



Affordable Ways To Enter The Computer Age.



If you're looking for an Apple® or Apple-compatible, Laser 128® computers offer you exceptional performance in every category.

Including price.

All cost less than the new Apple //c Plus. All run the full library of Apple //e and //c programs—over 10,000 titles. And all come with extra "built-in" features.

InCider magazine called our LASER 128EX® "a fully loaded, souped up...computer...at a price that should make Apple blush for shame." It runs three times faster than a //e and has a built-in expansion board for up to 1MB of memory-perfect for Appleworks.®

Our LASER 128EX/2™ surpasses even the

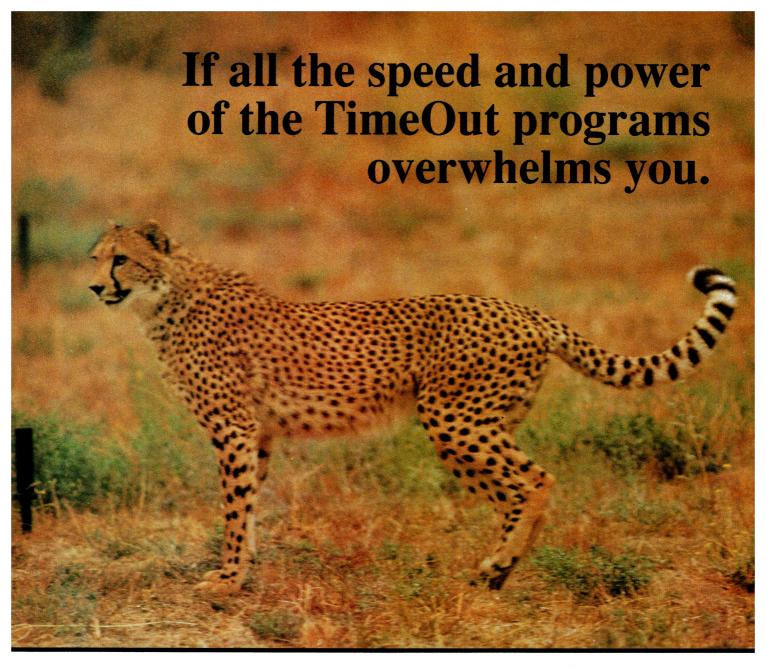
Apple //c Plus. You get a ProDOS®-compatible realtime clock, MIDI interface for musical instruments, your choice of a 51/4" or 31/2" internal disk drive, and the ability to daisy chain drives just like a IIGS®.

Finally, there's our LASER 128, the original Apple-compatible. It's so popular, it's now in hundreds of thousands of homes nationwide.

See your LASER dealer today. Call 312/540-8911 (West Coast 503/690-8086) for the one nearest you. Or write LASER COMPUTER, 550 E. Main St., Lake Zurich, IL 60047.

You'll discover more than a way to enter the computer age for less. You'll discover some of the best the age has to offer.

LASER 128, LASER 128EX and LASER 128EX/2 are registered trademarks of LASER Computer, Inc. Apple, Apple //c, Apple //e, Apple IlGs and ProDOS are registered trademarks of Apple Computer, Inc. Appleworks is a trademark licensed to CLARIS Corporation.



The Cheetah: a powerful, finely-tuned and well developed creature; its swiftness and agility only matched by its ability to overwhelm any object in its path. This graceful animal darts across the terrain with a fluid and seemingly effortless strength.

The TimeOut enhancements add power, speed and productivity throughout AppleWorks. They're fast. Faster than any other AppleWorks enhancements on the market. And they're powerful.

But don't let this overwhelm you. As powerful and swift as TimeOut enhancements are, underneath they are easy to use and backed by an unusually friendly and loyal group of people. We stand behind every product we sell with a moneyback guarantee and a team of customer service and technical support personnel to answer any questions you may have.

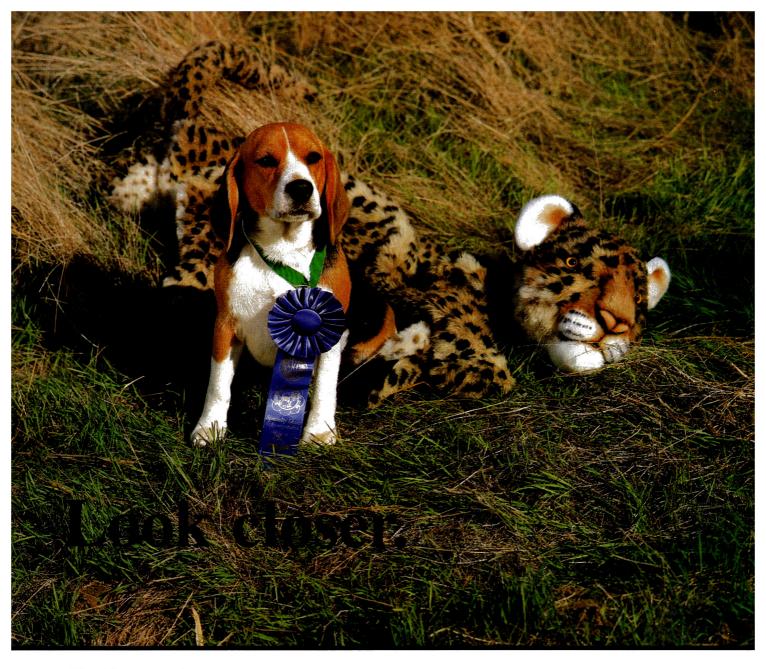
So don't be afraid to take a closer look. All of our software programs are so well

integrated within AppleWorks, you would think they had always been there. You are guaranteed a winning combination that has no equal in the Apple II market.

And it doesn't stop there. We are continually striving to upgrade and improve our software to meet the challenging needs of today's market. Included in our TimeOut series are these powerful enhancements to AppleWorks.

TimeOut QuickSpell catches spelling errors in record time from inside AppleWorks. It checks for spelling errors 50 times faster than the nearest competition. It also automatically finds double words and lets you add "unknown" words to a custom dictionary for future reference.

TimeOut SuperFonts produces Macintoshquality Word Processor output and allows you to use a variety of fonts and sizes. Use any combination of styles including plain text, bold, outline, italic, subscript, superscript, underline, shadow and negative. You can insert graphics into



your Word Processor documents. And, with the paint application that we've included, creating and touching up graphics is a breeze.

TimeOut Graph quickly produces outstanding looking graphs to enhance your spreadsheets. Present your data in nine different graph styles including Bar, Stacked Bar, Line, Pie, Exploded Pie, XY (scatter), Area, Hi-Lo and Point. It also features automatic and manual axis scaling and a variety of fill patterns. And, customizing graphs is quick and easy with the paint application we've included.

TimeOut SideSpread rotates your spreadsheets 90 degrees, enabling you to print

them sideways. It allows printing of the entire spreadsheet or any portion.

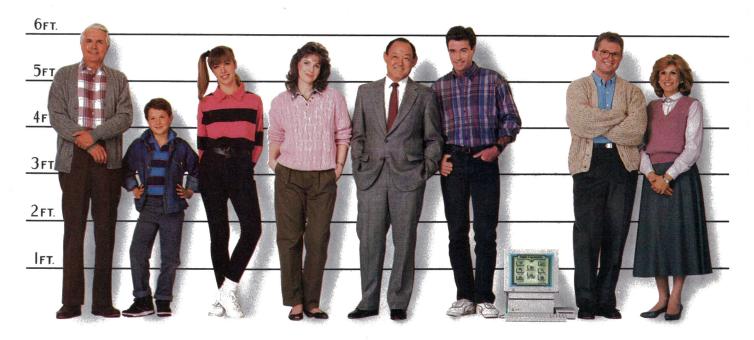
Look for these and other TimeOut products at your local dealer. If they don't have them, tell them to get on the stick.

So what are you waiting for?



Unleash the Power.

Break into Apple Headquarters. You'll get 30 days.



AppleLink®—Personal Edition—your online connection to Apple Headquarters.

These Apple® II users have just broken into Apple Headquarters. (And they're getting away with it. Risk-free. For 30 days!) With AppleLink — the direct line into everything that makes Apple so unique—the products, the people, the sense of community.

And right now, you can experience for yourself AppleLink's exciting lineup of services for home or business — and get 30 days with this special trial offer.

Connect your Apple II to everything Apple.

Let's get more specific.

First, there's the Apple Community where you can get the latest update of what's going on in — and what's coming out of — Apple (lots). You can chat with Apple staff or catch special presentations by Apple notables (like Woz, himself).

You'll get online help and product support directly from the biggest names in Apple II software publishing. Then, visit the software library where you can download an impressive selection of programs.

And that's just for starters.

In General Services there are endless possibilities. Look up facts in the up-to-date online encyclopedia. Make travel reservations. Get current on the latest-breaking news. Comparison shop for bargains in a 250,000item online department store...to name just a few.

- *To use AppleLink software you need an Apple IIe, IIc, IIc Plus or, IIa® computer with Hayes-compatible modem. Apple lle systems require enbanced ROM, 128K memory, an 80-column text card and a Super Serial Card You must bave a VISA, MasterCard or checking account for AppleLink registration. Allow six to eight weeks for delivery.
- **Evening or weekend rate of 10 cents per minute applies ***\$35 suggested retail price.
- © 1989 Apple Computer, Inc., Apple, the Apple logo and AppleLink are registered trademarks of Apple Computer, Inc. AppleLink Update is a trademark of Apple Computer, Inc.

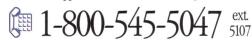
Explore everything Apple for 30 days risk-free.

You'll have 30 days to use AppleLink* and pay nothing for your software package or annual membership. You will be charged only for the time you spend online — and we'll even give you your first hour** free. If, after 30 days, you decide to become an AppleLink member, you will be billed the \$35 annual membership fee. Cancel at any time with no obligation.

Your AppleLink Trial Kit includes:

- The software you need to get online.
- One free hour of weekend or evening usage.
- A free issue of AppleLink Update™ magazine.

To order the AppleLink Trial Kit immediately, call toll-free:



Or contact your nearest authorized Apple dealer and purchase the complete AppleLink software kit.***

Rush me the AppleLink free trial period will incl weekend or evening usage and a free	Trial Kit! I understand that my 30-day ris lude free AppleLink software, 1 hour of free e issue of <i>AppleLink Update</i> magazine.
Full Name	
Street Address	
City	State Zip
Daytime Phone Number	Evening Phone Number Disk Size 3½" 5½"
Brand of modem	
Mail to: AppleLink — Personal Edition	AppleLink® 510 A sense of Community. TM
8619 Westwood Center Drive, Suite 200	A sense of Community ™
Vienna, VA 22180	A sense of Community



The#1 AppleII Magazine

PUBLISHER MARTIN MAZNER

BOB LINDSTROM Brenda L. McLaughlin

LESLIE G. STEERE

EVA K. LANGFELDT

JENNIFER C. BRAWER

OWEN W. LINZMAYER

SHANON B. CULLEN

MARY BOHANNON

PETER A. TUCKER

JEFFREY F FFI MUS

KRISTIN ROTHGERY

LINDA BRISCOF

MICHAEL CALLERY

MICHAEL FISCHER

DAVID THORNBURG

DAVID J. EZEQUELLE

THOMAS J. LUTZKE

THOMAS E. RICHARDSON

(212) 503-5145 CATHERINE DAVENPORT

WILLIAM R DELANEY

ALANE M. BOWLING

DONNA CANDELORI

PAUL STAFFORD

CHARLES MAST

(212) 503-5115

KELLIE COOPER

CARLOS LUGO

AMY LESOVOY

ROBERT WOLTERSDORF CAROL BENEDETTO

KATHRYN CUMBERLANDER

RENEE JOHNSON 950 TOWER LANE, 18TH FLOOR

FOSTER CITY, CA 94404

ONE PARK AVENUE

(212) 503-5209

NEW YORK, NY 10016

ZIFF-DAVIS PUBLISHING CO.

SUSAN W. LEE-MERROW

(312) 346-2600

(213) 387-2100

(415) 378-5677

GRACE JUE

KIM RISKAS

ROBERTA SCHWARTZ

MOLLY WINDSOR McLEOD

EDITOR SENIOR EDITOR GING EDITOR SENIOR COPY EDITOR EDUCATION EDITOR TECHNICAL EDITOR
EDITORIAL ADMINISTRATOR
EDITORIAL ASSISTANT

DESIGN DIRECTOR ART DIRECTOR ASSISTANT ART DIRECTOR ART ASSISTANT MECHANICAL ARTISTS

GRAPHICS EDITORS

TELECOMMUNICATIONS EDITOR CONTRIBUTING EDITOR ADVERTISING DIRECTOR

> MIDWEST MANAGER EASTERN MANAGER

WESTERN MANAGER

GROUP DIRECTOR OF MARKETING DIRECTOR OF MARKETING ASSISTANT MARKETING MANAGER
NATIONAL ADVERTISING COORDINATOR
ADVERTISING COORDINATOR
ASSISTANT TO PUBLISHER SINGLE-COPY SALES DIRECTOR SINGLE-COPY RETAIL SALES SUBSCRIPTION DIRECTOR CIRCULATION MANAGER CLASSIFIED ADVERTISING

> **BUSINESS MANAGER** PRODUCTION DIRECTOR
> PRODUCTION MANAGER
> EDITORIAL PRODUCTION MANAGER
> COMPOSITION MANAGER
> ADVERTISING/EDITORIAL OFFICE

(415) 578-9770 **BUSINESS OFFICE** A DIVISION OF ZIFF COMMUNICATIONS CO.

SUBSCRIPTION INQUIRIES

A+, P.O. BOX 2965

(303) 447-9330 BOULDER, CO 80322

ZIFF-DAWIS PUBLISHING COMPANY

A DIVISION OF ZIFF COMMUNICATIONS COMPANY

PRESIDENT: WILLIAM LONSE; GROUP VICE PRESIDENT: J. SCOTT BRIGGS;
SENIOR VICE PRESIDENT, MARKETIME; PAUL H. CHOOK, VICE PRESIDENT,

OPERATIONS: BAIRD DAVIS: VICE PRESIDENT, PRODUCTION: ROGER
HERRMANN; VICE PRESIDENT, CONTROLLER: JOHN VLACHOS; VICE
PRESIDENT, CREATIVE SERVICES: HERBERT STERN; VICE PRESIDENT,
RESEARCH: MARIAN O. WHITE: VICE PRESIDENT, CLRASIFIED
ADVERTISING: ALICIA MARIE INANS; VICE PRESIDENT, CHROLLATION SERVICES: JAMES RAMALEY; VICE
PRESIDENT, DEVELOPMENT: SETH ALPERT; DIRECTOR OF PLANNING:
GARY A GUSTAFSON; PRODUCTION DIRECTOR WALTER, TERLECKI

ZIFF COMMUNICATIONS COMPANY

CHAIRMAN: WILLIAM B. ZIFF, JR: VICE CHAIRMAN: PHILLIP B. KORSANT;
PRESIDENT; KENNETH H. KOPPEL; EXECUTIVE VICE PRESIDENT: STEPHEN

C. KÄHLER, SENIOR VICE PRESIDENTS: PHILIP SINE; HIGH TIELJEN; VICE
PRESIDENT: J. MALCOLA MORRIS, WILLIAM PHILLIPS, STEVEN C. FEINMAN,
SECRETARY: BERTRAM A. ABRAMS

A+ The #1 Applie IMAGAZINE ISSN (M740-1590) is published monthly for \$24.97
one year. Additional postages \$8 for Canada. \$8 other foreinn hor 7#1. Paule Published

A+ The #1 Apple II Magazine ISSN (#0740-1590) is published monthly for \$24.97 one year. Additional postage \$8 for Canada, \$8 other foreign by Zilf-Davis Publishing Co., a division of Zilf Communications Company, One Park Ave., New York, NY 10016. Second-Class Postage paid at New York, NY 10016 and additional mailing offices. PUSTMASTER: Send address changes to A+, P.O. Box 56493, Boulder, CO 80321-6493.

A+ is an independent invariant and efficiency in communications.

Boulder, CD 60321-6493.

A+ is an independent journal, not affiliated in any way with Apple Computer, Inc. Apple is a registered trademark of Apple Computer, Inc. Entire contents Copyright 1989 Ziff-Davis Publishing Co., a division of Ziff Communications Company, All rights reserved; reproduction in whole or in part without permission is prohibited. The following are trademarks of Ziff-Davis Publishing Co., a division of Ziff Communications Company: A+, A+: The #1 Apple II Magazine, Rescue Squad, That's Entertainment, Teachers' Toolbox, Tips, and Techniques, GamePort, Learning Curve, PERMISSIONS: Material in this publication may not be reproduced in any form without permission. For information on reprints, call or write Jennifer Locke, Ziff-Davis Publishing, a division of Ziff Communications Company One Park Ave, New York, NY 10016. For back issues (subject to availability), send \$6.00 per issue, \$7.00 outside U.S. to: Ziff-Davis Pub. Co., P.O. Box 5999, Cherry Hill, NJ 08034, Altn: F. Hunter, 1-609-354-4975.

3.month satisficition 3 month subscription

APPLIED ENGINEERING and the rest of the best ...always for less and in stock.

Now accepting school purchase orders!

APPLIED ENGINEERING

(additional AE items in stock)

"0" K Boards now available Call

GS-RAM, 256K \$212

Z-RAM Ultra 1, 256K \$183

Z-RAM Ultra 2, 256K

Z-RAM Ultra 3, 256K

GS-RAM PLUS, 1 Meg \$469 (limited quantity)

RamWorks Basic, 256K

RamWorks III, 256K \$183

//e Power Supply \$58

Serial Pro \$109

Transwarp

\$164

\$129

DataLink 2400 \$179

GS RamKeeper **\$147**

Ram Express, 256K

Ram Express Clock Option

Sonic Blaster

Parallel Pro

Buffer Pro, 32K

EXPRESS MAIL Now Available delivery 7 days a week!

MARCH **SPECIAL**

GS-RAM PLUS

1 Meg by Applied Engineering

NOW \$419

Additional 1 Meg \$329 (Limit 5 Meg) **Limited Quantity**

SOFTWARE

(Sorry, no software refunds)

Appleworks 1.3 **\$79**

Copy II Plus \$29

RAMUP 4.0

EASY DRIVE

Timeout Ultra Macros

Timeout Graph

Path Finder (AW2.0 patch)

Late Nite (AW2.0 patch)

Patch Mania (AW2.0 patch)

Mini Paint \$22

Thesaurus Power Pack Desk Tools Desk Tools II

Bag of Tricks 2 \$39

HARDWARE

Super Sonic Stereo Card digitizer (MDI) **\$49**

Numeric Keypad (//e)

Numeric Keypad (//c)

CMS 30 Meg (SDU) (//e, GS)

CMS 43 Meg (SDU) (//e, GS)

CMS 60 Meg (SDU) (//e, GS)

Conserver (MDI) \$109

Meiji 5.25 1/2 Height Drive \$80

Meiji 5.25 1/2 Height Drive

Meiji 5.25 1/2 Height Drive (//c, GS) Daisy Chainable

No Slot Clock Pro (Apricorn)

Parallel Interface Adapter Apricorn (//c)

Applied Time II Clock (A.I.) \$44

Ext. 80 Col. Card (A.I.)

AB Switchbox (Ser/Par)

ABCD Switchbox (Ser/Par)

Laser 128 EX \$419

//e Fan and Surge Protector

Slotbuster Card & Acc. Call

Prairie Pwr System, Battery Pack (8 HR, UPS) & Case

World Port 2400 Modem

\$249

ORDERS ONLY: 1-619-274-1253 (within CA)

1-800-438-2883 (outside CA) 15% (\$15/min.) restocking fee

If you don't see it, CALL US!



ROGER COATS P.O. Box 171466 San Diego, CA 92117

PRICE QUOTES & TECHNICAL SUPPORT: 1-619-274-1253 9 am -5 pm PST Mon.-Sat.

FAX: 1-619-274-2440

Next-day delivery available



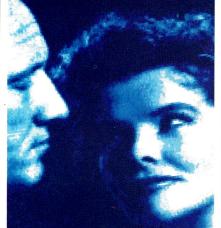
WE ACCEPT: VISA and MasterCard • Bank Wires • School Purchase Orders • Certified Checks • Money Orders • NO PERSONAL CHECKS • Minimum Order \$50 • Sorry, no shipping, handling or insurance refunds • Not responsible for product compatibility • Prices subject to change without notice • Dunn and Bradstreet Number Upon Request • Thank You -- Roger



MARCH 1989

VOLUME 7/ISSUE 3

Downloaded from www.Apple2Online.com



KING MOVIES

STAKE II

BY LESLIE WILSON

First there was TV, then there was MTV, and now there's DTV desktop video, a fantasia of video effects unlocked by your computer. Whether you want to add a little industrial light and magic to your home movies or you're ready to direct your first short film, an Apple II puts you in the director's chair.

SCENE II

BY DEAN SLUYTER

You've got a story that makes Friday the 13th look like Saturday in the Park, and you're set to make millions on the screamfest. Before you send it to an agent, make sure it's in the right format—your Apple II will do the drudgery. All you have to do is tell the chilling tale.



BY ROBERTA SCHWARTZ AND MICHAEL CALLERY Been a Bugs Bunny fan since birth? Followed Disney from Oswald Rabbit to Roger Rabbit? Here's how you can create your own devilish ducks, flirtatious felines, and rambunctious rabbits.



PRECOCIOUS PUBLISHING BY DAVID STANTON

From book reports to class newsletters, The Children's Writing and Publishing Center brings desktop publishing to the junglegym set.

HOME COMPUTING

BY PHILLIP ROBINSON

Design Your Own Home: Architecture adds a specialized object library and some paint features to more traditional drawing options, turning your Apple II into a high-tech drafting table.

55 FOOD PROCESSING

BY BARBARA GIBBONS

Counting calories and cholesterol? The Food Processor II might be your key to a healthy diet.



SPEAKING OF GRAPHICS

BY ROBERTA SCHWARTZ AND MICHAEL CALLERY Break the 16-color barrier with low-cost graphics software for the IIGS.

8 GRAPHICS GALLERY All things bright and beautiful



RECREATION

BY BOB LINDSTROM What do you get when you cross Monty Python and Alice in Wonderland? Check out Interplay's first solo productions and see.

ENTERTAINMENT

Our reviewers look at King of Chicago, Typhoon of Steel, and Star Rank Boxing II.

PRODUCTIVITY

85 SMARTPORT BY OWEN W. LINZMAYER

Keep your hard-disk drive racing with high-performance disk utilities.

20 APPLEWORKS HELP FILE

Claris Corporation's technical staff answers your questions.

TIPS AND TECHNIQUESTips for IIs

18 RESCUE SQUAD BY GARY B. LITTLE

BY DAVID D. THORNBURG Reading, 'riting, and 'rithmetic: software for linguistic and logical/mathematical students

TEACHERS' TOOLBOX BY JENNIFER BRAWER

> Now everyone, from teachers to Saturday-morning cartoon aficionados, can get in on the animation action.

EPARTMEN

NEWSPLUS

RODUCT ROUNDUP

NDEX TO ADVERTISERS

112 MARKETPLACE







We turn Apple®owners into Apple users. For only \$6.65 a month.



A subscription to Softdisk brings you two 5½" disks*, chock-full of great programs for your Apple® II (c, e, +, c+, GS) each month for just \$6.65.

Learn all the capabilities of your Apple II.

Softdisk takes you beyond the two or three programs you bought for your Apple II. Without spending a fortune, Softdisk will introduce you to new software *you can use* each month. You will get AppleWorks™ templates, spread sheets, accounting applications, graphics, educational programs and specialized utilities that make your Apple II easier to work with. There are even some terrific games as a bonus.

Softdisk programs are *original software*, **not** public domain, so you will build a quality software collection as you learn. Each month you will sharpen your computing skills and become a smarter software buyer. You just can't buy better computing experience.

Contents of Issue #84 (Available as a back issue)

Thousand-Year Date Book—Keep track of important appointments.

Li¹l Black Book—AppleWorks™ template that helps you keep track of names, addresses and phone numbers.

Print Shop™ **Graphics**—Flags from all over the world.

Plus 8 more great programs!



FREE 200 Print Shop Graphics with your order.

Try **Softdisk** for six months for only \$39.95. As a bonus, we will send you FREE—200 Print Shop™ Graphics Vol. 4 for use with Brøderbund's Print Shop™ program.

Money-back guarantee.

If you are not satisfied with your purchase for any reason, return your first issue for a full refund. The 200 Print Shop Graphics are yours to keep. You can't lose, so order today!

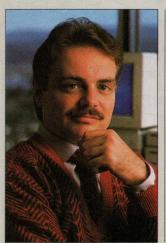
Call toll free 1-800-831-2694.

*Also available on a single 3½" disk. Apple and AppleWorks are trademarks of Apple Computer Inc.
Print Shop is a trademark of Brøderbund Software.

YES! Please rush me my free 200 Print Shop Graphics Vol. 4 and start my six-month subscription to Softdisk for my Apple II for only \$39.95 postage paid. (Canada/Mexico \$49.95, Overseas \$59.95) Make checks payable to Softdisk, Inc. in U.S. funds. (Louisiana residents add 4% sales tax).

(Louisiana	residents	add 4% sales	tax).	
			☐ One 31/2" disk	
Name				
Address _				-
City		State	Zip + 4	
Home Pho	ne ()	Zip + 4	
☐ Discover	□ AmEx	□ VISA/MC	☐ Payment Enclosed(U.S.	funds only!)
Cand #			Evn	

Signature____SOFTDISK, INC. P.O. Box 30008 • Shreveport, La. 71130-0008 A+039



ppleWorks GS-the most eagerly awaited IIGs software product of 1988 is proving to be one of the most controversial products of 1989.

Not long after the product first reached users last November, the telecommunications networks and users' group newsletters heated up with divergent opinions on this six-module, all-in-one productivity package.

Enthusiasts heaped praise on its co-

pious array of features and its integrated, data-sharing design (described in detail in the January 1989 issue of A +). AppleWorks GS rated high as a produc-

tivity solution among Christmastime purchasers who were acquiring their first Apple IIGs systems.

Detractors found flaws in both the design and execution of the product. Overextended printing times and sluggish operation were the most frequently cited AppleWorks GS shortcomings.

And since software critics can also be art critics, the opinion war even raged on about the artwork on the packaging. Computing newcomers regarded the artwork as accessible and cute. Apple II veterans objected to that cuteness, saying that it conveyed a cloying homecomputer image.

No single product can be everything to everyone. Still, many of the identified flaws in the product are real ones, shortcomings that Claris undoubtedly will address in future product upgrades. Many Apple IIGs owners will find that the three-module Apple-Works "Classic" remains a faster; simpler; and, in many ways, more powerful solution.

And, yet, one fault of AppleWorks

GS should certainly not be laid at Claris' door: sluggish operation. That stumbling block remains a fundamental issue in the hardware design of the Apple IIGs, a computer that suggests more software potential than the hardware is equipped to deliver. Short of speedup products from third-party developers, only Apple can improve that situation. It should be encouraged to do so as soon as possible. In the meantime, A + is still running AppleWorks GS through its productivity paces. A full review will appear in our next issue. Apple II, Take 1

Desktop video: It's the next major ap-

plication to find its **One fault of** way onto your desk and into your Apple

AppleWorks computer.

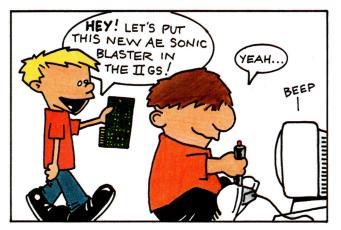
68 should be in home movies, Your interest may **Certainly not** instructional classroom films, or inne laid af dustrial training Claris' door: reels. Whether you are an ambitious **Sluggish** amateur or a professional on a budget, Operation. desktop video, animation, and the Ap-

ple II can help you become a grass-roots George Lucas or Steven Spielberg.

This month's cover story takes you "on location" to show how an Apple II can be a down-home director's "best boy" for writing scripts, tinkering with images, or animating opening credits.

And don't think that the desktopvideo explosion will take place without a little help at the studio. In the coming months, look for Apple to encourage the ongoing growth of this exciting new application for the Apple II.

BOB LINDSTROM/EDITOR









Serious Fun

Okay, we're willing to admit that sometimes we take things a little too seriously. We get wrapped up in developing ways to make your IIGs more productive, and occasionally forget how much fun it can be.



Our new Sonic Blaster™ is a full-featured stereo digitizer. You can record, amplify, edit and play back in rich, full stereo…and that's just the serious side.

It's also an awesome sound effects amplifier that'll knock your socks off playing great new IIGS games like Tomahawk, 4th and Inches, Winter Games, Silent Service and Zany Golf, to name a few.

Noises and sound effects fill the room. The difference is incredible. Use your own speakers, amplified or unamplified. Our own powerful software is included free, so there's nothing more to buy.

Sonic Blaster. It's why they put the "S" in IIGS. \$129.

Order today! To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.



A Division of AE Research Corporation.

A + MAGAZINE INVITES COMMENTS FROM READERS. PLEASE WRITE TO US AT: A + MAGAZINE 950 TOWER LANE, 18th FLOOR FOSTER CITY, CA 94404

APPLEWORKS GS DISAPPOINTMENT

Dear A+: AppleWorks GS: what a disappointment. I have waited two years since purchasing an Apple IIGs for a GS-specific integratedsoftware package. I hoped, with bated keyboard, that something as fast and easy to use as AppleWorks with a Macintosh-like interface would prove that the upgrade from the Apple IIe to the IIGs had been worth the expense. Claris has not kept the faith, however.

I know I have one of the first releases of AppleWorks GS. I use spreadsheets and databases often, but problems such as lockups and fatal system errors that require rebooting, spreadsheet-calculation times of seven minutes for a simple 150-line spreadsheet, and onehour-plus printing time for the same spreadsheet are unacceptable. In defense of AppleWorks GS, I have found the word-processing module, graphics, and page layout easy to work with. As a total package, however, AppleWorks GS does not live up to the hype.

I've liked AppleWorks since the first time I used it. I have added

most of the Beagle Bros TimeOut accessories, which make Apple-Works a fine 8-bit solution, and on a IIGS, it is even better.

Maybe A + should get Ralph Nader interested in protecting our investments in computers and software. I'm sure he could prove AppleWorks GS to be "unsafe at any speed."

BILL PETERSON FLINT, MI

GS/OS PROS AND CONS

Dear A +: I agree with most of the good things you have to say about the GS/OS operating system in your review in the December 1988



issue. The increased speed is quite noticeable and very much welcome. One thing I do object to, however, is the decision to elimi-

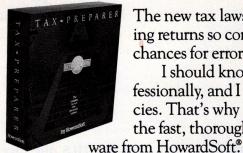
nate the SYS.UTILS directory (including System Utilities and Fast-Copy). I still find System Utilities more convenient to use than the Finder for many purposes, especially when I'm working with Pro-DOS 8 programs. And FastCopy is at least twice as fast for copying a disk as the Finder, not even counting the nuisance in the latter of having to copy it with a different name and then rename it. The thermometer that fills up with red as the copy is made may be pretty, but I don't see that it is really any improvement over the percentages read and written that FastCopy gives. Fortunately, it is a simple matter to copy the SYS.UTILS directory to the GS/OS System disk, and it works as well as ever in the new environment.

> ABRAM M. PLUM BLOOMINGTON, IL

TAPPING IIGS POWER

Dear A+: I'd like to voice my comments on two recent products, namely GS/OS and AppleWorks GS. First, I like GS/OS. It is faster and a bit easier to operate than the System 3.1 disk I've been using. I do have a gripe, however. I consider myself to have a fairly typical IIGs system setup, which includes one 3.5-inch drive and one 51/4-inch drive. Warning: Don't even think about using the Installer on the new /SYSTEM.TOOL disk to install GS/OS on existing disks using only one 3.5-inch drive! I did, and my sanity barely remains. You must swap between the system disk and the target disk for every file; that means every tool, every font, every driver. One disk took me nearly 25 minutes to install (the manual warns not to stop the process, since you will end up with a mix of old and new files, which could bomb the system).

I can't afford an inaccurate tax return. And neither can you.



The new tax laws have made preparing returns so complicated that the chances for error are horrendous.

I should know. I prepare taxes professionally, and I can't afford inaccuracies. That's why I use Tax Preparer*: the fast, thorough, easy-to-use tax soft-

It handles the new complications, not me. And it gives me accurate, completed returns automatically . . . to

the letter of the law.

So why risk less than the best? At less than \$300, isn't the peace of mind worth it?

Call (619) 454-0121 for more information.

Tax Preparer by **HowardSoft**.

Professional software at a personal price.

For IBM compatibles and the Apple II family.

HowardSoft, Tax Preparer,
Tax Preparer: Partnership Edition, Tax
Preparer: California
Edition, and Real
Estate Analyzer
are trademarks of
Howard Software Service;
IBM of International Business
Machines
Corporation;
Apple of
Apple
Computer,
Inc.

CIRCLE 139 ON READER SERVICE CARD

The Magic Touch



Taj image used with permission of Activision

Billboard Magic - Prints any image up to 140 feet wide by 100 feet high in strips of paper just like wallpaper.

Save To Disk - Save any image to disk and use them in your favorite paint and drawing programs.

Graphic Cropping - Crop any image on the screen and print only the portion you need.

Slide-Show Program - Create computer slide-shows from images saved to disk.

Push Button Activator - Access FingerPrint® GSi from inside of any program at the touch of a button, without interrupting the program.



FingerPrint® GSi

"If you need graphics, it's safe to say that you need FingerPrint® GSi" Incider 11/88.

FingerPrint® GSi is a unique utility card for the Apple IIGS computer that gives you the power to capture, print and export any screen, text or graphics from inside of any program at the touch of a button – without interrupting the program. Provides graphic magic tools and special utilities not found in any other software or hardware. Only \$129.00

Available through dealers and mail order companies, or call 800-446-5987 to order direct. For inquiries call (305) 592-7522.



Apple and IIGS are registered trademarks of Apple Computer, Inc.. FingerPrint is a registered trademark of Precision Software, Inc.

CIRCLE 160 ON READER SERVICE CARD

LETTERS

Going forward, I will simply make a copy of the system disk itself, rename it, and transfer my program files onto the new disk. Small installations (such as MIDI) go all right, but not the System Update. Too bad that Apple did not think of using the idle portion of my 1.25Mb memory to save me the agony during installation (the memory does seem to be used for simple file transfers in the Finder).

Now a comment about Apple-Works GS: Simply put, it is awe-some! I use both IBM and Macintoshes (Plus and SE) at work, but none of the software I have used on any of those machines comes close to the features in AppleWorks GS. Admittedly, the other machines are faster, but I have been a hard-core Apple II user for years and don't mind the speed compromise. Two features I would like to see added to the new product are macro capability and Range names.

I believe that with GS/OS and AppleWorks GS, the world is beginning to see how the power of the IIGs can truly be tapped.

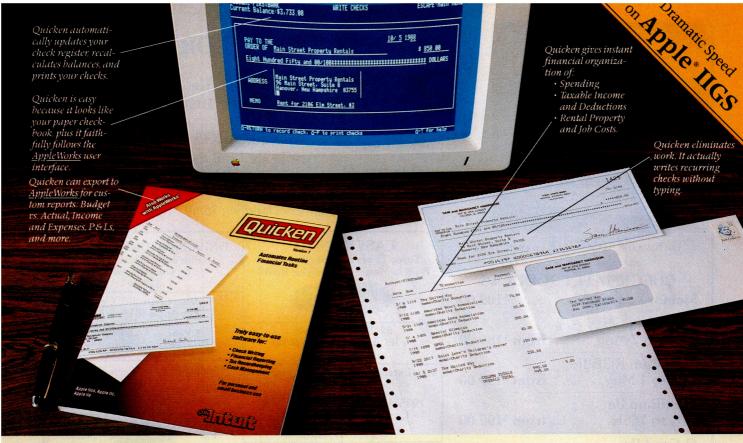
SKIP OSTEYEE DALY CITY, CA

COVERUP

Dear A+: I enjoyed Vincent D. O'Connor's article, "Taking Care of Your Apple," in the December 1988 issue, but he neglected to mention one of the more important accessories that you can use with any computer: a dust cover. Covering the computer and peripherals not only alleviates problems such as dust and spills but also creates less work in routine cleaning. I have found covers for almost every configuration of Apple products.

I was happy, though, to find that O'Connor mentioned a factor that can cause undue damage to both computers and computer media. I refer to smoking, which should never be allowed around sensitive electrical equipment such as computers or, for that matter, anywhere near humans.

DAVID A. FUSCO
PRESIDENT, MICROWARE ASSOCIATES
ARLINGTON, TX



End Financial Hassles. Quicken, \$49.95

uicken is the absolute fastest, easiest way to do your personal or small business finances. Quicken saves you hours of time while perfectly organizing your finances.

Forget Financial Hassle

Quicken is so automatic, it does your financial work for you. It actually learns your regular bills. Just confirm the payment amounts on your auto loan, utilities, or other bills. Quicken does 14 automatic bookkeeping steps and hands you the printed checks already addressed for mailing. All you do is sign them and seal the envelopes. Quicken keeps complete records of your finances so you know exactly how much money you have and where it's going.

Finish Financial Work in Seconds

Instead of dreading tax time, use Quicken to print itemized lists supporting each tax deduction. Quicken is extremely fast. It does in seconds what used to take many minutes or even hours. Want the year's spending for Job 104 or Account 3072? The answers are just seconds

No Accounting Mumbo Jumbo

Quicken is as easy as the pen and paper you use now. You'll see the familiar checkbook and check register right on your screen. The only thing that changes is how fast you finish your financial chores. This is bookkeeping that's totally hassle-free.

The World's #1 Selling **Financial Software**

Here's why Quicken is the world's most popular:

Thanks to Quicken, I'm automating my personal checking account. I've never seen such an easy-to-use manual or software that's so simple to use.

Martin Blumenthal, inCider Magazine

With the power of AppleWorks so readily available, it's more than good ... it's indispensable. Home and small business checking software used to be too expensive, too hard to use, and too rigid, and it took too long. Quicken has changed all that.

Ken Landis, A+ Magazine

Use Alone or with AppleWorks*

Ouicken transfers your data directly to AppleWorks to create customized reports and spreadsheets. That means you can see your finances any way you like.

Flexible for Personal or Business Use

No other financial software provides more flexibility to handle the wide range of personal or business needs, from personal tax recordkeeping to property management. With unlimited income and expense categories, Quicken keeps track of spending by whatever categories you desire.

Quicken works for service and manufacturing businesses, doctors, consultants, designers, and retailers. Quicken is for anyone who wants relief from bookkeeping hassles.

Try Quicken FREE for 30 Days

Order Quicken from the coupon below, or through our toll-free 800 number. If you're not completely satisfied with Quicken for any reason, simply return it for a full refund. No questions asked.

cifications: npatibility: Apple® IIGS, IIc, IIcPlus, IIe (IIe requires extended

Companishing: Apple Files, Itc, Iterlus, He (He requires exented as Os-column card), with one or two floppy disk drives, or hard disk. Any printer. No modem required. Apple Works is optional.

Other: FREE technical Support. Not copy-protected. Checks are preapproved by all financial institutions in the U.S. and Canada. Sample checks and order form are enclosed in Quicken package. Quicken is also available for the Macintosh



I want to try Quicken on your no-risk 30-day guarantee. If not completely satisfied, I may return it within 30 days for a full refund. Quicken for \$49.95 plus \$3.00 shipping and handling. California residents add sales tax.

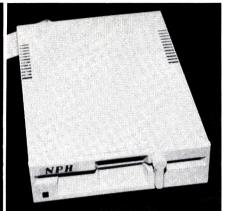
Call 800-624-8742

(in California, call 800-468-8481), or send this coupon with your check or credit card

number to	Intuit.
Name	
Address_	10 To
City	State
Zip	Phone
☐ Apple (5	¼" disk) ☐ Apple (3½" disk) ☐ Macintosh
□ Check e	nclosed (no purchase orders, please).
□ Visa □	MasterCard □ Am Ex

Card Number

Expiration Date 540 University Avenue Palo Alto, California 94301



5¼" DISK DRIVES FOR APPLE

Parts & Labor 100% Compatible **Super Quiet** Adjustable Speed **Control**

1 Year Warranty

Apple II, II+, IIe Franklin Ace 1000

Apple IIc, IIGS Apple IIe UniDisk Laser 128



Shipping & Handling \$5.50

CHECKMATE	n E PRODUCTS	LASER 128 EX Three Times the Speed of a Ile Built in Memory Expansion Board	UNIVERSAL Di Run 800K Di on your II- \$79.0	sc Drives - and Ile 00
Memory Saver G	S\$109.00	\$ \$445.00	Disk Contro	
MultiRam GS		800K DISK DRIVE	For Apple II	, 11+ & 11e
256K to 2 Meg	····	for II+, IIe, MAC, LASER 128 \$179.00	5 Year Warranty	\$34.95
MultiRam RGB II	-	Extended 80 Column Card	Cooling Fan For	Apple II+ & IIe
64K to 1 Meg	from \$139.00	For Apple Ile	With Surge	\$26.95
MultiRam IIe 64K to 768K	from \$109.00	100% Appleworks Compatible	Suppressor Cooling Fan	The state of the s
		5 Year Warranty	For \$19.	95 Noise
Q Card Ile	fue us \$75 00	Super Serial Card		Interference
	from \$75.00	100% Apple Compatible	Cables - Ile to Modem	\$9.95 IIc to Modem
MultiRam CX IIc		5 Year Warranty \$48.95	lle to IMG I	IIc to IMG II
256K to 1 Meg	from \$160.00		lle to IMG II	Others
Pro Term	\$ 79.9 5	Graphics Printer Card w/Cable For Apple II+ & IIe	DISKETTE STOI 5¼ Holds 70 Disks	,
AI Juice	Plus GS	5 Year \$44.95	51/4 Holds 100 Disk	s \$8.95
0K to 4 Meg	from \$65.00	Warranty	5¼ Holds 120 Disk 3½ Holds 50 Disks	
Super Exp		16K Card for Apple II+	3½ Holds 100 Disks	
1 Year V		5 Year Warranty \$34.95	ACCESS	
0K to 1 Meg			Mouse Pad Disk Notcher	
Super Ext 1 Year V		128K Card For Apple II+	Disk Clean 5¼	
W/Appleworks E		5 Year \$64.95	Disk Clean 3½ LASER Add on's .	
0K to 1 Meg		Warranty	Mouse	
MINI DIN 8 Switch Box	5 Amp Power Supply \$49.00	80 Column Card for Apple II+ \$48.95	Numeric Keypad For Apple IIe	RF Modulator II+ & IIe
A/B \$24.95	Apple II, II+ & IIe	5 Year Warranty	\$34.95	\$15.95
A/B/C/D \$29.95		CPM Card for Apple II+ & IIe	Joystick for App	
Replacement	MINI A/B Switch Box	- Wilderstan	IIc, & IIGS	ne ne
Keyboard For Ile	Serial or Parallel	5 Year Warranty \$34.95	With Fire Button	\$24.95
\$55.00	\$24.95	Prices subject to change without notice	Same as Mach III	Sulley
S55.00 \$24.95 Prices subject to change without notice Same as Mach III We ship Air Only Ship Most Items +\$4.00 for Shipping - C.O.D. +\$2.50 MEMORY PLUS DISTRIBUTORS, INC. S05 South 48th Street, Suite #104 10 a.m. to 5 p.m.				

MEMORY PLUS DISTRIBUTORS, INC. 505 South 48th Street, Suite #104

We carry only the **Highest Quality products for** your Apple. That's why we are the LARGEST and

the BEST!

Tempe, Arizona 85281 (602) 820-8819 (602) 830-6457 FAX# (602) 968-3211 Serving Apple Users Since 1983 CIRCLE 152 ON READER SERVICE CARD 10 a.m. to 5 p.m. M.S.T. Mon - Fri.

University & School P.O. Accepted

> 20% Restocking charge on returned items

NEWS AND VIEWS

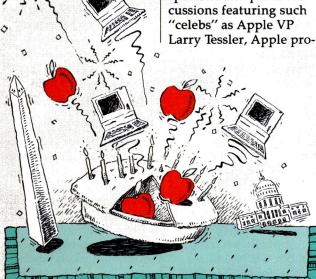
BY THE A+ STAFF

Apple Pi turns ten, Apple Pickers host NAUGC, and other Apple industry updates



With some 5,000 members, Washington Apple Pi ranks with the largest computer users' groups in the country. With a decade of service to its credit, it is also among the oldest personal-computer clubs in the U.S.

Last December 16 and 17 in Washington, D.C., Washington Apple Pi (WAP) celebrated its tenth anniversary with speeches and panel discussions featuring such "celebs" as Apple VP



grammer Rich Williams, and Mac codesigner Andy Hertzfeld.

At present, WAP members are divided evenly between Apple II and Macintosh users, with about 10% of the total membership owning Apple IIGs computers, according to IIGs SIG leader Ted Meyer. Sessions appropriately featured gurus from both the Apple II and Mac worlds.

The festivities opened with a December 16 reception and dinner featuring introductory remarks by WAP President Robert C. Platt and remarks by Hertzfeld, one of the original members of the Macintosh design

The keynote address was delivered the following morning by Tessler, Apple Computer's vice president for advanced technology. Tessler's presentation sketched some technological possibilities for the future of personal computing. Among the visions was the Knowledge Navigator, a laptop computer that remotely received data via

satellite transmission and bore some resemblance to Alan Kay's Dynabook

At a session on computer journalism, attendees asked a trio of editors questions on the future of the Apple computers and on the ethics of balancing the need for critical integrity with the reality of advertiser support. On the panel were Bob Lindstrom, editor of A +; Tom Weishaar, editor of A2-Central (formerly Open-Apple); and Jerry Borrell, editor of Macworld.

The day continued with a speech by former Apple employee Don Williams, currently president of Productivity Software, the company that developed Microsoft Works. Williams discussed the marketing lessons Apple learned from the ill-fated Apple III. "Steve Jobs learned not to admit he had anything to do with the Apple III, Williams quipped.

Rich Williams, developer of the Apple II DOS Programmers' Toolkit, reminisced on his nine years at Apple. His memories ranged from peculiar code names for hardware and software projects (fish head, Gumby, Rambo) to practical jokes (such as the time members of the Apple II team stole the Macintosh team's flag and pinned the blame on Steve Wozniak).—BL



APPLE IIgs 3½" DISKS
Editor's Choice — Best IIGs Graphics Selections □GS63 CHEAPPAINT—full-featured color painting program for only \$9 (768K Req.) (SHAREWARE)
GS1 Diversi-Cache/Copy/Key/Hack 1.6 (SHAREWARE) \$9 GS2,GS3,GS4 DAS: Picsaver, Notepad, Calendar, melting screen! (3 DISKS) \$27 GS5 Graphic utilities: convert pics from any computer to Ilics format \$9 GS6 Freeterm telecom: rated A+ Mag's 1987 "All Stars", needs 512K) \$27 GS7,GS8,GS9 Many pictures to run w/PaintWorks+, Deluxe Paint II, or GS63 (3 DISKS) \$27 GS14,25,26 113 fonts — formal to fancy for your doc. (3 DISKS) \$27 GS15,Games: Towers of Hanoi puzzle, Othello, plus more \$9 GS16,17 Digitized sounds for Start ups & Sys beeps: Pee Wee, 3 Stooges, etc. (2 DISKS) \$18 GS3215 icons to change those on your desktop \$9 GS28,36,37 19 golf courses: treacherous fairways, deceptive valleys
& gulches to use with your Mean 18 TM (3 DISKS). \$27 GS58War simulation game and a car race w/excellent graphics. \$9 NEW GS68 Mailing labels (sorts), cassette labeler, virus detector. \$9 NEW GS73 Fast disk duplicator, quick program launcher, FKeys: print-screen,
disk-eject, etc. \$9 □ ANY 8 DISKS FOR ONLY \$49.95

APPLE II 51/4" DISKS Design Your Own Greeting Cards!

 \sqsupset ANY 17 DISKS FOR ONLY

Over 800 B/W graphics for your Print Shop™ □ 10 5¼" disks	
Art	
□ 023 Make drawings, paint w/23 textures \$	5
□ 026/027 Make animated movies! (2 DISKS) \$10	0
Tutorials	
□ 000 Learn BASIC programming, assembler \$	5
Genealogy	
192 Family Tree Surgeon, hi res movies \$	5
Business/Home	_
□ 039 G/L, 15 financial programs, payroll \$	5
□ 056 Versatile check balancer, w/doc \$	5
□404 Personal & home accounting	5
☐ 406 Address/phone Dbase w/RAM drive (S/WARE) . \$	
□418 Cash flow, sales analysis, pie chart \$	5
Education	_
□ 064 Drills: typing, spelling, history, SAT \$	
066 Teacher's aid: grader, make tests \$	
□ 085 Elem math: +, -, ×, ÷, 23 levels \$	
☐ 186 Compose, edit & play music, w/doc. on disk \$	
505 Grammar Quest II adventure game (IIe & IIc) . \$	

517 Spelling tutor with multiple levels

Enclosed \$

Card No.

SPECIAL!

Any 6 disks plus Apple Directory 1 Yr. Membership (llss disks may be included)

> Only \$39⁹⁵ (plus \$4 s/h)

ı

ı

Yr. Membership includes:
 350 pg indexed directory of our software library
 Ottly, magazine.

Qtrly. magazine
 w/software updates
 + reviews
 Special discounts!

1518 History, vocab., math, astronomy (shareware) \$5
☐ 767 Speedreading—control speed & passage size \$5
☐ 768,769 Grade utility program for teachers (2 DISKS)
□ NEW 833 Chem: Titration, quantum mechanics, moles, etc
■ NEW 834,835,836 Solar energy tutor w/hires graphics (3 DISK SET) \$15
□NEW 837,838 SAT vocabulary drills (2 DISK SET)
Word Processing
□037 Full featured (II+ needs paddles or joystick + lower case display chip) \$5
Games
□ 123 Missile Command, Star Trek, Life
□ 126 Anti-Gravity — Fast action — Addictive!
☐ 127 Defender (like arcade version), D-Day (NEED JOYSTICK)
□ 131 Electronic jigsaw puzzle of Churchill, King Tut, etc
☐ 750/751 Fireground — fight fires, save people/buildings (2 DISKS) \$10
■ NEW 814 Monopoly: Apple II version of the popular board game
□ NEW 829,830,831 Hires graphics adventure game—create your own adventurer
adventurer (RECUIRES LOYSTICK 3 DISK SET) \$15
CAD
□310/311/312 CAD & graphing pkg. (NEED YOUR OWN PRINTING PACKAGE) (3 DISKS) \$15
Communication
□ NEW 832 ATP-PRO: Terminal emulator for IIc, IIGS, or IIe w/80-column card
and Super Serial Card. (Reg. ProDOS) (SHAREWARE)
Passion
☐ 190/191 Graphics and games, adults only (2 DISKS)
Utilities
□213 Best of Utilities: Disk arranger, disk catalog, free space, etc
Add \$4 (\$10 foreign) shipping and handling for disk orders, or \$2 (\$5 foreign) if
ordering directory only. CA orders add sales tax. Offer good for these disk numbers only.
Enclosed \$ by Cheek TVIA TMC

2074-C Walsh Ave., #533 Santa Clara, CA 95050

CALL NOW: In CA 408-496-0624 DEALER INQUIRIES INVITED

Zip

by □Check □VISA □MC

Exp.





Don't be the only users' group on your block to miss NAUGC.

IT'S APPLE-PICKING TIME

It's time once again to pack your bags and head to the National Apple User Group Conference (NAUGC). This year's event is being held in Indianapolis from March 31 to April 2. The Indianapolis Apple user group, the Apple Pickers, will be your hosts for this weekend of Apple abandon. There will be speakers and forums to hear, Apple officials and users to meet, and hardware and software to see. Don't be the only users' group on your block to miss it. For more information, write NAUGC '89, Apple Pickers, Inc., P.O. Box 20136, Indianapolis, IN 46220 or call (317) 291-4042.—BM

THE OTHER A.P.P.L.E.

Apple PugetSound Program Library Exchange was a bit cumbersome, so they called it A.P.P.L.E. Then they decided to make it a member-owned cooperative, so they added Co-op. Now, ten years after its founding, the A.P.P.L.E. Co-op has decided to to go for a new look and has changed its name to TechAlliance, a computer cooperative. The new name reflects A.P.P.L.E.'s growth from an exclusively Appleoriented users' group to a general computersupport network.

Tech Alliance will continue to publish its magazine for advanced Apple II users, Call-A.P.P.L.E., and will expand its book offerings. It will also have new programs, emphasizing services for programmers and developers. They include Developer Services, a soft-

NEWSPLUS

ware packaging and distribution service; the TechAlliance Referral Network, a programmers' employment database; and TechAlliance BBS, a multiline bulletin board that replaces the A.P.P.L.E.Crate singleline system that was so often overloaded.—*BM*

NEWSLETTER NEWS

Tom Weishaar's popular Open-Apple newsletter will undergo a name change beginning with the February 1989 issue. After four years of monthly publication, Open-Apple: Releasing the power to everyone will become A2-Central: A journal and exchange of Apple II discoveries in a move to clarify the publication's past growth and future direction. With an annual subscription rate of \$28, this eight-page newsletter has been described as "a clearinghouse for elegant tips, tricks, and procedures." For more information, contact A2-Central at P.O. Box 11250, Overland Park, KS 66207; (913) 469-6502.

H.A.L. Labs has announced the publication of *II Technical*, a quarterly Apple II journal that it hopes eventually to print monthly. Starting with its 64-page, black-and-white premier January 1989 issue, *II Technical* will focus on assembly-language programming of the Apple IIGs toolbox.

The cover price is \$3 per issue. For more information, contact II Technical at 18942 Dallas Avenue, Perris, CA 92370; (714) 359-8480.

And, on a sad note, after almost 100 monthly issues, Bob Sander-Cederlof has ceased publication of his newsletter, Apple Assembly Line. Bob is currently applying his extensive knowledge of the Apple II family as a programmer at Applied Engineering. For information on obtaining back issues of Apple Assembly Line, write S-C Software, P.O. 280300, Dallas, TX 75228.—OWL

APPLEWORKS RESOURCE GUIDE

Published cooperatively by Scholastic's Teaching and Computers book series and Claris, The AppleWorks Resource Guide for Teachers and Parents is a collection of educational materials developed specifically for use with AppleWorks. Contents include instructional templates cross-indexed by subject and grade level, teacher and management templates, tips on writing and using templates, and exemplar lesson plans that cover a wide range of subject areas. The AppleWorks Resource Guide for Teachers and Parents is available for \$12.95. For ordering information, call (800) 631-1586.—*JB*

Before you spend anything on peripherals for your Apple



Spend absolutely nothing on this.

Before you add another peripheral to your Apple, bring home the new Applied Engineering catalog. You'll find the most complete collection of Apple, Laser and Franklin peripherals anywhere.

