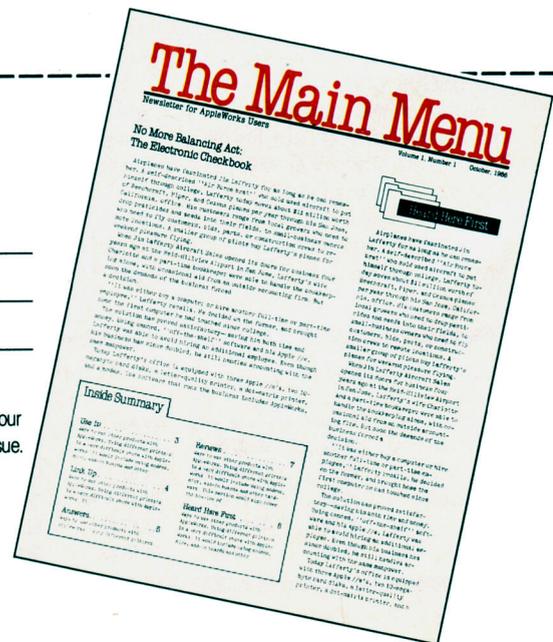
State _____

Zip _____

MONEY BACK GUARANTEE: If you are not completely satisfied with The Main Menu, you may cancel your subscription and receive a full refund on all unmailed issues. Please allow 6-8 weeks for delivery of your first issue.

Mail to: **The Main Menu** • CW Communications/Peterborough
PO Box 802 • Peterborough, NH 03458-997

AN91C



Save 50%
with Charter Offer!

MouseWrite

SENSIBLE SPELLER

CATALYST

Mouse Desk

pfs:
file

DOLLARS
AND
SENSE

BPI
GENERAL
ACCOUNTING

Reportworks

Mouse Calc

SuperCalc3a

Apple Writer II

pfs:
report

BusinessWorks

pfs:
write

AppleWorks

pfs:
plan

Managing
Your Money...

Pinpoint

pfs:
graph

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

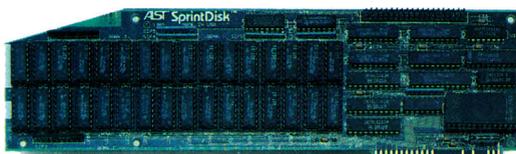
AST and leading software manufacturers are working together to break new ground, establish new standards and provide new solutions that enhance the power of the Apple II for your serious business and educational needs.

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

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

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

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



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

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

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

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

diagnostic software.

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



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

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

SprintDisk, SprintCache trademarks and SixPakPlus registered trademark of AST Research, Inc. Apple registered trademark and Apple II, Macintosh, AppleWriter II, AppleWorks and ProDOS trademarks of Apple Computers, Inc. BusinessWorks trademark of Mantarita Software Systems. MouseWrite trademark of Roger Wagner Publishing, Inc. Dollars and Sense trademark of Monogram. BPI and BPI Systems trademarks of BPI Systems, Inc. Sensible Speller trademark of Sensible Software, Inc. MouseCalc and MouseDesk trademarks of Verson Soft. SuperCalc 3 registered trademark of Socim/US Inc. PFS: Write, PFS: Plan, PFS: Report, PFS: File and PFS: Graph registered trademarks of Software Publishing Corporation. Catalyst trademark of Quark Inc. ReportWorks registered trademark of Megahouse Corporation. Pinpoint trademark of Pinpoint Publishing and Virtual Combinatorics, Inc. Managing Your Money registered trademark of Micro Education Corporation of American. Copyright © 1986 AST Research, Inc. All rights reserved. *The most current versions

FEATURES

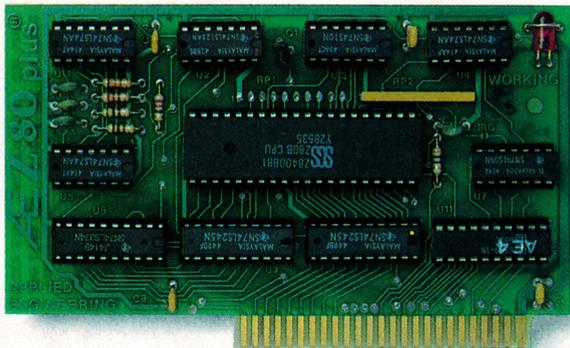
SprintDisk

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

AST
RESEARCH INC.



With Z-80 Plus,TM run CP/M[®]—the largest body of software in existence.



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

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

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

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

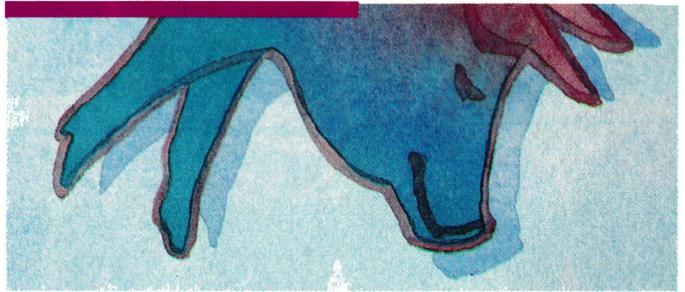
Each Z-80 Plus comes with our CP/M Ram Drive software, enabling IIe owners to use an extended 80-column card or a RamWorks card as a high-speed Ram disk which runs CP/M software up to *twenty times faster*. So packages like WordStar and dBASE II run at blinding speed.

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

- Fully compatible with ALL CP/M software
- Fully compatible with most hard disks, including Corvus and the Sider
- Fully compatible with Microsoft disks (no pre-boot required)
- Specifically designed for high speed operation in the Apple IIe (runs just as fast in the Apple II+ and Franklin)
- Runs WordStar, dBASE II, Turbo Pascal, Fortran-80, Peachtree and ALL other CP/M software with *no pre-boot*
- Semi-custom I.C. and low parts count allows Z-80 Plus to fly through CP/M programs with extremely low power consumption (we use the Z-80B)
- Does EVERYTHING other Z-80 boards do, *plus* Z-80 interrupts
- Five year warranty

Call to order today, 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering, MasterCard, VISA and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 outside U.S.A.

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



other ProDOS-based spreadsheet, comes on three floppy disks, but isn't copy-protected. You can install it on a 3½-inch disk with Quark's program selector, Catalyst 3.0.

ProDOS versions of Magicalc and PFS:Plan are copy-protected, but have been successfully installed on ProFile hard-disk subsystems. A master disk is required as a "key," though.

Spreadsheet programs can usually be configured to communicate with any printer. While daisy-wheel printers work fine for printing small spreadsheets, dot-matrix printers are necessary if you want to print long spreadsheets in compressed mode or if you want to print graphics. If you like color charts, you'll want a color monitor and color printer, such as the ImageWriter II or the Scribe.

If you have a hardware clock, SuperCalc3a and AppleWorks will automatically date-stamp your files.

Memory

Generally speaking, once a spreadsheet program is loaded, a 128K Apple will have 40K to 88K of working memory remaining. You can build spreadsheets of at least a few thousand cells with this much RAM.

Four of the five programs reviewed here are compatible with memory-expansion cards for the IIe. Magicalc recognizes added RAM provided by cards from Legend Industries, Titan Technology, and Prometheus Products.

Mouse Calc works best with the Apple II Memory Expansion card and the AST SprintDisk. SuperCalc3a and the AppleWorks spreadsheet are compatible with the Apple II Memory Expansion, Applied Engineering RamWorks, and Checkmate Technology MultiRam cards.

A notable exception is PFS:Plan. This program is restricted to 36 columns and 70 rows (the equivalent of about 2500 cells) in the "values region." This inherent limitation applies, no matter how much memory your Apple has.

Files

All spreadsheet programs reviewed here can share files with other programs. An AppleWorks spreadsheet can be saved as (or produced from) a DIF (data-interchange format) file, an ASCII (text) file, or a VisiCalc file. The same flexibility extends to SuperCalc3a and Mouse Calc. Magicalc and PFS:Plan are less versatile.

A feature that distinguishes SuperCalc3a from other Apple spreadsheets is a built-in utility that lets you transmit files created on an Apple in a form that an IBM PC can decipher.

Graphics

VisiCalc and some of its clones claim to have graphics capability. In reality, this is no more than substituting asterisks for numbers (** for 3; ***** for 6) to create an amazingly crude bar graph.

If you need authentic graphics capabilities, consider either Mouse Calc or SuperCalc3a. Charts prepared by either program can be printed with a black ribbon, but to take full advantage of the programs' color graphics you'll need to invest in an ImageWriter II, Scribe, or other compatible printer or plotter.

Mouse Calc is less versatile than SuperCalc3a when it comes to turning data into picture form, but both pro-

grams are easy to use and quick-on-the-draw. Mouse Calc can create line graphs or three-dimensional bar charts. If you like pie charts, SuperCalc3a is the program of choice. SuperCalc3a also helps you customize your graphs with labels using dressy fonts.

Functions

Spreadsheet programs vary in the number and kinds of functions with which they're equipped. For example, a chemical engineer needs a program that has logarithmic functions. An astronomer needs trigonometric functions. An investor wants financial functions. The rest of us probably need only the basic arithmetic functions for summing and averaging.

The most bare-bones spreadsheet program is PFS:Plan. With about a dozen functions built in, it performs the basics. At the other end of the spreadsheet spectrum is SuperCalc3a. It comes "loaded" with more than four dozen capabilities, including arithmetic, trigonometric, calendar, financial, logic, and search functions.

Mouse Calc, the AppleWorks spreadsheet, and Magicalc fall in between with about one to two dozen built-in functions.

Bells and Whistles

If you find yourself repeatedly typing complicated formulas, you may need macros, or keystroke abbreviations. In VisiCalc Advanced, macros were contained in Keystroke Memory. In SuperCalc3a, they're stored in Execute Files.

Those who require sorting or data-base capabilities should investigate AppleWorks, which includes a data-base management program, or SuperCalc3a, which has some built-in data-base functions.

Spreadsheet consolidation is handy for those who must prepare reports showing cumulative results. With a consolidation feature you can add this month's sales figures to year-to-date results, for example. Most available spreadsheets offer consolidation features, though sometimes it's called something different—such as "merge" in Mouse Calc.

Printouts

Practically all spreadsheet programs sold today let you customize the appearance of your work—at least in terms of margins and page numbering. SuperCalc3a comes with a utility that lets you print your long spreadsheets side-ways. Except for Magicalc, the spreadsheet programs reviewed here let you print the spreadsheet work screen exactly as it appears.

Integration

The only truly integrated program among those discussed here is the AppleWorks spreadsheet. The AppleWorks program includes a data base and word processor. To include a spreadsheet in a document is as easy as copying the spreadsheet to the electronic clipboard and moving the cursor to the desired spot in the document.

Artsci's Magic Office System is a DOS 3.3-based integrated system that includes OfficeCalc (alias Magicalc), as well as a word processor, spelling checker, and graphics generator. Unlike AppleWorks, the individual modules in the Magic Office System use different commands and integration is less smooth.

Other spreadsheet programs are members of a series that can be integrated. Mouse Calc spreadsheets can be added to Mouse Word documents, for example. PFS:Plan worksheets can use PFS:File data.

Enhancements

If you want a spreadsheet program with potential, you owe it to yourself to consider AppleWorks. The program has proven so popular that many developers are writing software that looks like and works with AppleWorks.

★ **APPLE** ★

MODEM

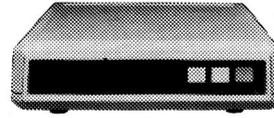
HAYES
COMPATIBLE

1200 BAUD

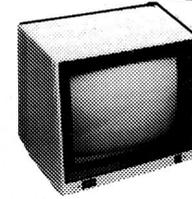
RETAIL \$349.00

\$98

FREE TRIAL PERIOD



COLOR MONITOR



COLOR/
COMPOSITE

RETAIL
\$249.00

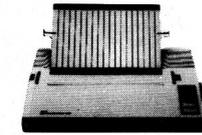
\$99

FREE TRIAL PERIOD

PRINTER

EPSON

RETAIL
\$349.00



HOMEWRIter 10

N
E
A
R

\$159

LETTER QUALITY

COMPUTER



APPLE IIC
COMPATIBLE

COMPARE AT
\$750.00

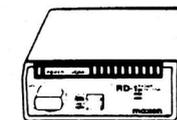
\$395

FREE TRIAL PERIOD

RADAR DETECTOR

HIGH
PERFORMANCE

RETAIL \$249.00



*"Like Having a Judge
in your Pocket"*

\$88

FREE TRIAL PERIOD

PRO-TECH-TRONICS

6870 Shingle Creek Pkwy. #103, Mpls., MN 55430

QUICK DELIVERY 



CALL TODAY

SCHOOL P.O. ACCEPTED

1-800-345-5080

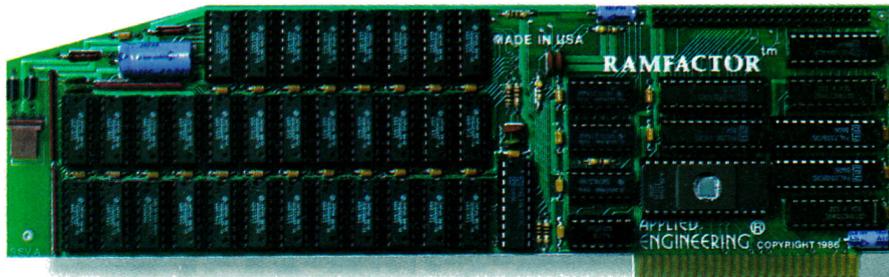
IN MINNESOTA (612) 560-6603

RamFactor™

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

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

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



Very Compatible

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

AppleWorks Power

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

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

True 65C816 16 Bit Power

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

Powerful Program Switcher

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

Quality and Support of the Industry Leader

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

Features:

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

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

Order RamFactor today . . . with 15 day money back guarantee and our "no hassle" five year warranty. *Call* 9 a.m. to 11 p.m., 7 days, *or send* check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5½% sales tax. Add \$10.00 if outside U.S.A.

AE Applied Engineering™
The Apple enhancement experts.

(214) 241-6060

P.O. Box 798, Carrollton, TX 75006

Product Information

AppleWorks 1.3

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
\$250

Reader Service Number 305

PFS:Plan

Software Publishing
1901 Landings Drive
Mountain View, CA 94043
(415) 962-8910
\$125

Reader Service Number 309

Magicalc 2.0

Artsci
5547 Satsuma Avenue
North Hollywood, CA 91601
(818) 985-2922
\$99.95

Reader Service Number 306

SuperCalc3a 1.1

Sorcim/IUS Micro Software
2195 Fortune Drive
San Jose, CA 95131
(408) 942-1727
\$195

Reader Service Number 310

Magic Office System

Artsci
\$250

Reader Service Number 307

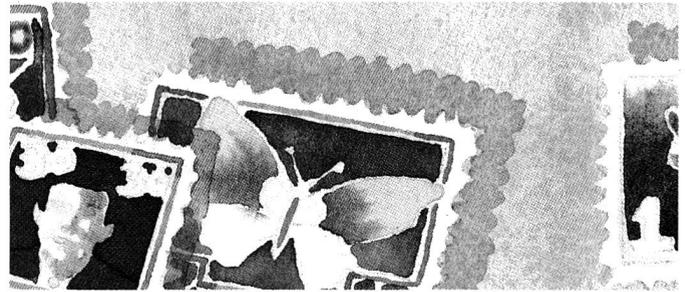
VisiCalc Advanced

Lotus Development Corp.
55 Cambridge Parkway
Cambridge, MA 02142
(617) 253-9150
No longer available;
support available for regis-
tered owners

Mouse Calc 1.2

International Solutions
910 West Maude Avenue
Sunnyvale, CA 94086
(408) 773-0443
\$149.95

Reader Service Number 308



pabilities are unparalleled in the Apple II spreadsheet world. A program with so many possibilities takes more time to learn, though. Still, you can prepare and chart your first simple spreadsheet in less than a half hour. This totally professional spreadsheet/graphics program may be overkill for the ordinary user, but technical professionals—whether in business or science—will fully appreciate it.

PFS:Plan brings to the Apple II world the first spreadsheet program that speaks the same language we do. It has some convenient features, such as automated labeling (type "January," and the program will enter "February," "March," and so on). Unfortunately, the number of built-in functions is limited almost as much as total spreadsheet size is. This light-duty program would be most popular with users of other products in the PFS series. ■

Write to Cynthia Field at 10 Border Avenue, Wakefield, RI 02879.

Quicken, from Intuit, is an electronic checkbook and money-management program. Quicken data files can be read into AppleWorks spreadsheets for budgeting or accounting purposes.

FontWorks, from The Software Connection, lets you print AppleWorks documents, data-base reports, and spreadsheets using fancy timesteps—even sideways.

Pinpoint, from Pinpoint Publishing, offers a set of accessories to make computing with AppleWorks more convenient.

Strengths and Weaknesses

Magicalc, perhaps the most traditional spreadsheet program, offers VisiCalc's array of features, but organizes them into subsystems. Still, the program requires you to memorize some commands and is based on the "old" laundry-list interface. This program may be appropriate if you have a basic hardware setup and prefer the DOS 3.3 operating system.

The AppleWorks spreadsheet is part of what has proven to be the primary ProDOS-based integrated system for the Apple II. The AppleWorks pop-up index-card menu interface has set a new standard for mouseless software—a standard many publishers are emulating. There are mnemonic commands to memorize and a relatively small number of built-in functions. Overall, this well-rounded product is recommended for personal, professional, and small-business use.

Mouse Calc is the only mouse-driven spreadsheet program available. Its Mac-like appearance makes it easy to learn and use. Its color-graphics capabilities are a practical and pleasing bonus. Some users have commented that Mouse Calc is painfully slower than other spreadsheets when you insert, move, or recalculate. Nevertheless, this congenial program should be a hit with novice spreadsheet users who enjoy the Mac interface.

SuperCalc3a is the most full-featured spreadsheet program I've used. Its interface is standard. Its graphics can-

\$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

Apple II Products in Education

The Administrators

Minnesota Educational
Computing Corporation
(M.E.C.C.)
3490 Lexington Avenue
North
St. Paul, MN 55126
(612) 481-3500
\$79-\$2495

Reader Service Number 311

Apple Logo, \$100
Apple Modem, \$399
AppleWorks, \$250
**Mouse Paint (packaged
with mouse)**,
\$149 (I/e), \$99 (I/c)

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010

Reader Service Number 312

Bank Street Writer,
\$69.95

Print Shop, \$49.95
Broderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

Reader Service Number 313

CAD

T & W Systems
7372 Prince Drive
Suite 106
Huntington Beach, CA
92647
(714) 847-9960
\$24.95

Reader Service Number 314

Corvus local-area network products

Corvus Systems
2100 Corvus Drive
San Jose, CA 95124
(408) 559-7000

Reader Service Number 315

Crossword Magic

Mindscape
3444 Dundee Road
Northbrook, IL 60062
(312) 480-7667
\$49.95 each

Reader Service Number 316

Delta Drawing, \$39.95
Story Machine, \$24.95

Spinnaker Software
One Kendall Square
Cambridge, MA 01239
(617) 494-1200

Reader Service Number 317

Dow Jones News/ Retrieval Service

P.O. Box 300
Princeton, NJ 08450
(609) 452-2000
\$75 one-time fee,
\$3 per month

Reader Service Number 318

The Educational Software Selector

EPIE Institute
and Teachers College Press
Box 839
Westmill, NY 11976
(516) 283-4922
\$65.45

Reader Service Number 319

Genetics: Strategic Simulations in Mendelian Genetics

COMPRESS Software
Box 102
Atwell Hill Road
Wentworth, NH 03282
(603) 764-5831
\$200

Reader Service Number 320

HARTS III Administrative System

School and Home
CourseWare
P.O. Box 3032
Pinedale, CA 93650
(209) 431-8300
\$900-\$3995

Reader Service Number 321

KoalaPad

Koala Technologies
2065 Junction Avenue
San Jose, CA 95131
(408) 946-4483
\$125

Reader Service Number 325

Library Circulation Systems I-III

Winnebago Software
121 South Marshall
Caledonia, MN 55921
(800) 533-5430
\$395-\$995

Reader Service Number 326

Magic Slate

Sunburst Communications
39 Washington Avenue
Box 40
Pleasantville, NY 10570
(800) 431-1934
\$99.95

Reader Service Number 327

Newsroom

Springboard Software
7800 Creekridge Circle
Minneapolis, MN 55433
(612) 944-3912
\$49.95

Reader Service Number 328

PFS:Write, File, Report, Graph

Software Publishing
Corporation
1901 Landings Drive
Mountain View, CA 94043
(415) 962-8910
\$250 (package of four)

Reader Service Number 329

PowerPad

Chalk Board
3772 Pleasantdale Road
Atlanta, GA 30340
Write for price information

Reader Service Number 330

Roland CMU-800 Music Synthesizer

Roland Corp. U.S.
7200 Dominion Circle
Los Angeles, CA 90040
(213) 685-5141
\$495 (no longer available)

Reader Service Number 331

Sensible Speller

Sensible Software
24011 Seneca
Oak Park, MI 48237
(313) 258-5566
\$125

Reader Service Number 332

Software Reports

Trade Service Publications
10996 Torreyana Road
San Diego, CA 92121
(619) 457-5920
\$180 (one year)

Reader Service Number 333

The Source

Source Telecomputing
1616 Anderson Road
McLean, VA 22102
(703) 734-7500
\$44.95 one-time fee,
\$0.46 per minute

Reader Service Number 334

SprintDisk

AST-Research
2121 Alton Avenue
Irvine, CA 92714
(714) 476-3866
\$295 (256K)-\$745 (1M)

Reader Service Number 335

Touch 'n' Speak

Boston Children's Hospital
Communication
Enhancement Clinic
380 Longwood Avenue
Boston, MA 02115
(617) 735-6460
\$75

Reader Service Number 336

Typing Tutor II

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

Reader Service Number 337

Votrax Personal Speech Synthesizer

Votrax
1358 Rankin
Troy, MI 48083
(313) 583-1877
(800) 521-1350
\$395

Reader Service Number 338

The Write Choice

Roger Wagner Publishing
P.O. Box 582
Santee, CA 92071
(619) 562-3670
\$44.95

Reader Service Number 339

DESIGN A STUDENT DATA BASE

AppleWorks' versatility lets you design a student data base to meet your school's specific recordkeeping and reporting needs.

by Conlyn L. Hart

At the General Henry H. Arnold Elementary School, located on the Dover Air Force Base in Dover, Delaware, the AppleWorks student data base is the primary administrative file. It serves as a control file for student enrollment and as a source of information relating to all students in the school. The challenge in setting up this system wasn't simply to create a student data base, but to use it in creative, innovative ways to make the elementary-school office function more efficiently and effectively.

The Arnold School office has an enhanced Apple //e with two disk drives. An Applied Engineering 512K RamWorks II card replaces the original Apple 80-Column Card. The Apple //e is interfaced through a selector switch with an ImageWriter printer and a Canon AP400 electronic typewriter. A True Data Micro Mark I card reader is used for scoring math tests and maintaining cumulative math records for students in grades one through three. Since August 1985, the school has made extensive use of the AppleWorks program in handling student data and managing office functions.

While AppleWorks with its three-part structure is applicable to various office functions, it's the data-base-management portion of the program that lends itself to maintaining student information for a total school population. AppleWorks is somewhat limited, though, in the number of categories permitted. The AppleWorks data base holds up to 30 categories per record, an adequate number for most student data-base applications. The number of records per file can be increased far beyond the requirements of any elementary school, so for most elementary-school office applications, AppleWorks' limitations are negligible.

Setting Up a Data File

The availability of sufficient RAM to accommodate a student data base and related files on the AppleWorks desktop is a problem for most schools. The ability to have multiple files on the desktop at the same time depends on the size and number of files and the available RAM. A typical student data base for a 500-student school would use about 100K of RAM. Related files tend to be much smaller, but grow larger as information on students who transfer or withdraw from school is moved from the data base to a related file. While schools vary in their RAM

requirements, computers with 64K or 128K simply don't have sufficient memory for serious office applications; a number of memory-expansion cards are available to serious users, though.

The student data base at the Arnold School consists of one record per child, with a maximum of 30 categories of information the office can maintain for a total school population. While the categories in each record remain the same, you can change the information within categories. (For instance, room numbers may be the same for some children, while student names or identification numbers would be different, of course.)

In setting up the data base, consider the type of information your school needs to maintain and the type of information that will let it operate more effectively and efficiently. Also consider the way your school will use the data and those who will need to access the information. It's helpful to identify categories for the student data base that are component parts of various reports the office must complete.

Your student data base is an evolutionary process that will probably improve with age and experience; but the better data bases are the ones most carefully thought out and logically developed. Even with planning, though, there's no way to anticipate future data requirements. If you need to make changes, there's some security in knowing that AppleWorks lets you easily edit your file structures.

Once you identify categories of information for your data base, it's best to use the shortest abbreviations possible to describe each category, as they'll use less of the Apple's available memory.

Listing the Categories

The following is a list of category names and descriptions for the Arnold School student data base:

Category 1. ID (Identification Number): An identification number the school assigns and/or CAT/CTBS (California Achievement Test/Comprehensive Tests of Basic Skills) identification numbers assigned by the State Testing Center. Numbers supplied by the State Testing Center may be assigned to children who haven't previously been tested in

Delaware. These same identification numbers are used for recordkeeping purposes in the Addison-Wesley Math Management program.

Category 2. (S)LN: Enter the student's last name.

Category 3. (S)FN: Enter the student's first name.

Category 4. BIRTHDATE: Enter the child's birthdate in this form: 3/5/81. Because of the letters DATE in the category name, AppleWorks automatically converts the date to March 5, 1981, and the computer will arrange and sort records on the basis of information contained in that category.

Category 5. MALE: Place a 1 in this category if the child is male. Leave it blank if the child is female. This is a calculated category that instructs the computer to count the number of males in a given formatted report and print that number at the bottom of the report.

Category 6. FEMALE: Place a 1 in this category if the child is female. Leave it blank if the student is male. This calculated category functions in the same manner as Category 5.

Category 7. GR (GRADE): Enter the child's current grade level. Use k for kindergarten, 1 for first grade, 2 for second grade, and so on.

Category 8. RM# (Room Number): Enter the child's room number.

Category 9. TCHR (Teacher): Enter Miss, Mrs., or Mr. and the last name of the child's teacher.

Category 10. (P)LN (Parents' Last Name): Enter the last name of the child's parent(s).

Category 11. (P)FN (Parents' First Names): Enter father's first name, comma, space, and the mother's first name.

Category 12. ST ADD (Street Address): Enter the child's full street address.

Category 13. H/PH (Home Phone): Enter the child's home telephone number (seven digits).

Category 14. D/PH (Duty Phone): Enter one parent's seven-digit work number.

Category 15. SP (Speech): Enter SPEECH if the child is enrolled in a speech program.

Category 16. BS MATH (Basic Skills Math): Enter BS MATH if the child is enrolled in a Basic Skills Math program.

Category 17. BS READ (Basic Skills Reading): Enter BS READ if the child is enrolled in Basic Skills Reading program.

Category 18. G/T (Gifted/Talented): Enter G/T if the child is enrolled in gifted/talented program.

Category 19. SAI (School Ability Index): Enter SAI for students taking the Otis-Lennon School Ability Test (third grade only).

Category 20. BUS (Bus Number): Enter the child's bus number.

Category 21. RACE: Enter W for White, B for Black, H for Hispanic, AI for American Indian, or O for Oriental.

Category 22. CON (Confidential): Enter only confidential information.

Category 23. # (Counter): A standard value of 1 appears in all records. This calculated category instructs the computer to count the number of entries in a given formatted report and lets AppleWorks print the total number of students per class on school rosters.

Category 24. CITY/ST/ZIP: Enter the child's city, state, and

zip code (Dover, DE, 19901). Use a standard value when all entries in a category are the same.

Category 25. ECO (Entry Code): Enter the child's entry code (E1, E2, and so on).

Category 26. EDATE (Entry Date): Enter the date of the child's first day of school. The letters DATE in the category name let AppleWorks sort or arrange records on this category. AppleWorks also provides for arrangement of records in chronological or reverse-chronological order on the basis of information in this category.

Category 27. T/W CO/TO (Transfer/Withdrawal Code and Destination of Child): Enter the child's transfer/withdrawal code and the state in which he/she will attend school next.

Category 28. T/W DATE (TRANSFER/WITHDRAWAL DATE): Enter the date of child's transfer or withdrawal. The letters DATE let AppleWorks sort or arrange records on the basis of information in this category.

Category 29. FLEXCat 1 (Flexible Category 1): Enter only temporary information in this category.

Category 30. FLEXCat 2 (Flexible Category 2): Enter only temporary information in this category. FlexCat 1 and 2 are intended to accommodate short-range information. For example, when you finish sectioning for new year, place room assignments into one of the flexible categories. AppleWorks makes rosters for next year's classes immediately available.

Versatile Report Generation

Some of the categories listed above remain the same for all schools, but you'll have to change some categories to reflect local needs. Make one of the flexible categories SPED for special education, for instance. Entries in this

Figure 1. Sample roster produced with AppleWorks student data base.

FIGURE 1

File: Student Data Page 1
 Report: ROSTER 3/14/86
 Selection: TCHR equals MRS. HANDLER
 and RM # equals 107
 and GR equals 2

I/D	(S) LN	(S) FN	#	BIRTHDATE	MAL	FEM	BUS	ENT	ENTRY	DAT	
115317	Ardmore	Adam	1	Aug 16 77	1			E1	Sep 3	85	
662231	Book	Mark	1	Oct 4 78	1		E	E1	Sep 9	85	
223344	Cole	Brandon	1	Oct 17 77	1			E1	Sep 3	85	
712468	Dalton	Margo	1	Jul 19 77		1		E2	Sep 23	85	
179261	Donaldson	Donna	1	Aug 17 78		1	A	E1	Sep 3	85	
290145	Evans	Earl	1	Nov 21 77	1			E	E1	Sep 3	85
178355	Farmer	Frank	1	Jul 6 78	1			E2	Nov 11	85	
864217	Jenkins	Jacob	1	Sep 3 78	1			E	E1	Sep 3	85
164744	Lester	Lori	1	Feb 22 77		1		E2	Nov 4	85	
098739	Logan	Jodi	1	Jun 23 78		1	A	E1	Sep 3	85	
341274	Marker	Mallory	1	Apr 17 78		1		E2	Oct 25	85	
712426	Martin	Marty	1	Jan 21 78		1		E1	Sep 3	85	
517560	Mathers	Marvin	1	May 21 78	1			E	E2	Feb 3	86
763234	Morgan	Megan	1	Mar 22 78		1		E1	Sep 3	85	
517533	Numbers	Page	1	Jun 3 78		1	B	E1	Sep 3	85	
323283	Phillips	Phillip	1	Mar 18 78	1			E1	Sep 3	85	
467070	Richter	Randy	1	Jan 26 77	1		A	E1	Sep 3	85	
887018	Sampler	Susan	1	Aug 20 78		1		E1	Sep 3	85	
437261	Sharp	Karen	1	Mar 6 78		1		E1	Sep 9	85	
623234	Smart	Sally	1	Dec 1 77		1		E1	Sep 3	85	
188735	Smithers	Maxwell	1	Mar 1 78	1		B	E2	Nov 12	85	
			21*			10*	11*				

Figure 2. Categories included in various Arnold School data-base reports.

FIGURE 2 CATEGORIES OF INFORMATION INCLUDED IN FORMATTED REPORTS							
CATEGORIES	FORMATTED REPORTS						
	DEAP INFO	BASIC SKILLS	ROTARY FILE CARDS	MAILING LABELS	SPECIAL PROGRAMS	PARENT NA/ADD/TEL	ROSTER
1. ID	*	*	*		*		*
2. (S) LN	*	*	*		*		*
3. (S) FN	*	*	*		*		*
4. BIRTHDATE	*	*	*		*		*
5. MALE	*						*
6. FEMALE	*						*
7. GRADE	*	*	*		*		*
8. RM #		*	*		*		*
9. TCHR							*
10. (P) LN			*	*		*	*
11. (P) FN			*	*		*	*
12. ST ADD			*	*		*	*
13. H/PH			*			*	*
14. D/PH			*			*	*
15. SPEECH					*		*
16. BS MATH		*			*		*
17. BS READ		*			*		*
18. G/T		*			*		*
19. IQ							*
20. BUS			*				*
21. RACE							*
22. CON							*
23. COUNTER		*			*		*
24. CITY/ST/ZIP				*			*
25. ECO							*
26. EDATE							*
27. T/W CO/TO							*
28. T/W DATE							*
29. FLEXICAT 1							*
30. FLEXICAT 2							*

category could include the child's special-education classification, which would let the school not only establish special-education rosters, but also track special-education students, if you've included the appropriate categorical information in the basic file structure.

Once you've entered information into a student's record, it's ready to be accessed for a variety of purposes. Reports can be as simple or as complex in scope as the situation demands. For example, you can develop a simplified roster on the basis of only two categories per record. The computer can select the names of all students assigned to a particular teacher or room. So the initial entries in a student data base might include, for example, only the teacher or the room number and the child's name. You can add other entries as time permits.

You can include different categories of information in various formatted reports, to customize your reports for specific purposes. AppleWorks can retrieve any combination of data. Rosters, for example, are nothing more than retrieving and printing information contained in ten categories (see Figure 1 for a sample). This information is formatted in one of eight report designs called "roster." Three of the categories (# counter, male, and female) are calculated categories and provide total number of boys per class, total number of girls per class, and total number of students per class. These numbers are printed at the bottom of each roster.

Figure 2 lists the categories in each formatted report in the Arnold School's student data base. An asterisk indicates the categories included in each report.

It's important to select categories for your student data base that are relevant to your school's particular requirements, and AppleWorks lets you choose any combination that suits your individual needs. ■

Write to Conlyn Hart at General Henry H. Arnold Elementary School, Center Road, Dover, DE 19901.

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 **ItWorks** 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 with 512k, just \$289!** 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.



