

A+

JANUARY 1988
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 \$3.95 CANADA, FOREIGN

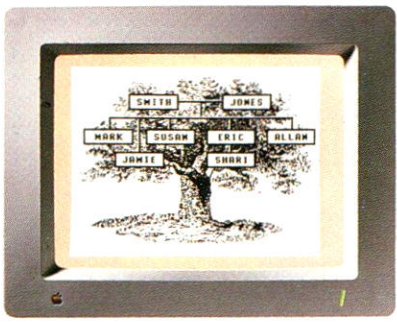


The #1 Apple II Magazine

PRESENTATION GRAPHICS

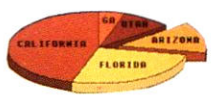
PRINTRIX

High-Quality Printing



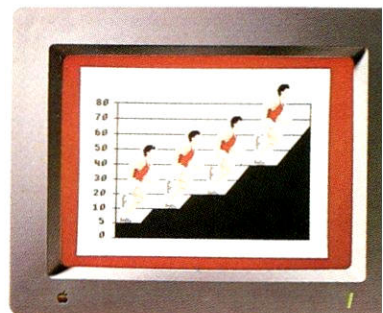
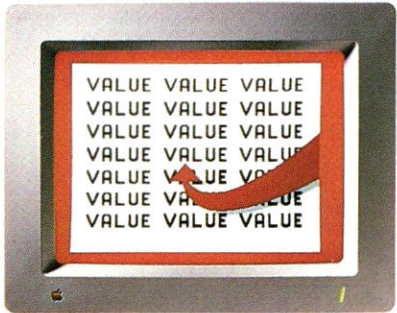
HUNDER-SCAN

Graphic Scanner



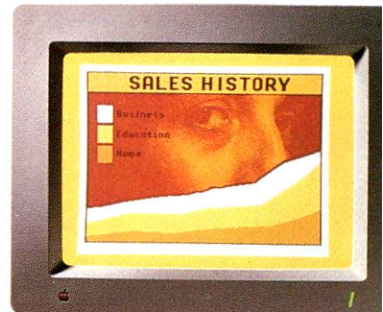
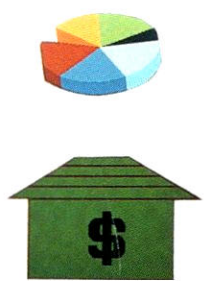
LOW-COST CAD

Entry Level CADApple



Big DRAWING PROGRAMS

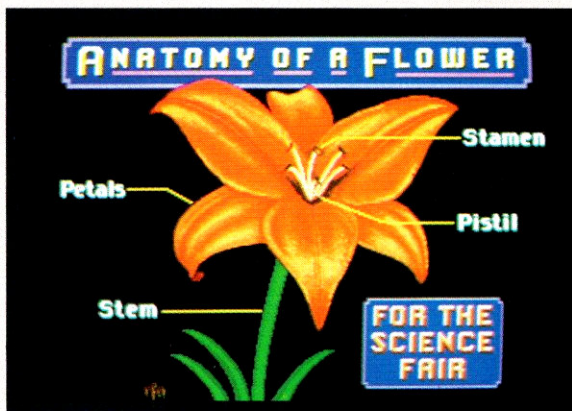
TopDraw and Draw Plus



THE PROGRAM THAT CAN DO ALL THIS!



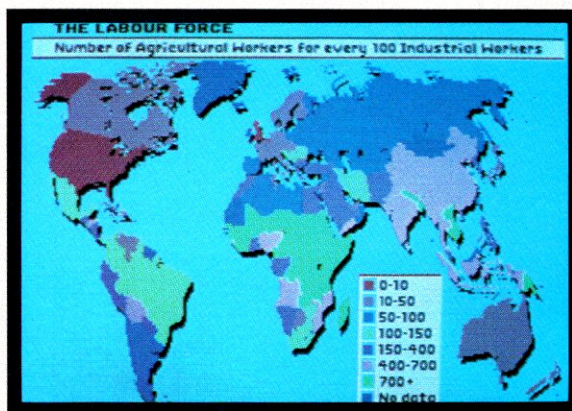
Enter the third dimension. Turn 2-D into 3-D with a click and get a new perspective!



Combine text and graphics for educational presentations. It's easy enough for kids of all ages.



Zoom in through four levels of magnification and put the gleam in the owl's eye.



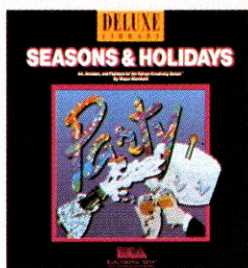
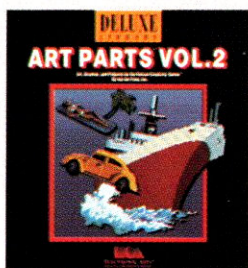
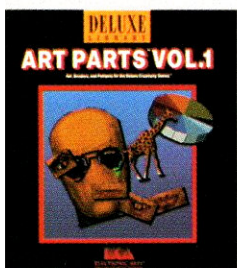
Create colorful presentation graphics like the pros. It's a whole new world for business presentations.

\$50 Offer Extended! Upgrade any Apple IIgs paint program to DeluxePaint II

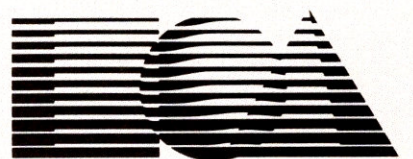
If you jumped the gun and bought Paintworks Plus™—or any other Apple IIgs paint program—here's your chance to get the best for HALF PRICE! Just send us \$49.95 and the front manual cover from your current program before February 29, 1988, and we'll send you DeluxePaint II. (You save \$50!) We'll even give you a 30-day, no-questions-asked, 100% money-back guarantee on this upgrade offer if you're not completely satisfied. How's that for backing our claim?

DeluxePaint II requires 768K of RAM. The upgrade offer is only available directly from Electronic Arts. Send check or money order for \$49.95 (or VISA/Mastercard information) AND THE FRONT COVER OF ANY APPLE IIgs PAINT PROGRAM MANUAL (no facsimiles accepted) to ELECTRONIC ARTS, DELUXEPAINT IIgs UPGRADE, 1820 Gateway Drive, San Mateo, CA 94404. Allow 4-6 weeks for delivery.

TO ORDER DELUXEPAINT II: Visit your retailer. If you can't find DeluxePaint II there, call 800-245-4525 (in CA 800-562-1112), and place a direct order on your VISA or Mastercard. To order by mail, send check, money order, or VISA/Mastercard information to Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. The regular direct-order price is \$99.95; add \$3 for shipping and handling (\$5 Canadian). There is a 30-day money-back guarantee on direct orders. Allow 6-8 weeks for delivery. Apple IIgs is a trademark of Apple Computer, Inc. Paintworks Plus is a trademark of Activision, Inc. DeluxePaint II is a trademark of Electronic Arts.



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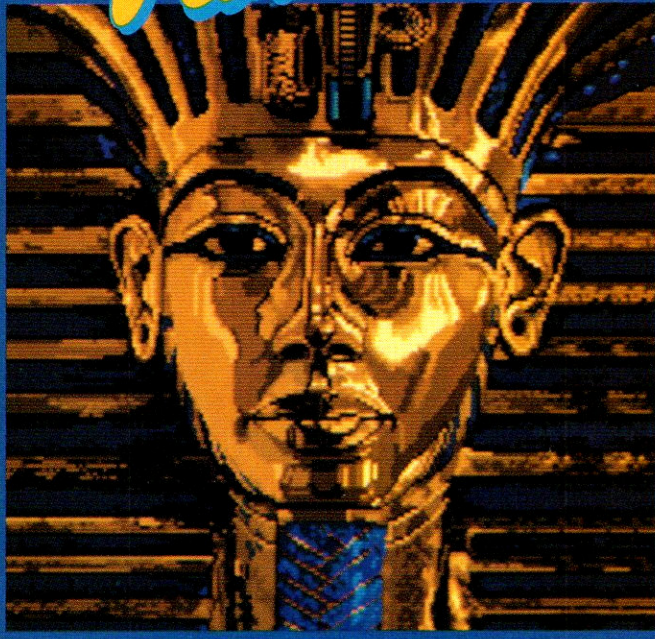
DELUXE CREATIVITY SERIES™

CIRCLE 168 ON READER SERVICE CARD

DELUXE

Paint II

BY DANIEL SILVA

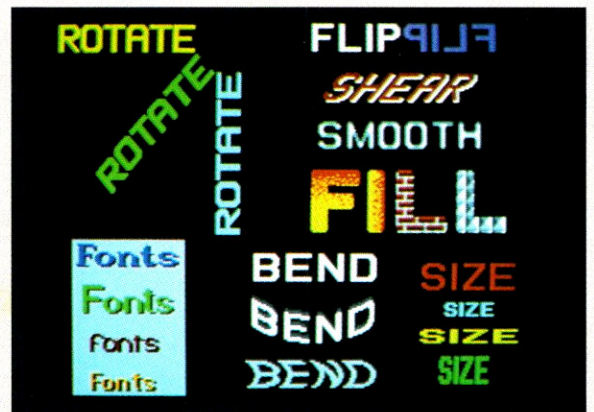


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DELUXE CREATIVITY SERIES™

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Fill any area with a custom pattern or gradient color blend. Create tile or textile designs in seconds!



Alter fonts a dozen ways: flip, shear, blend, rotate, fill or resize any text. Design your own logos!

INTRODUCING DELUXEPAIN II. The images above were all produced with the most advanced paint program ever created for a personal computer. The only paint program that lets you zoom in to see your painting in four levels of detail, create custom gradient color ranges from a 4,096-color palette, freeze an image and paint over it, and do dozens of other things you never knew a personal computer could do. The program is DeluxePaint II. The result is more than just a pretty face.

GREAT GRAPHICS. ... the best reason to buy an Apple IIgs. And the best reason to buy DeluxePaint II. With DeluxePaint II you can master the third dimension with the exclusive 3-D perspective tool. Soften jagged edges and color transitions with the smoothing tool. And give life to static pictures by cycling through a range of colors. Computer graphics have never been so easy. Or so powerful.

"THE BEST GRAPHICS PRODUCT OF THE YEAR!" We didn't say it. The Software Publishers' Association did — and gave us the award to prove it.

DELUXEPAIN II. MORE THAN JUST A PRETTY FACE.

Critics and IIgs Owners Agree: **DELUXEPAINT II IS A HIT!**

"Without a doubt, DeluxePaint II is the best paint program ever to appear for an Apple II!"

—A+ Magazine

"I've yet to try a paintbox program on any computer which could come within a light year of Del

"I saw a demo of DeluxePaint II and was totally stunned. DeluxePaint II beats the pants off Paintwo

—Michael J. Herriges, V

"Okay, I'm guilty—I'm one of those people who 'jumped the gun and bought Paintworks Plus.'...I ack
I made a serious mistake."

—Frank Mellott, I

**INTRODUCING DELUXEPAINT™ II
FOR THE APPLE II GS...**

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The Laser 128EX is 3 times faster than an Apple IIe or //c.

The Laser 128EX Apple-compatible computer has all the built-in features of the popular Laser 128, plus more. MORE FEATURES, MORE MEMORY, MORE SPEED AND MORE EXPANDABILITY. The Laser 128EX is designed for the serious computer user, and it's ready-to-run — plug it in, insert your program and take-off. This machine is built to race.

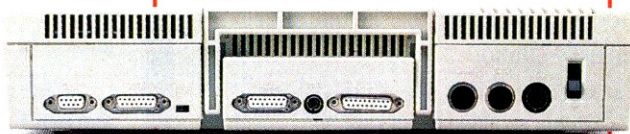
The 128EX has everything built-in, including a disk drive and interfaces to all your peripherals, including

serial and parallel printers, a modem and mouse, joysticks, external 3½" and 5¼" drives, and even a color RGB or monochrome monitor. Only the Laser 128EX has these performance features built-in.

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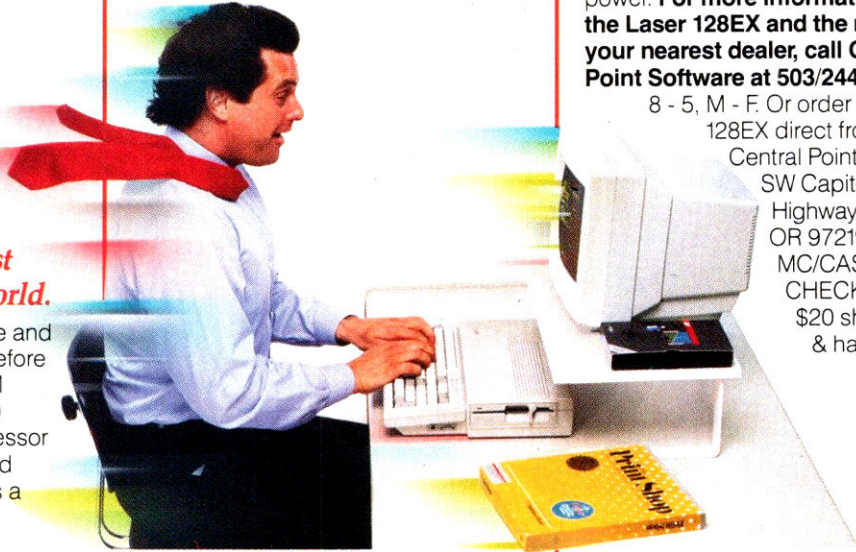
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Speed through the largest software library in the world.

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LASER 128EX

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***Paintworks Plus* — as powerful and versatile as your imagination.**

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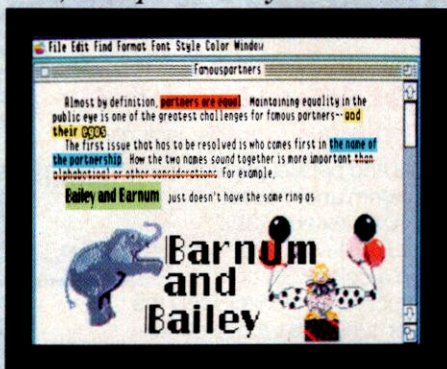
And now every *Paintworks Plus* package includes *Clip Art Gallery*, a library of over 650 vivid color images, FREE.

If you can see it in your mind's eye, you can picture it on your Apple IIGS — with *Paintworks Plus*.

***Writer's Choice elite* — your words never looked so good.**

Go beyond black words on a white screen. Write and edit in color — for emphasis, for fun, or to help organize your ideas.

And when a picture is worth a thousand words, dress up your text with graphics from *Paintworks Plus*, *Draw Plus*, or *Clip Art Gallery*.



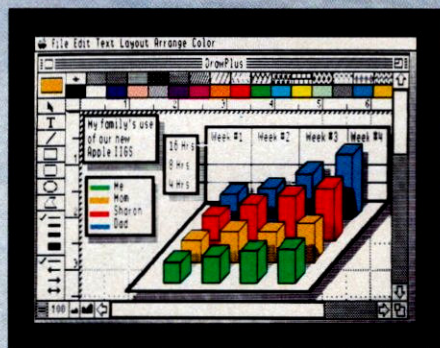
Multiple windows let you work with several documents at the same time. Cut and paste lets you move text around — with a click of the mouse.

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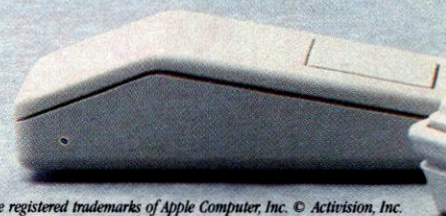
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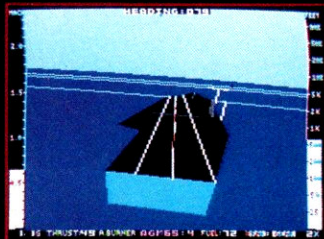
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"Paint Write Draw."
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price!



1987 - Expanding Scenery disk coverage; East Coast, Japan, & Europe



1986 - Flight Simulator II for the 68000 computers



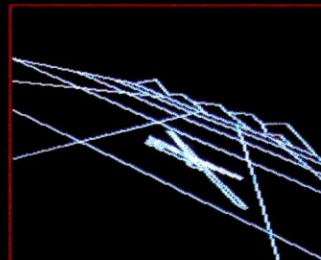
1985 - High-performance Jet flight simulator for the IBM, Commodore 64, and Apple II computers



1982/1983 - Microsoft Flight Simulator & Flight Simulator II



1979 - 3D graphics applied to the original FS1 Flight Simulator for the new Apple II and TRS-80 computers



1977 - SubLOGIC's 3D graphics package in BASIC and M6800 Assembly Language

Ten Years of Technology and Dedication

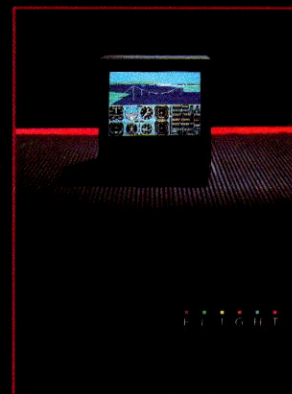
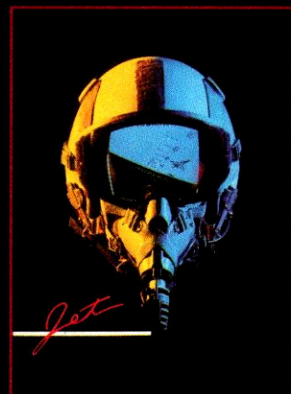
Some say our technology has helped us define the state of the art in flight simulation. We believe our ten years of dedication have gotten us where we are today.

SubLOGIC's first black & white 3D graphics routines, developed in 1977, paved the way for our introduction to flight simulation and aerial combat gaming theory. Our second-generation Flight Simulator II was so well conceived that even we find it difficult to improve upon. Jet's spectacular land and sea battle scenarios set another classic milestone in state-of-the-art simulation gaming. Scenery concepts incorporated into SubLOGIC flight simulation products right from the start continue to evolve as we introduce new, more beautifully detailed areas of the world to explore. And coming in 1988 - a flight control yoke for even more realism!

We invite you to help us celebrate our first decade of success, and share in our anticipation of the next ten years to come. SubLOGIC tenth-anniversary promotional shirts and posters are available at your dealer or directly from SubLOGIC. See your dealer, or write or call us for more information.

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The #1 Apple II Magazine

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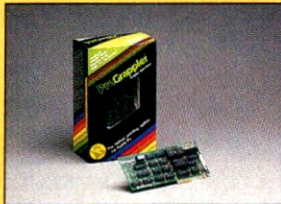
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Ile

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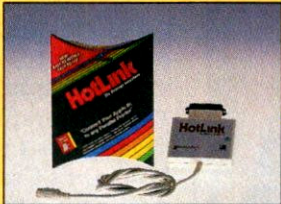
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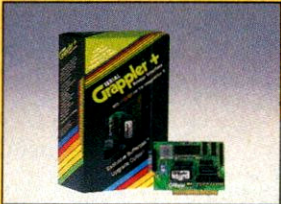
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COVER STORY

30 DESKTOP PRESENTATIONS

BY ROBERTA SCHWARTZ
AND MICHAEL CALLERY
In classrooms and conference rooms, Apple II computers can help you create professional presentations. Here's a guide to scripting presentations, preparing the visuals, and putting on your show.