We've combined a great deal of information in the new catalog. Complete and thorough descriptions of more than a hundred Apple compatible products clearly written in plain English even beginners can understand. Plus loads of technical information and specifications even the most advanced users will appreciate.

If you don't have the new AE catalog, you're missing out on some exciting new products. Get your free copy today from your dealer or by calling Applied Engineering at (214) 241-6060.

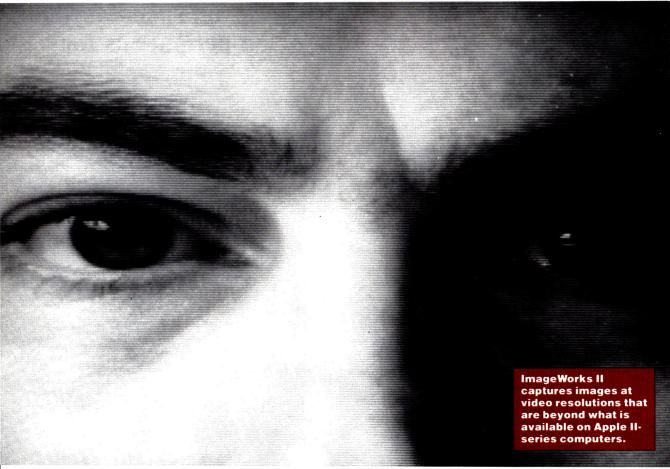


The Apple enhancement experts.

A Division of AE Research Corporation.

P.O. Box 5100, Carrollton, TX 75011 (214) 241-6060





COVER STORY BY LESLIE WILSON

Desktop video brings big-screen creativity to the small screen of your Apple.

Hooray for Hollywood! And a second hooray for the Apple II, a would-be film mogul's Best Boy. With a few hardware and software additions, an Apple II can turn a video hobbyist into a journeyman producer/director.

A whole new world of "desktop video" has appeared, and it is leading to everything from simple titles for home movies to video productions controlled from or created entirely on a personal computer.

Lots of the video you watch is

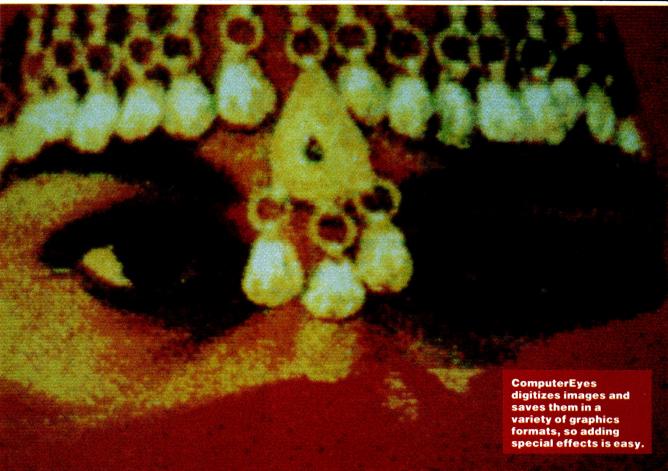
computer-created: from the special effects in so many of today's fantasy and science-fiction films to the station logo that swirls on the TV just before the evening news. In most cases, the studio or station uses an expensive, special-purpose graphics computer that can generate, capture, manipulate, and send video signals.

But if you're not planning to put Steven Spielberg out of business, an Apple II can place video titling, animation, and special effects within the reach of Spielbergs on a budget. Desktop video (DTV) lets hobbyists, independent artists, and small businesses use an Apple II, a VCR, and a video camera to produce inventive videos and wild special effects. You can intercut titles, logos, credits, animation, and graphic stills with existing video footage to bring big-screen creativity to the small screen.

Setting Up

Although some computers rely on expensive peripherals or add-in





cards for video output, Apple IIs have always had a built-in video connection: the monitor port. With nothing more than a videocassette recorder (VCR), video cable, and Apple II, you can record computer images on videotape. The results might not be big box office, but the possibilities range from video art portfolios to software tutorials.

With a male-to-male video cable, available for a few dollars at video and computer stores, connect the Apple II video port to the Video In port on a VCR. Leave your television connected to the VCR as usual. It will display what you're taping. Televisions ordinarily connect to the VCR through the RF output. Monitors, on the other hand, use the Audio/Video (A/V) outputs (see figure 1).

Apple IIGS owners, take note, however. Because the AppleColor RGB Monitor lacks composite video input, your monitor will function as usual with your computer.

An Apple II can turn a video hobbyist into a journeyman producer/director.

You'll also be able to view the computer output on the VCR monitor or on the television.

With the computer-to-video connection complete, the VCR can record anything that appears on the screen. Assemble a videotape gallery of computer art by taping a sequence of several computer "paintings." If the VCR has an audio-dub feature, you can even add Muzak to your small-screen museum.

Proud of your game-playing expertise? Make a tape of your video-

game prowess and preserve for posterity that high-score-winning technique. Just punch the Record button, grab the joystick, and start shooting.

On the instructional side, videotape yourself building a spreadsheet or using other software to produce a step-by-step guide to Apple II applications. With an audio-dub VCR, you can enhance the presentation with an explanatory voice-over.

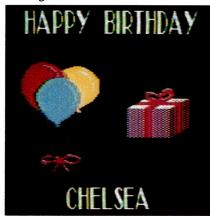
Like the tools, the results of this VCR/computer connection are simple but effective. With the addition of more sophisticated hardware and software, though, the Apple II becomes the centerpiece of a tabletop movie, video, and animation studio.

The Video Connection

In most homes, desktop video starts innocently enough with the purchase of a home-video camcorder. Suddenly, the amateur who started out filming baby's first

FIGURE 1: THE VCR CONNECTION TELEVISION OR MONITOR **BASIC SETUP** APPLECOLOR RGB MONITOR RGB MONITOR IN 0 8 COMPOSITE VIDEO OUT □ (\(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}{2}\) A/V OR RF OUT AUDIO VIDEO (N **DESTINATION** APPLE HEAD-PHONE JACK TELEVISION OR MONITOR **DELUXE SETUP** APPLECOLOR RGB MONITOR 8 000 A/V OR RF OUT AUDIO IN* VIDEO IN* DESTINATION VIDEO CAMERA **APPLE** *Alternate between camcorder and computer TELEVISION OR MONITOR APPLECOLOR RGB MONITOR 8 000 SOURCE VCR VIDEO OUT AUDIO OUT A/V OR RF OUT AUDIO IN* VIDEO IN* ⊚ ੍ਰ APPLE DESTINATION *Alternate between source VCR and computer

Figure 2: You can create eye-catching title screens with Home Video Producer (below and top center) and VCR Companion (bottom center and far right).



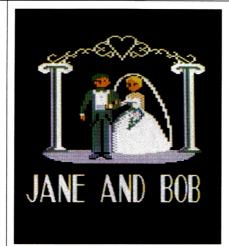
Christmas becomes a grass-roots DeMille, stalking relatives at family holidays and scheduling homemovie marathons for a tolerant and sometimes appreciative audience.

Computer-generated titles and scene transitions, produced with your Apple II, bring narrative finesse to video home movies. Screenings become a bit more polished and much more enjoyable for a dutiful audience. Commercial video-titling software enables you to put computerized titles and transitions throughout your video.

VCR Companion and Home Video Producer are two ground-breaking DTV packages (see figure 2). Both allow you to choose borders, clip art, and font elements to create eye-catching title screens and a wide variety of wipes to move between the graphic elements of your titles. VCR Companion offers Spiral, Checkers, Fizzle, and Venetian Blind wipes, whereas Home Video Producer provides more traditional diagonal, vertical, and horizontal wipes.

VCR Companion is more readily accessible than Home Video Producer, whose icon-driven menus can be hard to understand. VCR Companion also loads animated sequences from movies made with Brøderbund's Fantavision animation software (see "Yabba Dabba II" in this issue).

Home Video Producer emits a series of beeps to let you know when to release the VCR Pause button to





record your titles accurately. VCR Companion, on the other hand, uses textual cues to guide you through the recording process, but they are not as helpful.

Animation can add another dimension to computer videos. Use animation software to add animated effects. Any character from your imagination, swamp things, ballerinas, or Mickey Mouse can move expressively around the screen. Many animation packages offer a selection of wipes (visual transitions between scenes) that can be creative additions to a video.

You can also use BASIC and other languages to program animation and sound (see "Just the BA-SICs" in this issue). Computer languages are especially good for abstract, "string art" animations that can add an eerie quality to poetic videos.

Adding titles is the final step of any video production, so be sure to leave 30 seconds or so of blank tape at the beginning and end for opening and closing credits. Inserting transitions and animations, however, needs careful planning and perhaps a video-editing setup.

You cannot mix live footage with animation yet. If your animation is moving, then your video image must be still. (You can create ani-

Both VCR Companion and Home Video Producer offer borders, clip art, and fonts and a wide variety of wipes to move between graphic elements in your titles.



mation cels with digitized images as actors along with drawn actors to emulate a mixed presentation, though.) You can also achieve some fun effects by using digitized images as backgrounds for animations. For example an animated bee could fly around in front of a digitized face, eventually flying into the mouth or ear. You can alternate animated scenes with video scenes. Or you can insert digitized images altered with paint programs between video footage and animation sequences. Your live video creations will seem to have turned into animated characters.

Digitizing Images

Intercutting computer graphics with live video footage produces a dynamic and colorful effect, especially when the computer graphics enhance video imagery. Putting your computer, VCR, and video camera together with a video digitizer permits you to capture reallife images and transform them into visual fantasies.

Two video-digitizing products are available for the Apple II: ComputerEyes and ImageWorks II. To digitize an image, you train a video camera on the subject, making adjustments for contrast and brightness, and a digital likeness of your subject appears on the computer

With ComputerEyes, you can save digitized pictures in a variety of graphics formats compatible with Apple II paint programs such We've taken a slightly different approach to creating software for your IIGs.

Most IIgs software is created for everyone else first-for IBM, Commodore, Apple IIe.

Then minor changes are made for the IIGs. In fact, sometimes all that changes is the sticker.

At Britannica we don't work that way. We start out by

designing on the IIGs-for the IIGs.

That's why our software takes full advantage of your 4,000 colors, digitized sound, pull-down menus, GS/OS and, of course, your friendly mouse.

So isn't it time you give your IIGs the software it deserves-like these?

JIGSAW!

Awarded "Editor's Choice" in the December '88 edition of inCider. JIGSAW! was called "deceptively simple, yet maddeningly complex."

This wonderfully addicting electronic puzzle uses all 4,000 of your IIGs colors in its 24 images. Each image can be scrambled into 8, 15, 40

or 60 pieces. Then you see how fast you can point and click it back together. Definitely captivating for anyone from 4 to 104.

Designasaurus.

Winner of the Best Educational Program award from the Software Publishers Association, this run-away hit is actually

three programs in one.

It's a graphic survival adventure (uou're the dinosaur). It's a mix and match game (create vour own species). And it's a printing program for making dinosaur reports, posters,

booklets -even T-shirts. For dinosaur-lovers of all ages.

Derign Work

Revolution '76.

This spectacularly rich historic simulation is easy to learn. Yet challenging to conquer.

evolu

You'll unite colonies. Build armies. Make or break alliances. And pick leaders.

Could you have set the

groundwork for one of the world's most successful nations? And how would you have changed America's

> history? Play Revolution '76 and find out.

> > For time-travellers 14 and up.

Look for all three programs in software stores near you, or call 800/572-2272 (CA: 415/546-1866).

Once you try our software, vou'll see the difference between software created for everyone else and software created just for you.





Figure 3: The image to the right was digitized with ComputerEyes and saved as a Dazzle Draw-type picture file. Special effects added with Dazzle Draw and an Apple Graphics Tablet transformed it into the image above.

as Brøderbund's Dazzle Draw. Alter that digitized reality, and you can add magic to video footage (see figure 3). Draw waist-length, flowing blue hair over a friend's short brown curls. Make a copy of one eye and paste it onto the middle of her forehead. Draw spaceships and a cluster of aliens in the background. Record the live pose on videotape followed by your computer portrait. It will look as if a live model has turned into a computer graphic.

ImageWorks II is a frame grabber that can capture images at video resolutions beyond the limits of the Apple II family (256 levels of gray or color per pixel!). Since it digitizes in ½00 second, you can capture imagery from a moving source: VCR, broadcast TV, or live action. In contrast, ComputerEyes takes six seconds to digitize an image. You can capture still images from your favorite prerecorded films and TV shows, using a VCR on Pause, but you cannot digitize live action.

The trade-off for ImageWorks II's quality and versatility is that its digitized images are not compatible with existing application software. Pictures digitized with ImageWorks II can be dimmed,

blurred, mirrored, inverted (so that the picture looks like a negative), rotated in increments of 90 degrees, and sharpened, using software on the ImageWorks board.

You can add graphics or other special effects to images captured with ImageWorks II, as you can to ComputerEyes files. Images digitized with ImageWorks II and Apple II text or hi-res images created by other programs can appear simultaneously on your monitor. You can record the combined image onto videotape but cannot save it to disk as a graphics file, however. In quality and level of complexity, ImageWorks II is a true video producers' tool that would benefit from additional software support.

If you're interested in writing your own applications and require the highest video quality, then ImageWorks II is a good choice. ComputerEyes is best for DTV enthusiasts who are not interested in programming. Its ability to export files to other programs provides considerable flexibility, making it easy to add special effects and animation to videos.

One caveat: ComputerEyes and

The possibilities range from video art portfolios to software tutorials.

ImageWorks II digitize images in black and white only. To digitize color images, you need the IIGS version of ComputerEyes or a color adapter for ImageWorks II.

With titles, animations, and digitized images at hand, you can produce a wide variety of effects for your computer video. Intercut live footage with thematically related computer graphics and animation. Capture live imagery and redraw it, or digitize pictures from books, TV, and prerecorded videotape. If your graphics package allows you to cut out and save portions of an image, try making a collage of different digitized images for a surreal impact. Be sure to save all your graphics, animations, and titles to disk, ready and organized for your video recording session.

Making Movies

So now you've got video footage and disks full of animations and special effects. What next? How do all these elements become a movie? Through video editing.

For editing, you need two VCRs, or a camcorder and a VCR. The source VCR contains your original video footage. The second, destination, VCR records the combination of video and computer-generated effects (see figure 1).

Before you begin your masterpiece, prepare yourself. Catalog your video footage by noting good and bad shots. Rewind your source tape; set the VCR footage counter to 0; and, when an appealing shot comes up, note the counter number and write a short description—it will make retrieval easier during editing.

It's also advisable to prepare a second log or storyboard (see "Stories and Storyboards" in this issue) that details the order and length of video and computer images you

Programs & Peripherals

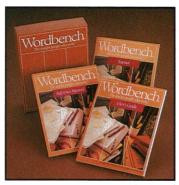
Modems

2400E 159. Practical Modem 2400 SA 188 Applied Engineering Prometheus Pro Modem 2400 (External) 255 DataLink Modem 1200B Pro Modem 2400G (Non Expandable) 175 I(Int III-, Ile or Ilas) 139. Pro Modem 2400A (Single Card) 139 DataLink Modem 2400 (Int Ilernal Ill Internal Epic 2400 Mini Modem Ext. 179. Supra Corporation 82 EPIC Epic 2400 Classic Il Internal Hayes 1200 Baud Smartmodem 299. U.S. Robotics Courier 1200 199 Hayes 2400 Baud Smartmodem Hayes 2400 Baud Smartmodem Hayes 2400 Examples 449. U.S. Robotics Courier 1200 199 MDIdeas Commlink 2400 189. U.S. Robotics Courier 2400E 379 Practical Modem 2400 (Ron External) 250 139 Pro Modem 2400A (Single Card) 139 130 Pro Modem 300c 82 250 250 Supra Corporation 149 U.S. Robotics Courier 1200 199 William Modem Ext. 149 U.S. Robotics Courier 2400E 349 U.S. Robotics Courier 2400E 379	TOTAL COLOR STATE OF THE STATE			
Prometheus Pro Modem 2400 (External) 255	Anchor Automation 1200E	119.	Practical Modem 1200 SA	109.
DataLink Modem 1200B	2400E	159.	Practical Modem 2400 SA	189.
(Int II+, Ile or IIss) 139. Pro Modem 2400A (Single Card) 139	Applied Engineering		Prometheus Pro Modem 2400 (External)	255.
DataLink Modem 2400B (Int II+, Ile or Ilas) Pro Modem 1200A (Single Card) 119 EPIC Epic 2400 Classic II Internal 179. Supra Corporation 32 Epic 2400 Mini Modem Ext. 179. Supra Modem 2400 (Hayes Compatible) 149 Hayes Hayes 1200 Baud Smartmodem 299. U.S. Robotics 199 MDIdeas Commlink 2400 449. U.S. Robotics Courier 1200 199 MDIdeas Commlink 2400 189. U.S. Robotics Courier 2400 348 Practical Peripherals U.S. Robotics Courier 2400E 379	DataLink Modem 1200B		Pro Modem 2400G (Non Expandable)	179.
DataLink Modem 2400B	(Int II+, Ile or IIGS)	139.	Pro Modem 2400A (Single Card)	139.
EPIC Epic 2400 Classic II Internal 179. Supra Corporation 149 Epic 2400 Mini Modem Ext. 179. Supra Modem 2400 (Hayes Compatible) 149 Hayes 1200 Baud Smartmodem 299. U.S. Robotics Courier 1200 199 MDIdeas Commlink 2400 449. U.S. Robotics Courier 1200 199 Practical Peripherals U.S. Robotics Courier 2400 379	DataLink Modem 2400B			119.
Epic 2400 Mini Modem Ext. 179. Supra Modem 2400 (Hayes Compatible) 149 Hayes Hayes 1200 Baud Smartmodem MDIdeas Commlink 2400 449. U.S. Robotics Courier 1200 199 MDIdeas Commlink 2400 189. U.S. Robotics Courier 2400 349 Vas. Robotics Courier 2400 349 U.S. Robotics Courier 2400 349 Vas. Robotics Courier 2400 349 U.S. Robotics Courier 2400 349	(Int II+, IIe or IIGS)	185.	Pro Modem 300c	82.
Hayes Hayes 1200 Baud Smartmodem 299. U.S. Robotics Courier 1200 199 MDIdeas Commlink 2400 189. U.S. Robotics Courier 1200 349 Vis. Vis. Robotics Courier 2400 349 Vis. Robotics Courier 2400 379 Vis. Robotics Courier 2400E 379	EPIC Epic 2400 Classic II Internal	179.	Supra Corporation	
Hayes Hayes Playes 1200 Baud Smartmodem 299. U.S. Robotics 199 199 MDIdeas Commlink 2400 189. U.S. Robotics Courier 1200 199 349 Practical Peripherals U.S. Robotics Courier 2400 349 U.S. Robotics Courier 2400E 379	Epic 2400 Mini Modem Ext.	179.	Supra Modem 2400 (Haves Compatible)	149.
MDIdeas Commlink 2400 189. U.S. Robotics Courier 2400 349 Practical Peripherals U.S. Robotics Courier 2400E 379	Hayes Hayes 1200 Baud Smartmodem	299.		
Practical Peripherals U.S. Robotics Courier 2400E 379	Hayes 2400 Baud Smartmodem	449.	U.S. Robotics Courier 1200	199.
	MDIdeas Commlink 2400	189.	U.S. Robotics Courier 2400	349.
Practical Modem 1200 SA Mini 85 LLS Robotics Courier HST 9600 689	Practical Peripherals		U.S. Robotics Courier 2400E	379.
7 Table 1 Tabl	Practical Modem 1200 SA Mini	85.	U.S. Robotics Courier HST 9600	689.

Printer Interface Cards

	SMT	
119.	No Slot Clock	42.
99.	Print Tech II (Parallel Interface)	37.
Call	Thirdware	
115.	Finger Print GSi Ver 2 (Includes	
85.	Desktop Accessories-IIgs)	79.
79.	Finger Print Plus	
84.	(Specify Cables: Parallel.	
62.	Serial or ImageWriter II-II+ & IIe)	89.
	99. Call 115. 85. 79. 84.	119. No Slot Clock 99. Print Tech II (Parallel Interface) Call 115. Thirdware 115. 85. Desktop Accessories-IIGS) 79. Finger Print Plus 84. (Specity Cables: Parallel,

Wordbench by Addison Wesley



Wordbench is the new way to prepare documents that goes beyond word processing. Wordbench lets you start your project with a full-featured Outliner and Notetaker, helping you organize your ideas, references, and notes, long before you begin to write the first draft. Then, unleash the Wordbench Writer to pull all of your work together clearly and effectively, without retyping. Wordbench lets you add creativity and correctness to your doc-

uments with its Brainstormer to help put your creative processes to work, a Thesaurus to help find the perfect word, and a Spellchecker to help you mind your "P's" and "Q's". And when it's time to print, Wordbench lets you add the text formatting you need to add impact and style to any presentation.

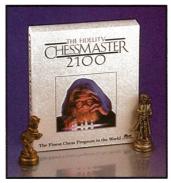
Utilities & Languages

	STREET, SQUARE, SQUARE	NAME OF TAXABLE PARTY OF TAXABLE PARTY.	
Absoft AC/BASIC (16-bit BASIC	3.0	ORCA/Pascal Desktop Debugger	80.
Compiler for IIgs)	84.	ORCA/Pascal DeskTop (IIgs)	34.
Big Red Computer		TML Systems	
PS Lovers' Utility Set (AP or IIgs)	29.	TML Basic (IIgs)	84.
Funk Software		TML Pascal (IIGs)	84.
Sideways Prodos & Dos 3.3	45.	TML Source Code Library (IIgs)	35.
Roger Wagner SoftSwitch (IIGS)	39.	TML Speech Toolkit (IIGS)	49.
Merlin 8/16 (IIe, IIc, IIgs)	79.	Zedcor	
The Byte Works ORCA/M (IIGS)	39.	ZBASIC 4.0 Interactive Compiler	39.
•			

Disk Drives & Hard Disk SubSystems

American Micro Research (Micro Sci)		Cutting Edge XL 30 + SCSI HD (Ile & IIgs)	629.
A5 D Half Height 51/4" Drive		XL 45 + SCSI HD (Ile & Ilgs)	829.
(IIgs Daisychain)	165.	First Class T6 60MB Tape	709.
A.5 Half Height (II+ & IIe)	139.	D2 20MB HD (IIe & IIgs)	509.
A.5C Half Height (IIc)	139.	D4/A 40MB HD (IIe & IIgs)	645.
Micro Sci C2 Controller	52.	D4/T 40MB HD/High Perf. (Ile & Ilgs)	855.
Applied Engineering Transdrive 360K	219.	D9 90MB HD/High Perf. (Ile & Ilgs)	1465.
Transdrive Dual 360K	305.	D96 Combo 90MB HD & 60MB Tape	
Transdrive Half Height 360K	119.	(Ile & IIgs)	2155.
Chinook CT-20 Hard Drive (AP & IIGS)	665.	Rodime Rodime 20 Plus Ext HD (Ile, IIgs)	629.
CT-20c Hard Drive IIc	709.	Rodime 45 Plus Ext HD (IIe, IIgs)	939.
CT-30 Hard Drive (AP & IIgs)	739.	Rodime 60 Plus Ext HD (IIe, IIgs)	1019.
CT-40 Hard Drive (AP & IIGS)	835.	Rodime 100 Plus Ext HD (IIe, IIgs)	1169.
CMS		Rodime 140 Plus Ext HD (IIe, IIgs)	1319.
"SD Series - Stack" Platinum Ile, Ilgs		Video Technology Universal Disk Controlle	er 79.
20 MB w/SCSI II card	645.	Laser 800KB Drive	185.
43 MB w/SCSI II card	845.	Universal Disk Controller/800KB	
60 MB w/SCSI II card	950.	Drive Bundle	259.

Chessmaster 2100 by Electronic Arts



Chessmaster 2100 is the newest release of the best chess game for the Apple II. You'll find all of the powerful, impressive features of Chessmaster 2000 plus new classic games, more in-depth analysis, and triple the number of selectable skill levels. Along with the familiar 2-D and 3-D modes, you can now view all important information at once in "War Room" mode! For novices, Chessmaster 2100 offers 'teach' and 'hint' modes that show how to think through a chess

match, and for the aspirant grandmaster, there are over 150,000 moves in the opening library and a "Rate My Play" evaluation routine. *Chessmaster 2100* comes with a U.S. Chess Federation tutorial, offers on-line help, lets you save and print games, and lets you import your own chess set from any popular paint program!

Chessmaster	2100		
Chessmaster	2100	for the IIgs 33	

Accessories

1 10005501105			
Apple Computer Apple Mouse Ile	125.	Apple Security System	34.
Apple Mouse IIc	85.	Printer Muffler 80	43.
Applied Engineering TimeMaster II H.O.	79.	Printer Muffler 132	58
IBM Style Keyboard or Sonic Blaster (IIGS)	119.	Printer Muffler Stand 80 or 132	24.
Audio Animator (IIgs)	185.	AntiGlare Filter IIgs	39.
Asher Engineering		System Saver (Platinum or Beige)	69.
Turbo Trackball (Ile or IIgs)	69.		Special 79.
Big Red Computer Lables, Lables, Lables Bose	29.	New Turbo Mouse (Reg. or ADB) Kraft	119
RoomMate Powered Speaker System CH Products Hayes Flight Stick	229. 52.	Universal 3 Button Joystick (Ile or IIc) Koala Technologies	34.
Hayes Mach II Joystick (Beige or Platinum)	29.	Koala Pad Plus w/Graphics Exhibitor	84
Hayes Mach III Joystick (Beige or Platinum)	36.	Kurta IS ADB Tablet w/stylus (IIGs)	339
Hayes Mach IV Plus Quad or ADB	65.	MDIdeas	
Mirage Quad or ADB (Turns joystick into mouse)	39.	Digitizer Professional (IIGs) The Conserver (IIGs Switched	139
Curtis Curtis Emerald	36.	Surge Suppressor w/Fan)	99
Curtis Ruby	55.	SuperSonic (Stereo Card for IIgs)	49
Cutting Edge EADB-105 Extended		SuperSonic Digitizer (IIGs)	49
Keyboard (IIgs)	125.	Mouse Systems A+ Mouse (IIc)	65
Digital Vision Computer Eyes (Ile or IIc)	109.	A+ ADB Mouse (IIgs)	85
Computer Eyes (IIGs)	209.	MousTrak MousePad 7"x9" Size	8.
Ergotron Mouse Cleaner 360° (IIgs)	15.	MousePad 9"x11" Size	9
Epyx Epyx 500J Joystick Kalmar	27.	MousePad L/F (Low Friction) Ribbons	. 9
Teakwood Rolltop Disk Case (Holds 50)	18.	Available colors: black, blue, brown, g	roon
Kensington Mouse Pocket (Reg. or ADB)	8.	orange, purple, red, yellow, silver or ge	
Mouseway (Mousepad)	8.	ImageWriter Ribbon-Color	4.
Apple IIgs Dust Cover or Imagewriter Cover		ImageWriter Ribbon-Black six pack	20
Mouse Cleaning Kit w/Pocket	17.	ImageWriter II - 4 Color Ribbon	9
Disk Drive Cleaning Kit (3.5" Drives Only)	20.	ImageWriter Rainbow Pk. (6 Colors)	20

System Saver IIGs by Kensington

System Saver IIcs organizes your power with four outlets for your computer, monitor, and two peripherals. Two frontmounted, lighted switches put everything at your fingertips. It also protects your system from dangerous power surges, spikes and noise. It clips surges and spikes at a safe level, and filters out disruptive EMI/RFI line



noise. Best of all, *System Saver IIGs* keeps your Apple cool. Its whisper-quiet fan draws cool air through the back and bottom vents of the IIGs, over the power supply (the primary source of heat), and out the top vents at the rate of 17 cubic feet per minute. Protect your investment today!

System Saver IIGs......79.

Visit us in the Electronic Mall™ on Compuserve - GO PP

Communication Software

Activision		Grolier On Line Encyclopedia	32
Teleworks Plus (IIgs)	66.	Pinpoint	
Checkmate Technology		Point-To-Point	74
ProTERM (IIgs, IIe, IIc)	Special 95.	United Software Industries	
Compuserve		ASCII: Express Pro: Prodos or Dos 3.3	72
Compuserve Starter Kit	24.	ASCII: Express Mousetalk 1.5	69

ProTERM 2.0 by Checkmate Technology



ProTERM 2.0 is the professional telecommunications software for everyone who owns an Apple IIGS, IIe, IIc, or Laser 128 computer with 128K+ of RAM. Its comprehensive 170-page manual, complete Hayes compatibility, and easy-access popup menus make it versatile and simple. Every user will benefit from its on-screen help files, the full-feature text editor, and large assortment of error-free protocols. Professionals

will value ProTERM's advanced features which include Procedure Files to store macros, batch and disk transfer capabilities, and its elapsed time counter (requires clock card). ProTERM's simple installation, password security option, and VT-100 terminal emulation make it the only choice for communicating in home, school, or business environments.

Apple Compatible Computers

Video Technology	
Laser 128 Computer	379.
The Laser 128 includes an Expansion S	Slot,
RGB Video Output, Parallel Printer Port,	
and a 10 Key Numeric Keypad!	
Laser 128EX Computer	459.
The Laser EX includes a Built-in	
RAM Expansion Board, Universal	
Disk Controller, Built-In Expansion	

Slot, and Ports for all Peripherals!

Laser 190A Printer (Imagewriter Compatible) Laser RGB Monitor Laser Amber Monitor 99. Laser 128 2nd Disk Drive 89. (51/4", 1/2 height) Laser 128 800K 3.5" Drive w/Controller 259. Laser 128 Cables (Parallel, Serial, RGB or Modem) Laser 128 Mouse

Backup Utilities & Boards

Alpha Logic		Central Point Software	
Locksmith 6.0	36.	Copy II Plus (5.25" & 3.5" Bit Copy)	2
Apple		FWB Software	
GS/OS (IIGS)	34.	Disk Util II (IIgs)	5

Quicken by Intuit

Quicken is the fast, easy way to cut through personal and small business paper work. In minutes you'll get a handle on your finances without having to bother with all the burdensome terminology and repetitive entry that most accounting packages require. Quicken is flexible; it lets you enter an unlimited number of transactions, expense and income categories, and checking accounts. Quicken lets you write checks, make and track budgets, manage cash flow, and even reconcile unbalanced accounts. Quicken is ideal for people who need to manage any sum of money in a small amount of time!



75 Research Drive,

Specials good through March 31, 1989.

Now Shipping Standard Air by



Customer Service (203) 378-3662 • FAX (203) 381-9043 Monday thru Friday 9 A.M. to 9 P.M. Saturdays 10 A.M. to 6 P.M. (Eastern Time)

OUR POLICIES

- · We accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- · If you are ordering by mail, we accept private and company checks. With MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- · Locations more than 1 day away shipped via Federal Express Standard Air service
- Federal Express Priority 1 service also available.
- · Sorry, we cannot accept COD orders.

SHIPPING

• Continental United States: \$4.00 (Min) per order to cover Federal Express Standard Air service. APO/FPO orders shipped 1st Class Mail (add 3% \$5.00 Min charge). Alaska, Hawaii and Outside Continental US: call or write for information.

· Defective software will be replaced immediately by the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at (203) 378-3662 to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee.

All items subject to availability. Prices subject to change without notice. Mail-in orders (especially from foreign countries), please furnish telephone number.

CIRCLE 185 ON READER SERVICE CARD

Positively A



Stratford, CT 06497

.. Positively A Plus!

ThunderScan by Thunderware



ThunderScan brings high-resolution scanning technology to the Apple II at a low, affordable price! Just pop the ribbon out of your ImageWriter printer and insert the ThunderScan scanning cartridge and you're ready to scan. ThunderScan supports 16 shades of gray, allows user control of contrast and brightness, and works with all Apple II screen display modes. Thunder-Scan is fully ProDOS compatible, and you can export your scans to Dazzle Draw, Paint-

works, Deluxe Paint and all other paint programs for custom editing!

Thunder Scan 170

Printers

Brother M-1109AP (ImageWriter Comp.) Okidata	249.	KXP-10911/M2 (192 cps) NLQ Mode KXP-10921 (240 cps) NLQ Mode	20 34
Microline 182Plus (120cps Dot Matrix 10")	275.	Seikosha	
Microline 320Plus (300cps Dot Matrix 10")	385.	Seikosha SP 1000	
Microline 321 Plus (300cps Dot Matrix 15")	539.	(Imagewriter Compatible)	23
Panasonic		Video Technology	
KXP-10801/M2 (144 cps) NLQ Mode	195.	Laser 190A (Imagewriter Compatible)	23

Graphics Packages

Abracadata		Print Shop Graphics Lib. Sampler Ed. (IIGS)	24
Design Your Own Home: Architecture (IIGS)	65.	Print Shop Graphics Lib. Party Ed. (IIGs) Electronic Arts DeluxePaint II (IIGs)	
Design Your Own Home: Architecture.		Electronic Arts	
Interiors or Landscape	49.	DeluxePaint II (IIgs)	65
Design Your Own Train	35.	DeluxeWrite w/DeluxePaint II (IIgs)	89
Architecture Library 1, 2, 3 or 4	21.	DeluxeWrite (IIgs)	59
Interiors Library 1, 2 or Landscape		EPYX	-
Library 1	21.	Art & Film Director (IIGs)	55
Activision		Printmagic	34
PaintWorks Gold or Draw Plus	66.	Create-A-Calendar	21
Paint/Write/Draw (Not Protected IIgs)	80.	Roger Wagner	
Baudville		Graphic Exchange (IIGs)	35
Award Maker Plus (Ile & Ilgs)	24.	Springboard Newsroom	32
816/Paint (Works On All Apples)	46.	Springboard Publisher 2.0 (Ile or IIgs)	84
Berkeley Softworks		Certificate Maker	26
GEOS	80.	Certificate Maker Library #1	20
GEOPublish	65.	Fonts For Springboard Publisher (IIGS)	20
Broderbund		Newsroom Clip Art Collection Vol. 1 or 3	18
Dazzle Draw or Show Off (IIgs)	39.	Newsroom Clip Art Collection Vol. 2	23
Print Shop Enhanced or Fantavision	29.	Style Sheets/Newletters (Ile or Ilgs)	20
Print Shop (IIGs) or Fantavision (IIGs)	39.	Works of Art Education, Holidays	
Print Shop School Edition	39.	or Assortment (Ile or Ilgs)	26
Print Shop Companion	25.	Styleware TopDraw	43
Print Shop Graphics Library I, II, III		Thunderware	
or Holiday Ed.	16.	Thunderscan (IIGS IIe & IIc) Special	1179

TimeOut QuickSpell by Beagle Brothers

TimeOut QuickSpell is the fastest, most powerful spellchecker available to AppleWorks owners. You can check your spelling while inside AppleWorks in seconds, saving valuable time for more productive tasks. TimeOut Quick-Spell features in-context checking, alternate spelling suggestions, and double word correction. It relies on an 80,000 word dictionary that you can modify and update to your specific need. You can load the dictionary to hard disk or



RAM disk to save even more time, and can clone it to create custom, multi-purpose dictionaries. Requires AppleWorks.

Visit Us On Compuserve In The Electronic Mall™

Blank Media

/2" Blank Diskettes		Fuji 3.5" DS/DD (box of 10)	
ulk (Sony) 31/2" DS/DD (box of 10)	17.	Maxell 3.5" DS/DD (box of 10)	
entech 3½" DS/DD Color Disks		Verbatim DS/DD (box of 10)	
(box of 10)	19.	3M 3.5" DS/DD (box of 10)	
ony 3.5" DS/DD (box of 10)	19.	C. Itoh 3.5" DS/DD Color Disks (box of 10)	

Ticket to Washington, DC by Blue Lion Software



Ticket to Washington, DC takes you to our nation's capital in pursuit of a famous American, past or present. While you're pursuing your quarry, you'll visit up to 42 locations including the Capitol, the White House, Georgetown, the Mall and more. You'll have 2500 facts and clues available from the database, plus 7 detailed 3-D maps to help solve the mystery. Ticket to Washington, DC requires an Apple IIe/IIc/IIGS

with 128K memory. Joystick or mouse optional.

Ticket to Washington, DC 30.

Business Software

2 dolliess 2 cit i di c			
Addison-Wesley		Pinpoint Publishing Graphics Edge	55
Wordbench (IIe & IIgs) Spe	ecial 99.	Pinpoint IIgs Starter Kit	85
Beagle Brothers Timeout Graph	55.	Pinpoint Speller/Document Checker Combo	61
Timeout SuperFonts	45.	Pinpoint	50
Timeout QuickSpell Spe	ecial 45.	Pinpoint Spelling or Document Checker	42
Timeout UltraMacros or SpreadTools	37.	Key Player	30
Timeout SideSpread, FileMaster, or		ProFILER 3.0	74
DeskTools	32.	Roger Wagner Publishing	
Timeout Thesaurus, DeskTools II		Mouse Write (IIe, IIc, IIgs)	84
or PowerPack	32.	Sensible Software	
GS Font Editor or Program Writer	32.	Sensible Grammar ProDos (3.5" & 5.25")	59
Timeout MacroTools or MacroTools II	19.	Sensible Speller ProDos w/3.5" & 5.25"	69
Broderbund On Balance	39.	Seven Hills Software Graphicwriter III (IIGS)	85
Bank Street Writer Plus	50.	Simon & Schuster	
Claris Apple Works (Ile or IIgs)	215.	Webster's Spelling Checker (ProDos)	41
Multiscribe 3.0 w/Speller (128K Ile or Ilc,	65.	Software Publishing	
Multiscribe llgs 3.0	75.	All Programs for Ile with 128K or Ilc	
Dac Software Dac-Easy Accounting	65.	PFS: Workmates (File/Report/Plan/Write)	119
Datapak Notes 'N Files (IIGs)	74.	Softsync Personal Newsletter with Clip Art	39
Garde Footing To Finish	55.	Softview TaxView Planner (IIgs) or	
ImagiMedia FactWorks 1, 2, 3 or 4	24.	TaxView Federal (IIgs)	72
Intuit Quicken Spo	ecial 34.	California or New York Supplement (IIGS)	39
Legi Soft Will Maker	39.		145
Manzanita BusinessWorks		DB Master Professional	195
System Manager (Ile & Ilgs) (Required)	69.	StyleWare Deskworks (IIgs)	30
GL/AR/AP/ or Inventory		Picture Manager or Desk Accessories	26
Control (Ile & IIgs)	139.	Third Wave Technology Magna Charta	41
Payroll Module (Ile & Ilgs)	139.	Print-Quick	34
BusinessWorks Bundle Ile & Ilgs (Sys.		Print-Quick Font Disk 1 or 2	15
Manager, G/L, A/P, A/R, Inventory)	299.	Timeworks Art Portfolio 4 in 1	75
MECA		Publish-It 2.0 (Ile or IIgs)	84
Managing Your Money 3.0 (Ile, Ilc, Ilgs)	95.	People, Places and Things (Ile & Ilgs), Design	n
Mecc Calendar Crafter School (IIGS)	59.	Ideas (Ile & Ilgs), Symbols and Siggans	
Milliken Medley (IIGS)	119.	(Ile & Ilgs), Education Graphics (Ile &	
Monogram Dollars and Sense (II+, IIe or I	IIc) 72.	IIGS), Font Pack 1 or 2 (IIe & IIGS)	27
Multisoft DoReMe	55.	Word Perfect Corporation	-
Peachtree Back To Basics		WordPerfect V1.1 w/Speller (Ile & IIc)	99
Accounting System: GL/AR/AP	129.	WordPerfect (IIgs)	99
• • • • • • • • • • • • • • • • • • • •		Control Contro	

Shipped Federal Express

Accelerators/Ramcards/Z-80/80 Column Cards

Apple Computer		GS-Ram Plus (1MB to 6MB)	Cal
Apple Ile Extended 80 Col. Card	89.	RamWorks Basic (256K or 512K)	Cal
Apple Ile Enhancement Kit	49.	Phasor (II+, IIe, or IIgs)	139
Applied Engineering		TransWarp Accelerator (II+ and IIe)	175
RamWorks III (64K to 3 MB)	Call	ViewMaster 80 (II+)	129
Ram Express (64K to 1 MB)	Call	Z-80 Plus (II+, IIe, IIgs)	125
Ramkeeper or SlotMover (Option)	Call	Checkmate Technology	
PC Transporter (768K)	Call	MemorySaver (IIGs)	125
PC Transporter Installation Kit (Ile or IIgs)	Call	Orange Micro	
RamFactor (256K to 1MB)	Call	RamPak 4GS	
Z-RAM Ultra 1 (256K or 512K)	Call	(512k Exp. to 4MB w/Utilities)	139
Z-RAM Ultra 2 or 3 (256K to 1MB)	Call	Zip Technology	
GS-RAM (256K to 1.5Meg)	Call	Zip Chip	165

California Games for the IIGs by Epyx



California Games is the hottest new game simulator under the sun on any coast! Surfing, skateboarding, BMX-biking, rollerskating, disk throwing and footbag events are wrapped into a challenge for one to eight players. California's beaches and dunes are the setting for monster waves and torturous trails. When you're bored with water and sand, head for the halfpipes and the parks, and try tricky aerials and snaky slaloms! To round out the test of true cham-

pions, there are disk throwing and footbag events to complete a grueling test of skill and coordination. *California Games* offers all the action in one package — and at one low price!

California Games for the IIGS29.

Educational Software

	4.00		
Activision	0.4	Learning Company	
Term Paper Writer	34.	Reader Rabbit (IIGs) or Writing and	
Barron's	0.4	Publishing Center (AP or IIGS)	36.
Computer SAT Revised Version	34.	Writer Rabbit (IIgs), Think Quick (IIgs)	
Britannica JigSaw (IIGs)	25.	or Rockys Boots (IIGs)	30.
Body Transparent or States & Traits	25.	Magic Spells (IIGs) or Math Rabbit	24.
Algebra 1, 2, 3, or 4	25.	Gertrude's Secrets (IIGs)	24.
Algebra 5 & 6	31.	Think Quick, Writer Rabbit	
Designasaurus	24.	or Math Rabbit (IIGs)	30.
Designasaurus (IIgs)	28.	Reader Rabbit, Magic Spells	
Millionaire II	34.	or Rocky's Boots	24.
Broderbund		MindPlay	
Geometry (IIGs)	68.	Easy Street or Cotton Tales	35.
Science Tool Kit Master Module	50.	Mindscape Crossword Magic	34.
Science Tool Kit Module I, II or III	26.	Perfect Score SAT	48.
Type!	19.	Pinpoint Micro Cookbook (Ile or IIc)	31.
Where in the World is Carmen Sandiego?	25.	Bon Appetit	37.
Where in the USA is Carmen Sandiego?	29.	Roger Wagner	
Where in Europe is Carmen Sandiego?	29.	HyperStudio (IIgs)	85.
Coda		Sensible Software	
Music Class Courses 1-5 (Bundle)	149.	Report Card II (IIe & IIGS)	37.
Fundamentals, Rhythm, or Ear Training	35.	Simon & Schuster	
Music Symbols or Note Reading	27.	Speed Reading Tutor IV	
Compu-Teach_		or Typing Tutor IV	27.
Once Upon A Time	25.	Speed Reader Tutor IV (IIGs)	34.
Stepping Stones Level I or II	25.	Typing Tutor IV (IIGs)	34.
Joshua's Reading Machine	25.	Spinnaker Kidwriter Gold (IIGs)	31.
See the U.S.A.	37.	Homework Helpers Writing or	
Davidson & Associates		Math (Ile or IIgs)	34.
Math Blaster Plus (IIGs)		Facemaker: Golden Edition	27.
or Word Attack Plus (IIgs)	29.	Kidwriter	27.
Alge-Blaster or Math Blaster Plus	29.	Terrapin Terrapin Logo Plus	79.
Grammar Gremlins or Read 'N' Roll	29.	Weekly Reader	
Spell-It or Word AttackPlus!	29.	Stickybear Series: Sticky Bear ABC (51/4),	
Math & Me (IIGs) or Reading & Me (IIGs)	29.	Basket Bounce (51/4 or 31/2), Bop (51/4),	
Math & Me or Reading & Me	25.	Math I (51/4 or 31/2), Math II (51/4 or 31/2),	
Electronic Arts		Numbers (51/4 or 31/2), Opposites	
Mavis Beacon Typing	30.	(51/4 or 31/2), Reading (51/4 or 31/2),	
Mavis Beacon Typing (IIGs)	37.	or Shapes (5¼ or 3½)	24.
First Byte/Electronic Arts		Basic (51/4), Car Builder (51/4 or 31/2), Drawing	
Mathtalk, Kidtalk, First Shapes, Speller		(51/4), Map Skills (51/4 or 31/2), Math Word	
Bee, or Smoothtalker (All IIGs, each)	33.	Problems (51/4 or 31/2), Music (51/4), New	
Mathtalk Fractions or First		Talking Alphabet (3½), Parts of Speech	
Letters & Words (All IIgs, each)	33.	(51/4 or 31/2), Printer (51/4), Punctuation (51/4	
Great Wave Kidstime II (IIGS)	24.	or 3½), Reading Comprehension (5¼ or	
SpaceLace	20.	3½), Spellgrabber (5¼ or 3½), Townbuild	er
Harcourt, Brace, Jovanovich		(5¼ or 3½), Typing (5¼ or 3½), or	
Computer SAT	29.	Vocabulary Development (51/4 or 31/2) (ea)	31.

Entertainment Software

Access Software		Street Sports Soccer (Ile or Ilgs), Street	
World Class Leader Board Golf	27.	Sports: Baseball or Summer Games II	14
Famous Courses of the World vol. 1 or 2	14.	Estes Flight	32
Accolade Jack Nicklaus Golf (IIGS)	34.	Physics or In Search of Space	18
Mean 18 (IIgs), Hardball (IIgs) or	0 11	FTL Dungeon Master (IIGs)	29
Serve & Volley (IIGS)	27.	Garde Blue Powder Grey Smoke or	-
Mini-Putt (IIgs) or 4th & Inches (IIgs)	27.	High Seas	29
Famous Course Disk Vol. 2 or Hardball	12.	Hayden Software Sargon III	14
Famous Course Disk Vol. 3 & 4	21.	Infocom The Lurking Horror	2
Test Drive or Bubble Ghost (IIGs)	21.	Hitchhiker's Guide to The Galaxy or	2.
Action Software Thunder Chopper	19.	Leather Goddesses of Phobos	15
Activision Rampage	23.	Sherlock	24
Star Rank Boxing II, Star Glider or Firepower		Beyond Zork (Ile or Ilgs) or The Zork Trilogy	34
The Last Ninja or Maniac Mansion	24.	Zork Zero, Journey (Ile or Ilgs) or ShoGun	34
GFL Championship Football	24.	Zork Zero (IIgs) or ShoGun (IIgs)	4
Blackjack Academy (IIgs), CrossBow or	24.	MasterPlay Star Saga: One! (AP or IIgs)	55
Corruption	27.	Melbourne House Quarterback	19
GBA Championship Basketball (IIgs) or	21.		25
Shanghai (IIGS)	29.	Quarterback (IIGs), or Barbarian (IIGs)	
The Last Ninja (IIGS)	29.	War in the Middle Earth (IIGS)	30
	32.	Micro League Sports	0
Might & Magic or Sky Travel (Ile or Ilgs)		Micro League Baseball	24
Might & Magic II	34.	General Manager/Owner Disk	21
Music Studio 2.0 (IIGs)	59.	Team Disk	14
Artworx Bridge 5.0	19.	Microprose	
Strip Poker II (IIGs)	27.	F-15 Strike Eagle or Silent Service	22
Baudville Dream Zone (IIGS)	31.	Silent Service (IIGs) or Pirates (IIe or IIGs)	26
BlueLion Ticket to Hollywood or R.S.V.P.	27.	Mindscape Indoor Sports	19
Ticket to London, Paris, or Spain	27.	Shadow Gate (IIGs), Uninvited (IIGs),	
Ticket to Washington, D.C. Special		Balance of Power 1990 (IIGs) or	0.200
Broderbund Wings of Fury (Ile, IIc, IIgs)	23.	Deja Vu (Ile or IIgs)	32
Ancient Art of War at Sea	31.	Balance of Power (Ile & Ilgs), Gauntlet (Ilgs)	
VCR Companion	34.	or Super Star Ice Hockey (IIGs)	29
Ultima IV or Ultima V	39.	Super Star Ice Hockey or Joker Poker	27
Buena Vista Who Framed Roger Rabbit?	25.	Gauntlet or Paperboy (Ile or Ilgs)	25
California Dreams Vegas Gambler (IIGS),		Orgin Systems Times of Lore (IIGS)	27
Vegas Craps (IIGs) or Triango (IIGs)	25.	PBI Software Strategic Conquest (IIGS)	
Mancala (IIGs) or Club Backgammon (IIGs)	25.	or Cavern Cobra (IIGs)	31
Cinemaware Defender of the Crown (IIGs)		The Tower Of Myraglen (IIGs) or	
or King of Chicago (IIGs)	32.	Alien Mind (IIGS)	32
Data East Kid Niki, Ikari Warrior or Platoon	23.	Sea Strike (IIGs) or Monte Carlo (IIGs)	25
Datasoft Hunt for Red October (IIas)	41.	Share Data	
Tomahawk, Lancelot or Time & Magik	23.	Concentration, Card Sharks, Jeopardy,	
Tomahawk (IIGs) or Hunt for Red October	30.	Family Feud or Wheel of Fortune	10
Diversified Software Research		Jeopardy II or Wheel of Fortune II	11
Diversi-Tune (IIGS)	55.	Sierra On-Line Space Quest (lle or llgs),	
Electronic Arts		or Space Quest II (IIe or IIgs)	32
Chessmaster 2100 Special		Kings Quest I, II, or III (IIe or IIGS)	32
Cartooners (IIGs) or Puppeteers (IIGs)	44.	Kings Quest IV (IIGs)	34
Instant Synthesizer (IIGs)	59.	Leisure Suit Larry (Ile or IIgs)	26
Bards Tale (IIGS), Bards Tale II (IIGS),		Thexder (IIGS)	24
Instant Music (IIGs), Music Construction		ManHunter (IIGs) or Police Quest (IIe or IIGs)	32
Set (IIGs), Bards Tale II, Madden Football,		Mother Goose (Ile or Ilgs)	19
Bards Tale III or Wasteland			
	33.	Simon & Schuster Star Trek 4 First Contact	27
Chessmaster 2100 (IIGs) Special	33.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn	32
Aaargh (IIgs) or Risk		Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna	27 32 34
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble,	33.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna	32
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of	33.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato	32 34 39 12
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna	32 34 39
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Basebail, World Tour Golf (IIgs) or Skate or Die (IIgs)	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato	32 34 39 12
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas)	32 34 39 12 23
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Basebail, World Tour Golf (IIgs) or Skate or Die (IIgs)	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ile or IIIss) Tetris (Ile or IIss) or Dondra	32 34 39 12 23
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIGs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIGs) or Skate or Die (IIGs) Strike Fleet or Marble Madness (IIGs)	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ille or Illas) Tetris (Ille or Illas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1	32 34 39 12 23 25
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIgs) or Skate or Die (IIgs) Strike Fleet or Marble Madness (IIgs) EPYX Sub Battle Simulator (IIgs), Home Video Producer, The Games: Winter	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas) Tetris (lle or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000	32 34 39 12 23 25
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIgs) or Skate or Die (IIgs) Strike Fleet or Marble Madness (IIgs) EPYX Sub Battle Simulator (IIgs), Home	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ille or Illas) Tetris (Ille or Illas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1	32 34 39 12 23 25
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIgs) or Skate or Die (IIgs) Strike Fleet or Marble Madness (IIgs) EPYX Sub Battle Simulator (IIgs), Home Video Producer, The Games: Winter	33. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ile or Ilas) Tetris (Ile or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (Ilas) or	32 34 39 12 23 25 26 23
Aaargh (IIas) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIas), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIas) or Skate or Die (IIas) Strike Fleet or Marble Madness (IIas) EPYX Sub Battle Simulator (IIas), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIas) Special	33. 29. 26. 23.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas) Tetris (lle or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (llas) or AD&D Pool of Radiance	32 34 39 12 23 25 26 23
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIgs) or Skate or Die (IIgs) Strike Fleet or Marble Madness (IIgs) EPYX Sub Battle Simulator (IIgs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or LA. Crackdown California Games (IIgs) Destroyer (IIgs), Final Assault (IIgs), or	33. 29. 26. 23.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lie or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (lias) or AD&D Pool of Radiance Battle of Napoleon, Questron II (lias) or	32 34 39 12 23 25 26 23
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIGs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIGs) or Skate or Die (IIGs) Strike Fleet or Marble Madness (IIGs) EPYX Sub Battle Simulator (IIGs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIGs) Destroyer (IIGs), Final Assault (IIGs), or Impossible Mission II (IIGs)	33. 29. 26. 23.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas) and the simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (llas) or AD&D Pool of Radiance Battle of Napoleon, Questron II (llgs) or Typhoon of Steel	32 34 39 12 23 25 26 23 30 33
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIGs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIGs) or Skate or Die (IIGs) Strike Fleet or Marble Madness (IIGs) EPYX Sub Battle Simulator (IIGs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIGs) Destroyer (IIGs), Final Assault (IIGs), or Impossible Mission II (IIGs)	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lie or II/GS) Tetris (III eo r II/GS) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (II/GS) or AD&D Pool of Radiance Battle of Napoleon, Questron II (II/GS) or Typhoon of Steel Sublogic Flight Simulator II Jet	32 34 39 12 23 25 26 23 30 33 35 27
Aaargh (IIgs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIgs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIgs) or Skate or Die (IIgs) Strike Fleet or Marble Madness (IIgs) EPYX Sub Battle Simulator (IIgs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or LA. Crackdown California Games (IIgs) Destroyer (IIgs), Final Assault (IIgs), or	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas) Tetris (lle or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (llas) or AD&D Pool of Radiance Battle of Napoleon, Questron II (llas) or Typhoon of Steel Sublogic Flight Simulator II	32 34 39 12 23 25 26 23 30 33 35
Aaargh (IIas) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIas), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIas) or Skate or Die (IIas) Strike Fleet or Marble Madness (IIas) EPYX Sub Battle Simulator (IIas), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIas) Destroyer (IIas), Final Assault (IIas), or Impossible Mission II (IIas) California Games, Dive Bomber, Technocop, Destroyer, Street Sports Football, Tower Toppler, Sporting News Baseball,	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ile or Ilas) and the Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (Ilas) or AD&D Pool of Radiance Batle of Napoleon, Questron II (Ilas) or Typhono of Steel Sublogic Flight Simulator II Jet Scenery Disks 1, 2, 3, 4, 5 or 6	32 34 39 12 23 25 26 23 30 33 35 27
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIGs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIGs) or Skate or Die (IIGs) Strike Fleet or Marble Madness (IIGs) EPYX Sub Battle Simulator (IIGs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIGs) Destroyer (IIGs), Final Assault (IIGs), or Impossible Mission II (IIIGs) California Games, Dive Bomber, Technocop, Destroyer, Street Sports Football, Tower Toppler, Sporting News Baseball, Sticker Maker or Sub Battle Simulator	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (lle or Ilas) Tetris (lle or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (llas) or AD&D Pool of Radiance Battle of Napoleon, Questron II (llgs) or Typhoon of Steel Sublogic Flight Simulator II Jet Scenery Disks 1, 2, 3, 4, 5 or 6 Scenery Disks 7, 11 or	32 34 39 12 23 25 26 23 30 33 35 27 16
Aaargh (IIas) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIas), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIas) or Skate or Die (IIas) Strike Fleet or Marble Madness (IIas) EPYX Sub Battle Simulator (IIas), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIas) Destroyer (IIas), Final Assault (IIas), or Impossible Mission II (IIas), California Games, Dive Bomber, Technocop, Destroyer, Street Sports Football, Tower Toppler, Sporting News Baseball, Sitcker Maker or Sub Battle Simulator Street Sports: Basketball, Winter Games	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maeistrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ile or Ilss) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (Ilas) or AD&D Dol of Radiance Battle of Napoleon, Questron II (Ilfas) or Typhoon of Steel Sublogic Flight Simulator II Jet Scenery Disks 1, 2, 3, 4, 5 or 6 Scenery Disks 7, 11 or Western European Tour	32 34 39 12 23 25 26 23 30 33 35 27 16
Aaargh (IIGs) or Risk Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf (IIGs), Halls of Montezuma, Earl Weaver Baseball, World Tour Golf (IIGs) or Skate or Die (IIGs) Strike Fleet or Marble Madness (IIGs) EPYX Sub Battle Simulator (IIGs), Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown California Games (IIGs) Destroyer (IIGs), Final Assault (IIGs), or Impossible Mission II (IIIGs) California Games, Dive Bomber, Technocop, Destroyer, Street Sports Football, Tower Toppler, Sporting News Baseball, Sticker Maker or Sub Battle Simulator	33. 29. 26. 23. 32. 29.	Simon & Schuster Star Trek 4 First Contact Sir-Tech Wizardry or Legacy of Llylgamyn Heart of the Maelstrom or Return of Werdna Return of Werdna Sphere, Inc. Gato Soko-Ban (Ile or Ilas) Tetris (Ile or Ilas) or Dondra Strategic Simulations Wizards Crown, Eternal Dagger or Roadwar 2000 AD&D Dungeons Mstr. Asst. Vol 1 Questron II, Roadwar 2000 (Ilas) or AD&D Pool of Radiance Battle of Napoleon, Questron II (Ilas) or Typhoon of Steel Sublogic Flight Simulator II Jet Scenery Disks 1, 2, 3, 4, 5 or 6 Scenery Disks 7, 11 or Western European Tour Taito Arknoid (AP or Ilas)	32 34 39 12 23 25 26 23 30 33 35 27 16



75 Research Drive, Stratford, CT 06497 800/832-320

want in your final film.