Precision Data Products
Complete Line of Quality Supplies for Your Computer

ORDER TODAY
CALL TOLL FREE
800-258-0028



BASF FlexyDisks
LIFETIME WARRANTY
CERTIFIED 100% ERROR FREE

HOT SUMMER SAVERS
5 1/4" DOUBLE SIDE DOUBLE DENSITY DISKETTES
SPECIALLY PRICED AT

38¢
Each
QTY: 100

36¢
Each
QTY: 500

33¢
Each
QTY: 1000

BLANK DISKETTES WITH W/P TABS — STURDY 10 MIL JACKET
25 PER FACTORY-SEALED POLYPACKS

IF YOU NEED THE "EXTRA'S"

Color-Coded User Labels
Self adhesive, removable, color coded, 100/pkg.
1-4 Pkg. **\$2.95**
5 + Pkg. **\$2.45**

Tyvec Envelopes
Dust-free, static-free, 100/pkg.
1-4 Pkg. **\$5.95**
5 + Pkg. **\$4.95**

DATA CASE
For 5 1/4" Diskettes
Holds 60!



Delivered Price **\$3.99**

SPECIAL OFFER
WITH ORDER OF
100 DISKETTES

THE 100 FILE
5 1/4" Floppy Diskette Cases



Protects data from dust and static electricity. Case locks securely and has devices for fingertip selection.
Holds 100 5 1/4" diskettes.
Delivered Price ... **\$12.95**

Minimum order: \$25.00. Disks sold in increments of 100 only. Shipping and Handling: \$4.00 per 100 or fewer diskettes. Continental U.S.A. APO/FPO, add \$8.00 per 100 diskettes. Reduced shipping charge for larger quantities. (Foreign orders, please call for shipping charge). C.O.D. add \$4.00. Cash or certified check. MI residents add 4% sales tax. Prices subject to change without notice. HOURS: 8:30 AM - 6:00 PM Eastern Time.

SATISFACTION GUARANTEED

Precision Data Products
P.O. Box 8367, Grand Rapids, MI 49518
(616) 452-3457 • Michigan 1-800-632-2468
Outside Michigan 1-800-258-0028

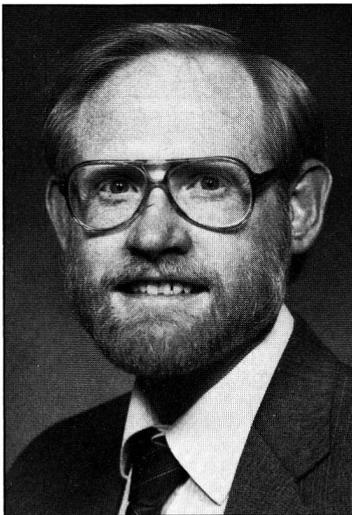



C.O.D.

APPLESOFT ADVISER

BASIC Printer Control

“To use graphics, you have to know how to find the appropriate codes and send them to your printer.”



by Dan Bishop

Most computer owners are aware of the variety of print modes and styles of which their printers are capable. After all, the advertisements and hardware reviews in *inCider* hardly miss a point when a new printer reaches the market. And it makes good sense to know what you're buying. As long as your programs let you type special codes or characters to make the printer underline, double strike, or use a certain font, you don't give the printer a second thought.

But what do you do when your application program doesn't allow for printer-control commands? The program always prints in standard font (probably pica, ten characters per inch). But what if you want enlarged characters in bold print? Here's where an understanding of BASIC's printer-control commands can help.

Graphics is another area in which you can put BASIC's printer-control commands to work. Many printers have sophisticated graphics capabilities. But to use them outside a program designed specifically for graphics, you have to know how to find (and interpret) the appropriate codes, and how to send them to your printer.

My column this month should give you the information you need to use BASIC to control your printer. Since there are so many different kinds of printers, though, each with its own set of control commands, all I can present here are some generalizations with a few specific examples. You'll have to use your printer owner's manual and take it from there.

The Owner's Manual

Some of the worst writing I've ever tried to make sense of has come from printer owner's manuals. But within those pages lies the information you need if you want to use BASIC to control your printer.

Browse through your printer manual until you find a table or list of codes and the printer functions they control. You can refer to the contents of the table as escape (or ESC) codes, since most of them begin with an ESC character. There's no standard-

ization among printer manufacturers here, so you'll have to obtain your printer's specific codes to carry out the following exercises.

The **Table** lists some common control codes for four popular printers. A blank column is provided for you to fill in the corresponding codes from your own printer manual. The rest of this article uses the values from the Epson FX-80 column. Be sure to use your own printer's codes for each example instead.

The **Table** also lists the code sequences ESC G and ESC H to set and cancel bold-print mode. In BASIC, each sequence corresponds to two specific characters you must send to the printer with a PRINT command (assuming a PRINT CHR\$(4);"PR#1" command has already activated the printer). The ESC character's ASCII code is 27, so you transmit it to the printer from BASIC with PRINT CHR\$(27);. Using their own ASCII codes, CHR\$(71) or CHR\$(72), you can transmit the letters G and H, but they're also printable characters: You can send them simply as G and H. Since the character comes immediately after the ESC code, the printer interprets it as a control code rather than a letter to be printed. So the command for bold-print mode looks like this:

```
PRINT CHR$(27);"G";
```

and the command to deactivate bold-print mode is:

```
PRINT CHR$(27);"H";
```

The trailing semicolon in each command prevents the printer from adding an automatic line feed after executing the control command. Normally, you won't want line feeds to accompany control commands.

You can chain control-code sequences together in a single PRINT command. Suppose you want to use double-strike mode (ESC G) for elite type size (ESC M) in italics (ESC 4). The corresponding PRINT command is:

```
PRINT CHR$(27);"G";CHR$(27);"M";  
CHR$(27);"4";
```

Of course, controls that select print size and font characteristics aren't available with daisy-wheel printers. As the ComRiter column in the **Table**

Table. Partial list of printer-control commands for four popular printers.

Print Pitches	C. Itoh	Epson MX	Epson FX	ComRiter
Compressed print ON	ESC Q	15	15	
OFF		18	18	
Elite pitch (12 cpi)	ESC E		ESC M	
Pica pitch (10 cpi)	ESC N		ESC P	
Enlarged print ON		ESC W 1	ESC W 1	
OFF		ESC W 0	ESC W 0	
Proportional print ON	ESC P		ESC p	ESC P
OFF				ESC Q
Print Styles				
Bold print ON	ESC !	ESC G	ESC G	ESC F
OFF	ESC "	ESC H	ESC H	ESC &
Shadow print ON				ESC W
OFF				ESC &
Emphasized print ON		ESC E	ESC E	
OFF		ESC F	ESC F	
Underline ON	ESC X	ESC - 1	ESC - 1	ESC E
OFF	ESC Y	ESC - 0	ESC - 0	ESC R
Italics ON		ESC 4	ESC 4	
OFF		ESC 5	ESC 5	
Superscript ON		ESC S 0	ESC S 0	ESC D
OFF		ESC T	ESC T	
Subscript ON		ESC S 1	ESC S 1	ESC U
OFF		ESC T	ESC T	
Line-Feed Control				
1/6 lpi*	ESC A	ESC 2	ESC 2	
1/8 lpi	ESC B	ESC 0	ESC 0	
n/72 lpi		ESC A n	ESC A n	
n/216 lpi		ESC 3 n	ESC 3 n	
n/244 lpi	ESC T n			
Unidirectional print	ESC >	ESC U 1	ESC U 1	ESC 5
Bidirectional print	ESC <	ESC U 0	ESC U 0	ESC 1

*Lines per inch

shows, though, even daisy-wheel printers offer several options for the knowledgeable user. You can form subscripts and superscripts by using the command that rolls the platen forward (ESC U) or backward (ESC D) half a line feed, then using the opposite command to return the paper to its original position.

Occasionally, you may run across control commands requiring three or four characters in succession. For example, the Epson FX-80 sequence to activate superscript mode is ESC S 0, while ESC S 1 activates subscript mode. Handle these codes as follows:
 PRINT CHR\$(27);"S";CHR\$(0);
 PRINT CHR\$(27);"S";CHR\$(1);

Finally, codes you must follow with a value require that value to appear as the argument of the CHR\$ function, as well. For instance, the Epson FX-80 code for setting form length to a given number of inches (n) is ESC C 0 n. The command that sets the form length to seven inches is:
 PRINT CHR\$(27);"C";CHR\$(0);CHR\$(7);
 inCider

Sending the Codes

Several techniques are available for transmitting control codes to the printer. You should select the method that's appropriate to a given situation.

If you often use a particular sequence of commands before writing notes or letters with your word processor, you could write a three- or four-line BASIC program to pass the codes to the printer. Simply run this BASIC program before calling up your word processor. For example, the following program switches an Epson FX-80 printer to bold-print, elite mode with a ten-inch form length:

```
10 PRINT CHR$(4);"PR#1"
20 PRINT CHR$(27);"G";CHR$(27);"M";
30 PRINT CHR$(27);"C";CHR$(0);CHR$(10)
40 PR#0:CALL 1002
```

Line 10 activates the printer, while line 40 (using a suggestion contributed to *inCider* by Mark J. Yannone, "Programming Proper Printouts," September 1983, p. 120) returns control to DOS. Type in this program and save it to disk as PRINT ELITE 10 BOLD. You

can devise other similar short programs to initialize the printer to any obtainable characteristics you'd like.

If you're writing a BASIC program, you can insert these lines into your program wherever you want to set or reset the printer modes. Typing CHR\$ codes is rather tedious, but you can use assignment statements (such as those shown below) near the beginning of the program to provide variables with the codes for each printer function you want to activate:

```
10 DS$ = CHR$(27)+"G"
11 EL$ = CHR$(27)+"M"
12 PC$ = CHR$(27)+"P"
```

When needed, you activate the printer and use the desired variables:

```
2020 PRINT DS$;EL$;"STUDENT ROSTER"
```

Cautionary Notes

Three points of caution are in order at this point. First, remember that your printer returns to its original default settings when you turn it off. This is often the quickest way to reset the printer. It can also be a problem if the power goes off in the middle of a print job.

Second, once you send a control code to the printer to put it into a specific print mode, the printer stays in that mode until you turn it off or send it another control code that countermands the first. So don't forget to include the reset commands in your program.

Finally, some application programs send a printer-initialization code before printing begins, which could wipe out any settings you've made previously. In this case, your only hope for changing the printing pattern the application program produces is to alter the program itself. That's easy if the program is written in BASIC or some other high-level language. If it's written in machine language, or if it's compiled or protected, though, you'll probably just have to live with it.

DIP Switches

I quickly learned about DIP switches when I bought my first printer. Following the directions in the photocopied sheets that came with it, I managed to hook up the printer without much trouble. But two things happened when I tested it. First, when I used a simple BASIC loop to print ten lines of text, all ten lines appeared on the same line, overstriking one another. Second, although my BASIC program clearly called for printing English text, what appeared

a line-feed command, and whenever you press the line-feed button on the printer, the printer adds that line to its line counter. When you reach over and scroll the paper forward or backward, though, the printer can't detect this intervention, so it can't add or subtract lines from its line counter.

Now suppose you've just finished a BASIC program-printing sequence that used only half a page (33 lines) and didn't finish the process with a form-feed. The line counter in the printer's memory is at 33. You now go to your word processor, type in a document, and try to print it. Since you notice the paper is at the halfway point, you scroll the platen to get the printer to start at the perforation. Unfortunately, the printer prints only half a page (while the line counter increments from 33 to 66), then, right in the middle of your document, it executes a form-feed, resulting in several blank lines.

The easiest way to avoid this is to turn the printer *off* before scrolling the platen. Then scroll the paper to the perforation, turn the printer *on*, and

“Take some time to experiment with the printer-control commands listed in your manual.”

the printer correctly assumes it's at TOF. Incidentally, most printer manufacturers also recommend you scroll the platen manually only when the printer is off, to avoid undue wear on the printer's stepper motor.

Conclusion

Take some time to experiment with the printer-control commands listed in your manual. Just write a three-line BASIC program that uses the command you want to play with, and type RUN. For example, to compare compressed, elite, pica, and proportional print sizes on the C. Itoh printer, try the following program:

```
10 PRINT CHR$(4);"PR#1"
20 PRINT CHR$(27);"Q";"THIS IS A TEST"
30 PR#0:CALL 1002
```

When it prints THIS IS A TEST in compressed mode, change the Q in line 20 to E and run the program again. Continue this with the other codes you want to test.

Unfortunately, there are so many possible combinations of computers, operating systems, and printers, that any problems you have with your particular system are best handled by someone who can actually tinker around with your equipment until the right configuration of switch settings and control protocols is worked out. So, although I encourage you to write to me (include a self-addressed, stamped envelope and, if applicable, program listings), please note there aren't many printer-configuration problems with which I can help you through the mails.

Good luck, and keep computing! ■

Write to Dan Bishop at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

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

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

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

OUR LOWEST PRICE

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

Terms: Add \$4-Ground or \$6-Air shipping & phone # to each U.S. card order (foreign orders/FPO/APO extra). Add 3% for MasterCard/Visa (include #/expir) & P.O.'s. For fast delivery send Cashier's/Certified check, Money Order. C.O.D. (add \$6) & personal checks accepted (allow 16 days). **Tex res add 6 1/8% tax.**

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

MCI Mail 2969684 • Telex 6502969684 (WUI)

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

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

Now

SOFTSTRIP® PROGRAMS ARE EVERYWHERE.

PROGRAMS! PROGRAMS! PROGRAMS!

Hundreds of SOFTSTRIP data strip programs are available NOW.

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

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

WHERE ARE THEY? WHAT ARE THEY?

You'll find SOFTSTRIP data strip programs...

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

MACazine, *Mac User*, *MacAPPLE*, *Nibble Mac* and the *Macintosh Buyer's Guide*.

All are now printing data strips with many of their articles to give you complete software programs and demos.

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

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

BUT YOU NEED THE SOFTSTRIP SYSTEM READER TO USE THEM

CAUZIN

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





APPLE

HERE, THERE &

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

APPLE *Plenty*

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

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

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

PLUS — PREVIEWS!

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

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

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

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

In addition to all this you can make

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

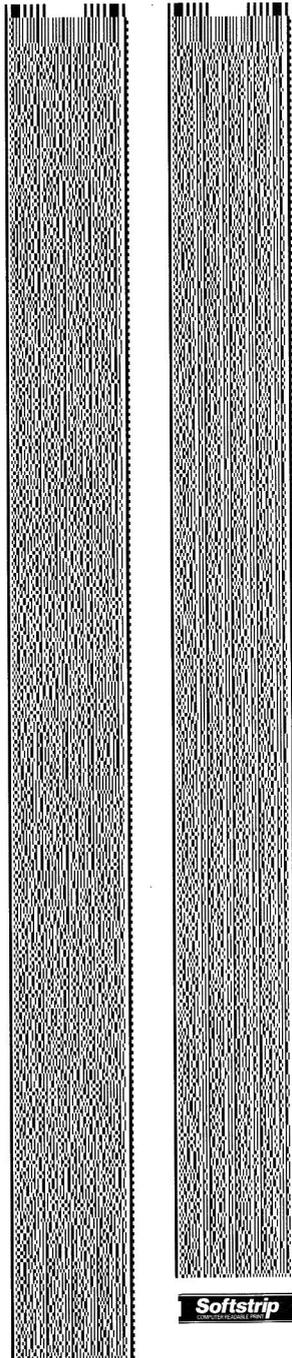
Whether your computing is all business or just for fun...or both...the SOFTSTRIP SYSTEM will add a broad new dimension to your computer system.

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

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

© 1985 by Apple Puget Sound Program Library Exchange
Used with permission of Call A.P.P.L.E.

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



Softstrip

1 |

2 |

Apple is a registered trademark of Apple Computer.
Nibble is a registered trademark of MicroSPARC Inc.
InCider is a registered trademark of CW Communications, Peterborough.
Circle 233 on Reader Service Card.

POWER UP YOUR BUSINESS . . .

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:

- Prepare a Price Quote
- Personalized Form Letter
- Build a Mailing List
- Create a Customer Database
- Figure a Loan Amortization
- Publish a Company Newsletter
- Analyze your Personal or Business Balance Sheet
- Plan a Home or Business Budget
- 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)

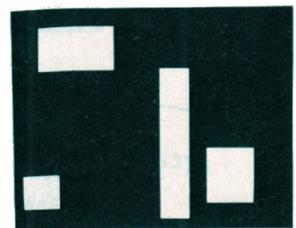
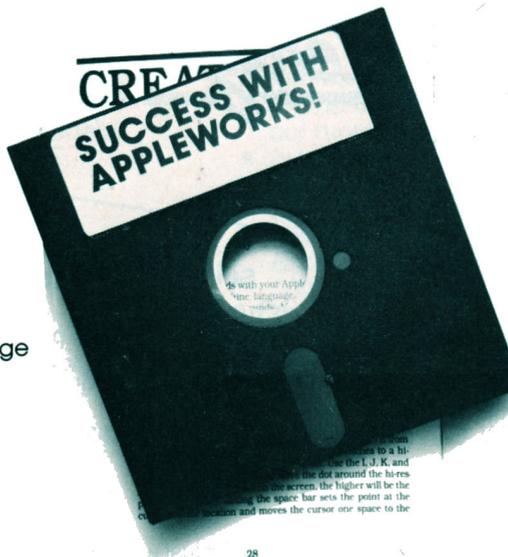


Photo 2. Example using the FILL routine.

SAVE it with different parameters. FILL should be saved so that it doesn't cross a page boundary. Once you relocate FILL, be sure to change the CALL statement to reflect its new location. You will also have to relocate HIMEM to protect the routine in its new location.

When using FILL, be certain that the point you HPL0T before calling the routine is inside the object you want to fill. If the point lies on the border or outside of an object, you'll get some strange results. ■

YES, send me the added power of hotCider's SUCCESS WITH APPLEWORKS. I get 10 ready-to-run Templates on a disk, plus complete documentation booklet for just \$29.97

Foreign Airmail, add US \$1.50 per item.

() Payment enclosed () Visa () Amex () MC

Card # _____ Exp. Date _____

Signature _____

(print) Name _____

Address _____

City _____ State _____ Zip _____

Mail to: **hotCider**
80 Pine St.
Peterborough NH 03458

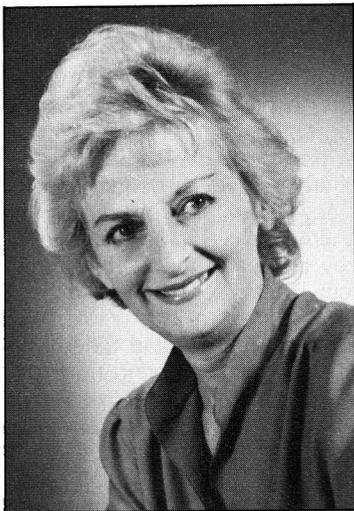
9-86

*AppleWorks and Apple are registered trademarks of Apple Computer, Inc.

APPLEWORKS IN ACTION

Working with a Customer Data Base—Part 2

“These reports can highlight salespeople who are real producers and those who are marginal.”



by Ruth K. Witkin

With last month's AppleWorks in Action (August 1986, p. 71), you created a customer data base and printed a master account list. In this session, you use that data base to produce two reports that contain calculations. The first, shown in **Figure 1**, adds the sales for two years and, in a calculated category, prints the difference by customer. The other, shown in **Figure 2**, groups sales by salesperson and produces the totals. These types of reports can highlight salespeople who are real producers and those who are marginal. Next month, I'll explain how to convert your sales-to-date report into a spreadsheet with which AppleWorks performs calculations that aren't available in the data base.

Creating the Sales-to-Date Report

Start up the AppleWorks program and load your CUSTOMERS file. When the Review/Add/Change screen appears, you should see nine records in the multiple-record layout.

First create a format for the sales-to-date report shown in **Figure 1**. Press OA-P to start the Print command. To select *Create a new "tables" format* and name the new report, type **2**, press the return key, type **SALES-TO-DATE**, and press the return key again.

Only the account number, company name, state, business, last year-to-date, year-to-date, and contact categories are needed in this report. Follow these steps to delete the other categories, starting with STREET and CITY: Press the right arrow key twice and press OA-D twice. For the ZIP and PHONE categories, press the right arrow key and press OA-D twice. Press the right arrow key to move the cursor to the TITLE category and press OA-D again. Press the right arrow key to move the cursor to the B# category and press OA-D. Now press the right arrow key twice to move the cursor to the first SPARE category and delete both spares by pressing OA-D twice. The cursor is now on *Len91*, the print width of the remaining categories.

The next step is to switch the contact names from the middle of this re-

port to a less prominent place. Press the left arrow key four times to move the cursor to the CONTACT category. Now hop the CONTACT category past the other categories and into the rightmost column by pressing OA-> three times.

The AppleWorks standard of ten characters to the inch prints an estimated 80 characters per line. You'll have to pare some categories and widen others, and later we'll insert a calculated category. Still, 80 characters seems to be a reasonable goal. The cursor is on the CONTACT column. Increase its width one character by pressing OA-right arrow. Use the left arrow key to move the cursor to the other columns and change their widths as follows:

YTD\$: press OA-left arrow (4 times)
LYTD\$: press OA-left arrow (4 times)
BUSINESS: press OA-left arrow (3 times)
STATE: press OA-left arrow (8 times)
COMPANY: press OA-right arrow (7 times)
ACC#: press OA-left arrow (8 times)

The print-width indicator should now read *Len72*.

The account numbers in column A have an unsightly jog at the right edge. To improve their appearance, right-justify them: Press OA-J, press Return to confirm zero decimal places, type **2** to specify the number of blank spaces between categories, and press the return key again. The trio of nines that appear confirms the justification. They won't print on the report.

Adding the Numbers in a Category

This is a financial report, so you need totals for last year's and this year's sales. Press the right arrow key four times to move the cursor to the LYTD\$ category. Press OA-T to start the Totals command. Confirm zero decimal places and three blank spaces after the category by pressing the return key twice. The nines and the lines indicate that these entries are totalled. Now do the same for the YTD\$ category: Press the right arrow key, press OA-T, and press the return key twice.

Inserting a Calculated Category

Subtracting LYTD\$ from YTD\$ for each customer makes it easy to compare one year with the other. This is

Figure 1. Sales-to-date report created with the AppleWorks customer data base.

File: CUSTOMERS								Page 1
Report: SALES-TO-DATE								9-23-86
ACC	COMPANY	STAT	BUSINESS	LYTD\$	YTD\$	DIFF\$	CONTACT	
179	Ace Supermarkets	CT	Food	33722	35999	2277	Gil Freeman	
85	Allied Grocers	NY	Food	32100	32645	545	Evelyn Aven	
153	American Stores	NY	Variety	0	9321	9321	Ollie O'Day	
142	Arbor Sales Co.	NJ	Discount	28560	32742	4182	Ben W. Smith	
43	Crown Supermarts	MA	Food	19517	18203	-1314	Homer Capella	
56	Dollar Shops Inc.	FL	Discount	30450	32345	1895	Don Johnson	
87	Family Centers	NJ	Variety	12564	11070	-1494	Fay L. Byrd	
22	Key Markets	MD	Food	10987	13450	2463	Ken Wolin	
63	Off The Shelf, Inc.	CT	Discount	25000	28567	3567	Connie Dowd	
				192900*	214342*	21442*		

Figure 2. AppleWorks sales-to-date report containing group totals by salesperson.

File: CUSTOMERS								Page 1
Report: SALES BY REP								9-23-86
ACC	COMPANY	STAT	BUSINESS	LYTD\$	YTD\$	DIFF\$	REP	CONTACT
179	Ace Supermarkets	CT	Food	33722	35999	2277	CS	Gil Freeman
43	Crown Supermarts	MA	Food	19517	18203	-1314	CS	Homer Capella
63	Off The Shelf, Inc.	CT	Discount	25000	28567	3567	CS	Connie Dowd
				78239	82769	4530		
85	Allied Grocers	NY	Food	32100	32645	545	RJN	Evelyn Aven
153	American Stores	NY	Variety	0	9321	9321	RJN	Ollie O'Day
142	Arbor Sales Co.	NJ	Discount	28560	32742	4182	RJN	Ben W. Smith
87	Family Centers	NJ	Variety	12564	11070	-1494	RJN	Fay L. Byrd
				73224	85778	12554		
56	Dollar Shops Inc.	FL	Discount	30450	32345	1895	RKW	Don Johnson
22	Key Markets	MD	Food	10987	13450	2463	RKW	Ken Wolin
				41437	45795	4358		
				192900*	214342*	21442*		

Figure 3. Another AppleWorks report you can create with the customer data base, containing notes gathered by the sales representatives.

File: CUSTOMERS							Page 1
Report: NOTES							9-23-86
ACC#	COMPANY	B#	STAT	PHONE	CONTACT	REP	NOTES
179	Ace Supermarkets	1	CT	203-555-4560	Gil Freeman	CS	Freeman promoted to Pres eff 1/1/87
85	Allied Grocers	1	NY	518-555-0787	Evelyn Aven	RJN	Contact again Oct 14
153	American Stores	2	NY	516-555-8765	Ollie O'Day	RJN	O'Day's daughter running the show
142	Arbor Sales Co.	3	NJ	201-555-2300	Ben W. Smith	RJN	Moving to larger place in November
43	Crown Supermarts	1	MA	617-555-0220	Homer Capella	CS	Selling out to Superior Supermarkets
56	Dollar Shops Inc.	3	FL	305-555-0600	Don Johnson	RKW	Aggressive marketing - growing fast
87	Family Centers	2	NJ	609-555-9876	Fay L. Byrd	RJN	Place looks rundown
22	Key Markets	1	MD	301-555-2621	Ken Wolin	RKW	-
63	Off The Shelf, Inc.	3	CT	203-555-9008	Connie Dowd	CS	Opening 2 new stores - contact in Dec

done in a calculated category, which exists only in the report in which it's created. Insert this category to the left of column G and name it DIFF\$, meaning dollar difference. First, press the right arrow key to move the cursor to column G. Now press OA-K to start the Calculate command. Replace *Calculated* by pressing OA-Y, typing **DIFF\$**, and pressing Return.

AppleWorks now asks for the calculation rules. You want to subtract each entry in column E from the corresponding entry in column F, show the result without decimal places, and insert three spaces between columns G and H, so type **F-E** and press the return key three times. Have AppleWorks print the total dollar difference, too. Your cursor is in column G, so press OA-T and press the return key twice.

To see how these changes affect the print width, press the right arrow key twice. The indicator shows *Len85*, five characters more than the goal of 80 characters. Clearly, the DIFF\$ column can be reduced by five characters. A print width of 80 characters at ten characters per inch is not always a magic number. In this case, 81 characters works perfectly well. Decrease the DIFF\$ column by four characters by pressing the left arrow key twice and the OA-left arrow keys four times.

Printing Year-to-Date Sales

Press OA-O to bring up the Printer Options screen. Now follow these steps to increase the top margin and double-space the report: Type **TM** and press Return. Type **.5** and press Return. Type **DS** and press Return. Next, tell AppleWorks to print a zero when there's no entry in a category, such as last year's sales for American Stores, a new customer: Type **PD** and press Return. If a category isn't totalled, AppleWorks prints a dash instead. Press Escape to return to the Report Format screen.

This report format is complete, so turn on your printer and press OA-P. Press Return to confirm the printer (or type a printer number, then Return), type today's date, and press Return twice. When the printer stops, your report should look like the one in **Figure 1**. This time last year, the company had \$192,900 in sales; this year, \$214,342—an increase of \$21,442. Press OA-S to store the re-

Com are the leading Apple® //e memory cards for value and quality

Some questions you should ask before buying a large memory card

Is it designed for tomorrow as well as today?

Both cards can be expanded to 1 megabyte. But what about tomorrow when you need more memory?

Just add our original MultiRam™ //e card for another 3/4 megabytes or the MultiRam™ Plus card for up to 5 megabytes. They fit on the back of MultiRam RGB so they never conflict with any other boards.

RamWorks' chips are soldered to the board making repair more difficult and lengthy.

In the past Steve Wozniak endorsed RamWorks. However, we wonder if he or any other competent engineer approves of scraping identifying numbers off RamWorks' components. They say this is done to slow down the clone makers, but it also keeps honest users and dealers from making a quick repair.

MultiRam's current AppleWorks memory expansion software allow up to 23,000 records, almost 50% more than RamWorks. Most serious users will never exceed 6,000 records.

No matter how much memory you have, MultiRam's more efficient memory usage allows more records in the same amount of RAM.

So what does it all mean?

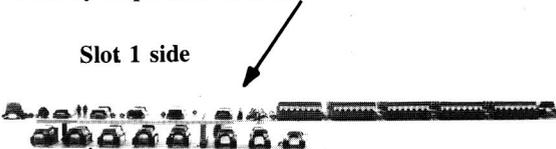
Thousands of satisfied customers know that Checkmate offers outstanding quality and value.

Memory Expansion Connector



MultiRam™ RGB

Memory Expansion Connector



VS

RamWorks II®

RamWorks II® memory expansion cards fit on the front where they may touch a printer board. What's more, the original 512K RamWorks I® card has become obsolete because it **can't** be combined with RamWorks II®.

Another mark of Checkmate's commitment to the future is the exclusive SRAM port. When the SRAM pack is attached to the port, programs and files can be stored in battery-backed RAM for up to 10 years. SRAM may become the next replacement for the hard disk drive allowing data exchange between the Apple and IBM.

Is it built for easy service?

MultiRam cards were the first memory cards to offer a 5 year warranty. Fully socketed and labeled components make for quick and easy repairs if they are needed.

Is RGB standard or a costly option?

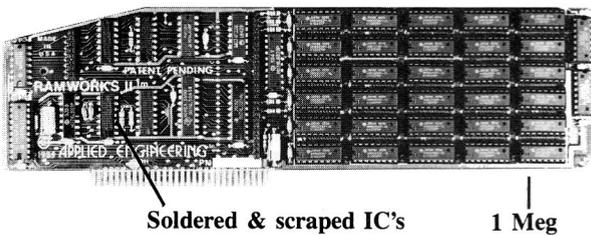
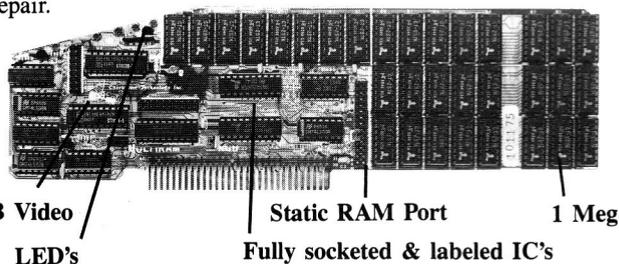
MultiRam RGB features built-in Apple RGB video output. The same capability for RamWorks costs \$129 for additional hardware that uses 25% more power than a comparable MultiRam board.

Is the board compatible with all popular software?

MultiRam RGB is compatible with ALL popular Apple software. Be sure that the board you chose is compatible.

How many database records do you need?

Using large data bases is the most popular AppleWorks feature for many large memory card owners.



Soldered & scraped IC's 1 Meg

If you still have any doubt about which product offers the best value and quality, visit your dealer and personally compare for yourself - or - call our toll-free number (800) 325-7347 to request a detailed, written comparison of MultiRam RGB and RamWorks II.

MultiRam™ RGB

From \$199.95 with 64K RGB cable extra



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

In Canada Contact EDP Marketing (403) 482-3014

port on disk, which brings up the Review/Add/Change screen.

Year-to-Date Sales by Salesperson

Imagine a report that shows both total sales and sales by salesperson. Only one hitch—there's no salesperson category. If you had to insert a category now, your custom screen layout would revert to standard, and the formats for your master account list and sales-to-date report would vanish. This is when a spare category really comes in handy. **Figure 2** shows the new report.

Press OA-N to bring up the Change Name/Category screen. Now press the return key to jump the cursor into the category names area. Press the down arrow key 13 times to move the cursor to the first SPARE. Press OA-E to switch to the overtype cursor. Now type **REP**, press OA-Y to delete the E, and press Return. Press the escape key.

The Review/Add/Change screen returns, but without the REP category, which is off screen. You could enter

"A simple two-step process produces the group totals."

each rep's initials in the single-record layout, but there's an easier way—just move the REP category on screen and make the entries there. First, press OA-L to start the Layout command. Now press the right arrow key 13 times, press OA-< seven times, press the escape key, then Return. And here's the REP category awaiting your entries.

Dittoing the Previous Entry

Murphy Vending's three reps are CS, RJN, and RKW. One of the advantages of making entries in the multiple-record layout is that you can "ditto" the previous entry. First, press

Tab six times to move the cursor to the REP column. Now enter the initials as follows:

Type **CS** (press return)
Type **RJN** (press return)
Press OA-'' (2 times)
Type **CS** (press return)
Type **RKW** (press return)
Type **RJN** (press return)
Type **RKW** (press return)
Type **CS** (press return)

Now reverse the process to return the REP category to its position off screen. Press OA-L to start the Layout command. Press the right arrow key six times to move the cursor to the REP category, and press OA-> seven times. Press the escape key, then the return key. The screen appears as it was before you switched categories.

Duplicating a Report Format

The group-sales and sales-to-date reports have a great deal in common—categories, column widths, top margin, and line spacing. The easy approach is to duplicate the report format. Press OA-P to bring up the Report Menu.

Now select *Duplicate an existing format* by typing **4** and pressing the return key. Select SALES-TO-DATE by typing **2** and pressing the return key again. You should still be working with the overtype cursor. Press the right arrow key five times, press the space bar, type **BY REP**, press OA-Y to delete E, and press the return key again.

Now you insert the REP category, which you deleted when it was a spare: Press the right arrow key seven times to move the cursor to column H. Press OA-I to bring up the Insert a Category screen, where the deleted categories are stored. Type **7** to select REP and press Return. Now press OA-left arrow seven times to reduce the column width.

Calculating Group Totals

A simple two-step process produces the group totals. The first step arranges the REP entries in alphabetical order, which groups the customers by salesperson: Leave the cursor in column H, press OA-A, and press Return.

The second step produces the total sales by salesperson and tells AppleWorks to print all the records on one page: Leave your cursor on column H, press OA-G, and press Return twice. The upper left of the screen shows that group totals will indeed be calculated in the REP column.



CHART LETTER DRAW SHOW

Construct bar, line, pie, scatter, XY, and area charts or any combination of the charts shown.

Add titles, labels and other lettering in 40 fonts and many sizes and colors.

Create custom drawings. Modify your drawings or drawings of others. Move things around and transfer, merge or reduce picture sections. "Paint" in over 100 colors.