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BY MICHAEL CALLERY
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73 ENTRY LEVEL CADAPPLE

BY MIKE MARKOWITZ
This downsized version of CADApple is priced right for educational applications.

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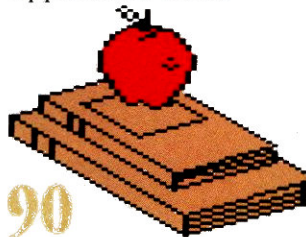
BY CHARLES RUBIN
Timeout Graph from Beagle Bros and Pinpoint's Graphic Edge offer new graphics capabilities to AppleWorks users.

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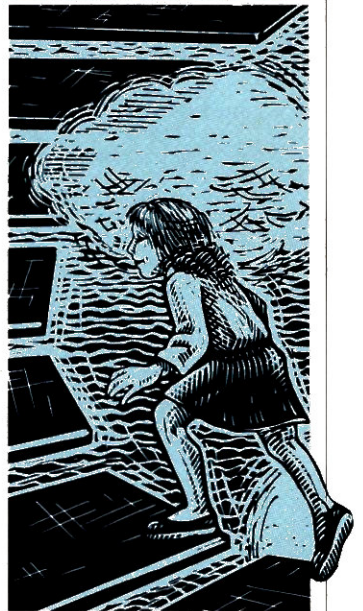
BY LEE HAYWARD
Six sets of well-designed templates

92 TIP FOLDER

BY JOHN H. CARTER
Converting numeric scores into letter grades



EDUCATION

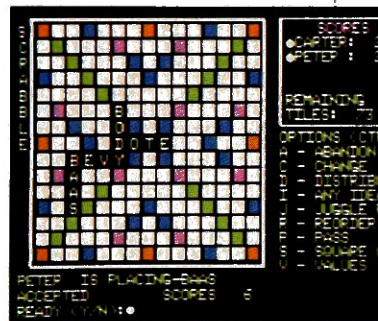


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BY DAVID D. THORNBURG
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BY JENNIFER BRAUER
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BY BOB LINDSTROM

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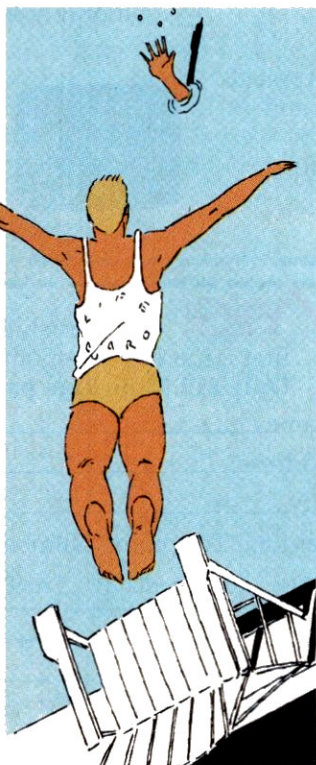
Useful Apple II tips from our readers

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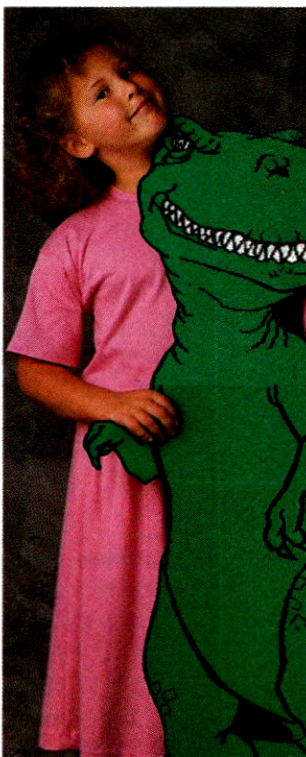
RESCUE SQUAD

BY GARY B. LITTLE

ProDOS frustrations, file transfers, mousing around, and answers to other reader concerns



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BY PETER TUCKER

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PRODUCT ROUNDUP

BY SHANON CULLEN

Products you want to know about—for the entire Apple II family

141

A+ ALL-STARS

Beginning this month, A+ publishes a directory of the best Apple II products available.

IIGS

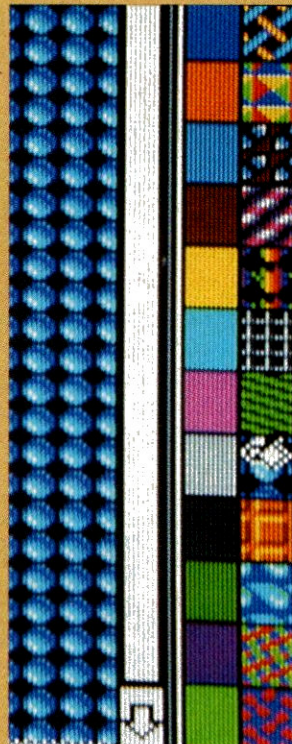
UPDATE

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TOPDRAW AND DRAW PLUS

BY PHILLIP ROBINSON

A look at two new structured-drawing programs for the Apple IIGS



111

NOTES-N-FILES

BY RUSEL DEMARIA

A file-management program that's handy for making mailing lists and form letters

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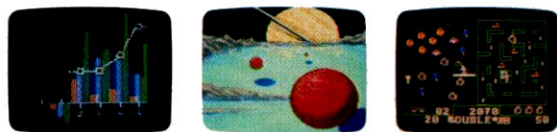
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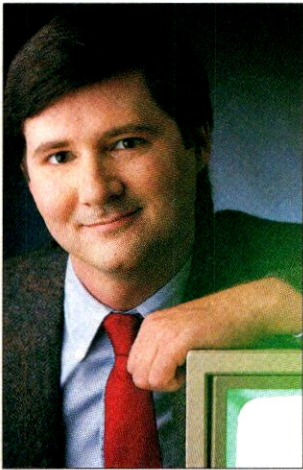
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REVIEW AND PREVIEW

The year 1987 is history, and 1988 looms ahead of us. Although the year ahead holds many uncertainties, it's safe to say that more and more people will be using computers, and a lot of those computers will be Apples. To help put things into perspective, I like taking a look backward and a look forward at the beginning of each new year.

Looking Back

Looking back at last year, I see a lot of bright spots. AppleFest in San Francisco attracted more than 20,000 people, who were so enthusiastic that the show felt like a revival meeting for the Apple II. The Apple IIe continued to sell in large quantities and remains the #1 computer in schools. Apple sold more than a quarter million IIgs computers, and quite a few software companies finally shipped their long-awaited IIgs products. Many new companies started up and introduced many new Apple II software and hardware products. MS-DOS came to the Apple II Plus, IIe, and IIgs in the form of PC Transporter, which outperforms the IBM PC and many of its clones. And *A+* was voted "Best Computer Magazine" by the Computer Press Association.

Last year had some dark spots as well. Technical problems slowed down shipments of the IIgs, forced Apple to upgrade the IIgs's video chip (thankfully the company did so at no charge), and delayed the delivery of key elements of IIgs system software, which in turn delayed delivery of many software products. Some good companies either went belly-up or abandoned the Apple II market. And Apple started pitching the Mac Plus as the computer

for the so-called "home office."

That last point particularly irks me because, despite what Apple says, many more people are using Apple IIs for home businesses than are using Macintoshes. Just take a look at the numbers. Apple has shipped somewhat more than a million Macintoshes, of which about a third have shipped to the education market. Of the remaining two-thirds, some have sold to people at home, others to small businesses, and some to large corporations. Thus, about a half a million Macintoshes are being used in businesses, with a smaller number in home offices. On the

Looking back at last year, I see a lot of bright spots. 1988 should be an exciting year for the Apple II.

other hand, almost four million Apple IIs and compatibles have shipped so far, and although education is their primary use, well over a million Apple IIs are estimated to be in use in businesses.

That's right—probably twice as many Apple IIs are being used in businesses as Macintoshes. Apple knows that, because AppleWorks (a business product) has sold way more copies than has any business-software program for the Macintosh. Now, it's true, the Mac is better suited for the needs of corporate America, but a home office is different from a corporate office, and for a home office, the Apple II—not the Mac Plus—is definitely the way to go.

If you have a computer at home, even as an office computer, you probably want to use it for other things as well. The Apple II, especially the IIgs with its color graphics, is better suited than the Mac Plus for home purposes such as entertainment, children's education, and even adult education. Since a computer is a significant expense, you should try to find as many produc-

EDITOR'S PAGE

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EDITOR'S PAGE

tive and enjoyable uses for the computer as you can to try to maximize your investment.

Despite Apple's overzealous attitude towards the Macintosh, the fact remains that there are more homes and schools than there are corporations; I'm sure that the Apple II will continue to sell well into the "home office" market as well as the education market. And speaking of predictions, here's a look into my crystal ball for the year ahead.

Looking Forward

The year 1988 promises to be an exciting one for the Apple II. Three things I think will be of major significance to the Apple II in 1988 are local-area networks, CD-ROM drives, and desktop publishing.

With 1988, the local-area network may finally come of age in the Apple II market. Corvus, the pioneer in Apple II networking, has undergone a major business reorganization that places a greatly increased emphasis on Apple II networks. A group of *A+* editors recently visited a Corvus test site at San Jose High Academy and were impressed with how smoothly more than 200 Apple IIs were performing together. Other companies such as LanTech and Velan are also offering local-area networks for the Apple II. And any time now we expect Apple to announce the long-awaited AppleTalk network for the Apple II.

Networks provide many benefits to education and small-business users, such as fast data transfer and the ability to allow many computers to share the same peripherals, such as hard-disk drives, printers, and modems. Once local-area-network technology is better developed, the IIGs's built-in AppleTalk network will give the IIGs a major advantage over IBM and compatible offerings in the education and small-business markets. And although Microsoft is still working on IBM's OS/2 Presentation Manager, which makes an IBM system work like a Macintosh, the IIGs already has its own graphical operating system, which is more like the Mac's than any-

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EDITOR'S PAGE

thing from Microsoft or IBM.

A CD-ROM is a compact optical data-storage disk similar to the audio compact-disc systems you find in home-stereo systems. A CD-ROM is analogous to a read-only hard disk that can store a whopping 500 megabytes of information. Unlike a hard disk, however, a CD-ROM can only be read from, hence the ROM designation. And, thanks to the manufacturing capacity the music industry has created for audio CDs, CD-ROMs can be inexpensively reproduced.

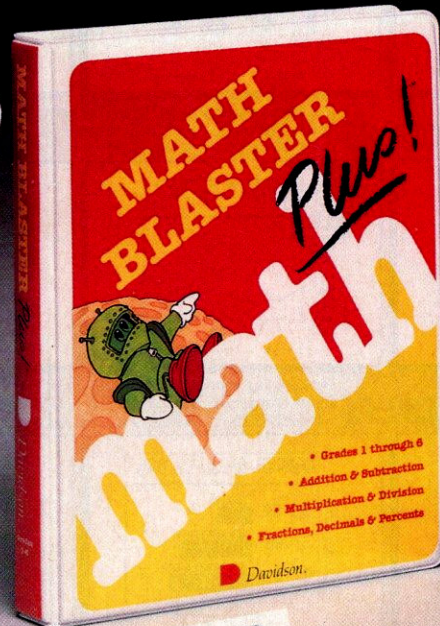
CD-ROM drives and data disks are already available for the Apple II from a few small companies, but in 1988 Apple is expected to light a fire under the CD-ROM market by introducing its own CD-ROM drive. Apple's CD-ROM drive will set hardware and software format standards for Apple II CD-ROM products, which will encourage more companies to develop CD-ROM products. CD-ROMs also tie in with the Apple IIcs; the IIcs graphics files and sound files can take up gobs of memory, which is just what the CD-ROM has to offer. The IIcs is a much better audiovisual computer than the IBM PC or even AT and compatibles—I've often thought that the IIcs would make a dandy CD-ROM player, so to speak.

The third major area of excitement for the Apple II world in 1988 will be desktop publishing. Desktop publishing has become a major product category on the Mac and IBM PC—as testimony: the PageMaker page-layout program has now become the fourth-best-selling personal-computer software program. Many companies are hard at work developing ambitious desktop-publishing products for the Apple II series that will give IIfx, IIc, and IIcs owners the ability to create typeset documents.

Because Apple is developing both the PostScript and QuickDraw graphics languages for the Apple II, it is reasonable to expect that Apple's forthcoming AppleTalk network will include the ability to connect groups of Apple IIs to laser printers and typesetting machines.

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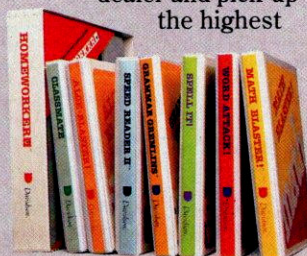


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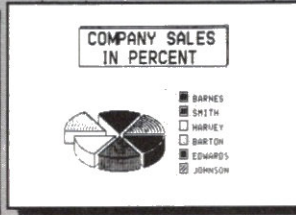
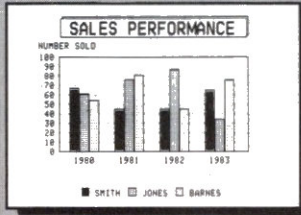
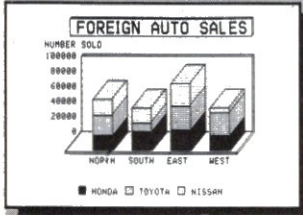
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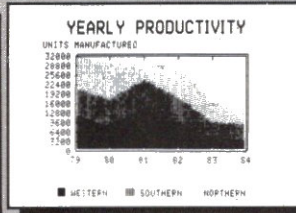
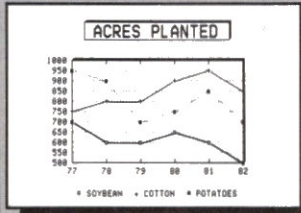
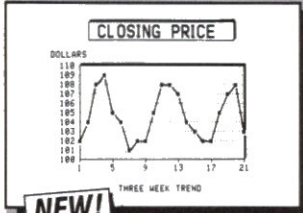
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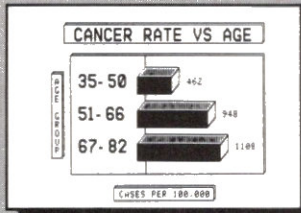
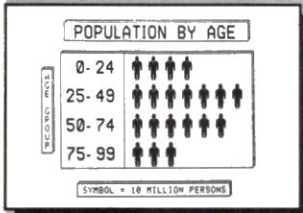
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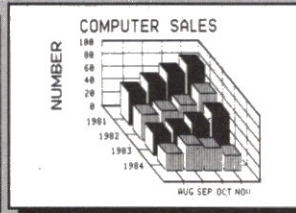
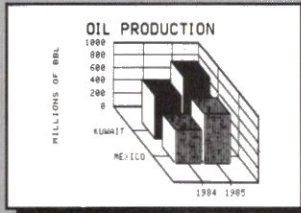
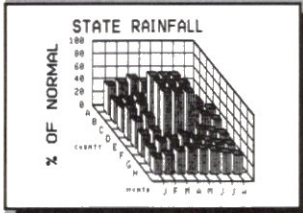
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EDITOR'S PAGE

Apple II computers have always been popular for both word processing and graphics, and desktop publishing combines both those areas into an important new computer technology.

Desktop Presentations

This month's cover story is about presentation graphics. Apple president John Sculley recently held a press conference about the presentation-graphics market, which Apple has dubbed "desktop presentations," to tie it into the related area of desktop publishing. At the press conference, Sculley said that 10 million presentations were given every day in businesses and 15 million in classrooms. These presentations take such forms as overhead transparencies, 35 mm slides, projected computer images, flip charts, and printed hand-outs. In this issue of *A+*, you'll find out how to use your Apple II to create better presentations for both business and school.

New This Month

This month we have added a new section in the back of the magazine called "Product All-Stars." The "Product All-Stars" section is a compilation of the best software and hardware we have reviewed for the Apple II series. This list, produced by the *A+* editors, represents a group of high-quality products with which we think you can't go wrong. Just because a product isn't on the list doesn't mean it isn't good, however; we haven't had a chance to review every product yet. We will update the list every month by adding the products that have received favorable reviews in that issue. We created the "All-Stars" section in response to your requests for more product recommendations. I'd really like to know what you think about it, so drop me a line with your comments if you have a chance. +