Working from beginning to end is best:

- 1. Gather together all your disks of graphics, animation, and titles.
- 2. Plug your computer into the destination VCR and begin by recording the video's title.
- 3. Press Pause on the destination VCR. Unplug the computer and plug in the source VCR. If your destination VCR has a separate camera input, you can attach your source VCR or camcorder to it rather than unplugging the computer.
- 4. Refer to your log for the desired shot's counter number, queue up the tape, play it, and release the Pause button on the destination VCR.
- 5. Pause when you've recorded the first shot.
- 6. Alternate between computer input and source input until your video is complete.
- 7. Keep the destination VCR in the Record mode throughout by pressing Pause instead of Stop, to ensure cleaner cuts between images.

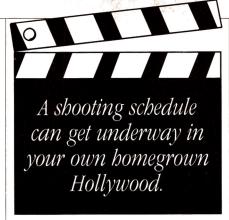
Make sure your VCR is set to SP. Recording in this mode enables you to use sophisticated equipment such as edit controllers. Although using professional editing facilities is prohibitively expensive, smaller companies (sometimes even your local video-rental store) may offer affordable VHS or Beta editing time.

If you have only a single VCR and computer, make sure you've left ample room throughout your live footage to insert computer-produced titles, transitions, and credits. Remember, though, that any computer effects you record onto the tape overwrite existing footage.

Simplicity has its advantages. With only one input (the computer), you won't have to bother switching cables. Fast-forward to portions of the video you'd like to replace with computer graphics or animation. Enter the Record mode on your VCR, but press the Pause button. The instant your computer animation, graphic, or title kicks in, release the Pause button to begin recording.

Making Tracks

Adding sound to your video can be a concurrent process if you use simple cables to wire an Apple headphone jack to the Audio In



port of your destination VCR. (Headphone jacks are easy to add to the IIe and IIc Plus [see "Learning Curve," December 1988].) Whatever plays through the Apple's speaker will record on tape. If your VCR has audio-dubbing capabilities, then you can add sound anytime after your destination tape is complete. Plug in your CD player, tape recorder, or synthesizer and coordinate sound with the video action. Without audio dubbing, recording sound onto a completed videotape erases the tape.

Deluxe DTV

You can further enhance the ideal DTV system (two VCRs and a computer) by adding an edit controller and a genlocking device. An edit controller lets you establish exact edit points within the source and destination tapes. Edits of tenths of a second are possible.

Genlocking is the special-effect artist's dream tool. It allows the overlaying of two or more signals, one on top of the other. Computergenerated titles can appear over moving video footage, computerdrawn birds can fly through the sky in your backyard.

The Apple's video output can be made compatible with a wide range of professional and home video equipment. Both edit-controlling and genlocking devices compatible with an Apple desktop-video system are available from video-equipment suppliers, starting at \$1,000 each. Additional options may also be on the horizon for Apple II owners.

State of the Art

Whenever you save a computergenerated image onto videotape, you'll notice an inevitable loss of clarity. Images tend to look blurry on video, and colors burn or bleed on the screen. Well-seated equipment connections may help, as may gold-tipped cables, and solid blocks of color record better than patterned fills or airbrushed areas. A jittery, blurry image may, however, be just the effect you want.

Desktop video is a technical art in a primitive state. Even so, with you in the director's chair and the Apple II computer as technical consultant, a shooting schedule can get underway in your own homegrown Hollywood.

Leslie Wilson is a computer artist who creates graphics and animation on any computer that's available. Her most recent computer video is part of the SIGGRAPH '88 Film and Video Show. Her hand-painted, computer-produced books are on display at Artworks, a Los Angeles gallery.

Y I T A L S T A T I S T I C S

COMPUTEREYES/2

Apple II+/e/c/gs/c+; 64K RAM (hi-res), 128K RAM (double hi-res); one 5¼-inch disk drive; camcorder; VCR; ProDOS 8 or DOS 3.3; not copy-protected PRICE: \$129.95; ComputerEyes for the gs, \$249.95; gs support package, \$19.95

Digital Vision, Inc. 66 Eastern Avenue Dedham, MA 02026 (800) 346-0090 •(617) 329-5400

CIRCLE READER SERVICE NO. 370

IMAGEWORKS II

Apple II +/e/as, 48K RAM, ProDOS 8, one 514-inch drive, composite monitor, copy-protected PRICE: \$350

Redshift Limited P.O. Box 4335 Mountain View, CA 94040 (415) 322-7373

CIRCLE READER SERVICE NO. 371

VCR COMPANION

Apple Ile/c/Gs/c+, 128K RAM, one 5¼- or 3.5-inch disk drive, ProDOS 8, copy-protected PRICE: \$49.95

Brøderbund Software, Inc. 17 Paul Drive San Rafael, CA 94903-2101 (800) 521-6263 • (415) 492-3500

HOME VIDEO PRODUCER

Apple Ile/c/gs/c+, 128K RAM, one 514-inch disk drive, ProDOS 8, not copy-protected PRICE: \$49.95

Epyx, Inc. 600 Galveston Drive P.O. Box 8020 Redwood City, CA 94063 (415) 366-0606

CIRCLE READER SERVICE NO. 372



COVER STORY BY DEAN SLUYTER

SCENEII

Programs that help you bring your story from the Apple screen to the big screen

If word processing didn't exist, screenwriters would have to invent it. In fact, that's more or less what happened. Back in the '70s, the first word-processing program for a personal computer (Electric Pencil, trivia buffs) was developed by Hollywood screenwriter Michael Shrayer, and computers have been standard equipment in Tinsel Town ever since. Having banged out a few precomputer scripts on an old Smith-Corona myself, I can bear witness: For writing movies and television shows, silicon is definitely indispensable.

Why? Because screenwriters need to do all the same things that other users do—generate text in complex formats; perform repetitive tasks; and, above all, revise, revise—but even more so. The endless revisions that a script can undergo are notorious, as the writer struggles to satisfy the needs of the director, the actors, the public, the nervous investors, and the writer's own artistic conscience. (Tootsie is said to have gone through some 20 drafts at the hands of at least 8 writing teams.)

So, you want to write for the movies (or television or radio)? All the equipment you need is your Apple computer and the right software. You should also be familiar with the format professionals use to create screenplays (film scripts) and the very different kind they employ for audio and video scripts. We'll examine those formats, two specialized word-processing programs for generating them, and the possibilities of accomplishing the same thing with an all-purpose

program such as AppleWorks.

Every movie starts its life as a screenplay. Each page represents approximately a single minute of screen action. The pages, in keep-

ing with industry tradition, look like figure 1.

This format is rigid and specific, but, fortunately, little in it is highly technical. Novice scriptwriters

FADE IN

INT. STEVE'S GARAGE--NIGHT

STEVE, a slim, fair-haired youth, and WOZ, shaggy-bearded and thickset, huddle excitedly over a workbench. They're surrounded by clutter of diagrams, tools, electronic parts, and food--cold pizza slices, empty soda cans, etc. Rapidly pressing keys on a handmade-looking keyboard, Woz gazes intently at a small video display terminal.

WOZ

(pointing to screen)
Look, Steve--it works! Eureka!
This is a computer that the
average, non-rocket scientist type
person can use.

STEVE

(grins)
I can see it now! We'll have these
in homes, businesses ... who
knows, maybe even schools.

WOZ
But what should we call it?

Steve's POV as his hand searches through the mess of electronics and foodstuffs on the workbench.

STEVE

(0.S.)

Now let's see, where's that piece of fruit I was eating before? ... Ah, yes. We'll call it--

CLOSE SHOT on fruit in hand.

STEVE (solemnly) -- the Kumquat!

FADE OUT

Figure 1: The screenplay format for film scripts can be laborious to produce on a typewriter or even with conventional word-processing programs.

[JUNE is bustling happily about the kitchen, humming a tune, tending to pots and pans on the stove. [BEAVER and LUMPY enter kitchen, toss school books onto table. ILUMPY: Hi, Mrs. Cleaver.]BEAVER: Hi, Mom. Whatcha got to)JUNE: Your favorite, Beaver: cookies and milk. |BEAVER: Gee, Mom, I don't know ... I guess I'm just not in a [BEAVER gazes wistfully out the window. cookies-and-milk kind of mood today.)EDDIE (to BEAVER): Hey, how ya [WALLY and EDDIE enter. EDDIE is carrying a shoebox with holes punched into its lid. doin', squirt? lEDDIE: Why, good afternoon, Mrs. Cleaver. You're certainly looking lovely today. My, my, young Theodore is certainly growing, isn't he? IEDDIE turns, notices JUNE. IJUNE: Yes, Eddie, I would say so. Excuse me. [Follow JUNE as she exits to LIVING [WARD is seated in easy chair, IWARD: Hello, dear. What's the wearing sweater, reading newspaper. lJUNE: Ward, I'm worried about the Beaver.

Figure 2: TV and audio scripts use the two-column format. The brackets are an idiosyncrasy of AUTOScripter, the program that produced this page.

have to learn the different kinds of scene transitions (cut, dissolve, fade) and a few abbreviations: EXT. and INT. to indicate exterior and interior scenes, P.O.V. for a point-of-view shot (through a character's eyes), O.S. for someone speaking off-screen, and that's about the extent of it. Camera movements, shots, and angles are usually the province of the director and cinematographer.

Video and audio scripts use a two-column format (see figure 2). Note that dialogue goes in the right-hand column, with visual elements, if any, on the left.

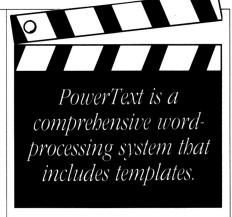
PowerText

PowerText is a program for use on Apple II computers that addresses itself to the requirements of both formats. It's actually a comprehensive word-processing system that includes templates—predefined formats—for numerous document types, including memos, outlines, business letters, and academic papers with footnotes. You can modify existing templates and create new ones.

Within PowerText is a module called PowerScript that has one template for screenplays and another for two-column scripts. Rather than trying to lay the script out by constantly tabbing and changing margins, you learn a set of com-

mands that automatically invoke the correct setup for each part of the script.

Using PowerText's screenplay template, you would type the Kumquat script as in figure 3. Basically, all you do is key in your raw text, preceding each speech or visual direction with a command that formats it for you. The back-slash command that precedes each text block takes care of the margins and



tabs. Note the Set commands, which need typing only once; thereafter, the letter you have chosen invokes the character's name.

These commands look rather unwieldy, but a further level of automation—Escape codes—simplifies them. Typing Escape 6 automatically inserts two returns, /tp, and a back slash into the text. For example, near the end of the script, to go from "fruit in hand" to Steve's next speech, all you have to do is type Escape 6s.

Writing the two-column video script with PowerText is even simpler. Pressing /1 puts you into the left-hand column for action and camera cues; /2 puts you into the right-hand column for the corresponding dialogue. The video template single-spaces the left-hand column, double-spaces the right-hand column, and draws a vertical line between them. This spacing, preferred in some TV work, is by

```
/tp /right FADE IN
/par INT. STEVE'S GARAGE--NIGHT
/par STEVE, a slim, fair-haired youth, and WOZ, shaggy-bearded and thickset, huddle excitedly over a
workbench. They're surrounded by clutter of diagrams, tools,
electronic parts, and food--cold pizza slices, empty soda
cans, etc. Rapidly pressing keys on a handmade-looking
keyboard, Woz gazes intently at a small video display
terminal.
/set s STEVE =
/set w WOZ =
tp \w (pointing to screen) Look, Steve--it works! Eureka!
This is a computer that the average, non-rocket scientist
type person can use.
/tp \s (grins ) I can see it now! We'll have these in homes,
businesses ... who knows, maybe even schools.
/tp \w But what should we call it?
/tp /par Steve's POV as his hand searches through the mess
of electronics and foodstuffs on the workbench.
/tp \s (0.S. ) Now let's see, where's that piece of fruit I
was eating before? ... Ah, yes. We'll call it--
/tp /par CLOSE SHOT on fruit in hand.
/tp \s (solemnly ) -- the Kumquat!
/tp /right FADE OUT
```

Figure 3: Within PowerText's screenplay template, these keystrokes produce the page shown in figure 1.

no means universal. In any case, as with all PowerText templates, you can modify it.

PowerText has its drawbacks. It requires some shuffling of its three disks and your data disk in and out of drives (although its maker promises it will soon release a single 3.5-inch-disk version).

You have to keep a few niggling restrictions in mind. For example, if a screenplay dialogue direction contains only one word, the right parenthesis must be preceded by a space; e.g., (grin). The nonintuitive command set is a dinosaur from the days of WordStar (arrgghhh!), and the underlying system is studded with user-hostile beauts: disk drives 1 and 2 are mysteriously renamed 4 and 5, the screen message Insert boot disk is your cue to take out the boot disk, and so forth.

If you write a lot of scripts, you'll soon get used to these idiosyncrasies, though, and the program has enticing compensations, such as the automatic placement of MORE and CONTINUED at the bottom and top, respectively, of speeches that continue to a second page. And, especially if you use some of the other templates, PowerText is a multifeature package at a bargain price.

AUTOScripter

AUTOScripter doesn't do screenplays, but it simplifies tremendously the writing of two-column video scripts. You just press the] key to switch to the right column, [



AUTOSCRIPTER (VERSION 1.0)

A program that simplifies the writing of two-colum video scripts. A related program, Autoprompter Deluxe, combines AUTOScripter's abilities with those of an electronic TelePrompTer, and Autoprompter+ offers the TelePrompTer functions only.

Apple Ile/c/gs/c+, 128K RAM, one 51/4-inch disk drive, DOS 3.3, copy-protected PRICE: \$95

AUTOPROMPTER DELUXE

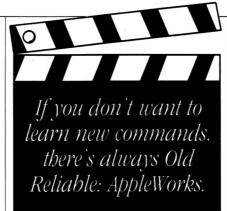
Apple Ile/c/gs/c+, 128K RAM, one 5¼-inch disk drive, DOS 3.3, copy-protected PRICE: \$375

AUTOPROMPTER+

Apple II+/e/c/gs/c+, 64K RAM, one 51/4-inch disk drive, DOS 3.3, copy-protected PRICE: \$295

Beacon Software, Inc. P.O. Box 751 Milwaukee, WI 53201 (414) 355-4460

CIRCLE READER SERVICE NO. 374



for the left column. Easy-to-remember Control codes (prompted by help screens) facilitate cutting, pasting, inserting, deleting, appending, finding, moving blocks, and the like. If you prefer the familiar features of your customary word-processing program for the initial stages of writing, or if you've already typed a script and want to convert it to this format, you can import the text into AUTOScripter as a DOS 3.3 text file. Other text files, even those written on other kinds of computers, can be imported by modem.

Of special interest is AUTO-Scripter's big brother, Autoprompter Deluxe. Autoprompter combines AUTOScripter's dualcolumn writing capability with an electronic TelePrompTer. This product could be a boon for small, tightly budgeted TV stations and for schools and colleges doing radio or video production. After writing your script, you can use the program to display it for your actors in large (about one-inch) characters that scroll smoothly up the screen. Scrolling speed can be controlled from the keyboard or with an optional hand controller, and the display can be paused, backed up, or reversed (for mirror-mounted systems). A feature that can be highly useful for news broadcasts is the ability to break a file into as many as 60 separate "stories" and then select among them for display in any sequence.

A little-brother program, Autoprompter+, offers the TelePromp-Ter capabilities but doesn't do scripting. It can, however, display scripts created with AUTOScripter. Since it requires only 64K of RAM, it could be a reason to resuscitate an old Apple II Plus gathering dust in somebody's closet.

AUTOScripter and its relatives

are easy to learn and use. Even Autoprompter Deluxe requires only one drive and comes on a single disk that loads completely into RAM on booting, thereafter leaving the drive free for your data disk. Many printing options are available (see figure 4), including dialogue-only printouts and line numbering but not, unfortunately, page numbering. (One other minor drawback: The bracket commands that move the cursor from one column to the other show up undeletably on your hard copy-no problem for in-house scripts but possibly unacceptable for some professional submissions.)

Old Reliable

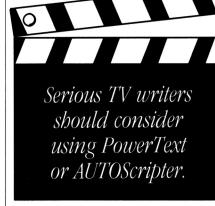
If you want to write screenplays but don't want to learn a new command set, there's always Old Reliable: AppleWorks. You'll also need a good macro enhancement program, such as Beagle Bros' Time-Out UltraMacros (see "Expanding AppleWorks with Ultra Macros,"

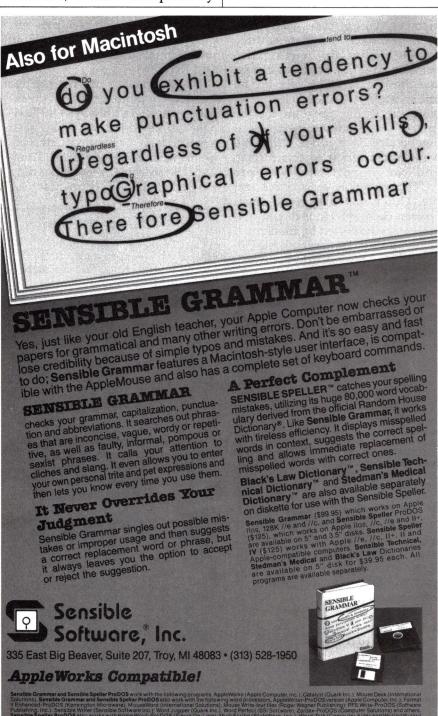
0001]LUMPY: HI, MRS.
0002	CLEAVER.
0003	
0004]BEAVER: HI, MOM.
0005	WHATCHA GOT TO EAT?
0006	
0007]JUNE: YOUR
0008	FAVORITE, BEAVER: COOKIES AND MILK.
0009	COOKIES AND MILK.
0010	
0011]BEAVER: GEE, MOM, I DON'T KNOW I
0012	DON'T KNOW I
0013	GUESS I'M JUST NOT
0014	IN A
0015	COOKIES-AND-MILK KIND OF MOOD TODAY.
	KIND OF MOOD TODAY.
0017	
0018	PEDDIE (TO BEAVER):
	HEY, HOW YA DOIN',
0020	SQUIRT?
0021	
0022	
0023	leddie: WHY, GOOD AFTERNOON, MRS. CLEAVER. YOU'RE
0024	AFTERNOON, MRS.
0025	CLEAVER. YOU'RE
0026	CERTAINLY LOOKING
0027	LOVELY TODAY. MY, MY, YOUNG THEODORE
0028	IS CERTAINLY
0029	GROWING, ISN'T HE?
0031	GROWING, ISN I HE:
0032	LIUNE: VES EDDIE I
0033	JUNE: YES, EDDIE, I WOULD SAY SO. EXCUSE ME.
0034	ME.
0035	
0036	IWARD: HELLO, DEAR.
0037	WHAT'S THE MATTER?
0038	
0020	
0040]JUNE: WARD, I'M
0041	JUNE: WARD, I'M WORRIED ABOUT THE
0042	BEAVER.

Figure 4: AUTOScripter output showing its dialogue-only and line-numbering options

September 1988). Then you can store your two sets of margins—one for dialogue, the other for scene descriptions and action—as macros, one-keystroke commands that invoke a whole sequence of keystrokes. You can do the same for your characters' names.

After that, in order to pare your keystrokes down to a minimum, put together a macro that combines each character's name macro with the dialogue-margins macro. Therefore, to start each speech by





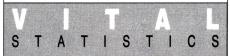
Woz in figure 1, you could press ♣-W to invoke Return, Return, Ć-O, LM, Return, 2.8, Return, RM, Return, 1.8, Return, Escape, Tab, Tab, WOZ, Return.

Finally, make a macro to switch back from dialogue margins to the original margins: Return, Return, Ć-O, LM, Return, 2.0, Return, RM, Return, 1.0, Return, Escape.

Using the UltraMacros compiler, you can store these macros on your AppleWorks start-up disk. Make a different disk for each script in progress, since the characters' names will obviously be different. The only major problem with this approach is that, on a standard Apple IIe or IIc, the macros start to work sluggishly after about 10 or 15 pages. Breaking the script into several files is one answer, although an inconvenient one. A more elegant solution is an accelerator device such as a TransWarp or a Zip Chip. If you own a IIGS or IIc Plus, everything should process at an acceptable speed.

Writing two-column scripts with AppleWorks (or any other line-oriented word-processing program) is more problematic. There are ways of coaxing AppleWorks to produce multicolumn text, but they involve awkward techniques of winding each page backwards in the printer to print the second column or running the text through the spreadsheet module. Neither method is really suitable for true two-column editing functions. Serious TV writers should consider using Power-Text or AUTOScripter.

Dean Sluyter teaches English, film, and computer courses at the Pingry School in Martinsville, New Jersey. His column "The Screening Room" runs in several East Coast papers.



POWERTEXT (VERSION 1.78)

A comprehensive word-processing system with templates for numerous kinds of documents. Its PowerScript module includes a template for screenplays and another for twocolumn scripts.

Apple II+/e/c/gs/c+, 64K RAM, two 5¼-inch disk drives, Pascal, not copy-protected PRICE: PowerText, \$99.95; speller, \$50

Bearnan Porter, Inc. 417 Halstead Avenue Harrison, NY 10528 (914) 835-3010 • (914) 835-3156

CIRCLE READER SERVICE NO. 375

STORIES AND STORYROARDS

Whether you're creating a film or an animation, you need a story to tell. We can hear you now. What story? I can't think of any stories. Relax. Your story can be as simple as what happens to a snowman when the sun comes out or as complex as the demise of the dinosaurs. Use one of the following basic principles as a springboard:

Replacement. Here, the characters in a well-established story are replaced, but the story stays essentially the same. Think about any detective, horror, or cowboy film. The characters may be different, but usually it's still the same old story. Another type of replacement is when a character stays the same but the story changes—The Return of Batman, for example, or Halloween III (IV, V, VI...).

Extension. Here, a well-established story line goes beyond the actual story. Walt Disney took simple stories such as "Cinderella" and "Snow White and the Seven Dwarves," added music, and spiced up the characters' personality. Is there a fairy tale or myth you can build upon?

Context. Change a simple story by taking a character out of context. Tarzan, for example, was an English lord who was put into the jungle. Tom Thumb was a normal boy, except in scale, trying to cope in a normal world. Whom can you put where?

Transfer. An established story line and its characters can transfer to another situation. Cowboys, for example, were transferred to a science-fiction adventure in the film Westworld. People were transformed into animals in George Orwell's Animal Farm.

Reversal. You can develop an imaginative script from a simple reversed situation, as when a king becomes a beggar. In *Dr. Jekyll and*

Mr. Hyde, a gentle, kind scientist becomes a monster.

Combination. Here you combine parts of several stories. King Kong uses this technique. The story combines a large-scale tribal god in a world out of context (from a jungle to New York City) with a beauty-and-beast theme.

Are you getting any ideas yet?

Take your best idea and develop it by creating an outline. Are you telling a story, making a birthday card, or doing a business presentation? Outline key points in your script; define the beginning, middle, and end. When your outline is complete, write the script for your film: The key points are now linked by a story line.

Finally, create a storyboard, a series of sketches with written descriptions of the key elements in your film. What will certain scenes contain, what kinds of camera shots will you use, what type of scene transitions? Your sketches will accurately reflect what will appear on-screen, as long as the dimensions of your storyboard correspond to the rough dimensions of your display. Use this visual script as a guide when producing and editing your film.

That's it. Now you're ready to go. Roll the cameras!

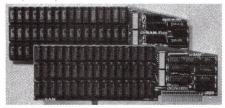
Roberta Schwartz and Michael Callery

Storyboardfor	
	Description BEAVER gazes wist fully out the window. Audio Gee, Mom, I'm just not in a cookies and milk kind of mood today.
	Description

This sample storyboard demonstrates how a written description and a line of dialogue can supplement the rough sketch of a scene in a movie or video production.

Æ APPLIED ENGINEERING"

GS-RAM & GS-RAM Plus These cards offer higher performance and greater expansion capabilities than Apple's card. Includes AE Cache, AppleWorks expansion, printer buffer, time display, graphic self diagnostics, DMA compatibility, and much more!



GS-RAM & GS-RAM Plus expand main memory on your IIGS

\$169

GS-RAM 256K

GS-NAW 230K \$109
GS-RAM 512K\$285
GS-RAM 1 MEG\$519
GS-RAM 1.5 MEG\$749
GS-RAM Plus 1 MEG\$544
GS-RAM Plus 2 MEG\$974
GS-RAM Plus 3-6 MEGCALL
RamKeeper Boot the IIGS System in 12 sec-
onds. Boot AppleWorksGS in 15. Store pro-
grams and data reliably. Battery back-up pro-
tection. Allows the use of two RAM expansion
cards in the GS' expansion slot\$149
Serial Pro™ Multi-function card for IIGS, Ile
& II+. Serial port and a ProDOS clock \$105
Parallel Pro™ Centronics compatible paral-
lel printer interface. IIGS, IIe, and II+ \$79
Buffer Pro™ Printer buffer option for the
Parallel Pro. Allows you to regain control of
the keyboard while your printer is working.
Buffer Pro with 32K buffer\$84
Buffer Pro with 128K buffer\$129
Buffer Pro with 256K buffer\$185
Phasor™ Simply the best text to speech
synthesizer for the IIGS, IIe, and II+ \$129
Heavy Duty Power Supply Replacement
for IIe or II+ with over twice the output of the
stock supply. Easy to install\$59
51/4" Half height disk drive. 100% com-
patible with <u>all</u> Apple software. Works with the
Ilgs, Ile, Ilc, & II+. Compatible with drive ports
or a Disk Drive Controller Card\$119



AE's 100% Apple compatible 51/4" Disk Drive

51/4" Disk Drive Controller Supports Disk
Il and compatible drives. Has connections for
two drives. For the IIGS, IIe, and II+\$52
RamFactor™ Slot 1-7 memory expansion
card. Expands AppleWorks on a IIGS, Ile & II+.
RamCharger battery back-up option allows
permanent storage & instant access to data.
RamFactor 256K\$229
RamFactor 512K\$349
RamFactor 1 MEG\$584
RamCharger Battery back-up\$139
DataLink™ 2400/1200/300 baud internal

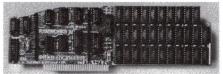
Texas, Hawaii and Alaska 1-214-484-5464

Computer Accessories

When Only the Best Will Do!

modem. Includes all hardware and software you need. Installs inside your IIgs, Ile, or II+. Powerful DataTerm™ software features VT-52 emulation, macros, time display, text file & X-Modem file transfers. Free subscriptions, free online time, and much more!..... \$189 DataLink 1200/300 baud modem.... \$139 Viewmaster 80™ Super resolution II+ 80 column card. Compatible with all 80 column software. Includes software patch enabling AppleWorks to run on a 64K II+..... \$124 Pocket Rocket™16K RAM Card Upgrade your II+ to 64K and run ProDOS \$85 RamWorks III If you have a Ile this card is perfect, and if you use AppleWorks it's an absolute must! Expands main memory up to 3 MEG. Don't settle for a partial compatible, get the real RamWorks III at the right price.

Hamworks II	/ 250K	\$194
	I 512K	
RamWorks II	I 1 MEG	\$544
RamWorks II	I 1.5 MEG	\$839



RamWorks III™increases your Ile memory. Install the RGB option for super sharp hi-res color graphics on the Ile

PamWorks PCP Ontions

Hamworks HGB Options
ColorLink™ For analog RGB and digital RGB
style monitors
Digital Prism™ For Apple Color 100 and dig-
ital style RGB monitors\$99
512K RamWorks Expander™ Expands
all RamWorks cards. Adds 512K\$309
2 MEG Plus RamWorks Expander™
Expands the RamWorks III, II, and basic.
2 Meg expander with 1 Meg\$565
2 Meg expander with 2 Meg\$995
256K RAMS Set of 8 (150ns)\$124
1 MEG RAMS Set of 8 \$429
1MEG MacRAMS SIMMs for expanding the
Mac Plus, SE, and II\$469 256K MacRAMS SIMMs for expanding the
256K MacRAMS SIMMs for expanding the
Mac Plus, SE, and II\$139
RamWorks™Original With 512K. Comes
complete with manuals and software \$285
Extended 80 Column card with 64K
Upgrade a IIe to 128K plus 80 column \$92
Timemaster II H.O.™Has the most fea-
tures and is easiest to use. Automatically recognized by ProDOS, AppleWorks time display,
adds 15 commands to BASIC\$85
Z80 Plus Runs all Apple CP/M software. Tur-
bo Pascal, Wordstar, dBase. Includes operat-
ing system and manuals. Ilgs, Ile, II+ \$119
PC Transporter™& Accessories Your
Apple IIgs, IIe, or II+ is now the most versatile
personal computer you can own. This card en-
ables you to run Apple and IBM (MS-DOS)
software on the same computer. Compatible
with Apple RGB monitors, printers, hard disks,
3.5 drives, modems, mouse. IN STOCK
768K (640K IBM)\$529

Ilgs Install Kit......\$40



AE PCTransporter, Kensington System Saver & Turbo Mouse, BSR Command, Sony KV1311CR, Joystick

Ile Install Kit.....\$34 SingleTransDrive.....\$209 PCTransporter OK Due to a special purchase, we have in stock a limited quantity. Accepts industry standard 20 pin ZIP, 64Kx4 DRAMS, 120 ns. Commonly used in many IBM clones and various IBM video cards. Product is factory direct and includes full warranty. Complete in all respects except RAM chips. Due to special low price all sales final.... \$149 RamExpress™ Memory expansion card for the IIc Plus and original IIc with the expansion connector. Installs inside your computer.

Ram Express	256K	\$194		
Ram Express	512K	\$309		
Ram Express	1 MEG	\$544		
Ram Express C	lock Option	\$49		
Z-Ram Ultra Compatible with the original IIc.				
Ultra 1	256K	\$194		
Memory only	512K	\$309		
Ultra 2		\$245		
Memory, Clock	512K	\$365		
•	1 MEG	\$599		
Ultra 3	256K	\$309		
Memory, Clock	512K	\$429		
Z-80	1 MEG	\$659		



TransWarp makes your IIe or II+ 3.6 times faster

TransWarp™ Have a large database, spread sheet, or a slow program? This card will run all calculations, searches, alphabetizing, etc...3.6 times faster. Ile and II+ ... \$169 Sonic Blaster AE's full featured stereo diaitizer for the IIGS. Records from your home stereo, CD Player, VCR, etc... Amplifies, and plays back in stereo. Get the most out of games and Music software.....\$109 Audio Animator Passport compatible MIDI device, stereo digitizer for the IIGS. Play and record melodies on a MIDI instrument, edit them and play them back through any MIDI device. External mixer allows easy access to volume, record level, and microphone control. Digitizer has built in amplifyer for unamplified speaker connection. Call for details..... \$189

Confused about what to order? Tired of trying to get advice from someone that knows less about Apple computers than a convenience store clerk? If so try calling our friendly Apple support staff at 214-484-5464. You'll get honest advice on what product is best in your application. After all with our 15 day money back guarantee it's just as important to us that you get the right product the first time.

1-800-327-7234
COD's UPS ONLY

Computer Accessories

When Only the Best Will Do!

More Quality Products.

Sony Ultra Hi-Res RGB Monitor/TV

Without a doubt, this monitor/TV is the best available for the IIGS, IIe, or PC Transporter, bar none! The 13" KV1311CR has the latest patented Sony Trinitron picture tube for superb text, graphics and TV. Just push a button and you have a super sharp, 180 channel, cable ready, remote control color TV. With our money back guarantee and \$200 off the list price, it can't be beat......\$529 Sony digital cable (\$29 sep.)......\$19 Sony analog cable (\$29 sep.)......\$19 CH Products Flightstick™ Flight simulator control stick with trigger......\$55 CH Products Mirage Adapter card allows the use of Mach II, III, or IV Plus as a joystick and a mouse on Apple II series or Macintosh. Please specify your computer type...... \$42 CH Products MACH IV™ Plus Joystick and mouse interface for IIGS, IIe, & II+..... \$69 CH Products MACH IIIM Joystick Features spring centering and free floating movement, Ilgs, Ile, Ilc, II+ (please specify)..... \$39 Kensington System Saver® Mounts on the side of a II+ or IIe. 2 surge protected outlets, fan, front mounted power switch..... \$69 Kensington System Saver® IIGS Cooling fan and 4 surge protected outlets. Front mounted power switches. Protect your expensive peripherals with a System Saver \$74 Turbo Mouse ADB Latest model. Track ball style replacement for Apple mouse. Plugs into ADB port on IIgs, Mac II, and SE...... \$119 Turbo Mouse Track ball style replacement for Apple's mouse. Requires Apple mouse card in the IIe and II+. Direct to Mac \$119 ThunderScan® The best selling scanner for the Mac now works with the Apple II systems. All you need is a IIGS, IIe, or IIc and a ImageWriter or ImageWriter II\$175

APPLEWORKS GS By Claris
IN STOCK NOW!.....\$229

Pinpoint™Accessories. 8 desktop accessories for AppleWorks, AppleWriter, or Wordperfect. Requires 128K enhanced Ile, Ilc, Ilgs, or Laser 128...... \$39 Pinpoint Spell Checker Why risk ruining your hard work or worse your reputation? This spelling checker features a 61,000 word dictionary and a unlimited capacity personal dictionary. Requires PinPoint accessories.. \$39 PinPoint Point-to-Point Supports most Hayes "AT' compatible modems. 300, 1200, 2400, 4800, or direct connect 9600 baud rates. Auto answer, auto dial, text editing, print formatting, online file handling, pulse or tone dialing, XMODEM transfers, and on line time display. IIgs, 128K IIe, or IIc...... \$78 Super MacroWorks AppleWorks 2.0 macro power! Turn any series of keystrokes into one. Requires a IIGS, IIc, or IIe...... \$29 TimeOut™ Series 2.0 or 2.1 AppleWorks enhancements. IIGS, 128K IIe, or IIc required. T.O. UltraMacros™ Memorizes any se-

We shoot down high prices !!!



quence of keystrokes and plays them back at the touch of a key. Adds mouse control plus a paint and graphics importing program..... \$40 T.O. MacroTools Macro Debugger, Task launcher, Menu maker, Token chart, File stats, and many more macros......\$19 MacroTools II Includes Publisher, File lister, Macro lock and tons of new macros... \$19 T.O. QuickSpell™ Check your spelling while inside AppleWorks. If you don't know the correct spelling QuickSpell will suggest it for you. Comes with Random House 80,000 word dictionary that can be copied to a RAM disk or hard disk for increased speed. Unlimited words in your custom dictionary...... \$49 T.O. Thesaurus Quickly and easily find the best words for just the right meaning in your AppleWorks documents. Has 50,000 synonyms for 5,000 root words that can be transferred to RAM quickest operation...... \$35 T.O. Graph Make professional quality graphs from your spreadsheet files...... \$69 T.O. SuperFonts™ Now you can get Macintosh™ quality printout from the AppleWorks wordprocessor. You can print in a wide variety of fonts and sizes. From 6 point to 127 point. Also allows you to easily import graphics into your documents. IIGS, 128K IIe, or IIc \$49 T.O. SideSpread™ Print your wide spreadsheets from inside AppleWorks......\$35 T.O. SpreadTools Designed especially for spreadsheets. Includes Analyzer which scans for errors, Block copy, Cell link, Data converter, Formula to value converter, Quick columns, and Row to column converter \$40 T.O. FileMaster™ Allows you to perform file and disk operations fast. Lets you copy, compare, rename, delete, lock and unlock files. Copy, rename, erase and format disks. Copies 5.25 and 3.5 disks in one pass..... \$39 T.O. DeskTools™ Includes a Calendar. Calculator, Case converter, Clipboard converter, Clock, Phone dialer, Envelope addresser, file encrypter, Notepad, Page previewer, Puzzle, and Wordcounter......\$35 T.O. DeskTools II™ Instantly finds area codes for over 500 U.S. and Canadian cities, multi-function engineering and financial calculator, Clipboard Viewer, Directree, Disk tester, File Search, Printer manager, Screen Out, Screen printer, and a StopWatch......\$35 T.O. Powerpack Triple desktop allows you to have up to 36 files on desktop instead of just 12 at a time. Put files in any order you like, search and sort on file attributes, AWK to TXT file converter, Help Screens allows you to custom design help screens, search databases

by catagory, much more......\$35 VIP Professional™ IIGS Modeled after Lotus 1-2-3. Combines a spreadsheet for number crunching, and hi-res graphics for professional quality graphs. It can even run Lotus files. Mac style interface with pull down menus. 512K llgs required...... \$139 VIP Professional™ Same features as GS version . 256K Ile, Ilc, 2 drives...........\$109 WordPerfect®ligs Wordperfect comes to the gs with dozens of features that have made its PC version best seller worldwide. 115,000 word spell checker. 10.000 word thesaurus. pull down menus, 512K required......\$104 WordPerfect®lle & Ilc Powerful yet easy to use. Built in 50,000 word spell checker with word count . 128K Ile, Ilc , or Laser 128. \$104 SideWays™Print all columns of your spreadsheet. Create presentation quality printouts without staples, or tape. Ile, Ilc, II+...... \$46 Deluxe Paint II™ Awarded "Best graphics Software" and "Best Creativity Software" 768KGS, 3.5 drive, Mouse, RGB Monitor., \$74 Managing Your Money 3.0™Complete checkbook and budget program, tax planning, tracks net worth, evaluates life insurance, analyze investments, tallies gains and losses, suggest tax strategies, prints schedule D, calculates rates of return and much more 128K Ile, Ilc, Ilgs, two 5.25 drives or one 3.5.... \$98 Chuck Yeager's Advanced Flight Trainer™14 aircraft simulations. Dynamic instrumentation with working gauges...... \$34 F-15 Strike Eagle™ Get ready for challenging, modern jet fighter combat over Asia, Europe, and the middle east. Requires joystick, II+, IIe, IIc, IIgs.......\$27 (10) 51/4 DS/DD disk with sleeve..... \$8 31/2 DS/DD disk...... \$15

Why Buy From Us?

- 1.Toll free 800 number for orders
- 2. We almost always ship from OUR stock. Call us before 3 P.M. and it ships today. 3. Memory cards have <u>all</u> factory installed and
- tested RAM chips.
- 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 of the products we sell. 6. 15 day money back satisfaction guarantee on all 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
- 10. All shipments insured buy us.
- 11. Satisfied Customers. "I am truly impressed with your company! I 'm astounded at the speed with which I received my order. I know where to go next time I mail order computer equipment!" Timothy A. Griffin
- "I would like to compliment you on your good technical support. With service like this, when I add more features to my computer in the future, Preferred Computing will be high on my list" Daniel Riley



COVER STORY BY ROBERTA SCHWARTZ AND MICHAEL CALLERY

YABBA DABBA II

Animation on your Apple computer is easier than you probably think it is.

If you have a bit of time (well, more than a bit) and you'd like to do something wonderful with your Apple computer, try creating an animation.

Why animation? Think back to the time when you saw your first cartoon and remember your delight in seeing drawn characters come to life and move about the screen. Animation allows fantastic things to happen, things that cannot happen in real life. You can make an elephant fly, a cat sing, or a flower grow before your eyes.

Animation is the illusion of movement—still frames appear so rapidly that your eyes and brain blend the images so they appear to move. We hesitate to recommend that you try spur-of-the-moment animating with traditional media, but we feel confident that you can successfully create animations with your Apple II. Your computer will not give you the ideas and concepts—or even great artistic skill—but, with patience and a marvelous array of software tools to aid you, you can become an animator.

Cel Animation

Traditional Disney-type animation such as that in Who Framed Roger Rabbit? and Oliver and Company is called cel animation and is the type of animation closest to what most Apple II games use.

In cel animation, each frame of film or video comprises layers of transparent sheets such as acetate. One layer might contain the background sky, another might contain

some trees, yet another might contain a rabbit, and so on. Each layer is a cel. The cels are stacked, and a camera shoots through them to produce a frame. When an object in the frame is to move, only the cel containing the moving object needs changing. The new cel, showing the object in its next position, replaces the first cel that contained the object, and the camera shoots another frame. The finished animation is a series of frames. The longer and/or more complex the animation, the more frames go into it. A short animated film can consist of thousands of frames.

Because of the speed limitations of the Apple II and the amount of memory necessary for a full-screen image (8, 16, or 32K, respectively,





for standard, double, and super hires), full-frame animation is difficult. You can't show enough frames to achieve smooth movement. Instead of putting up entirely new frames, then, most Apple II animation uses blocks of pixels. A block contains the character or object that is being animated and is analogous to a cel. The computational abilities of the computer let you place the block on the screen without erasing the background scene. This type of animation is embodied in programs such as Take One and The Graphics Magician (hi-res), Animate (double hires), and The Art and Film Director (super hi-res).

Doing Cel-Type Animation

The terminology of Apple II animation isn't exactly standardized, so we'll start by defining some basic terms. We'll call the object that is moving (e.g., a dog) the actor, and each drawn movement of the actor (leg up, leg down) the cel. The series of cels that conveys movement (the dog's walking) is the action. The parts of the scene that



don't change (sky, trees, and so on) we'll call the background. (If the tree were to sway in the wind, it would be an actor). The whole screen image (the cels against the background) at any given point in the animation is a frame. A scene is an action with one background and as many actors as necessary. Of the animation packages we've mentioned, Take One, Animate, and The Art and Film Director allow multiple-scene animation.

Start by drawing your actors and cels. Take One, Animate, and The Art and Film Director all offer

painting modules, but you can also use any compatible paint program to create images. The most common method of drawing cels is to use a key-image approach. Break the desired movement into several key images, usually extremes (see figure 1). For example, for a running character, you want to draw the starting image (the first cel), the ending image (the last cel), and usually at least one image in between. Use the paint program's copy-and-paste capabilities to ensure that the images match each other. The number of in-between cels affects both the detail of the animation and the speed with which it moves. The more cels, the greater the detail and the slower the animation. Most animation programs let you manipulate your cels in various ways. If, for example, you created a series of cels to show a person running to the right and then decided to have the character run to the left, you wouldn't have to redraw your cels. A flip command would do it for you.

Next, use your program's back-

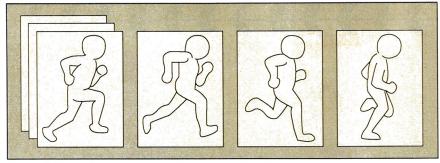


Figure 1: Four cels from an animation of a running figure

ground editor to create your background. Pay special attention to the areas of your background where your actors will move. Animation on a complex background is possible, but you'll have the greatest success with simple backgrounds, especially in your early animations. Start by working on a black screen with a horizon line. As you learn the capabilities of your animation program, you can make your backgrounds more complex.

Next, you must sequence your cels to create the action. Each program has a different method, but all involve drawing a rectangle around the actor and capturing the interior of the rectangle as a cel. Be especially careful in this step to be sure your cels register correctly, or you will introduce unwanted vertical or horizontal movement. Take One is the only program that lets you automatically register cels—a particularly helpful feature.

Finally, using the scene-making component of your animation program, place the actors on the background, along with their path. Whenever you have multiple actors and actions, complete the animation of each actor in turn. The speed of an animation depends on how many pixels an actor traverses between frames. To avoid color conflicts, the minimum move for hi-res animation is two pixels.

Vector Animation

Another type of animation, called vector animation, operates on an entirely different principle. Rather than working with rectangular blocks of pixels, vector animation works with lines. Most 3-D animations, such as flight simulators, involve vector graphics. Vector animation is available to Apple II users with Applesoft shapes and, more easily, in Fantavision—available in standard-hi-res and superhi-res versions—and The Art and Film Director.

Rather than thinking in terms of cels with a vector program, you should think of objects. The animation program computes a bit map so that you can see on the screen what is happening to your objects, but internally it is working with lines. Take a square, for example, with its four lines (see figure 2). To rotate the square, you need only specify where the endpoints of the line will be after the rotation—the computer computes the lines' placement.

Fantavision limits the number of lines an object can contain, so design your animations accordingly. A large circle, for example, is not smooth, because the individual line segments that comprise it may be long enough to see, perhaps making it look more like a dodecagon than a circle.

By carefully designing your figures, you can take advantage of Fantavision's ability to generate inbetween frames automatically (called tweening or inbetweening). In our rotating-square example, the program knows the distance between point A in frame 1 and point A in frame 2. It's a simple matter for the computer to divide that distance by half to generate an in-between frame. Similarly, you can have it divide the distance into thirds to generate two in-between frames and so on (see figure 3). The more in-between frames, the slower the animation. To speed up your animation, you can "drop" a stationary object onto the background. That is, the program stops calculating new endpoints for the object, but the object's bit map stays on the screen. When it's time for the object to come to life again, you can reactivate it.

As with cel animation, we recommend that you create the full animation of one object, roll back the "film" to add the next actor, and so on. Fantavision accommodates bit-mapped backgrounds, which you can create with any compatible paint program.

The type of animation you choose, cel or vector, depends on the effect you want to achieve. Celtype animation can be detailed and realistic, whereas vector graphics are more suitable for simple animations and abstract effects (see examples on the first two pages of this article). Simple as they may be, some of the demonstration animations on the Fantavision disk are most impressive. Fantavision is wonderful for learning the basic concepts of animation, since the nature of vector animation forces you to use a minimum of detail. As in oriental art (Sumi-e) and poetry (the haiku), less can be more.

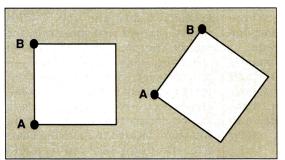


Figure 2: With a vector program, to rotate the square, you need specify only where the end points of the line will be after the rotation.

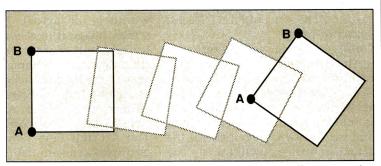


Figure 3: Using "tweening," the computer can automatically generate inbetween frames. Fantavision and The Art and Film Director provide tweening capabilities.

Getting Serious

So, what will you animate? If you're a teacher, you might want to have your class work on animated projects. How better to illustrate a scientific principle such as photosynthesis? If you're a businessperson, you can enhance your presentations with animated business graphics. Is business soaring? Make those bars rise for everyone to see. Create animated greeting cards or animated titles for your homemade videos. Use a digitizer and delight friends and relatives by animating their digitized images and inserting the animation into different parts of a video in which they appear. (For more information on moving your Apple II graphics to videotape, see our February 1988 "Speaking of Graphics" column.)



We suggest you learn the basic concepts of animation by going through the tutorials that come with the animation program you'll be using. Load in sample animations and analyze them. Then make some changes in them. Get comfortable with the software be-

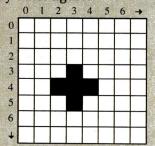
fore you try your own projects. Once confident, try some simple animations. Make a box move across the screen; then make that same box bounce up and down as it moves across the screen. Success? Now, you're ready for a challenge.

The true test of an animator is effectively animating a bouncing ball. A ball, in action, demonstrates almost every aspect of animation. It can be invested with weight, three-dimensionality, and personality and shows what many feel is the most important concept in animation: squash-and-stretch.

If you throw a sandbag into the air, it will stretch in the direction of the movement. When it hits the ground, its movement will stop, and it will squash. Squash-and-stretch gives an object the illusion of weight. Let's apply this princi-

JUST THE BASICS

The Applesoft BASIC code in fig- | ure 4 animates low-res plot drawings. It draws a figure, erases it (draws it again but in the background color), and then redraws it in another position. The positions change as X increments from 3 to 30, giving the illusion of movement as the figure is drawn and erased at each loop of the program. It's really quite easy. In fact, it's a great program to use with kids. This example uses a simple cross, but you can use the program to animate robots, butterflies, airplanes, or any other figures.



Draw a character on graph paper, in approximately the same place on the paper that you want it to appear on-screen. Choose a key plot position—the center of the drawing is probably easiest—and write down its X,Y coordinates. The program calculates all other plot positions by adding or sub-

tracting from the key plot X,Y. For instance, when the cross center is at 3,4 (where X=3 and Y=4) and the top of the cross is at 3,3 (where X=3 and Y=3), the key plot is at X,Y, and the top of the cross is at X,Y-1.

When the program animates your character, its plot coordinates change. As the program plots the character's shape, using variables such as X,Y-1, the character maintains its shape as it moves because all the plot points remain proportionally together. So the cross in the listing below continues to look like a cross as its center moves from X=3 to X=30.

Once you have calculated the X's and Y's for your character, enter

them into this program shell, replacing the cross shape in lines 140–180.

Lines 110 and 120 determine the path the character takes, and line 190 dictates the speed at which it moves. (Increasing the amount of T slows the character down; decreasing T speeds it up.) The cross moves horizontally across the top (4 pixels down) of the screen, starting at 3 pixels and stopping at 30 pixels from the left edge of the screen. You can create more complex algorithms (using sine or cosine equations, for instance) in place of the horizontal movement here to move your character along waves, spirals, or curlicues.

Leslie Wilson

```
100 GR : REM ENTER GRAPHICS MODE
```

Figure 4: Applesoft BASIC code for animating low-res plot drawings

¹¹⁰ LET Y = 4 : REM VERTICAL PLACEMENT

¹²⁰ FOR X = 3 TO 30 : REM HORIZONTAL RANGE

¹³⁰ COLOR= 1 : REM CAN BE 1-15 IN LOW-RES

¹⁴⁰ PLOT X,Y: REM KEY PLOT, CENTER OF CROSS

¹⁵⁰ PLOT X,Y - 1 : REM TOP ARM

¹⁶⁰ PLOT X, Y + 1 : REM BOTTOM ARM

¹⁷⁰ PLOT X + 1,Y : REM RIGHT ARM

¹⁸⁰ PLOT X - 1,Y : REM LEFT ARM

¹⁹⁰ FOR T = 1 TO 25 : NEXT T : REM CHARACTER SPEED

²⁰⁰ IF PEEK (48) / 17 = 1 THEN COLOR= 0 : GOTO 140

²¹⁰ NEXT X

DISCRETERATOR THE MULTI-KACHE CARD

Does most of your computing consist of "hurry up and wait" data processing? The gap between processor speed and data I/O speed has grown alarmingly wide. Speed is critical and nothing can be more irritating than waiting for your disk drives to play catch up. Ohio Kache Systems has eliminated this problem with the Multi-Kache Card. Your computer is capable of working at higher speed if only it could receive information quicker...faster processors won't help if there's no data to process. OKS Multi-Kache is a complete disk management system...superior to anything on the market today. The Multi-Kache Card guarantees that your system will show dramatic speed improvements or your money back! You must be satisfied! • The Multi-Kache Card is up to 40 times faster than other controller cards.

- Multi-Kache Card runs at 8MHz.
- The Multi-Kache Card is transparent in operation.
- Multi-Kache can daisy-chain drives.
- Multi-Kache controls both 3.5 and 5.25 drives.
- The Multi-Kache Card will extend the life of your drives.
- Multi-Kache comes standard with 256K of cache memory.
- Multi-Kache can be upgraded to 1 meg of cache memory.
- The Multi-Kache Card is compatible with Apple II+, IIe and IIGS.



Ohio Kache Systems Corp. 4162 Little York Road, Suite E Dayton, Ohio 45414-2566 513-890-3913

Multi-Kache Card is a registered trademark of Ohio Kache Systems Corp. Apple I/+, I/e and I/GS are registered trademarks of Apple Computers, Inc.

For more information call us toll free at

1-800-338-0050

or write for our free brochure.

SPECIAL INTRODUCTORY OFFER 30 Day Money Back Guarantee

☐ 256K version — \$274.95 (recommended for the <i>IIe.</i>) ☐ 1 Meg version — \$549.95 (recommended for the <i>II</i> GS.) ☐ Free brochure on the Multi-Kache card.		Mail to: Ohio Kache Systems Corp. 4162 Little York Road, Suite E Dayton, Ohio 45414-2566			
Ohio orders add 6% sales tax.		Allo	w 6-8 week	s Delivery	
Add \$5.00 per order for shipping and handling.	Enclosed \$	Check	VISA_	MC	
Card #	Ex	xpiration Date			
Name	PI	hone #			
Address	City	State		Zip	
Company Name	Business P	hone #			



ple to a bouncing ball: As the ball falls through the air, it stretches downward, becoming more oval. When it hits the ground, it squashes into a flat oval before bouncing upward and stretching out again. At the peak of its bounce, the ball resumes its round shape before falling and going into a downward stretch again.