Present a "slide show" of up to 32 pictures on monitor or TV screen. Subtitle pictures. Select "slides" manually or automatically in a pre-timed presentation.



It's almost like having your own graphic artist!

Try the new, improved and more complete **GRAPHICS DEPARTMENT™**

Available for Apple Computers for \$124.95.



Sensible Software®, Inc.

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

Apple is a trademark of Apple Computer, Inc.

Press the right arrow key twice so you can see the *Len* indicator. Inserting the REP category increased the print width to 87 characters, more than you can print at ten characters per inch. The simple solution is to print at 12 characters per inch. Press OA-O. Now type **CI** and press Return. Type **12** and press the return key again. To center the report on the page, increase the left and right margins: Type **LM** and press Return. Type **.4** and press Return again. Type **RM** and press Return. Type **.4** and press Return. Return to the Report Format screen by pressing the escape key.

Printing the Sales-by-Rep Report

Next, print this report so that you can see the calculations on paper. Be sure the printer is on, press OA-P, and press the return key three times. Your report should look like the one in **Figure 2**.

Sales representative CS brought in a total of \$78,239 last year and \$82,769 this year, an increase of \$4530. RJN picked up a new customer and went from \$73,224 to \$85,778, an increase of \$12,554, despite the fact that Family Centers fell behind. RKW went from \$41,437 to \$45,795, an increase of \$4358. AppleWorks will update these calculations automatically when you enter new sales figures. Press OA-S to store this report on disk.

You now have three reports in the customer data base—a master account list and two versions of a sales-to-date report. The report in **Figure 3** is a third version. The remaining spare category is now called NOTES, and contains comments and reminders to and from the sales staff. This data base is well suited for mailing labels, too. Next month, we'll convert the sales-to-date report to a spreadsheet. If you make any changes between now and then, give the data base another name and keep the original version intact. ■

Ruth K. Witkin is a consultant in computer applications for business. She is the author of Managing Your Business with Multiplan (Microsoft Press), Managing with AppleWorks (Howard W. Sams & Co.), Personal Money Management with Multiplan (Hayden Books), and Personal Money Management with AppleWorks (Hayden Books). Enclose a stamped, self-addressed envelope if you want a personal reply, but please be patient.

inCider

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+, IIe, IIc 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

Circle 103 on Reader Service Card.

Attention all FX80, FX100, JX, RX, & MX owners:

You already own half of a great printer

Now
Only
\$79.95

Dealer
inquiries
welcome.



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

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

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

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

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

1-800-368-7737

In California: 1-800-831-9772

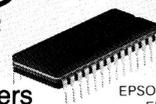
g Sample of letter with Dots-Perfect

Dots-Perfect™

Dresselhaus

Sample of letter without Dots-Perfect

837 E. Alostia Ave., Glendora, CA 91740 Tel: (818) 914-5831
An upgrade kit for EPSON FX, JX, RX, & MX printers



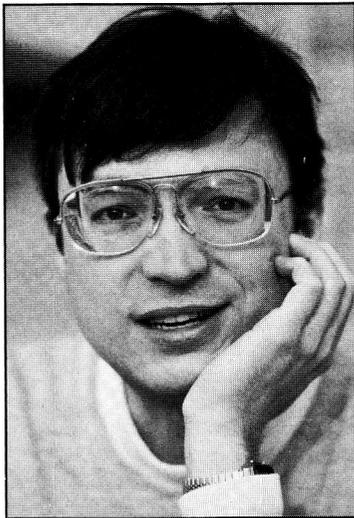
EPSON is a trademark of EPSON America, Inc.

Circle 275 on Reader Service Card.

PASCAL PRIMER

Meet the Pascal 6502 Assembler

“By converting certain routines to assembly language, you can make your Pascal programs run up to 20 times faster.”



by Tom Swan

Many people are surprised to learn that Apple Pascal comes with a macro 6502 assembler that rivals the best commercial products. This month, I'll show you how to use this assembler to greatly increase the speed of your Pascal programs—speed only assembly language can give.

Why Use Assembly Language?

Because assembly language is more difficult to learn and use than Pascal, you should have good reasons for converting Pascal procedures to native 6502 code, or machine language. One reason is speed. By converting certain critical routines to native code, you can make your programs run up to 20 times faster.

Another good reason is simplicity. Some operations, such as those requiring access to specific areas of computer memory, are easier to write in assembly language than in Pascal.

But simply converting entire Pascal programs to native code to make them run faster isn't the best way to apply assembly language. Studies show that most programs spend 90 percent of their time in only 10 percent of their code. Rewriting that 10 percent in assembly language often greatly improves program speed; rewriting the other 90 percent may have little or no effect. The rule is: Don't bother with assembly language unless you have to.

Using the Assembler

Make sure the files SYSTEM.ASSEMBLER and SYSTEM.LINKER are on your boot disk or on a work disk you insert into drive 2 (drive 2, remember, is called #5: in Apple Pascal). After writing your assembly-language program with the Pascal editor and saving the text on disk, type A to begin assembling. Type the name of your text file when the computer asks, “Assemble what textfile?” When it asks, “To what codefile?” type a dollar sign to indicate the same filename but ending in .CODE, or just press return to send the assembled output to SYSTEM.WRK.CODE. Finally, when it asks, “Output file for Assembler listing?” type PRINTER: for a printed listing (don't forget the colon) or a disk filename

(LISTING.TEXT, for example), or press return for no listing at all. Most of the time, just press return; this makes the assembler run faster.

By the way, don't be concerned if some of the prompts I use here read differently from yours. Older versions of Apple Pascal use slightly different wording for prompts. The prompts shown here follow those of the newest version, 1.3.

Listings 1 and **2** present BOOT and BOOTTEST as examples of how to write and use a simple assembly-language procedure. BOOT is a short assembly-language procedure with a single JMP command. By jumping to the Apple's ROM reset vector (a buzzword that means “a pointer to another memory address”), you can end a Pascal program with a message to press return to reboot, the way many commercial programs end. I know of no simple way to do this in pure Pascal.

Look closely at line 3 in **Listing 1**. The .PROC tells the assembler to expect a procedure. (As we'll see later, .FUNC tells it to expect a function.) The name of the procedure follows—in this case, BOOT—and a value, zero, ends the command. The value indicates the number of parameter words a Pascal program passes to the procedure or function. There are none in this example, so the value is zero.

To try the example, use the Pascal editor to type in BOOT from **Listing 1**. (As with all listings in this column, don't type the reference numbers and colons you see along the left edge.) Save your typing in BOOT.TEXT. Next, type in **Listing 2**, BOOTTEST. At line 6 of the Pascal program, called the *host*, you see this procedure declaration:

```
PROCEDURE Boot; external;
```

You can similarly declare any procedure or function as *external* by including that word and a semicolon in place of the usual procedure body surrounded by BEGIN and END. In this way, you tell Pascal you intend to later attach an external assembly-language routine to perform the duties of this procedure. Your external routine runs when you call it from your Pascal host program (see line 20 in **Listing 2**). This process lets you de-

EXPAND Your Laser 128

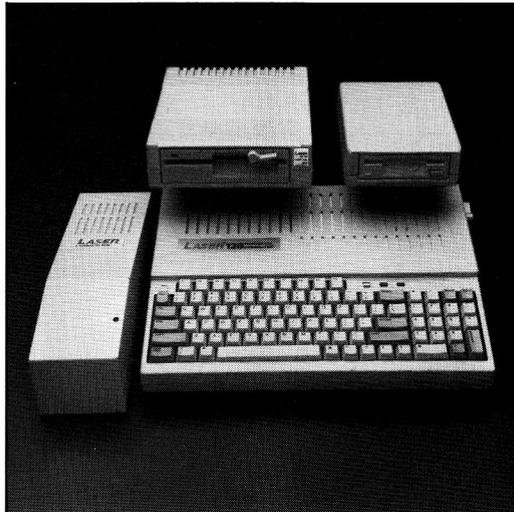
One of the reasons you bought your Laser 128 personal computer is its expansion capability. You knew that a computer without expansion slots is a dead-end that stays behind as technology advances. Now you're ready to expand your Laser 128 to take advantage of extra memory, second disk drives, 3½ inch 800K drives, 16 bit processors, and more...

Expansion Box

The optimum way to take advantage of the Laser 128's expansion slot. The Laser 128 Expansion Box gives your Laser two fully protected, shielded, standard Apple compatible expansion slots (slots 5 and 7). It even includes its own power supply for power-hungry cards and a safety interlock switch that disconnects the 12 volt power supply if the cover is opened. Its solid metal construction insures that even a fully-expanded Laser 128 won't interfere with radio or television equipment. Best of all, its two full-length slots will accept virtually any Apple-compatible expansion card at a price that won't break your budget. **\$79.95**

800K, 3½" Drives

Add 800K of Apple Unidisk 3.5™ compatible storage to your Laser 128 and pocket over \$180 in savings! Our Universal Disk Controller™ accepts two drives and you can even mix and match 5¼" and 3½" drives. And disks made with the Universal Disk Controller are fully interchangeable with Apple's Unidisk 3.5. Price includes controller card (plugs into Laser 128 Expansion Box) and one 3½" 800K drive (see our other advertisement in this issue). **\$285.00**



5¼" Second Disk Drive

Add a second disk drive designed specifically for your Laser 128. It plugs right into the external disk drive port on the Laser 128 and is one of the quietest drives available. **\$150.00**

Memory Expansion

The Laser 128 Expansion Box works well with the latest memory boards from

APPLIED ENGINEERING (RAM-FACTOR), AST (SPRINT DISK) and several others. We're working with the industry leaders to bring you the best possible price on Appleworks™ compatible memory for your Laser 128. Give us a call for details!

Laser 128

The Apple //e compatible computer that brings you the best of all worlds: Transportable like the //c, expandable like the //e, but priced like a Commodore 128! No wonder **A+ magazine** calls the Laser 128 the "clear winner" of Apple compatibles! **\$395.00**

*Central Point
Software*

INCORPORATED

9700 SW Capitol Highway, #100
Portland, OR 97219

(503) 244-5782

Yes, I'm ready to expand my Laser 128! Please send me these items:

- Laser 128 Expansion Box**—\$79.95 & 6 s/h
- Universal Disk Controller and 800K 3½" Disk Drive**—\$285 & 12 s/h
- Laser 128 5¼" Disk Drive**—\$150 & 10 s/h
- Laser 128 Computer**—\$395 & 20 s/h

And ship them to me at this street address ASAP:

Name _____

Address _____

Daytime phone #(____) _____

To Order By Mail:

Simply send in this order form with a check or provide your Visa/MC

and expiration date _____

To Order By Phone: Just call us!

503/244-5782

8-5 (West Coast time), M-F, with your
  in hand!

*Central Point
Software*

INCORPORATED

9700 SW Capitol Hwy., #100
Portland, OR 97219

Listing 1. BOOT.TEXT.

```

0: ; Boot procedure : Apple Pascal 6502 Assembler
1:
2:
3:     .PROC BOOT,0           ;0 words of parameters
4:
5: -----
6: ;
7:     PROCEDURE Boot;
8: ;
9: -----
10:
11:     JMP     @OFFFC         ;jump to ROM reset vector
12:
13:     .END                   ;end of assembly text
    
```

velop and debug procedures in Pascal, then convert them to speedy native code.

You should now have two disk files, BOOT.TEXT and BOOTTEST.TEXT. Get back to the main Pascal command line and type A to assemble. Type BOOT as the filename, a dollar sign as the output, and press return to indicate no listing. If you receive an error, compare your typing to **Listing 1** and try again.

Next, press C to compile. Type BOOTTEST as the filename, and a dollar sign for the output. Newer versions of Apple Pascal also request a listing filename. If you receive this request, press return to indicate no listing, just as you did with the assembler.

You now have two code files, BOOT.CODE and BOOTTEST.CODE. The first file contains the assembled boot procedure; the second, the compiled Pascal program. Before using the program, though, you have to link these files together.

Linking Files

To link BOOT.CODE and BOOTTEST.CODE, type L to start the Pascal linker and answer several questions. To make it easier for you, here are all the screen prompts, shown with your responses (press return where you see <cr>, which isn't shown on screen):

```

Apple Pascal Linker [1.3]
Link what host codefile? BOOTTEST
Opening BOOTTEST.CODE
Using what library file? BOOT
Opening BOOT.CODE
Another library file (<ret> for none) ?
<cr>
Map file (<ret> for none) ? <cr>
Reading BOOTTEST
Reading BOOT
Output file (<ret> for workfile) ?
BOOTTEST
Linking BOOTTEST # 1
Copying proc BOOT
    
```

Finally, type X to execute a program, then type BOOTTEST at the "Execute what file" prompt. If you then press any key other than the escape key, the Apple should reboot. As you can see, there are a lot of steps to adding assembly language to Pascal programs, but once you do it a few times, it's not so difficult.

Adding Extra Speed

The best reason for using assembly language is to speed up your Pascal programs. Informal tests show that the examples in **Listings 3** and **4** run

LEROY'S CHEATSHEET®

KEYBOARD OVERLAYS

- | | |
|--|---|
| <input type="checkbox"/> APPLEWORKS | <input type="checkbox"/> SUPERCALC 3a |
| <input type="checkbox"/> APPLE WRITER II (ProDos) | <input type="checkbox"/> VISICALC |
| <input type="checkbox"/> BASIC (Dos 3.3) | <input type="checkbox"/> WORDSTAR |
| <input type="checkbox"/> BASIC (ProDos) | <input type="checkbox"/> IMAGEWRITER Printer |
| <input type="checkbox"/> BLANKS (Set of 3-Not Laminated) | <input type="checkbox"/> EPSON RX & FX 80/100 |
| <input type="checkbox"/> FLEET SYSTEM 3 | <input type="checkbox"/> GEMINI 10x & 15x |
| <input type="checkbox"/> FLIGHT SIMULATOR II | <input type="checkbox"/> OKIDATA 92/93 |
| <input type="checkbox"/> FOR THE BEGINNER (Dos 3.3) | <input type="checkbox"/> PRACTICALC II |
| <input type="checkbox"/> GRAPPLER + Interface | <input type="checkbox"/> SCREENWRITER II |
| <input type="checkbox"/> LOGO (Apple) | <input type="checkbox"/> SPEEDSCRIPT |
| <input type="checkbox"/> LOGO (Terrapin) | <input type="checkbox"/> SUPERBASE |
| <input type="checkbox"/> MULTIPLAN | |

SHIPPING: \$1.00 per OVERLAY order U.S. & Canada \$3.00 Foreign

INDICATE WHICH COMPUTER YOU USE

- Ile* DIE-CUT OVERLAYS *Iic* 7"x10 3/4" two sided,
fit over the keyboard REFERENCE CARDS



plastic laminated

only
\$5.95
each

Forget about constantly referring back to the manual for operating commands. Discover all the "special" commands and short-cuts buried in the manual. LEROY'S CHEATSHEETS® are Plastic Laminated help sheets designed for use with popular software, hardware, and languages for APPLE *Ile* & *Iic* computers. The commands are grouped together by Function enabling you to learn the program faster and easier. Actual keystrokes are in **BOLD** and any variable data is represented in *ITALICS*.

With LEROY'S CHEATSHEETS® you'll never have to hunt for a program command again.

- The PROBLEM SOLVER
EQUIPMENT STAND
By LEROY

only
\$19.95



- ✓ **WELDED STEEL** Construction
- ✓ 18" Wide 4" High 11" Deep
- ✓ **VINYL COATED** - 1/4" Diameter
- ✓ **ORGANIZE** Your system NOW

SHIPPING: \$3.00 Continental U.S.
\$5.00 Alaska Hawaii Canada
(NO Foreign Orders)

- ATTENTION
Iic OWNERS**
only
\$12.95
- THE ACCESSORY YOU'VE BEEN
WAITING FOR
LEROY'S Apple *Iic*
 DOCU-TRAY



- ✓ **VACU-FORMED PLASTIC**
- ✓ **SUPPORTS HEAVY MANUALS**
- ✓ **ADDS 75 SQ. IN. WORKSPACE**
- ✓ **GREAT FOR REFERENCE CARDS**
- ✓ **DOESN'T BLOCK AIR VENTS**

Fits perfectly, right on top of your Apple *Iic* creating a place for our reference cards or a manual. Helps organize your workspace and puts needed information where you need it most—right in front of you!

SHIPPING: \$2.00 U.S. \$3.00 Canada & Foreign

MC/VISA _____	EXP DATE _____	U.S. funds—NO C.O.D.
NAME _____	ADDRESS _____	SUBTOTAL _____
CITY _____ STATE _____ ZIP _____	SHIPPING _____	6% TAX PA RESIDENTS _____
	TOTAL _____	

CPI CHEATSHEET PRODUCTS INC
P.O. Box 111368 Pittsburgh, Pa. 15238 (412) 781-1551

cidr 9



about 19.5 times faster than the equivalent Pascal programming. Such extra speed could turn a sluggish program into a professional product.

The procedure in **Listing 3** is useful for converting strings to uppercase. You can use it in a sorting program in which mixed upper- and lowercase characters might cause the sort to fail, or wherever you want all uppercase characters.

This native-code example has a few new elements. The program passes the parameter string (s) to the procedure for converting. Line 11 tells the assembler to expect a procedure named SHIFTUP, and indicates that one word (equal to 2 bytes) of parameter data is passed to the procedure. Also, unlike the previous example, the procedure must return to its Pascal host program. This requires careful programming.

Lines 19–22 pop the Pascal return address from the stack into a temporary 2-byte variable, appropriately named RETURN. This should always be the first operation in your own native-code routines.

Next, lines 23–26 pop the address of the parameter passed to the procedure. All VAR parameters work the same way, passing to the procedure as the address at which you find the actual variable in memory. Parameters without the VAR preface, called *value parameters*, have their actual bytes on the stack. For example, if you pass a 4-byte parameter to a procedure, you'd have to pop 4 bytes off the stack and save them for the procedure's use.

Lines 28–42 convert the characters in the string parameter to all uppercase by subtracting 32 from the lowercase letters a through z. All other characters are ignored.

Finally, the procedure exits at lines 44–48 by first pushing the previously saved Pascal return address back onto the stack. Notice that it pushes the high byte stored at RETURN + 1 first. After preparing the stack this way, the RTS instruction at line 48 returns to the Pascal program that originally called the routine.

Using the Example

As with the BOOT example, the string converter requires a host Pascal program. **Listing 4**, STRINGUP, is a sample host that shows how to use the native-code SHIFTUP external routine.

To let you compare the two routines, **Listing 4** also includes a Pascal version of the same procedure inCider

Listing 2. BOOTTEST.TEXT.

```

0: PROGRAM BootTest;
1: CONST
2:   escape = 27; (* decimal value for ASCII escape character *)
3: VAR
4:   ch : char;
5:
6: PROCEDURE Boot; external;
7:
8: BEGIN
9:   page( output ); (* clear screen *)
10:  gotoxy( 0, 8 );
11:  writeln( 'Insert new program disk.' );
12:  writeln;
13:  writeln( 'Press any key to reboot' );
14:  writeln;
15:  write( 'or press ESC to exit...' );
16:  read( keyboard, ch );
17:  IF ch <> chr( escape ) THEN
18:    BEGIN
19:      page( output ); (* clear screen *)
20:      Boot
21:    END
22: END.

```

Listing 3. SHIFTUP.TEXT.

```

0: ; Convert string to uppercase : Apple Pascal 6502 Assembler
1:
2: ;----- Equates
3:
4: LCA          .EQU 97.      ;decimal value of lowercase 'a'
5: LCZ          .EQU 122.    ;decimal value of lowercase 'z'
6: OFFSET      .EQU 32.     ;ASCII lower to uppercase offset
7: RETURN      .EQU 0       ;2-byte variable for return address
8: STRING      .EQU 2       ;2-byte variable for string address
9:
10:
11:          .PROC SHIFTUP,1      ;1 word parameter
12:
13: ;-----
14: ;
15: ;          PROCEDURE ShiftUp( VAR s : string );
16: ;
17: ;-----
18:
19:          PLA                ;save return address to Pascal
20:          STA                RETURN
21:          PLA
22:          STA                RETURN+1
23:          PLA                ;get address of passed string (s)
24:          STA                STRING
25:          PLA
26:          STA                STRING+1
27:
28:          LDY                #0          ;initialize index register Y to zero
29:          LDA                (STRING),Y ;load string length into A
30:          TAY                ;register Y now equals length(s)
31:          BEQ                EXIT       ;exit on length = 0
32:
33: $1      LDA                (STRING),Y ;get one character of string
34:          CMP                #LCA      ;check if ( 'a' <= ch <= 'z' )
35:          BMI                $2        ;do not convert if ch < 'a'
36:          CMP                #LCZ+1   ;
37:          BPL                $2        ;do not convert if ch > 'z'
38:          SEC                ;clear borrow
39:          SBC                #OFFSET   ;convert char to uppercase
40:          STA                (STRING),Y ;insert converted char into string
41:          DEY                ;decrease index register
42:          BNE                $1        ;loop if Y is not zero
43:
44: EXIT    LDA                RETURN+1   ;replace return address on stack
45:          PHA
46:          LDA                RETURN
47:          PHA
48:          RTS                ;return to Pascal
49:
50:          .END                ;end of assembly text

```

Listing 4. STRINGUP.TEXT.

```

0: PROGRAM StringUp;
1: (* Test uppercase string converter *)
2: VAR
3:   s : string;
4:
5: PROCEDURE ShiftUp( VAR s : string ); external;
6:
7: (* Pascal equivalent of above assembly language routine
8: PROCEDURE ShiftUp( VAR s : string );
9: VAR
10:  i : integer;
11:  ch : char;
12: BEGIN
13:   FOR i := 1 TO length( s ) DO
14:     BEGIN
15:       ch := s[ i ];
16:       IF ( 'a' <= ch ) AND ( ch <= 'z' )
17:         THEN s[ i ] := chr( ord( ch ) - 32 )
18:     END
19: END;
20: *)
21:
22: BEGIN
23:   page( output );
24:   writeln( 'StringUp: Convert strings to uppercase' );
25:   REPEAT
26:     writeln;
27:     write( 'String? (RET to quit) ' ); readln( s );
28:     writeln( 'Before: ', s );
29:     ShiftUp( s );
30:     writeln( 'After : ', s );
31:   UNTIL length( s ) = 0
32: END.

```

in lines 8–19. To use the Pascal routine, remove lines 5–7 and line 20. To use the assembly-language procedure instead, surround the Pascal code with comments as shown in **Listing 4**, or completely remove the Pascal procedure.

As you did with the BOOT example, type in **Listing 3** and save it as SHIFTUP.TEXT. Assemble this to SHIFTUP.CODE. Next, type in **Listing 4**, save it as STRINGUP.TEXT, and compile to STRINGUP.CODE. Finally, link these code files together. STRINGUP is the *host*, SHIFTUP is the *library file*. Link these to the output file STRINGUP, and execute that file to run the test.

External Functions

So far, we've seen only external procedures. But you can also write native-code functions to return values to Pascal expressions. The next examples show you how.

Functions are more difficult to write than procedures. There are 4 extra stack bytes, which you must carefully remove (you could use these bytes as temporary work space, but there's seldom any reason for doing so). You also have to remember to pass the function result back to Pascal. Neglect any of these important points, and you'll send your program into exile on the dark side of the moon—until you press control-reset, that is.

Listing 5 contains two functions, Hi and Lo, that are difficult to write in straight Pascal. Hi returns the most significant byte (MSB) of its 2-byte integer parameter (n), and Lo returns the least significant byte (LSB). You can't write the Hi function with the integer division DIV operator because of the way Pascal treats all integers as signed values. The expression (n DIV 256) in Pascal doesn't return the MSB of n, as it sometimes does in other languages.

The .FUNC commands in lines 13 and 45 tell the assembler to expect a Pascal function. In both commands, the 1 indicates that the Pascal host program will pass a single-word parameter to the external functions.

Listing 6 is an example host program that uses Hi and Lo. To try it, first type in both **Listings 5** and **6**. Assemble **Listing 5** to HILO.CODE, compile **Listing 6** to HILOTEST.CODE, then link them. Execute HILOTEST to convert integers to hexadecimal. Notice how the two external functions pass the MSB and LSB of

APPLE® II CLONE

Personal Computer System

with AUTO-BOOT 20mb HARD DISK



Video Tech Laser 128 \$395.00

Portable Style Computer with One Drive, 128k RAM, Serial, Parallel, Modem 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.

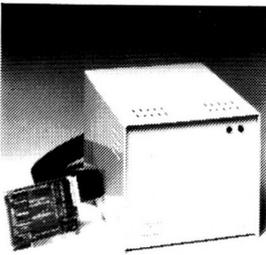
Regular \$1895.00

Now Only \$1295.00

HARD DISK SYSTEM

APPLE II+, APPLE IIe & Compatibles
20mb Starting \$795.00

ProDOS Program Selector INSTALLED FREE!



Quick-20 Hard Disk

	Now Only	Reg. Price
ProDOS and DOS 3.3		
20mb Complete System @	\$ 795.00	\$1159.00
30mb Complete System @	\$1195.00	\$1695.00
40mb Twin 20 Drives @	\$1295.00	\$1795.00
ProFIX-DOS 3.3 Utility @	\$ 39.00	\$ 49.00

CMC Computer Systems
1514 East Edinger #H

Phone: 714/835-2462
Santa Ana, CA 92705

Listing 5. HILO.TEXT.

```

0: ; Extract high / low bytes from integers : Apple Pascal 6502 Assembler
1:
2: ;----- Equates
3:
4: RETURN      .EQU    0      ;2-byte variable for return address
5:
6:
7: ;-----
8: ;
9: ;      FUNCTION Hi( n : integer ) : Byte;
10: ;
11: ;-----
12:
13:      .FUNC HI,1      ;1 word parameter
14:
15:      PLA              ;save return address to Pascal
16:      STA      RETURN
17:      PLA
18:      STA      RETURN+1
19:      PLA              ;throw away extra 4 bytes on stack
20:      PLA
21:      PLA
22:      PLA
23:
24:      PLA              ;throw out low byte of parameter (n)
25:      PLA              ;get high byte of parameter (n)
26:      TAY              ;save high byte in Y
27:      LDA      #0      ;set A equal to zero
28:      PHA              ;push zero as high byte of result
29:      TYA              ;restore high byte from Y to A
30:      PHA              ;push low byte of result
31:
32: EXIT   LDA      RETURN+1      ;replace return address on stack
33:      PHA
34:      LDA      RETURN
35:      PHA
36:      RTS              ;return to Pascal
37:
38:
39: ;-----
40: ;
41: ;      FUNCTION Lo( n : integer ) : Byte;
42: ;
43: ;-----
44:
45:      .FUNC LO,1      ;1 word parameter
46:
47:      PLA              ;save return address to Pascal
48:      STA      RETURN
49:      PLA
50:      STA      RETURN+1
51:      PLA              ;throw away extra 4 bytes on stack
52:      PLA
53:      PLA
54:      PLA
55:      PLA              ;get low byte of parameter (n)
56:      TAY              ;save low byte in Y
57:      PLA              ;throw out high byte of parameter (n)
58:      LDA      #0      ;set A equal to zero
59:      PHA              ;push zero as high byte of result
60:      TYA              ;restore low byte from Y to A
61:      PHA              ;push low byte of result
62:
63: EXIT   LDA      RETURN+1      ;replace return address on stack
64:      PHA
65:      LDA      RETURN
66:      PHA
67:      RTS              ;return to Pascal
68:
69:
70:      .END              ;end of assembly text

```

Correct Misspelled Words As You Type, *instead of afterwards!*

Spell checking programs are a pain, because it takes longer to check a letter than to write it!

SPELLBOUND ELIMINATES HASSLE:

As you type, Spellbound beeps at you when it detects a misspelling. Simple! SPELLBOUND can display a list of spelling alternatives. Easy!

WHAT QUORUM HAS DONE:

Quorum has reverse engineered the spelling problem. Most letters average 160 unique words. In theory, comparing your letter to 80,000 words sounds great. In real life practice, it's a time consuming hassle and inefficient. Instead of comparing your document inefficiently to words you'll never use, Spellbound compares each word you type with the words research has proven to be the most frequently misspelled.

With over 9k of dictionary space, SPELLBOUND doesn't rob one byte from Appleworks' desktop. To begin, your dictionary starts with nearly 1000 words that research proves to be the most frequently misspelled. Plus, you can easily add and remove words by using Appleworks' own word processor.

SPELLBOUND's AUTOPILOT FEATURE:

Imagine AUTOPILOT automatically replacing misspelled words with what you're trying to spell.

SPELLBOUND's DICTIONARY SEARCH:

Imagine finding the word you want, even if you only know one letter.

TYPOGRAPHICAL ERROR CHECKING:

As a bonus, Quorum gives you a second dictionary: The Most Commonly Used English Words. With this, you've got an online typographical error checker. Versatile.

For APPLEWORKS Only

100% Money Back

Satisfaction Guarantee!

SPELLBOUND just \$49⁹⁵
add \$2 s/h • CA add 6.5% tax

For your nearest dealer
or to order direct.

CALL TOLL FREE
1-800-222-2824
In CA: 1-800-222-2812
From 8 am - 5 pm PST



Dealers Invited

QUORUM INTERNATIONAL, Unltd.
INDUSTRIAL STATION, PO BOX 2134-1C
OAKLAND CA 94621

Not Piracy...



Read **COMPUTIST**

& get step-by-step instructions on how to move your uncopyable software to normal disks so you can:

- ▶ Make backups for your expensive software more easily.
- ▶ Move programs from floppy to hard disk.
- ▶ Add custom modifications such as fast DOS to speed up LOADs and SAVEs.

You also get: Adventure Tips, Advanced Playing Techniques (APTs), bit copier parameters, hardware modification and construction projects, and more.

Just Good Sense!

If you're a vigorous Apple computist you can't afford to be without us any longer!

Subscription Rates (6 issues)

U.S. \$20
U.S. First Class \$24
Canada/Mexico \$34
Other Foreign \$60

Book Of Softkeys Volume I
157 pages: a compilation of COMPUTIST #1-#5

Book Of Softkeys Volume II
157 pages: a compilation of COMPUTIST #6-#10

Sample copy

U.S. \$4.75 ea.
Foreign \$8.00 ea.

U.S. \$20 ea.
All Foreign \$24 ea.
(WA state orders add 7.8% tax.)

New Subscriber
 Renewal
 Book Of Softkeys Volume I
 Book Of Softkeys Volume II
 Sample
 Book Of Softkeys Volume II

Name _____ ID# _____

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

Signature _____ Exp. _____

Send orders to:
COMPUTIST PO Box 110846 - I Tacoma, WA 98411
U.S. funds drawn on U.S. bank.

PASCAL PRIMER

parameter *v* in lines 33 and 34 of **Listing 6**.

The functions in **Listing 5** can serve as starting places for your own external routines. As **Listing 5** shows, you can have two or more externals in one file and assemble them all at the same time. The effect is identical to having separate routines in separate files, which you would assemble and link one by one to a Pascal host.

Notice the way function *Hi* removes the 4 extra stack bytes at lines 19-22, and pushes the function result on the stack at lines 28-30 before returning to Pascal. Function *Lo* operates simi-

larly at lines 51-55 and 59-61. Except for these differences, the functions are similar to the other external procedures.

And Finally...

You can find more information about the Apple Pascal assembler in the new 1.3 manual. It contains new examples, plus information on using macros to construct complex assembly-language routines you can insert into your programs. Macros let you write a routine once and then use it by name later, in much the same way you'd write a Pascal procedure, then

Listing 6. HILOTEST.TEXT.

```

0: PROGRAM HiLoTest;
1:
2: TYPE
3:   Nybble = 0 .. 15;      (* four-bit values *)
4:   Byte = 0 .. 255;      (* eight-bit values *)
5:
6: VAR
7:   value : integer;
8:
9:
10: FUNCTION Hi( n : integer ) : byte; external;
11: FUNCTION Lo( n : integer ) : byte; external;
12:
13: FUNCTION HexDigit( n : nybble ) : char;
14: (* Return one of the hexadecimal digits *)
15: (* 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F for value n *)
16: BEGIN
17:   IF n < 10
18:   THEN HexDigit := chr( ord( '0' ) + n )
19:   ELSE HexDigit := chr( ord( 'A' ) + n - 10 )
20: END; (* HexDigit *)
21:
22: PROCEDURE HexByte( b : byte );
23: (* Display 8-bit b in hexadecimal *)
24: BEGIN
25:   write( HexDigit( b div 16 ), HexDigit( b mod 16 ) )
26: END; (* HexByte *)
27:
28: PROCEDURE ShowHex( v : integer );
29: (* Display v in hexadecimal *)
30: BEGIN
31:   writeln( 'Integer value = ', v );
32:   write( 'Hexadecimal value = ' );
33:   HexByte( Hi( v ) );
34:   HexByte( Lo( v ) );
35:   writeln
36: END; (* ShowHex *)
37:
38: BEGIN
39:   page( output );
40:   writeln( 'Hi / lo function test' );
41:   REPEAT
42:     writeln;
43:     write( 'Integer value? (0 to quit) ' );
44:     (*$i-*) readln( value ); (*$i+*)
45:     ShowHex( value )
46:   UNTIL value = 0
47: END.
    
```

activate it by name in your program. The new manual contains a small library of macros with routines to move memory, add temporary debugging statements to programs, save and restore registers, call routines via a jump table, set and restore bits in bytes, and other routines.

In my next column, I'll discuss ways to break large Pascal programs into pieces with segmentation and units techniques. I've used these methods to construct programs containing more than 10,000 lines of programming. As

I'll explain then, there's virtually no job too large for Apple Pascal. ■

Tom Swan is the author of the Apple Pascal series Pascal Programs for Business, Pascal Programs for Games and Graphics, and Pascal Programs for Data Base Management, published by Hayden Book Company. Address correspondence to Tom at P.O. Box 206, Lititz, PA 17543. Please enclose a self-addressed, stamped envelope if you want a personal reply.

Entering Apple Pascal Programs

1) Boot Apple Pascal. Single-drive users boot with disk APPLE3: followed by APPLE0:. Multidrive users boot with APPLE1: in drive 1 and APPLE2: in drive 2.