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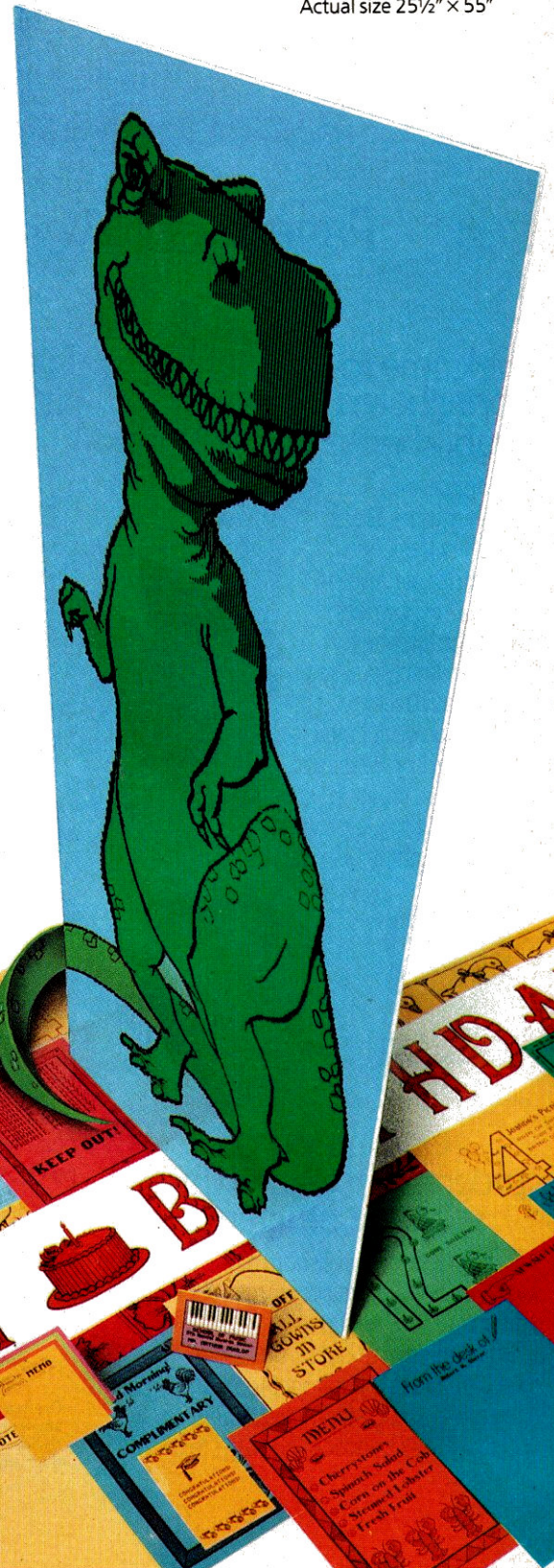
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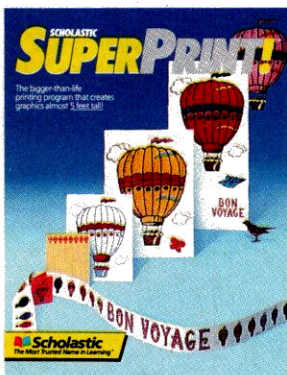
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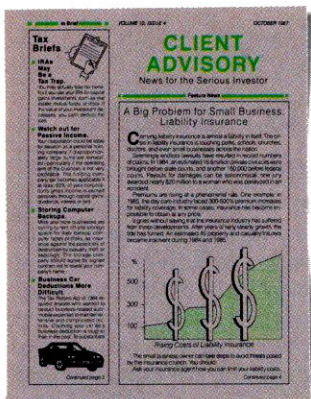
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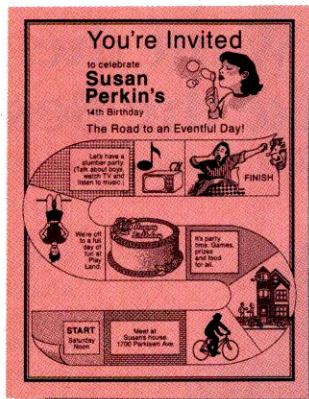
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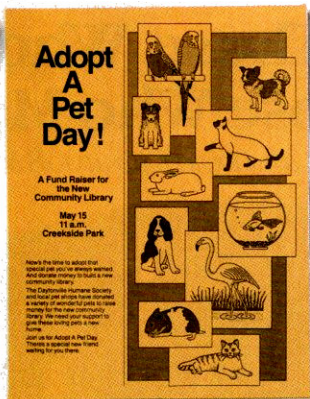
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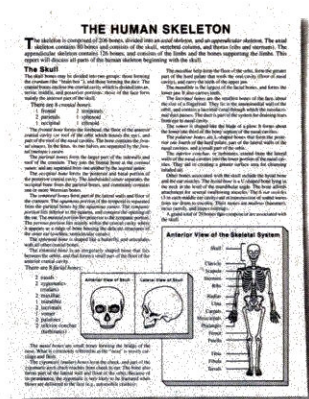
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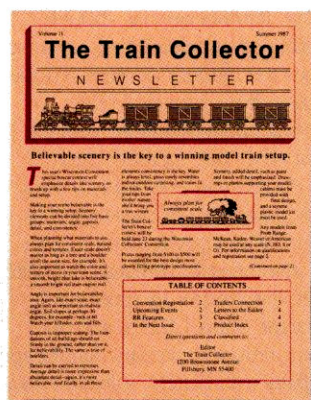
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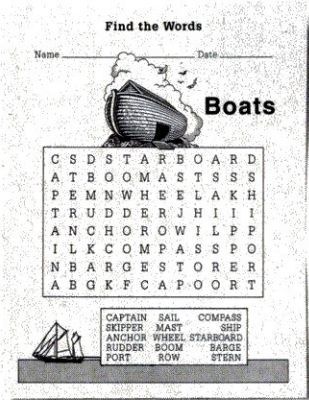
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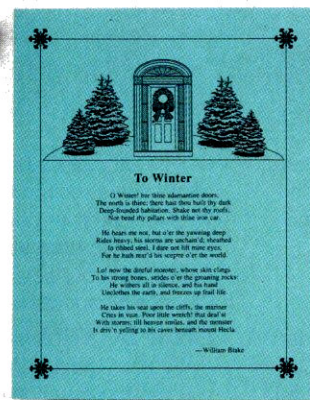
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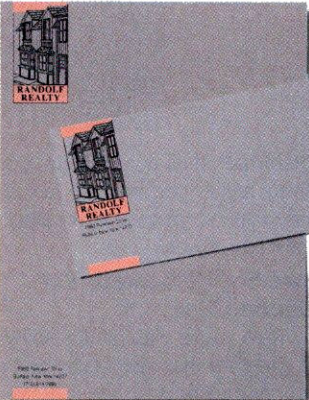
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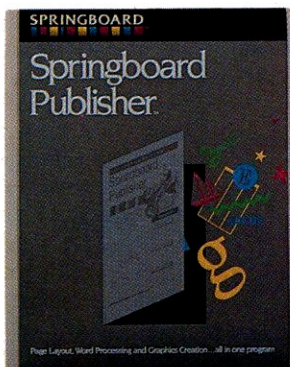
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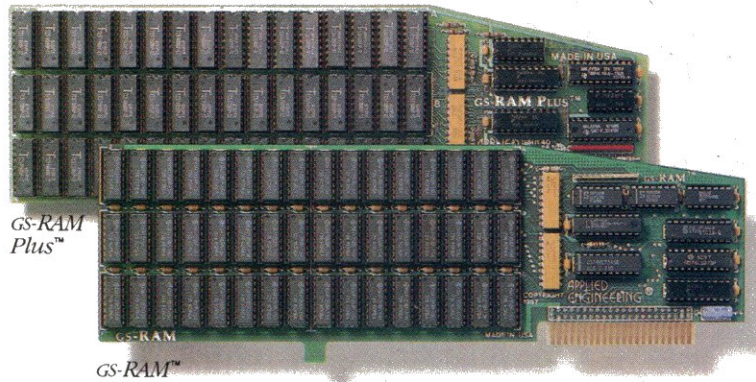
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Steve Wozniak, the creator of Apple Computer

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IIGs ACCELERATOR

Dear A+: A few days ago, I read a letter in your magazine by someone asking for a card that made the IIGs compatible with a Macintosh. I think such a product would be a good idea, but now what we IIGs owners need more than *anything* else is an accelerator card. The IIGs runs at a rather slow 2.8 MHz, compared to most new computers today. Is there a way to speed up the IIGs, or is there an accelerator card out for the GS, or will one be available—and, if so, how soon?

ROBERT A. WYATT
BERRYVILLE, VA

We know of two companies that are actively working on methods to accelerate the operation of the IIGs. MDIdeas showed an early prototype of a card-based accelerator at AppleFest last September, but the availability date and price are still uncertain. Zip Technologies is planning a chip-based accelerator, and an availability announcement has been promised for late January.—Editors

MORE IIG COVERAGE

Dear A+: I am a happy IIG owner who, like others, it seems, is unhappy with your poor coverage of what we feel is a superb machine. When I subscribed to A+, I had reason to believe that your magazine was truly "The Apple II" magazine

that we teachers and students could enjoy. It seems, however, that a more apt description should be "The IIGs Magazine." The fact is that most of the people I know are *not* IIGs owners, and no amount of media hype has been able to convince them that the IIG is an obsolete machine.

FRANK BOWERS
CARLSBAD, CA

It's hard to imagine how you got the impression that A+ was more a IIGs magazine than a IIe/IIc magazine. The vast majority of the products we cover in A+ are for the IIe and IIc, not the IIGs. A quick count of a recent issue revealed the following statistics about the products mentioned in that issue: 48 products worked with a IIe or IIc, as opposed to 7 that worked only with the IIGs. In fact, of the more than 100 A+ All-Star products that we have selected so far, fewer than 10% of them are IIGs products. The IIGs is an Apple II, so we feel it deserves some attention, especially since our research shows that many of our readers who own IIe and IIc computers are considering a IIGs as their next machine.—Editors.

A CHEER AND A JEER

Dear A+: I have both a cheer and a jeer to report to you. First the cheer. My cheer is for Videx, which makes the Enhancer and the Video-term board. The Videx

LETTERS

TO THE EDITOR

personnel have gone above and beyond what you would expect as a support service. I have called them several times with problems, and they have been extremely helpful, even to the extent of sending free updates and replacement parts. I have sent back their products for repair (after four years of hard use), and those products were returned to me at no charge and in less than seven days. Dealing with a company such as Videx is very nice.

My jeer is for PBI Software of Foster City, California. I purchased by mail order its graphics program Visualizer. It seems to be an excellent program, except for one problem: It works only with the ImageWriter printer. Now I don't really have a problem with this, except that there's no way to tell until you open the package. In order to open the package and use the disk, you must destroy the plastic box the program comes in. I tried to return it to PBI, but I was informed that I had to return it to where I purchased it. I don't know of any busi-

nesses that will accept a return after the package has been destroyed. Watch out for PBI.

ANDY KRANZ
ISSAQUAH, WA

IIGs POTENTIAL

Dear A+: I have learned as much about the Apple world through your magazine as I have through my \$200 collection of books.

I'd like to comment on the IIGs. "Apple has been so busy promoting the Macintosh as an office computer over the last few years that it has lost sight of how important the Apple II can be as a general-purpose office appliance" (Fred Davis, June 1987). Right on, Fred! "... programs that provide a *glimpse* of the Apple IIGs's word-processing possibilities" (Rich Jaroslovsky, November 1987, my em-

LETTERS

phasis). Right on, Rich!

To the world I would like to say, "Wake up and smell the roses, people; the IIGs has a lot more to it than G and S! When I bought my system with a monochrome monitor, the salesman asked, "Why? The only

benefit to the IIGs is the graphics." I calmly replied that with the 16-bit CPU, a couple of megs in memory, and the right program, this "graphics only" computer could do some serious business and engineering work. Materials management, real accounting, project organization, production planning, long technical documentation of machinery, the coordination of information for several departments—all ready at your fingertips. As fast as a PC and a lot easier

to use. As easy to use as a Macintosh, and a lot less expensive.

Using the IIGs, it is easy to write a down and dirty program for quick engineering purposes and only slightly more difficult to write a highly sophisticated business-oriented program. Paint, shmaint: I intend to put this more-than-capable machine to *work*. I've already squeezed quite a bit of energy out of my IIG. Now, with the speed, memory, programming tools, etc. of the IIGs, I can't wait to really put this poor little "educational, game players' machine" to work.

Some have commented that the IIGs is overestimated—a IIG with more colors and a mouse. I really disagree. We have here a 16-bit computer with speed, memory, the best user interface designed to date, and most of the programming drudgery already done for virtually any application. All a programmer has to do is design an algorithm and display format. This computer has some real potential at a good price. I'd really be disappointed to see the innovative, leading-edge Apple II community allow the IIGs to be doomed to a life of painting pretty but useless pictures. Let's see this computer do what computers do best: *work!*

I hope my views are shared by others, and somehow I'd like to find out if they are. How about an opinion poll: What would you like to see the IIGs do for you? What should the IIGs be used for? What can the IIGs be best at? I wonder what people really think.

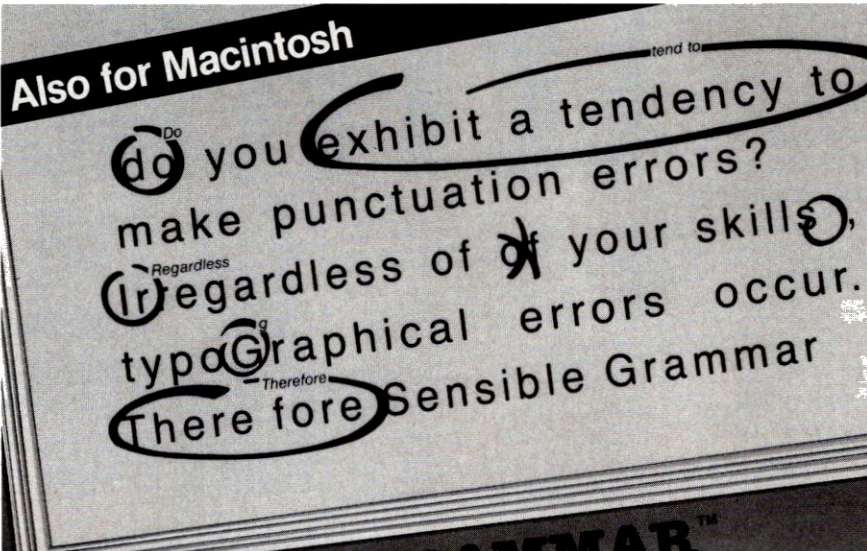
GREG WILLITS
SANTA ANA, CA

A+ welcomes any and all comments about the potential of the IIGs or any other Apple II.—Editors

SUPPORT MAKES THE DIFFERENCE

Dear A+: Having had an opportunity to use and compare Writer's Choice *elite* with MultiScribe GS, I feel compelled to comment on the article "Write Choices" by Rich Jaroslovsky in your November 1987 issue.

I do not disagree with Jaroslovsky's in-depth comparison of these two products, but I feel that he left the impression that both products were equal and that only purchasers' individual requirements should dictate which prod-



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Sensible Grammar (\$99.95) which works on Apple IIGs, 128K //e and //c, and Sensible Speller ProDOS (\$125), which works on Apple IIGs, //c, //e and II+, are available on 5" and 3.5" disks. Sensible Speller IV (\$125) works with Apple //e, //c, II+, II and Apple-compatible computers. Sensible Technical, Stedman's Medical and Black's Law Dictionaries are available on 5" disk for \$39.95 each. All programs are available separately.

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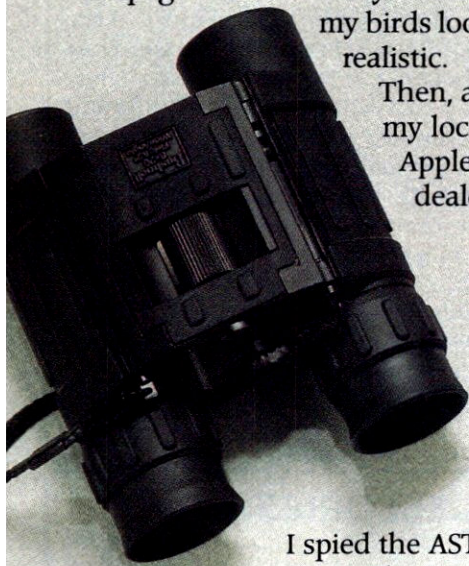
Sensible Grammar and Sensible Speller ProDOS work with the following programs: AppleWorks (Apple Computer, Inc.); Catalyst (Quark, Inc.); Mouse Desk (International Solutions); Sensible Grammar and Sensible Speller ProDOS also work with the following word processors: AppleWriter ProDOS version (Apple Computer, Inc.); Format II Enhanced-ProDOS (Kensington Microwave); MouseWord (International Solutions); Mouse Write-text files (Roger Wagner Publishing); PFS:Write-ProDOS (Software Publishing, Inc.); Sensible Writer (Sensible Software Inc.); Word Juggler (Quark, Inc.); Word Perfect (ISI Software); Zardax-ProDOS (Computer Solutions) and others. Sensible Speller ProDOS also works with HomeWord ProDOS (Serra On-Line); MultiScribe (StyleShare, Inc.); Word-Talk (Computer Aids) and WritingWizard (Scarborough Systems). Owners of trademarks indicated in parentheses: Black's Law Dictionary (West Publishing, Inc.).

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When I got back home, I plugged the board into my IIGs and connected my video camera to the AST-VisionPlus. Then came the moment of truth.

I posed the camera in full view of my birdfeeder, patiently hoping against hope for the return of the blue-capped flycatching warbler. He did, by jove. And with a quick click of the mouse, I had it on camera. On computer. And on the front page of my newsletter.

Another idea burst into my head. I popped my video cassette "Mating Habits of the Paradise Whidah" into the VCR and spent the better part of the night in

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a rapturous flurry, capturing images for Christmas cards, T-shirts, flyers, personal stationery and invitations.

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My Asiatic water parrot looked more like a common ostrich. I wanted to bury my head in the sand.

composition of my AST-VisionPlus images, I discovered my own set of wings. In my mind, I was free as a, well, you know.

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LETTERS

uct they should buy. Nothing could be further from the truth.

First, Activision's customer support is nonexistent, whereas the folks down at StyleWare are most sensitive to their customer-service responsibilities. I have had numerous problems with Writer's Choice *elite*, for which I have had little to no help from Activision. The manual for this program is poor and incompletely written. The printing features of WCE leave a lot to be desired. MultiScribe offers a printing choice that renders a very professional-looking page, whereas WCE printouts look like junk. Jaroslovsky mentions the difference in graphics handling between the two programs, but he does not emphasize enough that MultiScribe is much more flexible in both the way it handles graphics and the type of graphics it uses. For my tastes, WCE might as well not pro-

vide a graphics interface.

My poor experience with Activision is not limited to WCE but carries over into several other programs the company markets. For example, the company's game Shanghai, which is excellent, has a major bug for which I have been unable to obtain an upgrade in spite of numerous letters and telephone calls over the past four months.

Therefore, I suggest that in addition to all the other options that Jaroslovsky gave readers to help them choose between the Activision and StyleWare products, prospective buyers consider the very poor reputation that Activision has developed regarding customer support and service.

R. W. CROWLEY
MANCHESTER, MO

BLESSING AND CURSE

Dear A+: You might call this the Blessing and the Curse.

In the former category is my praise for Brøderbund. Its On Balance program is a wonderfully useful piece of software that I use in

my business as well as to track my expenses at home. It is easy to use, accurate, and very flexible. The manual is also easy to follow, something that we all know isn't too common even now.

In addition, when the company developed a new version for those using 3.5-inch drives on a IIGs, it made it available at no charge! Not only that, but it paid the postage and removed the copy protection so those of us who depended on it on a daily basis could make backup copies.

This is definitely a company that I'll be buying from in the future!

Then there's Electronic Arts. Bard's Tale is fun on the IIe. Now there's a version for the GS. They say that since the GS is a "different computer" than the IIe, they won't offer an upgrade at all, even though I (and I'm sure many others) am willing to pay for it. Instead I must buy the new version at full price. Take a look at Brøderbund's policy, and then look at Electronic Arts'. Then guess who's asking for someone to pirate their software.

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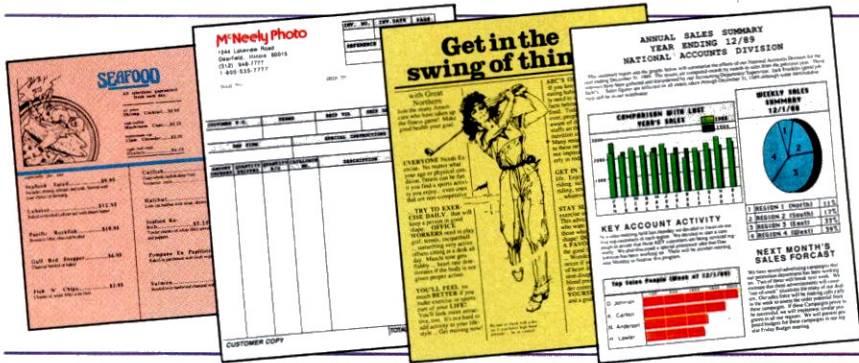


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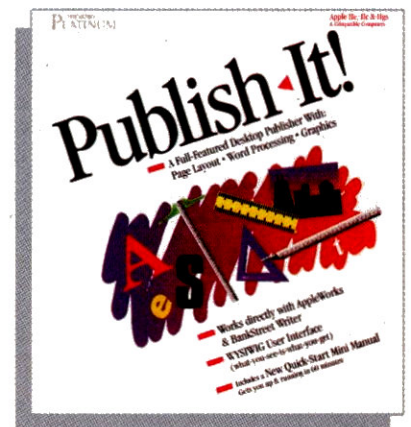
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NEWS AND VIEWS

BY GARY B. LITTLE, LISA RALEIGH, AND ALANE BOWLING

NEWS PLUS

Big promotion bucks for the Apple II, on-line antipiracy efforts, National Geographic Kids Network, and other industry updates

DELIVERING ON A PROMISE

At a meeting of Apple developers the evening before AppleFest last September in San Francisco, John Sculley, chairman of Apple Computer, promised to spend multiple millions of dollars promoting the Apple II line prior to Christmas. It seems that he has kept his word. The first major promotion to appear was a new set of television

commercials highlighting use of the IIcs. Many of these appeared for the first time on an Apple-sponsored special about the U.S. Constitution called "Funny, You Don't Look 200," which appeared in early October. Since then, Apple has run other prominent ads on national television.