Squash-and-stretch gives movement and life to animation. By varying the volume of the squash and stretch and the timing of the action, you can create a wide range of effects. Can you simulate a squishy, gelatinous ball landing on a hard surface? A ball bearing ricocheting off the floor? A soccer ball bouncing on grass?

Try a few variations on the bouncing ball. Then try applying the same principles to a character jumping up and down. Fantavision is an excellent program to use for this exercise, since you can draw a simple stick figure and concentrate on its motion without being distracted by the detailed features of a fully drawn figure.

Once you've successfully animated some objects and figures, you're ready to try a short animated film.

Begin at the Beginning

The creation of an animated film, no matter how short, begins well before you turn on your computer. What will you animate? Begin with a script (see "Stories and Storyboards" in this issue).

If you're planning a character animation, you face many decisions about your main characters, the heroes of your story. What do you want them to do? Start by defining the characters; write a complete description. No detail is too small. Are your heroes humans or animals? Are they cute, clumsy,

flirtatious...? What do they wear? How do they walk? What do they do when happy? Sad? What do they eat for breakfast? These questions may seem farfetched, but the more you know about your characters, the more you'll be able to effectively portray them.

Remember that you can't use dialogue, and the resolution of your computer won't allow for fine detail in the drawing of your characters, so you'll want to give your heroes some distinctive features (big nose, long arms) and exaggerated gestures.

After you've written out all the details, turn your words into pictures. Sketch one of your characters. Draw him standing, sitting, walking, and running. Try different clothing. Concentrate on a few definitive graphic features. Will he wear a baseball cap? a T-shirt? Is he bowlegged? Bald? Next, sketch out your character's actions. How do people look when they sneeze? You have a model available at all times: yourself. Study yourself in the mirror. Remember, eschew subtle gestures. All movements must be big. The key word here is exaggeration.

The last thing you have to do before starting your animation is create a storyboard: Visualize the entire animation in comic-strip form, showing camera shots, transitions, titles, and credits.

Camera Shots

What will viewers see as they watch your animation? Will they see the entire main character or just a face? Your animation can use a combination of "camera shots," depending on the mood or message you're trying to convey.

A long shot establishes a scene. In most cases, a specific character is not recognizable in this view. It creates mood and leads viewers in. A long shot can also effectively end scenes, moving viewers away.

The mid shot contains the character and immediate background. It's equivalent to a stage setting in a theater.

The two shot shows the head and shoulders of two people as they interact with each other, as when talking. The animation, then, concentrates on the faces.

The closeup is dramatic and should be used sparingly. It pinpoints action, making viewers



\$119 82 29

36

39

\$108

\$ 34 \$ 8

\$209

\$109

\$109

\$179

New Low Prices!

CDA Makes Apple. Affordable — Compare and Save!

Apple IIGS 512K Color System

System includes:

- Apple IIGS 256K CPU w/Mouse & Pad
- Apple Color RGB Analog Monitor
- Apple 3.5 Disk Drive
- Apple 5.25 Disk Drive
- Apple ImageWriter II 220 cps Printer

- ImageWriter II Cable
 Apple Memory Card with 256K
 Color Rainbow Ribbon for Printer
- 3.5" Diskettes (Box of 10)
- 5.25" Diskettes (Box of 10)
- Dust Covers for IIGS & ImageWriter II

Pkg. of Paper-500 Sheets
 Sugg. List \$3257 CDA \$2499

Specify package #X8817

ImageWriter® II Color Printer Pkg.

Package includes:

- ImageWriter II Color Printer
- ImageWriter II Black Ribbon
- ImageWriter II Rainbow Color Ribbon

Printer Dust Cover
Pkg. of Paper - 500 sheets
For IIe - CDA Price \$ 595 For IIc/IIGS

Save Over \$200

Applied GS-RAM 1 Meg Applied GS-RAM 1.5 GS-RAM Plus 1 Meg

GS-RAM Plus 2 Meg

Ramworks III 256K

Ramworks III 512K

Ramworks III 1 Meg

RamFactor 256K RamFactor 512K

RamFactor 1 Meg

RamCharger Backup

Ram Express 256K

RamExpress 512K

RamKeeper Slot Mover GelCell for RamKeeper

RamKeeper

For the IIe pkg # X8711 (IIe Pkg. includes Fingerprint Plus Printer Interface & cable) For the IIc pkg #X8712 For the IIGs pkg # X8713

Complete Ready-to-Run Systems

Panasonic Printer Package

Package includes:

- Panasonic KXP-1080i w/Ribbon
 Table-top Printer Stand
- Package of Paper 500 sheets
- Dust Cover

Sugg. List \$465 CDA \$295

Save \$170 For IIc/IIGS - pkg #X8909 (Incl. Grappler C/Mac/GS) For IIe - pkg. #8919 (Incl. ProGrappler Interface)

Call for our low prices on thousands of popular software titles.

Apple Computers Apple IIGS 256K \$899 Apple IIGS 512K \$ 949 Apple IIe 128K \$ 649 Apple IIc Plus \$ 549 **Monitors** Apple Color RGB \$ 479 Apple Color Monitor IIe \$ 329 Apple Color Monitor IIc \$ 329 Apple Monochrome \$ 135 Sony 1311 Monitor/TV Magnavox RGB /Comp \$ 549 \$ 280 Floppy & Hard Drives Apple 3.5 Disk Drive Apple 3.5 Unidisk IIe/c Applied 5.25 Disk Drive \$ 349 \$ 319 \$ 118 Unidisk 3.5 Controller 59 Apple 5.25 Disk Drive \$ 259 Apple 5.25 Uni Controller \$ 59 Laser 3.5 Drive \$ 189 \$ Laser 3.5 Controller 76 Laser 5.25 Drive \$ 89 \$ 109 Mitac IIe Drive \$ Mitac IIc Drive 109 Chinook CT-20 Meg. Chinook CT-30 Meg. Chinook CT-40 Meg. \$ 635 \$ 735 \$835 CMS 20 Meg w/SCSI CMS 30 Meg w/SCSI \$ 625 \$ 690 CMS 43 Meg w/SCSI CMS 60 Meg w/SCSI \$ 786 \$850 **Printers** Imagewriter II w/Cable \$ 499 \$ 209 Epson LX-800 Epson LQ-500(24Wire) \$ 379 Panasonic KXP-1080i Panasonic KXP-1091i \$ 179 \$ 209 **Printer Interface Cards** Apple Super Serial \$ 109 Applied Serial Pro \$ 109 Applied Parallel Pro 79 Orange Grappler C/Mac/GS \$ Orange ProGrappler \$ SMT Printech II \$ 79 82 36 Thirdware Fingerprint \$ 85 GSI Plus **Memory Boards & Upgrades**

RamExpress 1 Meg Clock Option Checkmate Memory \$ 119 Orange RamPak 512K 99 **Memory Upgrades** Upgrade your IIGS, IIe, or IIc memory card. Most cards take the 150ns chips, while recent revisions of the GS-RAM use 120ns chips. 256K Chip Set - 150ns 256K Chip Set - 120ns 99 \$ 109 **Modems** Applied Datalink 1200 \$ 135 Applied Datalink 2400 \$ 175 Epic 2400 Internal \$ 155 Practical 1200 SA Mini 85 Practical 2400 SA \$ 185 Prometheus 1200A Prometheus 2400A \$ 129 \$ 159 IIGS/IIc Modem Cable PC Transporter \$ 19 PC Transporter 768K IIGS Installation Kit \$ 549 \$ 45 \$ 39 Ile Installation Kit \$ 219 Single 360K Drive Dual 360K Drive \$ 329 Time & Speed Transwarp Accelerator \$ 175 Transwarp GS Call Timemaster II HO 77 SMT No Slot Clock Sound & Music \$ 39 We sell pure Applied Engineering products — no upgraded, untested memory. Complete with AE's exclusive 5 year warranty. Apple MIDI Interface 79 Applied Sonic Blaster Applied Audio Animator Applied Phasor \$ 99 \$ 179 \$ 132 Apple 256K Memory Card Bose Roomate II Applied Ingenuity Extended 80 Column w/64K IIe \$ \$ 229 Speaker System 49 MDIdeas Supersonic \$ 48 Applied GS-RAM ØK MDIdeas Digitizer 48 85 Applied GS-RAM 256K Applied GS-RAM 512K \$ 135 \$ 169 Digitizer Professional 285

\$ 519 \$ 749 \$ 535 \$ 949 \$ 132 \$ 22 \$ 189 \$ 305 \$ 529 \$ 349 \$ 575 \$ 145 \$ 189 \$ 305 \$ 535 \$ 199 \$ 119 \$ 199	Passport Midi Interface w/Drum Sync Passport Midi Interface w/Tape & Drum sync Power & Surge Protection Applied Heavy Duty Power Supply IIe EPD EC-I 6 Outlet Surge Protector Kensington System Saver IIe Kensington System Saver IIGS MDIdeas Conserver 5.25 Conserver Adapter Tripplite UPS Battery Backup 350 Watt Input Devices & Joysticks Alturas Maxx Flight Yoke Apple IIc Mouse	\$ \$ \$ \$ \$	99 139 59 29 68 77 99 14 399	Apple IIe Mouse Apple IIGS Mouse CH Mach II Joystick CH Mach III Joystick CH Mirage ADB CH Flight Stick Epyx 500XJ Joystick Kensington New ADB Turbo Mouse Kraft 3 Button Joystick Mouse Pad Digitizers & Scanne Computer Eyes IIGS Computer Eyes IIC Computer Eyes IIE Thunderscan 4.0 Software Features Double Eagle Tax Adv. Howardsoft Tax Preparer Softview Taxview Softview Taxview Planner Timeworks SwiftTax	\$2 \$1 \$1 \$1 \$1 \$1 \$1	8: 2: 3: 4: 2: 10: 3: 10: 10: 10: 10: 10: 10: 10: 10: 10: 10
---	--	----------------	--	---	---	--

99	Software Features		
	Double Eagle Tax Adv.		39
	Howardsoft Tax Preparer	\$1	65
79	Softview Taxview	\$	89
79 79	Softview Taxview Planner	\$	69
19	Timeworks SwiftTax	\$	39

Write for CDA's Free Catalog A complete line of Hardware, Software and Accessories

30-Day Customer Satisfaction Period
At CDA our goal is customer satisfaction. If you're not 100% satisfied simply return the purchased goods within 30 days of receipt for a quick, courteous refund (software, media, internal components and freight charges excluded).

Service and Support

CDA offers a full 90 day warranty. After the 30-day satisfaction period we offer free repair services for an additional 60 days. We provide trained service technicians and a speedy turn around time for your convenience. We welcome you to continue your service and maintenence with us in our excellent in-house service center. Our friendly tech suport team will be happy to help you Mon-Fri..9am-4pm EST. at [201] 832-5004

Shipping Information and Policies
Shipping Charges - UPS Ground Shipping, add 3% (\$3.50 min);
UPS Blue 2-day service and Alaska, Hawaii, PR, add 6% (\$6.50 min);
APO/FPO Shipping, add 8% (\$8.50 min). Foreign Orders - ship via
DHL. Please call or fax for rates and more info. Payment - Visa, MC,
Amex. Discover. Optima welcome. Amex add 2% of order. Cashier
checks and money orders ship promptly; personal checks are held 10
days for clearing. No COD's please.

Leasing now available to qualified businesses.

All Prices Subject to Change. Apple, IIGS, & ImageWriter are registered trademarks and UniDisk is a trademark of Apple Computer Inc.



CDA Computer Sales 1 CDA Plaza Rt 513 Califon, NJ 07830 Hours: Mon-Fri 9am-10pm, Sat. 9am-5pm EST Customer Service (201) 832-9007 Fax# (201) 832-9740 Compuserve's Electronic Mall- GO CDA

omputer sales

US/Canada 800-526-5313 NJ/Outside US 201-832-9004 aware of something they may not have been looking at.

Transitions

Your animation comprises a series of scenes. A transition shows the end of one scene and the beginning of another—like punctuation in writing. Some common transitions are the fade, the mix, the wipe, and the cut. In a fade, the image seems to fade off the screen. A whole statement has been made, and there is a feeling of resolution. A mix, also referred to as a dissolve,

fades from one scene into another. A wipe wipes off the old scene and replaces it with a new one. As the old frame wipes off to the left, the new one wipes on from the right. A wipe gives the sense that things are happening concurrently, whereas a cut is an abrupt way of going from one image to another. Some animation programs provide a variety of wipes.

Finally, you can add music and sound effects to your animation. Since the Apple IIe and IIc can do

ANIMATORS' TECHNIQUES

As you get more involved, you may want to consider some of these tips.

1. Cartoon characters generally have large heads, hands, and eyes, because these features convey the most information.

2. The cardinal rule is: Keep it simple. There should never be a dot, line, or movement that is not working for you. Start with the simplest shapes possible.

3. Some images cannot always be simplified and still remain meaningful. To deal with them, try abstracting the working part. For example, show a heart, demonstrate its working as a pump, and then put the heart back into the context of the body.

4. Allowing the character and your audience to anticipate an action is one of the keys to successful animation. Let your audience know what's about to happen—it heightens the impact. A character about to run, for example, might take a step backward, leaning his body in the opposite direction. When characters are about to swing at someone, have their arm revolve like a spinning wheel before they complete the action.

5. The more drawings you insert, the slower the apparent movement of an object. To speed up action, you must space out the drawings. Using the example of a bouncing ball, if you want the action at the beginning of the bounce to be slower than the action at the end of the bounce, use four overlapping drawings to take the ball from the ground to its highest point and only two spaced-out drawings on

its downward path. The ball will seem to travel up slowly but come down quickly.

6. Maintain a balance between active and passive scenes. Avoid regular, metronomic timing unless your character is a robot.

7. Add some secondary actions. Secondary actions support the main action and should occur before or after the movement, not during it. Before punching an enemy, will your character stop to take off his glasses or turn to look at the audience? Will a vase fall off the table as the dog rushes past? Followthrough is part of secondary action. Some examples of follow-through are the swing of hair as a character turns her head or the whirling of a cloak as the wearer turns and walks away.

8. Establish scale by showing your audience something to which they can relate.

9. Create movement by having your character walk across the screen or by having your character stand still while the background scrolls by. A plane, for example, appears to be moving if clouds move across the sky.

10. For animating animals or people, study Edward Muybridge's stop-action photographs. You, as the animator, can make a horse gallop by drawing its legs in any position that will animate as a gallop, but real horses move their legs in a definite way. Since Muybridge's photos are in the public domain, if you have a digitizer, such as a ThunderScan, you can scan them in and alter them if you like.



Sound
Motion...
Desktop
Multimedia!

Color by SLIDE SHOP Graphics by SLIDE SHOP & YOU Music by SLIDE SHOP Fades & Dissolves by SLIDE SHOP Type by SLIDE SHOP Self-Running Disk by SLIDE SHOP CREATIVE IDEAS BY YOU!

CIRCLE 344 ON READER SERVICE CARD **SCHOLASTIC**

SLIDE SHOP

Incredible Value at Only \$69.95!

To order, call toll-free 1-800-541-5513
In Missouri call 1-800-392-2179
Or an Authorized Scholastic Dealer
SCHOLASTIC SOFTWARE

2931 E. McCarty Street



P.O. Box 7502, Jefferson City, MO 65102 Available for APPLE Ile/c/GS and MS-DOS. SCHOLASTIC SLIDE SHOP is a trademark of Scholastic Inc. Software copyright © 1988 by George Brackett.

■SCHOLASTIC

The only computer that raduates with the student. The Apple Ile[™] and IBM[®] compatible WPC Bridge.[™]



Most schools begin using computers with simple, visual Apple® software.

Which leaves a gap between the technology used in schools, particularly primary grades, and the IBM MS-DOS® technology most commonly used in the upper grades and in the workplace.

Cordata's WPC Bridge, now available as an all-new color model, bridges that gap by running both Apple and IBM programs.

So with the WPC Bridge, students can master Apple IIe programs and graduate to IBM MS-DOS quickly and easily.

The WPC Bridge is also a powerful IBM PC/XT® compatible able to run MS-DOS programs at 4.77, 8 and 10 MHz turbo speed.

Consider these features: a keyboard selectable 3-speed turbo 8088-1 compatible processor; 640K memory, floppy drive controller, real time clock calendar and 5 video

modes built onto the system board; serial and parallel ports; 3 PC/XT expansion slots; MS-DOS 3.3; a detachable IBM® PC/AT® style keyboard; and a oneyear warranty.

Not only is the WPC Bridge unique, it's easy to set up, easy to run and gives you outstanding quality and value.

The WPC Bridge from Cordata is the only computer smart enough to graduate.

Call us today for the dealer nearest you and ask about our new color model. AWPC Bridge monochrome model is also available. Make sure your students get the Cordata advantage.

For more information call 1-800-233-3602 or, in California, 1-800-524-2671.



WPC Bridge is a trademark of Cordata Technologies, Inc. Ápple is a registered trademark and Apple IIe is a trademark of Apple Computer, Inc. IBM, PC/XT, PC/AT are registered trademarks of International Business Machines Corporation. MS-DOS is a registered trademark of Microsoft Corporation.

1055 W. Victoria St., Compton, CA 90220

only one thing at a time, your actors must be still when a sound is playing. With simple sound effects, this restriction is no problem: The character takes a step, you hear a thump, the character takes another step, another thump, and so on. Using music effectively is difficult in IIe/c animation, but with care you can do it. The situation on the IIGS is better. The Ensoniq sound chip, which works independently of the CPU, can play music while the CPU is animating. You need pause only while the sound data

loads into the Ensonig memory.

If the foregoing seems too complicated, don't despair. Once you get started, you'll find the ideas starting to flow—before long, you'll be sitting at your Apple creating your first animated film. The first time you see your character stroll across the screen, you'll know that it was worth the effort. It's magic.

Roberta Schwartz and Michael Callery are A+'s graphics editors.

V I T A L STATISTICS

BIBLIOGRAPHY

Blair, Preston. Animated Cartoons for the Beginner, How to Animate Film Cartoons, and Animation. Tustin, CA: Walter T. Foster Art Books. A series of inexpensive, large, full-color how-to books lavishly illustrated with animated cartoons of animals and people.

Hayward, Stan. Scriptwriting for Animation. New York: Focal Press Book, Hastings House, 1977. Full of practical information on how to create animated films.

Laybourne, Kit. The Animation Book. New York: Crown, 1979. Good overview of a variety of animation techniques.

Muybridge, Edward. The Human Figure in Motion, Animals in Motion. New York: Dover Publications, 1955.

The pictorial reference on how people and animals move.

Thomas, Frank and Ollie Johnston. Disney Animation: The Illusion of Life. New York: Abbeville Press, 1985.

The ultimate book on animation. More theoretical than tutorial, this book tells you all you'd want to know about how Disney animators work.

White, Tony. Animator's Workshop. New York, Watson Guptill, 1986. Excellent reference on how to animate. Geared to character animation—e.g., walks and attitudes. Like the book Disney Animation but practical.

ANIMATE

Apple Ile/c/gs/c+; 128K RAM; one 5¼-inch disk drive; mouse, Apple Graphics Tablet, KoalaPad, or joystick; ProDOS 8; copy-protected PRICE: \$69.95

FANTAVISION, FANTAVISION FOR THE APPLE IIGS

Apple II+/e/c/gs/c+; 64K RAM; 51/4-inch disk drive; mouse, graphics tablet, KoalaPad, or joystick; ProDOS 8; copy-protected; Ilas version requires 256K RAM, one 3.5-inch disk drive

PRICE: Fantavision, \$49.95; Fantavision for the Apple IIGS, \$59.95

Brøderbund Software 17 Paul Drive San Rafael, CA 94903-2101 (800) 521-6263 • (415) 492-3500

THE GRAPHICS MAGICIAN, THE GRAPHICS MAGICIAN JUNIOR

Apple II+/e/c/Gs/c+; one 5¼-inch disk drive; KoalaPad, joystick, or graphics tablet; ProDOS; not copy-protected **PRICE:** The Graphics Magician, \$39.95; The Graphics Magician Jr., \$19.95

Polarware 1055 Paramount Parkway Batavia, IL 60510 (800) 323-0884 • (312) 232-1984

CIRCLE READER SERVICE NO. 376

TAKE ON

Apple II+/e/c/gs/c+, 64K RAM, one 5/4-inch disk drive, ProDOS 8, not copy-protected PRICE: \$59.95

Baudville 5380 52nd Street S.E. Grand Rapids, MI 49508 (616) 698-0888

CIRCLE READER SERVICE NO. 377

THE ART AND FILM DIRECTOR

Apple Ilas, 768K RAM, one 3.5-inch disk drive, ProDOS 16, not copy-protected PRICE: \$79.95

Epyx, Inc. 600 Galveston Drive • P.O. Box 8020 Redwood City, CA 94063 (415) 368-3200

CIRCLE READER SERVICE NO. 378

A Musical Announcement



Graphics
Sound
Motion...

Desktop Multimedia!

SLIDE SHOP includes:

- Over 40 **special effects** (wipes, dissolves, flicker animation, etc.)
- Over 40 tunes 36 sound effects
- 72 pieces of clip art 41 templates 18 scenes 30 borders
 - An array of fonts.

CIRCLE 289 ON READER SERVICE CARD

SLIDE SHOP

SCHOLASTIC SI IDF SHOP

Incredible Value at Only \$69.95!

To order, call **toll-free** 1-800-541-5513 In Missouri call

1-800-392-2179
Or an Authorized
Scholastic Dealer

SCHOLASTIC SOFTWARE 2931 E. McCarty Street

P.O. Box 7502, Jefferson City, MO 65102 Available for APPLE Ile/c/GS and MS-DOS.

SCHOLASTIC SLIDE SHOP is a trademark of Scholastic Inc. Software copyright © 1988 by George Brackett.



The Children's Writing
& Publishing Center
brings desktop publishing
to the very young

precocious publishing

Only yesterday, desktop publishing belonged exclusively to the business-suit set. Over the past year, however, a few software companies have brought it to junior highs and high schools. Now, with The Learning Company's The Children's Writing & Publishing Center, young writers in elementary school can produce publications that rival those of their high school counterparts.

Whatever kids want to print, The Children's Writing & Publishing Center can help them do it well. The product is specially designed to develop written communications skills and make writing fun. Offering graphics and pagelayout features, plus a full-featured word processor, this program provides children with tools that encourage creative expression and help them produce outstanding illustrated reports, letters, newsletters, and stories.

ANGFLO

it

Angelo the angelfish,

lived in a wonderful

aquarium with lots of

fish. He liked
because the trout,

unmistakably

also liked Gordon the

goldfish. Gordon and

Angelo had been

years, far longer

Figure 1:

The Children's Writing & Publishing

Center offers two formats: two-column

Center offers two formats: two-column

Newsletter and single-column Report,

Story, or Letter.

The program comes in 5¼- and 3.5-inch formats to accommodate any Apple IIe/c/GS/c+ with at least 128K RAM. It works with a mouse for those who have one, but all functions are equally accessible with keyboard commands. One disk drive works fine; two work better.

The printer-selection menu contains 29 printers. Since the program also accommodates most popular interface cards, all but the most exotic equipment configurations should perform without a hitch.

Learning by Doing

Boot the program. Read and follow the directions. Any youngster over nine years old can finish a first product in less than one hour.

Patient beginners might first choose to peruse the well-written users' manual that accompanies the program. Other more aggressive types will prefer to get started immediately. No matter. Like all good software, Writing & Publishing Center provides clear and logical guidance and help throughout.

It boots to a main menu from which you choose one of two publishing formats (one or two columns) or load a document previously saved on a storage disk (see

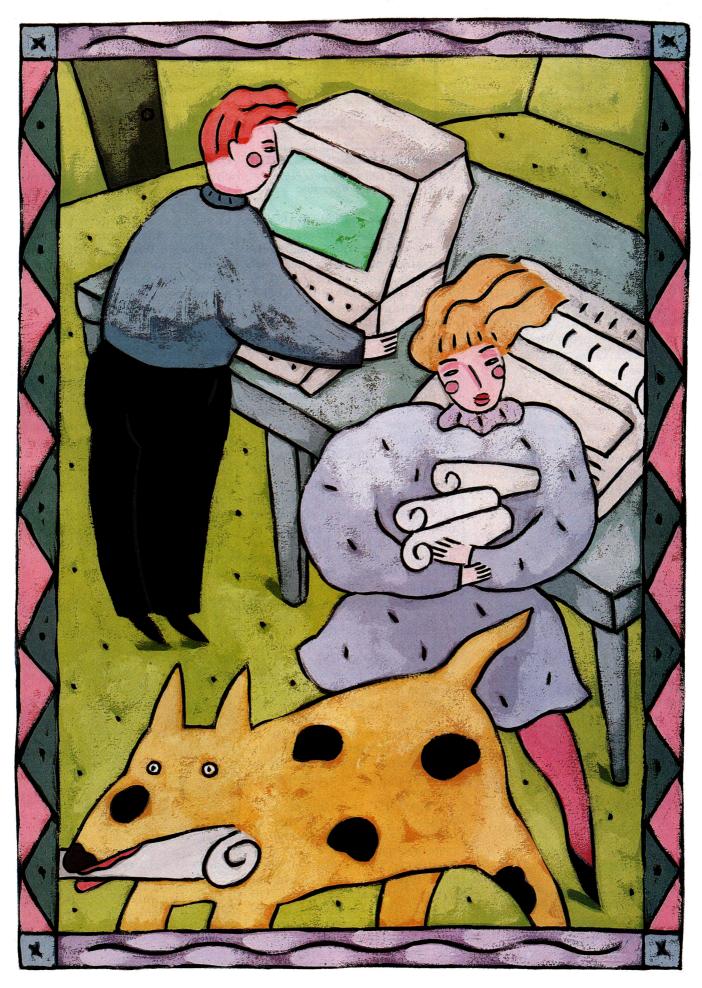


ILLUSTRATION BY BETSY EVERITT A+ MAGAZINE MARCH 1989 47

THE GREATEST



You. Your child. Lapware.™

Reading aloud with young children is an essential step in their early education, and

now the Lapware™ programs in Reading Magic Library™ bring a new dimension to this valued family tradition.

These delightfully told and beautifully animated stories allow you and your child to step into the hero's shoes, deciding what will happen next. Learning to read has never been so exciting!

The greatest way to introduce your child to computers...

Together.







Pre•Reading Software for ages 2-6 Available for the IBM/Tandy and Apple

> **Tom Snyder** Productions[®]

90 Sherman St., Cambridge, MA 02140 Call 1-800-342-0236. In MA 617-876-4433. CIRCLE 200 ON READER SERVICE CARD



Figure 2: The Edit screen puts your choices right at your fingertips.

figure 1). A sample file, SAMPLE-.LETTER, gives beginners a great way to start fast while avoiding the frustration often associated with learning new software. Once you've loaded SAMPLE.LETTER, you can experiment by adding and changing words, moving blocks of text, or manipulating graphics.

The edit screen (see figure 2) puts everything right at your fingertips. On top, a menu bar similar to that in many other programs makes it easy to select and perform loads, saves, and other necessary functions.

To change fonts or add graphics from the picture disk, just keyboard or mouse along to that icon and press Return. File and print functions work just as simply. Select an icon and follow the prompts. Need more help? The traditional G-? sequence provides instant assistance.

Apple kids will catch on very quickly. Others may take a bit longer. A few may need to make occasional forays into the manual. Rest assured, however, that within a few minutes even the most apprehensive students will be eager to begin their own documents.

How It Stacks Up

Although The Children's Writing & Publishing Center lacks some of the powerful features of its more complex cousins, its simplicity is among its most noteworthy attributes.

Unlike DTP programs designed for business, for example, this one offers only a limited number of page layouts. Writing & Publishing Center can handle just two document types and, consequently, two major layout arrangements. The Report, Story, or Letter format prints single-column pages and allows a maximum of four pages per file. The Newsletter format allows only a single page but automatically arranges text into two columns. Both formats let you include a page heading for a masthead or title and automatically flow text around graphics (figure 1).

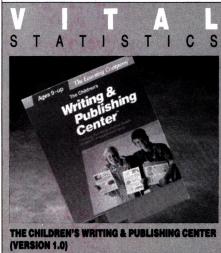
Advanced publishing software generally provides a built-in paint program for graphics, but this one has no means of creating personalized artwork. It does come with a clip-art library of 137 pictures, though. In addition, you can import graphics from Print Shop Companion, Art Gallery, Minipix, and many other picture libraries.

Although Writing & Publishing Center cannot import text from AppleWorks as more sophisticated offerings can, it accepts keystrokes and redraws screens so quickly that no add-on text editor is necessary.

Final Words

"Less is more," pontificated my Art 101 instructor too many years ago. Nowhere has that adage proven more true than here. The Children's Writing & Publishing Center clearly demonstrates that producing attractive printed work can be surprisingly easy and entertaining. Whether they're producing letters for friends, assignments for school, or posters and awards just for fun, kids will love it.

David Stanton is a free-lance writer who specializes in educational-computing issues.



Desktop publishing for elementary school students in a package that is easy to learn and use

Apple Ile/c/gs/c+, 128K RAM, one 51/4- or 3.5-inch disk drive, custom DOS, copy-protected PRICE: \$59.95

The Learning Company 6493 Kaiser Drive Fremont, CA 94555 (800) 852-2255 • (415) 792-2101

CIRCLE READER SERVICE NO. 360

The new DataLink 2400 modem from Applied Engineering, it's a <u>lot more</u> than just twice as fast.



Applied Engineering's new DataLink™ 2400. Simply put, the finest modem on the market for your Apple IIGS, IIe or II+.

Bring home a world of information . . . from up to the minute flight information to whole libraries of resource materials. Even download free software and games.

Twice the speed.

At transmission speeds up to 2400 bps (bits-per-second), Applied Engineering's new DataLink 2400 is capable of putting text on the screen faster than the human eye can follow. That means you can capture a great deal more material in less



time than with 1200 bps modems. And *unlike other modems*, the DataLink 2400 comes complete with powerful, easy-to-use communications software.

Complete communications software included.

Both our new DataLink 2400 and our DataLink 1200 modems feature AE's exclusive communications software—on disk and in ROM—everything needed to get you immediately up and running. Our powerful DataTerm software for the IIGs and IIe supports VT-52 screen emulation, macros, file transfers, on-line time display, recording buffer and more. It even stores hundreds of phone numbers for auto-dialing and log on. And for II+ and 64K IIe owners, our OnLine 64 software has many of the same powerful features.

Worldwide compatibility.

The DataLink 2400 is fully compatible with Bell 103 and 212 protocols, as well as European protocol CCITT V.22 BIS, V.22 and V.21. It operates at varying transmission speeds from 0-300, 1200 and 2400 bps.

The new 2400, like our best-selling DataLink 1200, carries a full five year warranty and comes complete with two modular phone jacks for data and voice calls, a thoughtful feature that means fewer wires to connect. We also include an extra long telephone cable, in case your computer is across the room from your telephone jack. You can track the progress of calls either electronically or via on-board speaker. And built-in diagnostics reliably check transmission accuracy.

Prices subject to change without notice. Brands and product names are registered trademarks of their respective bolders.

Packed with important features:

- Non-volatile memory for modem configuration
- Full Hayes AT compatibility
- Point-to-Point, ASCII Express, Access II compatibility, in addition to AE's included DataTerm and OnLine 64 software
- Super Serial Card "Front End" for highest software compatibility (unlike others)
- · Adaptive equalization and descrambling
- Hardware configuration for DSR and DCD
- PC Transporter (MS-DOS) compatibility
- FCC certified design

\$204.90 in freebies.

We also throw in a nice collection of goodies—a free subscription to the GEnie network worth \$29.95, \$60 of free on-line time from NewsNet, a free \$50 subscription to the Official Airline Guide and a fee-waived membership to The Source worth \$49.95 plus \$15 of free on-line time.

That's \$204.90 worth of free memberships, discounts and

on-line time when you purchase the powerful DataLink 2400 at \$239.

DataLink 1200 reduced.

Loaded with all the features of the new 2400, (except CCITT, DSR/DCD and non-volatile ROM configurations) our 1200 bps DataLink modem, complete with software and freebies, is an affordable alternative at only \$179.

DataLink 1200......\$179 DataLink 2400.....\$239

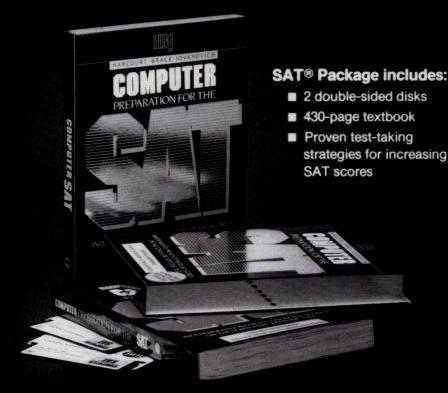
Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.



P.O. Box 5100, Carrollton, TX 75011





Computer Preparation for the SAT available for:

- Apple® II Series with 48K and Applesoft® \$39.95
- IBM® PC & PCjr. with 128K \$39.95

Computer Preparation for the ACT available for:

- Apple® II Series with 48K and Applesoft® \$42.50
- IBM® PC & PCjr. with 128K and graphics card \$42 50

Why HBJ's Test Preparation Series Increases Test Scores

- Accelerates learning by combining books with software
- Offers real test-taking experience with full-length exams
- Diagnoses individual strengths and weaknesses in key SAT and ACT areas
- Generates a personalized study plan
- Provides immediate feedback on hundreds of computer drill items
- Automatically times and scores practice tests and drills
- Reveals sure-fire strategies for scoring high

CIRCLE 175 ON READER SERVICE CARD

- Builds test-taking skills and confidence in just a few hours
- Includes toll-free technical assistance and full-year warranty on disks
- Requires no previous computer experience

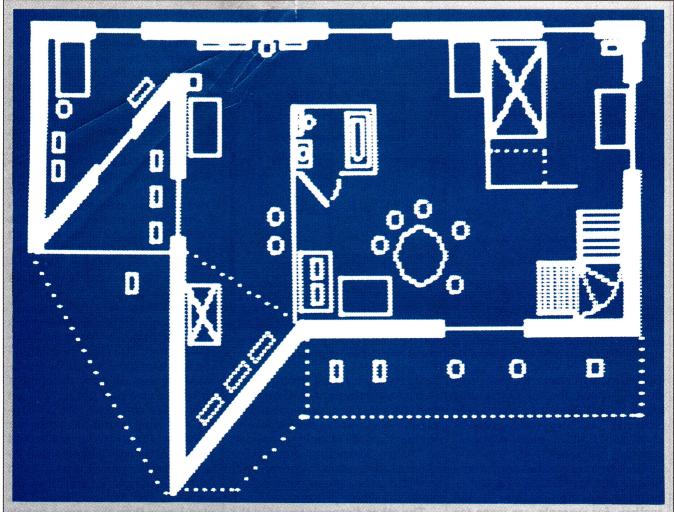
*Through independent research conducted at Florida State University and the University of Southern Mississippi



Harcourt Brace Jovanovich, Publishers

465 South Lincoln Dr., Troy, MO 63379

Toll-Free (800) 543-1918 In MO and AK collect (314) 528-8110



SOFTWARE BY PHILLIP ROBINSON

Apple-aided design with Design Your Own Home: Architecture

Home. Computing

Drawing programs, such as StyleWare's TopDraw and Activision's Draw Plus, work with "objects" such as circles, lines, rectangles, and freehand curves. You can more precisely copy, place, enlarge, shrink, and otherwise manipulate these objects than you can the same pictures built entirely of the bit maps that paint programs handle. Most drawing programs for the Apple II are intended as "general purpose" software, with

commands and sample art for many different fields: fine art, organizational charts, floor plans.

Design Your Own Home: Architecture breaks away from that tradition. This drawing program builds on a general-purpose foundation but offers commands and sample art tailored specifically for architecture. Along the way, it forsakes some common drawing commands but adds a few painting commands for handling colors.

Drawing with a IIGS

The basic drawing environment is evident as soon as you start the program. On the left is a toolbox with icons for drawing objects: lines, rectangles, arcs, text—the usual. On top is a set of menus for dealing with files, text, objects, and so forth. This much is familiar to anyone who has drawn with an Apple II or Macintosh. On the bottom of the display, however, is a color- and pattern-editing menu

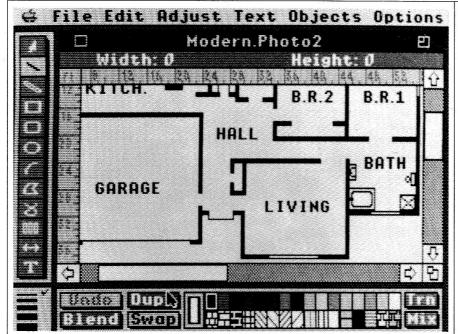


Figure 1: The color- and pattern-editing menu at the bottom of this program's drawing environment offers more color control than most Apple II drawing programs.

from which you can choose the color or pattern for an object and swap, blend, and mix colors (see figure 1). That's more color control than you find in most Apple II drawing programs.

The program also has some commands that are lacking in generalpurpose drawing programs. In the toolbox, for example, are icons for creating dimension lines, hollow lines, and studs. Some drawing programs automatically measure a distance you point to and then draw a line with arrowheads and the correct length of that line. None that I know of has a specific tool for drawing parallel or "hollow" lines, though, and I'm sure there aren't any that can draw a set of building studs to the on-center spacing, board size, and orientation that you specify. That's special-purpose software.

Move to the pull-down menus, and you'll find the regular lineup of edit commands: Group, Lock, Cut, Copy, Paste, Rotate, Flip, and—thankfully—Undo. There are also commands for setting a grid and "snapping" objects to it (aligning them with grid marks) and for using rulers with the units and scale you dictate (English or metric). You can turn auto-scrolling on or off (the image scrolls if you try drawing an object past the visible edge) and instantly choose default patterns and colors.

The text menu lets you choose

font, style, size, and arrangement (horizontal left, right, or center and vertical left, right, or center). This menu is awkward to use because all the options are actually contained in dialog boxes that pop up, or should I say gradually appear, after you choose the menu option. That slows the whole process down.

The other disappointment in the editing repertoire is the View command, which only eliminates the rulers, menus, and icons from the screen, so you can see more of a drawing at once. Most drawing programs offer options for seeing an image at several "magnifications" for detail work or for seeing all of a large drawing at once.

Besides a full set of traditional Open/Save file commands, Design Your Own Home offers some novel additions: Save Paint File (if you want to spruce up a floor plan with some sophisticated color work), Scan, and Overlay. Scan lets you see full-screen views of each drawing in a directory. Overlay is the more interesting command, letting you display a second drawing on top of the current one. In concert with the Group command, it lets you work with different layers for a single floor plan but is a poor substitute for a real layering command. The program comes with a disk full of sample floor plans, but unfortunately they don't use much or any color.

Finally, there's the Objects

menu. Along with the studs commands, it is the most useful specialization in Design Your Own Home. This menu lets you pick objects from graphic libraries in categories such as Bath, Windows, Stairs, and Electrical and then place them in the current drawing. You get to see the objects you are choosing from and decide whether to scale them to the drawing's particular environment. You can create your own objects and save them on disk for later use. No one working on a floor plan should be without this sort of object library, and although it is no faster than the rest of Design Your Own Home: Architecture, the Object menu is well built and easy to use.

Apple II Version

The Apple IIe/c/c+ version is a different program from the IIGSspecific one. The same basic drawing icons are here, but the sophisticated commands work differently. Instead of an object library, you get a set of 154 simple shapes for editing and using, and it has a repeater function for drawing studs and beams. Although I liked this version better the more I used it, I still found it clumsy and difficult to understand. For instance, drawing a plan larger than the screen entails drawing up to four separate screens, one at a time, and finding matching points at their edges.

Abracadata makes libraries of floor plans for use with Design Your Own Home: Architecture and offers related programs for Interior Design and Landscape Design.

Computing Your Home

If I just loved to work on my Apple II, I might try the generic version of Design Your Own Home: Architecture and put up with the awkward interface. Otherwise, I would consider only the IIGS version. That version definitely has an edge over pen-and-paper design, although I'm not sure how much advantage it has over a generalpurpose drawing program. The price is reasonable, the documentation is good, and it has the necessary features plus those few architectural goodies. But it isn't that fast, nor does it include some features (various views, aligning to other objects) of a top-rank drawing program. Still, I'd put it to work if I had anything more than a quick, easy project to draw. It could

ADVERTISEMENT



Exploring Japan with Jet (Part 2)-SubLOGIC's Jet program now includes a free Japan Scenery Disk. Last month we took you on a guided F-16 tour of Tokyo.

This month we'll follow the Japanese coastline on a cross-country flight from Tokyo to Osaka. Starting from Tokyo International Airport (coordinates North 18201, East 32787), take off and turn to a heading of 220 degrees until you reach the coast. Turn to a heading of 235 degrees and fly for about twelve minutes at five thousand feet altitude until you can see Hamamatsu Airport below you (see Tokyo area chart). Turn right again to a heading of 305 degrees and fly to Nagoya, another highly detailed city. At Nagoya, turn left to a 240-degree heading that will take you straight to Osaka. When you find yourself flying over Osakajo Castle, begin your descent for a landing at Osaka International. This entire flight takes only twenty five minutes at Mach 14

ThunderChopper Combat Mission #2 -You've completed flight, rescue and combat training missions in the Hughes 530MG Defender helicopter. You've been battle tested under fire in Armed Escort. Now you're ready for Rescue at Sea.

A major sea battle is just winding down. You've been assigned to locate and rescue the survivors. You must search the wreckage carefully and stay on the alert for enemy ships. When you find a surviving pilot or crewman you will have to hover low over the water, lower your hoist and pull him to safety. You may return fire in defense if fired upon, but it's not a good idea to needlessly trade shots with enemy battleships. You will be evaluated solely on the number of survivors you are able to rescue and return to base for medical treatment.

Top Selling Scenery Disks This Month:

(\$24.95 each, for use with Flight Simulator II and Jet)

- 1. "Western European Tour" Scenery Disk
- 2. Scenery Disk # 7 (U.S. Eastern Seaboard)
- 3. Scenery Disk # 11 (U.S. North Eastern
- 4. Scenery Disk # 3 (U.S. Southwest Pacific)
- 5. San Francisco Scenery Disk

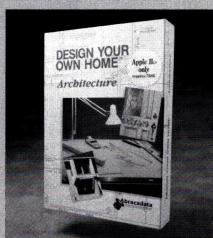
See your dealer to purchase SubLOGIC products, or call us direct to order by charge card at (800) 637-4983. Illinois residents call (217) 359-8482.

SubLOGIC Corporation 501 Kenyon Road Champaign, IL 61820

Please address any feedback/correspondence regarding SubLOGIC products, operations, or this "Flight Notes" column to ATTN: Chairman's Office. CIRCLE 110 ON READER SERVICE CARD serve for drawing purposes other than architecture too, especially if the object libraries were customized for other fields.

(Editor's note: If you bought Design Your Own Home: Architecture between October 18 and December 12, 1988, and are using 51/4inch disks and a mouse, you may have a problem. To check, using the mouse version, select the line icon in the tool palette and then press Control-N (to turn off measurements) or Tab. If the program responds immediately, your disk is OK. If it is difficult to get the proper response or the response is sporadic, your program disk needs to be replaced. For a free replacement, send only the copy-protected 51/4inch program disk to Abracadata, Ltd., P.O. Box 2440, Eugene, OR 97402.)

Phillip Robinson, a former engineer, is editor of The Architect's PC newsletter and specializes in writing about computerized design.



DESIGN YOUR OWN HOME: ARCHITECTURE (VERSION 1.3)

A drawing program that builds on a general-purpose foundation but provides commands and art specifically for

Apple IIgs, 768K RAM, one 3.5-inch disk drive, ProDOS, not PRICE: \$89.95

Apple II+/e/c/gs/c+, 64K RAM, one 51/4- or 3.5-inch disk drive, DiversiDOS 3.3 or AMDOS, 51/4-inch disk copyprotected, 3.5-inch disk not copy-protected PRICE: \$69.95

Abracadata, Ltd. P.O. Box 2440 Eugene, OR 97402 (800) 451-3871 (503) 342-3030

CIRCLE READER SERVICE NO. 380

Fas-Track

Computer Products

- * Every School's Single Source for **Educational Computer Products!**
- * Discounts Up To 45% Everyday!
- * No Service Charges for MasterCard or Visa!
- * We Accept School Purchase Orders!

Call For Your Free Copy of Our Home and School Discount Computer Products Catalog!

MARCH SF	
Publish It! 2.0	\$74.95
256k D-RAMS	CALL!
AppleWorks ligs	\$209.00
AppleWorks IIe	\$187.00
Certificate Maker	
Certificate Maker Librar	y 1\$16.50
80 Column 64k Card	
Kraft KCIII Joystick	\$19.95
VCR Companion	\$32.50
Copy II Plus	\$24.95
Children's Writing & Pul	b. Center \$39.95
Springboard Publisher	
TimeOut	
Sidespread, Desktools I or II	Ultramacros,
Filemaster, Powerpack,	Spreadtools ea\$34.75
Thesaurasea\$28.95	Quickspell, \$40.50
Macrotools I or II ea\$17.40	Superfonts \$40.50

	- Postonia Trittini Violeo
APPLE IIGS	RECREATION
Paintworks Plus \$46.00	Chess Master 2000 \$27.95
Paintworks Gold \$64.95	World Games \$25.95
Draw Plus \$61.95	Chuck Yeager Flight \$28.00
Music Studio 2.0 \$64.95	Summer Games I or II . \$14.95
Deluxe Paint II \$69.95	California Games \$25.95
California Games \$25.95	Test Drive \$23.95
Talking Reader Rabbit . \$33.95	Wheel of Fortune 1 or 2 \$9.95
Pinball Wizard \$24.95	Jeopardy 1 or 2 \$9.95
Serve & Volley \$31.50	Scrabble \$27.95
Printshop IIgs \$35.95	EDUCATION
Zany Golf \$27.95	Where in Europe \$29.00
GBA Basketball \$31.95	Where in World \$25.95
Hunt for Red October . \$35.00	Where in USA \$28.95
Tetris \$27.95	Science Toolkit \$46.00
Marble Madness \$23.95	Bank St. Writer + \$47.95
4th and Inches \$31.95	Math Blaster Plus \$33.95
Mini Putt \$23.95	Word Attack Plus \$33.95
Mavis Beacon Typing . \$35.00	Writer Rabbit \$33.95
Hardball \$31.95	Reader Rabbit\$26.95
Mean 18 Golf \$31.95	Math Rabbit \$26.95
Final Assault \$32.00	Think Quick \$35.90
Jack Nicklaus Golf \$33.95	Mavis Beacon Typing . \$28.00
Multiscribe IIgs \$64.95	Oregon Trail \$20.95
Cartooners \$42.00	Designasauras \$27.95
Jigsaw \$26.95	Stickybear Series ea \$24.95
Medley \$124.95	Crossword Magic \$32.95
Bubble Ghost \$23.95	•
GRAPHICS	HARDWARE\ACCS.
Print Shop \$29.95	Disk Case (Holds 60) \$6.95
PS Companion \$24.95	25 DS/DD 5.25" Disks . \$9.95
PS Grapics Libs ea \$16.95	10 DS/DD 3.5" Disks . \$14.75
VCR Companion Lib \$16.95	I-Writer Black Ribbon \$2.99
Newsroom \$35.95	I-Writer II Multi-Color \$10.95

ALWAYS CALL TOLL-FREE

He. Hc. Hgs Disk Drive \$109.00

1-800-272-1600 (USA) 1-800-438-1168(Ohio)

vsroom \$35.95

Publish It! \$54.50

(614) 847-4050 (Central Ohio)

Mon.-Fri. 9am to 8pm EST/Sat. 10am to 5pm EST

Fas-Track■

Computer Products 7030C Huntley Rd. Columbus, OH 43229

U.S., F.P.O., and A.P.O., add 3% (minimum \$ 3.00) for each shipment. No C.O.D. In Ohio, add 5.5% Sales Tax. MasterCard and Visa no extra charge. We accept purchase orders from schools, universities and other qualified organizations. Prices subject to

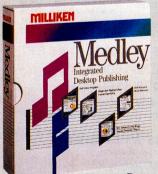
CIRCLE 146 ON READER SERVICE CARD

Apple IIGS Desktop Publishing couldn't be easier-or better.

One program that does everything • Word Processing • Page Layout • Graphics

If you have already purchased a productivity tool and think you have everything you need for desktop publishing, think again. Adding Medley to your productivity toolbox will allow you to break free from constraints of rectangle-based page layouts. Medley is the *only* desktop publishing program for the IIGS that allows you to wrap text around irregularly-shaped graphics. In this way, Medley opens up almost endless possibilities for new page layouts. Simply place a piece of artwork on top of your text, and watch the words wrap around it—automatically. A productivity tool should help you place your ideas on paper, not place limitations on what you can do.

Experience the creative power of Medley for yourself.



It's available now at a price you can afford.