2) Type E to start the editor, automatically loading a previously edited SYSTEM.WRK.TEXT work file on your boot disk. If it doesn't find an old work file, the editor asks for a filename. In that case, press return to begin a new work file, or type the name of the file you want to edit. (Don't type the .TEXT filename ending—the editor adds it if you don't.)

3) Type I to insert new text, then type in the listing. Ignore the reference numbers and colons to the left of each line of the listing. Type only the text to the right of the colons. You can use uppercase, lowercase, or both.

4) Type control-C (alias Etx, for "End of text," in many editor prompts) to stop inserting. It's a good idea to do this from time to time and then type I to continue inserting. Before you type control-C, your text goes into a temporary memory area; control-C tells the editor you want it to keep that text. If you hit escape instead, you throw the insertions away. Control-C is an important key combination to remember—and use frequently.

5) To correct mistakes, use the arrow keys to move the cursor. (Control-O and control-L serve as up and down keys on older Apples.) Type X to exchange (replace) characters. Type D and move the cursor (or press return) to delete characters and lines. Typ-

ing control-C saves your changes; pressing escape throws them away, recovering your original text. Check your Pascal manuals for more information about these and other commands.

6) To save text on disk, type Q to quit the editor and U to update SYSTEM.WRK.TEXT. After writing your text to disk, the editor returns you to the Pascal command line.

7) To run your program, type R. Version 1.3 users must also press return or type a file or device name, such as PRINTER:, at the output-listing prompt. The compiler reads SYSTEM.WRK.CODE, then loads and runs your program. If you see an error message instead, type E to return to the editor and fix your typos.

8) To save your program and start a new work file, type F from the main command line to use the Pascal Filer. Then type S and a filename to save the text now temporarily stored in SYSTEM.WRK.TEXT. For example, to save your work as MYPROG in drive 2, type #5:MYPROG; in drive 1, type #4:MYPROG. (Pascal calls drive 1 #4: and drive 2 #5:.)

9) To start a new program after saving, type N while still using the Filer. Answer Y to the prompt asking whether you want to throw away your work file. This erases both SYSTEM.WRK.TEXT and SYSTEM.WRK.CODE from your boot disk. Finally, press Q to quit the Filer and return to the main Pascal prompt. Continue from step 2 to type in another listing. □ —T.S.



WORDS TO THE WISE from DAVIDSON.

When you are choosing educational software, the word is Davidson. It Works! Thousands of teachers and parents have made the Davidson choice . . . the wise choice in performance-proven educational software.

NEW!

GRAMMAR GREMLINS

Students of all ages learn grammar basics. Over 700 sentences reinforce grammar rules. Students practice their skills in the animated, fast-moving game. Color graphics, editor and more, all make learning fun! Apple™ II family. **\$49.95.** (IBM™ available 8/86.)

SPELL IT! Learn how to spell 1000 of the most commonly misspelled words. Animation, a lively arcade game and add-your-own words editor too! Apple™ II family, Atari™, Commodore™ 64/128, IBM.™ **\$49.95.**

WORD ATTACK! Discover the meanings and usages of 675 new words. Includes a fun, fast-action arcade game and add-your-own words editor. Apple™ II family, Macintosh™, Atari™, Commodore™ 64/128, IBM.™ **\$49.95.**

More award winning educational software from Davidson:

MATH BLASTER! □ **ALGE-BLASTER!**
SPEED READER II □ **CLASSMATE**
HOMEWORKER!

(800) 556-6141

In Calif. (213) 534-4070



Davidson.

Davidson & Associates, Inc.
3135 Kashiwa St.
Torrance, CA 90508

Please send me a FREE COLOR BROCHURE and the name of my nearest Davidson Dealer.

Name _____

Address _____

City _____ State _____ Zip _____

Educational Software that Works
©1986 Davidson & Associates, Inc.

Circle 19 on Reader Service Card.

Continued from p. 38.

performance of their computers. I know—I own one. But since Apple canceled that machine, the Apple III has been locked into only a handful of productive software applications. Titan Technologies is trying to alleviate that condition with its Apple III plus IIe cards.

The Apple III has always had Apple II compatibility, but it was a software-initiated, 40-column, DOS-based variety with no frills and fewer fans among Apple III owners. It was a concession, not a feature. When Apple replaced DOS with ProDOS, there wasn't even that. But Titan has changed things.

Packed with Features

The III plus IIe system consists of two boards connected by a small ribbon. You first remove the Apple III's video-control ROM and connect a cable from the vacant socket on the III's motherboard to another socket on the III plus IIe system. Then insert

the boards into slots 2 and 3 on the Apple III.

When you boot the Apple III with Titan's special emulation disk, it "becomes" an Apple IIe with an apparent extended 80-column card (128K of RAM) in slots zero and 3, a serial I/O device in slot 2, a disk-drive controller card in slot 6 (available for the internal Apple III drive as D1 and one external drive as D2), a clock/calendar card in slot 7 (if your III has a clock chip installed), two RAM disks (the Apple IIe's standard 60K device in slot 3 and another composed of your Apple III's RAM—either 128K or 256K—addressed from slot 5), a joystick port, and Applesoft in ROM.

That's quite an array of features crammed into two of the Apple III's four slots. And, of course, your Apple III becomes DOS- and ProDOS-compatible.

Two jumpers control the other Apple III slots. When you connect the jumper for slot 1, all output normally directed through it by the Apple II's

PR#1 command is sent through the Apple III's built-in serial port. Without the jumper, the slot must have either a printer-interface card or any interface card that's Apple II compatible (and, therefore, not available to the Apple III). Use the slot-4 jumper if you've connected a ProFile hard disk to your Apple III, but not if you've plugged in an Apple II device (such as a ProFile hard disk with an Apple II interface card).

There's graphics, too. Titan has not only included enhanced video firmware and mousetext characters, but double hi-res capability, as well. And it didn't forget the Apple III's native mode. The emulation disk provides a driver that lets you use the III plus IIe's 128K of memory as a RAM disk for the Apple III.

Quibbles

What you don't get is DOS or ProDOS. You must purchase either or both operating systems from Apple. But that's about the only thing wrong

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

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

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

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

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

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

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



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



COMPATIBLE WITH:

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

Circle 84 on Reader Service Card.

with the system. Installation is a snap (you remove one chip from the III—without removing the motherboard), and the manual is the best piece of Apple III literature I've seen. But it won't replace that Apple II/e or II/c you've had your eye on.

First of all, I know only a few Apple III owners who still have two of the miserly four slots available. Something has to go. On my system, that meant abandoning either the SoftCard for CP/M or the UPIC parallel-printer interface. Ultimately, as my expensive letter-quality printer is parallel, that also meant rearranging the SOS drivers and purchasing a serial-to-parallel converter.

If you're doing quite a bit of telecommunication, Titan reminds you that the Apple III internal serial interface isn't fully compatible with the Super Serial Card. If your Apple II application expects the SSC, you'll most likely need to purchase one.

One more hardware complaint: These Titan boards are literally packed with chips, which generate

heat. Heat has always been a formidable enemy of the Apple III, so I felt compelled to add a pair of fans to the back of the machine with the III plus II/e system installed.

From a software point of view, the only problem appears to be that Apple II Pascal won't run on the III plus II/e system. Instead, you'll need to work with the III's own Pascal. I had no problem running the PFS series, though, which is written in Pascal, in emulation mode. Titan also claims that you can run many II/c-specific applications, such as SuperCalc3a, by replacing the 6502B NMOS processor with a 65C02 CMOS chip (Titan sells it as an option).

Despite these quirks, if you're an Apple III owner who doesn't want to abandon the machine, yet still wants a good amount of Apple II/e compatibility, this is the card you've been waiting for—unequivocally. ■

Bill O'Brien
Fort Lee, NJ

A New Breed of Educational Software

MINDPLAY

Methods and Solutions, 82 Montvale Avenue, Stoneham, MA 02180

Educational programs; any 48K Apple II, one disk drive; color monitor recommended; mouse, joystick, printer optional \$39.99 each

Ease of learning	■ ■ ■
Ease of use	■ ■ ■ ■ ■
Documentation	■ ■ ■ ■
Support	■ ■ ■ ■ ■
Overall	■ ■ ■ ■ ■

Educators and parents from Maine to Puerto Rico are purging the words "tutorial" and "drill" from their software vocabulary. Instead, they're substituting the name MindPlay, a series of 11 packages (six of which are reviewed here) that encompasses some of the most refreshing learning games yet.

The MindPlay series started for simple reasons two years ago—program-

SCRG SOUTHERN CALIFORNIA RESEARCH GROUP

quikLoader™

The quikLoader™ 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][,][+, or II/e. The program cannot be misplaced, and it will load when needed.

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 PROMGRAMMER™), 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 a practical application is APPLEWORKS™. We can transfer 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.

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. These programs, as well as any that you add, will show on the catalog screen. The program is selected with a single keypress.

Installation is easy, just plug it into any peripheral slot. It will work on a APPLE][,][+, or II/e.

\$179.50

DOS 3.3, Integer, Fid, and COPYA are copyrighted programs of APPLE COMPUTER Inc., and are licensed to Southern California Research Group for distribution only with quikLoader.

APPLE and APPLEWORKS are trademarks of APPLE COMPUTER INC. quikLoader (designed by Jim Sather) is a trademark of S.C.R.G.

PROMGRAMMER™

Designed by Bob Brice

Software by Bob Sander-Cederlof

The PROMGRAMMER is an inexpensive EPROM programmer for the APPLE][,][+, and II/e computers. The unit plugs into any slot of the computer, and allows programming any standard 5 volt, 27 series EPROM. The ZIF socket allows rapid programming, copying, duplication, or modification of EPROMs. **\$149.50**

SLOT 3 CLOCK™

The SLOT 3 CLOCK is designed to plug into slot 3 of the II/e without interfering with auxiliary memory. PRODOS™ is fully supported, and the card is APPLESOFT™ compatible. Installation software and long-life lithium battery are included. designed by Chuck Shaffer **\$79.50**

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. **\$179.50**

SWITCH-A-SLOT and EXTEND-A-SLOT work well with most slow to medium speed cards. They are not recommended for high speed data transfer devices.

EXTEND-A-SLOT

The EXTEND-A-SLOT brings a slot outside your APPLE™, allowing an easy change of cards. **\$34.95**

9-16 Adapter for APPLE II/e & II/c

This permits the use of most 16-pin I/O devices with the APPLE II/e or II/c. The only limitations are those devices that use the annunciators or the \$C040 strobe. NOTE: The II/c does not support the use of two joysticks. **\$14.95**

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 joysticks, MUPPET LEARNING KEYS™, etc. **\$14.95**

BOOKS BY JIM SATHER

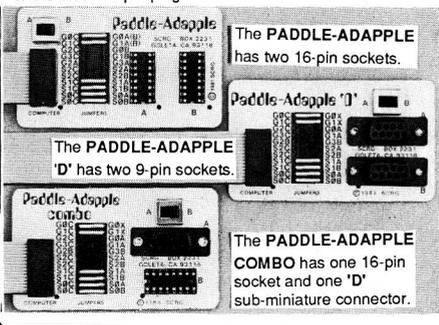
Understanding the APPLE][- The definitive source of information about how the APPLE][works. Forword by Steve Wozniak. **\$22.95**

Understanding the APPLE II/e - This companion volume covers the additional information needed to know details of the computer hardware. **\$24.95**

Paddle-Adapple

The PADDLE-ADAPPLE game expansion adapter plugs into the 16-pin interior game I/O socket, and allows you to select between one of two devices, or use two joysticks for games such as ARCHON™ and ONE-ON-ONE™. **\$29.95**

There 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.



SIX MONTH WARRANTY TEN DAY TRIAL TOLL-FREE ORDER LINES

From California (800) 821-0774
Rest of U.S. (800) 635-8310

Outside of U.S. or for information, call (805) 529-2082
SHIPPING CHARGES: U.S. & Canada - \$2.50
Other countries: SWITCH-A-SLOT: \$10 surface, \$25 air.
Other items: \$5 surface, \$10 air.

at your local dealer or direct from:
**SOUTHERN CALIFORNIA
RESEARCH GROUP**

Post Office Box 593-R Moorpark, CA 93020
Telex 658340-SCRG (Intertek SNC)

VISA, MASTERCARD ACCEPTED

mer Judi Bliss' son was bored silly with the arithmetic programs available, so she designed Math Magic for him—and Bliss' staff has kept things simple to this day. The programs will run on a trusty II Plus with one drive, though all offer music and hi-res color graphics and six of the 11 support a mouse.

The user's guides, while no more than a dozen pages apiece, are pleasantly complete, with sections and tips for parents and teachers. MindPlay's service policy is excellent: While the programs are copy-protected, damaged disks are replaced during the 90-day warranty period for \$5, and backups cost only \$7.50. Answers to product questions are just a toll-free phone call away.

Math Magic

In Math Magic, the most popular MindPlay game to date, four- to nine-year-olds use the on-screen paddle and balls to knock down a brick wall behind which they find lurking monsters or hidden presents. When these

pop up, so do math questions. Depending on the child's age and ability, questions may involve counting, addition (with or without carrying), and subtraction (with or without borrowing).

Besides reversing the traditional approach—math problems are the reward for playing an arcade game, not vice versa—Math Magic, like all MindPlay games, has a Challenge Upgrade feature that lets you tailor the program to your child's age and skill level. Few children follow identical rates of educational and physical development; the Challenge Upgrade lets you increase problem difficulty while decreasing the level of eye-hand coordination required, or vice versa. If you have a couple of kids in the suggested age range, this feature lets one program do the work of two.

As with most other MindPlay games, Math Magic lets parents and teachers develop custom lessons by entering up to 18 math questions to complement homework sheets or reinforce lesson plans. Whether you use the program's randomly generated prob-

lems or your own, Math Magic provides performance scores for each skill tested and a composite score.

Whether one child or a classroomful use Math Magic, they don't seem to tire of it. MindPlay games have enough randomness built in so that even after months of fun, a child may not play the same game twice. When a child achieves a given level, more challenges lie ahead.

RoboMath and Campaign Math

Bliss' first program has spawned other entertaining math games. RoboMath (ages 8 to adult) is an arcade-style game that could earn an endorsement from the Environmental Protection Agency: While Trashbots roam around littering your town, RoboMan can help you pick up the litter if you're deft with your ball and paddle. Quiz Boxes of multiplication and division questions help you raise your score. Ultimately, you can close down the Trashbot factories by hitting a ball through their doors.

PIK'EM 86



A Complete Pro Football Prediction Program For The 1986 NFL SEASON

61% + Accurate vs 'Spread' Since 1981
More Features — More Information In 1986 To

BEAT THE SPREAD

★ ★ FEATURES ★ ★

- Predicted Scores Each Week
- Season Schedule By Week/Team
- Records & Results:
 - Scores By Week
 - Scores By Team
 - Division Standings
 - Standings vs Line
 - Stats — Accumulated & Average 1983-1985 Data Base
- Auto Opponent Input
- Printed Copy All Screens
- Easy Update—Playoffs/1987
- Dealer Inquiries Invited

54⁹⁵ INCLUDES DISK, DOCUMENTATION
SHIPPING & HANDLING

- Apple II — IIc — IIe
- Commodore 64 — 128
- IBM PC, Tandy & Compatibles
- TRS-80 MIII/IV

Stats Needed To Run Program
Available In Local Newspapers
Or

We Will Furnish Stats By Mail Or Modem
All 20 Weeks — Season Price . . . 40⁰⁰

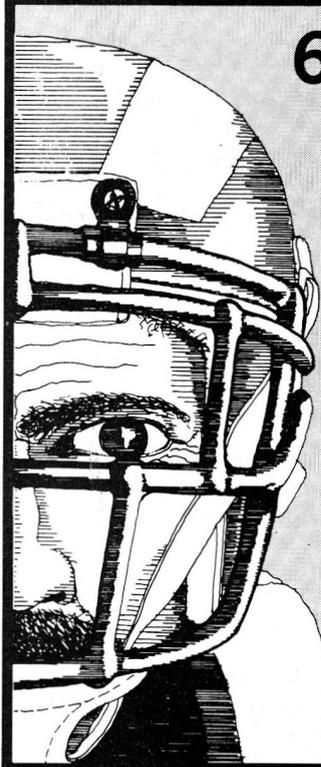
Program Comes Updated Thru Current
Week Of Season . . . No Extra Charge

ORDERS SHIPPED IN 2 DAYS
PHONE LINES OPEN 24 HRS.

TOLL FREE — 800-722-2277
TEXAS COLL. — 214-586-8212

MARATHON SOFTWARE DEPT. I
P. O. BOX 1349
JACKSONVILLE, TEXAS 75766

TOLL FREE & COLLECT FOR ORDERS ONLY



Sounds easy? If it is, you're probably in Normal mode. Try "Tricky" and "Extra Tricky" instead.

Campaign Math, by contrast, isn't an arcade game, but a one- or two-player simulation of the election process. Besides teaching players (ages 9 to adult) how to solve problems involving ratios, fractions, and percentages, it teaches them about politics.

Like a real campaign, this one begins when your child chooses issues for his or her platform. Polls, the telephone, radio, TV, and the newspaper help players learn where voters stand on the issues—for example, that 45 percent of 20 people in the community favor spending more money on mass transit. How many people is that? Enough to support a campaign platform? The Challenge Upgrade lets you type in your own issues and math material.

Once a candidate picks the issues that will make him or her more popular with the voters, it's on to the next level of the game: fund raising. Here the young pol uses the mailbox and

banquet table to contact individuals, groups, and clubs to collect money for deposit at campaign headquarters.

Sometimes the Scandal Bugs circulate rumors that cost the candidate money.

After acquiring enough popularity points and cash, the race begins. Candidates meet on a track filled with hurdles they clear by purchasing advertising in the newspaper or on radio, TV, or signs.

Dyno-Quest

While I get really fired up about Campaign Math, MindPlay's Dyno-Quest leaves me feeling lukewarm. In this scientific simulation for ages 8 and up, you accompany Donnie and his dog Doobie back to the age of dinosaurs, searching for a target dinosaur by exploring the Cretaceous, Jurassic, and Triassic eras.

In each era there are five continents to explore; on each continent you learn about the carnivorous and herbivorous dinosaurs living at that time. Each beast's name is spelled out phonetically as well as conven-

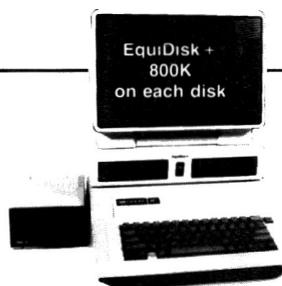
tionally. (With dinosaur names, that's a real plus.)

You also encounter hazards like storms and volcanoes, which can damage your vehicle. You begin each journey with a given amount of fuel and food (meat and plants), used to repair your wheels and to feed dinos or bribe them for information. The upgrade feature lets you alter the amount of supplies.

Ace Reporter

Another simulation, Ace Reporter, teaches reading skills in a unique way. Your child (aged 7 to 11) takes the role of Cub, Staff, or Ace Reporter, using the teletype and telephone to collect the Who, What, When, Where, and Why (or How) information to fill his or her notepad and send the story to press. If the facts are right, the reporter can finish the story (and demonstrate his or her understanding of the main idea) by selecting the best headline. Stories with headlines can be printed.

I was disappointed that although



EquiDisk +™

We've got a lot in store for you!

The EquiDisk + is the next generation in 5¼" 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 1.6 megabytes of immediately accessible on-line storage. Now you can store over 8 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 — 800K on each disk.

More than just Storage!

- + The EquiDisk + works with DOS 3.3, ProDOS and CP/M.
- + Standard 5¼" 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. Franklin Ace is a trademark of Franklin Computer Corp.

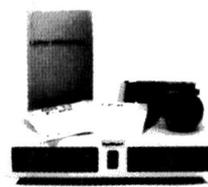
- + Each EquiDisk + comes with a surge suppressor, three built-in AC outlets on the back and a front-mounted power switch. You can turn everything on and off at the same time.
- + CP/M users can access software formatted for other computers. Using one of the commercially available "transfer" programs, 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 800K . . . 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 debuggers, as well as your source code . . . on one diskette.

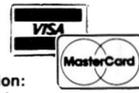
CP/M cards supported; Microsoft Softcard (56K and 60K Versions); ALS Z-Engine; PCPI (Starcard and Appli-Card)

- + 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.



Factory-Direct Price
\$499⁰⁰

Includes dual drives, case, cables, controller card, manual and software.
1 year limited warranty



Minimum system configuration:

*Apple II+ or IIe with 64K RAM
*One standard Apple or equivalent drive

To order call toll-free
1-800-854-0561 ext. 825
(24 hours/7 days)

HSM Disk Drives

1101 E. Pacifico
Anaheim, CA 92805
(714) 385-1146

15 day Money-back Guarantee

the reporter must pick out the facts and determine the main idea, he or she has no chance to write the story itself. Instead, the reporter sits somewhat passively as the story appears on screen. Don't we writers wish it were so easy!

When I mentioned my complaint to Judi Bliss, she said that teachers who helped shape MindPlay products suggested that a composition feature might cloud the program's principal intent, which is to help students read for detail and discover the main idea. She added that forthcoming programs will help pre-primary and older students with writing.

Race the Clock

Like Ace Reporter, Race the Clock helps students develop language skills. In this Concentration-style game, children aged 5 to 8 match a verb with an animated scene depicting the action. Scenes and words are hidden in "secret boxes" on the computer screen. A software clock keeps track

of your time, which you can set for one to nine minutes per game.

Younger students can match picture with picture; older ones, word with word. Parents and teachers can create their own word lists with new vocabulary, opposites, or anything else—not just verbs—though games you create have no animated-graphics option. Whether you use the 60 built-in verbs or your own words, you can change the number of boxes on screen and thus the number of matches required to win.

An Alternative to Television

MindPlay's success stems not just from Judi Bliss' 20 years' experience with computers but from her nine years' experience as a parent. Her programs are colorful and entertaining—and, thanks to Challenge Upgrade, flexible enough to "always fit." Endorsements from parents and teachers convince me that these programs don't sit on the shelf. ■

Cynthia E. Field
Wakefield, RI

What's the Story?

THE NEWSROOM: THE SCHOLASTIC EDITION

Scholastic Software, 730 Broadway, New York, NY 10003

Desktop-publishing system for schools; any 64K Apple II, one or two drives, graphics-capable printer

\$74.95

(\$29.95 for each additional clip-art disk)

Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■ ■ ■ ■
Support	■ ■ ■ ■
Overall	■ ■ ■ ■ ■

In any number of academic areas, The Newsroom: The Scholastic Edition captures the imagination of students and teachers alike. It may be one of the best tools ever developed for classroom use.

As explained in the review of the

THE LAST SPORTS GAMES YOU'LL EVER NEED!

"If you're looking for the most realistic simulation around, 3 IN 1 FOOTBALL should be your first draft choice."

- The Chicago Tribune

"[BASKETBALL is] another real winner from Lance Haffner ... a must addition to your library" - The Guide To Computer Living

Didn't like the way last season went for your favorite team? Here's your chance to do better as the coach. Or imagine the possibilities of dream matchups like the '72 Miami Dolphins vs. the '85 Chicago Bears or UCLA with Alcindor going against Patrick Ewing and Georgetown. How about the '86 Celtics against anybody? Now YOU can know the outcome of some of the greatest sports matchups that never were!

3 IN 1 FOOTBALL

- with Stats Compiler for each player and team
- you choose from 14 offensive plays and 6 defensive formations
- includes 176 college teams, the 28 NFL teams and 14 USFL teams from the '85 season PLUS 174 great college and 189 great pro teams of the past

FINAL FOUR COLLEGE BASKETBALL & BASKETBALL: THE PRO GAME

- each player contributes as they did in real life
- Stats Compiler
- you determine starting lineup, substitutions, shot selection, passing, offensive and defensive styles of play and more
- the College game includes 292 teams from the '85-'86 season plus 70 all-time greats
- the Pro game features the 23 NBA teams from '85-'86 and more than 100 great teams of the past

OTHER PAST SEASONS' TEAMS DISKS AVAILABLE AND NEW SEASONS' READY PRIOR TO PLAYOFFS FOR ALL THREE GAMES.

Available at your local dealer or send check or money order for \$39.99 each. Visa and MasterCard accepted on phone orders only. Please add \$2.00 for postage and handling.

COMMODORE — APPLE — AMIGA — IBM and compatibles

Apple, Commodore, Amiga, and IBM are registered trademarks of Apple Computer, Inc., Commodore Electronics, Ltd., and International Business Machines Corporation, respectively.

LANCE HAFFNER GAMES

P.O. Box 100594 • Nashville, TN • 37210 • 615/242-2617

Circle 290 on Reader Service Card.

original Springboard version (*inCider*, August 1985, p. 64), The Newsroom is an integrated system for producing newsletters, pamphlets, brochures, flyers, handouts, and just about anything else you can do with a graphics-capable printer.

Going to Press

The Newsroom lets you prepare text with a word-processing function and add graphics from a file of "clip art." You access all Newsroom facilities via departments depicted on the main menu—Press Room, Copy Desk, Layout, Banner, and Photo Lab. An icon menu indicates the functions in each department. You can use keystrokes or a joystick to move the cursor from icon to icon to select, crop, and move your pictures around on a layout block. The program then lets you lay out headlines and banners (in any of three typestyles) and juggle all the elements of the page.

Teachers will find The Newsroom an entertaining vehicle for stimulating interest in creative writing: Children can produce their own illustrated storybooks, poetry, and plays. Its simple operation makes it particularly effective as a classroom tool. The Newsroom's command and control system is easy to learn and should be within the grasp of students in grades 5 and up.

Teachers will have to carefully guide their students through the learning stages of the program, though. The tutorial should be suitable for high-school students, but children in grades 5 through 8 may have trouble following it. Teachers at those levels may find their own simplified course materials more useful. Fortunately, there's plenty of support in the program manual, including a lengthy reference section.

The package comes with detailed instructions for teachers planning to use The Newsroom to publish a student newspaper. It covers the basics of organizing a staff, writing news stories and editorials, preparing headlines, editing copy, laying out an attractive page, and setting up advertisements. Students can also design custom illustrations and graphs for reports.

The Newsroom can also help teachers produce classroom materials that are bright with graphics and headlines: tests, fact sheets, worksheets, and almost any other printed material

you're accustomed to preparing for your class. The Newsroom's effectiveness is limited only by the imagination of the teachers and students using it. ■

*Brian J. Murphy
Fairfield, CT*

Falling Short

COMMWORKS

PBI Software, 1111 Triton Drive, Foster City, CA 94404

Telecommunications program; Apple //c or 128K //e with modem
\$95

Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■ ■
Documentation	■ ■
Support	■
Overall	■ ■

CommWorks reminds me of one of those stories in which happy and unhappy events alternate:

I was invited to a party. But the party was 3000 miles away. I got a free air-

plane ride. But the airplane crashed. fell into a big pile of hay. But there was a pitchfork in the hay.

Although CommWorks offers many happy features, it suffers from a number of unhappy limitations. CommWorks tries to do everything you'd expect from a communications program—and more. But the version I tested [1.06] falls just short of the mark.

Logging On with Macros

Through a series of easy-to-use menus, CommWorks helps you create a separate "communications file" of all the important numbers and technical requirements for each computer you want to call. Each file contains telephone number (pulse or touch-tone), pause lengths, access code, baud rate, number of data bits, parity, and duplex and terminal information (TTY, VT100, VT52). You can choose to transfer data with or without XModem and to save downloaded text in an ASCII or AppleWorks file. For each communications file you can also se-

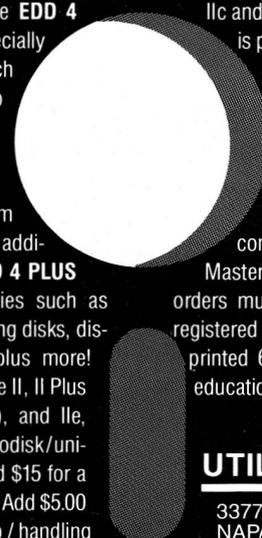
BACK UP

ESSENTIAL DATA DUPLICATOR

Back up your copy-protected disks with **Essential Data Duplicator 4 PLUS**. ■ **EDD 4 PLUS** is new technology, not just "another" copy program. The **EDD 4 PLUS** program uses a specially designed hardware card which works with your disk drives to back up disks by accurately copying the bits of data from each track. Don't be fooled. . . . no other copy-program/system for Apples can do this! ■ In addition to backing up disks, **EDD 4 PLUS** includes several **useful** utilities such as examining disk drives, certifying disks, displaying drive speed rpm's, plus more!

■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at \$129.95 (duodisk/uni-disk 5.25 owners must add \$15 for a special cable adapter). Add \$5.00 (\$8.00 foreign) ship / handling

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



UTILICO MICROWARE

3377 SOLANO AVE., SUITE 352
NAPA, CA 94558 / (707) 257-2420

WARNING: EDD is sold for making archival copies only.

Circle 264 on Reader Service Card.

lect xon/xoff handshaking, incoming and outgoing line feeds, and automatic log-on.

Automatic log-on requires you to first create macros. A communications file can include 18 different macros of 32 characters each, including control characters. You can chain all 18 macros to work in series with a single telephone number or key press; if necessary, you can create additional files with 18 macros each for the same computer service. The number of communications files is limited only by disk space. To make a call, simply follow the menus to load a communications file, and CommWorks will dial and log on for you automatically.

The macros sound great, but there are a few hitches. Automatic log-on looks for only a single character before responding, so you can't, for instance, look for the hyphen if a bulletin board includes two of them in a prompt (such as "Complete your phone number: 415-349- _____"). CommWorks also can't wait for the @ symbol, a Telenet prompt. Its macro

series allows no branching (to get waiting mail, say, or to disconnect if the host computer is shut down). VT100 emulation doesn't permit full-screen editing (at least not on the VAX or 3B2 I tried). The auto-answer default (three rings) doesn't work with all modems. And, most frustrating, you can't change 8 data/1 stop bit to 7 data/1 stop bit from within the program with the Super Serial Card settings CommWorks recommends.

Sending and Receiving

One CommWorks feature pleases me enormously: saving incoming text as either an AppleWorks word-processor file or in ASCII format. Unlike Apple Writer II and many other word processors, AppleWorks can't read ASCII files directly, so you must first change them to AppleWorks format. CommWorks eliminates that tedious process. CommWorks also offers a version of XModem that lets you send or receive AppleWorks files with their file types if you're connected to one of the few programs—such as Comm-

Works or ASCII Express Pro (ProDOS)—that can accept them.

Two computers using CommWorks are also supposed to be able to transfer an entire disk, but my attempts with three different disks all failed. (If you try this on a long-distance call, be prepared for a big bill; each try took more than 25 minutes.)

CommWorks' standard implementation of XModem is less than satisfactory for me because it saves all downloaded files as binary rather than text files. You'll need some way to change either the file's address (saved as \$0000) or its type to use it. The program provides no way to strip line feeds from XModem downloads. These limitations put error-free downloading beyond the capability of novices. CommWorks would be much more efficient if it offered a choice of file type for XModem downloading (as Apple Access II does) or the ability to convert file types within the program.

File Management

CommWorks sets aside 35K of the 128K Apple memory as a capture

RAMWORKS®

ACCEPT NO SUBSTITUTES. BECAUSE THERE AREN'T ANY.

There's only one card like RamWorks. Others may say they're RamWorks compatible but they're not! We've got the best hardware design. We supply the best software and we've got the best support from software companies.

If someone tempts you with an imitation, please get both sides of the story. You'll discover why RamWorks offers the best enhancements to AppleWorks and other programs, and at the lowest price.

GUARANTEED!

**214-241-6060
9 AM - 11 PM
7 Days a Week**



**"We Set the Standard"
APPLIED ENGINEERING**

buffer to hold incoming text, but if you have an extended-memory card, you're in for a special treat. The program recognizes Checkmate Technology's MultiRam and Applied Engineering's RamWorks II or Z-RAM boards, and automatically partitions as many as 16 capture buffers of 35K each. (You can also save incoming data to disk.)

This system makes it wonderfully easy to receive information into different files and to send files quickly. You can load a file into the buffer from disk (open apple-L) and even append other files (open apple-A). Other open-apple commands turn recording on and off, change from one buffer to the next, send the contents of a buffer, save a buffer to the current disk or pathname, view the current buffer, or clear it.

Although not intended as a complete word processor, CommWorks' text editor lets you write, change, and delete the contents of the selected buffer. Despite its limitations (you can scroll or delete only one line at a

time, for instance), this line-oriented editor does allow changes before sending or saving a file.

Unfortunately, CommWorks uses xon/xoff only for sending, not receiving, on the mistaken assumption that no one will want to take in more than 35K in a single gulp. If you want to download a batch of letters, say, you have to watch the buffer fill up, stop the incoming material with control-S, switch buffers, and start the flow again with control-Q.

Extras

CommWorks follows the AppleWorks convention of stacked index-card menus and uses some of the same open-apple commands. Not every CommWorks command means the same thing it does in AppleWorks, though, and alas, commands aren't always consistent even within CommWorks. For example, open apple-D "disconnects" when you're in one part of the program, but "deletes a line" in another part. Open apple-H (to print the screen) and open apple-

P (to print the buffer) didn't work at all, even with a standard Apple Dot Matrix Printer and parallel card.

CommWorks will save you from most possible mistakes—accidentally disconnecting, for example, or changing carefully created macros. It won't warn you, though, if you exit the program with unsaved text still in its buffer, or if you try to load too long a file into the edit buffer.

If you boot up with Jeeves desktop accessories (also from PBI), you'll have access to your calendar, calculator, and notepad. The Jeeves screen clock and alarm clock can't appear when you're actually exchanging information with a remote computer, though.

Documentation and Support

CommWorks' 87-page manual includes a good glossary of terms, detailed instructions on copying disks, and step-by-step explanations of each menu. The booklet lacks an index, but it tells you almost everything you need to know to run CommWorks.

DIGITAL VISION

ALL NEW

COMPUTEREYES/2™

VIDEO DIGITIZING SYSTEM FOR APPLE II SERIES COMPUTERS

The world's highest-quality, lowest-priced video digitizer has just gotten even better! The new card-based COMPUTEREYES/2™ for Apple II, II+, IIe and compatibles connects to any standard video source to capture real-world images on your Apple's graphics display. Hundreds of applications!