Then, about the middle of October, Apple's "Open House" began touring the shopping malls of the country. The Open House is an exhibit highlighting the use of

the Apple II (and to a lesser extent the Macintosh) for educational, entertainment, and home-business uses. The Open House A+ reviewed was in San Mateo, California, and featured about ten cs computers, one IIc, and three Macintoshes. Apple demonstrated software packages from many of the larger software companies, including Paintworks Plus (Activision), Print Shop cs (Brøderbund), Instant Music (Electronic Arts), and Reader Rabbit (The Learning Company).

At the Open House, Apple publicized its new rebate program for peripherals, which is due to expire on January 2, 1988. Rebates are either \$50 (on 3.5- and 5¼-inch drives, Personal Modems, and IIc or cs memory-expansion cards) or \$100 (on ImageWriter IIs and hard-disk drives). The company was also passing out ordering information for its "Beginner's Luck" video. This video (VHS format only) features real computer owners describing why they're glad they bought Apple computers and why you should too—one of the presentations is so hilarious that we recommend buying the videotape even if you already own an Apple. You can order the video anytime before January 12, 1988, by calling (800) 328-2791 and having



APPLE'S OPEN HOUSE TOURING SHOPPING MALLS

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your VISA or MasterCard at the ready. The price is only \$6.90.

It's too early, of course, to tell what the result of these promotional efforts will be, but it's a relief nonetheless to see Apple Computer, Inc. putting some serious bucks behind the Apple II.

ON-LINE ANTIPIRACY EFFORT

We all know how serious the problem of software piracy has been for software developers since the first disk drive was invented. Inevitably, within days of a popular program's release, it reaches the hands of thousands of users who haven't paid a nickel for it. Copy-protection only



slows down this unauthorized distribution by a week or two. We've even heard of unauthorized widespread distribution of a new program before its official release!

In an attempt to find solutions to the piracy problem, a computer bulletin board in San Mateo, California, has recently commenced the Software Theft Opposition Project (STOP). It encourages software developers and pirates to debate the pros and cons of piracy issues in an on-line forum setting. If you're interested in participating, call the STOP BBS at (415) 349-8245. The BBS operates 24 hours a day at 300 or 1200 bps.

MILITARY SUPPORT GROUP

Here at *A+*, we get plenty of mail from U.S. servicemen in Europe who need help with their Apple II systems. Local support is apparently not too good, especially if you don't speak a foreign language, and regional users' groups are sometimes too small to provide needed assistance. If you're a II user in Europe and need more help, consider affiliating your U.S. Forces Apple club with the largest military-oriented Apple users' group, the Special Forces Apple Users Group (SF AUG). (You can affiliate even if your group isn't made up of members of the military.) Affiliates receive a periodic newsletter and the



benefit of bulk-purchase discounts on diskettes, hardware, and software. For more information, contact CPT Mike Murley, Box 484, APO, NY, 09050 or at Am Lettenholz 108 A-1, 8170 Bad Tolz, West Germany.

NATIONAL GEOGRAPHIC KIDS NETWORK

As we round the corner into 1988, as many as 200 schools will be participating in an exciting new science-education network. The National Geographic Kids Network is still in the field-test stage and involves sending fourth-, fifth-, and sixth-graders out to collect scientific data in their communities, which they then telecommunicate back to a central computer. At the central location, the data is compiled and then sent back to the participating classrooms, where the kids can see how their city compares to others in areas such as water quality and weather patterns.

The Kids Network is a joint project of the National Geographic Society and the Technical Education Research Centers (TERC) in Cambridge, Massachusetts. TERC received an award of \$2.2 million from the National Science Foundation to develop the network, and the National Geographic Society is throwing in another \$2.5 million. The project started with 9 schools in 1986 and grew to 30 in 1987, with the goal of having 200 schools participating by January 1988. Then, by the beginning of 1989, the plan is to have 1000 schools field-testing the concept. Testing is expected to be completed in late 1989, at which time the service is expected to become a product available to many other schools.

Teachers and administrators interested in finding out more about the project can contact Bruce Travis, Manager of Training and Dissemination, TERC, 1696 Massachusetts Avenue, Cambridge, MA 02138; (617) 547-0430.

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EARLY BIRD EDITION

In order to address the dilemma facing all publishers of tax-preparation software, Double Eagle Software is making available an "early bird" version of its 1987 release of The Tax Advantage. The dilemma is this: With tax-preparation software, publishers must wait until year's end for the IRS to finalize regulations that updated versions of the programs must account for. This waiting period means it's hard to get tax-preparation software out as soon as some people might want to get their hands on it.

So Double Eagle's solution is to release software that incorporates regulations that have been decided on as of August 1, 1987. The remaining regulations will be incorporated into a later final version. The Early Bird Edition costs \$59.95; buyers of this version can then get the final Tax Advantage for \$15.95. If you just wait for the final release, however, it will cost you \$59.95, so you

save some extra dollars by waiting a while. In this case, the early bird gets to pay more.

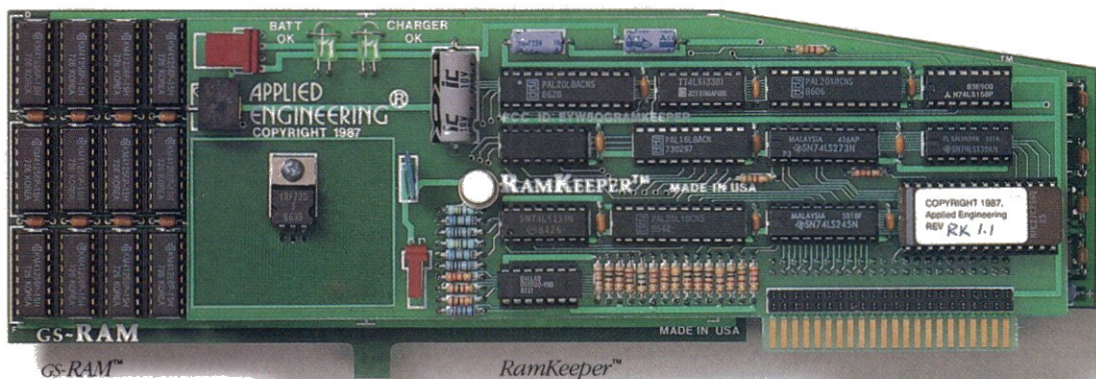
HOME WORK WITH APPLEWORKS

Although the Apple II doesn't get much play as a business computer these days, the fact is that people use the Number 1 Apple II program—AppleWorks—to do business work. This assertion is probably no shock to all you AppleWorks users out there, but what's interesting is how much mileage AppleWorks is putting in at the home office. According to a study commissioned by Microsoft Corporation, 45% of AppleWorks users use the program exclusively for work at home.

Microsoft researched this market in order to justify a push into the home-office market for the IBM PC version of its integrated program called Microsoft Works (having already discovered that the home market was pretty strong for the Macintosh version). Unfortunately, the published results don't say what percentage of users do their AppleWorks work in an outside-the-home office. Nor do they say what percentage use AppleWorks for something other than business-type stuff.

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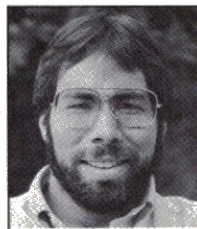
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from your computer, plug your IIGS memory card into RamKeeper, plug RamKeeper into the IIGS memory slot. If you have another IIGS memory card, an additional card socket on RamKeeper will accommodate your second card. That's all there is to it!

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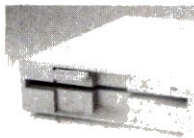
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UPDATE

MultiScribe 3.0 features a variety of special fonts, character sizes, and styles.

Third Wave Technology's Print-Quick Version 4.0, which came out at AppleFest, features support of the IIcs, color printing on the Image-Writer II, and significantly improved operating speed. The company also released Font Disk 2, which sports 15 additional character fonts. Print-Quick integrates these five printer utilities into a single disk: font design and downloading, type-writer emulation, printer-format setup, hires picture-file printing, and text-file display and printing. It's a steal at \$50. For more information on Third Wave Technology's products, call (800) 233-WAVE or (216) 671-8991.

Reader Jeff Root of Lancaster, California, informs us that Bureaucracy by Infocom is in fact copy-protected, contrary to information we gave in our review of September 1987. Thanks for setting the record straight, Jeff.

StyleWare recently released MultiScribe Version 3.0, featuring on-line spell checking and error correction. The MultiScribe Spell Checker, using a 50,000-word dictionary, lets you search for words, correct spellings, and save new

words. MultiScribe 3.0 features a variety of special fonts, character sizes, and styles, as well as editing of individual characters. MultiScribe 3.0 runs on the IIe and IIc with 128K RAM and sells for \$79.95. Contact StyleWare at (713) 668-1360 or 5250 Gulfton, Suite 2E (or is that IIe?), Houston, TX 77081.

First Class Peripherals recently announced the availability of two new cable kits for users of its Sider hard-disk drive who own a IIe or IIcs (see A+, November 1987). One kit (\$30) includes a ribbon cable, one end of which connects to the Sider host-adaptor card. The other end terminates in a DB-25 connector you can securely mount in a back-panel cable hole. The second kit (\$60) is a cable that goes between the DB-25 connector and the connector on the Sider drive. If you're going to upgrade, you should also order three no-charge items: an addendum to the Sider users' guide, a host-adaptor configuration guide, and two jack

NEWSPLUS

screws. These cable kits should prove to be especially popular with IIGs users. Since the connector on the end of the original Sider ribbon cable is too big to fit through a GS cable hole, the cable has to be threaded over the top of the back panel, making it difficult to put the GS top cover back on without damaging the cable.

Corvus Systems has announced a new Software Subscription Service that includes coverage of Constellation III, its new educational-networking software for the Apple II. The service includes telephone support, automatic software updates, and a quarterly user newsletter. Corvus will provide one year of the Software Subscription Service free to purchasers of Constellation III. After the one-year period, the renewal rate will be \$199 per year. To subscribe to the service, contact the company's corporate service department at (800) 426-7887 or (408) 281-4100.

Lab packs for all Davidson & Associates' instructional products are now available for school customers through Davidson's authorized dealers only. Each lab pack (except

Since our hard-disk cover story, CMS has lowered some of its prices.

Homeworker, which is currently available in a ten-disk Classroom Edition) contains five program disks, one complete set of documentation, and one coupon for a complementary Teachers' Resource Guide. This comprehensive guide contains lesson plans and learning activities for all Davidson programs and will be available in January 1988. To find the location of the authorized dealer nearest you, contact Davidson & Associates at (213) 534-4070.

Since our hard-disk cover story in the November 1987 issue, CMS has adjusted the prices of some of its hard-disk drives. The company has dropped the price on its SD43/A2S by \$200, so that it now sells for \$1395. The SC40/A2S is now \$100 cheaper, at \$1495. The company's new address is 1372 Valencia Avenue, Tustin, CA 92680; (714) 259-9555.

Also, the correct address and phone number for ProApp/Logic Array is 1989A Palomar Oaks Way, Carlsbad, CA 92009; (800) 225-6442, in CA (800) 843-0426.



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CIRCLE 151 ON READER SERVICE CARD

PRESENTATION GRAPHICS

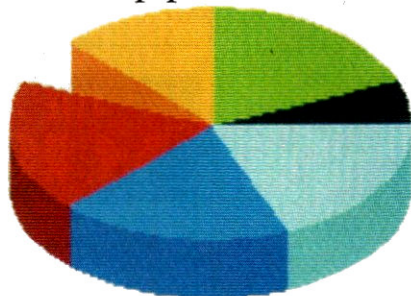
After working us into a frenzy over desktop publishing, Apple recently decreed that publishing was only a small segment of a larger market called desktop presentations. That should come as no surprise to Apple II users; we've always had a wide range of software and hardware products for preparing presentations.

Who needs to make presentations? Anyone who wants to get a point across. Whether in an office, boardroom, classroom, auditorium, or club meeting hall, an effective presentation can sell a product or idea or illustrate a concept.

Your presentation can accompany a speaker or take place in a stand-alone, interactive environment. Either method can employ a wide range of media, from 35 mm slides to videotape to a computer itself that can deliver the visuals and modify them on the fly, and either method involves three key steps: the plan, the production, and the delivery.



Products for planning, producing, and delivering desktop presentations



STEP 1. PLANNING YOUR PRESENTATION

Let's start with the basics. Good presentations are distinguished by good planning. You first need a clear idea of why you're making the presentation, to whom you're directing it, and how you can most effectively make your point.

Be aware that reaching an audience through slides, transparencies, and computer visuals rather than printed materials means that the audience will be looking at a screen. If you've ever been subjected to a viewing of your friends' vacation slides, you know that staring too long at a static screen is a more effective snooze inducer than any sleeping pill on the market.

A viewer cannot assimilate too much material in one visual. You must hone your ideas so you can

convey them in just a few key words or phrases. If you put too much text on a visual, the members of your audience will either spend so much time reading that they won't hear your talk, or—worse—you'll lose them because their thoughts are wandering.

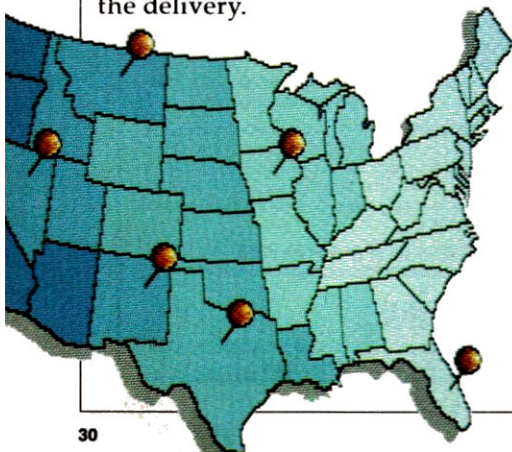
Another key difference between most presentations and printed materials is that your audience can't reread earlier material—the visuals are in a particular sequence and presented one at a time. Therefore, you may want to carry some information over from one slide to another or even repeat a slide to assure that your viewers are following your logic.

Getting Started

Usually you begin with a variety of dissociated ideas that need clarifying, refining, and sorting. Here are some of the questions you may pose: How many visuals will I need to make my point? How will I achieve a logical flow of ideas from beginning to end? What points need emphasis? What can I eliminate? 3 × 5 index cards can come in handy at this point, but we prefer using idea-processor or outliner software for this critical stage in presentation development.

Outliners

Outliners let you easily organize your thoughts into main ideas and finer details; with minimal effort, you can arrange and rearrange your words. An outliner's distinction is that it can "collapse" and



"expand" your text so that, whenever you choose, you can view only the key points of your presentation without being distracted by additional text. (See the roundup feature article "Idea Processors: A look at six Apple II programs that can help you structure your thoughts and organize your writing" in *A+*, November 1987.)

If you don't have an idea processor, you can use a word-processing program to list your main points and then use Cut and Paste commands to organize them logically.

Scripts and Storyboards

After we've used an outliner to organize our thoughts, we usually write a more detailed script. A script allows us to verify that we've properly developed our concept. It's a lot easier to make corrections to a script than to finished slides. Scripting is essential if you're going to speak throughout your presentation.

From the script, we develop a storyboard. A storyboard is simply a sequence of small drawings that illustrate the main points of the script and that is keyed to paragraphs or phrases in it. We either sketch the visuals by hand or use printouts of screens we've created in a draw or paint program. Here is where we concentrate on perhaps the most important aspect of the presentation: making sure our visuals will be consistent.

Good presentations are held together by common threads—the visuals should flow from one to the other. For example, all the slides may share a common border. Placement of text or other elements should be consistent across your presentation. Don't start one slide at the top of the screen and the next in the middle. Consider using an icon, a logo, or another graphic element in the same position on each slide. Keep your "color meaning" consistent: If you mark important words in orange on three visuals, don't suddenly switch to green on the others.

More often than not, preparing a storyboard makes you aware of any missing pieces in the script or thoughts that are inadequately developed and require further exposition. If you're creating the presentation for a client or are working in a group, the script and storyboard stage is a good time to

get approval before committing yourself to a lengthy (and sometimes costly) project.

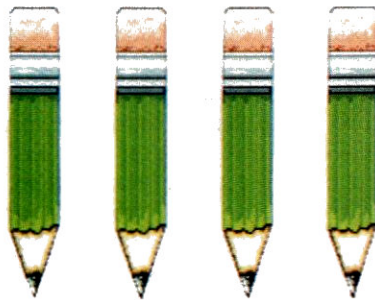
Script and storyboard in hand, then, you're ready for production.

STEP 2. PRODUCING YOUR PRESENTATION

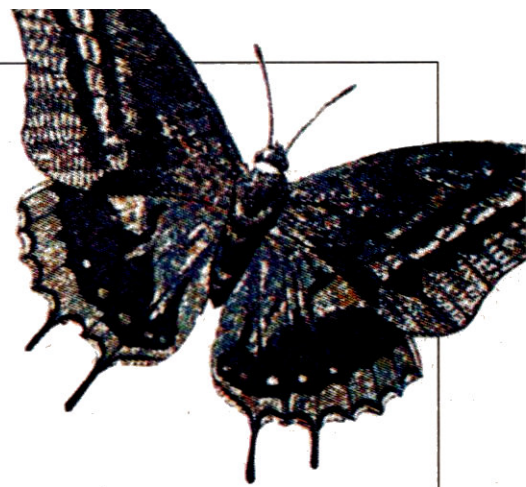
The tools you use to make your visuals depend on your delivery medium. Although we tend to think of presentations as graphic visuals of bar and pie charts, many presentations require text-based slides as well.

Text-Based Visuals

Although a visual may contain only text, it is best produced in a



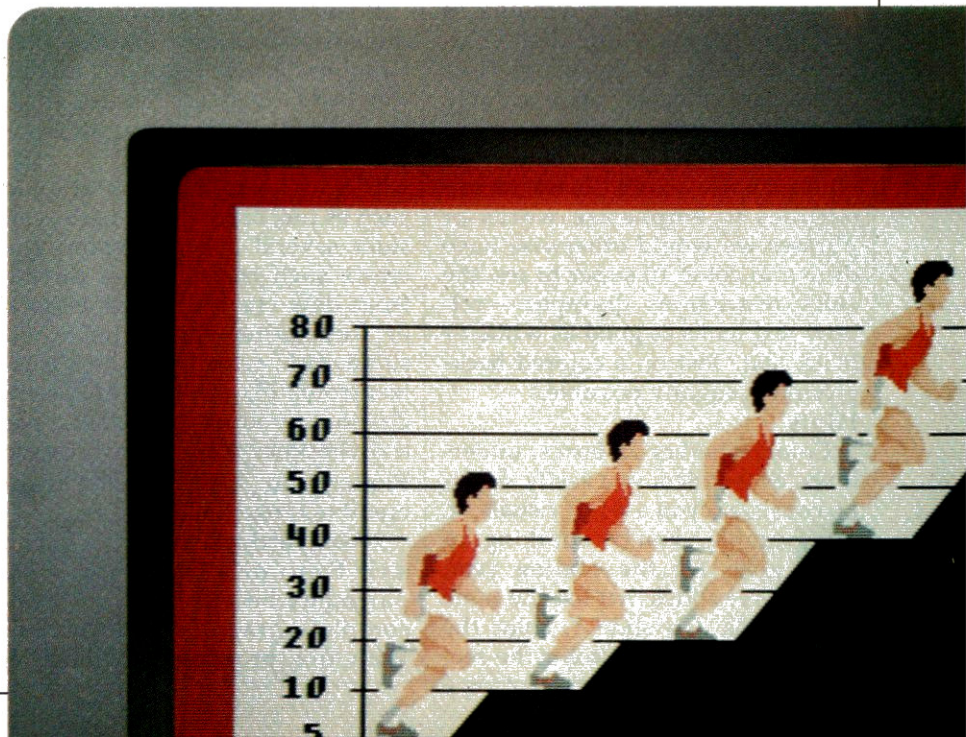
graphics program. The standard Apple character set, even in the 40-column mode, is too small and unattractive for use for presentations that will be projected either as 35 mm slides or overheads or through a computer-video projector. Further, if your presentation combines text slides and graphics slides, the visuals you make in the text mode



won't be consistent with the graphics-based slides.