Medley includes:

- One desktop publishing disk
- One 80,000 word dictionary thesaurus disk
- One Clip art disk with over 500 graphics
- Medley user's guide

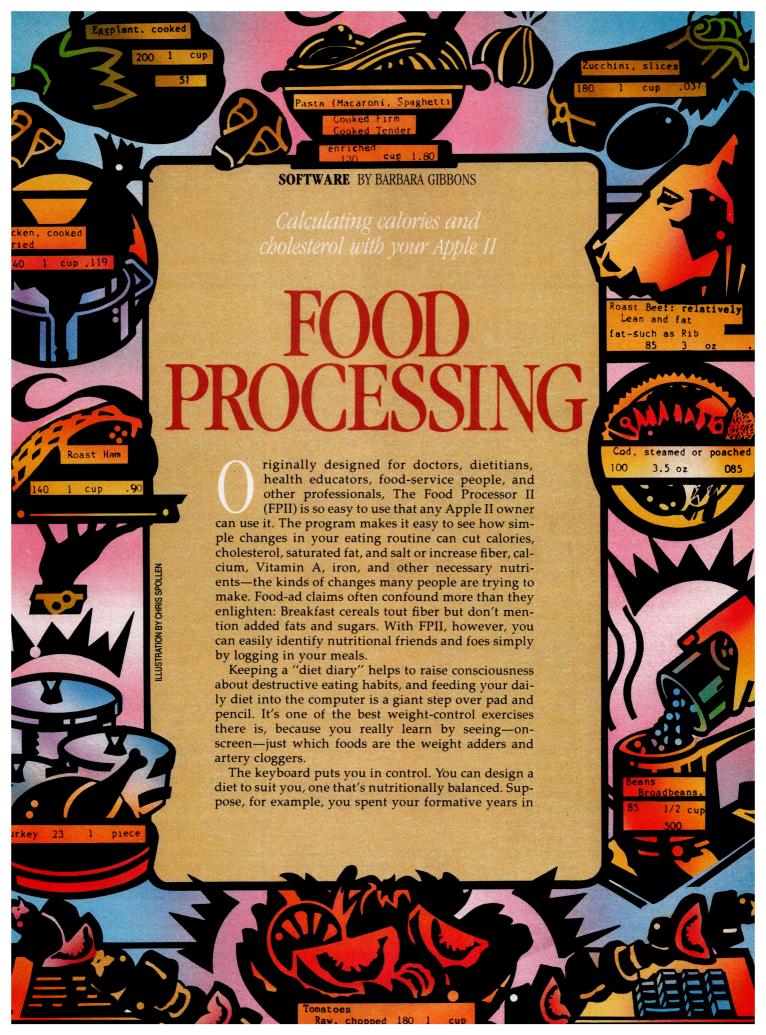
Program price, complete-\$19500

CIRCLE 250 ON READER SERVICE CARD

Requires 1.25 Meg. of RAM

🕳 File Edit Search Areas Fant Format Special Effects Shortcuts butter and flying creature. The name probably came from the yellow color of some European butterflies. There are approximately 15,000 to 20,000 kinds of butterflies in the world, and come in are also varied in size The largest butterflu measures about 11 inches across the wings. It from New Guinea. The smallest is the western pigmy blue of North America. has a wingspan of only about 3/8 inch. The largest butterfly, Queen Alexandra birdwing, is over 25 times the size of the Tiner Swallowtail western pigmy blue of North America. Apple IIGS For FREE CATALOG or to place an order call 800-643-0008, or mail this coupon to: Milliken Publishing Company, 1100 Research Blvd., St. Louis, MO 63132-0579. (314) 991-4220 Organization_ City Telephone (

Apple IIGS is a registered trademark of Apple Computer



Fat-Hono 86.7 G ** 266% Vitamin E 21.7 Mg 2.5 Fat-Hono 86.7 G ** 277% Calcium 2135 Mg 2.5 Fat-Poly 35.7 G ** 114% Copper 2.90 Mg 1.7 Cholesterol 1228 Mg ** 410% Iron 29.8 Mg 2.5 Mg 1.7 Cholesterol 58.8 Mg 2.7 Magnesium 588 Mg 1.7 Cholesterol 58.8 Mg 2.7 Cholesterol 58.8	Weight: 3652 grams	(128.8 oz.	Water weight:	2858 grams
Carbohydrates JJ7 G *** 83% Folacin 492 Mcg I. Dietary Fiber JJ.1 G # 117% Pantothenic 8.51 Mg *1. Fat-Total 218 G *** 2319 Vitamin C 147 Mg 2 Fat-Saturated 8.3 J G *** 2366 Vitamin E 21.7 Mg 2 Fat-Mono 86.7 G *** 277% Calcium 2125 Mg 2 J Fat-Folio 12.8 G g *** 410% Copper 2.90 Mg *1 Chossistorol 12.8 G g *** 410% L Gopper 2.90 Mg *1 Chossistorol 12.8 G g *** 410% L Gopper 2.90 Mg *1 Vitamin A-Total 1366 Mg 118 Selenium 2291 Mg 2 Vitamin A-Total 1366 Mg 1186 Selenium 4432 Mg *1 Thiamin-Bl 1.66 Mg 1188 Selenium 144 Mcg *1 Riboflavin-B2 28.3 Mg 152% Cinc 21.2 Mg 2 ** *** Suggested values; Within recommended ranges**	Calories	4379	55% Pyridoxine-B6	3.90 Mg 17
Carbohydrates 337 G ** 83% Folacin 492 Mcg 1. Dietary Fiber 33.1 G s 117% Pantothenic 8.53 Mg 1. Fat-Total 218 G ** 231% Vitamin C 147 Mg 2. Fat-Saturated 8.3 J G ** 266% Vitamin E 21.7 Mg 2. Fat-Hono 86.7 G ** 277% Calcium 2125 Mg 3. Fat-Hono 86.7 G ** 277% Calcium 2125 Mg 3. Fat-Poll 12.5 G g ** 410% Copper 2.30 Mg 1. Collectoroll 12.6 G g ** 410% Magnesium 25 Mg 4. Vita-Fat-Ground 1046 RE Phosphorus 2291 Mg 2. Vitamin A-Total 1346 RE 135% Potassium 4432 Mg 1. Riboflavin-82 2.76 Mg 163% Sodium 5551 Mg 2. Niacin-83 28.3 Mg 152% Zinc 21.2 Mg 1. ** Suggested values; Within recommended ranges		141 G	0.00	
### Fat-Mono ### ### ### ### ### ### ### ### ###	Carbohydrates	337 G **	834 Folacin	492 Mcg 12
Fat-Saturated 83.3 C ** 266% Vitamin E 21.7 Mg 2.5 Fat-Mono 86.7 G ** 277% Calcium 2115 Mg 2.5 Fat-Poly 95.7 G ** 114% Copper 2.90 Mg *1. Fat-Poly 95.7 G ** 114% Copper 2.90 Mg *1. Vita-Carotene 301 RE Magnesium 588 Mg 2 Vita-Carotene 301 RE Phosphorus 2291 Mg 2 Vita-Fretormed 1046 RE Phosphorus 2291 Mg 2 Vitamin A-Total 1346 RE 135% Potassium 4432 Mg *1. Thiamin-Bl 1.66 Mg 115% Selenium 144 Mcg*1 Riboflavin-92 2.76 Mg 163% Sodium 55551 Mg *2. Miacin-B3 28.3 Mg 152% Zinc 21:2 Mg 1. Suggested values; within recommended ranges	Dietary Fiber	33.1 G # 3	17% Pantothenic	8.53 Mg • 12.
Fat-Saturated 83.3 G ** 2664 Vitamin E 21.7 Mg 2.5 Fat-Mono 86.7 G ** 2774 Calcium 2115 Mg 23 Fat-Poly 35.7 G ** 1144 Copper 2.90 Mg *1. Cholesterol 1228 Mg ** 4104 Iron 29.8 Mg 2 Vit A-Carotene 301 RE Phosphorus 291 Mg 2. Vit A-Fredromed 1046 RE Phosphorus 291 Mg 2. Vitamin A-Total 1346 RE 1354 Potassium 4432 Mg *1. Thiamin-Bl 1.66 Mg 1164 Selenium 144 Mgc* I. Riboflavin-B2 2.76 Mg 1634 Sodium 5551 Mg *2. Niacin-B3 28.3 Mg 1524 2inc 21.2 Mg 1. ** Suggested values; within recommended ranges	Fat-Total	218 G	233* Vitamin C	147 Mg 24
Fat-Poly 35.7 G ** 114* Copper 2.90 Mg * 1. Cholesterol 1228 Mg * 410* Iron 29.8 Mg 2 Vit A-Carotene 301 RE Hagnesium 586 Mg 1 Vit A-Freformed 1046 RE Phosphorus 2291 Mg 2 Vitanin A-Total 1346 RE 135* Potassium 4432 Mg * 1. Thiamin-Bl 1.66 Mg 118* Selenium 144 Mg * 1. Riboflavin-B2 2.76 Mg 163* Sodium 5551 Mg * 2. Niacin-B3 28.3 Mg 152** Zinc 21:2 Mg 1. * Suggested values; within recommended ranges				21.7 Mg 21
Fat-Poly J5.7 G ** 114* Copper 2.90 Mg * 1. Cholesterol 228 Mg * 410* Iron 29.8 Mg 2 Vit A-Carotene 301 RE Phosphorus 291 Mg 2 Vit A-Freformed 1046 RE Phosphorus 2291 Mg 2 Vitanin A-Total 1346 RE 135* Potassium 4432 Mg * 1. Thiamin-Bl 1.66 Mg 1158 Selenium 144 Mg * 1. Riboflavin-B2 2.76 Mg 163* Sodium 5551 Mg * 2. Niacin-B3 28.3 Mg 152* 2inc 21.2 Mg 1. Cholester 2 Suggested values; within recommended ranges	Fat-Mono	86.7 G ** 2	277% Calcium	2135 Ma 26
Cholesterol 1228 Mg ** 410% Iron 29.8 Mg 2 Vit A-Carotene 301 RE Magnesium 588 Mg 1. Vit A-Preformed 1046 RE Phosphorus 2291 Mg 2. Vitamin A-Total 1346 RE 135% Potassium 4432 Mg · 1. Tinamin-Bl 1.66 Mg 118% Selenium 144 Mcg · 1. Riboflavin-B2 2.76 Mg 163% Sodium 5551 Mg · 2. Niacin-B3 28.3 Mg 152% Zinc 21,2 Mg 1. *Suggested values; within recommended ranges	Fat-Poly	35.7 G ** 1	14* Copper	
Vit A-Carotene 301 RE Magnesium 586 Mg 1. Vit A-Preformed 1046 RE Phosphorus 2291 Mg 2. Vitanin A-Total 1346 RE 1354 Potassium 4432 Mg 1. Thianin-Bl 1.66 Mg 1144 Selenium 144 Mgc* 1. Riboflavin-B2 2.76 Mg 1634 Sodium 5551 Mg 2. Niacin-B3 28.3 Mg 1524 2inc 21:2 Mg 1. * Suggested values; within recommended ranges	Cholesterol	1228 Mg **	110% Iron	
Vit A-Preformed 1046 RE Phosphorus 2291 Mg 2.2 Vitamin A-Total 1346 RE 1358 Potassium 4432 Mg 1. Thiamin-B1 1.66 Mg 1188 Selenium 144 Mcg 1. Ribotlavin-B2 2.76 Mg 1638 Sodium 5551 Mg 2. Niacin-B3 28.3 Mg 1524 Sinc 21,2 Mg 1. * Suggested values; within recommended ranges	Vit A-Carotene	301 RE	Magnesium	584 Ma 16
Vitamin A-Total 1346 RE 1354 Potassium 4432 Mg·1. Thiamin-Bl 1.66 Mg 1164 Selenium 144 Mcg·1. Riboflavin-B2 2.76 Mg 1634 Sodium 5551 Mg·2. Niacin-B3 28.3 Mg 1524 2inc 211.2 Mg 1.	Vit A-Freformed	1046 RE	Phosphorus	2291 Mg 28
Thiamin-Bi 1.66 Mg 1184 Selenium 144 Mcg* 1. Riboflavin-B2 2.76 Mg 16134 Sodium 5551 Mg 2. Niacin-B3 28.3 Mg 1524 2inc 21,2 Mg 1. *Suggested values; within recommended ranges	Vitamin A-Total	1346 RE	35% Potassium	4432 Mg • 11
Riboflavin-92 2.76 Mg 1634 Sodium 5551 Mg • 2 Niacin-83 28.3 Mg 1524 2inc 21,2 Mg 1 • Suggested values; within recommended ranges	Thiamin-Bl	1.66 Mg	18% Selenium	
Niacin-83 28.3 Mg 1524 Zinc 21.2 Mg 1. * Suggested values: within recommended ranges	Riboflavin-B2	2.76 Mg	63% Sodium	5551 Ma · 25.
	Niacin-B3	28.3 Mg	524 Zinc	21,2 Mg 14.

Figure 1: Choosing Calculate after keying in all the foods you've eaten in a day gives you a complete readout of your diet's nutritional value.

ingle nutri	ent analysis	Cholester	-01
3.00 ea.	Scrambled egg-milk+butter	846	Ma.
4.00 pce		21.3	
1.00 ea.	Croissant 4.5 x 4 x 2 in	13.0	
0.50 tbs	Butter	15.5	
1.00 tbs	Marmalade	. 0	
4.00 cup	Coffee-brewed	0	
8.00 tbs	Cream-coffee/table	79.5	
4.00 ea.	White sugar I packet	0	Ma.
12.0 oz.	Beer	0	Mg.
1.50 ea.	Reuben sandwich-grilled	128	Mg.
1.00 oz.	Peanuts-oil rstd-salted	0	Ma.
12.0 oz.	Beer	0	Ma.
2.00 oz.	Tortilla chips	0	Ma.
0.50 cup	Avocado-mashed-fresh-avg	0	Ma.
1.00 ea.		37.8	Mg.
1.00 ea.		43.0	Ma.
0.50 ea.		19.3	Mg.
0.50 cup	Refried beans-canned	0	Mg.
0.50 cup	White rice-converted-ckd	0	Mg.
4.00 tbs		25.5	Mg.
4.00 tbs	Salsa/Mex.sauce-hm-recipe	0	Mg.
2.00 ea.		0	Mg.
1.00 oz.	Chocolate covered mints	0	Mg.
	Total:	1228	Ma.

Figure 2: The Food Processor II also lets you choose to do singlenutrient diet analyses – for example, calculating the day's cholesterol intake.

Bangkok or Bombay, and your tastes run more to chili peppers and curry than to cottage cheese. You can take your favorite Thai or Indian dishes; enter the ingredients into the computer; and calculate the calories, fat, cholesterol, and nutrients. Then you can edit out the unwanted excesses.

Keeping a Food Diary

It's as simple as this: Type the name of a food you've eaten—actually just the first few letters. Type t-0-m-, and the program guesses you mean *tomato* and gives you a choice of tomato foods ranging from soup to sauce. Cursor down to the correct item and choose it by pressing Return.

Then a new screen lets you pick the amount; choose from a variety of measures: cups, tablespoons, ounces, grams, units, and whatever else is appropriate. Having a choice of measures is a great advantage. You may know you ate ten peanuts but have no idea what they weigh.

Listing foods by name rather than number is another significant advance. Many other professional programs require you to enter a food code, an extra step that requires you to look up foods in a phone-book-size government publication. You can enter foods into FPII by code number, if you prefer. You get a complete printout of food names and code numbers.

It takes only a few minutes to key in all the foods you've eaten in a day. When you're finished, choose Calculate from the screen menu, and the program responds with a complete readout: calories, protein, fat and saturated fat, carbohydrates, alcohol, fiber, sodium, all the vitamins and minerals from A to zinc—30 nutrients in all (see figures 1 and 2).

How Do You Compare?

You can tell the program your height, weight, sex, age, body build, and activity level, and it tells you what you should be eating each day in terms of calories; protein; fat; fiber; all those A to Z nutrients; and your RDA (Recommended Daily Allowance) or, if you prefer the Canadian equivalent, your RNI (Recommended Nutrient Intake).



You really learn
by seeing—on screen—
just which foods
are the weight
adders and artery
cloggers.



The program compares your personal RDA (or RNI) information with the food list you've just typed in. The comparison can tell you, for example, that your Monday meals contained twice as much protein and fat and only half the fiber you should have been eating. Or that you're using far too much sodium and are seriously deficient in iron

and calcium and marginally low on most of the B vitamins. And you're consuming too many calories to maintain your weight! It provides this information in percentages of your RDA. You can opt to view it in graph form. The monochrome graphs are simple line charts—no eye-popping GS-style artwork.

Design a Diet

It's easy to go back over the day's diet and experiment with seemingly minor food changes that can make major improvements in nutritional balance, without forcing you to sacrifice enjoyment. No slavery to a printed diet sheet. Cottage cheese and carrot sticks are not necessary. The program lets you find other low-calorie sources of calcium and carotene that may be more to your liking, such as mozzarella cheese and pumpkin.

You can also use the program to calculate or improve recipes. Like a day's diet, a recipe comprises a list of foods, the ingredient list. What if we used cottage cheese or skimmilk ricotta in mom's lasagna? What if we left out the oil (saving 300 calories!), added a layer of sliced squash (more vitamin A) or, better yet, spinach (more vitamins A and C, more iron!)? What if we left out the eggs or used egg whites only (cut down on cholesterol and calories) or used whole-wheat lasagna (more fiber and B vitamins) or salt-free tomato sauce and more herbs? You get the idea.

Any one of these changes may make little difference in the recipe result but profound changes in the cholesterol, saturated fat, sodium, vitamin, mineral, and fiber content. A combination of "minor"



The IIGS just got up to speed.

TransWarp GS,™ Applied Engineering's new accelerator for the IIGS, is shipping now.

Employing the latest surface-mount technology. Incorporating not two, but five layers of circuitry. Meet the most technologically advanced board we've ever produced. TransWarp GS.

With it, your IIGS rips along at 7 MHz, compared to it's native 2.8. The difference isn't merely noticeable, it's astounding. Pull-down menus fly open, folders leap off the finder, screens change in an eyeblink. Your IIGS feels like a color Mac...it's an entirely new computer environment!

Full compatibility.

Completely compatible with all standard hardware and software, TransWarp GS has been extensively



More than twice as fast—that's computing at TransWarp speed!

tested by all the major publications and by Applied Engineering.

So complicated, it's simple.

Plug in one connector, then insert TransWarp GS into slot 3 or 4 (the board won't override either slot's function), set your control panel and prepare yourself for warp speed.

Switching back to normal (or merely fast) speed is as easy as accessing the control panel. And in the future, when even faster microprocessor chips become available, you'll be able to switch-out chips inexpensively.

From AppleWorks GS to Zany Golf,

TransWarp GS transforms the IIGs into the computer we all knew it could be.

TransWarp GS Accelerator \$399 Order Today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

Æ APPLIED ENGINEERING®

The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.



FPII has by far the most complete database of foods and their nutritional breakdowns.



changes can cut the calories in half or more.

What a boon this system can be to anyone on a restricted diet, especially someone with distinct eating preferences, a strong ethnic heritage, or gourmet tastes.

Nutrition Encyclopedia

This program is not the only one for the Apple series that calculates calories and other nutrients, but it has by far the most complete database of foods and their nutritional breakdowns. It is exceptionally strong in ethnic foods. The authors spent three years accumulating the information, not only from official government sources but also from food manufacturers, national restaurant chains, and commodity groups. You will seldom be frustrated by not finding a food listed.

If a new food comes along—say, Oriental crystal pears—you can check the label or write the distributor for nutrition data and type the information in as a new food entry. The most likely time to update the database is when you're adding newly introduced processed foods. For example, the current version does not contain oat bran or any of the new cereals trading on oat bran's recent popularity as a cholesterol fighter. But you'll find several other kinds of oat foods: seven different kinds of cereal plus oat bread and oatmeal cookies.

Or you can just wait. Updated versions of the FPII databases come out annually, and the next version will certainly list oat bran and all the trendy new cereals.

Not to Worry

The package at first seems daunting: a thick three-ring binder with several hundred pages of reference material. Not to worry—the program itself is so simple that once you've gotten started, you probably won't have to refer to the operations section of the manual again.

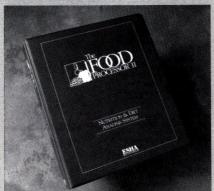
Anyone serious enough about health to buy this program will probably want to look at the manual often anyway—for its nutrition information. It has sections covering every nutrient, explaining its importance, and listing foods that are important sources. It's sort of a repair kit for faulty diets.

The \$250 price is steep for Apple users but is not that high in comparison with spa or diet-club memberships.

Ease of use and an exceptionally complete database make The Food Processor II the best nutrition-calculation program available for the Apple II series of computers, an equally good choice for Appleequipped nutrition professionals, educators, and nutrition-minded nonprofessionals.

Barbara Gibbons writes a nationally syndicated newspaper food column, "The Slim Gourmet," and is the author of 14 books, including The 35-Plus Diet, which spent ten weeks on the best-seller list last year. She uses Apple IIs in her work and writes frequently on computer topics.

S T



THE FOOD PROCESSOR II

The best nutrition-calculation program for the Apple II series, featuring a remarkably complete database of foods and their nutritional breakdowns

Apple Ile/c/gs/c+, 128K RAM, one 51/4- or 3.5-inch disk drive, ProDOS, not copy-protected

PRICE: \$250 (includes the right to make five copies); site license, \$35 per station; program update, \$15; nutrition data disk, \$59; demo disk, free.

ESHA Research P.O. Box 13028 Salem, OR 97309 (503) 585-6242

CIRCLE READER SERVICE NO. 351



YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE . DISKETTES . ACCESSORIES

USA/CANADA **TOLLFREE**

IN ILLINOIS CALL 312-884-7040

1-800-624-2926

SAVE ON ACCESSORIES!!! **LOWEST RIBBON &** ACCESSORY PRICING!

IMAGEWRITER RIBBONS





Imagewriter I & II (qty. 6) \$ 2.75 ea. Imagewriter II (4 color ribbons)\$ 6.95 ea. Imagewriter II (4 color heat transfer) ... \$13.95 ea.

'Available in most colors. Add \$1.00 each for: Red, green, blue, brown, purple and yellow Call for lowest prices on all ribbons!

DISKETTES

5.25", DS/DD (Multiples of 50)\$.38
3.25", DS/DD (Multiples of 10)\$	1.39
Color disks, 5.25" DS/DD(10 pk. asst.)\$	6.95
Color disks, 3.5" DS/DD(10 pk. asst.)\$1	14.95

PAPER

Colored, (Asst. 250 sheets) \$10.95 ea	a.
Stationary, (100 sheets, choice)\$ 9.00 ea	a.
bears camping, bears w/bowties, boats sailing, butterflie dinosaurs, flower garden, geese, lambs playing rocking horse, and seagulls soaring.	

Balloons, confetti, bears and lines, hearts.

ACCESSORIES

Computer eyes, (B/W, Ile/Ilc)\$ Computer eyes, (color, IlGs)\$ Thunderscan (APL)\$ Kraft KC3 Joysticks\$ Surge Protector (6 outlet—6 cord)\$ System Saver (Ilgs)\$ Disk Notcher\$ 80 Col. Printer Stand\$ Diskette Storage 60\$	209.95 189.95 19.95 19.95 75.95 4.95 19.95
Diskette Storage 60	

PRINTERS

Panasonic KXP 1080I	\$169.95
Laser 190E	\$199.95

APPLIED ENGINEERING

Transwarp	\$168.95
Ram Factor (256K)	
Ram Keeper	
Ram Works III (256K)	
GS Ram Plus (1mb)	

GAME SHOW FAVORITES

ADI /IBM/C64

AFL/IDIVI/CO4	
Jeopardy\$	8.95
Wheel of Fortune 1, 2, or 3\$	8.95
Family Feud\$	8.95
Concentration\$	8.95
Card Sharks\$	8.95
\$100,000 Pyramid\$	8.95

CALL FOR FREE CATALOG



YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE • DISKETTES • ACCESSORIES

USA/CANADA **TOLLFREE** 1-800-624-2926



IN ILLINOIS CALL 312-884-7040

SAVE UP TO 50% EVERYDAY! NOW YOU CAN BUY WHERE THE SCHOOLS BUY

- OVER 5,000 SOFTWARE TITLES AVAILABLE
- LOWEST PRICES EVERYDAY WIDEST SELECTION BEST SERVICE
- NAMED BY EDUCATORS AS ONE OF THE MOST RELIABLE SOFTWARE DISTRIBUTORS IN AMERICA
- **HUNDREDS OF PUBLISHERS AND TOPICS TO CHOOSE FROM**



\$54⁹⁵

2.0 Version **\$74** 95

APL/Ilas

APL/Ilgs



Your Cost \$2595 ea. APL/IIgs compatible



\$34 95 ea. APL/IIgs/IBM

School version \$44.95 Lab Pack (5) \$83.95



Your Cost **\$27** 95 \$35,95

APL/C64 IBM/IIgs Sampler/Party Edition \$23.00 School version add \$7.00



28 EX computer

\$43995

(3 x faster!)

12" Mono. Monitor

\$ 8500 \$249°°

14" RGB Monitor

\$19900



PC Viewer \$**629**⁹⁵

PCV 6420

World's Largest Computer Display!

- 640 x 200 Pixel Res.
- Heavy Metal Case
- Weighs only 3 lbs.
- 64 position screen centering
- APL/IBM compatible



Your Cost \$25 ⁹⁵

APL/C64/IBM 3.5 & 5.25 Winter/Joystick req. - IBM



Sports, Off the Wall, School Graphics * *use w/Print Shop/Print Magic/Print Master



Your Cost \$21⁹⁵

APL/IBM



Your Cost \$179⁹⁵ \$199⁹⁵

APL 128K Ilgs 1.25 mb

MAIL SCHOOL P.O.'S TO:

EDUCATIONAL RESOURCES³⁴ 2360 HASSELL ROAD HOFFMAN ESTATES, IL 60195





Prices effective Feb.-March \$50 min. on charge No min. on checks Add 5% shipping; \$3.00 min

CALL FOR FREE CATALOG

"COPY II PLUS"

WIPED, REFORMATTED AND DELETED ITS COMPETITION?

-inCider

Disk Utilities

Backup Program for Copy-Protected Disks

AWARD-WINNING UTILITIES.

Over 20 built-in utilities, including the ability to delete and undelete files, map disk usage, copy disks and files, view and print files, format and verify disks, and alphabetize the catalog. Also contains drive diagnostics for checking and adjusting drive speed. Plus much more–all in an easy-to-use menu perfect for both novices and professionals.

- VERSATILE PERFORMER. Copy II Plus enables you to convert DOS 3.3 files to ProDOS files and vice versa-automatically.
- SUPPORTS THE IIGS. Runs great on the IIGS, and makes full use of Apple 1-Megabyte RAM boards.
- PROTECT YOUR SOFTWARE INVESTMENT. Make backup copies of protected and unprotected programs—even those with the most sophisticated protection schemes. Use Copy II and you'll always have a backup handy should anything happen to your original disk.
- EASY TO USE. Backup parameters for most programs are already on the disk. Simply select which program you want to backup, insert that program disk and you're off. Data and unprotected disks are copied in less than a minute and require only two passes on an Apple IIc, Laser 128 or IIGS.

Take a look at Copy II Plus today and see why in Cider magazine says Copy II Plus deleted its competition. For the dealer nearest you, or to order direct, call

(503) 690-8090, M-F, 8 a.m.-5 p.m. (West Coast time).

Hardware requirements. Apple II or Laser computer with 128K memory and one disk drive.

3.5-inch bit copy requires Laser 128EX or IIos (or Apple II computer with Central Point Universal Disk Controller) and a 3.5-inch IIos, Chinon or Laser drive.

Copy II Plus is a trademark of Central Point Software. Apple II, IIe, IIc and IIcs are trademarks of Apple.



15220 N.W. Greenbrier Pkwy. #200 Beaverton, Oregon 97006 (503) 690-8090

SPEAKING OF GRAPHICS

BY ROBERTA SCHWARTZ AND MICHAEL CALLERY

A PLETHORA OF PAINT PROGRAMS

hree new Apple IIGS paint programs have recently come across our desks. With so many paint programs already on the market, we wondered if these products could provide anything that might give them a chance at success. We were pleasantly surprised.

MiniPaint

MiniPaint by Matt Reimer, currently published by JEM Software, offers speed—it occupies only 85K, so it loads quickly. The small size of this program belies its capabilities; it has virtually all of the essential features of a paint program, as well as some nice extras. If you're familiar with Activision's Paintworks (Plus or Gold), you'll be comfortable with MiniPaint, which has a similar arrangement of tool, linewidth, and color/pattern palettes. All work as expected, and the program includes shortcuts that have become standard, first in Macintosh and now in Apple IIGS graphics programs. If you're a two-hand worker, you'll appreciate the keyboard mnemonics that allow you to select a tool without moving the mouse to the tool palette. For example, pressing B selects the box tool, pressing / selects the line tool—the slash looks like a line—and pressing (period) selects the pencil tool, which produces a single-pixel dot.

The tool, line-width, and color/ pattern palettes are easy to move to any position on the screen. Work-

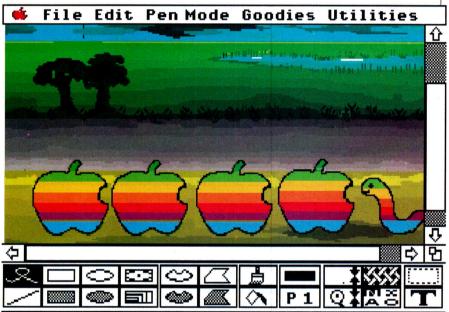


Figure 1: This CheapPaint image required four palettes of 16 colors each.



Figure 2: Paint.256 allows you to assign palettes intuitively. Five palettes, a mouse, and an Apple Graphics Tablet helped create this image.

ing on the far left of the screen? Press the Option key and drag the tool palette out of the way to the right.

The File and Edit menus are pretty much what you'd expect, although the Rotate and Free Rotate Edit menu selections do not work in this version. Also, we were dismayed to discover that the Cut and Copy commands didn't work with the lasso. The Invert, Replace Color, Flip Horizontal, and Flip Vertical choices do work with marqueed as well as lassoed selections.

The Yum menu provides some special features such as brush shapes (32 in all), a grid, an option to work on the full screen (rather than in a window), and a Find Color command. Another Yum menu option allows you to switch be-

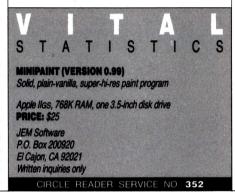
tween the 320 and 640 super-hi-res modes. We like this ability, although we had some problems with it. When we switched to the 640 mode, the palette adjusted to dithered colors much like those on our 320 palette, but when we switched back to the 320 mode, we lost all our original colors.

In this release, palette editing involves a new desk accessory (NDA) called Spectrum, which, in addition to the usual RGB editing, has a spread function. We've become spoiled by the spread function of Baudville's 816/Paint and Deluxe-Paint II and are happy to see it here. The desk-accessory approach is a novel way to add this feature to a program and may be useful in other programs in which you cannot edit the palette.

The program's documentation comes on the distribution disk as an AppleWorks word-processor document and an ASCII text file. The version we looked at was 0.99, a number that usually means the software is in prerelease form. As you know, we don't normally review prerelease software, but JEM Software is marketing the program

as is, with a \$15 discount on the final version to be released by Beagle Bros. We didn't run into any major bugs while testing the program, except for a few crashes when working with text. One thing you should be aware of, however, is that if you're finished with your picture and choose Close from the File menu, the program asks if you want to save your work. If, however, you simply click on the Close box in the picture window, your picture is gone—no reminder to save. Be careful!

MiniPaint requires 768K of memory and can run under GS/OS. It offers exceptional value for those who don't need, or can't af-



ford, the power of higher-priced popular paint programs.

CheapPaint

CheapPaint from Earl Gehr is available as shareware. Test out the program for two weeks, and if you like it, send Gehr \$10.

CheapPaint has all of its tools arranged horizontally across the bottom of the screen. The program uses somewhat unusual cursors and icons. For example, the pencil tool, unlike the pencil tool in most paint programs, is really a paintbrush. The appearance of its icon depends on the brush size, an implementation we were uncomfortable with. In fact, we found most of the tools slow and awkward. When you lasso an object, you must choose Copy or Cut from the File menu. Next you move the selected object (which is indicated only by its selection window, rather than the image itself) to its destination. Then you choose Paste from the File menu. This process is timeconsuming and not conducive to accuracy.

Rather than scroll bars or a hand tool, CheapPaint has small and large arrows in the lower right of

The Sider™ Storage Solutions

The PRAISES.

It seems like it happens year after year. The leading publications to the Apple II marketplace, in product reviews and round-ups, single out First Class Peripherals and *The Sider* for special praise.

This year, the accolades read like this:

1 INDEPENDENT MASS STORAGE SUPPLIER.

1988 APPLE II USERS BRAND PREFERENCE STUDY

1988 READERS' CHOICE AWARD, STORAGE PERIPHERALS.

A+ MAGAZINE

1988 "DREAM MACHINE" SELECTION, HARD DISK STORAGE.

A+ MAGAZINE

"ALL TIME BEST" / TOP TEN APPLE II HARDWARE PRODUCTS.

INCIDER MAGAZINE, DECEMBER 1988

We think the reason is simple enough. Value. *The Sider* gives you more reliable hard disk, tape and tape/disk combo subsystem hardware, more capacity choices, easier-to-use software, comprehensive documentation, and on-line help and diagnostics, and warranty protection. We give you smart-looking packages with



the palette for moving up and down within your document. Beside the arrows, the numbers 1 and 2 let you switch between two paint documents quickly and easily.

Like the tool palettes, the File menu has its own character. You can load and save color cycles, palettes, patterns, and pictures. We like the Delete File function—it can be a lifesaver if you, like us, tend to clean up your disks only after you get a Disk Full error message. The arrangement of the items on the File menu works, even if it is a bit eccentric; the Edit menu, however, is too far from the standard. The usual Edit menu is Undo, Cut, Copy, Paste . . . In CheapPaint, it is Undo, Copy, Cut, Horiz Flip, Invert, Paste Fonts, next on the menu bar, provides access to the first 15 fonts in the system folder. Like DeluxePaint II, CheapPaint uses a straight Fonts menu with the fonts arranged in alphabetical order-if you have a hard disk with many fonts installed, you cannot access the fonts whose names begin with letters toward the end of the alphabet.

The Color menu harbors the

magic of CheapPaint. This menu provides the usual color-editing, pattern-editing, palette-transfer (page 1 to page 2 and vice versa), and color-cycling commands. The Assign Palettes choice, however, is new, new, new!

The Apple IIGS can have up to 16 colors on each scan line and 16 different palettes on the screen, for a total of 256 colors. When the GS first came out, we wrote about this ability, but, unfortunately, none of the top three Apple IIGS paint programs use it.

In CheapPaint, when you choose Assign Palettes from the Color

V I T A L S T A T I S T I C S

CHEAPPAINT (VERSION 1.3)

A program that gives you a full complement of graphics tools and 256 colors on the screen at once—and you can try it before you pay for it.

Apple IIGS, 768K RAM, one 3.5-inch disk drive PRICE: \$10, shareware

Earl Gehr

1135 A Touhey Avenue Charleston, SC 29404 (803) 767-3239

CIRCLE READER SERVICE NO. 353

menu, a dialog box appears that allows you to assign a palette to a scan line or to a range of scan lines. The assignment can either be to a cycle set (as with most other GS paint programs) or to a painting in progress.

Imagine a sunset. With Cheap-Paint, you can paint the sky with a palette of oranges, reds, and yellows and the sea below with a palette of blues tinged with orange, reds, and yellows. Figure 1 illustrates the possibilities. Roberta used four palettes for this landscape. (On the left of the image, she's indicated where each palette ends.) She assigned the first palette to lines 0-39, the second to lines 40-126, a third to lines 127-167, and a fourth to lines 168-199. She purposely made the image simple to let you count the number of colors in the painting, if you're the patient sort. Once you get past 20, you can stop counting-you've gotten the message.

The quibbles we have about CheapPaint's user interface are mitigated by the ability to paint with all 256 colors at one time. Unfortunately, you may not be able to

The Sider™ Storage Solutions

The PRICES.

minimal desktop footprints and, now, six-foot cabling that lets you put *The Sider* out of sight for a *zero desktop footprint*. And we give all of it to you for prices that, as you will see on the right, are praiseworthy indeed.

D2	20 MB	Hard Disk Subsystem	\$	595
D4/A	40 MB	Hard Disk Subsystem*	\$	795
D4/T	40 MB	Hard Disk Subsystem/Turbo*	\$	995
T6	60 MB	Backup Tape Subsystem	\$	895
D9	90 MB	Hard Disk Subsystem/High Performance*	\$	1695
C96 Combo	90 MB	Hard Disk & 60 MB Tape Subsystem/High Performance*	\$2	2495

*Features SiderFile and ProSEL disk and tape software.

To order, call direct for the dealer nearest you or speak with one of our First Class sales representatives.

800) 982-3232

FIRST CLASS

use multipalette images with other programs, but this situation may change if enough people buy CheapPaint.

CheapPaint can run under GS/ OS, and its documentation is in the form of text files. We think you'll want to have CheapPaint in your library of Apple IIGS programs. Paint.256

Get your old Apple Graphics Tablet out of the closet, folks-Paint.256 by Clyde Godfrey comes with an NDA that lets you use the

These new programs provide features the big guys don't, and/or they provide an incredible value.

tablet with any GS paint program, which alone might be worth the price of the software.

Paint.256 also can handle 256

colors on-screen at once, and its method of assigning colors to the scan lines is more convenient than CheapPaint's approach. With a reduced version of your graphic and all the palettes on-screen at once, you can assign palettes to scan lines more intuitively (see figure 2). Further, Paint.256 has a spread function, which we think is essential in working with as many colors as the Apple IIGS offers. As a bonus, Paint.256 lets you spread hue and chroma.

The tool and feature set of Paint.256 is similar to CheapPaint's but offers many interesting enhancements. The Edit menu, for example, adds Make Black, Make Gray, Lighter, Darker, and Lines to the usual edit commands. The first four commands shift colors in the selected areas according to their positions in the palette (for example, Lighter shifts each color in the selected area toward the white end of the palette). Make Black changes the selected area to a black-andwhite image. We particularly like the Lines command, which places a black outline around all the color boundaries in the selected area. giving a stained-glass effect.

Different? Yes. Better? Yes and

Like CheapPaint, Paint.256 has a user interface that diverges from the standard Apple one. The tools are listed on the Goodies menu; no other paint program we know of lists the tools on a menu when there is already a tool palette on the screen. We still haven't figured out a good reason for this addition.

The most disturbing divergence from the standard paint-type interface is the absence of a color palette on the screen. You must invoke the Choose Color dialog box from the Edit menu in order to see your painting colors. By the time the dialog box has appeared and you've picked a color, you've probably forgotten what you were painting. The alternative is to pick your colors by pressing the number keys on the keyboard. Of course, you might forget whether red is number 5 or 6. When you're working with more than one palette, you've really got a problem.

We don't have the space here to describe every nuance of this program. It has many things we like, such as different pen modes; a

CUSTOM DESIGNED REPRINTS

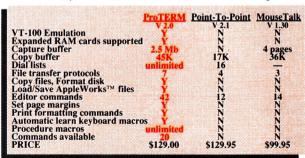
When your product or company is covered by this magazine, you can order custom designed reprints* for use in promotional mailings, sales kits, press releases and point-ofpurchase displays.

For more information on how you can take advantage of this wonderful promotional opportunity, call or write: Jennifer Locke— Reprints Manager, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016, *Minimum quantity 500 212-503-5447.

TELECOMMUNICATIONS SOFTWARE

Unleash the power of your **APPLE®**, **EPIC™**, **DATALINK™**, **HAYES™**, or any Hayes-compatible modem with *ProTERM*™ telecommunications software. Only ProTERMeasily links your //c, IIGS, Enhanced //e or Laser 128 with VAX and other mainframe computers, automatically learns routine keystrokes and integrates with your AppleWorks™ word processor files. *ProTERM* will even log onto

a BBS, retrieve and download your mes-sages or information and sign off completely unattended! ProTERMsoftware includes pop-up menus and detailed instructions, making it the simplest and most user-friendly modem software package available.



ProTERM

SOFTWARE

Also, fine hardware products from Checkmate Technology: Memorysaver - ROM disk system for the Apple IIGS MultiRam CX - memory upgrades for the Apple IIGS MultiRam (X - memory upgrades for the Apple //c MultiRam //e & RGB - memory upgrades for the Apple //e \$149.95 from \$229.95 from \$219.95 from \$144.95

For more information about Checkmate's full line of Apple II & Macintosh products, see your favorite dealer or order directly from:

All prices are subject to change without notice. ProTERM, MemorySaver, MultiRam and the Chess piece logo are trademarks of Checkmate Technology, Inc. Other brand and product names are trademarked by their

Checkmate Technology, Inc. 509 S. Rockford Dr. - Tempe, AZ 85281 (800) 325-7347 • (602) 966-5802





CIRCLE 127 ON READER SERVICE CARD

LOOKING FOR ART?

Even if you flunked Art 101, you can still paint like a master. ■ Just snap the ThunderScan

cartridge into your ImageWriter* (except LQ) and create a powerful imaging sys-

powerful imaging stem for your IIe, IIc or IIGs. One that's fully compatible with most leading Apple II painting, drawing graphics and personal publishing programs.

ThunderScan's unique features give you great

works of art without lots of work. For example, you can adjust the brightness of a Bruegel. Or change the contrast in a Chagall. All without re-scanning the art. Choose from four image modes: halftones, line art, 16-level gray scale, or color effects. And ThunderScan

supports High Res, Double Res, and Super Res displays. In fact, in the IIGS Super Res display

you get quality not found with any other imaging system. ■ And at just \$219 suggested retail price from your dealer, ThunderScan can save you money while it's saving

your Monet. ■ Purchase ThunderScan before 3/31/89 and receive a coupon entitling you to buy Paintworks Gold™ for \$50 or Paintworks Plus™ for \$40.

When your image really matters.



Thunderware® 21 Orinda Way, Orinda, CA 94563 415/254-6581

WE'LL GIVE YOU THE WORKS.



spare page; and the ability to load and save palettes, brushes, and patterns. Among the many things we don't like are the way the Copy command works, the lack of an actual-view window for zooming (Paint.256 calls the mode Fat Nibbles), and the lack of a warning to save when you close your picture. When you're deep into the creative process, suffering from a mild headache from trying to remember which keys to press to get green or orange, it's easy to forget to save.

How better to end the winter than with an exciting new paint program? Or three?

And how about that rare but devastating moment when you accidently click on the close box? It does happen. A simple dialog box asking if you wish to save before closing or if you wish to cancel the close is not asking too much.

Paint.256 has a help function in the form of an NDA and comes with a manual. The manual is quite amateur for a relatively expensive program. It's long on typos and folksy commentary and short on explanations. It lacks an index and contains little information on using the tools. Some tutorials would be quite helpful.

Seventy-five dollars is steep for this program. The author promises some new and exciting features (such as perspective) in version 2.0, which will be sent free to all registered users of the current version (1.0). DeluxePaint II, Paintworks Gold, and 816/Paint are priced competitively, are more elegant, and offer more features. None of them, however, offer multiple palettes—but now we can get that with CheapPaint, which, as its name implies, is cheap.

Winter's End

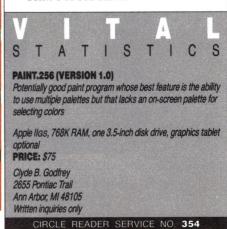
None of these new programs will take the place of the high-end Apple IIGS paint programs, but each one deserves your attention. They provide features the big guys don't, and/or they provide an incredible value. Besides, how better to end the winter than with an exciting new paint program? or three?

Speaking of Graphics

We're not in the business of reviewing games, but if you want to see impressive IIGS graphics, check out Video Vegas from a company called California Dreams. The title screen, animated dollar bill, poker machine, and (most of all) picture cards should inspire you. We've seen many a jack, queen, and king on our computer screen, but these have them all beat!

That's it for now.

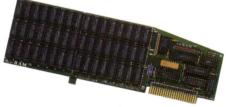




Three good reasons to buy a memory card from Applied Engineering.

Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

GS-RAM. Start with as little as 256K of memory and grow in affordable 256K increments to 1.5 MEG (an amount that once sounded large, but is now considered a moderate amount of memory expansion.) Incorporates 256K x 1 chips.



GS-RAM w/256K \$219 1 MEG \$639 1.5 MEG \$919

GS-RAM Plus.™ Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, this card has recently found favor with many moderate users. MEG-sized jumps in memory have now become practical for many users because of the enormous memory requirements of today's software titles. Incorporates 1 MEG x 1 chips.



GS-RAM Plus w/1 MEG \$599 2 MEG \$1049 3-6 MEG CALL GS-RAM Ultra. AE's newest memory card incorporates a new chip - the 256K x 4, which has four times the density of 256K x 1 chips. GS-RAM Ultra offers incremental expansion like the GS-RAM and ultimate size like the GS-RAM Plus. It's expandable from 256K to 4 MEG in 256K increments, so you can start small and still grow to a massive 4 megabytes.



GS-RAM Ultra 256K \$239 512K \$399 768K-4 MEG CALL

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hard-ware-based applications to be loaded permanently into EPROMs...an increasingly important feature when application become available from Applied Engineering and others.

Consider your needs.

Need a moderate amount of memory?

GS-RAM lets you start small and takes
you up to 1.5 MEG. Need lots of memory
right away? GS-RAM Plus is your best
bet. Want to start small and leave open
the possibility of a huge internal memory?

GS-RAM Ultra is your card. And our GS

Expander™ piggyback card adds up to 2

MEG to any of the three cards. Call AE
for prices.

Trade in your Apple card.

We even offer a trade-in credit for your Apple IIGS memory card, so you can switch to an AE card with more features and greater capacity. Still have questions? Call us, we'll be happy to discuss your particular applications.

DMA compatibility.

All three of our GS memory cards are fully DMA compatible (and they're the ONLY large-format cards that are), so they not only run all GS software, they also support *current and future* DMA peripherals.

Installation couldn't be easier, the cards just plug in. And all three cards feature Applied Engineering's meticulous craftsmanship, along with our 5-year warranty, our 15-day money-back guarantee* and our American-made pride.

Still more:

Each of our GS memory cards comes with many other exclusive features, *disk caching* that tremendously speeds up many programs, including AppleWorks, by virtually eliminating disk access. Our *diagnostic utility* feature graphically detects the presence of bad or improperly installed chips and tests for CAS before RAS chips. And our *AppleWorks enhancement* package dramatically increases AppleWorks' word processor lines (from 7,250 to 22,500), database records (from 6,350 to 22,500), clipboard capacity (from 255 lines to 2,042) and more.

Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm 7 days. Or send check or money order to Applied Engineering.

MasterCard, VISA and C.O.D. welcome.

Texas residents add 7% sales tax. Add \$10 outside U.S.A.

Æ APPLIED ENGINEERING®

The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective bolders.

*When purchased from Applied Engineering or thru a participating dealer.

SPEAKING OF GRAPHICS G A L L E R Y

THE BIRD, WILSON LEE, North Andover, MA







ALL THINGS BRIGHT AND BEAUTIFUL

the lowly frog, our "Gallery" this month is proof that all of nature's creatures great and small can look bright and beautiful on your computer's color monitor. "Panda.IIGS" and "Lion2" are DeluxePaint II renditions; 14-year-old Wilson Lee used Dazzle Draw to create "Butterfly," "Frog," and "The Bird," as did Mary Jane Howard to paint her "Leopard."



PANDA.IIGS, JOHN EMERSON, Miami, FL



PUPS, **PATTI ZIMMERMAN** Alvarado, TX



LEOPARD, MARY JANE HOWARD, West Islip, NY



LION2, RUTH D. TAYLOR Destin, FL



FROG, WILSON LEE, North Andover, MA



BUTTERFLY, WILSON LEE, North Andover, MA

COMPUTER

Since 1979

WE WON'T BE UNDERSOLD!*

Prices Expire 3-31-89

Magnavox Macintosh® **Color Display Monitor**



- 640 x 480 resolution
- Glossy CRT Faceplate
- Signal cable included
- 2 year warranty

Super Low Price

List \$799

Typewriter/Printer ³ The Versatile Professional Electronic Typewriter For The Home Or Office



- 60,000 Word Dictionary Auto Return
- Self Demonstration
- Word-Right AutoSpell
- 16 Character Display
- 12K Memory
- Battery Back-Up
- 5 Line Correction
- WordErgser
- Relocate
- Decimal Tab • 10, 12, 15 Pitch
- Auto Paper Insert

Auto Center

Auto Zone

Auto Underscore

Auto Half Space

• End of Page Warning

* Apple, IBM®, or Commodore Parallel Port Interface & Cable List \$149.95 Sale \$79.95

Our Low Sale Price List \$499

The Popular Laser Complete Apple IIe & IIc **Compatible System**



- 128K Memory
- Genuine IBM® printer included while supplies last
- Laser 128 Apple Compatible Computer
- 12" Amber or Green monitor
- Quality Word Processor, Spreadsheet and Database

Our Low Sale Price List \$1409

Laser 128/Apple IIc or

- 256 Bytes/Sector 160K Bytes Capacity
- 5¼" Floppy Disk Drive • For Laser 128/Apple IIc or IIe

Our Low Sale Price

List \$299

He 160K 51/4" Disk Drive

Laser 128, Macintosh, Apple lic, lie or il plus 800K 31/2" **Disk Drive**



- For Laser 128, Macintosh Apple Itc, Ite, or II plus 3½" Micro Disk Drive Apple IIc, IIe, or II plus

Our Low 5 Sale Price

FREE CATALOG



Call For Your Free **Catalog With Everything You Need** For Apple

54" Floppy Disks

100% Certified • Lifetime Guarantee

oach

Double Sided **Double Density**

Lets of 25



Made in the USA

3½" Micro Disks 188% Certified • Lifetime Guarantee

Double Sided Double Density

Lets of 50

no limit

ext. 21

800 - 289- 9473 ext. 21

Outside Service Area call 312 -382-5058

We Love Our Customers! COMPUTER DIRECT 22292 N. Pepper Rd. Barrington, IL 60010



BEST SERVICE IN THE USA

- 90 Day Immediate Replacement
- Experts in Customer Satisfaction
- Free Technical Assistance
- Bulletin Board Service

PRICE IS NOT ENOUGH!

- Fast, Low Cost Delivery
 15 Day Home Trial
- No Credit Card Fees
- Free Catalogs

720 CPS 15" Printer

Multi-Head Wide Carriage Printer With High Dot Resolution

Hi-Speed 180 CPS NLQ 180-II Printer

Lifetime Warranty on Printhead **Our Best Printer Buy**



- 2yr. Immediate Replacement
- Dot Addressable Graphics
- High Speed Dot Matrix
- Italics, Elite, Condensed, Pica
- Centronics Parallel Port
- 8K Print Buffer
- Near Letter Quality from front panel
- Low Cost Adapters available
- Pressure Sensitive Controls

13" Color Composite Monitor



- Anti-Glare Screen
- Audio Speaker
- Volume Control
- Black Matrix Tube
- Horizontal Resolution 260 Lines
- Includes Composite Cable

• 720 CPS - 150 CPS NLQ

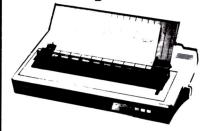
- 8K Print Buffer
- Print Speed of 214 LPM In Draft
- 6 Print Heads Achieve High Dot
- Resolution In Higher Speed
- NLQ Speed Of 47.4 LPM
- 136 Column Wide Carriage
- IBM and Epson Mode
- Parallel Centronics Port

Our Low Sale Price

Our Low Sale Price List \$329

Our Low Sale Price

15" 24-Pin Letter **Quality Printer**



- 180 c.p.s. in draft pica mode
- 60 c.p.s. in letter quality mode
- 96 user definable characters
- 32K RAM Memory
- Tractor/Friction Feed
- Uni-directional/Bi-directional
- 15"Impact Dot Matrix
- 12K Buffer
- Parallel Centronics Port

Our Low Sale Price List \$699

Ultra Hi-Speed Printer

300 CPS Draft • 50 CPS NLQ **With Color Printing Capabilities**



- 300 CPS Draft 50 CPS NLQ
- Front Panel Margin Setting
- Download Character Setting
- Variety of Characters & Graphics
- Parallel & Serial Interface Ports
- Auto Paper Load & Ejection
- IBM and Epson Mode
- Botton Feed & 10 K Buffer
- Optional 7-Color Printing Kit ... Sale \$99.95

Our Low Sale Price

1200 Baud Pocket **Modem by Migent**



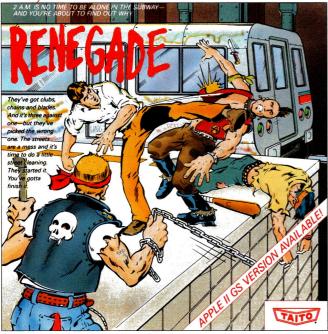
- Hayes compatible
- Runs on AC or battery
- Turns on/off automatically
- Small enough to put in your pocket
- Plugs directly into your serial port on many computers
- · Easy to use; no switches to set
- On-screen status lights show call progress
- RS232 Compatible

r Low Sale Price

VISA MASTER CARD COD

Prices do not include Shipping Charges. Call to get Your Lowest Delivered Cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd Day or Overnight delivery available. Minimum shipping charge per order is \$3.75, Illinois residents add 6½% sales tax. We ship to all points in the U.S; Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. (Monitors only shipped in Continental USA) Prices and availability subject to change without notice. Computer Direct will match any valid nationally advertised delivered price on the exact same product & payment method (excluding sales taxes)





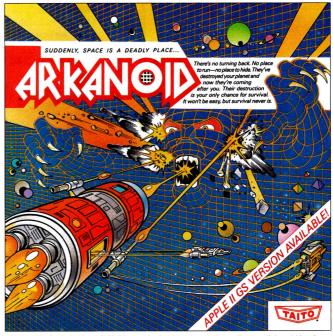
This is the original arcade hit. Thrill to the arcade quality graphics of this fast-paced, streetstyle karate brawl. Find out what real action is all about!

If you want to make your Apple explode with action you've got to give it dynamite games. These are the world famous original arcade screamers. Bubble Bobble™, Renegade™ and Arkanoid™ will make your Apple and Apple II GS computers do things you didn't think were possible.

Everyone knows that arcade games are the



The #1 game in Europe for over 3 months. Scramble through 100 screens of laughs as your brontosaurus buddies, Bub and Bob, drive you crazy with non-stop action.



Don't settle for imitations. Add this arcade classic to your video collection. Arkanoid has been voted "one of the best home video games ever" by Electronic Game Player Magazine.

benchmark for all other video games and Taito has been an arcade leader since 1953. Since then we've made over 1,000 classics for arcade and home play. Count on Taito to bring the heat of the arcade to your home computer.

Buy Taito products at leading stores everywhere. Visa/Mastercard holders can order direct anywhere in the U.S. by calling 1-800-663-8067.

TAITO IN

reserved. Apple and Apple II GS are trademarks of Apple Computer, Inc. Advertisement by: Qually & Company, Inc. (Chicago).



BY BOB LINDSTROM

Interplay's on its own, Battlechess marches to its own drummer, and support lines own un to user demand.

INTERPLAY **PLAYS SOLO**

It gave you The Bard's Tales and Wasteland from Electronic Arts. It gave you Tass Times in Tonetown and On Borrowed Time from Activision/Mediagenic. It gave programmer Bill "Burger" Heineman (well known to "GamePort" readers) a place to put secret graphics files.

But now, Interplay Productions is on its

After creating some of the biggest-selling programs in the business for some of the biggest publishers in the business, **Interplay Productions** has slipped from the protective publishers' fold

and become an independent publisher, distributed by Mediagenic.

And how is Interplay announcing its independence? With two impressive new products for the Apple II: Neuromancer, a IIe/c/gs/c+ role-playing game based on William Gibson's cyberpunk novel, and Battlechess, a cockeyed and eye-filling new approach to computerized chess on the GS.

In products such as Bard's Tale III and Wasteland, Interplay helped to add increasingly detailed story lines to the conventions of computer role playing. Neuromancer commences with a great story. William Gibson's best-selling novel depicts a smarmy, gritty, greasy future of computer cowboys, hackers on the silicon frontier who ride the wild network in search of subversive adventure.

With the creative participation of 1960s social guru (and renowned user of controlled substances) Timothy Leary and a musical score by Devo, Neuromancer—the computer game—tries to bring a sophisticated futurist vision to electronic entertainment.

Windows and icons allow easy control of the characters. There's no second-guessing a parser or calculating experience levels here. Evocative graphics suggest the underworld atmosphere and sleazy characters of

Gibson's low-down fantasy setting. You wander this world conversing with a cast of peculiar characters, logging onto



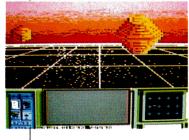
Chess comes alive: Interplay's Battlechess

bulletin boards, and breaking into vast, multinational databases in order to find out who's killing all the hackers.

Neuromancer moves close to having true plot and characterization. Exploration and deduction, not hit points and puzzle solving, are the focus. Those who enjoy a provocative story will find that Interplay has not only folded it inventively into this computer game but has also done it with a no-pulled-punches maturity that leaves the bite of Gibson's vision intact.

MONTY PYTHON'S FLYING CHESS

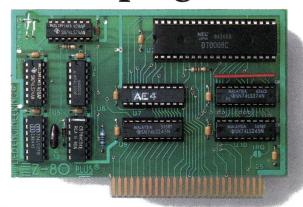
For its other debut product, Interplay opted for fantasy of another kind.





Chiba City circa 2058. Some of its citizens are downright unfriendly.

With the Z-80 Plus, run over 5000 new CP/M programs.



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

E nter the CP/M world with the new Z-80 Plus card from Applied Engineering, and introduce your Apple IIe, IIos or II+ to thousands of CP/M programs. Only the Z-80 Plus comes standard with the new 5.1 software, the most advanced system ever for running CP/M programs.

The new 5.1 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. If you have an extended 80-column card, all 128K is usable. And if you have RamWorks, RamFactor, gsRam, gsRam Plus, or an Apple memory card in your IIe, IIgs or II+, up to 1088K is available.

Each Z-80 Plus comes with our CP/M Ram Drive software, enabling most memory cards to work as a high-speed Ram disk so CP/M software can run up to *twenty times faster*. So packages like WordStar, dBASE II, Turbo Pascal and most others 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 \$149!).

Fully compatible with ALL CP/M software
 Fully compatible with 5¼" and 3½" disk drives as well as most hard disks including the Sider
 Fully compatible with Microsoft disks (no preboot required)
 Specifically designed for high speed operation
 Runs WordStar, dBASE II, Turbo Pascal, 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

To get your Z-80 Plus or for more information see your dealer, or call 214-241-6060 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 7% sales tax. Add \$10.00 outside U.S.A.

Æ APPLIED ENGINEERING™

The Apple enhancement experts.

P.O. Box 5100, Carrollton, TX 75011 (214) 241-6060

CPM is a registered trademark of Digital Research.

GAMEPORT

Picture a chessboard that's come to life with the sense of humor of a demented team of Pythonesque programmers.

Picture a chessboard that's come to life with the sense of humor of a demented team of Pythonesque programmers. That's Battlechess from Interplay Productions for the Apple IIGs.

Yes, you guessed it. Battlechess is yet another chess program. Play against the computer. Play against a human. Play against a human through a modem connection. Set the difficulty levels low so you can feel self-confident or set them high and convince yourself that computers will take over the world.

But in Battlechess, every piece is alive and animated. Graphics demo meets classic strategy meets mondo-bizarro chuckles. A hapless pawn encounters an opponent and watches in bemused helplessness as his limbs are sliced away, leaving him hopping on one foot (à la the famed scene in the film Monty Python and the Holy Grail). A hipgyrating queen jiggles provocatively before magically vaporizing her prey. And how can the feeble king possibly defend himself in an attack? Hey, your highness! Make my day.

In Battlechess, graphics maven Todd Camasta (who made the IIGs Bard's Tale conversions true works of sword-and-sorcery art) has tapped the well of Disney-like character animation and given each piece a personality and style, not to mention some first-rate sight gags conceived by the whole team.

Add digitized grunts, wails, and groans, and you have computerized chess coming at you in an entirely new way. It's a real showpiece product that will appeal to intellectual gamers as well as those who just want to revel in the audiovisual capabilities of their IIGS.

For more information, contact Interplay Productions at 1575 Corporate Drive, Costa Mesa, CA 92626; (714) 549-2411.

OPERATOR? INFORMATION PLEASE

Customer indifference isn't an issue in the computer-game industry. Wherever man meets computer, you have questions. And those burning questions can sometimes be extinguished only by a fast trip to the telephone. As a result, telephone support lines are busier than ever.