COMPUTEREYES/2™ features include:

- Fast scanning—single & second scan for all capture modes
- Automatic and manual control over both brightness and contrast
- Keyboard-controlled video switching to allow previewing the video source on the Apple monitor.
- New, familiar, Appleworks-style menu
- Standard software supports Apple Hi-Res and Double Hi-Res graphics, plus Gray-Scale boards for really superb images!
- Optional COMPUTEREYES/2™ Enhancement Software package available to convert COMPUTEREYES images to Printshop, Printmaster, Newsroom, and other formats; perform image negate, flip, etc
- Also available as complete system including quality video camera



STILL ONLY \$129.95

See your dealer or order direct. Mass. residents add 5% sales tax. Mastercard, Visa accepted. To order, or for more information, write or call:

DIGITAL VISION, INC.
14 Oak Street — Suite 2 Needham, MA 02192 (617) 444-9040, 449-7160

Versions available for:
• Apple II, II+, IIe and IIc
• Commodore 64/128
• Atari 800/800XL/130XE
• IBM PC and compatibles (\$249.95—includes additional features)

Circle 184 on Reader Service Card.

**WANT TO KNOW MORE ABOUT
AppleWorks?**

The **National AppleWorks Users Group (NAUG)** is an association of AppleWorks users. NAUG members share information, hints, suggestions and ideas about AppleWorks through a monthly newsletter. The newsletter describes AppleWorks techniques and shortcuts, reviews hardware and software add-ons that work with AppleWorks, answers questions and solves problems with the program.

The group shares an electronic bulletin board to help members get answers to their questions. The board includes an on-line library of AppleWorks word processing, spreadsheet and data base templates.

NAUG maintains a small but growing library of public domain files that work with AppleWorks. Most of these files are templates submitted by members, reviewed by AppleWorks experts, and collected on disks maintained by the group's public domain librarian.

A one-year NAUG membership costs \$24. We will refund the balance of your dues if you are ever dissatisfied.

National AppleWorks Users Group
Box 87453, Canton, MI 48187

Enclosed is \$24 for a one-year NAUG membership.
Enclosed is \$3 for a sample NAUG newsletter.

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____

inCider 9

WE SUPPORT AppleWorks USERS

AppleWorks is a trademark of Apple Computer, Inc. NAUG is not affiliated with Apple Computer, Inc.

Circle 55 on Reader Service Card.

You have to work to get some of that information, though. For instance, the documentation tells you to check the settings on the serial card, then—67 pages later, in an appendix—gives you the settings CommWorks requires. Typos, awkward syntax, and sloppy punctuation spoil what is obviously a well-intentioned effort to teach the program.

When I called to ask about the deficiencies in the program, the PBI support staff were friendly and cooperative. They couldn't explain most of

the problems, but offered to call back. When I hadn't heard from them in three days, I called again, and once more they agreed to get the answers and phone me. They did call, a few days later, with the incorrect guess that an accelerator card had made the print function fail. They promised to call again with another answer, but I'm still waiting.

Next-to-the-Last Word

CommWorks version 1.06 is an adequate program that promises to

combine power with ease of use. Consider the current edition, despite its flaws, if you find one of its special features essential. Otherwise, I suggest you wait for PBI to repair the program's deficiencies. I hope it will have the last word with a truly efficient, upgraded CommWorks. ■

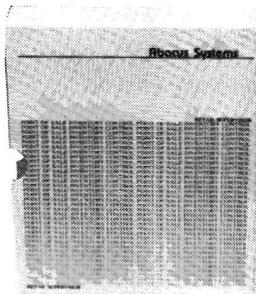
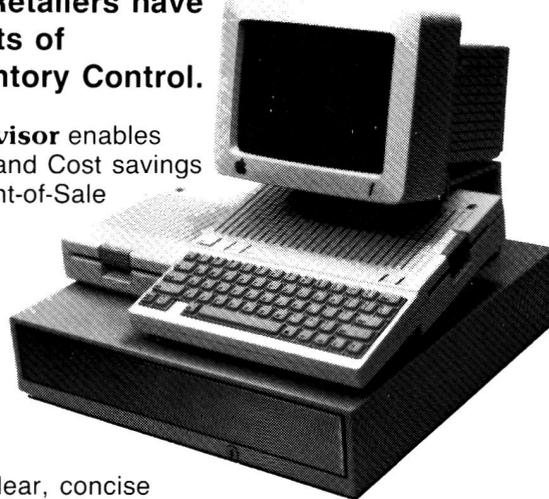
Tom Sherman
Swarthmore, PA

Editor's note: According to PBI's Eric Wong, reviewer Sherman was prophetic. CommWorks version 1.2, shipping at presstime, fixes many of the above complaints: It can look for log-on characters including multiple hyphens and @ symbols, saves XModem downloads as text as well as binary files, warns of a full or unsaved text buffer, and supports virtually all parallel interface cards. Wong also blames Sherman's accelerator card for the failure of the timing-sensitive disk-transfer feature.

Retail Management MADE Easy

For years Large Retailers have enjoyed the benefits of computerized Inventory Control.

Now! the **Retail Supervisor** enables you to realize the Time and Cost savings of a fully automated Point-of-Sale and Inventory Control system.

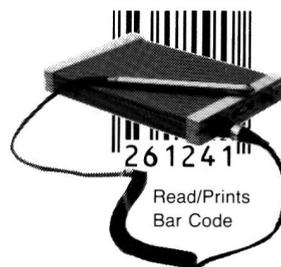


Clear, concise reports allow you to eliminate Overstocks, identify Slow Movers, reduce Stockouts and improve Profit Margins.

The Retail Supervisor will give you control of your Inventory Investment and enhance your ability to make profitable Management Decisions.

The Retail Supervisor will consistently contribute more to your profits than any other Investment you can make. To see how the Retail Supervisor can improve your Bottom Line,

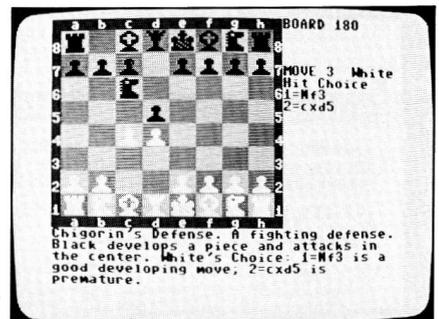
Call for a dealer near you.



707 Cass St., La Crosse, WI 54601, (608) 785-1740

The Retail Supervisor is available for the Enhanced Apple IIe and Apple IIc.

Apple is a registered trademark of Apple Computer, Inc. Retail Supervisor, Abacus Systems, and the Abacus Systems Logo are trademarks of Abacus Inc.



Your Move

**PAUL WHITEHEAD
TEACHES CHESS**

Enlightenment, 1240 Sanchez Street, San Francisco, CA 94114

Chess tutorial and chess-playing program;
any 64K Apple II
\$49.95

Ease of learning	■ ■ ■ ■
Ease of use	■ ■ ■
Documentation	■ ■
Support	■ ■ ■
Overall	■ ■

Paul Whitehead Teaches Chess is a software product with ambitious goals: to teach beginners the game of chess, and to help them achieve a respectable level of skill. While it succeeds in the former, the program

When you really want to see how Apple works...

AutoWorks by Alan Bird (AUTOMATIC AppleWORKS)

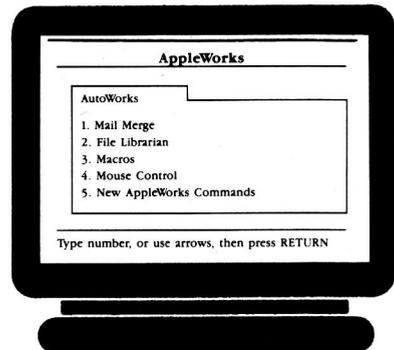
AutoWorks adds to AppleWorks several important time-saving features including mail merge, file organizing, macros, new AppleWorks commands and mouse control.

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.



AutoWorks
\$39.95

FontWorks by Mark Simonsen Good-looking Printing for AppleWorks

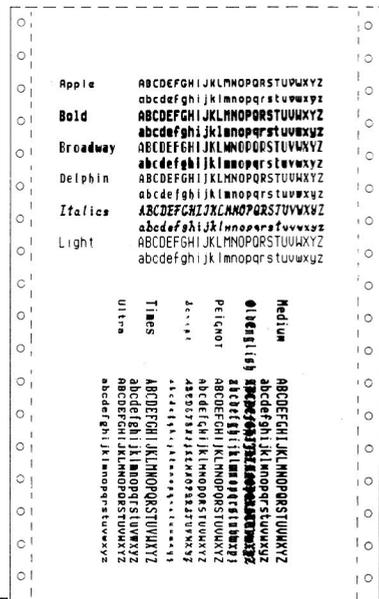
Now you can print your AppleWorks files in a variety of typestyles. FontWorks reads your Appleworks files directly (no need to save them in a different format) and prints them with the typefaces you choose. You can even print your files sideways — great for those wide spreadsheets.

There are no complicated commands to learn. FontWorks incorporates the same easy-to-use menu style as AppleWorks.

Choose from 15 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.



FontWorks
\$49.95

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. and Canada add \$5.00.

For Orders Only

(800) 541-0900 IN CALIF. CALL: **(800) 334-3030**



(Apple, AppleWorks, and ProDOS are trademarks of Apple Computer, Inc.)

doesn't provide enough depth to turn beginners into middle-level players.

The program consists of two parts: a chess tutorial (three disk sides) and the Coffeehouse Chess Monster, a chess-playing program. The basic tutorial teaches you how to move and capture and explains the object of the game. This section is the best part of the program. Instead of static diagrams in a book, you get to see the way the pieces move—and exactly what *check* and *checkmate* mean. The latter concept is often especially difficult for beginners.

Moving around the tutorial is easy. Using a series of menus, you choose the topics you want to study. After typing in your selection, you advance in a particular subject area by pressing the right-arrow key; the left-arrow key lets you back up. When you reach the end of each part of the tutorial, pressing the right-arrow key takes you to the next section or the next menu.

You can also jump around within the tutorial. A road map identifying

the board number at the beginning of each section accompanies the program; you can skip to any section by typing the corresponding board number.

My only complaint regarding the introductory areas of the tutorial is that they often use chess jargon, such as *hole* and *passed pawn*, before defining these terms.

Beyond Beginner

After going through the introductory tutorial a few times, anyone who can read should be able to play a game of chess—albeit poorly. Subsequent tutorials cover strategy, tactics, and the three phases of any game: the opening, middle game, and endgame.

The program goes astray here because it tries to do too much. For example, it gives you only a cursory look at all the major opening systems (there are dozens) without imparting an understanding of what you should be trying to accomplish in the opening.

The tutorial also doesn't present the elements of chess—material, time, space, and position—in enough

depth. (All other things being equal, an advantage in one element should be enough to win a game.) The tutorial covers the material element in detail—the number and types of pieces you have left—but fails to do the same for the other three. For beginners, of course, the material element is the easiest to understand (if I have two rooks and you have one, I'll probably beat you), but before advancing to middle levels of play, a beginner must have a better understanding of time, space, and position than the tutorial provides.

The Coffeehouse Chess Monster exhibits the same strengths and weaknesses as the tutorial. It expertly calculates combinations and exchanges, but bases most of its decisions on material considerations. For example, playing black against my Queen's Gambit, it invariably accepted the gambit and tried to hold onto the extra pawn; just as invariably I was able to recapture the pawn with material and positional advantages.

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, ± 5 V, ± 2.5 V, ± 1.0 V, ± 500 MV, ± 250 MV, ± 100 MV, ± 50 MV, or ± 25 MV.
- Very fast conversion (25 micro seconds).
- Analog input resistance greater than 1,000,000 ohms.
- Laser-trimmed scaling resistors.
- Low power consumption through the use of CMOS devices.
- The user connector has +12 and -12 volts on it so you can power your sensors.
- Only elementary programming is required to use the A/D.
- The entire system is on one standard size plug in card that fits neatly inside the Apple.
- System includes sample programs on disk.

PRICE \$319

A few applications may include the monitoring of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● soil moisture and many more.

A/D & D/A

A/D & D/A Features:

- Single PC card
- 8 channels A/D
- 8 channels D/A
- Superfast conversion time
- Very easy programming
- Many analog ranges
- Manual contains sample applications

A/D SPECIFICATIONS

- 0.3% accuracy
- On-board memory
- Fast conversion (.078 MS per channel)
- A/D process totally transparent to Apple (looks like memory)
- User programmable input ranges are 0 to 10 volts, 0 to 5, -5 to +5, -2.5 to +2.5, -5 to 0, -10 to 0.

The A/D process takes place on a continuous, channel sequencing basis. Data is automatically transferred to its proper location in the on-board RAM. No A/D converter could be easier to use.

D/A SPECIFICATIONS

- 0.3% accuracy
- On-board memory
- On-board output buffer amps can drive 5 MA
- D/A process is totally transparent to the Apple (just poke the data)
- Fast conversion (.003 MS per channel)
- User programmable output ranges are 0 to 5 volts and 0 to 10 volts

The D/A section contains 8 digital to analog converters, with output buffer amplifiers and all interface logic on a single card. On-card latches are provided for each of the eight D/A converters. No D/A converter could be easier to use. The on-board amplifiers are laser-trimmed during manufacture, thereby eliminating any requirement for off-set nulling.

PRICE \$199

SIGNAL CONDITIONER

Our 8 channel signal conditioner is designed for use with both our A/D converters. This board incorporates 8 F.E.T. op-amps, which allow almost any gain or offset. For example, an input signal that varies from 2.00 to 2.15 volts or a signal that varies from 0 to 50 mV can easily be converted to 0-10V output for the A/D.

The signal conditioner's outputs are on a high quality 16 pin gold I.C. socket that matches the one on the A/D's so a simple ribbon cable connects the two. The signal conditioner can be powered by your Apple or from an external supply.

FEATURES

- 4.5" square for standard card cage and 4 mounting holes for standard mounting. The signal conditioner does not plug into the Apple, it can be located up to 1/2 mile away from the A/D.
- 22 pin .156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
- Large bread board area.
- Full detailed schematic included.

PRICE \$79

I/O 32

- Provides 4, 8-Bit programmable I/O Ports
- Your inputs can be anything from high speed logic to simple switches
- Any of the 4 ports can be programmed as an input or an output port
- Programming is made very easy by powerful on-board firmware
- All I/O lines are TTL (0-5 volt) compatible
- The I/O 32 is your best choice for any control application

The I/O manual includes many programs for inputs and outputs.

Some applications include:

Burglar alarm, direction sensing, use with relays to turn on lights, sound buzzers, start motors, control tape recorders and printers, use with digital joystick.

PRICE \$89

Please see our other full page ad in this magazine for information on Applied Engineering's Timemaster Clock Card and other products for the Apple. Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products compatible with Apple II and //e.

Applied Engineering's products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle three year warranty.

Texas Residents Add 5% Sales Tax
Add \$10.00 If Outside U.S.A.

Send Check or Money Order to:

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

Call (214)241-6060
9 a.m. to 11 p.m. 7 days a week
MasterCard, Visa & C.O.D. Welcome
No extra charge for credit cards

The program made the same mistake on all levels of play. The Coffeehouse Chess Monster is a good tactical program—just what beginners need—but it isn't a well-rounded opponent.

The tutorial and the Coffeehouse Chess Monster occupy both sides of two copy-protected disks. With the package you also get the road map, a four-page instruction sheet, a warranty sheet, and a certificate that lets you purchase a second copy of the program for \$25. You can replace damaged disks for \$5. Prominently displayed on the warranty sheet is a notice that unauthorized copying is illegal and immoral. I resent this heavy-handedness, especially since the sheet doesn't mention that you're permitted by the U.S. Congress to make a back-up copy of any software you own (see section 117 of the Copyright Act of 1976, as amended, 1980).

Paul Whitehead Teaches Chess will teach you how to play chess. It will also provide you with a competent opponent while you're learning. You'll

have to complement it, though, with some basic reading of the ideas behind the game before you can progress beyond the beginner level. ■

Robert M. Ryan
Sharon, NH

Editor's note: Martin Marshall of Enlightenment contends that "the reviewer criticizes the tutorial for not containing information [it] does indeed contain." To excerpt his primary complaints, Marshall says that the program includes three boards focusing on time or tempo, many examples of positional play, and enough advanced moves to teach U.S. Chess Federation middle-level players. Jargon or terms introduced on "parent" boards are later defined on "dependent" boards.

While Marshall describes the tutorial as "the world's greatest beginner's chess book," it "does indeed give only a cursory look at all the major openings," albeit, he says, a complete overview of opening principals.

"To do a complete job on the openings," says Marshall, "would require five Apple disk sides," available in Enlightenment's "Jeremy Silman's Complete Guide to Chess Openings" (\$49.95).

As for copy protection, while Marshall suggests in Cider's view to be "Raise the Jolly Roger and screw the developers!", we feel computer users should have the right to a back-up copy of each program they own, given the lack of perfect hardware and crashproof disks. We do not condone piracy or stealing from developers.

Editor's note: A review of the //e-compatible Laser 128 computer, scheduled for this month, has been postponed. Look for a comparison of the Laser and the new Franklin Ace 500 in an upcoming issue.

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
6502 DISK DRIVE

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?"

New! Mouse Control and More
After updating your AppleWorks disk once, just boot normally. Now you can use your mouse to control AppleWorks. And you can define over 4,000 keystrokes-worth of custom macros.

MacroWorks is compatible with the Checkmate™ and Applied Engineering (RamWorks™ or Z-Ram™) Desktop Expanders.



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

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.

• COUNT WORD	• 1 WORK
• 10 A	• 1 WRITING
• 1 ADDRESS	• 9 YOU
• 1 ADDRESSES	• 1 YOU'VE
• 6 ALL	• 8 YOUR
• 1 ALMOST	• TOTAL WORDS: 402
• 1 ALWAYS	• CHARACTERS: 2013
	• CHARS/WORD: 5.0

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.)

NEW PRODUCTS

edited by Lafe Low

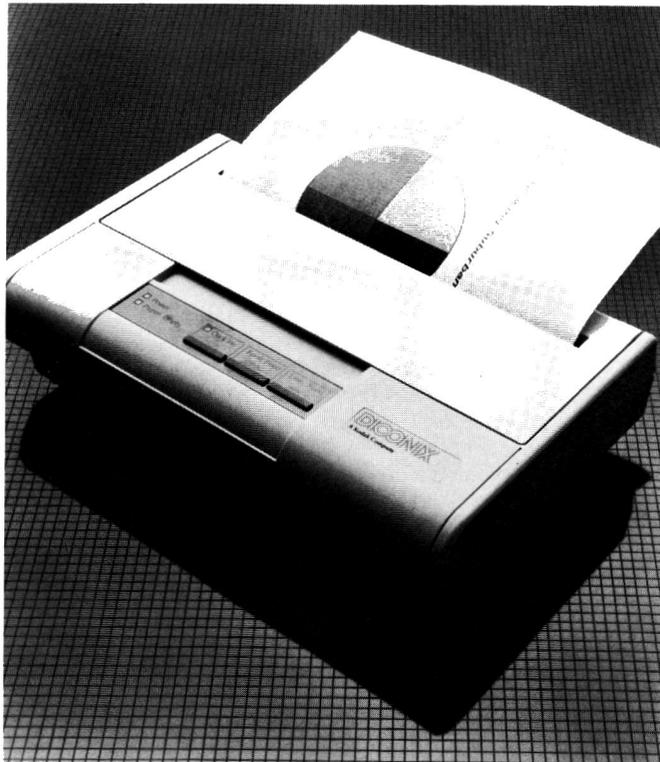
Hardware

The Lighter Side

For people who pack a **portable printer** when they travel, the new battery-powered Diconix 150 weighs less than four pounds. It prints on single letterhead sheets or continuous-feed paper at a speed of 150 cps in draft mode and 50 cps in near-letter-quality. The 150 can emulate the Epson FX and is compatible with major word processors. This portable printer retails for \$479, from Diconix, 3100 Research Boulevard, Dayton, OH 45420, (513) 259-3100. Circle Reader Service number 358 for more information.

Locked Up

Keep unauthorized people from using your Apple II, II Plus, or IIe. The Greeting Card II **programmable board** stores a security program in its 2K nonvolatile memory, and only those who know the password can use your computer. The Greeting Card also lets you leave short messages for other operators. The Greeting Card II retails for \$89.95 (software for security coding and messages included), from Bircham Computer Products, 4813 Cameron Ranch Drive, Sacramento, CA 95841, (916) 489-7181, or circle Reader Service number 360 for more information.



The Diconix 150 portable printer weighs in at less than four pounds.

Mass Storage and More

AST's newest storage device is a 20-megabyte **3½-inch hard disk** with a 20-megabyte backup. This is the first mass-storage unit to combine SCSI (small computer systems interface) port, 3½-inch-disk technology, and built-in tape backup to allow high-performance data transfer between computer and disk drive. The AST-2000 retails for \$2795, from AST Research, 2121 Alton Avenue, Irvine, CA 92714, (714) 863-1333. Circle Reader Service number 363 for more information.

A Dash of Color

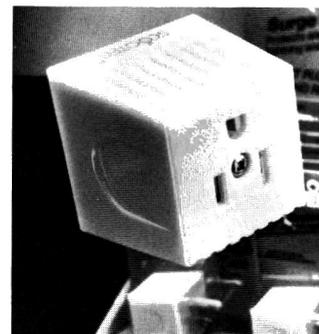
The Kaleidoscope II **RGB color board** features compact size, universal RGB-monitor compatibility, gold-edge connector contacts, and a two-page-memory operating system for programming foreground and background colors. Each text page, each individual line of text, and the background can be programmed independently for any of eight available colors. The Kaleidoscope II retails for \$199, from Telemax, 780 Lorraine Drive, Box 339, Warrington, PA 18976, (215) 343-3000. Circle Reader Service number 362 for more information.

Hi-Res Display

Add multiple levels of **graphics** to your monochrome monitor. The Grafex hi-res card will display 640 horizontal pixels and 400 vertical pixels in its basic 32K configuration. This can be upgraded to 640 by 1600 pixels, enough memory for four pages of graphics. Grafex-Dimensions, an assembly-language driver, is also available. The Grafex card is \$195, and the Dimensions Software is \$45, from Ray Dahlby Electronics, Department 255, Box C 34069, Seattle, WA 98124, (604) 732-1080. For more information, circle Reader Service number 359.

Even Electricity

Protect your computer with the Scooter SP100 Guard-It single-outlet **surge protector**. Plug this 125-volt, 15-amp line protector into any three-prong wall socket, and you'll have an even flow of current. The Scooter sells for \$9.95, from Ohm/Electronics, 746 Vermont Street, Palatine, IL 60067, (800) 323-2727, (312) 359-6040 within Illinois. Circle Reader Service number 361 for more information.



Prevent unstable electric currents with Curtis' Scooter surge protector.

Software

Perfect Pictures

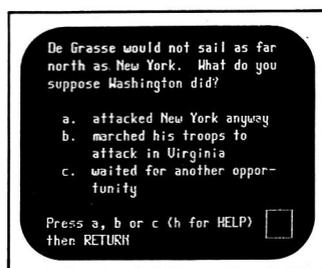
The Electric Crayon series—ABCs, Fun on the Farm, and This Land is Your Land—contain about **30 detailed pictures** each for your child to color. Moving a “crayon” cursor around the screen with a joystick, mouse, or KoalaPad, children aged four and up can choose from a palette of 16 double hi-res colors. Finished work can be printed in color on an Apple Scribe or ImageWriter II. Electric Crayon “coloring books” are available for \$19.95 each, from Brian A. Rice, P.O. Box 1088, Westmont, IL 60559, (312) 789-8800, or circle Reader Service number 354 for more information.

Playing the Numbers

Combine **football action and whole-number or decimal drills**. One or two players can play Math Football, with a choice of four skill levels: high school (addition and subtraction), college (multiplication), pro (division), or Super Bowl (mixed operations). Answering the math problems correctly gets you yardage gains, first downs, touchdowns, and extra points after a touchdown. Each series (whole numbers or decimal drills) sells for \$39.95, from Gamco Industries, Box 1911, Big Spring, TX 79721, (800) 351-1404, (915) 267-6327 within Texas. For more information, circle Reader Service number 357.

Our Founding Father

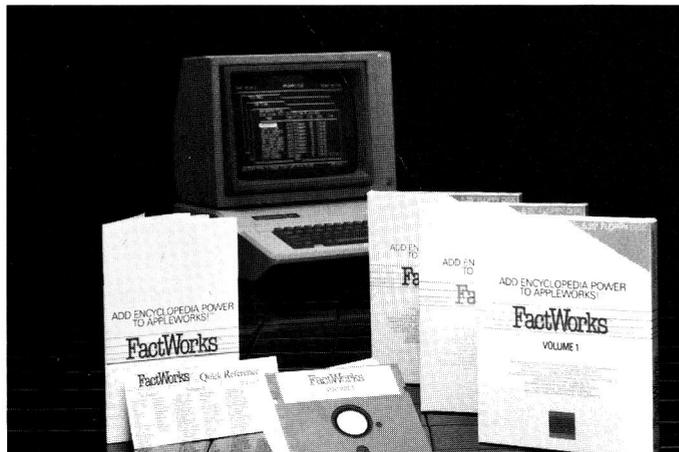
Students take an active role in shaping **18th-century historical events** in Washington's Decisions. This interactive program challenges students to match George Washington's decisions as it leads them through key events in Washington's life. Junior-high and high-school students will develop a greater understanding of Washington's roles in the Revolutionary War and as our first President. Washington's Decisions sells for \$63, from Educational Activities, 1937 Grand Avenue, Baldwin, NY 11510, (516) 223-4666. Circle Reader Service number 355 for further information.



Washington's Decisions helps students understand early-American history.

Mouse Filing

Use your mouse to run MouseFiler, a new **file- and directory-manager** program that uses a desktop, windows, and pull-down menus. File operations include creating and displaying directories, copying, pasting, deleting, sorting, and comparing files. You can select single or multiple files individually or by file type. MouseFiler retails for \$39.95, from Harbor Software, P.O. Box 872, Acton, MA 01720, (617) 263-1870. Circle Reader Service number 350 for more information.



FactWorks: three encyclopedia volumes for your AppleWorks data base.

Let the Games Begin

IntelliCreations has added **four new games** to its line. In 221B Baker Street, the life of famous detective **Sherlock Holmes** is re-created. Solve more than 30 different cases, with more available on supplementary disks. Crosscheck, a new concept in **crossword puzzles**, accommodates up to four players, who build a “chain” of words from the center of the board to their home base. **Fantasy** gamers can play The Never Ending Story, based on the book and film of the same name: You're cast as the hero, Atreyu, in the land of Fantasia. In Mind Pursuit, you can test your intelligence and knowledge of **trivia** as you answer true/false, multiple-choice, and fill-in-the-blank questions. The four games retail for \$29.95 each, from IntelliCreations, 19808 Nordhoff Place, Chatsworth, CA 91311, (818) 886-5922. For more information, circle Reader Service number 352.

That's a Fact

With FactWorks, you can add quantities of **encyclopedia information** to your AppleWorks data base. FactWorks comes in three separate volumes with topics ranging from Countries, Continents, Cats, and Dogs, to Dinosaurs, Mythology, Mountains, and Measures. Look up Volcanoes and Reptiles, or plot a loan for your home or car. If you use AppleWorks, using FactWorks is just a matter of inserting a data disk (and you can add to or modify each disk). Suggested retail price for FactWorks is \$32.95 per volume, from ImagiMedia Software, 16640 Roscoe Place, Sepulveda, CA 91343, (818) 891-3707. Circle Reader Service number 351 for more information.

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.

DO YOU LOVE PRINT SHOP™?

We do! And that's why we've created the **PS LOVER'S UTILITY SET (P.L.U.S.)**. P.L.U.S. gives you ten "Print Shop™" related utility programs that are so useful, you'll wonder how you ever got along without them.

There's **CATALOG PRINTER** which will print out the picture and name of all the graphics on any library disk. Now you can organize your Print Shop Graphic Library™ disks and make charts of what is stored on each one. With **LABEL PRINTER** you can design and print mailing labels which mix Print Shop™ Graphics and text. It's great for spicing up your letters and you can even use it to design labels for your software disks. **TRANSFER** allows you to convert Print Shop™ graphics so that they can be used with Newsroom™.

If that's not enough, P.L.U.S. features seven more utilities which you'll love. P.L.U.S. requires an ImageWriter™, Apple DMP™, C.Itoh™, or Epson™-compatible printer. It will work with any standard interface card. P.L.U.S. comes complete with printed documentation describing each of the utility programs.



Order product number **PS01** for only **\$24.95**. Price includes shipping and handling! No hidden charges. MasterCard or Visa accepted.

Big Red Apple Club

1105 South 13th Street, Suite 103
Norfolk, NE 68701

(402) 379-4680 Print Shop is a registered trademark of Broderbund Software.
Newsroom is a registered trademark of Springboard Software.

Circle 151 on Reader Service Card.

BUSINESS • SCIENCE • EDUCATION

The complete
Apple II
statistical
package
for only:

\$99

APP-STAT™

A Powerful Tool for Data Analysis and Forecasting

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

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



StatSoft™



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

ASK ABOUT THE VERSION FOR MACINTOSH!

Apple and Macintosh are a registered trademark of Apple Computer, Inc.

NEW PRODUCTS

Hot Stuff

Learn how to save your life in a fire with **Escape from Fire**. Written by a fire chief, this program teaches **fire safety** in three portions. In **Facts**, you learn what to do in the event of a fire in your home; the **Quiz** section drills you on the facts from the previous module; and the **Escape Game** is a realistic simulation of a fire occurring in your home. The player receives a rank based on his/her score, ranging from **Fire Chief** down to **civilian**. **Escape from Fire** is \$49.95 plus shipping and handling, from the Center for Fire Safety Education, P.O. Box 81, Cranford, NJ 07016, (201) 272-6713, or circle Reader Service number 356 for more information.

On File

The **Filing System for Apple** can **store any type of text file** created with your Apple Writer word processor. This WPL program is user-modifiable and is fully listed and explained in the documentation. The package also includes the *Minute Manual for WPL*, a user guide to WPL programming. You can install Apple Writer and the Filing System on one 3½-inch disk and still have room for more than 500,000 bytes of data. The **Filing System for Apple Writer** sells for \$99.95 (ProDOS or DOS 3.3), from MinuteWare Publishing, P.O. Box 2392, Columbia, MD 21045, (301) 995-1166. Circle Reader Service number 353 for more information.

Resources

Quick and Easy

Search for whatever tidbit from past *inCiders* you need with **Fastfind**. This high-speed utility **retrieves data** from the *inCider Super Index*—a data base with summaries of every article, review, program, tip, and letter in the magazine—up to 100 times faster than any word processor. **Fastfind** can also search your own word-processor, spreadsheet, data-base, DIF, sequential, random, and EXEC text files. The **Fastfind** program lists for \$29; the *inCider Super Index* is \$5 for 1985, \$9 for 1984 and 1985. Updates are priced at \$5 each, \$18 for four quarters, or \$39 for 12 months (each update includes January through the present month). An introductory special costs \$12, including **Fastfind** and the 1984 and 1985 indexes, from **Fastfind**, 28503 Coveridge Drive, Palos Verdes, CA 90274, (213) 590-4417. Circle Reader Service number 364 for more information.

Apple Art

Learn to use your Apple for creating graphics: *Hi-Res/Double Hi-Res Graphics for the Apple IIc and Apple II Family*, by William H. Dewitt, covers the use of programming to create images, including how to convert hi-res graphics to double hi-res. The second part of the book discusses available software and various input devices, as well as utility programs to customize off-the-shelf packages. *Hi-Res/Double Hi-Res Graphics* is \$16.95 in paperback, from John Wiley & Sons, 605 Third Avenue, New York, NY 10158, (212) 850-6000. For more information, circle Reader Service number 365.

Product Updates

● Applied Scientific has added two new entries to its line of business templates for AppleWorks.

Accounts Receivable and Accounts Payable (\$29.95 each) have joined Accountant, Payroll, Financial Calculator, and Investment Portfolio. Contact Applied Scientific at 416 Arnold, Bozeman, MT 59715, (406) 586-1157.

● Activision's latest game can win you and a friend a trip down the Mississippi. **Murder on the Mississippi** is a 19th-century murder mystery set on a riverboat, the Delta Princess. You guide the famous British sleuth, Sir Charles Foxworth, and his constant companion, Regis Phelps, through their investigations to solve the murder. Details explaining the national drawing are packed inside every box. Murder on the Mississippi retails for \$39.95, from Activision, 2350 Bayshore Frontage Road, Mountain View, CA 94043, (415) 960-0410.

● Broderbund has some new developments for its **Science Toolkit**: Two modules explore the physics of speed and motion and the phenomenon of earthquakes (\$39.95 each). In addition, a school version of Science Toolkit will soon be available for \$89.95. (Teachers who have the original edition can order the teacher's guide for \$20.) All from the laboratories of Broderbund, 17 Paul Drive, San Rafael, CA 94903, (415) 479-1170.

● See what the **Covox Voice Master** can do with its new demo disk. The disk retails for \$5 directly from Covox, and contains programs and digitally encoded vocabulary demonstrating the au-

dio capabilities of the Voice Master speech and music processor. Send the Covox people \$5 and they'll send you the demo disk. Contact them at 675-D Conger Street, Eugene, OR 97402, (503) 342-1271.

● The Telemet **Radio Exchange/Personal Gains** broadcast area for business news and stock quotes (New Products, June 1986, p. 110) is apparently somewhat limited. If you're near a major city, though, don't worry. Telemet broadcasts from 13 cities around the U.S., including New York, Los Angeles, Chicago, Dallas, and Atlanta. Get in touch with Telemet America at 515 Wythe Street, Alexandria, VA 22314, (800) 368-2078.

● PM Software has integrated its ProFiler utility program into the new **ProFiler 2.1** data manager/report generator. The combination offers easy transfer of data between ProFiler and AppleWorks, as the utility permits direct reading and writing of AppleWorks data-base files. ProFiler 2.1, complete with the utility, sells for \$99.95, from PM Software, P.O. Box 1788, Huntington Beach, CA 92647, (714) 963-2221.