Two particularly important considerations for all visuals, especially text-based ones, are typeface (font) and color. Text-based presentations require high-quality, proportionally spaced fonts. Most modern paint programs, including Blazing Paddles and Dazzle Draw, offer such fonts. If you're working in standard hi res and require specialized typefaces, Fontrix is probably the best choice. Fontrix, a program that specializes in character generation, provides an incredible variety of fonts, including foreign characters and accent marks. With its built-in font editor, you can create logos and icons and, if you're ambitious, a custom typeface.

Don't go overboard on fonts; restrict yourself to one or two per presentation. Be aware that, with few exceptions, every standard-hi-res and double-hi-res program uses



its own character generator and typefaces. To avoid problems and inconsistencies, don't mix and match fonts from different programs. If, for example, you're creating business graphics in The Graphics Department, a series of illustrations in Blazing Paddles, and text slides in Fontrix, create the text for all your slides in only one of these programs.

You won't have to worry about discrepancies if you're creating your presentation on the Apple IIGS in the super-hi-res mode; most IIGS programs use the standard GS Toolbox font routines and produce high-quality text from fonts installed in the system.

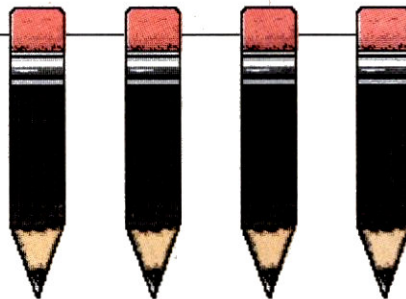
If you're producing overhead transparencies on an Apple IIGS, you may want to use a draw program, rather than a paint program, to create your text-based visuals. When you print on an Apple LaserWriter, a draw program instructs the printer to use high-quality PostScript fonts rather than the jagged-edge screen fonts, giving your transparencies a much more professional look. Both TopDraw and Draw Plus use these fonts. (See a comparative review of these programs elsewhere in this issue.)

You can produce text-based slides in IIGS word-processing programs such as MultiScribe or GraphicWriter.

If you're working in standard or double hi res, stick to black-and-white text. Because of the way color is produced in hi res and double hi res, most typefaces lose their character, and legibility, when they appear in color or on a colored background—too many pixels disappear. We get the best results when we use colored boxes or underlines to emphasize words or phrases we would otherwise have drawn in color. In super hi res, the color restrictions disappear—colored text looks as good as white or black text. Text on a colored background is equally possible.

Hints

Color, whether in boxes, underlines, or text, lets you easily develop consistency in a set of visuals. If, for example, you're speaking of three goals for the coming year, make three slides that list the same three goals. On slide 1, color the first goal; on slide 2, color the sec-



ond one (using the same color); and so on. When you show the slides, the color draws the viewers' eye to the appropriate goal.

The two most common errors in creating text-based slides are putting too much text on the slide (and therefore using too small a typeface) and placing type inconsistently. You can avoid the former problem by careful scripting, and you can skirt the latter with careful production.

Graphic Visuals

Producing graphic visuals is a bit more complicated than preparing text-based ones. If you are artistic, you can create the graphics from scratch, using any graphics program. The program choice depends on the elements that your images require.

In hi res, only Blazing Paddles allows easy access to Apple II shape libraries. The advantage of using Apple II shapes to enhance your images is that you can scale and rotate them. The program comes with a variety of shapes, and more are available on supplemental shape-library disks. In double hi res, Beagle Graphics allows you to work with Apple shapes.

If you need to create hi-res three-dimensional objects, The Complete Graphics System has a 3-D module that is relatively easy to use. In super hi res, DeluxePaint II is the answer.

If you need business graphics such as pie, bar, or line charts, consider several good programs that create such charts, either directly from data created in AppleWorks or from other spreadsheets. For standard-hi-res charts, the Visualizer from PBI or the line of Spectral Graphics products fit the bill. Spectral Graphics' AlphaChart, CurvePlotter, and 3DChart offer an incredible range of chart types.

We're particularly partial to Sensible Software's The Graphics Department because it provides a complete graphics environment. With this program, you have all

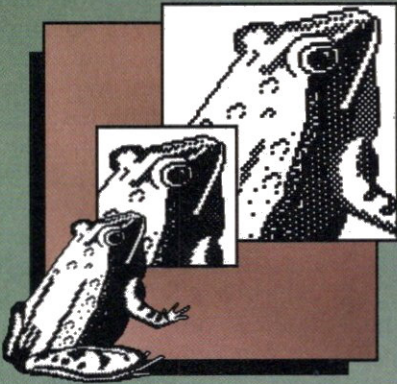
the tools necessary to create dynamic visuals and put them together into a slide-based presentation. For super-hi-res presentations, Visualizer GS is the only graphing product available at this writing. (For information on two new business-graphics programs, Graphic Edge and Timeout Graph, see the AppleWorks section of this issue.)

There's no shortage of powerful paint programs for the Apple II family of computers. You can't go wrong with Blazing Paddles (hi res), Dazzle Draw (double hi res), or Paintworks Plus or DeluxePaint II (super hi res). Paintworks Plus not only provides a complete set of painting tools, but it also offers easily accessible animation capabilities. DeluxePaint II provides incredibly powerful painting tools, including special effects such as images that bend and shrink.

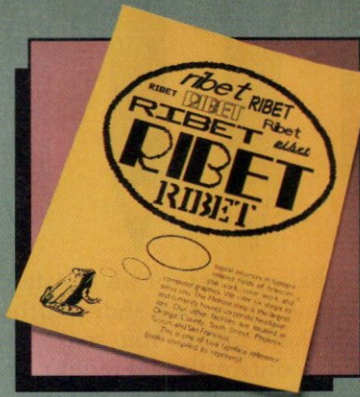
If drawing is not your forte, you can create graphic-based visuals by using clip art. The range of clip art for the Apple II is astonishing. A roundup of available clip-art products ("Picture and Clip-Art Formats for the Apple II") accompanies this article; many of them are suitable for use in presentation graphics.

Another solution to the "I can't draw" blues is to use digitizers. If you want realistic, photograph-like graphics in your presentations, a digitizer is all you need. Digitizers for the Apple II come in two flavors, video and scanner. Video digitizers use video cameras. Focus the camera on your subject and, in a matter of seconds (sometimes minutes), you'll see a digitized version of it on your Apple screen. Video digitizers have the advantage of working with three-dimensional objects, including live models, and images captured directly from videotape, as well as flat art.

Scanners use a special device that replaces the ribbon cartridge on an ImageWriter printer. When you insert a drawing or photograph into the paper feed of your printer, the scanner goes back and forth, scanning every line, until the digitized version is on your monitor. Scanners work only with flat art and are considerably slower than video digitizers (a full-page picture can take as long as 20 minutes to scan), but they generally produce higher-quality images



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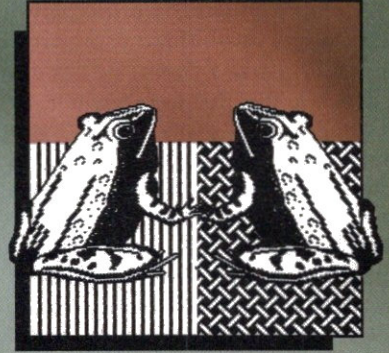
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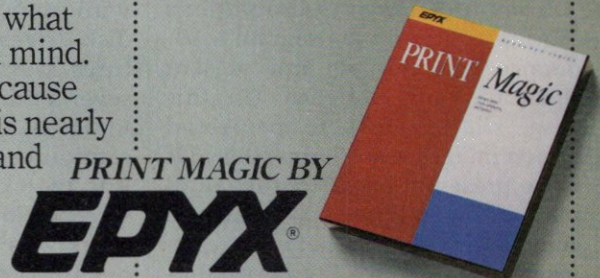
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than do video-based systems. They are also less expensive because you need not invest in a video camera, tripod, and lighting equipment.

On the video end, we've already reviewed ComputerEyes (*A+*, August 1986) and AST's Vision Plus (*A+*, May 1987). The AST product works only with the Apple IIGS, but a version of ComputerEyes is available for every Apple. A new video digitizer is also due from Applied Engineering. The best known scanner-type digitizer for the Apple II is ThunderScan, which we review elsewhere in this issue.

Once you've created your digitized images, you'll need to use a paint program for touch-up and perhaps labeling. If your paint program has scaling, you may find that digitized images look better when shrunk to quarter-screen size or less.

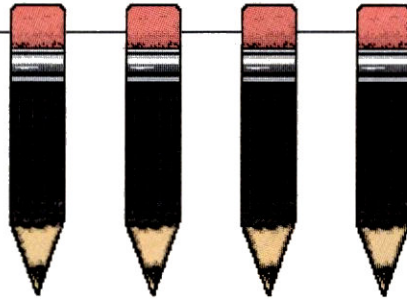
Hints

Whether you've hand-drawn your visuals, assembled them from clip art, digitized them, or created them in a graphing program, remember that you want to achieve visual consistency from screen to screen. Don't go from "tight" geometric images to "loose" paint graphics in the same presentation. Keep colors and palettes consistent. This caveat is especially significant with super-hi-res presentations, where palette switches can be quite distracting when you're changing from one image to the next. If you're using digitized images, don't mix high-contrast and dithered images. Finally, don't use a graphic just to have a graphic; carefully choose your images, like your words, to contribute to your message.

STEP 3. DELIVERING YOUR PRESENTATION

Once you have all your visuals, you must get them into final form for delivery.

Computer-based presentations require a slide-show program to sequence your visuals and present them to your audience. (In this case, *slides* refers to projected screen images, not 35 mm slides.) If your presentation is to run automatically, you'll want to be able to control the timing between each visual and the next. If your presentation includes a speaker, you may



want that speaker, or an assistant, to be able to change slides with a simple key press. You may also want to control the way your images arrive on the screen. Should they scroll on from the left, right, top, or bottom? Perhaps you want some images to spiral out from the center. Transitions, or wipes, can increase your presentation's effectiveness.

Your presentation can be interactive, with users controlling the visual elements. Most such presentations use custom slide-show programs. A good example of a user-controlled presentation, albeit an elaborate one, is the Buick Dimension disk produced by SoftAd (see "NewsPlus," November 1987).

Simpler presentations can use slide-show programs such as those that have appeared in our column or in many books on Apple II graphics.

For standard-hi-res presentations, The Graphics Department and Koala Graphics Exhibitor can create a sequenced slide show for you. Graphics Exhibitor lets you edit, print, and exhibit hi-res graphics. The exhibit section of the program lets you create a plain-vanilla automatic or manually operated slide show. The length of your show is limited by the capacity of one disk, so your presentation can only consist of 12 screens. You cannot take advantage of multiple disk drives.

The Graphics Department offers a more powerful slide-show program. Using the Slide Projector module, you can prepare an automatic or manual slide presentation with up to 32 images by using two disk drives. You can show the pictures in any order and reuse each several times during a show, for up to 99 picture "frames." You can caption each of the frames with a line of text at the bottom of the screen. Since frames can appear as quickly as one slide every 1½ seconds, you can obtain limited animation effects.

For double-hi-res presentations, Dazzle Draw allows you to automatically create a slide show with a choice of timing and wipes between slides, but, as with Graphics Exhibitor, the length of your show is determined by the capacity of one disk. If you're using a 5¼-inch disk, therefore, your slide show will be limited to six images. Beagle Graphics provides a more pliable (and complex) slide-show "skeleton" that you can modify to suit your needs. If you're moderately skilled in programming, you'll be able to enhance the slide show. Otherwise, you'll have to be content with the program as is—no bells and whistles. This slide-show program also limits you to the capacity of one disk, but you can store more pictures on a disk by using the Beagle Graphics compressor program to reduce the size of your images.

For super hi res, several of the public-domain slide-show programs that we've mentioned in our column and that are available on GENie, CompuServe, or from your local users' group's library may provide the power you need.

Projection

If you're delivering your presentation to a group of people, you should plan to have several large-screen monitors or a video projector. The Apple composite video output plugs into the monitors or projector. If you're using more than one monitor, a y-jack, which you can find in the audio departments of Radio Shack and other electronics stores, will take care of splitting the signal.

Another option, newly available from Dukane, is a liquid-crystal-display (LCD) device, the Dukane MagniView 200, that plugs into the composite-video output of your Apple and allows you to project the Apple screen with a standard overhead projector. The image is projected in monochrome but is quite legible and, according to the manufacturers, does not suffer from the "fade out" problems earlier LCD products experienced.

A similar product, the Telex Magnabyte Electronic Imager, connects to a special interface card for the II Plus, IIe, or IIGS.

The analog RGB output from the Apple IIGS is more difficult to deal with, since large-screen monitors

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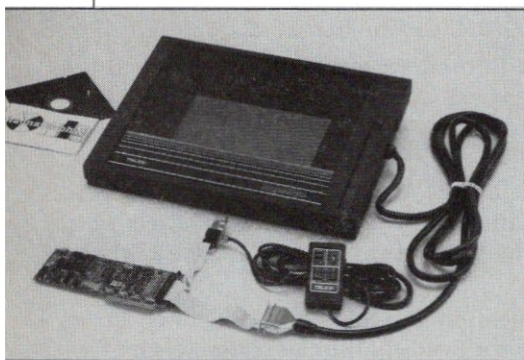
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and projectors for analog RGB are much more expensive than those for composite video.

When computer presentations are not practical, you can transform your computer graphics into overhead transparencies, 35 mm slides, or videotape.

Overhead Transparencies

Overhead transparencies are easy to produce; all you have to do is print your screens on film instead of paper. Many graphics programs are capable of producing such printouts directly. In addition, several good stand-alone "graphics dump" programs are available, including Printographer and Triple Dump. The stand-alone



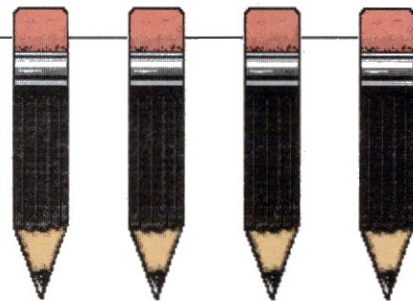
The Telex Magnabyte Electronic Imager (above), and the Dukane MagniView 200 (below).



programs frequently offer more options than the built-in ones. They usually allow you to crop, scale, and invert your screens. Printographer can produce a terrific cameo cropping effect.

You can print directly on overhead-transparency film or have a transparency made from a standard printout at many copy centers. Color may not reproduce well, but once you have a black-and-white transparency, you can color it with markers or inks.

Overhead transparencies offer one major advantage over direct



computer-generated and photographic media: You can get near-typeset-quality text by using a LaserWriter to create the transparency. At this writing, the Apple IIGS is the only member of the Apple II series that "officially" works with AppleTalk and the LaserWriter, although many individuals, most notably Don Lancaster, have harnessed the LaserWriter directly to the Apple IIe, avoiding the need for an AppleTalk card. As we mentioned earlier, draw programs, because they maintain object descriptions of graphics, can instruct the LaserWriter to use high-quality PostScript fonts rather than the bit-mapped fonts on the screen. Although paint-type graphics do not benefit from printing on the LaserWriter (unless the images are shrunk considerably), PostScript text reproduces at 300 dots per inch and makes superb overhead transparencies. Be sure to use overhead-transparency film manufactured specifically for laser printers; other film may melt in the printer!

35 mm Slide Presentations

The simplest way to create 35 mm slides from your Apple is to photograph the screen. To do so, you'll need a tripod, a macro or close-up lens, and a shutter release. Shoot the screen with the room darkened to prevent glare and be sure to set the shutter speed at 1/30 second or longer. You should probably take three exposures for each visual: at the f-stop suggested by your light meter, another one f-stop below, and the last one f-stop above—a technique called bracketing. You may have to crop your image to prevent the frame of the monitor or too much border from appearing in the shot.

If you produce lots of slides, you might consider investing in the Polaroid Palette, a film recorder that contains its own monitor, filters, and camera-mounting hardware. The Palette works only in the hires mode and does not raise the available resolution, however. Although the hardware can produce

a wide range of colors and much higher resolution, we know of no similar software for the Apple II.

Video

You can connect the composite-video output of the Apple to a videotape recorder and record the signal like any other video signal. Unfortunately, only the Apple IIGS produces a standard video signal and, therefore, the highest-quality tape. With other Apple II computers, the tape you record may not be editable or, at the worst, may lack color. The quality depends on your individual Apple and the tolerance of the VCR you are using. Keep your eyes on *A+* for an in-depth exploration of creating video with your Apple II.

Mixed Media

Some presentations benefit from mixed media: slides, video, audio, and so on, combined with computer-generated visuals. This field is specialized and, until recently, has required lots of custom programming. Brøderbund's ShowOff, a new presentation program, includes the ability to control devices through the Apple IIGS serial ports. With the proper connection devices, a presentation created in ShowOff can control a VCR, slide projector, audiotape player, video-disc player, or any other device.

Looking Ahead

Preparing computer-generated presentations usually requires using a few different graphics programs. It would be so much simpler if you could use one package to do it all. The ideal presentation program would allow you to create your presentation from start to end. With Apple's new emphasis on desktop presentations, we expect that many such programs will be available in the near future. Indeed, the future is now: We're happy to say that one such program is already here (see "The Future is Now: ShowOff," which accompanies this article).

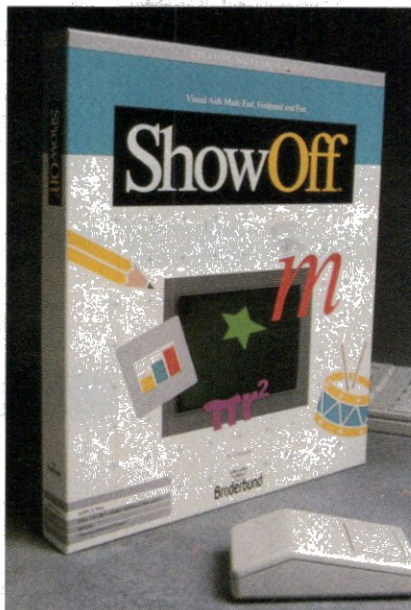
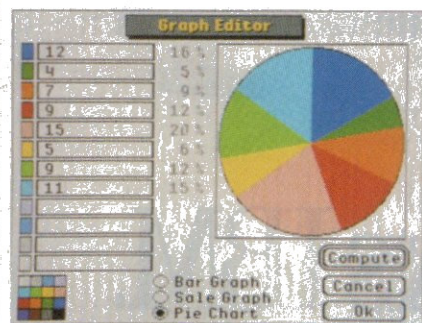
While most of the personal-computer market is just awakening to the potentials of desktop presentations, Apple II users have had the pieces in place for a long time. Let's show 'em what we can do. +

Roberta Schwartz and Michael Callery are the A+ graphics editors and the authors of our monthly "Speaking of Graphics" column.