Years ago, Sierra On-Line located in secluded Coarsegold, California, to escape from the ulcer-in-

GAMEPORT

ducing atmosphere of Silicon Valley. But we tracked 'em down, gang.

It turns out that customer use of Sierra's telephone support line was overwhelming. During peak hours, the local telephone exchange was turning away thousands of calls per hour, and phone lines were clogging up às far away as Sacramento and Modesto.

In order to better serve customers and, perhaps, keep the angry residents of Modesto and Sacramento from storming the office, Sierra has enlarged its telephone support staff and extended its game-hint hot line to operate from 8 A.M. to 9 Р.м. Pacific time.

Epyx is another company that has encountered an abundance of enthusiastic fans in need of advice. To ease the demands on its telephoneeared technical-support staff, the company has created the Epyx On-Line Service Center, a computer- and modem-based bulletin-board service that operates 24 hours a

For the cost of a telephone call (you pay the long-distance charges), you and your modem can get game hints, product information, productrelease announcements, beta-test information, and product-update data.

The system operates at 300 and 1200 baud, day and night, at (415) 364-0281.

At least they know we're interested . . .

DEVELOPERS IN MOTION

Last month, "GamePort" pointed out the mystical merits of Warlock, a magical arcade game for the IIGs developed by Infograme of France and imported to these shores by Three-Sixty.

Plan on seeing much more of Infograme in the future. The leading French developer of computer games has been purchased by Epyx. In the next year, Epyx will publish six Infogramedeveloped products under its own label, as well as several new titles under the Infograme label.

It's just more evidence that eating ghosts, blasting spaceships, and killing zombies and dragons are fast becoming gestures of international peace.

Finally, Scott Orr, the founder of GameStar and a leading designer of sports-simulation software, has signed on as a designer and developer with Data East.

Orr will be the mastermind behind a line of sports-action games to be published by Data East, which is known primarily as a publisher of arcade games such as Karate Champ and Ikari Warriors.

But don't head down to your local software store just yet. The first of Orr's new Data East products won't be finding their way to stores until late 1989. Sigh.

There used to be a dozen 80 column cards. only the best survived



Viewmaster 80™

There's a good reason why Viewmaster 80™ has left the competition in the dust . . . total compatibility. From our free AppleWorks enhancement software to our famous warranty and complete technical support, Viewmaster 80 stands head and shoulders above any other 80 column card.

The powerful software we include allows your II+ to run AppleWorks with as little as 64K (or more) of memory. (We recommend the RamFactor memory card, but any compatible Apple memory card will work). AppleWorks runs with expanded records and word processor lines, and added features like multi-disk savings, time and date display with any ProDOS clock and many, many more.

16K Pocket Rocket™

Also for II+ owners, our Pocket Rocket expands your internal memory 16K to 64K and allows your II or II+ to run ProDOS. It's fully compatible with Applesoft, CP/M and Pascal and the low chip count reduces power requirements.



Lowercase ROM Chip™

Add lowercase capability to your II or II+ with AE's Lowercase ROM Chip. Fully supported by AppleWriter and other word processing programs, the chip makes communicating easier.

Also supported by AE's On Line 64 communications software, included with our DataLink™ modem.

Viewmaster 80	\$159
16K Pocket Rocket	\$89
Lowercase ROM Chip	\$24

Applied Engineering also makes a complete line of II and II+ compatible memory cards, accelerator cards and other peripherals.

Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.



The Apple enhancement experts

A Division of AE Research Corporation.

(214) 241-6060 P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



Who's top dog in Chicago's gangland, WWII battles, and the boxing ring?

THAT TODDLIN' TOWN

So you think it's easy being a gangster? Then you'd better get the new Cinemaware "interactive movie," The King of Chicago, and give that ignoble profession a try. You'll be starring in the role of Pinky Callahan, an ambitious mug in Chicago's Northside gang, circa 1931 (the year Al Capone went to jail for tax evasion). As a high roller eager to fill Capone's shoes, you'll have to accomplish several interrelated tasks: gain control of your own organization by "retiring" the aging boss; keep your flashy, materialistic mistress in line; be a strong leader of your own men; maximize the profits from your speakeasies and other racketeering

enterprises; and eventually force the rival Southside gang out of business, thus earning the title of The King of Chicago.

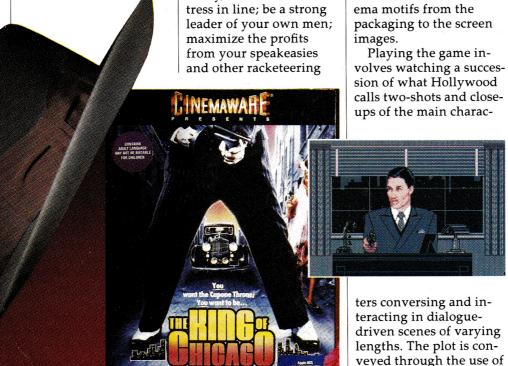
A snap, right? Guess again. This is a game of strategy, both on a territorial and a social level. Whom can you trust? No one. Your allies can turn into enemies. Your girl can two-time you without batting a false eyelash. And money can buy loyalty—sometimes.

The King of Chicago is really an old-fashioned adventure game done in a new, gimmicky way, using Apple IIGs graphics to particularly dazzling advantage. It is billed as a movie inspired by the gangster films of the 1930s and carries the cinema motifs from the packaging to the screen images.

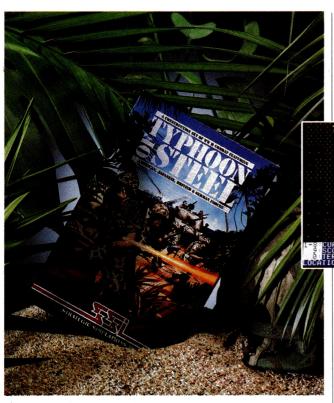
cartoon-style dialogue balloons.

These scenes are semianimated: The people remain stationary but their mouths move, their eyes blink, their heads turn, and their arms reach out in an attempt to gesture. Every so often, Pinky "thinks" about his alternatives in the given situation, trying to decide among two or three options. That's where you come in. Using the mouse, you choose one of his "thoughts," which directs the action down the path you have selected, thereby affecting not only Pinky, but also all the other characters in that episode.

Because of a random element governing the other characters' reactions and the amount of control you have over Pinky's actions, there are many, many ways to play The King of Chicago. You're unlikely to play the same game twice. The documentation also promises three completely different ways to win. True to this game's ancestry, you will err in your decisions and have to restart the game, choosing options you've rejected previously. The King of Chicago does not offer any kind of "save game" feature-you have to start from scratch every time, which can be a drag. There is a pause mode (called Intermission, of course), but once



REVIEWS



you start, you have to play the game to its conclusion or shut down midway. A typical winning game lasts about an hour, and a losing game can take as little as five minutes.

The King of Chicago is innovative, interesting, and a "must-get" for gamers tired of killing aliens and bored with save-the-world scenarios. Be warned, though: The dialogue and situations are adult-oriented, and parents may want to exercise caution before letting children play. But the adults will have so much fun pretending to be James Cagney or George Raft that I doubt

the kids will be able to get near the computer until they grow up.

Donald Oliver



THE KING OF CHICAGO Apple IIGS, 768K RAM, one 3.5-inch disk

drive, ProDOS, copy-protected **PRICE:** \$49.95

Cinemaware Corporation 4165 Thousand Oaks Blvd. P.O. Box 5083 Westlake Village, CA 91362 (805) 495-6515

CIRCLE READER SERVICE NO. 401

WWII TACTICS

Tactical computer games fall into two main categories: "hard" designs that emphasize technical



specifications of weapons and "soft" designs that

seek to simulate the behavior of leaders and fol-

lowers in battle. SSI, the

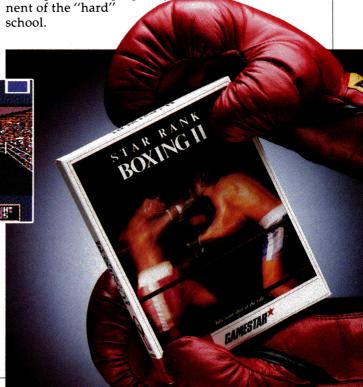
company that originated

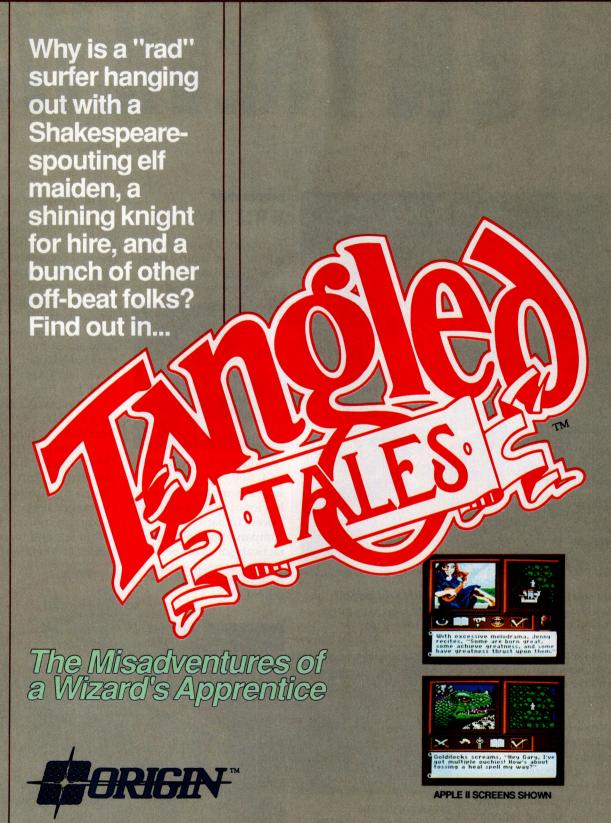
tactical games on person-

al computers, is a propo-

The company's latest release, Typhoon of Steel, is a new squad-level World War II game that lets you command American, British, Japanese, or German forces using almost any equipment in service between 1939 and 1945. You can choose from seven historical scenarios: Kakazu Ridge (Okinawa), April 19, 1945; Iwo Jima, February 19, 1945; Omaha Beach, June 6, 1944; The Bocage (Normandy), June 1944; The Ardennes, December 1944; Kohima (India-Burma border), April 1944; and Kampar (Malaya), December 1941.

You can construct your own maps and forces for almost any small-unit ac-





Coming in March to your favorite software retailer for Apple II and Commodore 64/128!

Not available at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for VISA/MC orders; or mail check/money order (U.S. \$) to ORIGIN, 136-B Harvey Road, Londonderry, NH 03053. All versions \$29.95. Allow 1-2 weeks for delivery.

REVIEWS REVIEWS

Although tanks may have gotten the glory, artillery was still the Queen of Battle in this war.

tion in the European or Pacific campaigns, or you can let the computer construct a series of typical battles, which you fight in sequence as a campaign game, with opportunities to rebuild and reequip your force between battles.

The great strength of this game is the detailed

modeling of weapon effects and the vulnerability of armored fighting vehicles. Each tank is separately rated for hull front and side and turret front, side and top armor; tracks can be knocked off; every shot is deducted from your ammunition supply; and every casualty is counted in the final reckoning.

The game also shows that, although tanks may have gotten the glory, artillery was still the Queen of Battle in this war. The big guns usually do the damage, and you cannot win unless you use them properly.

Unfortunately, the user interface turns the game into an endurance contest. It offers a hodgepodge of alphabetic menu choices, a ponderous playing sequence, and a tedious recitation of the results of every single shot. By stubbornly clinging to the outdated 64K RAM limit, standard hi-res graphics, and keyboard menus, SSI has done little to improve the playing environment. You can't even use a joystick to move the cursor or select a unit—you use the number keys, which are mapped in a clumsy way that doesn't match

Apple's numeric-keypad layout.

You can choose a new or saved game, specify one or two 5¼-inch disk drives, assign the computer to play either side, set a handicap level, determine how long flash messages will remain on the screen, and choose to play a canned scenario or build one from scratch.

The 43-page manual is supplemented by a 16-page booklet of tabular weapon and unit data. Together, the back pages of the two booklets summarize the game menus, but there is no quick-reference card to explain the



Everyday People on CompuServe

Communicate.

When it comes to getting your message through, nothing delivers like EasyPlex, CompuServe's electronic mail service. Businesses, families, and friends can

communicate across the country, and around the world. Through EasyPlex, members can also communicate with MCI Mail® and Telex® users, as well as send fax messages

"I bought my son in New York a CompuServe package and modem, and we often keep in touch that way. It's nice to be able to send messages or share files when we need to."

— David Babb, Attorney— James Babb, Physicist

directly from their computers.

There are hundreds of discussion Forums and the original CB Simulator, where you can "talk" to other members from all ages, professions, interests, and cultures. Call 800 848-8199, or see your computer dealer. The next time you want to drop someone a line, simply go online.

CompuServe®

CIRCLE 271 ON READER SERVICE CARD



Mail order sales are governed by rules of the Federal Trade Commission (FTC) and various state laws. These guidelines are published by A+magazine as a service to you.

FTC rules say:

- **1.** The Seller must ship your order within 30 days of receiving it, unless the advertisement clearly states it'll take longer.
- 2. If it appears that your order will not be shipped when promised, the Seller must notify you in writing in advance of the promised date, giving a definite new date, if known, and offering you the opportunity to cancel the order with a refund or consent to a definite delayed shipping date or an indefinite delay.
- 3. The Seller's notice must contain a self-addressed card or envelope with which you can indicate your preference. If you don't respond to this notice, the Seller may assume you agree to the delay, but must either ship or cancel your order within 30 days after the original shipping date promised or required. A prompt refund must be made when an order is cancelled.
- **4.** Even if you've consented to an indefinite delay, you retain the right to cancel the order at any time before the item has been shipped.
- **5.** If you choose to cancel an order that has been paid for by check or money order, the Seller must mail you a refund within seven business days. If you cancel an order for which you paid by credit card, the seller must credit your account within one billing cycle following receipt of your request. Store credits or vouchers in place of a refund are not acceptable.
- **6.** In the event that the item you ordered is unavailable, the Seller may not send you substitute merchandise without your express consent.

TIPS WHEN ORDERING When ordering by mail:

- State precisely what merchandise you want, specifying details such as model, make, size, component parts, etc.;
- Confirm the price and expected delivery date as stated in the ad-
- Indicate whether you will accept a substitute product if the item you ordered is unavailable, and, if not, that your payment should be returned;
- Don't send cash, you will have no record of payment if a problem arises, and;
- Keep a copy of your order and all other correspondence with the Seller. Your records should include the company's name, address and phone number; a description of the item ordered; your cancelled check or a copy of the

money order; record of the date you mailed the order; and any sales slips and shipping receipts.

When ordering by phone:

- Note the time and date of your conversation and the name of the person you talk with;
- Make a record of your order, the price, its promised availability and the components to be expected;
- Save all correspondence associated with your order, including your cancelled check or a copy of the money order, and any written confirmation sent by the Seller.

Questions you should consider asking:

- Does the advertised item come with all necessary parts and accessories? Are they from the same manufacturer?
- Is it available for immediate shipping? If not, when will it be available?
- Has there been an increase in the advertised price?
- What warranties does the item carry? Who provides the service?
- What is the Seller's return policy?
- What is the Seller's refund policy?
- With whom should you correspond if there is a problem?

IF YOU HAVE PROBLEMS:

- 1. If you have not received your order as promised or if the item is defective, immediately notify the Seller in writing referring to your order by description, price, date, as well as by account number and order number, if available. Make sure you keep a copy of the letter.
- **2.** If you complain by telephone, send a follow-up letter to confirm what was said.
- **3.** If you think the merchandise is defective, reread your product instructions and your warranty carefully to be sure you don't expect features or performance the product isn't designed to give. Then contact the Seller for instructions. Don't return it to the Seller until you have been instructed to do so.
- **4.** When returning merchandise make sure you keep the shipper's receipt or packing slip; your right to be reimbursed for postal cost is determined by store policy.
- **5.** If you have completely discussed your problem with the Seller and are still not satisfied, write to the consumer complaint agency in the Seller's state. If you paid for the merchandise by credit card, you may have rights to withhold payment under a Federal law called the Fair Credit Billing Act.



REVIEWS REVIEWS

terrain graphics or unit symbols.

One of the best ways to judge a war-game design is by posing a simple question: Do historically "correct" tactics produce successful results? By this criterion, Typhoon of Steel is a good design, but it is hampered by the ill-fitting user interface.

Mike Markowitz

TYPHOON OF STEEL

Apple II+/e/c/Gs/c+, 64K RAM, one 51/4-inch disk drive, custom DOS, not copy-protected PRICE: \$49.95

Strategic Simulations, Inc. 1046 North Rengstorff Avenue Mountain View, CA 94043 (415) 964-1353

CIRCLE READER SERVICE NO. 402

EASY BOXING

O.K., Iron Ike Myson isn't Mike Tyson, but he is ranked #1 in the Star Rank Boxing II heavyweight circuit, and that makes him the one to beat. Once you can beat Iron Ike, you are the #1 honcho.

Star Rank Boxing II is yet another boxing simulation. In this one, you can create up to 18 boxers in three weight classes (welterweight, middleweight, and heavyweight), but you don't have much to do with deciding their beginning

characteristics—the computer does that. Once you've begun to manage your boxer's career, however, you decide on his opponents; whether to fight in exhibition or in the tournament; and, finally, how much training he devotes to the speed bag, heavy bag, sparring, and running.

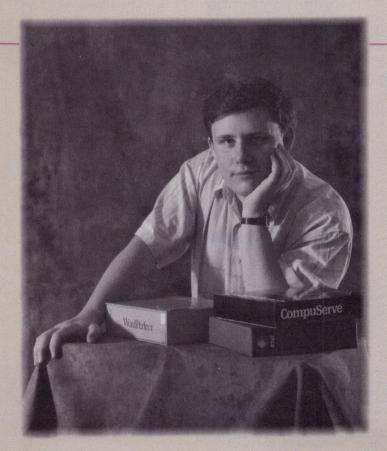
Before each match, you have six weeks to train, which you can allocate to any of the four phases of training. If you are the champion, you get two extra weeks of training, so once you've made it to the top, you have an advantage over all comers.

Use an assortment of jabs, crosses, hooks, and body blows and, for defense, duck or block



high. Move in and out of range using fancy footwork. You control all options either on the keyboard or with a more satisfying joystick.

The game's standard



Everyday People on CompuServe

Sit Down and Shop.

"Prices in the Mall are very

No matter how close you live to the local mall, it'll never be as convenient as CompuServe. Because The Electronic Mall[®] is as close as your keyboard, and it's open 24 hours a day.

You'll find a wide variety of shops you might not normally find locally. Like Bloomingdale's or the Metropolitan Museum of Art gift

good for comparison shopping, especially for someone like me who lives in a small town where there's only one store, and no software."

— Greg Trotter, College Student

shop. There's a discount shopping club called Shopper's Advantage. You can talk directly to merchants. And you can make informed shopping decisions with *Consumer Reports* online.

Call 800 848-8199 or see your computer dealer. Then, instead of shopping till you drop, you can just pull up a chair.

CompuServe®

CIRCLE 271 ON READER SERVICE CARD

GOLEM OMPUTERS

ORDERS ONLY 1-800-248-0363 IN CALIFORNIA 1-805-499-0197

Mon. thru Fri. 7am - 6pm

ea. 33

ea. 27

23

30

27

30

27. 27.

ea. 23

ea. 33

ea. 33

24. ea. 27.

ea 26

ea. 27

ea. 26.

ea. 27

27

33.

33

53.

27

29 23

. 24

33

26

ea. 27

ea. 30

ea. 33

ea. 36

ea. 33 ea. 31

ea. 33 ea. 33

ea. 26

ea. 33 33

ea. 33

32

27

ea. 25

40

ENTERTAINMENT

ACCOLADE Hardball Mean 18 (IIGS), Hardball (IIGS)

BRODERBUND Times of Lore

Ultima I, III, 2400 A.D.

Who Framed Roger Rabbit CALIFORNIA DREAMS

Skate or Die (IIGS)

Zany Golf (IIGS)

Bard's Tale II, III

AAARGH (IIGS)

Chessmaster 2100 (IIGS)

Sub Battle (Ile/Ilc. IIGS)

Sporling Baseball, Mission Ir Dive Bomber, L.A. Crackdow The Games-Summer Edition INFOCOM Zork Trilogy Beyond Zork (IIGS, IIe/IIc) MASTERPLAY Star Saga I

MEDIAGENIC/ACTIVISION

Last Ninja (IIGS) Black Jack Academy (IIGS)

Championship Baseball or Football

MICROPROSE Pirates (Ile/Ilc. IIGS)

Silent Service, F-15 Strike Eagle Silent Service (IIGS) MINDSCAPE Balance of Power

Gauntlet, Paper Boy Gauntlet (IIGS), Paper Boy (IIGS) Super Star Ice Hockey (IIGS)

PBI SOFTWARE (AII IIGS)
Sea Strike, Monte Carlo
Tower of Myraglen, Allen Mind
Cavern Cobra, Strategic Conquest
SIERRA ON-LINE King's Quest I, III, III
Thexder (IIGS)
King Quest I, II, III, IV (IIGS)

Shadowgate (IIGS)
Uninvited (IIGS), DejaVu (IIGS)

Space Quest I, II (IIGS)
Leisure Suit Larry (IIe/IIc, IIGS)

Return of Werda

BRITANICA

linsaw (IIGS)

SSI Typhoon of Steel Dungeon Master Asst. Vol. 1 Demons Winter

Police Quest (IIGS), Manhunter NY

SIR-TECH Wizardry
Knight of Diamonds, Legacy of Llylgamyn

BARRON'S Study Program For SAT V2.0

EDUCATION

PBI SOFTWARE (All IIGS)

Championship Basketball (IIGS)

Shanghai (IIGS)

Vegas Gambler (IIGS)
CINEMAWARE King of Chicago
Defender of the Crown
ELECTRONIC ARTS Bard's Tale

Marble Madness (IIGS), Strike Fleet
World Tour Golf (IIGS)
Bard's Tale (IIGS), Bard's Tale II (IIGS)

Chessmaster 2000, Chuck Yeager AFT

Legacy of Ancient, Deathlords, Scruples Wastland, Questron II

Hunt For Red October(IIGS), Tomahawk

EPYX World Games, Winter Games World Games (IIGS), Winter Games (IIGS)

Summer Games I or II, Street Sports: Basketball or Baseball Street Sports: Soccer (IIGS)

California Games, Destroyer (IIc/IIe/IIGS)
Sporting Baseball, Mission Impossible

Mini Putt (IIGS), Bubble Ghost (IIGS)

4th & Inches (IIGS), Serve & Volley (IIGS)

Test Drive IIe/IIc

Wings of Fury

Ultima IV V

Sat. 9am - 4pm Pacific Time

Font Pack I, II, Symbols & Slogans

ACCOLADE Graphics Studio (IIGS)

The Print Shop (IIGS), Fantavision (IIGS)
The Print Shop Library (IIGS)-

HOME/PERSONAL

People, Places & Things
WORDPERFECT

Wordperfect (IIGS), (IIe/IIc)

BAUDVILLE 816/Paint (IIGS)

The Print Shop Library 1, 2, 3 ELECTRONIC ARTS

Music Construction Set (IIGS)
Instant Music (IIGS)

EPYX Print Magic FUNK SOFTWARE Sideways

Writer's Choice Elite (IIGS)
Paintworks Plus (IIGS)

Clip Art Collection 1, 3 Clip Art Collection 2

Certificate Maker

UNISON WORLD

Art Galery I. II

Timeout Graph

Softswitch (IIGS) Graphix Exchange

Paintworks Gold (1.25MB Reg.)

Draw Plus (IIGS), Music Studio (IIGS)
Paint, Write, Draw Bundle (IIGS)
MONOGRAM Dollars & Sense (128K/48K)

UTILITY/LANGUAGE

ROGER WAGNER The Write Choice Mousewrite (IIc/IIe, IIGS) SPRINGBOARD The Newsroom

BEAGLE BROS. Super Macroworks

Timeout - Superfonts, Quickspell
Timeout-Filemaster, Sidespread,
Power Pack, DeskTools II, Thesaurus

BERKLEY SOFTWORKS GEOS (IIe/IIc)
BIG RED COMPUTER

Labels, Labels PS Lovers Utilities
CENTRAL POINT Copy Two Plus
ROGER WAGNER Merlin 8/16(PRO DOS)

Logo Data Toolkit TML Pascal (IIGS), Basic (IIGS)

Source Code Library (IIGS) Speach Toolkit (IIGS)

ASCII Express (PRO DOS) ASCII Express Mousetalk 1.5

BLANK MEDIA (Bulk) CH PRODUCTS Flight Stick

Mach III wffire Button (II+, IIe/IIc, IIGS)
Mach IV Plus (IIGS/IIc)
KENSINGTON System Saver
Turbo Mouse ADB (IIGS)
System Saver IIGS

System Saver IIGS
KURTA Apple IS/GS Tablet (IIGS)
LASER COMPUTER Mouse

Cables - Parallel, Serial, RGB, Modem
MOUSE SYSTEMS A + Mouse

ACCESSORIES

UNITED SOFTWARE

VERSACAD

CAD Apple IIe/IIc

Expansion Box

A + Mouse ADB (IIGS)
RIBBONS

MECA Managing Your Money 3.0
MECC Calendar Crafter
MEDIAGENIC/ACTIVISION

Award Maker Plus BRODERBUND

Sampler, Party

Deluxe Paint II (IIGS)

Arts Part I. II. Season

INTUIT Quicken

The Print Shop

BRODERBUND Science Tool Kit Science Tool Kit Module 1, 2, 3 Where in the USA is Carmen San Diego 27 Where in the World is Carmen San Diego Where in Europe is Carmen
DAVIDSON & ASSOCIATES Math Blaster Plus, Alge-Blaster Read & Roll, Word Attack Plus Math & Me, Reading & Me ea 29 ea. 24 Math & Me (IIGS), Reading & Me (IIGS)
Word Attack, Spell It, Grammar Gremlins
DESIGNWARE Spellicopter, Math Maze ea. 29 ea. 29 ea. 26 Designasaurus (Ile/IIc, IIGS) Grammar Examiner, States & Traits ea. 33 ea. 25 The Body Transparent, European Nations ea. 25 **ELECTRONIC ARTS** Mavis Beacon Teaches Typing (IIGS) Mavis Beacon Teaches Typing (Ile/Ilc) FIRST BYTE (for IIGS) (768K Req.) Mathtalk, First Shapes, Kidtalk Speller Bee, Smoothtalker 27 ea. 30 Mathtalk Fractions, First Letter & Words ea. 30 26 HARDCOURT, BRACE, JOVANOVICH Computer Prep for the ACT Computer Prep for the SAT ILS SOFTWARE 29 26 Computer Preparation SAT, GRE Computer Preparation LSAT, MBE . 33 ea. 59. MINDSCAPE Crossword Magic 33 SIERRA ON LINE
Mixed Up Mother Goos
SIMON & SCHUSTER 21 Typing Tutor IV (IIe/IIc/IIGS) ea. 29. THE LEARNING COMPANY Reader Rabbit (IIGS) Writer Rabbit, Think Quick, 36 Rocky's Boots (IIe/IIc/IIGS) lath Rabbit, Reader Rabbit, Gertrudes ea. 30 Secrets, Magic Spells (Ile/IIc/IIGS) ea. 26. Children's Writing
Publishing Center (Ile/IIc, IIGS)
UNICORN SOFTWARE All About America (IIGS) Math Wizard (IIGS), Animal Kingdom
WEEKLY READER Sticky Bears - ABC's, Numbers, Shapes, Opposites, Read Basics, Typing, Drawing, Music, Spellgrabber, Town Builder ea. 24. ABC's Talking (IIGS) BUSINESS ACTAVISION List Plus 59 BERKLEY SOFTWORKS GeoPublish BPI (PRODOS runs on IIGS) General Accounting, AP, AR, Payroll, Inventory Control BRODERBUND Bank Street Writer Plus CLARIS Appleworks GS Appleworks (Ile/Ilc) Multiscribe GS 185. 77. 60. 60. Multiscribe (Ile/Ilc)
DAC SOFTWARE DAC-Easy Accounting 53. 92. 129. **ELECTRONIC ARTS** Delux Write II (IIGS) Delux Write II/Paint II Combo (IIGS)
MILLIKEN Medley (IIGS) PBM6sualizer (IIGS) 66. 129. PEACHTREE Back to Basics Acct. Sys. SENSIBLE SOFTWARE Sensible Writer 62 Sensible Speller IV (DOS, PRO DOS) 68 Sensible Grammar Checker SEVEN HILLS Graphic Writer 90. SOFTWARE PUBLISHING PFS: Graph (128K PRO DOS)
PFS: File & Report (128K PRO DOS) PFS: Workmates (128K PRO DOS)
PFS: Write w/Speller (128K PRO DOS)
SOFTWOOD Softwood GS File 110. 65. 61. SPRINGBOARD Publisher 83. 20. **SPECIAL**

ea. 27.

ea. 93

ea. 35

ea. 23

ea. 15

ea. 22

32

59

66

ea. 72

20

26

ea 19

ea. 31

52.

27

23

75. 40. 27.

33.

83

46.

70. 65.

88

Cal

ea. 34

115

51.

Howard Soft Tax Preparer \$167.00

MEMORY & INTERFACE

APPLIED ENGINEERING	
Prices change frequently	
Call for Current Pricing Ram Factor 512K (II+, Iie, IIGS)	340.
Ram Factor IMB (II + , IIe, IIGS)	546.
Ram Works III 512K (IIe)	300.
Ram Works III IMB (IIe)	515.
GS-Ram 256K (IIGS)	175.
GS-Ram 512K (IIGS) GS-Ram 1MB (IIGS)	280. 510.
GS-Ram PLUS 1MB	530.
GS-Ram PLUS 2MB	940.
Z-Ram Ultra 3 1MB + Clock + Z-80 (IIc)	625.
Trans Warp (II + , IIe)	170.
Z-80Plus (II + , IIe, IIGS)	120.
Z-80c (IIc)	125. 130.
Phasor (II + , IIe, IIGS) Serial Pro (II + , IIe, IIGS)	110.
Parallel Pro, Timemaster HO	ea. 77.
PC Transporter 768K	530.
Ramcharger, RamKeeper	144.
Sonic Blaster	98.
Audio Animator	180.
Transwarp GS ORANGE MICRO Hotlink (IIc)	Call 46
Grappler C/MAC/GS, Prograder	ea. 74.
Imagebuffer	46.
THIRDWARE Fingerprint GSI (IIGS)	85.
Fingerprint Plus (IIe, II+)	88.
Fingerprint IIc (IIc)	88.
THUNDERWARE Thunderscan	170.
HARD DISK DRIVES	
	1
CHINOOK	Call
CMS External w/SCSI Interface (IIe,IIGS) 20MB (Stackable)	605.
60MB (Stackable)	895.
FLOPPY DISK DRIVI	
AMERICAN MICRO	
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 51/4"	145.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual	145. 315.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 51/4" Trans Drive Dual Trans Drive Single	145.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼ " Trans Drive Dual Trans Drive Single LASER COMPUTER	145. 315. 200.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½" Laser)	145. 315. 200.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ile/IIc)	145. 315. 200.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½" Laser)	145. 315. 200. 90. 95.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller	145. 315. 200. 90. 95. 190.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ilerilc) External Disk Drive (3½") Universal Disk Controller PRINTERS	145. 315. 200. 90. 95. 190.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", IIe/IIc) External Disk Drive (3½") Universal Disk Controller	145. 315. 200. 90. 95. 190. 77.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Laser) External Disk Drive (5¼", Ileflic) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLO)	145. 315. 200. 90. 95. 190. 77.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5%", Ite/IIc) External Disk Drive (3%") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin)	145. 315. 200. 90. 95. 190. 77.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER	145. 315. 200. 90. 95. 190. 77.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC	145. 315. 200. 90. 95. 190. 77.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC	145. 315. 200. 90. 95. 190. 77. 210. 410. 225.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080I (80 col., 120 cps, NLQ) KX 1091I (80 col., 120 cps, NLQ)	145. 315. 200. 90. 95. 190. 77. 210. 410. 225.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 1800 (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 150 cps, NLQ) KX 10811 (80 col., 150 cps, NLQ) KX 10811 (80 col., 150 cps, NLQ) STAR MICRONICS NX-1000	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ite/IIc) External Disk Drive (5%") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080I (80 col., 180 cps, NLQ) KX 1091I (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color)	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210. 265.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ite/IIc) External Disk Drive (5¼", Ite/IIc) External Disk Drive (7½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080I (80 col., 180 cps, NLQ) KX 1091I (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I)	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ite/IIc) External Disk Drive (5%") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080I (80 col., 180 cps, NLQ) KX 1091I (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color)	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210. 265.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5%", Ite/IIC) External Disk Drive (5%") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 160 cps, NLQ) KX 10801 (80 col., 160 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210. 265.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ile/IIc) External Disk Drive (5¼", Ile/IIc) External Disk Drive (5½") Universal Disk Controller PRINTERS CITIZEN MSP 1800 (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 120 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210. 265.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080i (80 col., 120 cps, NLQ) KX 1091i (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER Laser 128 Laser 128 Laser 128 Laser 128EX	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 2194. 226. 215. 216. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ile/IIc) External Disk Drive (5¼", Ile/IIc) External Disk Drive (5½") Universal Disk Controller PRINTERS CITIZEN MSP 1800 (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 120 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 194. 225. 210. 265. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5½", Ite/IIc) External Disk Drive (5½", Ite/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080i (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER Laser 128 Laser 128 Laser 128EX/2	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 2194. 226. 215. 216. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ite/IIc) External Disk Drive (5¼") Universal Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 1800 (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 120 cps, NLQ) KX 10911 (80 col., 120 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER LASER COMPUTER LASER 128E LASER 128EX LASER 128EXX MONITORS	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 2194. 226. 215. 216. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 51/4" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (51/4", Ile/IIc) External Disk Drive (51/4", Ile/IIc) External Disk Drive (31/2") Universal Disk Controller PRINTERS CITIZEN MSP 1800 (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 120 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTER LASER COMPUTER LASER 128 LASER 128EX LASER COMPUTER	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 210. 225. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ile/IIC) External Disk Drive (5½", Ile/IIC) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 160 cps, NLQ) KX 10801 (80 col., 160 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER Laser 128E Laser 128EX/2 MONITORS LASER COMPUTER Color RGB Monitor	145. 315. 200. 90. 95. 190. 77. 210. 225. 210. 225. 235. 235. 235. 3375. 445. Call
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼" Laser) External Disk Drive (5¼", Ileflic) External Disk Drive (5½", Ileflic) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 10801 (80 col., 180 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER Laser 128 Laser 128EX Laser 128EX LASER COMPUTER Color RGB Monitor	145. 315. 200. 90. 95. 190. 77. 210. 410. 225. 210. 225. 235.
AMERICAN MICRO A.5 Drive (IIGS, Daisychainable) 5¼" Trans Drive Dual Trans Drive Single LASER COMPUTER External Disk Drive (5¼", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (5½", Ile/IIc) External Disk Drive (3½") Universal Disk Controller PRINTERS CITIZEN MSP 180D (80 col., 180 cps, NLQ) Tribute 124 (24 Pin) LASER COMPUTER 190A (Imagewriter I) PANASONIC KX 1080i (80 col., 120 cps, NLQ) KX 1091i (80 col., 120 cps, NLQ) STAR MICRONICS NX-1000 NX-1000 Rainbow (Color) SEIKOSHA 1000AP (Imagewriter I) COMPUTERS LASER COMPUTER Laser 128 LASER 128EX LASER COMPUTER Color RGB Monitor Amber, Green Monitor	145. 315. 200. 90. 95. 190. 77. 210. 225. 210. 225. 235. 235. 235. 3375. 445. Call

MODEMS

135

175

APPLIED ENGINEERING Datalink 1200

2400 Classic II w/ Proterm

odem 2400A

FOR CUSTOMER SERVICE CALL 1-805-499-7785 Monday thru Friday 9 a.m. to 5 p.m. - Pacific Time

ea. 26

To order call toll free or send check or money order to the P.O. Box only. VISA/MC orders welcome. Sorry, no C.O.D. Personal and company checks, allow 10 working days to clear. Specify computer type, if to back order or to send refund. California residents add 6% sales tax. Include phone number with order. All sales are final. Defective items will be replaced or money refunded, at our descretion. Call for Return Authorization number. We are not responsible for suitability or compatability. Restocking fee of 15% will apply. Shipping and handling: Continental U.S.- Software: add \$5.00, Hardware: add 5% (\$6.00 min). APO, FPO Alaska, Hawaii, Puerto Rico and Canada. Software: add \$8.00 min. Hardware: add 10% (\$10.00 min).

Works of Arts -Assort. Sampler,

Education, Holiday Fonts
TIMEWORKS Publish it
Publish it 2

REVIEWS REVIEWS

When you have to contend with the unpredictable nature of another human, the contests can be pretty grueling.

hi-res graphics are not spectacular, and the boxers are relatively small on the screen. The animation is sufficient to impart a feel for the game, however. A good body punch often causes a boxer to reel drunkenly for a moment, and a knockout blow sometimes puts your opponent face-first onto the canvas. The general status of each boxer appears in a colored box at the top of the screen. When a boxer's status turns red, he's ready to go.

I found the game too easy and was able to become champion in just a few short fights. I also discovered that most boxers were vulnerable to body blows and that hitting the heavy bag a lot during training gave you the knockout power to end most bouts in a hur-

ry. Furthermore, it was possible to defeat a much superior opponent on points, even though he might knock you down four, five, or even six times during each round. In that respect, Star Rank Boxing II favors the human player. Just throw a lot of punches from all over and, if you connect more than your opponent and aren't knocked out, you probably will win on points.

In two-player contests, the game is more interesting. Here, you have to contend with the unpredictable nature of another human, and the contests can be pretty grueling. The game doesn't allow two joysticks, however, so one player gets stuck with the keyboard every time.

I wouldn't rank Star Rank Boxing II at the top of my boxing circuit, but it does provide some entertainment, especially if you like winning.

Rusel DeMaria

STAR RANK BOXING II

Apple Ile/c/Gs/c+, 128K RAM, one 514-inch disk drive, copy-protected, joystick required PRICE: \$29.95

Gamestar 3885 Bohannon Drive Menlo Park, CA 94025 (415) 329-0800

CIRCLE READER SERVICE NO. 403



Everyday People on CompuServe

Be Informed.

Now, you don't have to wade through a stack of newspapers and magazines just to sort out the news that interests you. CompuServe's online Executive News

Service will scan the national, international, and business news wires for topics you select, then electronically "clip" and save them for you, to read at your leisure.

"Articles come through CompuServe that I would never catch, that are of real interest to me. I've pulled several stories off the wires and used them in my research."

— Gay Spencer, Labor Relations Specialist

You can also access information from hundreds of magazines, newsletters, and other reference sources, plus sports reports and the latest weather forecasts. Save time, and be better informed with CompuServe. Call 800 848-8199, or see your computer dealer, and start getting all the news, before it's history.

CompuServe®

CIRCLE 271 ON READER SERVICE CARD

GETTHE NO.1 MAGAZINE FORALLAPPLE II USERS



AND A NEW DISK—FREE!

Why are these Apple II users smiling?

Simple. They've discovered a magazine that tells them everything they need to know about applications, new products and ways to increase the performance of their Apple II systems.

It's A+ Magazine of course. And now it can be yours for a savings of up to 50%. And that's not all...

FREE WITH YOUR PAID SUBSCRIPTION: THE BEST OF SOFTDISK-FROM A+!



Subscribe today, and you'll receive The Best of Softdisk—a valuable new collection of power-boosters tutorials and games of skill your whole family can enjoy! These prized utilities from Softdisk are yours FREE as a new subscriber to A+ Magazine.

Subscribe today and save 50% of the annual single-copy price of \$35.40—plus get your FREE disk One year (12 issues) for only \$19.97—SAVE 44%!

Two years (24 issues) for only \$35.40—SAVE 50%!

Basic annual subscription price is \$24.97.

FOR FAST SERVICE CALL 1-800-525-064

Don't overlook this multifaceted selector/utility package.

BY OWEN W. LINZMAYER

sked about productivity, most people think of brandname applications such as AppleWorks and SuperCalc 3a. But one of the best proluctivity tools available today is a package called ProSel, an eclectic mix of disk utilities sold mail-order exclusively by the programs' author, Glen Bredon. Most ProSel utilities work on the entire Apple

II family and run the gamut from timesavers such as File Finder, a gem that locates lost **PRODUCTIVITY** files, to lifesavers such as Mister Fixit, a program that automatically attempts to correct disk defects.

ProSel is a text-based program selector that installs with ease as the start-up program on any ProDOS disk. Although you can use them on a floppy disk, launch-utility packages such as ProSel are most valuable in conjunction with RAM disks, 800K drives, or hard-disk drives that contain dozens of applications. With ProSel, seconds after your system boots, you can choose (using keyboard or mouse) to execute any ProDOS 8/ 16, DOS 3.3, or GS/OS application whose loca-

tion you've previously defined. On quitting a program launched this way, you rapidly return to the Pro-Sel menu, ready to run another application (see figure 1).

As a small ProDOS 8 program, ProSel loads quickly. Apple IIGS owners who continue to use the Finder to boot ProDOS 8 applications are doing themselves a disservice, since the tremendous overhead of ProDOS 16 or GS/OS must load first. If you use predominantly 8-bit programs, ProSel is a much wiser choice than the Finder.

Even if you never use the launching capabilities of ProSel, the powerful disk utilities are a priceless addition to any software toolbox. Among the best are Beach Comber, Cat Doctor, Backup/Rethe read/write head needn't jump around to do its thing.

In time, however, the response falls off because deleting old files creates "holes" that the operating system fills as you save new files. Your programs and documents no longer exist intact as contiguous files-they're now fragmentedand the read/write head must be in constant motion.

PROSEL PROMOTES



store, and File Finder.

If the performance of your harddisk drive has diminished over time, fragmentation is likely to blame. A new hard-disk drive is a horizonless expanse of virgin magnetic storage. At first, disk access is seemingly instantaneous, since the files are physically saved on the disk in a neat, orderly fashion, and

Beach Comber

The Beach Comber program is an optimization utility that fights the fragmentation battle by reorganizing files one after another on disk. On average, it takes ten minutes per megabyte on its first run, with subsequent passes requiring less time. After a disk is straightened out, the drive performs like new again.

A regular monthly cleanup should be sufficient to keep things running smoothly, but if you'd like to manually examine disks for signs of frag, use the Information Desk utility, which has a Bit Map option that graphically displays free and used disk blocks (see figure 2). Info Desk also produces truly informative

disk catalogs and directory trees that you can display on-screen, print, or save to disk.

Cat Doctor

There is no easier way to destroy hundreds of hours of work than to delete a file accidentally. In the absence of an archival copy, you're in deep yogurt. Luckily, the Cat Doctor utility, in addition to handling

A+ MAGAZINE MARCH 1989 85 ILLUSTRATION BY ROBERT PIZZO

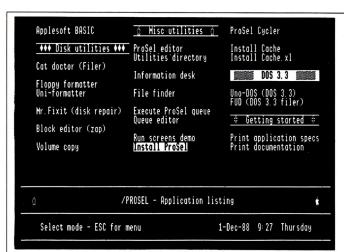


Figure 1: You select programs for launch from the ProSel main menu, using either a mouse or a keyboard.

Directory: /SHARE.PROGS/ 1-DEC-88 **************** ********************* ****************** XXXXXXXXXXXXXXXXXX X...X......XXXXXXXXXXXX XXX. . ****** *************** ******* XXXXXXXXXXXXX ****************** ******************* ************ ***************

Figure 2: The Bit Map option in the Information Desk utility graphically displays the status of disk blocks.

standard file/directory manipulation tasks (see figure 3), has an Exhume option, which can revive a deleted file if it has not been overwritten. If you recover only a single file, ProSel will have paid for itself many times over in hours saved and frustration avoided.

Of course, if you have a backup disk, you don't need to bemoan a deleted file. As you might expect from a package this complete, Pro-Sel comes with an archival combo, Backup and Restore, that can duplicate large ProDOS volumes onto multiple floppies and restore hard disks to their pristine predisaster

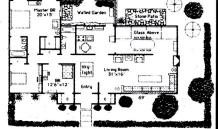
Unfortunately, these programs offer no way to save only the files that have been modified or created since the last backup. The lack of an incremental-backup option means you have to make a timeconsuming, complete archive every time you use the Backup utility.

Sure, it's a hassle, but it beats being caught without a backup when your drive takes a dive.

File Finder

File Finder is great for finding files lost in the bowels of nested subdirectories on large-capacity disks. Specify a filename or text string either in full or with wild cards, and File Finder will hunt through an entire volume looking for files that match your search criteria. This program is great for lo-

DESIGN



Apple II — Brand New! Version 2 with easier file access, enhanced side views, and more. Call for update information.

IIGS — Architecture ". IIGS — Architecture "... promises to set a bold new standard for IIGS CAD software." (inCider, August 1988)

Architecture

Draw floor plans or side views with architectural scales, grids, overlays. Stud tool calculates lumber. Dozens of architectural symbols included or create your own. ligs version: \$89.95

Standard Apple II version: \$69.95

Interiors

Draw room plans, arrange furniture and explore color schemes. Includes hundreds of furniture pieces with different rotations. Create a top view and then use the automatic side view feature (now improved for Apple II version).

Ilgs version: \$89.95 (now available) Standard Apple II version: \$69.95

Landscape

Create a full-color landscape Dozens of plants included. Create a top view and then use the automatic side view feature (Apple II version improved). Includes slopes, plant "aging", plant identification, and shopping

llgs version: \$89.95 Standard Apple II version: \$69.95

Design Your Own Home Libraries

Each includes 4 dozen ready-made plans with plan booklet. 4 Architecture (3 homes, 1 offices), 2 Interiors (1 homes, 1 offices), 1 Landscape (homes). (\$29.95 each)

Programs and libraries available for Apple II+, IIe, IIc, IIc+, IIcs, Macintosh, and IBM/compatibles. Call for prices and availability

Send check or VISA/MasterCard number plus exp. date. Add \$4 shipping for the first program plus \$1 for each additional. Canadian and foreign orders: U.S. currency only; add additional funds for airmail. Orders only 800-451-4871

Abracadata source of plan-making software P.O. Box 2440, Dept. A

Eugene, OR 97402 (503) 342-3030

Sing-A-long with **DIVERSITUNE** inCider Editors' Choice By Bill Basham

DIVERSI-TUNE is 3 NEW programs in one:

1) Sing-A-long with DIVERSI-TUNE! Bring family and friends together around the computer to follow the bouncing ball, to the lyrics and music of 12 favorite tunes, like "Grand Old Flag", "Bicycle Built for Two", and "Give My Regards to Broadway".....

2) Using a compact disc player or cassette player, YOU CAN MAKE YOUR OWN VIDEO-TAPES OF ANY SONGS YOU DESIRE, COM-PLETE WITH MUSIC, LYRICS, and BOUNCING BALL! Music teachers and religious organizations: perfect for teaching songs to several classes simultaneously, for holiday programs and more! Teen-agers; ideal for rehearsing lip-synchs to popular songs from the radio, for parties, talent shows, and contests

YOU NEED NO EXTRA HARDWARE FOR THESE FIRST TWO FEATURES, SIMPLY THE APPLE //gs and THE DIVERSI-TUNE PROGRAM.

THE SOUND QUALITY IS AMAZING!! YOU CAN'T BELIEVE IT'S COMING FROM YOUR COMPUTER! Let us prove it! Send 2 crisp \$1 bills (\$5 for phone orders) with your address, and we'll send you a DIVERSI-TUNE 5.25" sing-a-long demo disk.

3) When you add an inexpensive MIDI keyboard and interface, you can compose and record your own music, with 32-track over-dubbing! DIVERSI-TUNE includes features to rewind, fast-forward, pause, edit out klunkers, and change tempo, with no pitch change. Students will love the full piano keyboard display, which shows how hard and how long each key is played. It's a great learning tool!

DIVERSI-TUNE...... "\$75 RETAIL"..... \$55 Once you have DIVERSI-TUNE, you can add to your fun by ordering a whole variety of additional pre-recorded song disks

#101 Nathen Page Live Jazz Piano . . . #105 Jewish Songs #106 Gospel Songs \$15

24-Hour Toll-Free Ordering

800 835-2246 ext. 127 (orders only) For information call 313 553-9460

Price includes 1st-class or foreign airmail. Return within 30 days for full refund if not satisfied. Visa/MC (with exp. date), checks, P.O.s accepted Sorry, no C.O.D.s.

Dealer Orders: 313 553-7822

DIVERSI-COPY A+ ALL STAR \$30

Fast unprotected 3.5 and 5.25 back-ups 1-pass, 1-drive copying! For Apple //gs, //e, //c, II+ and compatibles. Memory expansion not required. inCider EDITORS' CHOÍCE

DIVERSI-CACHE A+ ALL STAR \$35 Speeds Apple disk 3.5 up to 5 X faster. Programs boot in half the time. For 512K Apple //gs.

DIVERSI-KEY A+ ALL STAR . . . Adds keyboard macros to ANY program. Define your own macros and mouse functions. For 512K Apple //qs.

DIVERSI-DOS A MUST for BASIC programming. Top-rated DOS 3.3 enhancement program.

Diversified Software Research, Inc. 34880 Bunker Hill Farmington. MI 48331-3236

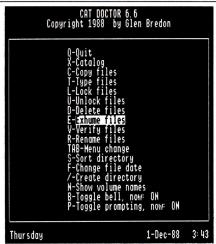


Figure 3: Cat Doctor takes care of file/ volume maintenance needs and can breathe life into your accidentally deleted files.

cating files that you know exist but whose location you can't recall.

ProSel's documentation comes on-disk and includes a program that manages output to a printer. At 124 double-spaced pages, the documentation is the most extensive, if not the best written, I have seen lately. The table of contents identifies the sections devoted to individual utilities, but the text

fails to serve up the detailed explanations of features that I was hoping for. Also, a liberal dose of screen shots and illustrations would be a welcome addition if ever the documentation were provided as a professionally typeset manual. The benefit of on-disk doc is that costs remain minimal and changes are easy to make. In fact, Bredon updates ProSel frequently, and registered owners can upgrade to the current version for a modest sum.

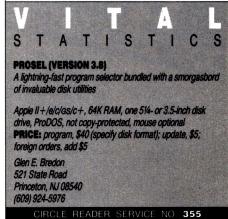
The Last Sector

In addition to the utilities I've mentioned so far, ProSel includes several other fine programs. Block Warden is a block-editing facility that lets you view and edit actual hex/ASCII values saved on disk. Great for manually fixing damaged disks or cracking copy-protection schemes. Scavenge is a little program that avoids access of empty drives when ProDOS polls all online devices. There's even a program that places a DOS 3.3 partition on a 3.5-inch disk.

Not all of the ProSel utilities work on all Apple II computers.

The package includes special II Plus versions of some programs, as well as adaptations for specific third-party products such as the Videx Videoterm card, Sider hard-disk drive, Pinpoint Desk Accessories, and Applied Engineering IIc System Clock.

ProSel's cottage-industry upbringing is evident in its inconsistent, maverick user interface. If you're willing to adapt yourself to its idiosyncrasies, though, ProSel will reward you for your perseverance with unsurpassed productivity gains.





Give your family the gift of music.



Did you know that the AppleIIGS is a musical instrument in disguise? It can make up to 15 sounds at one time. And for as little as \$119, you and your family can begin making music.

The **Pyware™ Music Writer** will allow your family to learn about music, or if they already know music, let them create compositions up to 32 staves. (There are three levels for the beginner to the professional.)

With the **Pyware™ Instrument Designer**, your family will not only learn about sound but will be able to create infinite tones with the Apple IIGs ensoniq sound chip. From acoustic instruments to your original sounds, Instrument Designer is an educational and fun program.

CONTACT YOUR LOCAL DEALER OR CALL PYGRAPHICS:

1-800-222-7536

Apple II $_{\rm GS}$ is a registered trademark of Apple Computer Inc. CIRCLE 317 ON READER SERVICE CARD



This month, Claris, the publisher of AppleWorks and AppleWorks GS, answers your AppleWorks GS questions.

DATABASE SUMMING

I imported an AppleWorks database with client-billing information into Apple-Works GS, and the information transferred correctly. My problem is that when I try to produce a report that sums the AmtOwed field, the Sum menu choice under Format on the Report menu is grayed out. How can I sum the dollar amounts in this field?

When AppleWorks GS imports a database from • AppleWorks, it imports all information as text. Since text cannot be summed, you must change the field type to numeric. To change the field type, select Show Definition from the Template menu, select the field you want to change, choose Field Definition . . . from the Edit menu; and select Numeric from the Select field type window.

When you change the field type, AppleWorks GS alerts you: Data in field may be lost. This message means that any information that is text in this field will disappear when you change it to numeric. For example, if dollar signs and/or commas were manually entered into some of the original entries in the AmtOwed AppleWorks database field (e.g., \$2,345.67), AppleWorks GS would see them as text. These text entries

would blank out when the Amt-Owed field changed to numeric form. To guard against losing information, make sure that the original AppleWorks information contains only numbers and decimal places in the fields you want treated as numeric.

TOP AND BOTTOM MARGINS

How can I set the top and bottom margins in the AppleWorks GS word-processing module?

To set the top and bottom margins, open the header or footer and add blank lines by pressing the Return key. Or transfer the word-processing document to the Page Layout module and select the margin settings you want from the Set Guides options on the Options menu.

SAVING PHONE NUMBERS

Each time I use the Apple-Works GS communications module, I have to reenter the telephone numbers I want to call. How can I save these numbers?

Save the communications document within which **L** • your phone numbers are stored. The next time you want to dial one of those numbers, open that particular communications document. When you choose Dial from the Phone menu, the saved phone numbers will appear.

TEXT-BOX SIZE

What happens if the text box into which I import text is not large enough to hold all the imported text?

All the text will still be contained in the text box. To view the additional text, either make the text box larger or link it to other text boxes.

RECORD INSERTION

How do I insert a new record between two existing records • in the form view of the AppleWorks GS database module? When I try, the Insert menu choice is not available.

Select the record you want to insert by clicking on the **L \(\)** • select box in the upper-left corner of the record. Now, Insert will be available as a choice, and a blank record will be inserted.

TIMEOUT MODIFICATION

I recently upgraded from AppleWorks to AppleWorks • GS. I'm wondering if Apple-Works GS can be modified to work with my TimeOut add-ons for AppleWorks?

No, AppleWorks GS is not compatible with Beagle ■ Bros' TimeOut series, or any other AppleWorks-enhancement software, for that matter.

The technical staff at Claris Corporation answers your AppleWorks questions. Call the Claris Technical Support Department at (415) 962-0371 (6:00 A.M. to 8:00 P.M., Pacific time) or write to Help File, A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Because of limited space, we aren't able to publish responses to all inquiries we receive.