● Digital Vision now offers **Gray-Scale Compatibility** software to enhance the performance of **Computer-Eyes**, its digital video-acquisition system. With the new software control, you can display high-contrast images or images with dot-density gray-scale, in up to eight shades of true gray. Contact Digital Vision at 14 Oak Street, Suite 2, Needham, MA 02192, (617) 444-9040, and add a little gray to your life.

PROF JONES
SUMMER/FALL 1986

ORDER LINE
(208) 342-6939

THOROUGHBRED
GREYHOUND
TROTTER

LOTTERY/LOTTO
FOOTBALL

BASKETBALL
OFFICE HOURS

M-F 8 AM - 5 PM
SAT 9 AM - 1 PM
(Mountain Standard Time)

FREE CATALOG

1940 W. STATE
BOISE, IDAHO 83702

MasterCard
VISA
AMEX

PROFESSIONAL HANDICAPPING SYSTEMS

Professor Picks Football™
\$99.95; with win/loss power ratings \$149.95; Professional Series™ \$199.95

Expanded Lottery/Lotto Analysis
Lottery: 3-4 digits \$79.95; Lotto: max. of 99 digits \$99.95; Enhanced Lottery/ Lotto \$129.95

PC-3 Portable Computer (4k)
Choice of Thoroughbred/Greyhound/Trotter Gold Edition™ software. \$249.95

Model 100 Portable Computer (32k)
Choice of Thoroughbred/Greyhound/Trotter Gold Edition™ software with Master Bettor™ \$649.95

PROFESSIONAL SERIES

PROFESSIONAL SERIES™ (Tho/Grey/Trot)
The all new Professional Series™ represents the most advanced handicapping software available.

Analysis Module™
Complete bet analysis highlights this basic Professional Series™ module. Full 50 tracks/kennels/etc. \$249.95

Factor Value/Multiple Regression Module™
Factor Value Weighting highlights this addition module™ \$149.95

Data Base Manager Module™
Automatic storage of last 11 races highlights this module. (\$99.95 with Factor Value Module) \$149.95

GOLD EDITION™ (Tho/Grey/Trot)
The classic Gold Edition™ from Prof. Jones offers flexibility, results, and ease of use.

Gold Edition™	\$159.95
Enhanced Gold Edition™	\$199.95
Limited Gold Edition™	\$299.95
Ultra Edition™	\$399.95

Handicapper's Bulletin Board now available
VHS Training Tapes now available

Terms: Free shipping all software. Add \$6.00 COD / \$6.00 UPS Blue / \$9.00 Out-of-country / ID residents add 5% / 3 weeks personal checks / cash price only add 2% Visa, MC, AMEX. Prices subject to change.

Circle 49 on Reader Service Card.

Introducing . . .

CLIPCATURE™

to **THE NEWSROOM™** and **Print Shop™** owners!

CLIPCATURE provides TOTAL integration between Newsroom clip art, Print Shop graphics, and your own artwork.

NEWSROOM ARTISTS! — Finally, create your own clip art disks using CLIPCATURE and The Newsroom. Start with Newsroom clip art, remodel the pieces as you like, then put THEM on a CLIPCATURE disk. CLIPCATURE disks are functionally IDENTICAL to Newsroom clip art disks!

UNLIMITED CLIP ART! — Use other hi-res graphics programs and CLIPCATURE to create ornate clip art. Or, take any of the thousands of Print Shop compatible graphics, and turn THEM into clip art.

LIMITLESS GRAPHICS! — Convert clip art, or part of any hi-res picture, into a Print Shop graphic. Use any of the hundreds of clip art pieces now available in your banners, signs, or greeting cards!

CLIPCATURE works with any Apple II series computer (+, e, c) and is available ONLY by direct order. Send \$24.95 (U.S.) + \$2 S/H (WI add 5%) to:
CLIPCATURE
477 Windridge Drive
Racine, WI 53402
For faster service, charge to MC/VISA at 1-800-628-2828 ext. 863 (orders only).

The Newsroom, and The Print Shop, are trademarks of Springboard Software, Inc., and Broderbund Software, Inc., respectively.
Clipcapture is a trademark of W.A. Miller.

STATUS REPORT



Marketing

"A company that limits itself to making what sells today shuts the door on tomorrow's market."

by Paul Statt, *inCider* staff

Apple Computer, Inc., has proudly proclaimed itself a "market-driven" company. "Whatever it is you're looking for in a microcomputer," a smiling Guy Kawasaki, Apple's head of software development, told West Coast Computer Faire attendees last January, "Apple is working on it."

That's the ideal of a "market-driven" industry. In every machine, the "market"—you, the customer—would get all the features it needs. You could bring home MS-DOS files from work and transfer them to your Apple, your kids could play with all that Apple II educational software from school, you could enjoy Amiga games—you could do anything.

The reality is that market-driven companies sometimes fall into a trap: They see a product that sells, so they all start pounding out copies. The fallacy lies in assuming that what people buy is exactly what they want.

It's a necessary fallacy, of course. Until Big Brother goes into market research and asks every single consumer just what he or she wants, your only vote is your dollar. And where you spend your dollar is where the industry will spend its millions.

But sometimes you want more than you can say. The summer Henry Ford began selling every teenager a car, kids weren't yet wondering how to get to the drive-in.

A company that limits itself to making what sells today shuts the door on tomorrow's market. Take AppleWorks. Software developers who reason that AppleWorks is a big market—"So let's add a clock and a calendar, macros, notepads, telephones, and a blender, and get rich"—won't. That company thinks small and innovates nothing: That's the danger a market-driven company faces.

Take modems. Modem manufacturers who pile baud upon baud—300, 1200, 2400, 4800, 9600, and up—because customers ask for faster telecommunication are

missing the point. Customers don't know how to ask for telecommunications software that works without two phone calls before turning on the computer and another to hang up. So market-driven modem makers, observing that 300-baud modems sell, but people complain they want "faster" telecommunication, do what they can—speed up the modem—but not what needs to be done: eliminate the time-consuming hassle.

Those are just two examples among many. Laser printers, hard-disk drives, grammar checkers, shape-recognition games—the makers of this stuff aren't asking, "Does the customer need this?" but "Do products like these sell?"

The alternative to being driven by the market is to drive the market with technology: to come up with something radical nobody ever asked for, but everybody secretly wants. Henry Ford did. Woz and Jobs did.

A market-driven Apple Computer would reason this way: "We made millions with a technologically nifty machine, the Apple II. People like it because writing software for it is easy, and the machine is expandable. Let's build all our new machines that way." Is the Apple Computer that will bring you a new Apple II this fall market-driven or technology-driven?

I hope Apple brings to its new machine a little wisdom from both sides. I hope the //x has all the features we asked for. It needs (at least) a 16-bit coprocessor and a megabyte of RAM to make big programs reasonable, separate sound and graphics chips to make its presentation beautiful, a Small Computer System Interface to share peripherals with other machines (MS-DOS computers as well as Macs), an accepted, widely used operating system like ProDOS to make it credible, and BASIC in ROM.

That's what the market wants. But I also hope that some technological wizard at Apple Computer has created a machine that can do tricks I never dreamt of. I hope Apple thinks ahead and lets its technology lead. ■

THE ONE VITAL PIECE OF OFFICE EQUIPMENT THAT OUR DESKWORKS™ PROGRAMS DON'T REPLACE

They don't make coffee. But together, PBI's three top-selling business products can make your day a lot easier. Eliminate hours of busywork, organize loose ends, turn your Apple II into a powerful communications tool and increase the power of Apple Works.

Introducing CommWorks™* The Complete Telecommunications Solution



No other communications software package is as easy to use and as powerful as PBI's CommWorks. It's a logical companion to AppleWorks. CommWorks can save you time and money; imagine being able to access your favorite section of CompuServe automatically at the touch of a key. Transfer AppleWorks and ProDos files or even whole disks instantly (5¼" or 3½")—no conversion

necessary. With CommWorks' AppleWorks file folder interface, auto log on facility, macros, on-line text editor, and communications files, telecommunicating is faster and more efficient than ever. CommWorks even supports the Hayes 2400 baud modem, 3.5 UniDisk, and popular RAM expansion cards.

Jeeves™, The Affordable Personal Assistant



It's the fastest desktop organizer available anywhere for the Apple IIe and IIc. It replaces your appointment book, phone directory, four-function calculator, memo pad, alarm clock and more. It resides transparently in RAM memory alongside AppleWorks, CommWorks or other ProDos based programs, so it's always there instantly upon command.

GraphWorks™ Two Programs in One



What does AppleWorks lack? Graphics. Now put together impressive presentations with ease. GraphWorks enables you to use data directly from AppleWorks spreadsheet files to create four different graph-types: pie, line, bar, and stacked bar. Plus a bonus feature: GraphWorks will even print your extra wide spreadsheets "sideways" down the page.

Replace your outdated office equipment with the DeskWorks line from PBI. It makes the daily grind a whole lot easier. And leaves you time for longer coffee breaks. CommWorks \$95.00. Jeeves \$49.95. GraphWorks \$79.95. Available at your local dealer or order directly from us, 9AM to 5PM PST, by calling:

800-843-5722 (nat'l)
800-572-2746 (CA)

PBI Software Inc.

1111 Triton Drive, 2nd Floor
Foster City, CA 94404, (415) 349-8765

*Receive a free subscription to CompuServe and \$15 free access time with your CommWorks purchase.

Send us your present communications package and receive a \$25 discount on Commworks (when purchased directly from us).

CommWorks requires IIe (w/ext. 80 column card & 128K) or IIc and modem. Jeeves requires stand alone IIc or enhanced 128K IIe with interrupting source. GraphWorks requires IIe (w/ext. 80 column card & 128K) or IIc and AppleWorks.

Trademarks: CommWorks, Jeeves, GraphWorks and DeskWorks—PBI Software, Inc., Apple II and AppleWorks—Apple Computer, Inc., Hayes-Hayes Microcomputer Products, Inc.

Circle 52 on Reader Service Card.

INDEX TO ADVERTISERS

The blood of Kings or of Knaves or both. Family Roots software helps you trace your bloodlines back through lost generations and the mists of time.

For your Apple, IBM, Commodore, Kaypro, TRS-80,* and many others, Family Roots offers all kinds of genealogical assistance: Individual and group sheets, charts, name indices, general search and text

Blood.

capabilities. Adapts to most disk drives, printers, and screens. You get more utility programs, plus lots of personal control. 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., Digital Research and Tandy Corp.

Circle 16 on Reader Service Card.

Incredible SwyftWare!™

It is not possible in an ad to really explain this Apple II (e or c) product which outperforms all other software in speed and simplicity. It does no-frills word processing, information retrieval, telecommunications and many other tasks. Reviewers call it "foolproof and frustration free" and "blindingly fast."

It appeals to beginners and experts. Jef Raskin, who invented the Macintosh and who later created SwyftWare, has written up the hows and whys of this product. Please write for a copy. No charge. Or order SwyftWare and see for yourself. At \$89.95 and with a 30-day refund policy, there's no risk.

US 800/982-5600 CA 800/562-7400

Information Appliance

1014 Hamilton Ct., Menlo Park, CA 94025

Reader Service	Page	Reader Service	Page
54 Abacus Systems	102	157 Int'l Apple Core	55
* Applied Engineering . 2, 3, 31, 62, 63, 66, 68, 100, 104, 125		91 Kyan	54
222 AST Research	65	290 Lance Huffner Games	98
229 Beagle Bros	76	28 Legend Industries.	34
179 Beagle Bros	105	118 Marathon Software	96
151 Big Red Apple Club	108	6 MasterMedia Supply	122
71 Borg Industries.	122	263 Megahaus	CV3
102 Briston Press	121	251 M.G.R. Software	59
* Business Computers of Peterborough	40, 41	274 Micro Systems Research	24
233 Cauzin Systems	78, 79	126 Mindscape	9
62 Central Point Software	23	55 Nat'l Appleworks User Group	101
63 Central Point Software	87	100 Nibble Notch	114
60 Central Point Software	22	110 Northeastern Software	18, 19
* Cheatsheet Products	88	37 OKS	127
227 Checkmate Technology	83	42 Origin Systems	25
18 C.H.I.C.	122	52 PBI Software	111
* CH Products	17	276 Pinpoint Publishing	115
Classified Ads	123	277 Pinpoint Publishing . 116, 117	
103 Clayton & Associates	85	291 Practical Peripherals	36
168 Clipcapture	109	29 Precision Data Products	73
257 CMC Computer Systems	90	10 ProAPP	13
79 Coit Valley Computers	77	49 Professor Jones	109
124 Compuserve	CV2	128 Programs Plus	28, 29
183 Computer Network	79	32 Pro-Tech-Tronics	67
20 Computer Supply	122	69 PSI/Proj Software	27
76 Computist	92	16 Quinsept	112
163 Core Concepts	33	41 Quorum	91
* Covox	69	214 Rocky Mtn. Medical	32
19 Davidson	93	165 Roger Coats	12
144 Davka	73	242 Sensible Software	84
6 Dealer Network Systems	122	84 Sensible Software	94
184 Digital Vision	101	143 Silicon Express	53
108 Diversified Software	120	292 Softdisk	37
275 Dresselhaus	85	47 Software Simplified	59
17 Dynamic Micro Systems	122	217 Software Touch	103
170 Electric Transit	4	* Southern California Research Group	95
11 Fastfind	122	115 Stat Soft	108
259 First Line Software	49	67 Stellation Two	124
146 Golem Computers	124	73 Street Electronics	CV4
66 H&E Computronics	1	239 Styleware	47
254 H&M Disk Drives	97	156 Sublogic	21
58 Human Systems Dynamics	26	252 Telemax	122
inCider Magazine AppleWorks Newsletter	64	* Telestar/Zoom modems	35
Sub Ad	48	15 Uptime	13
hotCider	80	264 Utilico	99
* Information Appliance	112	34 VIP Technology	39
253 Interlude (Recreational Tech.)	7	113 Visiflex Subs	114
		7 Votrax	38

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.

TO RECEIVE MORE INFORMATION TEAR

out the perforated card. Please print or type your name and address where indicated.

CIRCLE

the numbers on the card that correspond to the reader service numbers on the advertisements that interest you.

ORDER

a one year subscription to *inCider* by circling 400 on the card.

MAIL

the card with your check, money order or U.S. currency to:

inCider
Reader Service Dept.
P.O. Box 336
Dalton, MA 01227
Or, you may request
billing.

LOOK FOR

your subscription in
10 to 12 weeks.

REMEMBER

the postage is on us.

inCider

THE APPLE II MAGAZINE

Mr. **September 1986**
 Mrs. This card valid until October 31, 1986.
 Ms. Name _____
 Title _____
 Address _____
 City/State/Zip _____
 Telephone _____

1 6 11 16 21	151 156 161 166 171	301 306 311 316 321
2 7 12 17 22	152 157 162 167 172	302 307 312 317 322
3 8 13 18 23	153 158 163 168 173	303 308 313 318 323
4 9 14 19 24	154 159 164 169 174	304 309 314 319 324
5 10 15 20 25	155 160 165 170 175	305 310 315 320 325
26 31 36 41 46	176 181 186 191 196	326 331 336 341 346
27 32 37 42 47	177 182 187 192 197	327 332 337 342 347
28 33 38 43 48	178 183 188 193 198	328 333 338 343 348
29 34 39 44 49	179 184 189 194 199	329 334 339 344 349
30 35 40 45 50	180 185 190 195 200	330 335 340 345 350
51 56 61 66 71	201 206 211 216 221	351 356 361 366 371
52 57 62 67 72	202 207 212 217 222	352 357 362 367 372
53 58 63 68 73	203 208 213 218 223	353 358 363 368 373
54 59 64 69 74	204 209 214 219 224	354 359 364 369 374
55 60 65 70 75	205 210 215 220 225	355 360 365 370 375
76 81 86 91 96	226 231 236 241 246	376 381 386 391 396
77 82 87 92 97	227 232 237 242 247	377 382 387 392 397
78 83 88 93 98	228 233 238 243 248	378 383 388 393 398
79 84 89 94 99	229 234 239 244 249	379 384 389 394 399
80 85 90 95 100	230 235 240 245 250	380 385 390 395 400
101 106 111 116 121	251 256 261 266 271	To order 1 year of <i>inCider</i> , circle 400 on this card.
102 107 112 117 122	252 257 262 267 272	
103 108 113 118 123	253 258 263 268 273	
104 109 114 119 124	254 259 264 269 274	
105 110 115 120 125	255 260 265 270 275	
126 131 136 141 146	276 281 286 291 296	To order 1 year of <i>inCider</i> , circle 400 on this card.
127 132 137 142 147	277 282 287 292 297	
128 133 138 143 148	278 283 288 293 298	
129 134 139 144 149	279 284 289 294 299	
130 135 140 145 150	280 285 290 295 300	

Mr. **September 1986**
 Mrs. This card valid until October 31, 1986.
 Ms. Name _____
 Title _____
 Address _____
 City/State/Zip _____
 Telephone _____

1 6 11 16 21	151 156 161 166 171	301 306 311 316 321
2 7 12 17 22	152 157 162 167 172	302 307 312 317 322
3 8 13 18 23	153 158 163 168 173	303 308 313 318 323
4 9 14 19 24	154 159 164 169 174	304 309 314 319 324
5 10 15 20 25	155 160 165 170 175	305 310 315 320 325
26 31 36 41 46	176 181 186 191 196	326 331 336 341 346
27 32 37 42 47	177 182 187 192 197	327 332 337 342 347
28 33 38 43 48	178 183 188 193 198	328 333 338 343 348
29 34 39 44 49	179 184 189 194 199	329 334 339 344 349
30 35 40 45 50	180 185 190 195 200	330 335 340 345 350
51 56 61 66 71	201 206 211 216 221	351 356 361 366 371
52 57 62 67 72	202 207 212 217 222	352 357 362 367 372
53 58 63 68 73	203 208 213 218 223	353 358 363 368 373
54 59 64 69 74	204 209 214 219 224	354 359 364 369 374
55 60 65 70 75	205 210 215 220 225	355 360 365 370 375
76 81 86 91 96	226 231 236 241 246	376 381 386 391 396
77 82 87 92 97	227 232 237 242 247	377 382 387 392 397
78 83 88 93 98	228 233 238 243 248	378 383 388 393 398
79 84 89 94 99	229 234 239 244 249	379 384 389 394 399
80 85 90 95 100	230 235 240 245 250	380 385 390 395 400
101 106 111 116 121	251 256 261 266 271	To order 1 year of <i>inCider</i> , circle 400 on this card.
102 107 112 117 122	252 257 262 267 272	
103 108 113 118 123	253 258 263 268 273	
104 109 114 119 124	254 259 264 269 274	
105 110 115 120 125	255 260 265 270 275	
126 131 136 141 146	276 281 286 291 296	To order 1 year of <i>inCider</i> , circle 400 on this card.
127 132 137 142 147	277 282 287 292 297	
128 133 138 143 148	278 283 288 293 298	
129 134 139 144 149	279 284 289 294 299	
130 135 140 145 150	280 285 290 295 300	

READER SERVICE

- A. How many people, other than yourself, read your copy of *inCider*?
 1. One 2. Two 3. Three 4. None
- B. Which of the following microcomputers do you own?
 1. Apple II or II+ 5. Macintosh
 2. Apple Ie 6. Apple compatible
 3. Apple Iic 7. Other _____
 4. Apple III
- C. For which of the following applications do you most use your Apple computer?
 1. Business 2. Education 3. Home
- D1. Did you request information on this card for:
 1. Purchasing decision 2. Reference only
- D2. If you requested the information for business applications, how many employees are in your business?
 1. 1-10 2. 11-99 3. Over 100
- E. Which of the following products do you plan to buy:
 1. Printer 4. RAM expansion card
 2. Monitor 5. Multi-function card
 3. Modem 6. Hard disk drive
- F. Do you use AppleWorks?
 1. Yes 2. No
- G. On a scale of 1 (no interest) to 4 (great interest), please rate your interest in the following *inCider* columns:
 1. *inCider's* View 7. Applesoft Adviser
 2. Game Room 8. News Line
 3. Right of Assembly 9. Status Report
 4. Reviews 10. Pascal Primer
 5. Editors' Choice 11. Apple Clinic
 6. New Products 12. AppleWorks in Action
- H. If you are not a subscriber, please circle 399.
- I. If you would like a one year subscription to *inCider*, please circle 400 on the Reader Service Card. Each subscription costs \$24.97. (Canada & Mexico \$27.97, Foreign Surface \$44.97, one year only). Please allow 10-12 weeks for delivery.

READER SERVICE

- A. How many people, other than yourself, read your copy of *inCider*?
 1. One 2. Two 3. Three 4. None
- B. Which of the following microcomputers do you own?
 1. Apple II or II+ 5. Macintosh
 2. Apple Ie 6. Apple compatible
 3. Apple Iic 7. Other _____
 4. Apple III
- C. For which of the following applications do you most use your Apple computer?
 1. Business 2. Education 3. Home
- D1. Did you request information on this card for:
 1. Purchasing decision 2. Reference only
- D2. If you requested the information for business applications, how many employees are in your business?
 1. 1-10 2. 11-99 3. Over 100
- E. Which of the following products do you plan to buy:
 1. Printer 4. RAM expansion card
 2. Monitor 5. Multi-function card
 3. Modem 6. Hard disk drive
- F. Do you use AppleWorks?
 1. Yes 2. No
- G. On a scale of 1 (no interest) to 4 (great interest), please rate your interest in the following *inCider* columns:
 1. *inCider's* View 7. Applesoft Adviser
 2. Game Room 8. News Line
 3. Right of Assembly 9. Status Report
 4. Reviews 10. Pascal Primer
 5. Editors' Choice 11. Apple Clinic
 6. New Products 12. AppleWorks in Action
- H. If you are not a subscriber, please circle 399.
- I. If you would like a one year subscription to *inCider*, please circle 400 on the Reader Service Card. Each subscription costs \$24.97. (Canada & Mexico \$27.97, Foreign Surface \$44.97, one year only). Please allow 10-12 weeks for delivery.

▶ "I've read every Apple magazine and I'm down to one and that's *inCider*. It's the best... I recommend it to all my Apple II clients."

Merlin Wittenberg
 Educational Consultant
 Chattanooga, TN



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 73 PETERBOROUGH, NH

POSTAGE WILL BE PAID BY ADDRESSEE

inCider
P.O. Box 336
Dalton, MA 01227

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 73 PETERBOROUGH, NH

POSTAGE WILL BE PAID BY ADDRESSEE

inCider
P.O. Box 336
Dalton, MA 01227

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



**TO
RECEIVE
MORE
INFOR-
MATION**

TEAR

out the perforated card.
Please print or type your
name and address where
indicated.

CIRCLE

the numbers on the card
that correspond to the
reader service numbers
on the advertisements that
interest you.

ORDER

a one year subscription to
inCider by circling 400 on
the card.

MAIL

the card with your check,
money order or U.S.
currency to:
inCider
Reader Service Dept.
P.O. Box 336
Dalton, MA 01227
Or, you may request
billing.

LOOK FOR

your subscription in
10 to 12 weeks.

REMEMBER

the postage is on us.

► **“I’ve read every Apple magazine
and I’m down to one and that’s
inCider. It’s the best...I recommend
it to all my Apple II clients.”**

Merlin Wittenberg
Educational Consultant
Chattanooga, TN

inCider
THE APPLE II MAGAZINE

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.

Taking command isn't easy. It means making tough decisions that will inevitably lead to the loss of men, ships, and perhaps the war itself. The drama of command decisions is the theme that energizes all war games, whether they're re-creations of World War II battles or hypothetical conflicts in space, centuries in the future.

Star Fleet 1: The War Begins

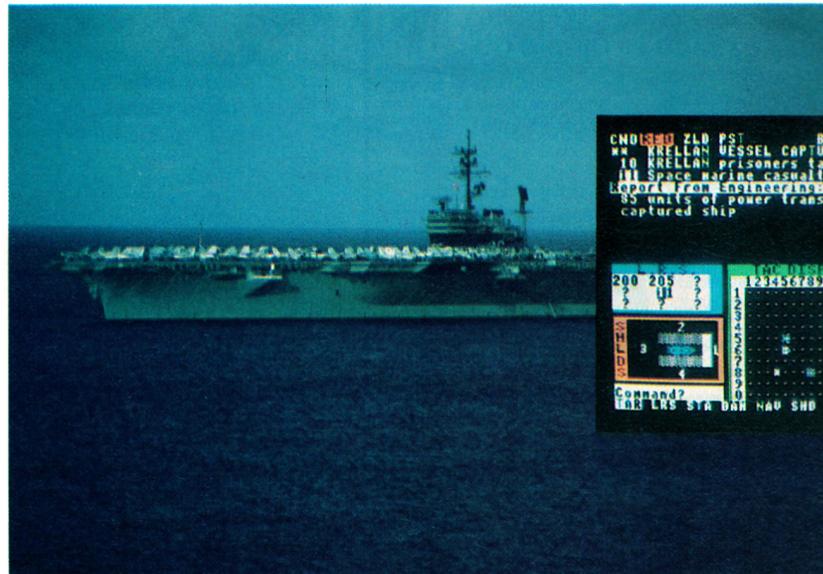
★★★★

Cygnus

P.O. Box 57825
Webster, TX 77598
Science-fiction war game
Any 64K Apple II, Applesoft,
one disk drive
\$49.95

Star Fleet is a game of future war, but its origins go back to the dawn of computer gaming. I first played a game very similar to *Star Fleet* when I was in college. It was 1969, the game was called *Star Trek*, and the computer was an NCR mainframe, using a printer instead of a monitor (video output was rather exotic in those days). *Star Trek* initially propelled me down the road to ruin as a computer-game fanatic.

It was a great game then, and it's a great game now. *Star Fleet* has a streamlined, simplified game system, color graphics, and excellent (although lengthy) documentation. Even without those advantages, *Star Fleet* would still get high



Carriers at War lets you command the Pacific fleet.

ratings simply for play value. It's ideal for anyone who enjoys an addicting space game.

As a starship commander, you have a simple objective: to kill a certain number of alien vessels within a limited number of days. Each completed mission brings you closer to promotion—provided, of course, you kill efficiently. The less time you take to meet your quota, the higher your efficiency rating. You can also improve your rating by capturing alien vessels and dropping them off at a starbase.

An array of weapons, sensors, and computer aids on your starship perform these tasks. Your supply of torpedoes, phasers, and shields is limited, though. If you use the phasers, you reduce your power to navigate and renew shields. Beefing up shields robs your phasers of energy. To succeed at this game, you must learn to resolve many of these difficult trade-offs.

To help you in combat, automatic routines can aim and "lock on" lasers, plot

the trajectory of your torpedoes, and tell you how much damage you or your enemies have sustained. Other systems help you navigate through galaxies. Your ships' sensors can look into adjoining sectors for starbases or enemies, and sensor probes can scan distant sectors. The rest is up to you.

Now for some tips on strategy. Fight your battles from the edge of the sector. If your back is to one wall, you can concentrate shield power on the remaining three sides.

Conserve energy by plotting the shortest routes to enemy sectors, and use your torpedoes to destroy enemy ships. Phasers use too much energy, especially at long distances. Use them only when you want to disable and capture a ship. Don't wait until your energy is drained to break off a battle or go to a starbase for replenishment: Spent energy reduces your efficiency rating.



Hunt down aliens in Star Fleet 1.

Reach for the Stars

★★★

Strategic Studies Group

1747 Orleans Court
Walnut Creek, CA 94598
Science-fiction war game
Any 64K Apple II, Applesoft,
one disk drive
\$45

Stellar conquest and colonization are imperative when you assume command of a star empire in **Reach for the Stars**. It's hardly an original concept, but unlike *Carriers at War*, this variation is exciting.

You and each of up to three other human or computer opponents start with a single planet on a single star. Your goal is to colonize and develop as many stars in the galaxy as you

inCider's Ratings

- ★★★★ Excellent
- ★★★ Above average
- ★★ Good enough
- ★ Not up to standards
- ☆ The empty set

IT'S LIKE FREE DISKETTES

U.S. PAT. 4,488,358



Your 5 1/4" single side disks are usable on the other side. You paid for one side, why not use the other... **IT'S FREE!**

Nibble Notch will **open** your **new** disk. It's easy... won't harm existing data. Try it!

nibble notch I

For Apple, Franklin, Commodore & Atari (w/Atari Drives); square notch.

only **\$1495*** PLUS P&H

nibble notch II

For all other computers; square notch & index hole.

only **\$2190*** PLUS P&H

ALSO

DISK OPTIMIZER II

Apple II Series Software
Pro DOS • DOS 3.3 • Pascal
Examines your **new** disk, locks out bad sectors and **certifies it 100% ERROR-FREE** in 30 seconds or less! Also checks drive speed... and more!

SUPER SAVER PACKAGE
Nibble Notch I and Disk Optimizer Combo (Optimizer alone reg. \$24.95)
\$2995* FOR BOTH!

QUALITY DISKETTES
low as **99¢**

* add \$2 (\$5 frgn) for P & H. PA Res. add 6% Sales Tax



Toll Free 1-800-642-2536

1-215-828-8600

OR SEND CHECK OR MONEY ORDER TO:



1020 Ford Rd & 2 West
West Conshohocken, PA 19428

Circle 100 on Reader Service Card.

A MUST for computers...

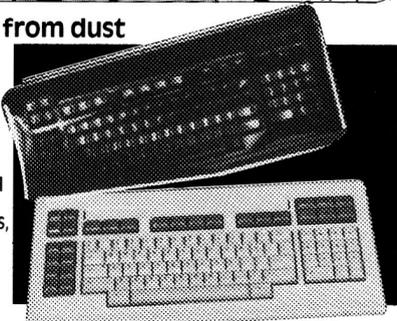
VIZIFLEX SEELS®

patent pending



- **Protect Keyboards from dust and liquid spills.**
- **Identify "user definable" keys.**

An easy, inexpensive way to protect computers and identify individual keys, VIZIFLEX SEELS are ideal for all kinds of keyboard operated devices including telephones, cash registers (ECR's), and digital counters as well as computers.



Call now: (201) 487-8080

VIZIFLEX SEELS, INC.

16 E. LAFAYETTE STREET, HACKENSACK, NJ 07601-8895 (201) 487-8080

Circle 113 on Reader Service Card.

GAME ROOM

can (during a set period of time), while defending your colonies against the other star emperors. You get additional points for massacring enemy populations, destroying industries, eliminating spaceships, and conquering territory. It's hardly a game for confirmed pacifists.

By controlling the planetary environment and investing in industrial expansion, you can develop your home world and colonies so that they produce star cruisers, transports, and exploration vessels. These vessels, in turn, become the means by which you can colonize or conquer new planets and expand your empire. You can also use these resources to bolster planetary defenses. When enemy star cruisers drop by to destroy your home world, you'll be glad you made the investment.

It's unromantic to say that much of the rest of the game is a matter of juggling numbers, but that's the truth. How you allocate the resources of your home world and colonies will determine whether or not you're able to populate your empire, establish industry, expand into space, and defend your holdings. With a little logic, you should be able to find the right formula.

While you convert your resources into cruisers and transports, you must be careful to use those assets to maintain your initiative, keeping the other three players off balance. At the same time, don't grab too many planets too soon. You'll risk overextending yourself: procuring more territory than your ships can defend or your colonists support.

Carriers at War

★ ★

Strategic Studies Group War game

Any 64K Apple II, Applesoft, one disk drive \$50

Roger Keating and Ian Reach have a good game in **Carriers at War** the system is so difficult to master, it takes much of the joy out of playing it.

On the plus side, the Carriers game system is very flexible. It encompasses six major battle scenarios from the war in the Pacific (Pearl Harbor, Coral Sea, Midway, Eastern Solomons, Santa Cruz, and Philippine Sea), the historical conditions of which you can alter. In fact, you can build a whole game scenario from scratch, putting the Japanese and U.S. navies in any hypothetical or historical battle situation you like.

But Carriers' big drawback is its complexity. Twenty-eight game menus—not including disk utilities—make for confusion. It seems as if you'll never reach the point at which the game system becomes second nature, letting you concentrate on the problems of command. You can eventually get there, but it's a long, hard trek.

Frankly, I prefer Gary Grigsby's SSI naval games, such as Guadalcanal Campaign, North Atlantic '86, Bomb Alley, and Carrier Force. Admittedly, they're less flexible, but they're just as detailed and much more playable. ■

Brian Murphy is anxious to learn what you think of the current state of computer games. Write him at inCider, Elm Street, Peterborough, NH 03458, and let him know your opinion.

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

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

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

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

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

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

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

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

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

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

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

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

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



Communications Power with Ease

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

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

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

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

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

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

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

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

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

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

Do Two Things At Once

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

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



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

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

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

Get the Mess Off Your Desk

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

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

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

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

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

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

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

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

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

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

Vitamins for Your Plain Jane Apple IIe

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

Reports, Letters, Forms and More!

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

Ralph Brown, Marblehead, MA

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

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

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

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

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

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

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

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

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

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

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

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

BUILD YOUR OWN SOFTWARE

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

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

Two Spelling Checkers for Peak Performance

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

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

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

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

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

Recipes at Your Fingertips. Great Gift!

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

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

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

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

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

ORDER NOW

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

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

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

Ext. 618 □ \$89 PINPOINT

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

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

Ext. 619 □ \$69 Spelling Checker*

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

Ext. 614 □ \$49 Pinpoint Toolkit*

Ext. 623 □ \$49 RunRun*

Ext. 624 □ \$29 RAM Kit*

Ext. 624 □ \$29 Modem Kit*

Ext. 624 □ \$29 Apple IIe Upgrade

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

Ext. 620 □ \$19.95 each. Recipe Disks

Ext. 627 □ \$49.95 New gardening tool:

Ortho's Computerized Gardening

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

Ext. 629 □ \$199 PROMODEM 1200G

Ext. 629 □ \$399 PROMODEM 2400

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

* Requires Pinpoint Desktop Software.

Call TOLL FREE 24 Hours

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

800-633-2252

+ Extension Number



Circle 277 on Reader Service Card.

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.