The Future is Now: SHOWOFF

A new program from Brøderbund Software can make preparing super-hi-res presentations as easy as . . . well, you know. We've worked with a prerelease version of ShowOff, but, although we were impressed with what we saw, we must reserve final judgment until we receive the released product.

The work screen, where you create your slides, resembles a typical



draw-type program and, in fact, has a lot in common with such programs. ShowOff lets you place text and simple graphics elements (lines, boxes, circles, and so on) on the screen. You can combine these elements with graphics you bring in from The Print Shop and other paint programs. In addition, the program provides a library of impressive borders and graphics to enhance your visuals.

ShowOff's pull-down menus, graphics tools, and the Apple mouse make the creation of presentations virtually effortless. You can easily copy elements from slide to slide or create a template to achieve the consistency your presentation should have.

Once you've created your visuals, you go to the sequencer part of the program to sequence them into a full presentation. All you have to do is click, in the desired order, on the miniatures of your slides. You can add or delete screens at any time and resequence the order of your slides.

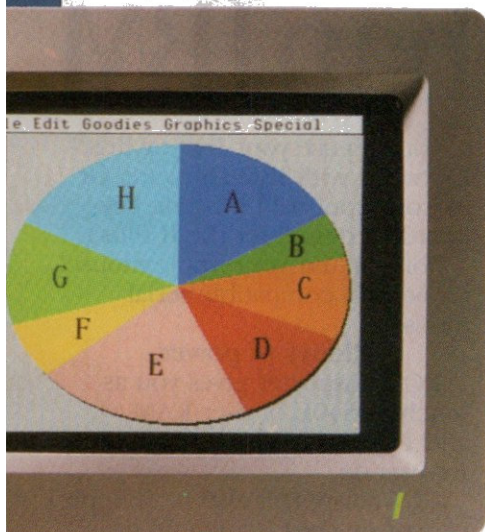
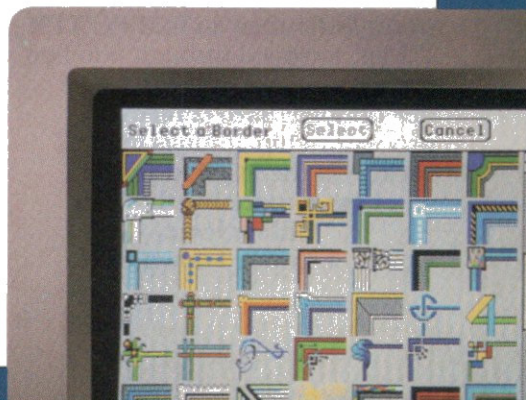
When you've previewed your presentation and are satisfied with your production, ShowOff creates a self-booting, self-running presentation disk. Your presentations can be quite elaborate, since you can specify branches based on key presses so that different users can

progress through the presentations differently, in an interactive manner. As we mentioned before, ShowOff can control 35 mm slide projectors, tape players, and other devices, using the Apple IIGS as a controller.

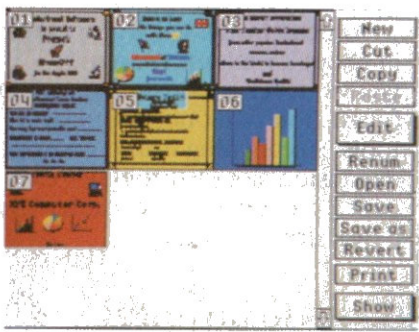
Incidentally, ShowOff also lets you create and print custom 3.5-inch disk labels for your presentation disks.



The Icon Editor (above) will customize graphics from a library of 380 images. Also included is a library of 144 borders (bottom).



The ShowOff Graph Editor (above) can create instant pie and bar charts. The sequencer (below) lets you edit the order of your presentation.





Now Apple speaks IBM. Three times faster than IBM.

**Introducing
PC Transporter.™**
The Apple® II expansion
board that lets you
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Now your Apple II can run over 10,000 programs you could never use before. Like Lotus® 1-2-3®, MultiMate®, dBASE III PLUS®, Even Flight Simulator®

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Plus, to speed through number-crunching tasks, you can use our optional 8087-2 math co-processor chip. It plugs into a socket on the PC Transporter.

Less expensive than an IBM clone.

Sure, a stripped-down IBM



clone costs about the same as the PC Transporter. But the peripherals it takes to get the clone up and running make the clone cost about three times what our American-made card costs.

You don't have to buy new hardware to use PC Transporter. **Works with the hardware you already own.**

With PC Transporter, MS-DOS programs see your Apple hardware as IBM hardware. You can use the same hardware you have now.

With IBM software, your Apple hardware works just like IBM hardware. Including your drives, monitors, printers, printer cards, clock cards and serial clocks.

You can use your Iie® or IIGS™ keyboard with IBM software. Or use our optional IBM-style keyboard (required for the II Plus).

You can use your Apple mouse. Or an IBM compatible serial mouse.

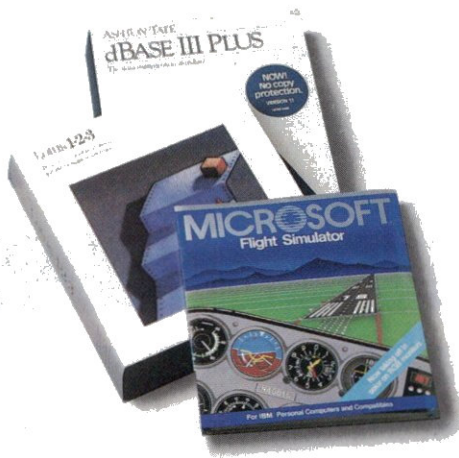
Plenty of power.

PC Transporter gives you as much as 640K of user RAM and 128K of system RAM in the IBM mode.

PC Transporter also is an Apple expansion card, adding up to 768K of extra RAM in the Apple mode. The Apple expansion alone is a \$300 value.

Easy to install.

You can install PC Transporter in about 15 minutes, even if you've never added an expansion board. You don't need special tools. Simply plug it into an Apple expansion slot (1 through 7 except 3), connect a few cables and a disk drive, and go!



PC Transporter taps into the world's largest software library. Now your Apple can run most of the IBM software you use at work. And it opens a new world of communications programs, games and bulletin boards.

A universal disk drive controller.

PC Transporter supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes. You'll shift instantly between Apple ProDOS and IBM MS-DOS.

You'll need our versatile 5.25" 360K drive system to run IBM applications from 5.25" floppy disks. Use your Apple 5.25" drive for Apple 5.25" disks.

An Apple Disk 3.5 Drive will support the new 3.5" disks whether they're IBM MS-DOS formatted or Apple ProDOS formatted. The PC Transporter acts like an Apple Disk 3.5 Drive disk controller for IIGS, IIe, and II Plus users.

PC Transporter supports up to 5 drives in a number of combinations.

For example, you can connect a 5.25 Applied Engineering 360K dual-drive system directly to the card. Then plug two daisy-chained Apple 3.5 Drives (not the Apple UniDisk 3.5) to the dual-drive system. For a fifth drive, use a ProDOS file as an IBM hard disk.

PC Transporter controls Apple and IBM compatible disk drives. It supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes.



Versatile data storage.

PC Transporter reads MS-DOS and translates it into Apple native ProDOS. You can store IBM programs and data on any ProDOS storage device including the Apple 3.5 Drive, Apple UniDisk™ 3.5, Apple 5.25" drive, SCSI or ProDOS compatible hard drives. (You can use the Apple UniDisk 3.5 with its own controller card for storing programs and data, but not for directly booting an IBM formatted disk.)

You can even use our 360K PC compatible drive for ProDOS

Make your Apple speak IBM.

PC Transporter memory choices.

RAM in Apple mode:	RAM in IBM mode:	Price:
384K	256K	\$489.00
512K	384K	529.00
640K	512K	569.00
768K	640K	609.00

Note: The IBM mode is 128K less because the PC Transporter uses 128K for system memory.

- IIGS Installation Kit** 49.00
- IIe/II Plus Installation Kit** 39.00
- PC Transporter Accessories**
- 5.25" IBM Format 360K Drive Systems**
- Single-Drive System** 269.00
- Dual-Drive System** 399.00
- Half-Height Drive** 135.00
(add to Single-Drive system to make Dual-Drive)
- IBM-Style Keyboard** 139.00
(required for Apple II Plus. Requires IBM Keyboard Cable.)
- IBM Keyboard Cable** 34.00
- Sony RGB Monitor** 499.00
- Analog RGB Cable** 39.00
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- Digital RGB Cable** 39.00
(for use with Sony monitor)
- Digital RGB Adapter** 24.00
- ColorSwitch** 44.00
(included with IIGS Installation Kit)
- 128K ZIP** 40.00
- PC Transporter Memory Expansion Chip Set** per set
- 8087-2 Math Co-processor Chip** 229.00
- Heavy Duty Power Supply** 69.00
(IIe and II Plus only)

See your dealer or call or send check or money order to Applied Engineering. MasterCard, VISA and COD welcome. Texas residents add 6¼% sales tax.



PC Transporter produces better IBM graphics than IBM. Analog is sharper than digital. So with an analog RGB monitor, PC Transporter's CGA graphics and text are superior to IBM's digital display — even while running IBM software!

And, you can also use an Apple composite monitor in IBM text or graphics mode.

storage and a 143K Apple 5.25" drive for MS-DOS storage.

Created by Apple's original designers.

The brains behind PC Transporter were also behind your Apple II.

The PC Transporter design team includes the former project managers for the creation of the Apple IIe and IIc. The co-designer of the Apple II disk controller. And the first full-time Apple programmer and author of the ProDOS operating system.

So you know the PC Transporter and your Apple were made for each other.

Support and service from the leader in Apple add-ons.

Applied Engineering sells more Apple peripheral boards than anyone else — including Apple Computer. So you know we'll be around after the sale.

PC Transporter comes with a 15-day money back guarantee. If you're not fully satisfied after using it, return it for a full refund. PC Transporter also comes with a 1-year warranty.

How to get your PC Transporter today.

See your dealer. Or call Applied Engineering any day between 9 a.m. and 11 p.m. CST at 214-241-6060.

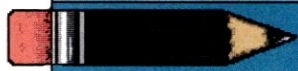
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PICTURE & CLIP-ART FORMATS FOR THE APPLE II

BY GARY LITTLE

This chart shows which graphic formats are understandable by the various graphics programs available for the Apple II. A "YES" means the program can both read and save the type of file indicated; an "RO"



	Print Shop Graphic	Newsroom Clip Art	Standard DHR	Beagle DHR (2xBIN)	Standard SHR
Print Shop	YES				
Graphic Library	YES				
Companion	YES				
Print Shop GS	YES				
PrintMaster Plus	YES				
Art Gallery	YES				
Minipix	YES				
Graphics Scrapbook	YES				
Newsroom		YES			
ClipCapture	YES	YES			YES
Graphic Edge	YES		YES		
Beagle Graphics			YES	YES	YES
Dazzle Draw			YES		RO
Fantavision					YES
Blazing Paddles					YES
Picture Manager			YES		YES
Graphics Magician				YES	YES
Beagle Screens				YES	YES
GraphMerge			RO		RO
Graphic Expander	YES				
Time Out Graph			YES		
Stretch-a-Sketch			YES		
ThunderScan			YES		YES
ComputerEyes IIe	YES ¹		YES	YES	YES
Visualizer IIe			YES		
IIGS SUPER HI RES	PNT file (aux 0)	PNT file (aux 1)	PNT file (aux 2)	PIC file (aux 0)	PICT Object (aux \$8000)
816/Paint	RO	YES	YES	YES	
Paintworks Plus	YES		YES	YES	
Clip Art Gallery	YES				
Postcards	YES				
DeluxePaint II			YES	RO	
Art Parts			YES		
Draw Plus				SO	
TopDraw	RO	RO	RO	RO	YES
Writer's Choice elite	RO			RO	
MultiScribe GS	RO	RO	RO	RO	RO
GraphicWriter				RO	
ThunderScan	YES		YES	YES	
AST Vision Plus				YES	
ComputerEyes GS				YES	
Visualizer GS				YES	

means the program can only read the type of file indicated; an "SO" means the program can only save the type of file indicated.

Other Formats

3-plane Print Shop Graphic

Graphic Edge Bit Map (\$20, aux 0)
Graphic Edge Object (\$1D, aux 0)

Sketch Art data file

Compressed binary file

Other Formats

Draw Plus file

Top Draw file (\$F6, aux 0)

GraphicWriter scrapboard
(\$F4, aux 0), FOT file (32000 bytes)

Special 12-bit/pixel binary file

MAJOR FILE FORMATS

SHR files

A standard SHR (single-hi-res) file is a \$2000-byte binary file, representing either graphics page 1 or page 2.

DHR files

A standard DHR (double-hi-res) file is a \$4000-byte binary file. The first \$2000 bytes represent the screen image in auxiliary memory; the second \$2000 bytes represent the screen image in main memory. A Beagle DHR file is actually two files—one contains the main memory image ("filename"), and the other contains the auxiliary memory image ("filename.aux").

PNT files

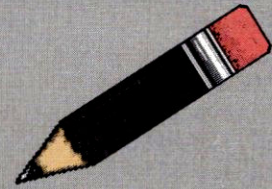
There are currently three types of PNT files (file-type code \$C0), distinguished by the auxiliary file-type code, each of which is a representation of the GS super-hi-res screen. Aux type \$00 is a special format Activision used in the first release of Paintworks Plus. Aux type \$01 is in "Eagle" compressed format (the 32K screen, scan-line control, and palette area are compressed by the PackBytes function). Aux type \$02 is the "Apple preferred" format, a format that is flexible enough to work with different image dimensions and resolutions.

PIC and PICT files

A PIC file (file-type code \$C1) with an auxiliary file-type code of 0 is essentially a snapshot of the 32K memory area the GS super-hi-res screen, scan-line control bytes, and color palettes use. The file is not compressed. If the auxiliary file-type code is \$8000, the file is referred to as a PICT file and contains a recording of the QuickDraw calls necessary to draw an object on the screen.



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



AlphaChart

Spectral Graphics
Software
6333 Pacific Ave., #2560
Stockton, CA 95207
(800) 826-2989
In CA (800) 231-7316

List Price: \$29.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; one 5¼-inch disk drive. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 373

Beagle Graphics

Beagle Bros
6215 Ferris Square
Suite 100
San Diego CA 92121
(619) 296-6400

List Price: \$59.95

Requires: Apple IIe, IIc, or IIGS; 128K RAM; one 5¼-inch disk drive. DOS 3.3 and ProDOS; not copy-protected.

CIRCLE READER SERVICE NO. 374

Blazing Paddles

Baudville
1001 Medical Park Drive, SE
Grand Rapids, MI 49506
(616) 957-3036

List Price: \$34.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; one 5¼-inch disk drive; mouse, joystick, paddles, Koala-Pad, or graphics tablet. DOS 3.3; copy-protected.

CIRCLE READER SERVICE NO. 375

Buick Dimension

Buick Distribution Center
c/o Adcom, Inc.
6845 Dix Street
Detroit, MI 48209

List Price: free

Requires: Apple IIe, IIc, or IIGS; 128K RAM; one 5¼-inch disk drive. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 376



The Complete Graphics System

Polarware
P.O. Box 311
Geneva, IL 60134
(312) 232-1984

List Price: \$39.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; one 5¼-inch disk drive. Apple graphics tablet, touch pad, or joystick.

CIRCLE READER SERVICE NO. 377

ComputerEyes

Digital Vision
66 Eastern Avenue
Dedham MA 02026
(800) 346-0099

List Price: \$129.95 (\$249.95 for IIGS super-hi-res version)

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM (512K for super-hi-res version); one 5¼-inch disk drive (3.5-inch for super-hi-res version); video camera or other video source. ProDOS; not copy-protected.

CIRCLE READER SERVICE NO. 378

CurvePlotter

Spectral Graphics Software
See address above

List Price: \$29.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; one 5¼-inch disk drive. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 379

Dazzle Draw

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 492-3500

List Price: \$59.95

Requires: Apple IIe, IIc, or IIGS; 128K RAM; one 5¼-inch disk drive; joystick, mouse, KoalaPad, or graphics tablet. ProDOS; copy-protected.

DeluxePaint II

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(800) 245-4525

List Price: \$99.95 (+\$20 for nonprotected version)

Requires: Apple IIGS, 768K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; copy-protected.

CIRCLE READER SERVICE NO. 380

Draw Plus

Activision
2350 Bayshore Parkway
Mountain View, CA 94043
(800) 227-9759

List Price: \$89.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; not copy-protected.

CIRCLE READER SERVICE NO. 381

Dukane MagniView 200

Dukane Corporation
AV Division
2900 Dukane Drive
St. Charles, IL 60174
(800) 634-2800

List Price: \$1195

Requires: Apple II Plus, IIe, IIc, or IIGS; composite video.

CIRCLE READER SERVICE NO. 382

Fontrix

Data Transforms
616 Washington Street,
Suite 106
Denver, CO 80203
(303) 832-1501

List Price: \$75

Requires: Apple II Plus, IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive; mouse, joystick, KoalaPad, or graphics tablet optional. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 383

The Graphics Department

Sensible Software
335 East Big Beaver #207
Troy, MI 48083
(313) 528-1950

List Price: \$129.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive; mouse, joystick, KoalaPad, or graphics tablet optional. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 384

GraphicWriter

Data Pak Software
14011 Ventura Blvd. #507
Sherman Oaks, CA 91423
(818) 905-6419

List Price: \$149.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; copy-protected.

CIRCLE READER SERVICE NO. 385

Koala Graphics Exhibitor

Koala Technologies
269 Mt. Herman Road
Scotts Valley, CA 95066
(408) 438-0946

List Price: \$49.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive; Koala-Pad. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 386

Magnabyte Electronic Imager

Telex Communications, Inc.
9600 Aldrich Avenue
South
Minneapolis, MN 55420
(800) 328-5727 ext. 8812
In MN (800) 742-5685
ext. 8812

List Price: \$1292

Requires: Apple II Plus, IIe, or IIGS.

CIRCLE READER SERVICE NO. 387

MultiScribe GS

StyleWare
5250 Gulfton, Suite 2E
Houston, TX 77081
(713) 668-1360

List Price: \$99.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; not copy-protected.

CIRCLE READER SERVICE NO. 388

Paintworks Plus

Activision
See address above

List Price: \$89.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; not copy-protected.

CIRCLE READER SERVICE NO. 389

Polaroid Palette

Polaroid Corporation
575 Technology Square
Cambridge, MA 02139
(617) 769-6800

List Price: \$1799

Requires: Apple II Plus, IIe, or IIGS; 48K RAM. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 390

The Print Shop

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 492-3500

List Price: \$59.95

Requires: Apple II Plus with Language Card, IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive; dot-matrix printer. DOS 3.3; copy-protected.