A RARE FIND . . .



Pelican Software

Have you been waiting for an outstanding performance? PREMIERING the all NEW Monsters & Make-believe!

This entertaining and educational program sparks creative thinking. Children can create an endless cast of characters to write about and then publish their own books.

What age group is this program for?

Monsters and Make-Believe is appealing to all audiences. But is it easy to use?

It's so easy to use they'll be up and monster making in minutes. And because it's so versatile, Monsters & Make-Believe is the one program they won't grow tired of. Whether they're writing a script to go along with their monster madness, constructing a monster mobile or writing a letter, monsters are great motivators!!!

The program that has captured the hearts and minds of software lovers everywhere is now premiering at a software store near you.

Call today for a FREE catalog or more information.

Learning Lab Software Publishing Inc.

Toll free, 1-800 247-4641 (USA) or 1-800-222-7026 (In CA)

Featuring:

- High quality graphics that can be easily manipulated with keyboard or mouse
- Tons of cute and creepy clip art and colorful backgrounds
- Speech bubbles that can be used to create dialogue between monster friends
- Word processing, with a variety of fonts, to write monster myths describing the created scenes
- Six printout sizes including Big-book!
- Optional speech with the Echo™ or Cricket™ speech board. It speaks and spells anything you type!

LEARNING CURVE

Programs geared to linguistic and logical-mathematical thinkers

BY DAVID D. THORNBURG

ast month I said I would dedicate the next few months to an exploration of ways that classroom computer use could be interpreted in light of Howard Gardner's theory of multiple intelligences. This month we will explore programs appropriate for those with dominant linguistic and logical/mathematical intelligences.

Each of us has all of the seven intelligences to varying degreeswe each have skills in the linguistic, logical/ mathematical, spatial, musical, bodily-kinesthetic, intrapersonal, and interpersonal domains. The purpose of employing software that corresponds to these domains is not just to develop skills in these areas but also, more importantly, to use native skills in these areas to investigate topics that might be more natural to explore through one of the other intelligences.

Providing a comprehensive list of software in even one of these seven areas would be a daunting project. Instead of tackling such a massive task, I will take one or two examples of

computer-based activities in each of the seven intelligences and show how they can apply in certain subject areas in which the connection might not be obvious. This exercise should allow you to look at your own software library in a new light and help you tailor primary and supplemental instruction to the dominant intelligence type of each

child in your classroom.

Because language arts are such a pivotal part of today's curriculum, the obvious match between highly linguistic students and this subject area results in a list of software suitable for these students. At the top of the list are word-processing programs.

We must be careful, though, when choosing word-processing

irrelevant dialogue before you can start a document. SwyftWare, a board-based word processor from the now defunct Information Appliance, does exactly what a good word processor should do: It lets you capture and edit ideas, save them and print them out, and conduct powerful searches with few extraneous keystrokes.

Several word-processing pro-

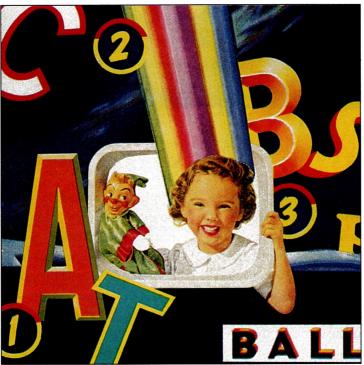
grams are designed for very young writers. These products provide a moderately consistent user interface from level to level. For example, the Muppet Slate wordprocessing program works with the Apple II keyboard or the Muppet Learning Keys from Sunburst Communications. Designed with K-2 students in mind, it allows incorporation of simple graphics into text. For example, a child can insert a picture of an elephant into a line of text instead of writing the word elephant.

The rebus-like quality of the resulting writing is intriguing. All letter shapes in our language started out as pictures of things, and many educators (especially those associated

with the Waldorf schools) believe that children's first introduction to written language should be through pictures.

For those who don't want pictures with their text, Magic Slate II from Sunburst Communications is available in three versions, providing 20, 40, and 80 columns of text on the screen. The 20-column ver-

THREE R'S FOR THE TWO L'S



programs for the classroom. Children who want to write should be able to do so with a minimum of inhibitions. I tend to lean toward the simpler programs that have the good sense to stay out of the user's way. The writer should be able to boot the disk and start writing. Even AppleWorks—one of the better programs—puts you through

A+ MAGAZINE MARCH 1989 91

Go Bananas.



Save Money!

Avoid Lines!

Pre-Register Today.

Call 1-800-262-FEST

(in MA, 617-860-7100)

Ice Orlando Photo

Come to AppleFest.



Come to experiment. Come to listen. Come to marvel.

Try out a new program. Take home a bargain. Learn from a child. There are so many reasons to attend AppleFest '89 in Boston's World Trade Center

that you shouldn't come for just one of them. Come for the whole bunch.

A gigantic exhibit area. Bigger and more exciting than ever, the expo at AppleFest '89 will feature thousands of products from more than 200 companies in the Apple II® and Macintosh® markets.

The best conference for Apple II and Macintosh owners. More than 75 sessions in all. The

AppleFest conference program delivers information you can use: tips from desktop publishers, secrets of top AppleWorks® users, how to connect school and home computing, how to make the most of HyperCard®, desktop graphics, on-line services, and much, much more.

Three great reasons to register now. Save money. Avoid the lines. And guarantee your place in the limited-seating AppleFest Half-Day Seminars.

APPLEFEST '89. May 5-7 at the World Trade Center in Boston. Call 1-800-262-FEST today. (In Mass., call 617-860-7100.)

MAY 5-7, 1989

AppleFest'89Boston

Apple, the Apple logo, Apple II, Macintosh, HyperCard and AppleFest are trademarks of Apple Computer, Inc. AppleFest is an independent trade show, not affiliated with Apple Computer, Inc.

sion is geared to children in the early grades, through grade 3, and the other versions are for older students. The 80-column product provides more sophisticated formatting tools than the others, making it appropriate for high school and college.

The challenge of computer use for linguistic learners has never been software—it's been access. Writing is a time-consuming process. If students' only access to computers is for 15 minutes a week in a computer lab, a word-processing program is probably the worst program to let them get their hands on. It produces what my IBM friend Harvey Long calls an anti-Pavlovian response: "If you haven't got the food, don't ring my

Until we have enough computers to allow unlimited access to word processing, other programs can engage linguistic learners. Hangman-like games, in which you guess letters to complete a word, are effective in a computerlab setting. I prefer games that involve complete phrases rather than isolated words.

Two popular programs that offer such activities are M_ss_ng L_nks from Sunburst and Wheel of Fortune from ShareData. Players can often choose a missing letter based on the structure of the sentence and their knowledge of the kinds of words that tend to be in certain places. To the extent that language has a logical structure, players can develop their logical/mathematical intelligence through a linguistic activity.

This type of fertilization across the intelligence boundaries is what educators should be looking for when choosing software.

For example, text-based adventure games have the ability to help linguistic learners develop spatial reasoning skills as they navigate through mazes.

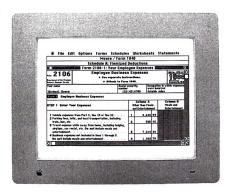
As with the linguistic domain, the world of the logical/mathematical thinker is richly supported in most classrooms. The basis of digital computers is logic and symbol manipulation, so hundreds of excellent computer programs develop skills in this area. Even so, we should be cautious in prescribing software for students who are strongest in this domain.

Fertilization across intelligence boundaries is what educators should be looking for.

Let's look at two popular programs associated with the development of logical thinking skills, both designed by the same person, Dr. Tom O'Brien of the Teacher's Center Project at Southern Illinois University at Edwardsville. The two titles are King's Rule and Safari Search (both published by Sunburst.) Although each of these programs develops students' logical/ mathematical thought, they perform this task in completely different ways.

King's Rule provides students with a set of numbers that fit a rule. For example: 2, 6, 2 and 1, 8, 1 might fit a rule. As students experiment with other sets of numbers, the program tells them whether

All tax programs should look and print like this one.



Better yet, all tax programs should think like this one.

TaxView Federal 1988 for the Apple IIGS.®

Simply put, TaxView Federal lets you enter data directly into 74 IRS forms and schedules, plus specially-designed worksheets and statements-all displayed on-screen in their official IRS versions. The program totals all entered amounts, automatically makes all calculations, and instantly links data to and from individual forms.

It even checks your input for illogical or inconsistent entries. And, the actual IRS instruction booklet is available on-line.

When you're ready to sign and send your completed return, TaxView Federal prints forms identical to the IRS-printed versions using popular dot-matrix printers. Of course, all printouts are fully IRS-approved.

To order your copy publisher-direct, call SoftView at 1-800-622-6829. Or, visit your local retailer.

© SoftView, Inc. 1988. SoftView, TaxView and the SoftView logo are registered trademarks of SoftView, Inc. Apple and IIGs are registered trademarks of Apple Computer, Inc.

SoftView,® Inc.

4820 Adohr Lane, Suite F Camarillo, CA 93010 (805) 388-2626 they fit or not. For example, 0, 10, 0 does fit, and 3, 5, 3 does not. A student can ask to be tested, whereupon the computer might ask if 2, 2, 6 fits the rule (it does). Through experimentation, the student might have decided that the rule is that the sum of the numbers is 10. The program never explicitly confirms this conclusion, however. King's Rule is an example of a logical/mathematical program designed for logical/mathematical thinkers.

In Safari Search, students see a checkerboard-like area on which a character is hiding. At each level of the game, they get clues to help them locate the hidden creature. If they pick a square close to the square containing the creature, the word hot or warm may appear to indicate that the character's square is connected to the chosen square by an edge or a corner, respectively. By picking a few squares and looking at the messages, players can decide with certainty where the creature is hiding. This program is an example of a logical/mathematical program designed for spatial thinkers.

Both programs help develop similar skills, but they reach learners through different intelligences.

A challenge for today's computer-using educators is to identify computer-based activities that allow logical/mathematical learners to explore subjects and learning modes that are remote from this area. This task may be difficult, but it isn't impossible. Here's an exam-



Figure 1: Rafael's Madonna of the Table as digitized for the Apple II

ple of one approach:

The exquisite Madonna of the Table by Rafael (see figure 1) hangs in the Pitti Palace in Florence. During a tour of the gallery last spring, my tour guide said that if you were to draw a fixed-pitch spiral starting at the infant's elbow, it would go through the mother's elbow, through the infant's eyes, through her eyes, and through the eyes of the third person. By making a digitized copy of a slide of this picture, you can test this hypothesis with a computer. (I'll gladly send you the picture and program to try it on your own. See the end of this column for details.) When the computer draws the correct spiral (see figure 2), you can see that the tour guide was right.

The point of this exercise is simple. It allows mathematical/logical thinkers to look at art in a new way, to become sensitive to the un-

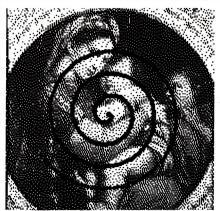


Figure 2: A computer-generated fixedpitch spiral connects major elements.

derlying pattern and structural form of great works hanging in galleries throughout the world. This brief computer activity can help open the door to spatial thinking for people whose dominant mode is logical/mathematical.

As with the other intelligence areas, your challenge is to look at your software library for connections with familiar domains that can open new worlds.

Your Apple computer is a perfect ally in this quest.

David Thornburg is actively involved in the development of creative uses for computers. He will provide a free copy of the art/math program mentioned in this article to those who send a formatted 5¼-inch ProDOS disk and a self-addressed, stamped mailer. Send your request to D. Thornburg, Art Math, Box 1317, Los Altos, CA 94023-1317.



RamFactor

The Ultimate Slot 1-7 Memory Card



 \mathbf{K} amFactor is automatically recognized as additional workspace memory by Apple-Works 1.3 and 2.0. In addition, RamFactor's memory can be used for creating the ultimate in program speed—a lightning-fast RAMdisk for the Apple IIGS, IIe, II+, Franklin and Laser 128. A RAMdisk does not depend on the slow moving parts of a conventional floppy drive. RAMdisks eliminate wear and tear on your disk drive plus your programs run up to 20 times faster! When a program is in RAM, your computer won't have to search for it in the mechanical disk drive during program operation. With RamFactor, you can have up to 9 seperate simultaneous RAMdisks—even in different operating systems! Now you can instantly switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/AM to Apple Pascal 1.3 to ProDOS.

Apple Memory Expansion Card Compatible

RamFactor is 100% Apple Memory Expansion Card compatible. This means that software designed for Apple's card is automatically compatible with RamFactor. Thousands of software programs—including AppleWorks, Pinpoint, MacroWorks, MultiScribe, and Managing Your Money—can take advantage of the speed and performance RamFactor provides. But with Apple's card, you can have only one RAMdrive partition instead of the 9 simultaneous RAMdrives that RamFactor offers. And that's only part of the story . . .

2.0 AppleWorks Power

Other slot 1-7 cards can give AppleWorks a larger desktop, but that's the end of their story. RamFactor provides many more powerful functions. It's the only slot 1-7 card that increases AppleWorks 2.0 internal limits by increasing the maximum number of records in the database to 22,600, increasing the maximum number of lines permitted in the word processor to 22,600, and expanding the clipboard size to 2,250 lines maximum. RamFactor is the only standard slot card that will automatically load all of 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 a ProDOS clock. RamFactor will automatically segment large files so they can be saved on multiple 5½" and 3½" floppies or a hard disk. All this performance is available for the Apple IIe, Laser 128, Franklin or 64K Apple II Plus when used with an 80 column card. No other standard slot card comes close to enhancing AppleWorks so much.

The "Electronic Hard Disk"



RamCharger is an optional battery back-up device, (about the size of a disk drive), that can plug into a connector on Ram-Factor. With Ram-

Charger added to RamFactor, your program will appear almost instantaneously when you turn on your computer. RamCharger contains LED's that let you know RamFactor's reserve power status. Since RamCharger has its own built-in power supply, it can retain RamFactor's memory indefinitely. Plus, RamCharger's battery will continue backing up RamFactor's memory for up to 10 hours during power failures. An optional "Y" cable is also available that allows one RamCharger to power two fully expanded RamFactors.

If 1 MEG Isn't Enough



A 4 MEG RamFactor Expander can be plugged into the expansion port on Ram-Factor for up to 5 MEG's total. RamFactor Expander uses standard 1 MEG chips and can be expanded in 1 MEG increments. With the addition of RamCharger, both RamFactor and the expander will provide up to 5 MEG's of lightning-fast battery backed storage.

Features

- Compatible with Apple IIGS, IIe, II+, Franklin and Laser 128
- 256K to 1 MEG on main board with 256K

- memory chips, expansion port supports up to 5 MEG with Expander option
- 100% Apple Memory Expansion Card compatible
- RamCharger battery back-up option available for permanent storage
- Reduces power strain to internal power supply with RamCharger option
- Fully socketed and user upgradeable
- Expands internal limits of AppleWorks 2.0
- Automatically recognized by ProDOS, DOS 3.3, Apple Pascal 1.3 and CP/AM
- Built-in RAMDrive software (true RAMdisk not disk caching)
- Graphic memory test included
- Allows Apple II+ to run AppleWorks 2.0 without buying additional software
- Automatically recognized by AppleWorks 1.3 and 2.0
- Fits in any I/O slot except slot 3
- 5 year warranty parts and labor
- · Proudly made in the U.S.A.

RamFactor with 256K \$299
RamFactor with 512K \$439
RamFactor with 1 MEG \$719
RamFactor Expander with 1-4 MEG CALL
RamCharger backup option "Y" cable \$24

(Allows one RamCharger to power two RamFactors.)

Order RamFactor today . . . with 15 day money back guarantee and our five year warranty. *See* your dealer or *call* (214) 241-6060, 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 7% sales tax. Add \$10.00 if outside U.S.A.

APPLIED ENGINEERING

The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011 Prices subject to change without notice.

BY JENNIFER BRAWER

Cartooners, an animated form of expression for children

A-F-TEACHERS' TOULDUX

Electronic Arts is best known for outstanding adult entertainment and creativity software. Now we have Cartooners, EA's first product designed specifically for 6–12-year-old children. The program turns an Apple IIGS into a cartoon studio in which anyone can create musically accompanied animated movies.

In addition to being just plain fun, Cartooners offers a nontraditional format for educational activities. Instead of writing a story or essay by using a word-processing program or pencil and paper, youngsters can use Cartooners to present information in a dynamic format. With the Cartooners cast, scenery, and movable props, children's ideas can walk, talk, think great thoughts, fly, dance, and even explode.

Lights, Camera, Action!

Cartooners is very easy to use and comes with two sets of instructions. The first covers program basics and is geared to young children and any adults who prefer reading instructions that rhyme. The second manual covers all the Cartooners options in depth, taking readers through the moviemaking process one step at a time.

Cartooners has three levels of difficulty, so even the youngest movie mogul can enjoy the program. The first level, called Look, lets users watch short animated clips, complete with music and comic-strip-like speech balloons. With the next level, Play, more ad-

With Cartooners, children's ideas can walk, talk, think great thoughts, fly, dance, and even explode.

vanced moviemakers view a preset 'toon and then use the editor to complete the sequence. Finally, in the Create level, experts can try their hand at becoming the next Walt Disney.

The blank Create screen has a pull-down menu bar across the top and a control bar across the bottom. The menu bar gives access to general file and edit commands and the program's impressive collection of actors, their movements, background scenery, and mood music. The control bar provides Rewind, Play, Forward, and Record buttons as well as a frame counter, an eraser, a continuous-play button, and a speech-balloon button for adding text dialogue.

Making an animated movie is a matter of selecting a background,

adding actors, using the mouse to drag and position them, and deciding what you want them to do. Once the scene is complete and it's time for the cameras to roll, click on the Record button for the desired length of time or number of frames and watch the screen come to life. Repeat this process with different scenes, characters, dialogue, and action to create a cartoon. The program allows for sequences of up to 2,000 frames, enough to create a captivating cartoon.

Cartooners' actors are cute animal characters. Each one has a set of animated movements from which you can choose to imbue them with the capacity to dance, moonwalk, clap, or hop. You can also select from a wide variety of props such as flowers, birds, clouds, the sun, and an impressive collection of eyes that either remain stationary or have some range of motion.

To add mood music, select one of the melodies from the menu bar. The music selections range from a "boing" to boogie and rockabilly. You won't hear the music while recording a sequence, but it plays loud and clear when you're viewing the cartoon.

The only way to add text to the cartoon is with speech balloons, which vary in size and resemble the shapes comic strips use to depict speech, thought, and exclamations. Each shape changes size to accommodate the amount of text you want to include. One speech balloon is invisible—you can't see its boundaries when the contents appear in a movie. This option lets you include text other than dialogue and is nice for titles, credits, and descriptive information.

Children can use other EA creativity products to add to Cartooners' existing collection of actors, background scenes, and music. For instance, with Deluxe-Paint II, they can design their own characters, props, and scenes. De-



ATTENTION RETAILERS!

BECAUSE YOU SELL ONE OF THESE...



YOU SHOULD SELL THIS...



Put the #1 Apple II Magazine to work for you! A+ MAGAZINE, the #1 Apple II magazine, is your "silent salesman" introducing your Apple II customers to new Apple II products every month!

A+ is the best way to increase the sale of new Apple II hardware and software—

every issue contains in-depth coverage of new entertainment packages...educational applications...business software and hands-on tutorials that promote your inventory!

Give your customers the "insider information" that can only be found in A+! To place your order for A+ call 1-800-435-5003 or write:

Ziff-Davis Publishing Company Retail Sales Department

One Park Avenue—5th Floor New York, NY 10016

Teachers can grab students' attention with a unique animated story.

luxePaint II actors can't take advantage of the animated movements available for the resident Cartooners actors, but it's nice to be able to add personal creations to the Cartooners files. For more music selections, Cartooners also accepts files created with Instant Music and its data disks, It's Only Rock n' Roll and Hot and Cool Jazz.

Special Effects

The actors in Cartooners have various ranges of motion. The producer controls whether actors move in front or behind other actors in a scene by setting the front/back level for each actor. The range is from 1 to 8, with most actors starting with a front/back level of 4. Actors with lower front/back levels pass in front of those with higher levels. By adjusting the front/back levels, you can even have an actor move between two others.

The step-by-step movie-making instructions provide many hints for creating special effects. For example, you can create new animated movements for a character or prop by cycling some of its basic actions. There is also a discussion of prop placement and how it affects the visual aspect of the movie. The tips for creating the illusion of speed, including experimenting with the movement of different props and characters in opposite directions, will add professional quality to productions.

Animated Classroom Activities

Cartooners is not only a fun program for children, but it's also a great tool for teachers. Instead of having students always read for comprehension from a book, blackboard, or worksheet, teachers can grab their attention with a unique animated story. Animated sequences for basic math quizzes are a nice alternative to worksheets or drill-and-practice programs. And for preschoolers learning to count, animation and music can really liven up an exercise. The program's Print feature makes it easy to print out frames from an original cartoon and make a colorful book or unusual worksheet.

Electronic Arts plans to follow Cartooners with add-on curriculum disks to supplement reading, writing, geography, and science instruction. Each disk will include subject-area scenery, characters, and props for producing visual depictions of a concept or event.

I previewed an early version of a science disk for upper-elementary or junior high students to use with a unit on the environmental forces responsible for weather. Once students have a grasp of what causes weather, they can use Cartooners and the weather disk to build visual models of weather patterns and systems. For example, the disk includes a sample animation that explains how the sun's heat causes water to evaporate and form clouds and why it rains when the clouds encounter a large land mass such as a mountain. The actors on the weather disk happen to be clouds, tornadoes, evaporation patterns, and other symbols that you see on TV weather maps. As a matter of fact, students can use the actors, props, scenery, and music on the

Cartooners is the perfect add-on to children's imagination.

weather disk to construct weather reports like the ones on television. **Testing the Limits**

A 90-minute animated Easter special is too ambitious for Cartooners. A 5-minute cartoon is not. For this review, I used the maximum allowable number of frames

CARTOONERS

A program that lets children create musically accompanied

Apple IIGS, 1Mb RAM, one 3.5-inch disk drive, color printer optional, GS/OS, not copy-protected PRICE: \$59.95

Electronic Arts 1820 Gateway Drive San Mateo, CA 94404 (415) 571-7171

CIRCLE READER SERVICE NO. 365

per movie (2,000), loaded each of 9 sequenced background scenes with at least 3 animated animals and 1 or 2 speech balloons, included every piece of music, and still couldn't crash the program.

The manual warns that using too many large actors and speech balloons slows down the program, and it does. The production process becomes sluggish, and playing back an overcrowded cartoon is tedious because transitions from one background to the next take a long time. If you take the program's limitations into consideration, however, and keep the number of animated actors and large speech balloons in check, the program's action runs smoothly and quickly.

Cartooners is the perfect add-on to children's imagination. The product provides them with a graphic environment in which they can experiment with creativity and self-expression. The program does have some of the same appeal as Saturday-morning cartoons, but it lets kids experience them from the creative side as the producer rather than as a passive viewer.

You probably already know that **Computers Need Maintenance!**

But did you know that with Intelligent Tools your computer can maintain and diagnose itself?



MASTER DIAGNOSTICS...

Master Diagnostics provides all of the tools and knowhow necessary so that anyone can do monthly maintenance duties. Calibrating disk drive speed, cleaning drive heads, checking track alignment or just adjusting your monitor to peak

clarity is a snap.
In addition to the maintenance routines, extensive diagnostic pro-cedures are available at the touch of a key. With our new diagnostic construction set; you can create peripheral diagnostics for any device card. Problems are diagnosed down to the chip level and tests will report: what's right, what's wrong, what to do and how to do it. Not just pass-fail type exams! The user manual is easy to un-

derstand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. Consumers Guide chose Master Diagnostics as one of the best programs for 1985. Used by Apple service centers world-wide.

WHEN ORDERING SPECIFY: version: **₡** II+, **₡** //e or **₡** //c

Master Diagnostics - \$75.00 r 6.1

Drive Analyzer alone - \$39.95 Visa, MC, COD, School PO's Call Free 1-800-835-2246

Apple Diagnostics Since 1979

NIKROM Technical Products, Inc.

Upgrades - return tte and \$20 00

176 Fort Pond Road ◆ Shirley, MA. 01464

CIRCLE 329 ON READER SERVICE CARD

KIDS LOVE TO EXPLORE

So give them **D.C. Heath's** Explore~a~Storv

The animated **creative-writing** software.



From Rosie the Counting Rabbi

Students can "step inside a story" to **read** and **explore** it, change it, write a new one, or even **create** original books!

- 12 Language Arts titles (Explore~a~Story)
- 6 Science investigations (Explore~a~Science)
- Available for Grades K-6
- For the Apple II family, 128K ■ 5.25" and 3.5" formats

D.C. Heath's **School Versions:**

\$75.00

Home Versions Available from

William K. **■ Bradford** Call TOLL FREE:

-800-421-2009

In Massachusetts, call 617 862-2570

CIRCLE 210 ON READER SERVICE CARD

PICK OF THE CROP

BY LESLIE STEERE, MARY BOHANNON, AND SHANON CULLEN

Slide shows, city planning, sonic blasts, and more for your Apple II-series computer

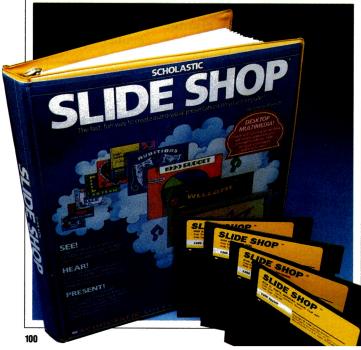
PRODUCT ROUNDUP

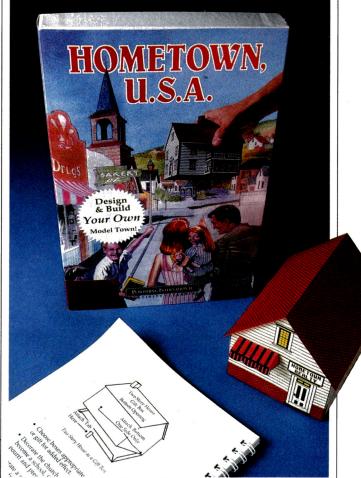
PRESENTING: SLIDE SHOP

Slide Shop from Scholastic is a presentation-graphics program including a master program disk plus two disks full of graphics templates, clip art, fonts, and sound (in the 3.5-inch version, it's all on a single disk).

Scholastic's manual leads users step by step through creating audiovisual presentations, from the initial planning stages through presentation of the finished product. You get suggestions about type choice and placement, color mixing, and animation techniques.

Scholastic's Slide Shop is one easy way to make your Apple work presentable.





Hometown, U.S.A.: clip architecture for the IIGS

Although appropriate for simple business and home presentations, the package is aimed at schools and includes a teachers' guide with suggested exercises for grades 4 through 12. Slide shows of Shakespeare plays, math and spelling flash cards, and illustrated musical concerts are just some of the classroom possibilities.

Slide Shop has a complete set of drawing tools and a color palette. It can also import graphics from standard hi-res programs such as 816/Paint. And if a monitor's too small to show off your work, you can give your Slide Shop presentation with a VCR or overhead projector.

So wow the PTA with your latest classroom project. Convince the school board that your program deserves more funding. Make your students really care about what Romeo said to Juliet. This program and your Apple may be all the help you need.

SLIDE SHOP

Apple Ile/c/Gs/c+, 128K RAM, one 5¼- or 3.5-inch disk drive, ProDOS 8, copyprotected

PRICE: \$69.95

Scholastic, Inc. 730 Broadway New York, NY 10003 (212) 505-3561

CIRCLE READER SERVICE NO. 501

HOMEMADE HOMETOWNS

You think your hometown block would be improved if that steepled church were replaced with a gas station, but the city planners have some doubts. Here's your chance to prove them wrong. Hometown, U.S.A. is a collection of Apple Preferred Format clip art that can be loaded into most IIGs paint programs. With it you design and build your own model town. Turn a neighbor's evesore of a house into a movie theater, remodel your own home in Victorian splendor, and put a bank on

every corner. There's nothing to stop you but your imagination.

The Hometown, U.S.A. graphics are sized so that when they're printed on paper, all the buildings, as well as windows, doors, signs, and awnings look at home next to a model railroad. Use the paint program to add a brick pattern to walls, shingles to pitched roofs, or shadows to siding. The program's accompanying manual is full of clear diagrams and instructions for postprinting construction as well as suggestions and hints for freeing your creative building bug.

When the joy of being city architect fades, use Hometown, U.S.A. to build towns for a model train to chug through, gift boxes with roofs for lids, greeting cards, holiday decorations, or three-dimensional story illustrations.

HOMETOWN, U.S.A.

Apple llas, almost any llas paint program (memory and operating-system requirements depend on paint program), one 3.5-inch disk drive, printer, not copy-protected PRICE: \$39.95

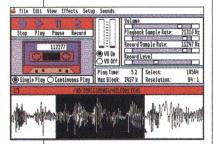
Publishing International 333 West El Camino Real, Suite 222 Sunnyvale, CA 94087 (408) 738-4311

CIRCLE READER SERVICE NO. 502

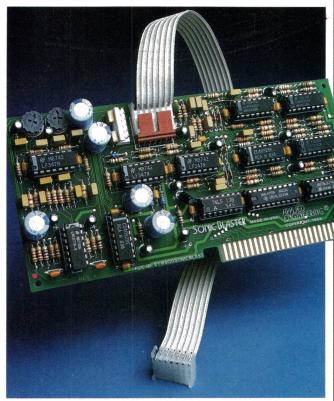
HAVE A BLAST

A Sonic Blast. Applied Engineering's Sonic Blaster stereo digitizer might just get you that eviction you've been courting. If you're serious about the s in your GS, it may be worth the risk.

AE's contribution to the world of IIGs sound lets you record sounds from your



home stereo, CD player, or television; alter them with easy-to-use editing commands; and play them back in full stereo using Sonic



Applied Engineering's Sonic Blaster stereo digitizer

Blaster's built-in amplifier and a variety of speaker configurations. With Sonic Blaster's mouse-driven software, you can cut, paste, copy, amplify, fade in and out, and echo your recorded sounds; open multiple windows simultaneously to cut and paste between files; and watch the sound on a built-in real-time oscilloscope.

And what a blast to run commercial software that uses the IIGS Ensoniq sound chip! Imagine the individual sound effects of Alien Mind's 100+ monsters amplified through your home stereo speakers. Scary. Especially for the neighbors.

SONIC BLASTER

Apple IIgs, 512K RAM, one 3.5-inch disk drive
PRICE: \$129

Applied Engineering P.O. Box 5100 Dallas, TX 75011 (214) 241-6060

JUST ME 'N' MY TURTLE

LogoWriter Home Edition turns people who have been plodding along with commercial software into computer programmers. Musical greeting cards, animation, choose-yourown-ending adventure stories—even the most computerphobic adult will learn to love this product (aimed at ages 7 and up).

Logo Computer Systems Inc.'s home edition of the

award-winning LogoWriter comes with a manual basic enough for the very young without being too simplified for the not-so-very young. By the end of page 12, people who have never turned on a computer should be printing out party invitations. By page 67, they should be writing music scripts for an animated aerobics class.

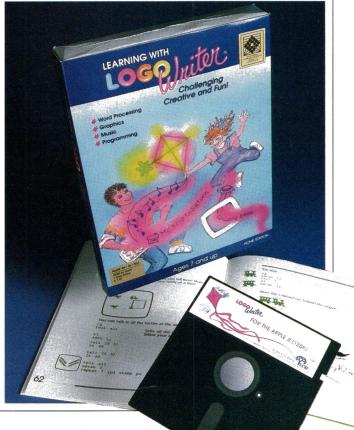
A quick-reference guide lists all of LogoWriter's special keys and key combinations as well as each of LogoWriter's built-in commands, and a handy card-map of the LogoWriter keyboard dispenses with the hunt-peck-and-guess method of learning which keys do what. A Spanish-language edition of LogoWriter is also available.

LOGOWRITER HOME EDITION

Apple Ile/c/gs/c+, 128K RAM, one 5¼- or 3.5-inch disk drive, ProDOS 8, not copyprotected PRICE: \$99

Logo Computer Systems, Inc. P.O. Box 162 Highgate Springs, VT 05460 (800) 321-5646 • (514) 455-5636 CIRCLE READER SERVICE NO. **503**

LogoWriter Home Edition brings programming to the computer tenderfoot



RamWorks[®] III

Patented Performance from the Recognized Leader



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

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 265K 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.

RamWorks eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 22,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 22,000. *Only* RamWorks expands the maximum clipboard limit from 250 to 2,042 lines. And *only* RamWorks offers a built-in printer buffer, so you won't have to wait for your

printer to stop before returning to AppleWorks. And auto segments large files so they can be saved on two or more disks. You can even have Pinpoint or MacroWorks and your favorite spelling checker in RAM for instant response.

RamWorks, <u>nothing</u> 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 offthe-shelf software than any other RAM card. Popular programs like AppleWorks, Pinpoint, TimeOut series, HowardSoft, FlashCalc, ProFILER, Managing Your Money, SuperCalc 3a and VIP Professional to name a few (and most 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 (U.S. Patent #4601018) 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, 1 MEG, or 2 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.

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 the new Apple standard analog and the IBM standard digital RGB outputs (cables included). The RGB option plugs into the back of RamWorks with no slot 1 interference and remember you can order the RGB option with your RamWorks or add it on at a later date.

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



"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

Apple experts everywhere are imressed by RamWorks' 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.

Onthut Caple Quality and Support of the

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 warranty and outstanding technical support, you're assured of the most trouble free product you can buy.

It's Got It All.

IBM Digital Output Cable

Apple Analog

Industry Leader.

- 15 day money back guarantee
- 5 year warranty
- Built-in super sharp 80 column display (U.S. Patent #4601018)
- Expandable to 1 MEG on main card
- Expansion connector for possible future expansion to 16 MEG

- 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
- 100% compatible with all standard IIe
- RamDrive™ and ProDrive™ the ultimate emulation software included free
- Memory is easily partitioned allowing many programs in memory at once
- · Compatible RGB option featuring ultra high resolution color graphics and multiple text colors with cables for both the new Apple and standard IBM type monitors
- · Self diagnostics software included
- Lowest power consumption (U.S. Patent #4601018)
- 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 Apple-Works screen with any ProDOS compatible dock
- Much, much more!

RamWorks III with 64K	\$239
RamWorks III with 256K	\$249
RamWorks III with 512K	\$389
RamWorks III with 1 MEG	\$669
RamWorks III with 1.5 MEG	\$999
RamWorks III with 3.0 MEG	\$1749
Ram Expander+ 1 MEG	\$649
Ram Expander+ 2 MEG	\$1099
65C816 16 Bit Card	\$159
ColorLink RGB Option	\$129

RamWorks III. The industry standard for memory expansion of the Apple IIe. ORDER YOUR RamWorks III TODAY. See your dealer or call (214) 241-6060. 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 7% sales tax. Add \$10.00 if outside U.S.A.

APPLIED ENGINEERING

The Apple enhancement experts.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011 Prices subject to change without notice.

True 65C816 16 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 while maintaining 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

Our Future. Their Future. Your Future.







Personal computing began with the Apple II.

Thousands of applications and millions of computers later, it is the clear choice in homes and schools. The Apple II family of computers has had an incredible effect on our past and will have an even greater impact on our future.

We're committed to the continued success of the Apple II family, and that presents a rare opportunity for your future. We need more people to help us run with the Apple II and see just how far it can go. If you want to be a part of our unique and exciting team, send us your resume. You'll influence our next computers, and our next generation.

Software Developers

You will: Develop utility programs and maintain existing utilities for Apple IIGs and Apple II computers; write engineering documentation, conduct design and code reviews; participate in design and implementation of enhancements to Apple IIGs desktop metaphor and execution environment. You need: Familiarity with desktop programming for Apple IIGs and Macintosh in 65816 assembler and Pascal languages; a strong history of experience designing and implementing user interfaces; good debugging skills and comfort with cross development; a BSEE/CS or equivalent. (Dept. CE101AA)

Developer Technical Support Engineers

You will: Support the developer community by writing technical notes, providing example code and answering development questions via electronic mail. You need: A strong desire to help developers; a passion for exploring and understanding Apple II systems; excellent communications skills; a BSEE/CS or equivalent. (Dept. MB102AA)

Product Marketing Manager, Apple II Programmer Interfaces

You will: Drive Apple's efforts to deliver consistent, thorough, and accurate interfaces for Apple II System Software to developers, including support documentation, developer packages

of Apple II System Software, and licensing; strategize overall interfaces documentation; propose and oversee additional documentation packages to make calling the toolbox routines easier and more understandable. You need: The ability to understand technical issues regarding Apple II software development; technical understanding of developer needs; a combination of product or project management; technical communication skills; and Apple IIGs programming experience; a BSCS or equivalent, MSCS or MBA preferred. (Dept. LL103AA)

Product Marketing Manager, System Software

You will: Manage the overall development and introduction of strategically important Apple II System Software products; manage System Software from feature conception through development, introduction and shipment. You need: A technical understanding of Apple II System Software; an understanding of marketing; two years of related work experience. A BSEE/CS or equivalent and an MBA would be a plus. (Dept. IL104AA)

Product Marketing Manager, *Current Products*

You will: Formulate and present product strategies within Apple and to key customers and 3rd party developers; drive pricing, positioning, competitive analysis, and product promotion. You need: An understanding of Apple II computers and peripherals; a strong marketing or education background. An MBA is a plus. (Dept. LL105AA)

Send your resume, indicating the appropriate department code, to: APPLE COMPUTER, INC., Human Resources, MS-27AS, 10500 N. De Anza Blvd., Cupertino, CA 95014. Principals only, please.

Apple Computer has a corporate commitment to the principle of diversity. In that spirit, we welcome applications from all individuals including women, minorities and disabled individuals.© 1989 Apple Computer, Inc. Apple and the Apple logo are registered trademarks of Apple Computer, Inc.





T I P S A N D TECHNIQUES

GS/OS EASTER EGG

While booting Apple's new IIGS operating system, GS/OS, you can avoid watching the "Welcome to the IIGS" thermometer fill up by pressing the space bar once as your start-up disk begins to spin. Presto! Greetings from Apple and version numbers of various system tools appear on the text screen. Press the space bar again to continue loading GS/OS.

Doug Gruben Lompoc, CA

HEX/DEC CONVERSION

I have found an interesting method for converting between decimal numbers and hexadecimal values, using an Apple IIGS. From the Applesoft prompt, type CALL-151 and press Return to enter the System Monitor. At the asterisk prompt, type an equal sign followed by a decimal number. The computer will display the hex equivalent. To

convert from hex to decimal, at the asterisk prompt, type the hex value followed by an equal sign. Here's an example:

]CALL-151
*=255
Hex-> \$000000FF
*FF=
Decimal-> 255 {+255}

By the way, I am a neuroradiologist, and, along with angiograms and other X-ray procedures, I recommend A + to all my patients.

TERRY A. DICHTER, M.D. WOODLAND HILLS, CA

BASIC MOUSESTICK

To use the mouse in place of the joystick in an Applesoft BASIC program, type PR**x (where x equals the slot with the mouse) to turn on the mouse, Control-A to initialize it, and PR**0 to return output to the screen. Then RUN the program.

This technique does not work on the IIGS, however, since the IIGS mouse is an Apple Desktop Bus device, not a slot-based peripheral.

> JIM EDWARDS JOHNSTOWN, PA

APPLESOFT TO TEXT

The conversion of Applesoft BA-SIC programs into text files is useful for a number of reasons. First, unlike Applesoft program files, text files can be imported into almost all word-processing programs for easy editing. Second, text files are easier to upload to bulletin-board systems because their ASCII format is universally recognized and requires no translation.

Converting from Applesoft to text is a simple operation that keeps the original Applesoft file intact while creating the new text file. The following steps show you how to translate an Applesoft program—let's call it SAMPLE—into a text-file counterpart, TEXT.EXEC:

1. With SAMPLE loaded into memory, add the following as the first line in the program:

O T\$ = "TEXT.EXEC" : PRINT CHR\$ (4)
"OPEN";T\$: PRINT CHR\$ (4)"WRITE";T\$:
POKE 33,33 : PRINT "O";: LIST 1 - :
PRINT CHR\$ (4)"CLOSE" : TEXT : END

- 2. After making sure you've correctly entered the line above, RUN the modified program, and a text file called TEXT.EXEC will be created on disk.
- 3. To prove that the conversion was a success, get rid of the program SAMPLE by typing NEW and then pressing Return. Now load the AS-CII file into memory by typing EXEC TEXT.EXEC followed by Return. The computer loads the program into memory one line at a time as you see the Applesoft prompt characters (]) scroll down the screen. When the cursor reappears, LIST the program to see your original lines of code.

MICHAEL BORKUM CHESTNUT HILL, MA

Please send your Apple II tips to "Tips and Techniques," A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. If you send us a tip that we publish, we will send you an A+ T-shirt. Please include your name, address, and size (S-M-L-XL) with your submission.

Re-ink Any Fabric Ribbon Automatically For Less Than 5¢ With



FREE BOTTLE OF INK,
RESERVOIR CAP & INK METER

VIAC INNER	
IMAGEWRITER I AND II	\$42.00
EPSON	\$42.00
UNIVERSAL (INCL. IMAGEWRITER LQ)	
MULTICOLOR IMAGEWRITER	\$80.00
MULTICOLOR ADAPTER ONLY	\$40.00

Shipping \$3.00

- Dark, lubricated ink extends print-head life. Re-ink in color too! Bottle \$3.00; pint \$18.50. We have a full range of special inks, heat transfer inks, cartridges and Mac Inkers available.
- Over 16,000 cartridge/spools supported.
- Dedicated Mac Inkers available for extra large or special cartridges.

RIBBONS

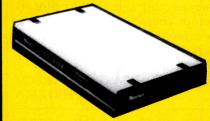
Imagewriter Cartridge	\$3.15 ea
4 Color Imagewriter Ca	rtridge\$10.00 ea

ORDER TOLL-FREE 1-800-547-3303

MODEMS

Mercury 1200AT\$109.00 Mercury 2400\$239.00 **Capricorn World** Minimodem *.....\$169.00 **Quick Link MAC software** (w/ modem)\$15.00 **Commworks Apple software** w/ modem\$60.00 Cable\$15.00

> * Capricorn - 300/1200 baud, supports both US & European standards.



100% Hayes Compatible! Shipping \$5.00

- 24 month warranty
- Status lights
- Speaker
- Call progress monitoring

DATA SWITCHES

4 pos. 8 pin switch \$50.00



Cable \$15.00 Shipping \$5.00

DB 25, Centronics & 9 pin model available

We have switches and buffers for any application, at the best price in the nation. Ask for brochure.

Cables: We carry cables for Apple computers and peripherals. Rapid turnaround on custom orders.

SPECIAL OFFER: For orders of \$100.00 or more. Tell us where you read this ad and get a free keychain, beeper, and flashlight combined! A \$15.00 value!

30 day money back guarantee on all products. 24 hour shipping.

IN OREGON (503) 626-2291

Computer Friends

14250 N.W. Science Park Drive Portland, OR 97229, Telex 4949559, Dealers Welcome.

Dayton, Ohio 45429 P.O. Box 293067 "Order Line" 1-800-356-9566

Mon-Fri 9 a.m.-7 p.m. E.S.T. • Sat 9 a.m.-3 p.m. E.S.T.

HOMEWARE

Your Price Lotto Program \$19 Copy 2 Plus24 Print Shop GS 39 Quicken ... Music Const. Set. GS . . 33 Managing Your Money . 95 Bank St. Writer + 47 Writer Rabbit GS P.S. Companion Music Studio 2.0 GS .. 65

Aath Blaste	r P	lu	s				\$ 3
Vhere in th	e V	Vo	rl	d	ı		2
leader Rab	bit	G	S				3
Mavis Beac	on	G	S				3
yping Tuto	r V	١.					3
hink Quick							
lge Blaste							
Vhere in th							
Vord Attacl							
esignasau							

GAMEWARE
Kings Quest 3 \$32
Superstar Ice Hockey 24
Ultima V
Test Drive
F-1526
Chuck Yeager AFT 27
Pirates 25
Wheel of Fortune 11
Jeopardy
Gauntlet

PRINTERS NX 1000

144 CPS, 36 CPS NLQ Epson/IBM compatible 4K buffer Friction/tractor feed Front panel operation *199 YOUR COST

LOTTO WITH YOUR COMPUTER!

"The LOTTO Program" OUR BEST SELLER

Increase your chances winning tickets through statistical analysis.

1-513-299-2325 SOFTWARE AVAILABLE

	ACCESS
	ACCOLADE
•	ACTION SOFT
•	ACTIVISION
3	ALTURAS
3 7 2 4 5	AMERICAN EDUCATION
,	ARTWORX
2	AVANTAGE
1	AVALON HILL
5	BAUDVILLE
	BERKELEY SOFTWORKS
	BOX OFFICE
	BRODERBUND
0	BUENA VISTA
֡	CDA
5	CENTRAL POINT
י י	CINEMAWARE
2 2 8	DATA EAST
,	DAVIDSON
2	DESIGNWARE
'n	ELECTRONIC ARTS
5	EPYX
	GAMESTAR
	HI-TECH EXPRESSIONS
,	INFOCOM
•	LDW
2 4 9 4 6 7 5	LEARNING COMPANY
•	MECA
•	MICROSCOPE
7	MINDSCAPE
ί.	
1	ORIGIN
j	POLARWARE
6	SIERRA
_	SIMON & SCHUSTER
	SIR TECH
	SPECTRUM HOLOBYTE
	SPRINGBOARD
	SSI
	SUBLOGIC

HARDWARE SPECIALS

TIMEWORKS

UNISON WORLD

WEEKLY READER

UNICORN

Add-Ram 64							. 42	2
Printermate							.45	5
Print-It							. 95	j
Koala Pad + .							.7	5
* LIMITED QUA	4/	۷	T	17	1	E	s ·	•

APPLE COMPATIBLE

Laser 128 EX \$42900 Laser 128 EX2 Call

ries & Peripherals Available

Hundreds of other titles available

Laser 128

ZUUM/MUDEM MX 2400
The Zoom/Modem MX 2400 is a
Hayes-compatible, external,
2400-baud modem that uses digital
signal processing.

- Features include:

 auto-dial

 auto-answer,

 on-board speak
- control call progress tone detection
- adaptive equal lightning prot

PRICE: *199 SPECIAL: \$139

Laser Tech Ref. Manual ...20 Laser Carrying Case55

TERMS

We accept MC/VISA with no handling charges. We do not charge your account until your order is shipped. Cashlers checks and money orders shipped immediately. Personal and company checks, allow three (3) weeks clearance. CODs, add \$4.00. Orders under \$100.00 add \$3.00 shipping; over \$100 free shipping. AK, HI, FPO, APO add \$5.00 on all orders. Canada and Puerlo Rico add \$5.00 on all orders. Ohio residents add 6.0% sales tax. Defectives replaced within 10 days (call 1-513-299-2325 for RAP). Compatibility not guaranteed. Prices subject to change without notice. School PO's accepted.

UP TO 50% OFF OUR COVER CHARGE.

Protect your Apple computer investment with our perfectly fitting Cover Sets made of 400 Denier Nylon. Water and static-resistant, won't tear or collect lint. Cover Sets for virtually any Apple II, Mac II and Macintosh system configuration, including printer, external disk drives and mouse.

Buy any complete dust cover set and get a FREE Mouse Pad (\$7 value).

Save On Our Complete Cover Sets. Limited Time Only.

Apple II GS

Covers for monitor atop CPU, keyboard and mouse. Reg. \$38 Now Only \$30

Apple lic

Covers for monitor, keyboard and mouse. Reg. \$32 Now Only \$26

Covers for monitor atop CPU and mouse. Reg. \$32 Now Only \$26

Buy one complete cover set, add only \$9 for basic printer cover (for Laserwriters add \$14) and \$3 for external disk drive cover.

Other Accessories At Great Savings.

Imagewriter II Ribbons. Black/Box of 6: From \$3 per ribbon. Solid Color/Box of 6: From \$4 per ribbon. Multicolored Box of 6: From \$8 per ribbon.

Portable Cordura Diskette Holders. 3 sizes for 1 to 12 diskettes; choice of colors. Amaray Disk Banks. For 3.5" and 5.25" diskettes. Specially priced with purchase of complete cover set.

Shipping (U.S.A.): Phone orders shipped next day. Air delivery available. Corporate & school P.O.s and personal checks accepted. Add \$3 for shipping & handling. CA residents add 6% sales tax.

All Merchandise Satisfaction Guaranteed.

VISA

TOLL FREE: 800/235-5330

MC

In CA: 800/237-5376

COMPUTER COVER COMPANY

23352 Peralta, Ste. 14, Laguna Hills, CA 92653

MAIL ORDER MART

The A + Mail Order Mart is a new advertising section featuring hardware, software, and peripherals for Apple IIs and compatibles. Each month, following "Product Roundup," the Mail Order Mart gives you an easy way to find Apple II products at mail order prices!

Advertisers can qualify for the Mail Order Mart if they advertise the separately marketed products of two or more manufacturers. Advertising rates in the Mail Order Mart are 15% less than General Advertising rates.

For more information on rates and reserving space in the Mail Order Mart, contact your nearest A+ representative:

Thomas Richardson, New York

(212) 503-5145

Thomas Lutzke, Chicago

(312) 346-2600

Susan Schlangen Williams, San Francisco

(415) 378-5699

Catherine Davenport, Los Angeles (213) 387-2100

CIRCLE 136 ON READER SERVICE CARD

NO-SLOT CLOCK \$44.95

5.25" DRIVE \$99.95

LASER 128EX \$399.95

Apple II/II+ Compatible **Enhanced Keyboard** and Case



- 68-keys with 15-key keypad. Direct connection to motherboard with 16-pin DIP jumper - Pop-up lid for easy access to motherboard with 16-pin DIP jumper - Pop-up lid for easy access to motherboard and power supply - Fits original Apple II/II+ motherboard and power supply - Color: Beige with brown/grey keys

AEKB..... \$59.95 \$49.95

Apple Compatible Cards and **Products**



16K RAM Card (Language Card) for Apple II and II+ - expand from

Extended 80-Column Card for Apple I/e. Doubles the display and memory capacity of your Apple I/e.

Disk Drive Controller Card for Apple II, II+ and IIe. Capable of handling 2 drives (including ADD12, right)

JE875. . . <u>.....</u> \$49.95 Parallel Printer Card for Apple II, II+ and I/e. Compatible with most

JE880. \$49.95 No-Slot Clock for Apple //e, //c and IIGS. Plugs directly into your motherboard — 10 year battery.

IB137.....\$44.95

1355 SHOREWAY ROAD **BELMONT, CALIFORNIA 94002** 24 HR. ORDER HOTLINE (415) 592-8097 Telex#176043 FAX (415) 592-2503 CUSTOMER SERVICE 7AM-5PM PST (415) 592-8121

Apple II. II+ and *II*e Replacement Keyboards



Keyboard Features: • Apple II/II+ and IIe compatible replacements available • Includes Cursor Control (AKB2E only) . Keyboards feature all the same keys as the original II/II+ and IIe · Software Compatible

Apple II/II+ Replacement Keyboard . \$39.95 AKB2E Apple Ile Replacement Keyboard . . \$44.95

Laser 5.25" **Half Height Disk Drives**

for Apple II, II+, Ile and IIc

MasterCard



Direct drive • 160K storage • 40 tracks • Super quiet • Works with Apple Controllers or other Apple compatible controllers (JE875, see left) • Complete with connector – just plug into your controller.

ADD12 Disk Drive (for II, II+ and I/e). \$99.95 ADD2C Disk Drive - no controller needed (for IIc). . . . \$99.95 Adapts standard Apple drives for use with I/c \$4.95

Additional Apple Compatible Products KHP4007 Switching Power Supply (for II, II+, IIe) \$44.95 AMON Monochrome Monitor (for II, II+, IIe, IIc) . . . \$99.95 APF

Cooling Fan (for II, II+, I/e). \$29.95 APC2 iter II or Serial Cable. \$4.95

ameco

ELECTRONICS

Laser 128EX Portable Computer Laser 128EX is 3 times

faster than the Apple IIc Ile · Compatible with all Apple IIc and IIe software • Features built-in disk drive and 128K RAM of memory · Laser 128EX has built-in interfaces for

all your peripherals, in-cluding serial and parallel printer interfaces, modem and mouse/game port, and you can hook up a color or mono-chrome monitor or even a TV to it. • Size: 14.5"L x 12.5"D x 3.125"H • Weight: 11.7 lbs.

128EX Laser 128EX . . . \$449.95 \$399.95

AMON 12" Monochrome Monitor for Laser 128EX . . \$99.95

Zoom 300 Baud Modems



 Haves compatible • ZOOM communications software included . Two-Year Warranty

NM300 Manual Dial/Manual Answ ZM300 Auto Dial/Auto Answer Modem. \$49.95 Software Enhancement. \$19.95 NMS

Computer Power JE1200 -----**Protection**

Power Base Only w/6 control switches and power protection. . . . \$29.95 JE1191 6-outlet Power Strip w/circ. breaker. \$11.95 nitor Base w/6-out. power center \$39.95

\$20.00 Minimum Order — U.S. Funds Only CA Residents Add 6%, 61% or 7% Sales Tax Shipping — Add 5% plus 81.50 Insurance (May vary according to weight) Send \$2.00 postage for your FREE 1989 Catalog Prices Subject to Change

©1989 Jameco Electronics APPLE, APPLE II, II+, IIe, IIc, IIGS and Macintosh are registered trademarks of APPLE Computer, Inc.

3/89

SOFTWARE DISCOUNTERS OF AMERICA

S.D. of A

USA/Canada Orders—1-800-225-7638 PA Orders—1-800-223-7784 Customer Service 412-361-5291

- Free shipping on orders over \$100 in continental USA
- No Surcharge for VISA/MasterCard
- Your Card is not charged until we ship

SIERRA

A fascinating, fantastic entertainment program for the home, nursery schools and kindergarten classes. A child's "adventure in a dream" come true.