Enhanced INPUT

by Brian S. Lovejoy

If you've ever tried to enter a numerical expression into your computer when prompted for numeric input, you probably know that Applesoft's INPUT command won't evaluate it. If you enter 2 + 2 in response to the statement

```
INPUT "Numerical value: ";A
```

the computer assigns a value of 2 (the first value it encounters) to the variable A, and ignores the rest of the expression. You might think the solution to this is simple, but look at the program below:

```
10 HOME
20 INPUT "Numerical expression: ";A$
30 A = VAL(A$)
40 PRINT A
50 END
```

This program seems to be a logical answer, but the computer still assigns the first value it encounters to the variable A. Adding the &INPUT command to Applesoft BASIC lets you enter numerical expressions easily.

If you use &INPUT with a numeric variable, you can enter any valid numerical expression in a numerical assignment (LET) statement. &INPUT evaluates the expression and stores the result.

For example, you can enter an expression such as $SQR(\pi) + \cos(2 \cdot \pi) + PEEK(8192) - \tan(\pi/2)$ in response to the prompt in line 30 of the program below:

```
10 HOME
20 PI = 3.1415924
30 &INPUT "Numerical expression: ";A
40 PRINT "Its value is: ";A
50 END
```

The PRINT statement in line 40 displays the value of the expression and stores it in A.

Unlike INPUT, &INPUT interprets a null expression (a return key press) as the value zero. &INPUT knows where an expression ends and a comment begins. For example, if you enter 23 SALES, the &INPUT command accepts the 23, but ignores the SALES comment. INPUT, though, gives you a REENTER message.

You can also use &INPUT with string variables. Your string can contain commas, colons, quotes, or leading spaces. The INPUT command, though, is somewhat picky when it comes to these characters, and won't accept leading spaces.

&INPUT treats most escape and control characters the same way INPUT does, but treats control-C differently. If you enter control-C, &INPUT gives you a break message, like INPUT, but you can change the values of your program's variables and resume program execution with the CONT command.

One feature &INPUT lacks is the multiple-variable function available with INPUT. For example, a statement such as

```
10 &INPUT "Enter reading A,
reading B: ";A,B
won't work.
```

Listing 1. Enhanced INPUT.

```
0300- A0 02 B9 0C 03 99 F5 03
0308- 88 10 F7 60 4C 0F 03 C9
0310- 84 F0 05 A2 10 4C 12 D4
0318- 20 B1 00 C9 22 F0 06 20
0320- 5A DB 4C 30 03 20 81 DE
0328- A9 3B 20 C0 DE 20 3D DB
0330- 20 E3 DF 85 85 84 86 24
0338- 11 70 42 A5 B8 A4 B9 8D
0340- AE 03 8C AF 03 20 2C D5
0348- AD 00 02 D0 0C A9 30 8D
0350- 00 02 A9 00 8D 01 02 F0
0358- 0E C9 03 D0 03 4C 63 D8
0360- A9 00 85 B8 20 59 D5 A9
0368- 00 85 B8 A9 02 85 B9 20
0370- 52 DA AD AE 03 AC AF 03
0378- 85 B8 84 B9 60 20 2C D5
0380- AD 00 02 C9 03 D0 03 4C
0388- 63 D8 E8 BD 00 02 D0 FA
0390- 8E AD 03 8A 20 52 E4 A0
0398- 00 91 83 C8 A5 71 91 83
03A0- C8 A5 72 91 83 A2 00 AD
03A8- AD 03 4C E2 E5 00 00 00
```

Listing 1 gives you the &INPUT function. To enter it, first enter the Apple machine-language Monitor by typing CALL -151 and pressing return. Then type in the hex dump as it appears in the listing. To exit the Monitor press control-C and then return. Now save the program by typing BSAVE ENHANCED.INPUT,A\$300,L\$B0 and pressing return. To execute the program, simply type BRUN ENHANCED.INPUT and press return. ■

Write to Brian Lovejoy at P.O. Box 6, Bancroft, WV 25011.

Inverting Hi-Res Graphics

by Brian S. Lovejoy

If you've ever wanted to invert a hi-res graphics picture from Applesoft, you know it can take quite a bit of time. Running the BASIC program INVERT.CREATE (Listing 2) produces a machine-language subroutine that inverts and displays a hi-res picture on graphics page 1 (HGR) or 2 (HGR2) in virtually no time at all.

Each hi-res graphics page consists of 8192 bytes of memory. Each byte is made up of 8 bits (pixels). A full byte (with all bits turned on) has the value 255, while a blank byte (with all bits turned off) has the value zero. Graphics page 1 (HGR) consists of bytes 8192 (\$2000) to 16375 (\$3FF7); graphics page 2 (HGR2) consists of bytes 16384 (\$4000) to 23543 (\$5BF7).

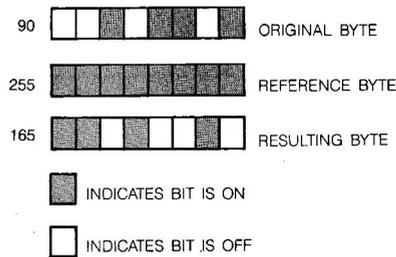
To invert the byte at location 8192 in BASIC, use a statement such as `POKE 8192,255 - PEEK(8192)`. To flip the entire graphics page, you could use the statement:

```
FOR I = SA TO EA : POKE I,255 - PEEK(I) : NEXT I
```

where SA and EA are the starting and ending addresses, respectively, for the graphics page. The paragraph above lists the values for each page. The computer calculates the inverted byte by the EXCLUSIVE-OR method, illustrated in Figure 1.

The original byte is logically EXCLUSIVE-ORed with a full reference byte. The computer calculates the bits

Figure 1. Calculating an inverted byte with a value of 90.



of the resulting inverted byte in the following way:

Original bit condition: ON
 Reference bit condition: ON
 Resulting bit condition: OFF
 Original bit condition: OFF
 Reference bit condition: ON
 Resulting bit condition: ON

(Note: The reference bit condition is always ON.)

After running the BASIC program, save the machine-language subroutine by typing BSAVE INVERT.OBJ,A\$C00,L495. Now each time you want to invert a picture, simply type CALL 3072 after loading the subroutine with BLOAD INVERT.OBJ. Note, however, you must load the picture into the graphics page before you CALL 3072.

Listing 3 illustrates the method used to invert the bytes. This machine-language program inverts the byte at location \$2000 (8192 decimal), the first byte of graphics page 1.

Changes for Page 2

To use the subroutine for page 2, you need to make a few modifications in the accompanying BASIC program.

Listing 2, as shown, creates a subroutine for graphics page 1. For graphics page 2, make the following changes to the BASIC listing. Change line 20 to:

```
20 V = 16384:A = 3086
```

Change line 10000 to:

```
10000 DATA 3074,49232,3077,49234,
          3080,49237,3083,49239
```

It's a good idea to save two different machine-language subroutines to disk for each page—for example, BSAVE INVERT.OBJ.1,A\$C00,L495 (for page 1) and BSAVE INVERT.OBJ.2,A\$C00,L495 (for page 2). ■

Listing 2. INVERT.CREATE.

```
10 HOME : POKE 3072,169: POKE 3073,0: FOR I = 1 TO 4: READ B
  ,V: POKE B,141: POKE B + 1,V - INT (V / 256) * 256: POKE
  B + 2, INT (V / 256): NEXT I
20 V = 8192:A = 3086
30 FOR I = 1 TO 32: POKE A,160: POKE A + 1,00: POKE A + 2,16
  9: POKE A + 3,255: POKE A + 4,89: POKE A + 5,V - INT (V
  / 256) * 256: POKE A + 6, INT (V / 256): POKE A + 7,153
  : POKE A + 8,V - INT (V / 256) * 256: POKE A + 9, INT (
  V / 256)
40 POKE A + 10,200: POKE A + 11,192: POKE A + 12,255: POKE A
  + 13,208: POKE A + 14,243:V = V + 256:A = A + 15: NEXT
  I: POKE A,96: HOME : END
10000 DATA 3074,49232,3077,49234,3080,49236,3083,49239
```

Listing 3. Machine-language program illustrating inversion of bytes.

0C00:	A0 00	LDY	#\$00	- load Y register with 0
0C02:	A9 FF	LDA	#\$FF	- load A register with 255
0C04:	59 00 20	EOR	\$2000	- EXCLUSIVE-OR register A with the value address \$2000 (8192) and store the result in register A
0C07:	99 00 20	STA	\$2000	- Store register A to address \$2000 (8192)
0C0A:	C8	INY		- Increment the Y register by one
0C0B:	C0 FF	CPY	#\$FF	- Compare Y register with 255
0C0D:	D0 F3	BNE	\$0C02	- Branch if not equal to address \$0C02
0C0F:	60	RTS		- Return to Applesoft BASIC

Running AppleWorks from Your RAM Disk

by Ken Kashmarek

The RAM wars are now in full swing, with more vendors than ever marketing memory upgrades for the Apple II. The primary advantage they offer is additional memory for expanded AppleWorks desktop space. If you only occasionally need a larger desktop, though, the most desirable feature a RAM card provides may be your ability to run AppleWorks directly from memory. (Most vendors supply a software modification that loads the AppleWorks program into RAM along with the expanded desktop.)

Each time you use AppleWorks this way, though, your computer has to reload the modules into memory. This process takes up to one minute when booting AppleWorks, and if you then switch into and out of AppleWorks quite often, the delay is annoying. The technique described below puts AppleWorks into your memory card's

RAM disk (volume /RAM) to bypass reloading the modules. You're restricted to the smaller desktop, but I've found that for most of my work it's sufficient.

Copying to /RAM

The technique discussed here requires a RAM-expansion card with at least 256K (mine is a 256K Applied Engineering RamWorks II). RamWorks' software includes two versions of the /RAM driver: PRODRIVE.ALL uses all the card's memory as a RAM disk, while PRODRIVE leaves the original auxiliary memory bank free.

Enter the command BRUN PRODRIVE.CATALOG /RAM then brings up the screen shown in Figure 2. With the auxiliary bank free, you can access the 55K AppleWorks desktop in RAM, while the RAM disk is still available for other uses—mainly, to hold AppleWorks' programs.

The EXEC file shown in Figure 3 loads all the AppleWorks modules into /RAM. Note that you must first change the volume names of your

Write to Brian Lovejoy at P.O. Box 6, Bancroft, WV 25011.

inCider

Go On-Line For Less! Call Diversi-DIAL™

Stop paying by the hour to go on-line! Call your local Diversi-DIAL for a low, monthly fee. Soon you'll have a whole new group of friends, maybe even meet that special someone!

Every evening, Diversi-DIAL stations from all over the country link together in huge networks. You'll make long-distance friends, without long-distance phone bills!

For a list of Diversi-DIAL stations, call 313-553-4373 (300-baud modem). Long distance callers can use PC Pursuit™. For info on starting your own station, send \$5 for the Diversi-DIAL demo disk.

PC Pursuit™ is a service mark of GTE Telenet. Call 800-368-4215 for info.

Diversi-DOS™ Still The Best!

The top-rated DOS 3.3 enhancement program. Speeds up BASIC, binary, and TEXT file disk I/O. DOS Mover frees up 10K memory. Includes new insert/delete mode, improved BASIC listings, keyboard MACROS, wildcard filenames, text file printer, RAM disk emulator, fast garbage collector, and more!

Back-up Your Floppy With Diversi-COPY™

The FASTEST way to copy (or format) unprotected DOS 3.3, ProDos, Pascal or CP/M disks.

Verifies every byte, so you know your copies are good.

Mass produces 1 floppy disk every 18-20 seconds.

NEW! UNIDISK 3.5 COMPATIBLE

Now you can copy or mass-produce 3.5 inch disks at maximum speed. Uses up to 800K memory on any auxiliary slot RAM card, or the new Apple RAM card, for 1-pass copying.

- 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

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



HINTS/TECHNIQUES

Figure 2. Catalog of RamWorks' RAM disk after BRUNning ProDrive.

```

/ RAM /
NAME          TYPE    BLOCKS MODIFIED   CREATED   ENDFILE
BLOCKS FREE: 363    BLOCKS USED: 21    TOTAL BLOCKS: 384
    
```

Figure 3. EXEC file that loads AppleWorks into your RAM disk.

```

/ APPLEWORKS.1 /
NAME          TYPE    BLOCKS MODIFIED   CREATED   ENDFILE
PRODOS        SYS     30 18-SEP-84 0:00 21-SEP-84 9:34 14848
SEG.00        SYS     9 31-AUG-84 13:00 21-SEP-84 9:36 4093
APLWORKS.SYSTEM SYS    14 14-SEP-84 1:02 21-SEP-84 9:37 6519
BLOCKS FREE: 220    BLOCKS USED: 60    TOTAL BLOCKS: 280

/ APPLEWORKS.2 /
NAME          TYPE    BLOCKS MODIFIED   CREATED   ENDFILE
SEG.PR        SYS     9 19-DEC-84 10:21 28-SEP-84 13:31 3670
*SEG.M0       $00     46 28-SEP-84 14:35 28-SEP-84 14:34 22819
*SEG.M1       $00    219 28-SEP-84 14:37 28-SEP-84 14:35 111254
BLOCKS FREE: 2     BLOCKS USED: 278   TOTAL BLOCKS: 280
    
```

AppleWorks disks with the RENAME command (as delivered, both disks are named /APPLEWORKS). Call the start-up disk /APPLEWORKS.1 and the program disk /APPLEWORKS.2. Figure 4 shows the catalogs of these disks.

Alternatively, you can break up the EXEC file into two files that will load the appropriate sections from the start-up and program disks without renaming. Or you can write an Apple-soft program that issues these commands and prompts you to insert the proper AppleWorks disk. (When using Applesoft, be certain your program is small and that dynamic string memory doesn't overlie any of the 32K of memory between \$1000 and \$8FFF.)

The EXEC file in Figure 3 applies to the programs on AppleWorks 1.2 disks. If you have an earlier version, you must change lengths and file-names accordingly. Don't use this technique with a modified AppleWorks—it works only with the standard edition.

Note that moving the main AppleWorks module, SEG.M1, takes four sequences of BLOAD and BSAVE. These commands use the B operand (byte offset) to copy the file into /RAM.

After EXEC copies the AppleWorks files, CATALOG /RAM produces the screen shown in Figure 5.

You can now execute AppleWorks with -/RAM/APLWORKS.SYSTEM. After you exit AppleWorks (with option 6, QUIT), the files stay in /RAM and can be reused. Gone is the delay associated with the RamWorks desktop-expander modification.

A word of caution: Don't reboot ProDOS—booting ProDOS clears /RAM. You can reload BASIC.SYSTEM without affecting the RAM disk, though. Also, modified versions of AppleWorks will overwrite the /RAM volume PRODRIVE sets up.

Note that the copy of the SEG.PR module in /RAM will now reflect any changes you make in your printer definitions or the standard location for loading data.

The EXEC file also works with AppleWorks 1.3, which supports the new peripheral-slot Apple II Memory Expansion card. If you have both types of cards installed, you can use this EXEC file to load AppleWorks 1.2 into the RAM-disk area of the Apple card (/RAMx, where x is the slot number of the card), and use the RamWorks software modifications to access the expanded desktop of that auxiliary-slot card at the same time.

In addition, this technique can load the ProDOS Toolkit Assembler and Editor into /RAM. Switching between

Figure 4. Catalogs of AppleWorks start-up and program disks (renamed 1 and 2).

```

NEW
PREFIX /APPLEWORKS.2
CREATE /RAM/SEG.M1,T$00
BLOAD      SEG.M1,T$00,A$1000,L$8000
BSAVE  /RAM/SEG.M1,T$00,A$1000,L$8000
BLOAD      SEG.M1,T$00,A$1000,L$8000,B$08000
BSAVE  /RAM/SEG.M1,T$00,A$1000,L$8000,B$08000
BLOAD      SEG.M1,T$00,A$1000,L$8000,B$10000
BSAVE  /RAM/SEG.M1,T$00,A$1000,L$8000,B$10000
BLOAD      SEG.M1,T$00,A$1000,L$3296,B$18000
BSAVE  /RAM/SEG.M1,T$00,A$1000,L$3296,B$18000
CREATE /RAM/SEG.M0,T$00
BLOAD      SEG.M0,T$00,A$1000,L22819
BSAVE  /RAM/SEG.M0,T$00,A$1000,L22819
CREATE /RAM/SEG.PR,TSYS
BLOAD      SEG.PR,TSYS,A$1000,L3670
BSAVE  /RAM/SEG.PR,TSYS,A$1000,L3670
PREFIX /APPLEWORKS.1
CREATE /RAM/SEG.00,TSYS
BLOAD      SEG.00,TSYS,A$1000,L4093
BSAVE  /RAM/SEG.00,TSYS,A$1000,L4093
CREATE /RAM/APLWORKS.SYSTEM,TSYS
BLOAD      APLWORKS.SYSTEM,TSYS,A$1000,L6519
BSAVE  /RAM/APLWORKS.SYSTEM,TSYS,A$1000,L6519

```

Figure 5. Catalog of /RAM after loading AppleWorks program into your RAM disk.

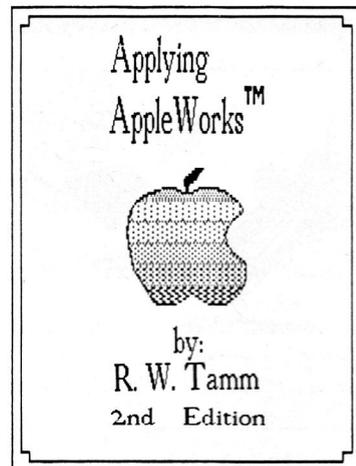
/RAM/						
NAME	TYPE	BLOCKS	MODIFIED	CREATED	ENDFILE	
SEG.M1	\$00	219	21-JAN-86 18:35	21-JAN-86 18:35	111254	
SEG.M0	\$00	46	21-JAN-86 18:35	21-JAN-86 18:35	22819	
SEG.PR	SYS	9	21-JAN-86 18:36	21-JAN-86 18:35	3670	
SEG.00	SYS	9	21-JAN-86 18:35	21-JAN-86 18:35	4093	
APLWORKS.SYSTEM	SYS	14	21-JAN-86 18:35	21-JAN-86 18:35	6519	
BLOCKS FREE:		66	BLOCKS USED: 318		TOTAL BLOCKS: 384	

editor and assembler modules from /RAM is very rapid.

Many critics of RAM-disk use complain that Apple Computer didn't supply a convenient method of loading programs and files from disk into /RAM. BLOAD and BSAVE, using the B operand, work just fine from an EXEC file: The tool has been there all along. ■

Write to Ken Kashmarek at 6 Cherokee Court, Eldridge, IA 52748.

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, Elm Street, Peterborough, NH 03458.



APPLYING APPLEWORKS™ FIRST EDITION SOLD OUT!

NEW SECOND EDITION
NOW AVAILABLE

**Teachers! Coaches!
Businessmen! Everyone!**

DISCOVER the Appleworks™ book written with educators in mind. Go from beginner to advanced applications.

CREATE your own standard letter formats, seating charts, gradebooks, test question bank, sports scoring sheets, accounting ledgers, mailing labels, budgets, bibliography files and much more.

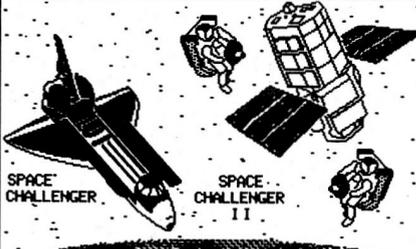
DISCOVER the integrated use of the UNIDISK 3.5, Pinpoint™, Appleworks Mailing Program, Spellcheckers, Proofreaders, and many other Appleworks™ compatible software and hardware.

TEMPLATE DISKS for APPLYING APPLEWORKS™ are available.

SEND \$11.95 plus \$1.50 for shipping, a total of \$13.45 in U.S. funds (Add \$5.00 for countries other than USA, Canada, or Mexico).

BRISTEN PRESS
DEPARTMENT IN
P.O. BOX 336
NEW HARTFORD, NEW YORK 13413

ISBN 0-936337-01-X
APPLYING APPLEWORKS™



SPACE CHALLENGER **SPACE CHALLENGER II**

THAT'S RIGHT! TWO EXTREMELY CHALLENGING GAMES FOR HALF THE PRICE OF ONE. PLAY ALONE OR WITH UP TO FOUR FOR REAL COMPETITIVE FUN. MANY HOURS OF ENJOYMENT FOR THE KIDS AND THE ENTIRE FAMILY... **\$13.95**

LODE RUNNER III: 150 NEW CHALLENGING DATA DISK LODE RUNNER LEVELS FOR EVERYONE TO CONQUER. LOWEST INCREDIBLE PRICE OF... **\$8.95**

ADULTS ONLY: SPACE MADNESS: AN OUTER SPACE VERSION OF STRIP BLACK JACK AND STRIP POKER. WELL, SPACE MADNESS IS ONE STEP BEYOND. UP TO SIX PLAYERS FIGHT FOR TOTAL DOMINATION OF A GALAXY. CONQUER A WORLD FROM ONE OF YOUR OPPONENTS. THEY MUST STRIP (OR SOMETHING ELSE) HOW MUCH YOU SAY?... **\$13.95**

BUY 2 OR MORE AND SAVE EVEN MORE. CALL FOR CURRENT PRICES.

CHIC
4002 WEST WEAVER RD. DEPT. 'A'
HAMPTON, VIRGINIA 23666
C.O.D. ORDERS CAN CALL:
(804) 827-8243

ORDER NOW SEND CHECK/
MONEY ORDER - \$1.00
S & H (VA RESIDENTS ADD
4% SALES TAX)

Circle 18 on Reader Service Card.

RIBBONS

DISCOUNT PRICES

NEW • TOP QUALITY • NO RELOADS
*COLORS

- *Apple Imagewriter \$3.85
- *C. Itoh ProWriter, 1-2 \$3.85
- *Epson MX-70, MX-80, MX-82 \$3.95
- Epson MX-100, RX-100, FX-100 \$4.95
- Epson LQ-1500 \$4.95
- Okidata 80, 82, 83, 92, 93 \$1.75
- Silver Reed EX, EXP, SERIES \$4.95
- Toshiba 1340, 1350, 1351 \$5.55

*Colors—Add 75¢ Each/Red, Green, Blue, Brown

Terms: Send check or money order.
Add \$2.50 shipping & handling per dozen or any fraction. MI res. add 4% sales tax.

P.O.'s accepted—Call for Approval.
Master-Media Supply
PO Box 705 • Howell, MI 48843
(517) 548-3620

Circle 6 on Reader Service Card.

BUY DIRECT AND SAVE

FULLY APPLE COMPATIBLE

Z-80 CP/M Card	\$ 39
80 Column Card w/Inverse (Videx compatible)	\$ 58
Autoterm 80 Col w/Softswitch & Inverse (Videx comp.)	\$ 66
Extended 80 Col w/64K Apple IIe	\$ 45
Disk Controller for 2 Drives	\$ 39
Parallel Printer Card w/Cable (Epson comp.)	\$ 37
Graphic Printer Card w/Cable (Parallel)	\$ 48
1200/300 Baud Modem External (Fully Hayes compatible)	\$175
Super Serial Card w/Cable	\$ 80
16K RAM Card w/Cable	\$ 37
128K RAM Card w/Software & Instructions (Titan, Saturn compatible)	\$110
Numeric Key Pad for Apple IIe	\$ 39
Super Cooling Fan w/2 outlets	
Lighted Switch, Surge/Filter	\$ 34
Joy Stick All Metal, Heavy Duty, Fine Tuning self centering Apple II/II+ IIe & IIc (Specify)	\$ 25
Diskette Storage Box w/Lock & Key Holds 100	\$ 15
Disk Notcher w/Guide, All Steel, Square Cut	\$ 8
Sim Disk Drive - Direct Drive w/Elec Sensor	
Super Quiet, 1 Yr Warranty - Apple II/IIe	\$120
Apple IIc	\$130

ASSEMBLED, TESTED & 6 MONTH WARRANTY
Shipping & Handling Under \$100/10% — Over \$100/5%
School & Institutional P.O. Accepted - Dealer Inv. Invited
HOURS: MON-FRI 9-6 EST

COMPUTER SUPPLY
P.O. BOX #164R, VALLEY STREAM, NY 11582
(516) 239-1854

Circle 20 on Reader Service Card.

DATA ANALYSIS: IT'S NOT JUST FOR STATISTICIANS

DATA SHOW: presentation-quality research and business graphics including 2 and 3D bar and pie charts, linear and non-linear regression, sequence plots, line charts and more. Software screen dump, fancy fonts, slide show, shrink, position and overlay graphs.
Special Introductory Price: \$95

DYNA STAT PROFESSIONAL: The only microcomputer software to fully integrate more than 200 data management and statistical functions with all the high resolution color graphics of DATA SHOW.
Special Introductory price: \$195

Fully documented, completely menu driven, fast and easy to use. For all Apple II series and compatible computers with at least 64K. Programs require 1 drive. Major credit card, institutional P.O.'s and COD accepted.



CALL OR WRITE FOR FREE
DYNA-STAT DEMO DISK
DYNAMIC MICROSYSTEMS, INC.
13003 Buccaneer Rd.
Silver Spring, MD 20904
301-384-2754

Circle 17 on Reader Service Card.

SUPER INDEX

POWERFUL database on disk summarizes every article, review, program, letter & tip in *inCider* Magazine. Finds info FAST!

Cross-references corrections & updates

Ends searches through stacks of magazines A "tip-book" citing 1000's of answers

Like owning a "helpline" for little more than the price of a single long-distance phone call!

GUARANTEED to save you TIME and MONEY
\$5 for 1985, \$9 for 1984 and 1985

FASTFIND

HIGH-SPEED Search Utility

Searches any 100 sector text file in 1 second. Loads them in 6 seconds. AND/OR NOT logical operators & wild card. Searches multiple files & disks with single keypress. Up to 100 times FASTER than word processors! Finds lost files, even if you forget their names! A.P.P.L.E.'s BEST SELLER. Prints reports. Not copy-protected. Bonus super-fast, hard-disk compatible SPEEDOS. For any Apple II or III. List \$29.95

\$12 and get 1984 & 1985 INDEXES FREE
(Add: \$2 Shipping/handling, Calif. res. 6.5% credit cards 4%, overseas \$3)
FASTFIND CO., 28503 Coveridge Dr. #C, RPV, CA 90274
[Modem: (213) 377-0804] VISA/MC (213) 544-2350

Circle 11 on Reader Service Card.

DEALER

NETWORK SYSTEMS

Ribbons	Black Colors
Apple Imagewriter	\$3.00 3.25
Diablo HTII M/S	\$2.50
Epson MX-RX-FX 80	\$2.75 3.00
MX-RX-FX 100	\$3.50 3.75
LX-80	\$3.50 3.75
LQ-1500	\$3.75 4.05
NEC 3500	\$3.95 4.50
5500/7700	\$3.50 3.75
8023	\$3.00 3.25
Okidata 80-82-92	\$1.25 1.45
192-193-182	\$4.95 5.75
Panasonic KXP	\$6.25

1-800-446-6760
1-513-435-2256 (OHIO)
MASTERCARD • VISA ACCEPTED

Circle 64 on Reader Service Card.

WE TURN APPLES INTO GOLD WITH A LITTLE ALCHEMY AND LOTS OF ENGINEERING
SINCE 1981

RGB CARDS

APPLE //E AND //+ & FRANKLIN 2000:	COLORMASTER	\$99.
	KALEIDOSCOPE //	\$139.
FRANKLIN 1000, 1200:	COLORMASTER	\$119.
	KALEIDOSCOPE //	\$149.

Cards plug into slot 7. Can be interfaced with //+ 80 column card, or //e 80 column/RAM card.
Compatible with all RGB monitors.
Cable and connector supplied, + much more.

APPLE //C RGB: \$119.

SONY CPD 1310 super hi-res 13" RGB monitor: \$385.

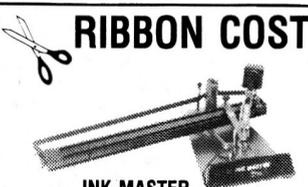
TELEMAX, INC. P.O. BOX 339
WARRINGTON, PA 18976 (215) 343-3000

TOLL FREE: 950-1088, wait for tone, then dial **TELEMAX** (touch tone)

RGB VIDEO DISPLAY INTERFACE PRODUCTS FOR IBM-PC & APPLE

Circle 252 on Reader Service Card.

CUT RIBBON COST



Re-ink most fabric ribbons with only one machine

INK MASTER
\$159.00

- No Fuss No Mess
- Simple to Use
- Versatile
- Adjustable

E-ZEE INKER
\$39.50

BORG INDUSTRIES
525 Main Street
Janesville, Iowa 50647

ORDER TOLL-FREE:
800-553-2404
In Iowa: 319/987-2976
Visa/MC accepted

Circle 71 on Reader Service Card.

P-tral BASIC to Pascal

\$179

TRANSLATOR

Converts Applesoft BASIC programs to readable and portable Apple Pascal. P-tral supports all BASIC instructions except Shape Commands, DOS Commands and Immediate Mode Instructions.
REQUIREMENTS: Apple II, II+, IIe or IIc. 64K or 128K RAM. DOS 3.3 or ProDOS. Apple Pascal 1.1, 1.2, 1.3.

FOR MORE INFORMATION CONTACT:
WOODCHUCK INDUSTRIES
340 WEST 17TH ST (#2B)
NEW YORK, NY 10011
(212) 924-0576 / 206-6490

Circle 174 on Reader Service Card.

CLASSIFIEDS

Digitizers

COMPUTER EYES

- Make custom T-Shirts
 - Print computer portraits
 - Join our "free" public domain ART GALLERY BBS (201) 469-0049
 - Capture real world images
 - Digitize video signals from: Video Tape Recorders (VCR's), Video Cameras, etc.
- Apple ComputerEyes 109.00
Software interface to:
Print Shop 12.00
Double HiRES (Ile), (Ilc) 12.00
Newsroom 12.00
Panasonic Commercial grade B/W video cameras 199.00
Special Hookup cabling with instructions 19.00
UNDERWARE ribbons to make custom heat iron-on transfers for T-shirts, scarves, etc. 20.00
Color Pens 12.00
For VISAMASTER CHARGE ORDERS, Call (201) 889-8416 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****

Software

THE PICKS! 86

Pro football picking game! You make the picks. Computer keeps track of standings and statistics. Fun competition for friends or family. This unique disk is yours for only \$12.00! Apple II family. Printer required. For more information send SASE.

EPIC SOFTWARE

P.O. Box 1153
West Hanover, MA 02339

LOOKING FOR A JOB?

JOB FINDER can help professionals, students or anyone looking for a new position. All research and preparation has been done to send out a strong cover letter and a top notch resume. Package includes tips on job hunting, 7 resumes, 9 cover letters, quality stationery, and more. Everything needed for successful job hunting at any level for only \$19.95 + \$1.50 S&H. DOS 3.3 (48K) Send check/MO to
POINT ACROSS SYSTEMS
PO Box 1462
No. Kingstown, RI 02852

APPLE SOFTWARE TRADING SERVICE

For Apple II+, e, c. We have THOUSANDS of the newest and best adventures, arcade games, graphics software, utilities, trivia games, word processors, and much more available for trading. Stop paying outrageous prices for the software you want. Join our customers from all over the world who are saving BIG money on software. Since we act as a clearing-house for our traders, there is complete privacy and safety. That means NO strange phone calls at 2AM, and NO rip-offs. Write today for full details about this exciting new club!

ADVENTURE HELPERS

360 W. Pleasantview Ave., Dept. IC
Hackensack, NJ 07601
(201) 646-9168

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 Ile/Ilc & 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 1-800-542-7981/IA

Education

SUPER GRADING SYSTEM

"GradeWorks"
A complete AppleWorks based grading system. Superior to other programs on the market. It is fast and very flexible.

The package includes

- On disk information
 - A complete manual
 - Many practice templates
 - Quarter or semester averaging
 - Mid year + final ave. (with exams)
 - Test correcting and grading
- "GradeWorks" a total system, from test correction to final average.

Intro price \$29.95 (Ma. + 5% out of USA +\$5)

KATAMA Software

Attention J. Bernier
RFD 304
Edgartown, MA 02539
(617) 627-5145

PHYSICS PROBLEMS—APPLEWORKS

Solve high school and college physics problems using AppleWorks spreadsheet templates. Motion, vectors, friction, conversions, energy, electricity and more. Example problems. Easy to use and understand. Send \$20 + \$2 S/H.

MELCO

P.O. Box 626-A
St. George, UT 84770

Spreadsheet

APPLEWORKS SUPER GRAB BAG

NEW APPLEWORKS OWNERS!

These 10 spreadsheet files teach tricks, techniques not found ANYWHERE else! Taxes, Real Estate, Expert System, more. User acclaimed.

Suggest. Retail: \$24.95

Intro Price: \$12 + \$2 S/H

— For info, send SASE —

Also, SAMPLERS (\$7 + \$2 ea S/H):

- Cookbook: 3" x 5" Recipe Cards
 - Busi-Bag: Bar Graphs, etc
 - School Bag: Ideas for Teachers
- MC and VISA ACCEPTED—

PETTIT DESIGN AND ENGINEERING

2650 So. Shore Drive/Dept 19
Milwaukee, WI 53207
(414) 483-9056

User Group

FRANKLIN HARD DRIVE

Hardworks is a hard drive specially engineered to run on Franklins & Apples even where the Sider won't.
* 20 Meg ProDOS 1.1.1 drive . . \$999
* ProDOS & DOS 3.3 software . . \$69
* ProDOS, Pascal, CPM (Softcard, PCPI Appli-Card, Franklin & Star-card), requires a true slot 6) . . \$149
Brought to you by the Franklin Users Group. Membership \$20 year, includes newsletter, BBS, hotline, PBS lib. (not required to order), S&H \$20 order, Visa/Mastercharge 5%.

A.S.C.I.I.

67N E. Wind Rd.
Tecumseh, MO 65760
(417) 679-3526

Hardware

NEW APPLE COMPATIBLES!

Ile 64K/80 Column Bd. \$39. Ile 256K/80 Col bd \$109. Il + 80 Col. Bd. \$49. Ile Keypad w/16 keys, \$39. Cooling Fan Il/Ile \$29.95. Add shipping \$3. COD \$2. Call/Write for complete price list.