The Printographer

Roger Wagner Publishing, Inc.
1050 Pioneer Way, Suite P
El Cajon, CA 92020
(619) 442-0522

List Price: \$39.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; 5¼-inch disk drive; dot-matrix printer. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 392

ShowOff

Brøderbund Software
See address above

List Price: \$59.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive. ProDOS 16; copy-protected.

3DChart

Spectral Graphics Software
See address above.

List Price: \$29.95

Requires: Apple II Plus, IIe, IIc, or IIGS; 48K RAM; one 5¼-inch disk drive. DOS 3.3; not copy-protected.

CIRCLE READER SERVICE NO. 393

ThunderScan for the Apple II

ThunderWare
21 Orinda Way
Orinda, CA 94563
(415) 254-6581

List Price: \$219

Requires: Apple IIe, IIc, or IIGS; 128K RAM; one 5¼-inch disk drive, Image-Writer.

CIRCLE READER SERVICE NO. 394

Top Draw

StyleWare

List Price: \$89.95

Requires: Apple IIGS, 512K RAM, one 3.5-inch disk drive, mouse. ProDOS 16; not copy-protected.

CIRCLE READER SERVICE NO. 396

Triple Dump

Beagle Bros
See address above

List Price: \$39.95

Requires: Apple IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive; dot-matrix printer. DOS 3.3 and ProDOS; not copy-protected.

CIRCLE READER SERVICE NO. 397

Visualizer

PBI Software
4463 Triton Drive
Foster City, CA 94404
(415) 349-8765

List Price: \$89.95 (IIe/IIc), \$99.95 (IIGS)

Requires: Apple IIe, IIc, or IIGS; 128K RAM (512K for IIGS version); one 5¼-inch disk drive (3.5-inch for GS version); mouse for IIGS version. ProDOS; not copy-protected.

CIRCLE READER SERVICE NO. 398

AST Vision Plus

AST Research
2121 Alton Avenue
Irvine, CA 92714
(714) 553-0340

List Price: \$295

Requires: Apple IIGS; 512K RAM; one 3.5-inch disk drive; mouse; video camera or other video source. ProDOS 16; not copy-protected.

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Accolade Mean 18 (IIGS) or Hardball (IIGS)	27.	World Games, World Games (IIGS) or Destroyer (IIGS)	26.
Famous Course Disk Vol. 2	12.	Sub Battle Simulator (IIGS) or Winter Games (IIGS)	26.
Famous Course Disk Vol. 3 & 4	22.	The Movie Monster Game	15.
Dam Busters, Fight Night, Accolade Comics or Hard Ball Killed Until Dead	22.	World's Greatest Baseball Game or Football Game	15.
Activation Aliens	31.	Firebird Licensees, Inc. Elite	24.
GBA Championship Basketball (IIGS)	27.	Guid of Thieves	28.
GFL Championship Football	27.	The Pawn	31.
Hacker II or Hacker II (IIGS)	27.	Hayden Software Sargon III	15.
Might & Magic	34.	Infocom	
Portal or Shanghai (IIGS)	30.	Bureaucracy, Hitchhiker's Guide, Hollywood Hyjinx, Leather Goddesses Of Phobos, Nord & Bert, Plundered Hearts, Stationfall, The Lurking Horror, or Zork I (each)	27.
Star Rank Boxing II	28.	Beyond Zork (II+, IIe, IIc)	34.
Tass Times In Tonetown (IIGS) or Maniac Mansion	24.	Beyond Zork (IIGS)	34.
Top Fuel Eliminator	21.	The Zork Trilogy	46.
Artworx Artworx Bridge 5.0	21.	Micro League Sports Micro League Baseball	27.
Broderbund		General Manager/Owner Disk	27.
Airheart or Wings of Fury (IIe, IIC, IIGS)	24.	Microprose F-15 Strike Eagle or Silent Service	23.
Championship Lode Runner or Karateka	24.	Mindscape	
Ultima IV or Ultima V	42.	Defender of the Crown (Apple IIGS)	32.
Autoduel	34.	Balance of Power	27.
Mobius	42.	Sub Mission	27.
Data East Karate Champ or Kung Fu Master	15.	Super Ice Hockey	28.
Tag Team Wrestling or Commando	24.	Sinbad, S.D.I. or King of Chicago (IIGS)	32.
DataSoft/Electronic Arts		Indoor Sports, Uridium, or Xevious	21.
Alternate Reality "The City"	22.	Infiltrator or Bop "n" Wrestle	21.
Bruce Lee, The Goonies, or Zorro	18.	One Step Software	
Electronic Arts		Golf's Best Pinehurst or St. Andrews	15.
Bard's Tale (IIGS), Instant Music (IIGS), or Music Construction Set (IIGS) (each)	39.	PBI Software The Tower of Myrarglen (IIGS)	34.
Bard's Tale II, Carriers At War, Europe Abaze or Starfleet I (each)	34.	Strategic Conquest II or Cavern Cobra (IIGS)	31.
Amnesia, Bard's Tale, or Robot Rascals (each)	32.	Sea Strike (IIGS)	25.
Alternate Reality: The Dungeon, Arctic Fox, Battlefront, Battles in Normandy, ChessMaster 2000, Legacy of the Ancients, Mavis Beacon Typing, Russia The Great War, Scrabble, PHM Pegasus or World Tour Golf (IIGS) (each)	29.	Randam House APBA Major League Baseball	41.
EOS: Earth Orbit Station, Bismark, Strike Fleet, or Marble Madness (each)	25.	Sierra On-Line	
Dark Lord or Force 7	16.	Space Quest or Space Quest (IIGS)	34.
Adventure Construction Set, Lords of Conquest, Make Your Own Murder Party, or Realm of Impossibility (each)	12.	Championship Boxing	24.
EPYX Championship Karate	21.	Kings Quest I, II, or III (APII or IIGS Ver.)	27.
California Games (IIe or IIGS Version)	26.	Leisure Suit Larry (IIGS)	34.
Championship Wrestling or Destroyer	26.	Thehexer (IIGS)	24.
Rad Warrior	18.	The Black Cauldron	27.
Summer Games II or Winter Games	16.	3-D Helicopter Simulation (IIGS)	34.
Sub Battle Simulator or Omnicron Conspiracy	26.	Simon & Schuster	
		Star Trek (Kobayashi Alternative)	27.
		Star Trek (The Promethean Prophecy)	27.
		Sir-Tech Wizardry	32.
		Knight of Diamonds	32.
		Legacy of Lyligamyn	32.
		Deep Space-Operation Copernicus	27.
		Spectrum Holobyte Gato	12.

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Intrigue or Lunar Explorer	18.	Battle of Antientum or Chickamunga	31.
Orbiter (IIGS) or Wilderness	31.	Gemstone Healer	24.
Strategic Simulations		War in Russia	55.
Battle For Normandy, BroadSides, Colonial Conquest, Gemstone Warrior, Geopolitique 1990, Imperium Galactum, NAM, Phantasia II, Phantasia III, Rails West, Ring's of Zilfin, Roadwar 2000, Realms of Darkness, Roadwar Europa, Shard of Spring, The Eternal Dagger, or Wizard's Crown (each)	28.	Sublogic Flight Simulator II Jet	36.
		Scenery Disks 1-3 (ea)	30.
		Baseball	16.
			38.

Utilities & Languages

Apple Computer Apple II Instant Pascal	119.	Merlin 8/16 (II+, IIe, IIC, IIGS)	79.
Apple Pascal V1.3	215.	Merlin Assembler	44.
Beagle Brothers		Merlin Combo Pack	69.
Beagle Screens, Big U, MacroWorks, or Pro-Byter (each)	21.	The Byte Works ORCA/Pascal (IIGS)	89.
Beagle Compiler	46.	ORCA/M 4.1	72.
Beagle G.P.L.E. or Super MacroWorks	31.	ORCA/M GS	34.
D-Code, Extra K, Power Print or Triple Dump (each)	25.	The Software Touch AutoWorks or Fontworks	34.
Borland Turbo Pascal 3.0 (Req. CP/M)	47.	Program Writer	49.
Turbo Database Tool Box	23.	Font Disk #1 for FontWorks	29.
Turbo Tutor	47.	TML Systems TML Basic for the GS	80.
Funk Software Sideways Prodos & Dos 3.3	47.	TML Pascal for the GS	35.
Roger Wagner SoftSwitch (IIGS)	40.	TML Source Code Library for the GS	49.
		TML Speech Toolkit	49.
		TML Pascal APW	89.

Graphics Packages

Accolade Graphics Studio (IIGS)	42.	DataPak Graphicwriter IIGS	99.
Activation Draw Plus (Not Protected IIGS)	59.	Data Transforms Fontrix 1.5	62.
Paint/Write/Draw (Not Protected IIGS)	115.	Printrix 1.0	47.
Clip Art Gallery (Req. PaintWorks Plus IIGS)	21.	Font Paks 1-15 ea.	14.
Gary Kitchen's Game Maker	34.	Electronic Arts Movie Maker	12.
GameMaker "Designer's Library" Sports	18.	Deluxe Paint II (IIGS)	79.
GameMaker "Designer's Library" Sci-Fi	18.	Video Title Shop	23.
PaintWorks Plus (Not Protected IIGS)	59.	Art Parts I, Art Parts II or Seasons & Holidays (IIGS)	26.
Postcards (IIe & IIc)	24.	EPYX Printmagic	41.
Music Studio (IIGS)	59.	Graphics Scrapbook Chapter #1, #2, or #3	17.
Greeting Card Maker	28.	Create-A-Calendar	21.
Bantam Software		Intracorp Business Card Maker	36.
Walt Disney Card & Party Shop	27.	The Video Wizard	36.
Walt Disney Comic Strip Maker	27.	PBI Software Visualizer IIGS	59.
Baudville 816/Paint (Works On All Apples)	46.	Visualizer II	55.
Award Maker Plus	24.	Scholastic SuperPrint (IIGS)	31.
Take I Deluxe	36.	Spinnaker T-Shirt Shop	32.
Beagle Brothers Beagle Graphics	19.	T-Shirt Shop Graphics	15.
Mimipix Disk #1, #2 or #3 (each)	36.	Springboard	
Shape Mechanic	25.	Springboard Publisher (IIe, IIC, IIGS)	79.
Broderbund Toy Shop	34.	Newsroom	35.
Toy Shop Refill	31.	Certificate Maker	26.
Animate	45.	Certificate Maker Library #1	20.
Dazzle Draw	39.	Fonts For Springboard Publisher	26.
Drawing Table (IIGS)	62.	Newsroom Clip Art Collection Vol. 1 or 3	18.
Print Shop Enhanced or Fantavision	32.	Newsroom Clip Art Collection Vol. 2	25.
Print Shop (IIGS) or Fantavision (IIGS)	42.	Graphics Expander Vol. 1 or Laser Drivers	25.
Print Shop Companion	25.	Style Sheets/Newletters	19.
Print Shop Graphics Library 1, II, III or Holiday Ed.	16.	Works of Art Education, Holidays or Assortment (each)	26.
Print Shop Paper Refill	14.	StyleWare, Inc. TopDraw (IIGS)	59.
Show Off (IIGS)	42.	Unison World Printmaster Plus	31.
		Art Gallery I or Art Gallery II	19.

Communication Software

Checkmate Technology		Softronics	
ProTerm (IIGS, IIe, IIC)	79.	Softern 2	159.
Compuserve Compuserve Starter Kit	24.	United Software Industries	
Pinpoint Point To Point	79.	ASCII: Express Pro: Prodos or Dos 3.3	75.
PBI Software Commworks (IIe & IIc)	65.	ASCII: Express Mousetalk	59.

Business Software

Activision		Pinpoint Publishing	
Writer's Choice Elite (Not Protected IIGS)	62.	Pinpoint IIGS Starter Kit	89.
List Manager (Merges w/Writer's Choice IIGS)	62.	Pinpoint	49.
Advanced Logic Systems SpellWorks	31.	PinPoint Spelling Checker	45.
Apple Apple Works (IIe, IIC, IIGS)	215.	PinPoint Document Checker	45.
Apple Writer II 2.0 ProDos (IIe, IIC)	125.	PinPoint Speller/Document Checker Combo	61.
Beagle Brothers Timeout Graph	55.	PinPoint Toolkit	39.
Timeout SuperFonts	49.	Infomerge	39.
Timeout QuickSpell	45.	Key Player	31.
Timeout UltraMacros	37.	RunRun	31.
Timeout SideSpread, FileMaster, or DeskTools	32.	Command.Com	39.
BPI Systems		Graphics Edge	56.
(Accounting Systems for the IIe, IIC & IIGS)		Pinpoint IIGS Upgrade Kit	19.
List General Accounting ProDos	159.	PinPoint Ram Enhancement	19.
BPI AR/AP or Inventory ProDos (ea.)	159.	PinPoint Mode Enhancement	19.
BPI Payroll ProDos	159.	PROFILER 3.0	74.
Broderbund On Balance	65.	Random House	
Bank Street Writer Plus	54.	I/Write (IIe, IIC, IIGS)	54.
Computer Associates SuperCalc 3a	129.	I/File	54.
Dac Software Dac-Easy Accounting	69.	Roger Wagner Publishing	
Datapak Notes & Files (IIGS)	79.	Mouse Write (IIe, IIC, IIGS)	89.
DHA Systems Software FastPak Mail	42.	Scholastic Talking Text Writer (IIGS)	149.
Intuit Quicken	35.	Sensible Software	
Manzanita BusinessWorks		Sensible Grammar ProDos (3.5" & 5.25")	59.
System Manager (Required)	65.	Sensible Speller-Dos or ProDos w/3.5 & 5.25"	69.
GL/AR/AP or Inventory Control	239.	Sensible Writer (3.5" & 5.25")	59.
Payroll Module	239.	Sierra On-Line Smart Money	54.
MECA		Homeward Plus (I28K) w/Speller	45.
Managing Your Money 2.0 (IIe, IIC, IIGS)	99.	Simon & Schuster	
Megahaus MegaWorks or ThinkWorks	38.	Real Estate Investment Management	69.
Monogram Dollars and Sense (IIe, IIC or IIGS)	75.	Webster's Spelling Checker (ProDos)	39.
Nolo Press Will Writer (Version 2.0)	75.	Sir-Tech Software, Inc.	
Peachtree Back To Basics		The Clan Practical Accountant	55.
Accounting System: GL/AR/AP	135.		

Phenomenal Prices...

Software Publishing

All Programs for <i>Ile</i> with 128K or <i>Ile</i>	
PFS: File/Report/Plan/Write	129.
PFS: Graph	66.
PFS: Report Bundle	66.
PFS: Write w/Speller	66.
Softwood GS File	62.
StyleWare, Inc.	
Multiscribe 3.0 w/Speller (128K <i>Ile</i> or <i>Ile</i>)	52.
Multiscribe GS (Apple <i>IIGS</i>)	65.

Educational Software

Activision Term Paper Writer	34.
Barron's Computer SAT Revised Version	28.
Baudville Guitar Wizard	19.
Ted Bear Discovers...Rainy Day Games	19.
Broderbund	
Science Tool Kit Master Module	45.
Science Tool Kit Module I or II	26.
Type!	30.
Variable Feasts	35.
Where in the World is Carmen Sandiego?	29.
Where in the USA is Carmen Sandiego?	29.
Davidson & Associates	
Alge-Blaster, Classmate or Math Blaster Plus	29.
Grammar Gremlins or Read 'N' Roll	29.
Homeworker	54.
Speed Reader II	40.
Spell-It or Word Attack!	29.
Math & Me	25.
Designware Grammar Examiner	25.
Remember/SAT Bundle or	
W.O.R.K. At Home	31.
Stelloper or Math Maze	25.
Spells & Traits or Mission Algebra	25.
The Body Transparent	31.
First Byte/Electronic Arts	
Mathtalk, Kidtalk, First Shapes, Speller	
Bee, or Smoothtalker (<i>IIGS</i>) (each)	36.
Mathtalk Fractions or First	
Letters & Words (<i>IIGS</i>)	36.
Great Wave Kidstime II (<i>IIGS</i>)	24.
Harcourt, Brace, Jovanovich Computer SAT	27.
Hayes Project Space Station	24.
Learning Company Reader Rabbit (<i>IIGS</i>)	32.
Think Quick (<i>IIGS</i>) or Writer Rabbit	32.
Bumble Plot, Reader Rabbit or Magic Spells	26.
Gertrude's Fuzzies or Secrets	30.
Word Spinner	23.
Math Rabbit	26.
Moptown Hotel, Parade, or Number Stumper	26.
Robot Odyssey I or Rocky's Boots	32.

Modems

Anchor Automation	
Signalman Express 1200	185.
Signalman Lightning 2400	299.
Applied Engineering	
DataLink Modem (300/1200 Baud	
Internal Modem <i>Ile</i> , <i>Ile</i> , <i>IIGS</i>)	179.
Hayes Hayes Micromodem <i>Ile</i> (Internal)	159.
Hayes Smartmodem 1200A (Internal)	275.
Hayes 300 Baud Smartmodem	
<i>Ile</i> w/Smartcom I	189.
Hayes 300 Baud Smartmodem	159.
Hayes 1200 Baud Smartmodem	299.
Hayes 2400 Baud Smartmodem	449.

Accelerators/Ramcards/Z-80/80 Column Cards

Advanced Logic Systems	
Add-Ram 80/64	54.
Apple Computer	
Apple <i>Ile</i> Extended 80 Col. Card	89.
Apple <i>Ile</i> Enhancement Kit	49.
Applied Engineering	
RamWorks III (64K to 3 MB)	Call
RamWorks Expander 512K or 2M Ver.	Call
2 Meg Plus RamWorks Expander (1 or 2M)	Call
RamFactor (256K to 1MB)	Call
Z-RAM Ultra I (256K or 512K)	Call
Z-RAM Ultra 2 or 3 (256K to 1Meg)	Call
GS-RAM (256K to 1.5Meg)	Call
GS-Ram Plus (1MB to 6MB)	Call
Phasor (<i>Ile</i> , <i>Ile</i> , and <i>IIGS</i>)	139.
TransWarp Accelerator (<i>Ile</i> and <i>Ile</i>)	219.
ViewMaster 80 (<i>Ile</i>)	119.
Z-80 Plus (<i>Ile</i> , <i>Ile</i> , <i>IIGS</i>)	119.

Printer Interface Cards

Apple Apple Super Serial Card	119.
Applied Engineering	
Serial Pro (<i>Ile</i> , <i>Ile</i> , <i>IIGS</i>)	135.
Apricorn Apricorn <i>Ile</i>	59.
Super Serial Card	79.
Orange Micro	
Pro Grappler (Apple <i>Ile</i> or <i>IIGS</i>)	79.
Serial Grappler Plus	61.
Grappler C/Mac/GS	65.
Hot Link	54.

Clock/Calendar Peripherals

Applied Engineering TimeMaster H.O.	79.
<i>Ile</i> System Clock	55.