Mixed-Up Mother Goose	128K
List \$29.95	or
Our Discount Price \$19	GS Version

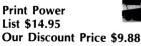
o an o locount i ille	
ACCOLADE	BOX OFFICE
Bubble Ghost GS\$25	Alf's First Adv \$9.88
4th & Inches Football GS\$29	California Raisins \$16
Hardball \$9.88	\$100,000 Pyramid \$9.88
Hardball GS\$25	Psycho \$16
Mean 18 Golf GS \$25	*All Titles Reg. 128K!
Famous Course Disks #2	BRODERBUND
for Mean 18 GS\$14	Ancient Art of War
Famous Course Disks #3 &	at Sea 128K \$29
#4 for Mean 18 GS . \$23	Bank St. Writer
Mini Putt GS \$25	Plus 128K\$49
Pinball Wizard GS Call	Carmen San Diego
Serve & Volley GS\$25	Europe 128K\$29
Test Drive 128K \$23	USA \$29
ACTIVISION	World\$25
Aliens 128K \$9.88	Choplifter/David's
Black Jack Academy GS\$25	Midnight Magic \$9.88
Ghostbusters\$9.88	Dazzle Draw 128K \$39
Last Ninja 128K \$23	Fantavision GS\$39
Last Ninja GS \$25	Geometry GS\$49
List Manager Plus GS . \$65	On Balance 128K \$39
Maniac Mansion 128K \$23	Print Shop (Enhanced) \$29
Might & Magic 2 \$32	Print Shop Companion \$23
Music Studio 2.0 GS\$65	Print Shop GS \$39
Neuromancer 128K \$29	P.S. Graphics Library:
Paintworks Gold GS \$65	#1, 2, 3 \$15 Ea.
Paint/Write/Draw GS . \$79	P.S. Graphics Library
Rampage 128K \$23	Party Edition GS\$23
Shanghai \$23	Sampler Edition GS . \$23
ALTURAS	VCR Companion 128K \$32
Maxx Control Yoke \$69	VCR Companion
ARTWORX	Film Library \$19
Bridge 5.0 \$19	Wings of Fury 128K \$23
Strip Poker \$19	CENTRAL POINT
Data Disk #1 (Female) \$14	Copy 2 \$23
Data Disk #2 (Male) \$14	CINEMAWARE

HI-TECH **EXPRESSIONS**

Data Disk #3 (Female) \$14

Strip Poker 2 GS \$25

Design and print signs, cards, stationery, banners & more! A program for home, office and school.





Defender of the

King of Chicago GS\$32	Impossible Mission 2 . \$1
DATA EAST	L.A. Crackdown 128K.\$1
Ikari Warriors 128K \$23	Print Magic 128K \$3
Platoon 128K \$23	S.S. Baseball 128K \$1
DAVIDSON	S.S. Basketball 128K \$1
Algeblaster \$29	Street Sports Soccer GS\$1
Grammar Gremlins \$29	Sub Battle Sim. GS \$1
Math Blaster Plus 128K\$29	Summer Games 1 or 2\$14 E
Math & Me 128K \$23	The Games:
Read 'N Roll 128K\$29	Summer Edition 128K\$3
Reading & Me 128K \$23	Winter Edition 128K \$3
Spell It\$29	Winter Games \$1
Talking Math & Me GS\$32	Winter Games GS\$1
Talking Reading & Me G\$\$32	World Games 128K\$1
Word Attack Plus 128K\$29	World Games GS \$1
	GAMESTAR
DESIGNWARE	
Designasaurus 128K \$25	Champ. Baseball\$9.8
Designasaurus GS \$32	Champ. Basketball GS \$2
Jigsaw GS \$25	Champ. Basketball \$9.8
ELECTRONIC ARTS	Champ. Football \$2
Arcticfox\$9.88	Star Rank Boxing 2 \$1
Bard's Tale\$29	*All II e/c titles require 128
Bard's Tale 2 or 3 .\$32Ea.	HI-TECH EXPRESSIONS
Bard's Tale 1 or 2 GS\$32 Ea.	Big Bird's Spc. Delivery\$6.8
Cartooners GS \$39	Ernie's Magic Shapes \$6.8
	Print Power \$9.8
Chessmaster 2100 \$26	Sesame Street Print Kit\$9.8
Chessmaster 2100 GS \$32	sesame street rink Kit\$5.0



(for right-handed players only!) List \$39.95

Our Discount Price \$25

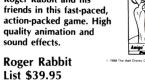
Chuck Yaegar's AFT \$26	Win, Lose or Draw . \$8.8
Death Lord \$26	INFOCOM
Deluxe Paint II GS \$65	Beyond Zork 128K \$3
Earth Orbit Station . \$9.88	Borderzone 128K \$2
Instant Music GS\$32	Hitchhikers Guide \$9.8
Legacy of the Ancients \$26	Leather Goddesses \$9.8
Lords of Conquest \$9.88	Zork 1\$9.8
Madden Football Call	Zork Trilogy\$3
Marble Madness 128K\$9.88	LEARNING COMPANY
Marble Madness GS \$26	Math Rabbit\$2
Mavis Beacon	Reader Rabbit GS \$3
Teaches Typing GS . \$29	Reader Rabbit \$2
Music Const. Set GS \$32	Think Quick! \$3
Pegasus \$23	Writer Rabbit\$3
Pinball Const. Set \$9.88	MECA
Reach for the Stars GS\$26	
Risk \$26	Andrew Tobias: Managing
Scrabble \$26	Your Money \$9 MICROPROSE
Scruples \$26	
Skate or Die GS \$26	F-15 Strike Eagle \$2
Strike Fleet\$23	Pirates 128K or GS\$25 Ea
Wasteland \$32	Silent Service\$2
World Tour Golf GS\$26	Silent Service GS\$2
Zany Golf GS \$26	MINDSCAPE
EPYX	Balance of Power 128K\$2
California Games GS .\$24	Crossword Magic \$3
California Games 128K\$24	De Ja Vu GS \$3
Destroyer GS\$24	Gauntlet 128K \$2
Destroyer 128K\$24	Gauntlet GS \$2
	Panerhov GS \$2

Sesame Street Print Kit\$

The **Ultimate** Joystick!

BUENA VISTA

"Toon" into the outrageous adventures of Roger Rabbit and his friends in this fast-paced, action-packed game. High quality animation and sound effects.



128K

Our Discount Price \$25

Super Star Ice Hockey GS\$29	Dungeon Master
Uninvited GS\$29	Assistant Vol. #1\$21
ORIGIN	Kampfgruppe\$39
Autoduel \$25	Phantasie 1, 2 or 3\$26 Ea.
Moebius \$25	Pool of Radiance Call
imes of Lore\$25	Questron 2 GS \$29
Ultima 1 or 3 \$25 Ea.	Questron 2 \$26
Jltima 4 or 5 \$39 Ea.	Roadwar 2000 GS\$29
SIERRA	Typhoon of Steel \$32
Ging's Quest 1, 2 or 3\$32 Ea.	SUBLOGIC
(ing's Quest	Flight Simulator 2 \$32
1, 2, 3 or 4 GS \$32 Ea.	let \$26
eisure Suit Larry GS . \$25	TAITO
eisure Suit Larry 128K\$24	Arkanoid \$19
Manhunter GS\$32	THREE SIXTY
Mother Goose 128K \$19	
Mother Goose GS \$19	Warlock GS\$24
Police Quest GS \$32	TIMEWORKS
Police Quest 128K \$32	Publish It! 128K \$65
Space Quest 128K\$32	Publish It Clip Art
Space Quest 2 (128K) . \$32	Font Pack 1 \$25
Space Quest 1 or 2 GS\$32 Ea.	People Places & Things\$25
SIR TECH	Symbols & Slogans . \$25
Return of Werdna\$39	UNICORN
Wizardry Series:	Aesop's Fables GS\$29
Knight of Diamonds \$32	All About America GS \$39
Legacy of Lylgamin .\$32	Animal Kingdom GS \$29
Proving Ground \$32	Magical Myths GS\$29
Wizardry 5 \$32	Math Wizard GS\$29
PRINGBOARD	Tales Arabian
Certificate Maker \$24	Nights GS \$29
C.M. Library Vol. 1\$19	WEEKLY READER
Newsroom\$32	Stickybear Series:
N.R. Clip Art #1 or #3 \$17	ABC's \$24
N.R. Clip Art #2 \$23	Math 1 or 2 \$24
Publisher Clip Art Call	Numbers \$24
Publisher 128K \$84	Reading\$24
SI	Spell Grabber\$32
	Talking Alphabet GS\$32
Demon's Winter \$21	Tanang Taphabet G5 1 452

#ORIGIN

Wield weapons & spells to liberate the captive ruler of Britannia & free the kingdom from the clutches of the tyrant Blackthorn.

Ultima V List \$59.95 **Our Discount Price \$39**



P.O. BOX 111327—DEPT. A—BLAWNOX, PA 15238

Final Assault GS \$14

Producer 128K\$32

Home Video

Paperboy GS Perfect Score SAT .

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.-Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico-add \$7.50 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE—412-361-5291 (1)Status of order or back order (2)If any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #I Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order lines! Prices & availability are subject to change! New titles are artificially and solve the proper product of the product purchase date for more information. APDER LINE HOURS. More 1990. AMA-900 PM E-1990 and 1990 PM E-1990 AMA-900 PM E-1990 PM E-199 are arriving daily! Please call for more information. ORDER LINE HOURS: Mon. Thurs. 9:00 AM-9:00 PM Fri. 9:00 AM-5:30 PM Sat. 10:00 AM-4:00 PM Eastern Time.

ALPHABETIC	AL	BY PRODU	ICT
EADER	READER		
ERVICE IO.	PAGE SERVICE NO.	PAGE	PAGE PAG
Α	L	HARDWARE	Pelican Software9
27 Abracadata		1	Pygraphics
Apple Computer	•		ALS Tom Snyder Productions
AppleLink	4	11,	William K. Bradford Publishing
Applied Engineering	IVI	Kensington Microware	
49,57,67,74,75	,95,102-103 152 Memory Plus	Kinson	DECOCATION
	250 Milliken Publis	Tituliaci waic	
В			Ерух
Beagle Brothers	2-3	BOARD PRODUCTS	Origin
27 Britannica	22 329 Nikrom	99 Applied Engineering	10,17,49,57, SubLOGIC Corp
	OZ) ITIRIOII	67,7	Taito Software
C	0	Checkmate Technology	·64
18 Cambridge Marketing	92	Ohio Kache Systems	40 ON-LINE SERVICES
35 CDA Computer Sales	223 Offic Racife 3ys	Thirdware	12
48 Central Point Software	e 60		AppleLink
27 Checkmate Technolog		COMPUTERS	Programs Plus24-
71 CompuServe	79,81,83	00 1 0	, and the second
36 Computer Cover			1
65 Computer Direct 95 Computer Friends	Treferred comp	outing34-35	WORD PROCESSING
22 Cordata		l DIOV DUIACO	Sensible Software
	317 Pygraphics		
D	B	ANICOTILANICONO	MISCELLANEOUS
10 Diversified Software	86	MIGGELEARING	Combaides Marketine
	109 Roger Coats	5 Apple Computer	Cambridge Marketing
E		Cordata	
83 Educational Resources	58-59 S		HowardSoft
47 Epyx	C2 302 Scholastic Softw		Nikrom
	344 Scholastic Softw		SoftDisk, Inc.
F	289 Scholastic Softwaren 130 Sensible Softwar	vare45	
46 Fas-Track Computing		COLTMADE	
First Class Peripherals			'
,	222 SoftDisk, Inc		
G	172 Softview	93	MAIL ORDER
	229 Software Discor		
Golem Computers		108 Intuit	CDA Computer Sales
	110 SubLOGIC Cor	T done Donain External	Computer Cover
Н		Softview	
75 HBJ	50		Computer Friends
39 HowardSoft	Notice of the second se		Educational Resources58-
	160 Thirdware	Alman Jata	
	200 Tom Snyder Pro		22 Golem Computers
Intuit		I	54 Jameco Electronics
		Scholastic Software	
J	W	Seven Hills Software	
08 Jameco			Roger Coats
K	210 William R. Diac	EDUCATION	Silicon Express
- A	7		Software Discounters of America1

126 Zimco International 94

134 Kensington MicrowareC4

НВЈ......50

Learning Lab Publishing......90

Zimco International94

THE #1 SHOWCA FOR PRODUCTS AND SERVICES IN THE APPLE II MARKET

PRODUCT CATEGORIES

HARDWARE	113-115	MISCELLANEOUS	117
ADD-ON-BOARDS		APPLE III	117
BAR CODING		ACCESSORIES/SUPPLIES117	
DISKETTES		COMPUTER INSUR	ANCE
DISK DRIVES		MUSIC	117
PERIPHERALS		USER GROUPS	117
PRINTERS/PRINTER ACCESSORIES	114-115	ADVERTISING RATINFORMATION	ΓES AND
SOFTWARE	115-117	A + Magazine Marketplace is for product and service listing Listings are grouped by catego	s. ry and sold by column inches.
EDUCATIONAL ENTERTAINMENT/HOBBIES FINANCIAL	115	Second color option available. Standard Directory Listings are of 3 issues at \$270 per issue (\$ For additional information of the second color option at the second color option available.	e also available for a minimum \$810 total).
GENERAL		CLASSIFIED ADVE	ERTISING STAFF
GRAPHICS		One Park Avenue, N (212) 50	
MEDICAL HEALTH ONE-OF-A-KIND		Group Advertising Director Kathryn J. Cumberlander	Support Manager Monica Dixon
PUBLIC DOMAIN		Group Sales Manager Daniel L. Rosensweig	Production Director Anne R. Brockinton
REAL ESTATE		Sales Manager Phyllis Kenny	Production Coordinator Ann Sheridan
RELIGION		Sr. Advertising Coordinator Linda Annis-Lopez	
SPORTS		NATIONAL ACCOU	NT MANAGER
TAXESUTILITIES		LISA ROE (212) 503-5150	BERTSON (800) 825-4ADS

THE #1 SHOWCA FOR PRODUCTS AND SERVICES IN THE APPLE II

THE #1 SHOWCASE

HARDWARE/ADD-ON BOARDS

NEW!

LOW FACTORY DIRECT PRICES!

UNIV. & SCHOOL P.O.'s WELCOME!

MEGABYTE RAM BOARDS! The Ultimate in RAM Power!

Super Expander GS, a 100% replacement for Apple IIgs 1 meg board. Fully Ilgs hardware & software compatible. **GK**

Super Expander E, for U.S. and European lie. Licensed by Applied Engineering. 100% replacement for extended 80 column card. Expands Appleworks desktop to 998K and allows

instant switching between Appleworks modules. #K
Super Expander C, expands IIc to
1152K and Appleworks desktop to
1062K, plus allows instant switching between modules. #K

Super Expander +, operates in any II+ slot, plus 0. Expands Appleworks desktop to 1014K, & allows instant switching between modules. (80 Col req for Appleworks). 6K

ABOVE w/256K, 512K, or 1MEG

QUIET COOLING FANS!

SuperFan II for the II+/IIe. Kensington style w/surge protect. Super Cooler GS for the Ilgs. No audio line interference

APPLE COMPATIBLE PERIPHERALS!

64K/80 Column Board expands lie to 128K and adds 80 columns & hi-res Super 64K/80 Column Board w/64K \$49 Super 64K/80 Column Board w/256K call \$34 16K RAM Board expands II+ to 64K 128K RAM BD expands II+ to 192K. Combine w/Plusworks 2 for II+ Appleworks desktop of 136K. \$64 Plusworks 2 Software allows II+ Appleworks operation. (req 80 col). 80 Column BD expands II+ display to \$38 80 columns. (Videx compatible). \$48 \$59 Super Serial Board 100% replacement \$48 for the Super Serial card Z80 CP/M Board opens the world of CP/M for your II+/IIe/IIgs. \$34 Graphic Parallel Board w/Cable does text & graphic screen prints. \$44 Parallel Board w/Cable for use where **\$**35 graphics is not required. Disk Drive 51/4 w/speed adjust, specify \$79 \$119 your model w/order. A/B Switchbox parallel or serial \$29 A/B/C/D Switchbox (par or ser) \$39 \$34 \$39

Numeric Keypad II for IIe Numeric Keypad II for IIc Joystick (specify your II model) Joystick III similar to Mach III

TWO YEAR WARRANTY ON ALL PRODUCTS CALL OR WRITE FOR OUR COLOR CATALOG ADD \$3 SHIPPING/COD OKAY/VISA/MC NO EXTRA FEE

\$24

SOUND SYSTEM ™ 2

NEW! 2-Way Stereo Amplified Speaker System for your Apple Ilgs. Ile. IIc. II+. and Macintosh





More versatile than the Roommates by Bose, this thunderous amplified speaker set will make all Apple speech, music, games, and other sound programs come to life on any Apple model computer.

Prepare to be blown away when you plug in this super powered speaker system. because the advanced design amplifier of the SoundSystem 2 provides over 3 times

the power of any amplifier board.
And the sound? You won't believe your ears, because the built in 2-way stereo super heterodyne speakers, coupled with state of the art filtering, provide an enhanced high quality sound, crystal clear to any listener

Release the full sound potential of your Apple computer with the versatile SoundSystem 2. You never knew your Apple could sound so good!

FFATURES:

- Built in advanced design amplifier.
- Volume control (you'll need it).
- 2-way super heterodyne speakers.
- State of the art noise filtering.
- No slot operation.
- 100% Apple software compatible.
- 100% Apple hardware compatible. (specify your model with order)
- Complete Documentation.
- Full two year warranty.

LOW FACTORY DIRECTPRICE \$129 (PAIR)



NEXO DISTRIBUTION (619) 474-3328 10am-6pm/Mon-Fri

914 East 8th Street, Suite 109, National City, California 92050

Apple, Appleworks and Macintosh trademarks of Apple Computer, Inc. Bose & Roommates are trademarks of Bose Corp.



CANADIAN COMPUTER OUTLET INC.

Apple Compatible

LASER 128 EX

\$ 676. Canadian Funds For orders only call COLLECT

(416) 849-0737

or write for a FREE catalog Your source for low price, high quality App and IBM Compatible Computer products

P.O. Box 7081

OAKVILLE, ONTARIO L6J 6J5

CIRCLE 552 ON READER SERVICE CARD

A + Marketplace the #1 showcase for products and services in the Apple II market.

BAR CODING

TAKE A SLICE OUT OF DATA **ENTRY WITH THE NEW** APPLE BAR CODE SCANNER



(pictured: special interface for Apple IIe)

The DRS 1000 Bar Code Scanner is designed as a keyboard wedge to assure you of compatibility to all Apple lie software. Interfaces are also available to the IIGS and Macintoshs.

DATA ||||| RECALL

CALL TOLL FREE 800-621-0854 EXT. 470

BAR CODE SPECIALISTS 1711 Dell AVI CIRCLE 553 ON READER SERVICE CARD 1711 Dell Ave., Campbell, CA 95008

A + Magazine **Marketplace**

Listings are grouped by category and sold by column inches. Second color option available.

Standard Directory Listings are also available for a minimum of 3 issues at \$270 per issue (\$810 total).

-- - MARKETPLA

THE #1 SHOWCASE FOR PRODUCTS AND SERVICES IN THE APPLE II

DISKETTES

JOIN THE DISKETTE CLUB!

INTRODUCTORY PRICE COUPON NAME: ADDRESS: CITY, STATE, ZIP: PHONE: COMPUTER MODEL: List an item you would like to purchase from the club at similar prices

1-800-221-6332 Orders Only

Midwestern Diskette **Distribution Center** 1301 Clayton Road Creston, IA 50801

(515) 782-5190 Information

· Packages include disks, envelopes and labels

Prices above for money order or check/3.5% surcharge added for MC or VISA

CIRCLE 554 ON READER SERVICE CARD

DISK DRIVES

62MEG HardDrive for Apple HGS <u>\$895</u>

20 pinDrive Adaptor IIGS ... \$39 20 pin Drive Adaptor IIc+ ... \$39 5.25" Drive for IIc Plus/IIc \$139 SYSTEM SAVER IIGS\$79 1200 Baud Anchor Modem \$99 2400 B Anchor Modem\$199 Magnavox Monitor for IIGS\$349 CH Flight Stick IIe,c+,c,GS \$69 CH Mach III for IIc Plus,GS \$39 CH Mach IV for IIc IIe*\$69
(*\$79 mouse Controller regd for IIe)
6 Imagewriter II Ribbon Blk \$30
6 Black Ribbon for Scribe ...\$30
6 Color Ribbon for Scribe ...\$60

CIRCLE 555 ON READER SERVICE CARD

SCHOOL Purchase Orders Welcome.

Notes: 1. Shipping \$ 4 per \$100 within confinental USA. Extra for other places. 2. All Sales are linal. Defective merchandise will be replaced or credit will be issued at our option if defect is reported in writing within 10 days of receipt. Write for Return Authoriz, number indicating the exact problem. 3. Prices are subject to change without notice. 4. Payment VISA/MC/AMEX.

Computers Plus Co. 2303 N. 44th St. #2 Phoenix AZ 85008 PHONE:602-955-1404 FAX 602-840-3767

A + Marketplace Second color option available For details call

PERIPHERALS

HARD DISK DRIVES: HARD DISK DRIVES: Sider: 20, 40, 90Mb Call Chinook: for Apple IIc 749 CMS 20Mb 60ms Stack SCSI 665 40ms 43Mb \$835 60Mb 935 Warp SCSI stack: 35ms 20Mb 693 Same: 29ms 42Mb 845 Same: 19ms 80Mb 1350 Same: 17ms 100Mb 1550 APPLIED FOKINFERING:

Same: 17ms 10Mb 1550
APPLIED ENGINEERING:
Sonic Blastr \$105 Audio An 195
Transwarp 65 \$2599 2e/2 + 169
DataLink 1200 \$140 2400 195
Bamtactor 2566 \$220 520 2400 195
Ramtactor 2566 \$220 520 2400 195
RamCharger \$135 RamKeeper 147
Parallel Pro \$79
PC Transporter 768K
5.25 Drive \$205
Sustal Kt \$39
E2/2 + 31
GS Ram Plus 1Mb \$475 2Mb 825

AUDIO/SOUND SYSTEMS & SOFTWARE: AUDIO/SOUND SYSTEMS
& SOFTWARE:

Bose Room Mate Speakers
Digitizer Professional
Giss Tracks
GS Stereo
Music Shapes GS \$140 2E/+ 140
Lab Pack for GS
Opcode Professional Plus
128
Passport GS: MIDI Interfc
Same Master Tracks
Same Master Tracks
Same Master Tracks
For 2e: MIDI Interfa
Same Midl 8 Plus
For 2e: MIDI Interfa
Same Master Tracks
Same Master Track

QUALITY AT A DISCOUNT

Supersonic Digitizer
GRAPHICS & DRAWING
DEVICES:
C/Mac/GS Printer Interfc
Computer Eyes/2c \$104 2e/ + 104

Computer Eyes Color: GS 199
Same camera system 320
Finger Print + \$109 GSi #2 99
Grappler Plus \$81 ProGrappl 89
ImageWritr Buffer 64K 31
Buffer 128K 42
Kensington Turbo Mouse ADB 89
Kurta Graphics Tabit IS/GS 299
IS/ONE for IS/ONE for IS/ONE TO 173 | 173 | 174 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175

CALL FOR ALL SOFTWARE & COMPUTER **FURNITURE PRICES**

Free illustrated catalog. Pay by check: Free shipping. Credit card & COD: Shipping added. We honor Master Chg, Visa, Discover Card, also accept with 4% surcharge: Amer Exp, Diners & Carte Blanche. NY residents add sales tax. School/College orders accepted: Net 30, FOB shipping point.

NORTH FORTY ENTERPRISES LTD.

P.O. Box 172A E Meadow NY 11554

(516) 679-8790 7 Days to 11PM CIRCLE 556 ON READER SERVICE CARD

A + Marketplace — is a special economical section for product and service listings.

For additional information call:

(212) 503-5115 or (800) 825-4ADS

PERIPHERALS

Choice Computer Products P.O. BOX 8432, CEDAR RAPIDS, IA 52408 AUTHORIZED Æ DEALER

Factory Installed/Warranted RAM

PC TRANSPORTER(768K)	\$509
RAMWORKS III(256K)	
RAMFACTOR(256K)	
GS RAM(256K)	
GS RAM+(1MEG)	
RAMKEEPER	
TRANSWARP	164
TRANSWARP GS	299
SERIAL PRO	104
PARALLEL PRO	\$ 74
SONIC BLASTER	
AUDIO ANIMATOR	
AE DISK DRIVES	
RAM EXPRESS(256K)	
DATALINK 1200	
DATALINK 2400	179
For the lawest priese on all F area	

Call 319-396-2306 [9 a.m. to 9 p.m.] terCard, Visa, C.O.D., P.O. & Checks Accepted Prices subject to change

Canadian Mailorder



cialize in Apple II Software & F We specialize in Apple II Software & Peippierais LASER 128EX 5636 2 Yr. CDN. WARRANT LASER 3.5" DRIVE \$279 with U.D.C. \$389.00 LASER 5.5" DRIVE \$279 with U.D.C. \$389.00 LASER 5.5" DRIVES \$199 //co rt/CAPPUED ENCINEERING PRODUCTS - IN STOCK ARCE SELECTION OF APPLE II SOFTWARE IN STOCI TIMEOUT SERIES - SPRINGBOARD - TIMEWORKS - EPTX PANASONIC 1080 OR STAR NX-1000 PRINTERS \$279.00 KENSINGTOR FAIS - COMPANDED TO STOCKET CHIEF MARY NEW PRODUCTS ARRUNG SPERY DAY WE ARE 1000 CANDAID COMPA OFFERSTED

WE ARE 100% CANADIAN OWN & OPERATED per of the BETTER BUSINESS BUREAU OF WINDSOR

FREE SHIPPING

Call for free Catalogue \$ CANADIAN FUNDS \$

3374 Tecumseh, Ontario. N8N 3C4 (519) 974-3011 ORDER DESK 1-800-265-9576 CIRCLE 557 ON READER SERVICE CARD

PRINTERS/PRINTER Accessories

SSELL US YOUR TONER CARTRIDGES SIO

idge • \$3/used fixer cleaner • \$.50/box+styr : HP series I&II, Apple, Canon QMS, NCR. Canon PC models 10, 14, 20 and 25. hipping for empties. Ship in orig. box & styr

SBUY OUR REFILLED CARTRIDGES

BLACK: \$40 (\$50 w/o) BLUE/BROWN: \$60 (\$70 w/o We pay shipping. • Over 20% more toner than new. Quality Control sheet and felt cleaner included. first nationwide cartridge refiller... PCWEEK 12/16/86 p1



MICHLIN COMPUTER CONSULTANTS IN MICHLIN COMPUTER CONSULTANTS
LASER CARTRIDGE DIVISION
3820 Plaza Drive Suite I
Ann Arbor, Michigan 43193-7354
VISA/MC/P.O. welcome
313-663-9800 TELEX 98-1520
800-63-TONER FAX: 3136639862

CIRCLE 558 ON READER SERVICE CARD

THE #1 SHOWD FOR PRODUCTS AND SERVICES IN THE APPLE IN MARKET

THE #1 SHOWCASE FOR PRODUCTS IN THE APPLE II

PRINTERS/PRINTER Accessories

APPLE DAISY WHEEL PRINTER

TRUE letter quality on all Apple II's & MAC's Proportional spacing, boldface, 198 columns. Fast 40 cps speed and full 130 character printwheel. New \$449, recond. \$349 includes easy MAC point & click driver software & cable. New bi-di tractor \$99, sheetfeeder \$49. All heavy duty with 90-day guarantee.

Quality Discount Computers, Inc. 135 Artist View Drive Wellington, NV 89444 (702) 465-2473, (415) 487-8148

SOFTWARE EDUCATIONAL

FRENCH **GERMAN** ${f EuroWorks}^{{\scriptscriptstyle { m TM}}}$ **ITALIAN SPANISH**

Type accented foreign text quickly and simply with the AppleWorks® word processor. Then, from inside AppleWorks, EuroWorks prints your foreign text on an ImageWriter® I or II or compatible.

No goofy key equivalents: type e' (not ") to print é. No taboo keys either: foreign files may include every character on your American keyboard plus 13 French, 7 German, 10 Italian, or 10 Spanish. You get 8 new characters for English too!

EuroWorks requires AppleWorks® v2.0 USA or later and an Image-Writer® I or II, Scribe, MT85/86, or SP-1000AP printer.

\$20 for any ONE language \$30 for ALL FOUR

AppleWorks®, ImageWriter® by Apple Computer, In

mail check or money order to The S.A. AuTeur Co: A65 P.O. Box 7459 Beaverton, OR 97007 (503) 645-2306 Visa®

CIRCLE 559 ON READER SERVICE CARD

IMPROVE MATH SCORES!

- Arithmetic Software
- Pre-Algebra Software
- Algebra I Software
- Geometry Software
- Algebra II Software
- Trigonometry Software
- Function Plotter

Write for Brochure MCP (800) 552-6227 Price Laboratory School

Cedar Falls, IA 50613-3593 CIRCLE 560 ON READER SERVICE CARD

EDUCATIONAL



WITH APPLEWORKS IS AS EASY AS

quality product. Easy-to-use editing capabilities and careful program design assure that most teachers will be using it within minutes without consulting the manual. You can even load test fields into Appe Writer or AppleWorks to achieve additional word-processing support. Since MicroMedia has a 30-day satisfaction guarantee, you can't go wrong with this one. It is certainly work a look. "— A+ Magazine

NEW! (Does not require Appleworks) \$39.5

SchoolWorks: best-seller Teacher

contains
36 ready-to-use application templates to help you
with addresses, attendance, grading, inventory,
lesson plans, seating charts, and so much \$55.00

SchoolWorks: Ways for School Media Center School Sc

to fall in love with AppleWorks! Catalog Cats bibliographies, acquisitions, circ stats, etc. Economical, indispensable, and very easy to use. **EXECUT**

Order any or all of these programs today on no-risk 30-day approval. Add \$3.00 S/H. VISA/MC/P.O. Ask for your free copy of our 24-page AppleWorks Accessories catalog.

K-18 MicroMedia Publishir 6 Arrow Rd., Dept. CC.

Ramsey, NJ 07446 (800) 988-0401

CIRCLE 561 ON READER SERVICE CARD

IMPROVE YOUR TEST SCORES

Quickly raise test scores & get better grades easily with STUDYMATE. For students, pilots, realtors, anyone who wants to do well on tests. Perfect for foreign languages, SAT's, English, science, professional licensing exams, etc. STUDYMATE tests you on your own material & retests you on questions missed-\$24.95 Add'l. disk w/vocab for S.A.T. exam \$10 more. JACKSON SOFTWARE

P.O. Box 9101 Dept. AS Winnetka, IL 60093

Visa/MC/Check 800-633-1992 or 312-835-1992

TEACHER'S TIMESAVER

Our resource disks combine ready-to-use Appleworks files with on-screen WALK-THRU tutorial/ quick reference. 4 disk sides loaded with templates: Lesson Planner, Grade Book, Teacher's Calculator, Progress Report, Student Data File, Scheduler, Test Writer & much more. \$29/Set. Lab option incl. inservice leaders disk: \$49/1st set. \$5 ea. addl. set. Educators preview available. Willy Billy's Workshop

P.O. Box 6104 - Dept. A1 Cleveland OH 44101

PFS FILE USERS

The "BRIDGE" gives you the ability to extract data from PFS FILE™ to either an ASCII, text file or a DIF FILE. Extracted data can be used with word processors, spreadsheets, for conversion to other data bases (Appleworks™), or for transmission to other computers. All APPLE II's. \$79.95.

SMI SYSTEMS, INC. P.O. Box 9804 Ft. Lauderdale, FL 33310 (305) 486-6115

ENTERTAINMENT/ HOBBIES

ATTENTION ROLE PLAYERS

CHARACTER EDITORS - \$19.95

Might and Magic*, Deathlord, Ultima 3*, Ultima 4*, Ultima 5, Bard's Tale 1*, Bard's Tale 1 (GS), Bard's Tale 2*, Bard's Tale 3*, Wasteland*, Wizardry 4, Wizardry (for scenarios 1, 2 and 3).

HINT BOOKS - \$9.95

Might and Magic, Return of Werdna. Wizardry 1, Wizardry 2, Wizardry 3.

OTHER MIGHT AND MAGIC **PRODUCTS**

Monster Editor* - \$12.95 Construction Set - \$24.95 Users Group membership - \$10.00

*Commodore and IBM versions also available Add \$3.00 for shipping and handling

GOSSELIN COMPUTER CONSULTANTS P.O. Box 1083 Brighton, Michigan 48116



(313) 229-2453

CIRCLE 562 ON READER SERVICE CARD

LOTTO NUMBER ANALYZER

The original "LOTTO PRO-GRAM'' performs a complete analysis of the past lotto winners, with just single key presses from the menu. Includes tutorial and built in wheeling. It's simply the st and the best, and still only \$24.95+\$2.00 S/H. Data files com patible with most W/P pgms Apple, IBM, MAC, CM64 & Others

One day service on V/MC & MO'S SOFT-BYTE
(513) 278-1110
P.O. Box 556, Forest Park
Dayton, OH 45405
CIRCLE 563 ON READER SERVICE CARD

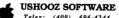
A + Marketplace — the #1 showcase for products and services in the Apple II market.

THE USHOOZ BARTENDER



The best professional bartending packag for the Apple. Great for small businesses and impressing your friends at parties.

Complete with most common mixed drinks and beers of the world entered directly or by classification. Keep bar tabs and print bar bills. Add your own drinks. Precise inventory management. Mark-up factor lets you pick the prices. For all Apple IIs w/ 80 col monitor





Win Lotto Millions!



NEW! LOTTO PICKER PLUS v2.1, stores past Lotto. Keno. & Daily #'s & uses various probability analysis to select your possible million \$\$ ticket! Bonus #'s are easily handled. Access your files with our editor. GUARANTEED to work for all lotteries worldwide! We give you the PICKS—not a bunch of jumbled statistics! For IBM. C64 / 128. & 64k Apple II \$34.95 (+ \$5.55 s/h). For a 3.5" disk add \$10.

ORDERS 1-800-634-5463 x 293



GE RIDGE SERVICES INC 170 B way. Suite 201A New York, NY 10038 Info 718-317-1961

VY residents must add sales tax. Write for further info CIRCLE 565 ON READER SERVICE CARD

FAMILY ROOTS™

Huge variety and capacity for your family history. Make pedigree and descendants charts, group sheets, histories, indices, address labels, searches, much more. Call for FREE information. Satisfaction guaranteed. All Apples, PC, and more, MC/VISA/AmEx.

Quincept, Inc. P.O. Box 216 Lexington, MA 02173 (617) 641-2930 MASS (800) 637-ROOT U.S.

FINANCIAL

UNPROTECTED SOFTWARE
STOCK MARKET STRATEGY 49.95
-Portfolio Strategy.
How many shares to buy or sell.
-Tracker Strategy.
When to buy or sell
-Stock Selector.
Best choice from daily listing.
LOTTERY BREAKER
-Canadian Lotteries, plus 4 digit
HORSE SENSE 29.95
-All track handicapper
DEALER BUSTER
-Blackjack Tutor, 4 decks, 5 options
US\$ CK or MO to:
KEENTECH SOFTWARE
P.O. Box 353, Station T
Calgary T2H 2G9
Alberta, Canada
Telephone 403-259-5676
1010p110110 400-200-0070

A-H-MARKETPLACE

THE #1 SHOWCASE FOR PRODUCTS AND SERVICES IN THE APPLE II

FINANCIAL

"THE FINANCIAL PLANNER" SAVE 40% Retail \$99.95 2559.95E Menu driven program

w/printed Manual.

- Balance Checkbook
- Prepare Budgets
 Prepare Financial Statements
- Loan Amortization Schedule
 Manage Investments
 Plan Savings & more

ORDER NOW For APPLE IIc, IIe, IIgs (128K), IBM PC or Compatible (256K) CKS/MC/VISA Shipped UPS. (+ \$2.00 S/H). PA residents add 6% Tx. Call: 717-584-5191

SOFTECH INDUSTRIES, INC. RD 1, BX 117A, DEPT A12 HUGHESVILLE, PA 17737 CIRCLE 566 ON READER SERVICE CARD

GENERAL



GRAPHICS

CLIP ART—PUBLISH IT!™

Find the right clip art for any occasion. Over 500, quality graphic images span 5 disks. The BEST of the public domain, ready to use in your Publish it! documents. PLUS, you get step-bystep instructions for converting your own Print Shop™ compatible graphics into Publish It! clip art.

Send \$39.95 to: JLN/GRAPHICS 253 Lake Thomas Drive Winter Haven, FL 33883

A + Marketplace

For Information Call (212) 503-5115 (800) 825-4ADS

MEDICAL HEALTH

ANALYZE DIETS, MENUS & . . .

so much more! with The FOOD PROCESSOR II! This TOP-rated software has the best database of any system on the market today! Acclaimed by schools-colleges-hospitals-homes-fitness centers & business, 2400-3000 foods-30 nutrients. \$250. Apple-Macintosh & IBM. CALL OR WRITE TODAY FOR FREE DEMO DISK! ESHA Research

P.O. Box 13028, Dept. E SALEM OR 97309 (503) 585-6242/7755

ONE-OF-A-KIND

FREE SHAREWARE

INTRODUCTORY OFFER

- 5 loaded disks for APPLE
- 10+ latest programs
- Never before distributed
- Plus our latest catalog
- No charge for software,
- Pay only \$5.00 s/h
- Visa/MC/Amex/Check International Software Library 511 Encinitas Blvd. Ste 104 Encinitas, CA, 92024 800 669-2669

CIRCLE 568 ON READER SERVICE CARD

lhe opoo_a STITCHE

DESIGN NEEDLECRAFT CHARTS

for Counted-Cross-Stitch, Needlepoint, Latch Hook, Knitting, etc. using a revolutionary new computer program-The Stitch Grapher · Graphs as large as 240 X 400 stitches with up to $\overline{30}$ symbols may be generated and printed with any of 3 grid styles along with a color chart. A unique windowing feature allows the designer to move, copy, rotate, mirror image, save and re-use previous designs.

The Stitch Grapher is compatible with the 64K Apple II and 256K IBM-PC microcomputers. Disk plus 90-page spiral bound manual--\$89.95. Dealer inquiries welcome. To place an order, or for complete information contact:

COMPUCRAFTS, P.O. Box 326 Lincoln Ctr., MA 01773 (508) 263-8007.

Apple version supports only the Imagewriter printer with depicted grid style (dot matrix printers, other than the Imagewriter will require graphics capable interface card or separate sup-port software). IBM version supports all IBM Graphics/Epson compatible printers.

ONE-OF-A-KIND

REN1 SOFTWARE

OVER 2500 APPLE TITLES!

- Nation's largest library
- · SELL & SWAP software
- 21 Day rental period
- · Rent applied to purchase
- 10 to 20% of list price
- \$2.00 shipping charge
- Money-Back Guarantee!!

Black Sun, Inc. 1988 Chestnut Street Emmaus, PA 18049 (215) 967-3300





Public Domain

APPLE PUBLIC DOMAIN DISKS

REQUEST FREE CATALOG or send \$2 for sample disk & catalog (REFUNDABLE). Categories include education, utilities, games, business, Print Shop graphics, shareware, EAMON and more. Rent for \$1 or buy as low as \$1.50 per disk. \$20 order gets 3 free disks of your choice. NEXT DAY SHIPPING!

CALOKE INDUSTRIES (Dept. SK) P.O. Box 18477 Raytown, MO 64133

REAL ESTATE

(214) 750-1212

PROPERTY MANAGEMENT

Software for rental income producing properties. Provides cash flow analysis, records expenditures on each unit, and accumulates cost for tax purposes. Prints cash flow report and Summary of Operations report. Provides depreciation and amortization schedules and print outs of each report TOMAR PRODUCTIONS P.O. Box 740871, Dept. A Dallas, TX 75374

A + Marketplace

is a special economical section for product and service listings. For information call:

> (212) 503-5115 (800) 825-4ADS

Religion

BIBLE RESEACH SYSTEMS

Thousands of customers use our software and Bible text for KJV or NIV. Create your own concordances by searching for word and phrase combinations. Immediate display or print of any portion of the Bible. Also available: a Greek transliterator and topical concordances. For ProDos, Macintosh & MS-DOS.

Bible Reseach Systems 2013 Wells Branch Pkwy #304 Austin, Texas 78728

(512) 251-7541

CIRCLE 570 ON READER SERVICE CARD

SPORTS

THE BASEBALL DATABASE

For tracking baseball and softball stats in a fraction of the time taken by hand. Fast data entry and retrieval. Prints detailed reports of player/pitcher/team stats, averages, cums and history. Ideal for all teams from Little League to Collegiate. Brochure is available. \$49.95 + \$2.50 S&H-CHECK/MO/MC/VISA accepted. JACOBSEN SOFTWARE DESIGNS (Ord A +) 1590 East 43rd Avenue Eugene, Oregon 97405 (503) 343-8030

TAXES

DO TAXES WITH APPLEWORKS

Save time and money, even enjoy preparing your tax return. For a fraction of the cost of comparable tax software, 1040Works turns AppleWorks' spreadsheet into a full-featured tax preparation program that computes Form 1040; prints ready-to-file Schedules A, B, C, D, E, F, SE: does seven additional forms, organizes tax data, does much more. Easy to set up and use. saves time doing your return-actually fun, users say. Includes manual. Friendly support. A + reviewer (March 1987) called it a bargain. Requires 128K Apple or compatible, any Apple-Works version. Only \$24.95. Got IIGS or extra RAM? 1040Works-X users larger AppleWorks desktop to save your steps, provide added features. \$27.95. Either on a 3.5-inch disk, add \$3. Both come with optional time-saving macros for all macro programs. In NY add state/ local sales tax. For bankcard orders, call 800-527-7562 from 7 AM to 5 PM (PST). In Washington State, call 800-245-2999.

PERSONAL FINANCIAL SERVICES P.O. Box 1401, Dept. C

Mellville, N.Y. 11747 (800) 221-8939

A-- MARKETPLACE

TAXES

TAX PREPARATION IS EASY WITH **TAXMASTER**

oor Polly Panic. She still oesn't use TAXMASTER, All she needs is APPLEWORKS and 128K to solve her annual hightmare. (A Mac with Excel or an IBM with Lotus 123 ould help her too.)

TAXMASTER contains 17 IRS forms and schedules. They are linked together and will transfer numbers from form to form as necessary. No cutting and pasting is necessary. Forms are IRS acceptable. A W-4 template is also included. Very easy to use, not copy protected, 5.25" or 3.5" disk, ships in late January. Features: IRA, Passive loss, and home mortgage interest limitations, Capital gains, "Kiddie" and "phantom" taxes, and much, much more! Only \$50.00 Our 4th year!! Future upgrades for half price!



WE HAVE A 1989 TAX PLANNER TOO!

\$25 with purchase of TAXMASTER. \$50 when purchased separately. Preparing a lot of returns this year?
Ask about TAXMASTER.PRO, only \$75!

ORDER TOLL-FREE

(800) 826-7146

NEW PRODUCT!
The HOME MONEY PACK contain
15 APPLEWORKS templates to help you with money manipulations A great spreadsheet learning tool! Only \$25.00

ISLAND COMPUTER SERVICES 3501 E. YACHT DRIVE LONG BEACH, N.C. 28465 (919) 278-9483

For use with either Appleworks or 3E-Z Pieces spreadsheet programs. Totally interactive with auto-transfer and lookups for either Tax Tables or Tax Rate Schedules. Includes instructions. W-2 Summary, A, B, C, D, SE, Forms 1040 and 2441 (Child Care). Room for more. Send 16.95 (includes s&h) to:

1988 INCOME TAX TEMPLATE

Barry W. Smith 1974 Dorrance Court San Jose, CA 95125

UTILITIES

FAST - MENU DRIVEN - EASY Built-in IRS worksheets & tax theory save time & money for home preparer or pro. Calculates & populates 1040 + A through E, SE, 2106, 2119, 2441, 3903, 4562. Automatically enters tax too.

Features a pop-up calculator & data save.

TAX TUTORIAL includes flow charts & pages of ADVICE & TIPS referenced from on-line. Runs on entire Apple II family. Only \$29.95 + \$2 s&h.

LASER	128EX	\$415
Laser 128355	5 SupraMo	em 2400149
Laser ImageWr	iter Compatible F	rinter195
External 5.25 Dr	ive / 3.5 800K Dr	ive95 / 179
Cabaal Driving /2	1.1 Add 200 /64	min! for chinaina

Chool Pricing (3+). Add 3% (\$4 min) for shippin PERFECT SOLUTIONS SOFTWARE 3701 Savoy Lane, Suite 106-D West Palm Beach, FL. 33417

(407) 471-7786

APPLEWORKS ↔ IBM

Automatically transfer and convert files between AppleWorks and popular IBM PC software:

AppleWorks Spreadsheet ← Lotus 1-2-3 AppleWorks Data Base ↔ dBase III

It's easy! Just select file names from the menu. In seconds, CROSS-WORKS copies the files between your Apple and IBM PC, and translates the file formats. Word processor files maintain underlining, margins, centering, etc. Spreadsheets transfer data and formulas! Includes universal 19200 baud direct-connect cable (IIe, IIc, & IIgs to PC, XT, AT, PS/2 & compatibles). Also supports modem transfers. 51/4 and 31/2 inch disks included. Only \$79.95!

Call (919) 878-7725 today for free information packet. Raleigh, N.C.

SoftSpoken P.O. Box 97623 27624

CIRCLE 573 ON READER SERVICE CARD

Miscellaneous/Apple III

III E-Z Pieces Spelling

Checker available now! Just one of many exciting NEW products from the company that is dedicated to bringing you the best in hardware, software and service for the Apple III. Send for FREE product catalog and sample copy of ON THREE, the monthly full length magazine devoted exclusively to the Apple III.

ON THREE, Inc. 11235 80th Ave. N.E. Kirkland WA 98034 (206) 823-0516

A + Marketplace

Standard directory listings available

ACCESSORIES/SUPPLIES

FACTORY FRESH RIBBONS

Ribbon Ribbon
Apple Imagewriter I, II
Imagewriter II 4 color
Imagewriter LQ
Epson LX80/90
Epson MX/FX/RX100
Okidata 182/192 (Seamless
Panasonic KXP Loop)
Star NX1000 \$3.35 \$4.25 \$2.90 \$3.50 \$3.80 \$4.95 \$5.50 \$5.50 \$4.50 \$5.50

Hundreds more, call or write for prices. Colors (BLUE, RED, GREEN, PURPLE) - PREMIUM IS ALL WE SELL! -

Shipping/Handling 33 per order (over \$50 we pay S/H!)
Check, Money Order, C.O.D., School purchase orders
accepted. New York residents please add sales tax. - MONEY BACK GUARANTEE -

ISLAND COMPUTER SUPPLY Box 3495, Farmingdale, New York 11735 (516) 293-6818 CIRCLE 574 ON READER SERVICE CARD

RIBBONS

1-800-331-6841

1-513-252-1247 (Ohio)

Over 350 types

Volume Discounts Available

* Satisfaction Guaranteed * *

	BLACK	COLORS
APPLE IMAGEWRITER	2.60	3.60
APPLE 4-COLOR	_	8.95
DIABLO HT II M/S	2.25	_
EPSON LX-80/90	2.25	3.50
EPSON MX-FX 80	2.50	3.50
EPSON MX-FX 100	3.50	4.50
IBM PROPRINTER	3.50	_
NEC P1, 2, 6	4.95	
NEC P3, 7	4.65	
OKIDATA 82-92	1.15	1.50
OKIDATA 182-192	3.50	4.50
PANASONIC KXP	3.50	4.50

DAYTON COMPUTER SUPPLY a division of Den-Sys Corp

1220 Wayne Avenue, Dayton, Ohio 45410 EST.: 1979 TERMS: MC, VISA, C.O.D.

CIRCLE 575 ON READER SERVICE CARD

A + Marketplace

Second color option available

User Groups

COMPUCOVER

COVER YOUR INVESTMENT

KeySkin™ Keyboard Protectors - 24 Hour

CALL FOR FREE CATALOG

(800) 874-6391 IN FLA (800) 342-9008 DEALER INQUIRIES INVITED

CompuCover® Customer Service 21.04 Lewis Turner Blvd., Dept. A + (904) 862-4448 Fort Walton Beach, Fl 32548 FAX (904) 863-2200

CIRCLE 576 ON READER SERVICE CARD

COMPUTER INSURANCE



COMPUTERS

Full replacement of hardware, media, purchased software. As low as \$39 yearly. Covers fire, theft, power surges, other accidents. Call for information or immediate coverage.

1-800-848-3469

SAFEWARE, The Insurance Agency Inc. 2929 N. High Street, P.O. Box 02211 Columbus, OH 43202

Music

ELECTRONIC MUSIC & MIDI HELP!

Call for Passport Design and Opcode Musicware prices and A Guide To Computer Music. An introductory user book for Apple II, GS, MAC & MIDI users with illustrations for setup. resources, glossary and buying tips. \$14.95 incl. s&h; MC/VISA/MO/CK

Sound Management P.O. Box 3053 Peabody, MA 01961-3053 (508) 531-6192 or (800) 548-4907

A 28-page monthly newsletter. The most comprehensive source of AppleWorks tips, techniques, and information. \$27/year.

National AppleWorks Users Group

Box 87453, Canton, MI 48187 (313) 454-1115

Published by:



RESCUE SQUAD BY GARY B. LITTLE

IIGS VT-100 EMULATION

Q. Help! I am the proud owner of an Apple IIGs, having bought it more than two years ago. My problem is that I can't seem to find any software that properly emulates the DEC VT-100 terminal so that I can talk to the DEC VAX cluster I have at work. Do you have any suggestions?

ROBERT MELILLO COLCHESTER, VT

A. Many popular telecommunications programs such as ProTERM from Checkmate Technology can emulate the VT-100 terminal. ProTERM can handle the special PF keys and the VT-100 alternate-keypad mode that you probably want to use.

DISK FORMATTING

Q. How do you format new 5¼-inch disks so that programs written in Applesoft can be stored on them? Is there a simple command I can use to do this?

DANIEL LIPTON BROOKLYN, NY

A. This question comes up fairly frequently, generally from new Apple II users. When you start up your system under ProDOS and enter the Applesoft command mode (that's where you see the] prompt symbol), you have many disk commands available to you. For instance, you can use SAVE to store your program on disk or LOAD to retrieve it from disk. There is no command for formatting your disks, however. The only way to format a disk is to run a utility program such as System Utilities, the Finder, or Copy II Plus and select the Format option. Since running the utility wipes out the Applesoft program in memory, you should format plenty of disks before you even start writing a program, so that you will have somewhere to store it when you're done.

HARD DISK AND GS/OS

Q. I'm having all sorts of problems getting my Apple Hard Disk 20SC working with GS/OS. When I boot System Disk 4.0 and go to the Finder screen, I see the icon for my 3.5-inch drive but not for the hard-disk drive. How can I access the hard-disk drive?

FRED WILLIAMS
BUFFALO, NY

A. The GS/OS boot disk (called /SYSTEM.DISK) does not include the driver necessary for communi-

cating with the SCSI card to which your hard-disk drive is connected. The driver is located on the tools disk (/SYSTEM.TOOLS), which you can install on your boot disk by running the Installer program. Use the same technique to install the driver for 5¼-inch drives, or you won't be able to use them either. After installation, reboot your computer, and you will gain access to your hard-disk drive and any other peripherals whose drivers you've just installed.

FAST DISK FILLING

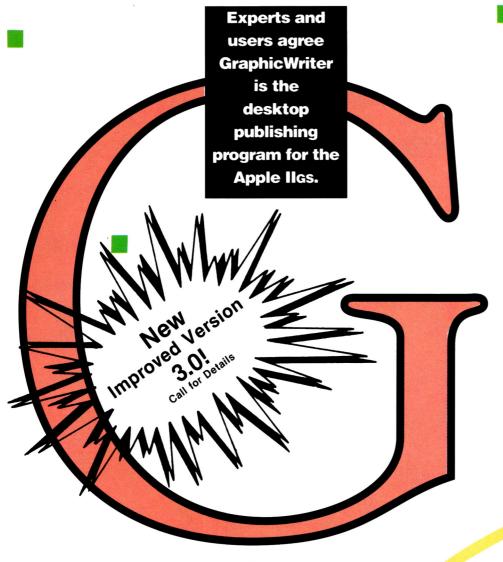
Q. Please help a bumbling computer neophyte. I have an Apple IIc with an external 3.5-inch 800K drive. Disks seem to fill up after I've stored only 400K worth of files on them. My theory is that even though the disk is rated for 800K, operating-system overhead leaves room for only 400K of data. Am I right?

WESLEY CLARK SPRINGFIELD, VA

A. You're wrong about the operating-system overhead. When you format a 3.5-inch disk for use by ProDOS 8 or GS/OS (assuming you're using a IIGS), the operating system reserves only seven blocks (3.5K)—two for the boot blocks, four for the volume directory, and one for the volume bit map. That leaves 1593 blocks (796.5K), almost the entire disk, available for your programs and data.

You haven't told me what programs you're using, but I suspect they're DOS 3.3-based. Standard DOS 3.3 is not able to access 3.5inch disks, but modified versions, such as AmDOS 3.5 (\$20 from Gary Little, 3304 Plateau Drive, Belmont, CA 94002) or UniDOS (\$39.95 from MicroSPARC, 52 Domino Drive, Concord, MA 01742; [508] 371-1660), can. These versions of DOS 3.3 partition 3.5inch disks into two distinct 400K volumes; one is called drive 1, and the other is called drive 3. As a result, your software will "see" only 400K if it's using only the standard drive 1 volume.

If you have contacted the appropriate manufacturers and still need help, please send your questions to "Rescue Squad," A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Because of limited space, we aren't able to publish responses to all inquiries.





CIRCLE 157 ON READER SERVICE CARD

	GraphicWriter	Medley	Publish It!
IIGS-Specific	Yes	Yes	No (e, c, GS)
Memory Requirements	512K	1.25 MB	128K
Operating System (included)	GS/OS TM	ProDOS 16	ProDOS 8
Uses Color Display	Yes (640 mode)	Yes (640 mode)	No
Suggested Retail Price	\$149.95	\$195.00	\$99.95
LaserWriter printing	Included	Included	\$39.95
SampleTemplates	Included	Available	\$39.95
Clip Art	Included	Included	Included
Spelling Checker	Included	Included	Not Available
Total Cost	\$149.95	\$195.00	\$179.85

inCider magazine says, "GraphicWriter 2.0 is a giant step forward for the Apple IIGS. It's a powerful way to produce exciting page layouts, and it's easy to do."

A+ magazine declares, "GraphicWriter facilitates a smooth blend of text and graphics, and the result is a tool that you can use for everything from writing a letter to creating page layouts with color separations."

Compute has this to say: "Graphic Writer really comes into its own when you want to integrate text and graphics." And 10,000 owners agree. Laurie Knight of Hemet, CA proclaimed, "Terrific program! It does everything I need to do." Roger Ruthberg of Philadelphia, PA thinks it's excellent, well worth twice the price."

GraphicWriter, which is color and laser printer compatible, combines word processing, graphics and page layout into one complete, easy-to-use package. The program needs only 512K of memory, and is not copy protected. And, most importantly, it's available NOW.

Suggested retail only \$149.95

2310 Oxford Road

Tallahassee, FL 32304-3930

Apple and Apple IIGS are trademarks of Apple Coputer, Inc. Graphic Writer is a trademark of DataPak Spoftware, Inc. ©1988 Seven Hills Software Corp. Medley is a trademark of Milliken Publishing, Inc.

Publish It! © 1987 Turning Point Software, In

3

3

6

8

0

0