NEXO DISTRIBUTION

914 East 8th St., Suite 109
National City, CA 92050
(619) 474-3328

Publications

MICROCOMPUTER BOOKS

- Selected Apple II titles include:
- Apples for Teachers \$12.95 (w/disk package \$27.95)
 - Applesoft BASIC Programmer's Reference Manual \$22.95
 - Applesoft Tutorial \$27.95
 - Apple IIc or IIe Technical Ref. Manual \$22.95
 - Basic Program. w/ProDOS \$27.95
 - Basic Apple Basic \$15.95
 - Data Base Management \$13.95
 - Mastering Applesworks \$13.95
 - Microcomputer GRAPHICS \$13.95 (w/disk, \$27.95)
 - Multiplan Models for Business \$14.95
- Shipping/Handling extra.
MC/VISA/AE.
Send for FREE Directory.
- MICRO BOOKS**
PO BOX 4068
W. RICHLAND, WA 99352
800/547-9755 Ext. 8
509/967-5084

Games

FANTASY CONSTRUCTION

- NEW! A.C.S. Ult-4 Con(C.) Set edits maps, chars, mons etc. \$39.99
NEW! BARD'S TALE DOC—Edit, heal, resurrect chars and more! . . . \$19.99
E.C.S. Ult-3 C. Set edits maps, mons, more, inc. Lavalite scenario! . . \$28.50
W. WORKBENCH Wiz I-III C. Set (mazes, mons, items, msgs, more) \$34.99
W. Scout—Get inside scoop on all Wiz I-III monsters/items . . . \$19.99
A. WASTELAND—NEW Wiz scenario 2098 A.D. New Mazes, plot, mons \$29.99
All inc. INFO-PACKED manuals.
NONE damage originals. CALL TOLL FREE NOW! (VISA/MC) or mail check, M.O. FAST!
- MAGICSOFT**
P.O. Box 908-I
Danville, CA 94526-0908
(800) 628-2828 Ext. 5202

GOLEM COMPUTERS

APPLE
SOFTWARE/HARDWARE
AT SUPER SAVINGS

PLACE ORDERS TOLL FREE

1-800-345-8112

PA 1-800-662-2444



	LIST PRICE	GOLEM PRICE
HARDWARE SPECIALS		
212 APPLE CAT II SYSTEM (NOVATION)	365.00	
MICROMODEM IIE/SMARTCOM I (HAYES)	131.00	
SMARTMODEM 300S/SMARTCOM IIC (HAYES)	155.00	
PROMODEM 1200A W/SOFT (PROMETHEUS)	245.00	
PROMODEM 300C IIC (PROMETHEUS)	77.00	
MACH III JOYSTICK W/FIRE BUTTON (CH PROD)	31.00	
GRAPPLER + (ORANGE MICRO)	72.00	
BUFFERED GRAPPLER + (ORANGE MICRO)	119.00	
PRINTER MSP-20 (CITIZEN)	350.00	
PRINTER MSP-10 (CITIZEN)	250.00	
MONITOR VIDEO 300A AMBER (AMDEK)	127.00	
BLANK MEDIA SS/DD 10 (GOLEM)	8.50	
EDUCATION		
TYPING TUTOR III	49.95	29.00
MATH BLASTER!	49.95	26.15
TURBO TUTOR (REQ. CP/M)	34.95	22.00
MASTER TYPE	39.95	23.40
READER RABBIT	39.95	23.40
WORD ATTACK!	49.95	26.15
WHERE IS CARMEN SANDIEGO	39.95	23.40
HOME		
DOLLARS AND SENSE II + IIc 64K	100.00	66.00
DOLLARS AND SENSE IIE/IIc 128K	119.95	66.00
CROSSWORD MAGIC	49.95	29.15
NEWSROOM	49.95	34.00
CLIP ART VOL. 1 FOR NEWSROOM	29.95	17.00
CLIP ART VOL. 2 FOR NEWSROOM	39.95	22.00
UTILITIES		
THE PRINT SHOP	44.95	28.50
THE PRINT SHOP GRAPHICS I, II, III	ea. 24.95	14.25
SIDEWAYS	60.00	31.10
TURBO PASCAL (REQ. CP/M)	69.95	36.30
TURBO TOOLBOX (REQ. CP/M)	69.95	36.30
CROSSTALK (REQ. CP/M)	195.00	112.90
WORD PROCESSING		
SENSIBLE SPELLER IV		
(DOS, PRO DOS)	ea. 125.00	64.00
HOMEWORD (64K, 128K)	ea. 69.95	40.70
PFS:WRITE IIE	125.00	70.00
BANK STREET WRITER (64K or 128K)	ea. 69.95	40.90
BANK STREET SPELLER	69.95	40.70
SENSIBLE GRAMMAR CHECKER	99.95	53.00
BUSINESS		
PFS: REPORT, FILE, GRAPH	ea. 125.00	70.00
BACK TO BASICS ACCT. SYS. IIE	195.00	98.45
THINK TANK	150.00	77.85
RECREATION		
GATO	39.95	21.00
SARGON III	49.95	29.15
FLIGHT SIMULATOR II	49.95	31.90
WISHBRINGER	39.95	22.85
SPY HUNTER	44.95	26.40
KARATEKA	39.95	20.50
F-15 STRIKE EAGLE	34.95	20.75
ZORK I	39.95	22.85
ZORK II, III	ea. 44.95	25.60
ALTER EGO (Male or Female)	ea. 49.95	29.20
ULTIMA II, III	ea. 59.95	34.00
WIZARDRY	44.95	29.15
HITCHHIKERS GUIDE	39.95	22.85
LEGACY OF LLYLGAMYN	39.95	23.40
KNIGHT OF DIAMONDS	34.95	20.35
KING'S QUEST	49.95	29.15
DRAGON WORLD	39.95	23.40

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. Mail orders to:

GOLEM COMPUTERS

P.O. BOX 6698 • WESTLAKE VILLAGE, CA 91359

Apple is a trademark of Apple Computers, Inc.

COMING ATTRACTIONS

- Extensive coverage of new products from Apple
- Two new columns: Teachers' Choice, practical advice for educators using AppleWorks, and E.G. For Example, irreverent—and sometimes insightful—commentary by our review editor, Eric Grevstad
- Whether your goal is keeping out burglars or just turning up the heat on those cold winter mornings, your Apple can help you control your home environment
- Reviews: Pinpoint Spelling Checker vs. Spellbound; Fingertips, RamFactor, MultiScribe, AutoWorks, and more

inCider

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. 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 CWCI group contribute to the *Computerworld* News Service, a daily on-line service offering the latest on domestic and international computer news. 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 Computerworld Monthly*; DENMARK'S *Computerworld/Danmark*, *PC World*, and *Run (Commodore)*; FINLAND'S *Mikro*; FRANCE'S *Le Monde Informatique*, *Golden (Apple)*, *OPC (IBM)*, *Theorem*, and *Distributive*; 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/Mexico*; THE NETHERLANDS' *Computerworld Netherlands* and *PC World*; NORWAY'S *Computerworld Norge* and *PC Mikrodata*; SPAIN'S *Computerworld Espana*, *PC World*, and *Commodore World*; SWEDEN'S *Computer-Sweden*, *Mikrodata*, and *Svenska PC World*; SWITZERLAND'S *Computerworld Schweiz*; THE UNITED KINGDOM'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 *Network World*.

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

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

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

Dealers: Contact Raino Wirein, Direct and Newsstand Sales Manager, *inCider*, Route 101 and Elm Street, Peterborough, NH 03458. Call (800) 343-0728.

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

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, Elm Street, Peterborough, NH 03458.

**68000 for your Apple
 UNDER \$200 !**

Our line of hardware & software systems for Apple II+, IIE includes a 68008 card, assembler, & FORTH for under \$200 !

Write or call today for our 68008/6809 product catalog.



PO Box 696
 Oak View, CA 93022 (805) 649-2833

Circle 67 on Reader Service Card.

Preferred Computing

ORDER
TOLL FREE

1-800-327-7234

Computer Accessories

When Only the Best Will Do!



We only sell proven products that work. By selling only the industry best, we can assure you of the highest level of reliability and performance. Selling large volumes of a smaller product line allows us to have the lowest discount prices and fast same day shipment.

AE APPLIED ENGINEERING™

RamWorks II™ If you have a IIc this card is perfect and if you use AppleWorks, it's an absolute must! Applied Engineering was the first company to expand AppleWorks and they're always 6-12 months ahead of the competition. And you can stay current with our FREE SOFTWARE UP-GRADES. Why settle for a partial compatible when you can have a real RamWorks at a discount price.

RamWorks II 256K..... **\$169**
 RamWorks II 512K..... **\$199**
 RamWorks II 1 MEG..... **\$269**
 RamWorks II 1.5 MEG..... **\$389**

65C816 16 Bit Card Requires RamWorks II and Apple IIc. Enhances VIP Professional. **\$149**

RamWorks II™ RGB Option Even if you bought a RamWorks just to use the RGB option, it would be worth it. The Applied Engineering RGB option has 4 text colors, runs both Apple and IBM RGB monitors, and is compatible with Apple's standard for RGB, includes cables. **\$99** (See our new RGB monitor at right.)

TransWarp™ We tested all the accelerators and TransWarp was 20-300% faster than the others. Runs cool too! **\$219**

Z-80 Plus™ Runs all CP/M® software, works with Sider hard disk. There are over 5000 CP/M® programs out there and this card runs them all. Includes operating system and manual, a great value. **\$99**

Timemaster H.O.™ We tried them all, Clockworks, Thunderclock, and others. Timemaster H.O. had the most features and was the easiest to use. It comes with about 4 times the software of anyone else. It even adds 15 new commands to BASIC! **\$99**

Viewmaster 80™ Super resolution, total software compatibility and everything you need to run AppleWorks on a II+ or Franklin. **\$109**

RamFactor™ If you have a II+ or would rather use slots 1-7 in your IIc, RamFactor is for you. It is fully compatible with Apple's memory card, runs AppleWorks on a IIc or II+ and has a battery back-up option.

RamFactor 256K..... **\$189**
 RamFactor 512K..... **\$224**
 RamFactor 1 MEG..... **\$289**
 Battery Back-up..... **\$149**

Extended 80 Column Card with 64K I know what you're saying. If you've seen one extended 80 column card, you've seen

them all, right? Well, this one's from Applied Engineering and it's well made and comes with full documentation. **\$69**

Z-RAM II™ Up to 1152K in a IIc? You bet! And only Z-RAM runs CP/M® software too! If you run AppleWorks on a IIc, this card is a must!

Z-RAM II 256K..... **\$249**
 Z-RAM II 512K..... **\$284**
 Z-RAM II 768K..... **\$319**
 Z-RAM II 1 MEG..... **\$389**

IIc System Clock™ A PRO-DOS compatible clock, displays time and date on AppleWorks screens and files, and other PRO-DOS programs. **\$69**

More Quality Products

The Sider A powerful yet compatible hard disk works with PRO-DOS, DOS 3.3, CP/M® and Pascal.

10 MEG Sider..... **\$599**
 20 MEG Sider..... **\$799**
 20 MEG Tape Back-up..... **\$639**

Ultra Hi Res RGB Monitor/TV Due to the very low price of the product, we can't reveal the manufacturer. But we can tell you that it is a very major manufacturer. This RGB monitor uses a 13" ultra hi res CRT for super sharp 80 column text and great graphics. But in addition to being the best RGB monitor available this unit is also a 180 channel cable ready television set with remote control. Try it. You WILL like it.

Only **\$519**

RGB Cable For above **\$29.00**

Mapper RGB Converter This device converts an Apple RGB output into an IBM output (15 pin to 9 pin). Not needed when using the new RamWorks RGB option. **\$49**

5-1/4" Disk Drive Super quiet direct drive compatible with all Apple software and Apple controller card. A top quality unit with 1 year warranty. **Only \$119**

5-1/4" Disk Controller Runs up to 2 drives. **\$49**

16K RAM Card For Apple II and II+ **\$69**

Heavy Duty Apple Power Supply With over twice the output current of Apple's original power supply. This unit can run even fully loaded Apples. **\$59**

DataShield Uninterruptable Power Supply Keeps your Apple running through power transients, voltage drops, brownouts and blackouts. Provides constant flow of power in a blackout for 15-20 minutes, allowing an orderly shutdown. **200 Watt Unit \$329**

Kensington System Saver Fan with 2 power outlets and surge protector. **\$69**

Internal 1200 Baud Modem For Apple IIc and II+. Switches between 1200/300/110 baud. Built-in speaker, auto dial, auto select, auto answer. Three year warranty. A top quality unit with full Bell 212A compatibility. **\$199**

Internal 300 Baud Modem With software from ZOOM **\$99**

Pinpoint's AppleWorks Accessories The best available and they are written to fully utilize Applied Engineering's RAM cards. (Includes RAM enhancement software). Together a \$118 value. Only **\$59**

256K RAMS 150ns. 5 year warranty. Set of 8 **\$39**

VIP Professional Lotus 1-2-3 Work-alike **\$114**

SPECIAL!

RamWorks™ That's right, RamWorks not RamWorks II. RamWorks is the memory card that started the revolution. RamWorks can expand to 512K on the main board and up to 1 meg with an optional 512K piggyback and can accept Applied Engineering's new RGB option. A 512K RamWorks gives AppleWorks a 360K desktop. Comes with Applied Engineering's newest software. Hurry, at this price they won't last long.

With 512K **\$149**

Why buy from us?

1. Toll free 800 number for orders.
2. We almost always ship from OUR stock and we never let ourselves run out of Applied Engineering products. Call us before 3 P.M. and it ships today.
3. Emergency overnight delivery is available.
4. We're nice guys that want to help. We want our business to grow because of repeat customers and word of mouth.
5. We handle only the industry's best. We've tested and used all the products we sell.
6. 15 day money back satisfaction guarantee on hardware. If you don't like something, we'll give you your money back. No hassles.
7. We'll support, service and warranty everything we sell.
8. No surcharge is added for charge cards and we won't charge your card until we ship.
9. No sales tax is collected on orders outside Texas.
10. All shipments are insured by us.

Order by mail: Send check or money order to Preferred Computing, P.O. Box 815828, Dallas, TX 75381

Order by phone: 1-800-327-7234 Visa, MasterCard or COD Texas, Hawaii and Alaska 1-214-484-5464

Orders only call 1-800-327-7234

Questions and Customer Service call 1-214-484-5464
 Texas residents add 5 1/8% sales tax

Prices subject to change without notice

Ad # 6

"Hints & Techniques"

featuring over two dozen of the best utilities from inCider, including:

- Easy Letterheads
- Pseudo Random Numbers
- Peek to Poke
- Text Tricks
- Applesoft Shortcuts
- Paddle Reading
- Creative Sound Effects
- Print-Using Subroutines
- Picture Combine, 1, 2 and 3
- Super Startup
- Easy List
- Double Vision
- Apple Numbers
- The Calendar Printer
- Superfriendly Menu
- Mini-Catalog
- Applesoft FILL Command
- Programming Above Hi-RES Page 1
- Computed Gotos
- Keypad
- Multipage Dump
- Ditto
- Turn The Page
- Memory Search
- Ampersand Number Converter

hotCider Volume II, featuring:

- Should I Trade?
- Low-Res to Hi-Res
- Modern Battleship
- Mailing List Manager
- Formatted Lister
- Softball Statistics
- Apple Turnover
- CP/M to DOS Textfile Converter
- Flashcards
- Balloons
- Rocket Man
- Type Maker

hotCider Volume I, featuring:

- Visidata
- Poster Printer
- Doing Windows
- Cider Zap
- Dino Math
- Rembrandt
- Bongo's Bash
- Stack Attack
- Wizfix
- Procat
- Hello Menu
- Sector Mapper

Act now while this Premiere Volume of hotCider is still available!

Each disk comes complete with full documentation booklet, and expert telephone support.

hotCider Software Special!

If Your hotCider Library Is Incomplete,



Fill In The Blanks!

BUILD YOUR APPLE II SOFTWARE LIBRARY the easy, reliable way, with the tested, proven programs selected from the pages of inCider. Complete coupon below and mail today or, for immediate service, **CALL TOLL FREE 1-800-258-5473** (In NH, dial 1-924-9471).

YES! I want to build my Apple II software library with the proven programs from inCider. Please send the hotCider disks I've checked below, complete with documentation booklets.

- Hints and Techniques, 26 Utilities, just \$21.47**
- hotCider Volume I, 12 Programs, just \$21.47**
- hotCider Volume II, 12 Programs, just \$21.47**
- Payment enclosed AE Visa MC

* Apple and the Apple logo are registered trademarks of Apple Computer, Inc.
** Prices include postage and handling. Foreign airmail please add \$1.50 per item.
US funds drawn on US banks only.

Card # _____ Exp. Date _____
Signature _____
(print) Name _____
Address _____
City _____ State _____ Zip _____

MAIL TO: hotCider • Elm Street • Peterborough, NH 03458

9-86B1

EXPOSE YOURSELF... TO THE KACHE PLUS CARD.

Accelerate Your Floppy Drives...To Out Perform Any Hard Disk Drive **PLUS** Gain The Added Features Of Up To 15 Multi-Functions

*The Kache Plus Card...Shocking Speed **PLUS** Expanded Performance-*The Kache Plus Card is a powerful floppy disk adapter board for Apple II systems that operates up to six floppy drives. It offers faster accessing speed than hard disk drive **PLUS** the added features of up to 15 popular expansion boards.

*Faster Accessing Than Hard Disk Drive-*The Kache Plus Card combines an advanced form of RAM, known as cache memory, with the power of a microprocessor to achieve a 2.5 to 1 speed advantage over hard disk accessing. Governed by a Hitachi 64180 microprocessor, the Kache Plus Card becomes an intelligent RAM disk card that...

AUTOMATICALLY fills cache memory with up to 512K of your "most frequently accessed data"

AUTOMATICALLY maintains the data content of cache using the "LIFO" method (Least Used First Out)

AUTOMATICALLY anticipates data requests and transfers needed files to your Apple's CPU electronically

AUTOMATICALLY saves data in RAM disk mode for future transfer to floppy disk

AUTOMATICALLY time and date stamps files written to disk

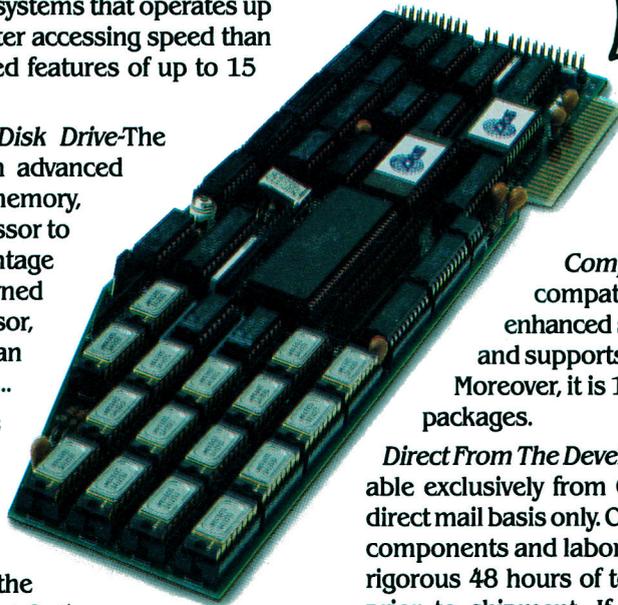
*Multi-Function Features-*The Kache Plus Card also doubles as a multi-function board with a choice of up to 15 expanded features for your Apple II system. And, by utilizing the benefits of the Kache Plus Card's cache memory and 64180 microprocessor, each feature offers a performance advantage over comparable expansion boards on the market.

The standard Kache Plus Card comes complete with several of the most popular expansion features to date. And, with the optional features offered it can be easily upgraded to grow with the sophistication of the computer market. In addition, future innovations from OKS will be carefully engineered for easy assimilation into the standard Kache Plus Card design.

Standard & Optional Features:

256K Cache Memory/RAM Disk
User-Friendly, Menu-Driven
Board That Is Mouse Compatible
512K Cache Memory/RAM Disk
Serial Interface
256K/512K Print Buffer
External Power Supply
256K/512K Modem Buffer

Software Utilities for the Clock/Calendar
Controller Board for Concurrent
Operation of 6 Floppy Drives
Parallel Printer Interface
Modem Interface
256K/512K Serial Buffer
Software Utilities for Printer,
Serial and Modem Ports



*Compatibility-*The Kache Plus Card is compatible with Apple II, II+, IIe and IIe enhanced systems with 1-6 floppy disk drives, and supports DOS, PASCAL, ProDOS and CP/M. Moreover, it is 100% compatible with all software packages.

*Direct From The Developer-*The Kache Plus Card is available exclusively from Ohio Kache Systems (OKS) on a direct mail basis only. OKS offers a full year warranty on all components and labor as well as a 30 day trial period. A rigorous 48 hours of testing is completed on each unit prior to shipment. If the Kache Plus Card does not perform as we say it will, simply return it to OKS and your money will be fully refunded.

Don't Buy A Hard Disk Drive Or Another Add-On Board... Buy the Kache Plus Card instead. Priced at:

\$395⁰⁰

(Price indicated is for the standard Kache Plus Card. Optional features are available at an additional charge.)

The standard Kache Plus Card costs less than any hard disk drive. It's even priced below the cost of buying separate boards for each of the standard features.

For shocking speed **PLUS** expanded performance...Expose yourself to Ohio Kache Systems, and its latest product! For more information on the new Kache Plus Card call us toll free at...

1-800-338-0050

or write for our free brochure.

Available soon: The Data Kache Card for IBM and IBM compatible systems.



Ohio Kache Systems Corp.
4166 Little York Road
Dayton, Ohio 45414-2566
513-890-3913

© Ohio Kache Systems is a developer of computer enhancement products.

Ohio Kache System, OKS and Kache Plus Card are registered trademarks of Ohio Kache Systems, Inc.

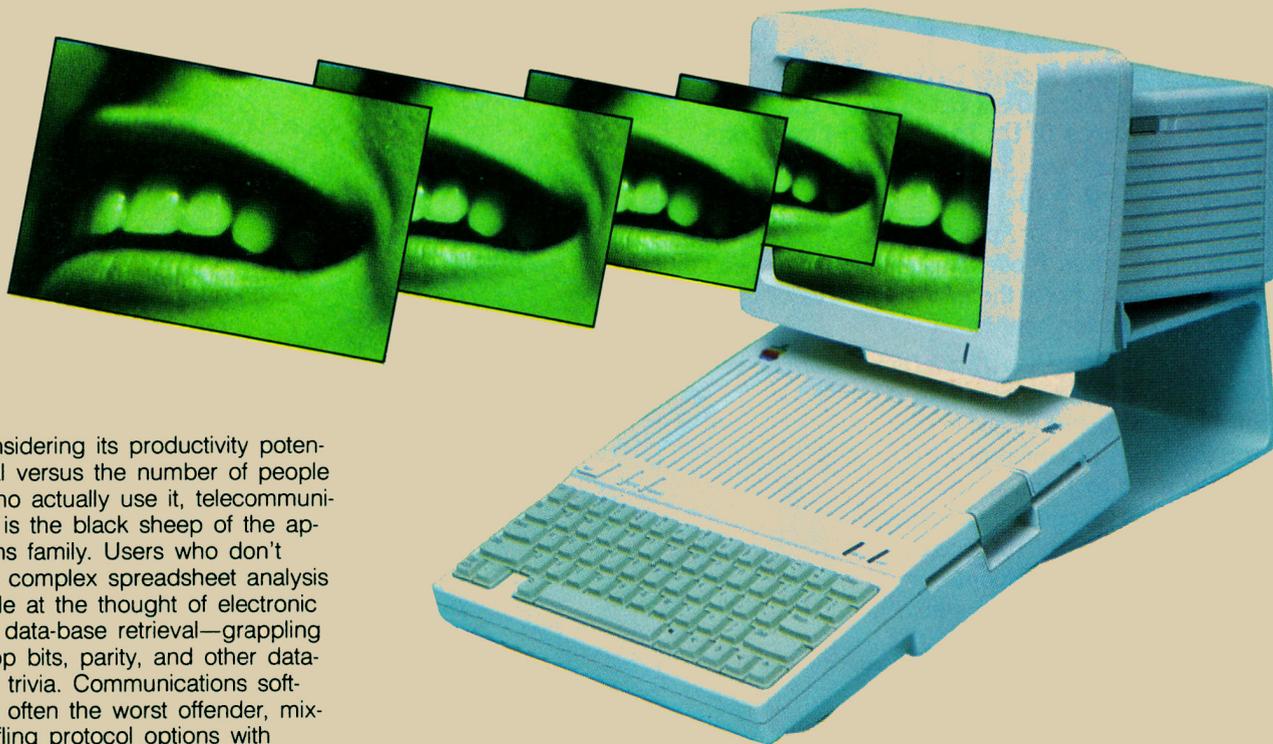
Apple, Apple II+, IIe and IIe enhanced are registered trademarks of Apple Computers, Inc.

IBM is a registered trademark of International Business Machines, Inc.

Hitachi is a registered trademark of Hitachi, Inc.

EDITORS' CHOICE

Talk Back: Telecommunications Made Tolerable



Considering its productivity potential versus the number of people who actually use it, telecommunications is the black sheep of the applications family. Users who don't blink at complex spreadsheet analysis turn pale at the thought of electronic mail or data-base retrieval—grappling with stop bits, parity, and other data-transfer trivia. Communications software is often the worst offender, mixing baffling protocol options with cryptic commands.

Russ Systems is dedicated to overcoming on-line anxiety. The firm's Let's Talk turns a //e or //c into an easy-to-use bulletin board or information stand (see *inCider's* review, May 1986, p. 34). Now Russ has turned to the other end of the phone line, with a communications program suitable for calling Let's Talk, CompuServe, or the computer next door. It's called **Talk Back**, and earns a back-handed compliment: It's the least threatening terminal program around.

The hardest thing to learn about Talk Back is when to type a single letter and when to type the open-apple key and a letter (depending on whether your keystrokes are "live" to the screen, as when you're actually on line or preparing text in the editor). Otherwise, there are rarely more than half a dozen commands from which to choose on its simple, attractive menus, whether you're calling your mom or using Xmodem to send an AppleWorks data base. Changing communication parameters is as easy as pressing the arrow keys.

In a tidy (if somewhat disk-hungry) feature, Talk Back keeps each service or number you call in a different ProDOS directory, so your downloaded Dow Jones report can't overwrite the SourceMail you read this

morning. Capture of incoming text is automatic, and easily toggled on or off (as is printing). Power users can record automatic log-on sequences, macros to send frequently used text, or tasks—series of macros for hands-off handling of multiple transmissions or receptions.

There's a utility menu for checking directories and disk files, plus a built-in ASCII text editor—a far cry from a word processor for creating files, but handy for reviewing the transcript of your latest session (and smart enough to offer that transcript, the most recently saved text, as the default file when you enter the editor). Our only complaint is that Talk Back is much better at placing calls than receiving them. A makeshift auto-answer mode makes you type your modem's standby code (such as ATSO=1) as a phone number and "call" it, quite a change from other functions' friendly menu choices.

Review Editor Eric Grevstad says, "Remarkable—a new Apple II program that isn't named 'Works' and doesn't draw file folders on the screen. In fact, Talk Back is the cleanest-looking communications program I've seen. Future versions should improve on the edition [1.2] we saw—right now, for instance, Talk

Back shows a list of filenames, but makes you type one instead of picking it with the arrow keys. But it's still a simple, practical package; if it cost a bit less than \$79 I'd like it even better."

According to Managing Editor Dan Muse, "To me, the phrase 'easy-to-use telecommunications software' is a contradiction in terms, but Talk Back at least makes the process bearable. I don't understand why Russ Systems didn't make the answer mode consistent with the rest of the program, but in general I enjoyed using Talk Back, which is something I can't say about many telecommunications packages."

Talk Back requires a 128K Apple //e or //c, one disk drive, and a Hayes Smartmodem (not Micromodem) or compatible. It's available from Russ Systems, 320 Dufour Street, Santa Cruz, CA 95060, (408) 458-5080. ■

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.

The Complete Works With AppleWorks™

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



MegaWorks with AppleWorks.

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

ReportWorks with AppleWorks.

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

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

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

NOW, ThinkWorks with AppleWorks.

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

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

Circle 263 on Reader Service Card.

Try the Complete Works for only \$10!!

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

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

 Credit Card Orders Only 
(Sorry, No. C.O.D. Orders)

1-800-345-8112

in PA 1-800-662-2444

For Technical Questions Call: (619) 450-1230

To order by mail, send check or money order to:

Megahaus Corporation/DemoWorks Offer
5703 Oberlin Drive
San Diego, CA 92121
Dept. DWI-GOF

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

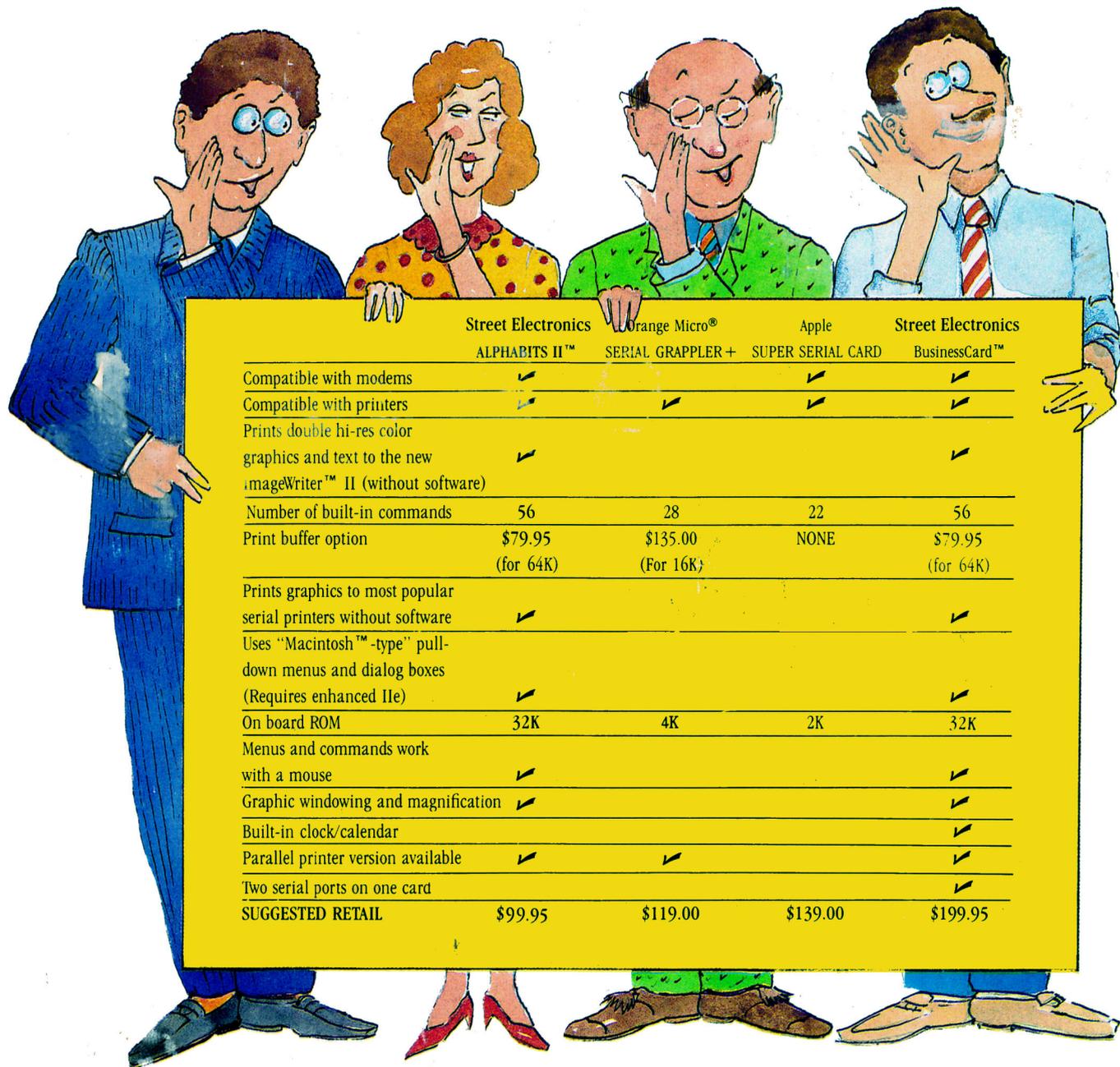
megahaus™
WE MAKE COMPUTERS WORK HARDER.

Easier!

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

PSSST.

Check this out.



	Street Electronics ALPHABITS II™	Orange Micro® SERIAL GRAPPLER+	Apple SUPER SERIAL CARD	Street Electronics BusinessCard™
Compatible with modems	✓		✓	✓
Compatible with printers	✓	✓	✓	✓
Prints double hi-res color graphics and text to the new ImageWriter™ II (without software)	✓			✓
Number of built-in commands	56	28	22	56
Print buffer option	\$79.95 (for 64K)	\$135.00 (For 16K)	NONE	\$79.95 (for 64K)
Prints graphics to most popular serial printers without software	✓			✓
Uses "Macintosh™ -type" pull-down menus and dialog boxes (Requires enhanced IIe)	✓			✓
On board ROM	32K	4K	2K	32K
Menus and commands work with a mouse	✓			✓
Graphic windowing and magnification	✓			✓
Built-in clock/calendar				✓
Parallel printer version available	✓	✓		✓
Two serial ports on one card				✓
SUGGESTED RETAIL	\$99.95	\$119.00	\$139.00	\$199.95

Street Electronics designed the Grappler+® a long time ago. We decided it was time for us to set a new standard for interfacing Apple® computers and printers. We're confident that when you look at the facts you'll want to get our new AlphaBits II™ or BusinessCard.™ These "state-of-the-art" products are clearly the most cost-effective interfaces available for the Apple IIe.

Street Electronics also makes the popular Echo+ and Cricket speech and music synthesizers for the IIe and IIc, and the LiveWire intelligent adaptor cable that allows you to run a parallel printer with the Apple IIc.

Apple is a registered trademark of Apple Computer, Inc.
 Macintosh is a trademark licensed to Apple Computer, Inc.
 ImageWriter is a trademark of Apple Computer, Inc.
 Grappler+ and Orange Micro are registered trademarks of Orange Micro, Inc.

Circle 73 on Reader Service Card.

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

Pricing and product information as of January 1, 1986