Picture Manager or Desk Accessories	27.
Multiscribe Spell Checker	27.
Multiscribe Fontpaks 1-8 (each)	15.
VIP Software	
VIP Professional	
(Apple <i>Ile</i> or Enhanced <i>Ile</i>)	159.
VIP Professional (<i>IIGS</i> Version)	179.
Word Perfect Corporation	
WordPerfect V1.1 w/Speller (<i>Ile</i> & <i>Ile</i>)	89.
WordPerfect (Apple <i>IIGS</i>)	89.

Mindscape Crossword Magic,	
Drug Alert, or Brainstorms	34.
Perfect Score SAT	48.
Principal's Assistant	42.
Multibotic Robotic Workshop	119.
Peachtree/Eduware Algebra 1, 2, 3, or 4	25.
Algebra 5 & 6	31.
Decimals or Fractions	25.
Compu-Read (<i>Ile</i> 3.0)	18.
Introduction to Counting	25.
PSAT or SAT Word Attack Skills	25.
Writing Skills 1, 2, 3, 4 or 5	25.
PinPoint Micro Cookbook (<i>Ile</i> or <i>Ile</i>)	29.
Ron Appetit	37.
Band House Charlie Brown's ABC's	21.
Charlie Brown Typing is a Ball	21.
Garfield Double Dares	21.
Garfield Eat Your Words	21.
Snoopy Writer	21.
Simon & Schuster	
Lovejoy's Preparation for SAT	41.
Speed Reading Tutor IV (<i>Ile</i> or <i>IIGS</i> Ver.)	34.
Typing Tutor IV (<i>Ile</i> , <i>Ile</i> , or <i>IIGS</i>)	25.
Spinmaker Kindercomp Gold	29.
Homework Helpers Writing or Math (<i>IIGS</i>)	32.
Typing Made Easy	32.
Facemaker: Golden Edition	27.
Kidwriter	27.
Kindercomp, Kids on Keys or Alphabet Zoo	21.
Terrapin Enhanced Terrapin Logo V3.0	69.
Weekly Reader	
Stickybear Series: Sticky Bear ABC, Car	
Builder, Codes & Cyphers, Basic, Drawing,	
Math I, Math II, Math Word Problems,	
Music, Music Library, Numbers, Opposites,	
Parts of Speech, Pic. Builder, Picture	
Printer Library I, Printer, Reading, Reading	
Comprehension, Shapes, Spellgrabber,	
Typing, Townbuilder, Word Problems	
or Writer (each)	25.

Prometheus Pro Modem 1200 (External)	239.
ProModem 1200G (Non Expandable)	169.
Pro Modem 2400 (External)	309.
Pro Modem 2400G (Non Expandable)	229.
Pro Modem 1200A (Single Card)	189.
Pro Modem 300c	89.
Communications Buffer (2K Exp. to 512K)	105.
Alphanumeric Display	72.
U.S. Robotics U.S. Robotics Sportster 1200	119.
U.S. Robotics Courier 1200	199.
U.S. Robotics Courier 2400	349.
U.S. Robotics Courier 2400E	409.
U.S. Robotics Courier HST 9600	689.

AST Research	
Ramstack Plus <i>IIGS</i> (256K Exp. to 1MB)	105.
MDIdeas, Inc. OctoRam 256k	
(8Mb RamCard w/256k Installed)	129.
OctoRam 1 Meg (8Mb RamCard	
w/1 MB Installed)	279.
OctoRam 2 Meg (8Mb RamCard	
w/2 MB Installed)	479.
OctoRam SIMM Module Upgrade	
(256k SIMMs)	69.
OctoRam ESP 128K (Extended	
Static Ram w/256k)	149.
OctoRam ESP 512K (Extended	
Static Ram w/512k)	299.
OctoRam ESP Upgrade 64k (64k Static Ram)	35.
Micro Sci Micro Sci 80/64e	55.
Orange Micro Rampak 4GS	
(512K Exp. to 4MB w/Utilities)	149.

Thirdware	
Finger Print GSi	
(Includes Desktop Accessories - <i>IIGS</i>)	69.
Finger Print Plus	
(Specify Cables: Parallel, Serial or	
ImageWriter II- <i>Ile</i> & <i>Ile</i>)	89.
FingerPrint <i>Ile</i> (Specify Internal	
or External Version)	79.
Finger Print G+ (With Parallel	
Cable <i>Ile</i> , <i>Ile</i> , <i>IIGS</i>)	55.

SMT No Slot Clock (<i>Ile</i> & <i>Ile</i>)	42.
Thunderware Thunderclock Plus	119.

Accessories

Kensington System Saver (Platinum or Beige)	65.
Kensington System Saver <i>IIGS</i>	69.
Conservor (<i>IIGS</i> Switched Surge	
Suppressor w/Fan)	119.
Juice Box (<i>IIGS</i> Switched Surge	
Suppressor w/Fan)	29.
Curtis Diamond	36.
Curtis Emerald	36.
Curtis Ruby	54.
Curtis Sapphire	47.
A+ Mouse (<i>Ile</i>)	69.
A+ ADB Mouse (<i>IIGS</i>)	89.
Apple Mouse <i>Ile</i>	125.
Apple Mouse <i>Ile</i>	89.
Thunderscan Apple (<i>IIGS</i> , <i>Ile</i> , and <i>Ile</i>)	179.

AST-VisionPlus Digitizer (<i>IIGS</i>)	219.
SuperSonic (Stereo Card for <i>IIGS</i>)	52.
SuperSonic Digitizer (<i>IIGS</i>)	52.
Hayes Mach II Joystick (Beige or Platinum)	29.
Hayes Mach III Joystick (Beige or Platinum)	37.
Hayes Flight Stick	32.
Kraft Universal 3 Button	54.
Joystick (<i>Ile</i> , <i>Ile</i> , <i>Ile</i>)	37.
Koala Pad Plus w/Graphics Exhibitor	84.
Echo IIB Speech Synthesizer (<i>Ile</i> , <i>Ile</i> , <i>IIGS</i>)	109.
The Cricket <i>Ile</i>	129.
ImageWriter Ribbon-Black	4.50
ImageWriter Ribbon-Color	5.
ImageWriter II - 4 Color Ribbon	12.
ImageWriter Rainbow Pk. (6 Colors)	27.

Blank Media

5 1/4" Blank Diskettes	
BASF 5.25" SS/DD (box of 10)	8.
Verbatim 5.25" SS/DD (box of 10)	10.
Sony 5.25" SS/DD (box of 10)	9.
Maxell 5.25" SS/DD (box of 10)	10.
3M 5.25" SS/DD (box of 10)	11.
3 1/2" Blank Diskettes	
BASF 3.5" DS/DD (box of 5)	9.

Bulk (Sony) 3 1/2" DS/DD (box of 10)	16.
Centech 3 1/2" DS/DD Color Disks (box of 10)	19.
Sony 3.5" DS/DD (box of 10)	19.
Fuji 3.5" DS/DD (box of 10)	20.
Maxell 3.5" DS/DD (box of 10)	20.
Verbatim DS/DD (box of 10)	20.
3M 3.5" DS/DD (box of 10)	21.
C. Itoh 3.5" DS/DD Color Disks (box of 10)	25.

Printers

Brother M-1109AP ImageWriter Comp.	269.
M-1409 (180cps Dot Matrix NLQ) 10"	349.
M-1509 (180cps Dot Matrix NLQ) 15"	389.
HR-20 (20cps Daisywheel	359.
HR-40 (35cps Daisywheel	599.
TwinWriter 5	799.
Epson LX-86/LX-800	Call
FX-86e	Call For
FX-286e	Most
LQ-800/1000	Recent
LQ-800/1000	Low/Low!
LQ-2500	Prices
Okidata Okimate 20 Color Printer	139.
Microline 182P (120cps Dot Matrix 10")	249.
Microline 192Plus (200cps Dot Matrix 10")	339.
Microline 193Plus (200cps Dot Matrix 15")	489.

Microline 292P (240cps Dot Matrix 10")	539.
Microline 293P (240cps Dot Matrix 15")	639.
Panasonic	
KXP-1080AP (100 cps)	249.
ImageWriter Compatible	
KXP-1080I/M2 (144 cps) NLQ Mode	199.
KXP-1091I/M2 (192 cps) NLQ Mode	209.
KXP-1092I (240 cps) NLQ Mode	329.
KXP-1592 (180 cps) NLQ Mode	429.
KXP-1595 (240 cps) NLQ Mode	469.
KXP-3131 (17 cps) Daisywheel	279.
KXP-3151 (22 cps) Daisywheel	439.
Star Micronics	
NX-10 (120cps Dot Matrix/NLQ 10")	189.
NX-15 (120cps Dot Matrix/NLQ 15")	339.
NP-10 (100cps Dot Matrix/NLQ 10")	189.

Disk Drives & Hard Disk SubSystems

American Micro Research (Micro Sci)	
A5 D Half Height 5 1/4" Drive (<i>IIGS</i>)	149.
A2 Full Height (<i>Ile</i> & <i>Ile</i>)	149.
A5 Slimline (<i>Ile</i> & <i>Ile</i>)	139.
A5 Slimline <i>Ile</i>	139.
Micro Sci C2 Controller	52.
Central Point Software	
Mix and Match 5 1/4" & 3 1/2" Drives:	
Universal Disk Controller	79.
Central Point 800KB Drive	185.
Universal Disk Controller/800KB	
Drive Bundle	259.
First Class Peripherals	
Sider 20MB Hard Drive	549.
Sider 40MB Hard Drive	839.
B-Sider 60MB Tape Backup	839.
Blank Tape 5 Pack	65.

Revision D (Chip/Software for CP/M)	52.
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The Apple II has always been noted for its graphics, adding color and high-resolution images to personal computing when most system designers saw those features as mere amusements. The Apple logo itself—color bars on a bitten apple—stands as a testimony to that early strength. When the Macintosh appeared in 1984, with its mouse and built-in graphics routines, graphics were again a hallmark of a new Apple system. Some people were unpleasantly surprised that they had to sacrifice color to gain the other advantages of the Mac, however.

The II family has attracted its share of painting and drawing pro-

grams, and the like. I may stick to my Mac for serious drafting, but the colors on my GS make it my favorite for presentations and plain fun.

Fraternal Twins

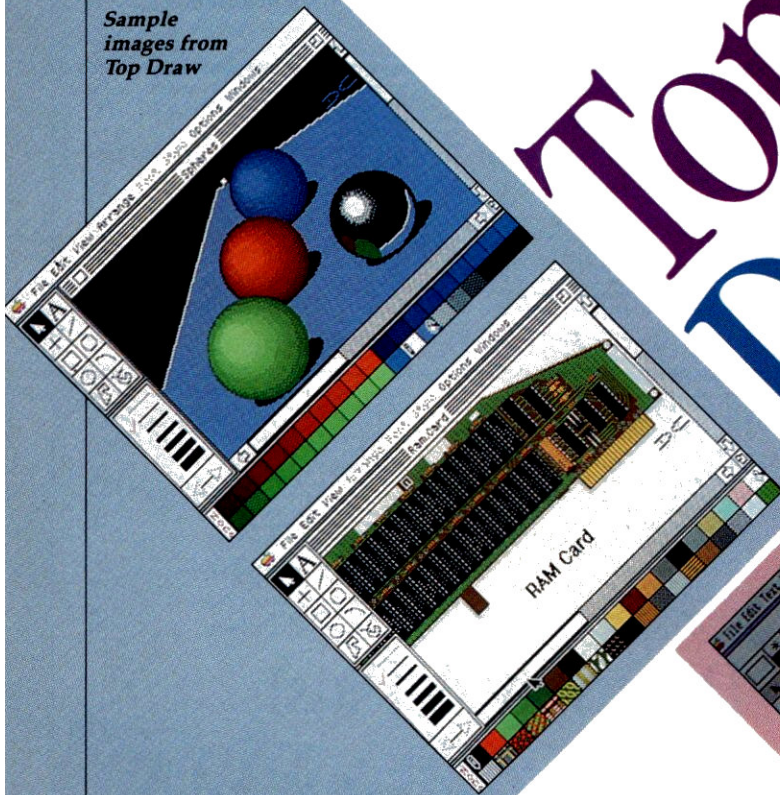
When you first run TopDraw and Draw Plus, they are amazingly similar, from their identical prices to their specifications. Both are ProDOS 16-based, and both set up a Macintosh/MacPaint-style display for drawing. In fact, they are so similar that if you learn to use one, you will be immediately able to use the other, with only a little reorientation for changed menu po-

IIgs UPDATE BY PHILLIP ROBINSON

TopDraw & Draw Plus

Two new drawing programs for the Apple IIgs

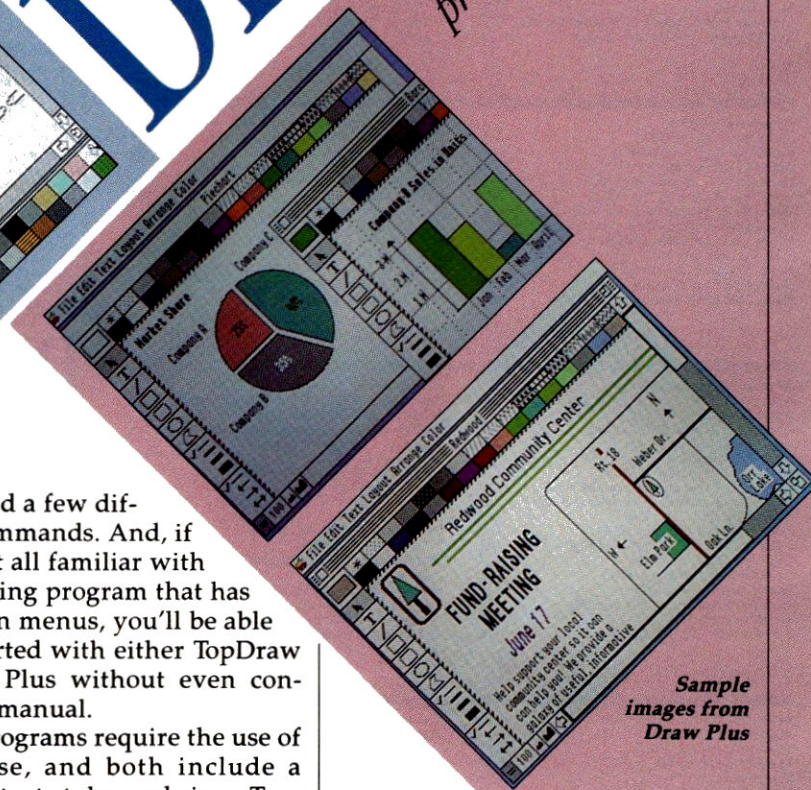
Sample images from Top Draw



grams, and even a few elementary CAD (computer-aided design) programs. Recently, the first IIgs drawing programs reached the market, packages that take advantage of the mouse, the punch of the new processor, and the color-graphics gift of the GS. The two I looked at, StyleWare's TopDraw and Activision's Draw Plus, don't reach the level of professional CAD—they lack the precision, speed, plotter support, and file interchange that CAD implies—but they are simple and inexpensive tools for drawing colorful two-dimensional forms, floor plans, lo-

sitions and a few different commands. And, if you are at all familiar with any drawing program that has pull-down menus, you'll be able to get started with either TopDraw or Draw Plus without even consulting a manual.

Both programs require the use of the mouse, and both include a bunch of text styles and sizes; TopDraw has the selections out in the open on a pair of pull-down menus, whereas Draw Plus buries them in a cramped dialog box. Both programs produce color copy on an ImageWriter II and sharp black-

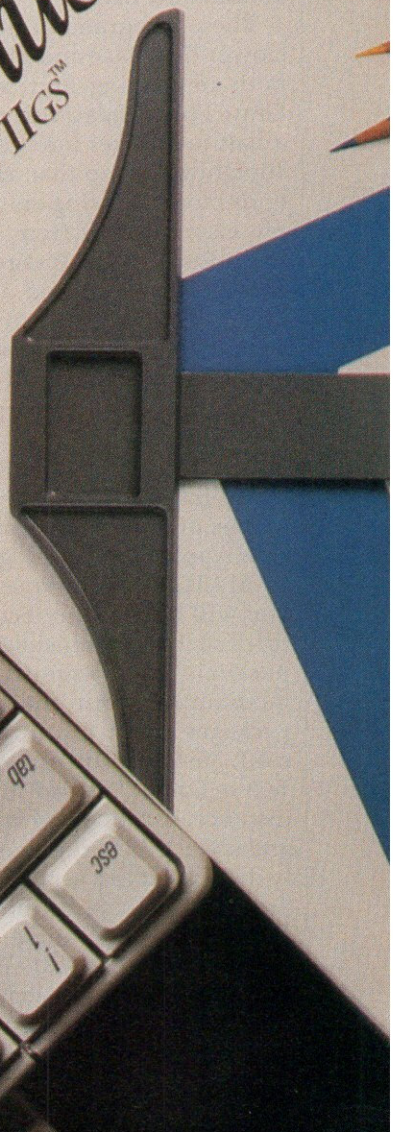


Sample images from Draw Plus

StyleWare TopDraw™



Draw Plus™
for the Apple II GS™



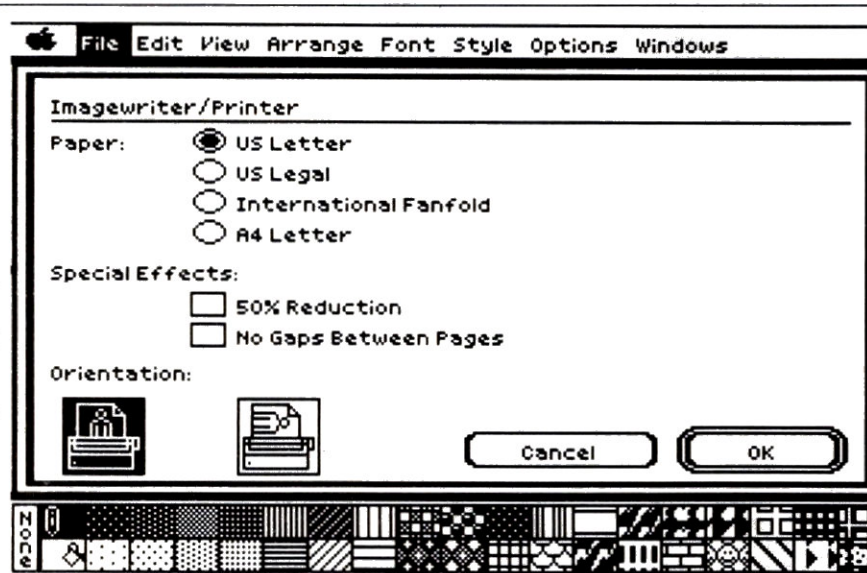


Figure 1: TopDraw, like Draw Plus, lets you select the print size for a file, ranging from a single page to many pages in both the horizontal and vertical direction.

and-white copy on a LaserWriter printer, and both let you select the print size for a file, ranging from a single page to many pages in both the horizontal and vertical direction (see figure 1).

Limits and Lacks

These programs are noticeably slower than Mac and PC programs, both in loading and in printing. Draw Plus needs a full minute and a half just to get into your GS, and TopDraw eats up that and few seconds more. Printing one of the simple example files from Draw Plus in color on an ImageWriter II chewed up eight and a half minutes. TopDraw was in the same boat, needing nearly seven minutes to print the sample file. Naturally, black-and-white printing is much faster with either program.

If you come to Draw Plus or TopDraw from Mac or PC CAD programs, or from older, more expensive Apple II CAD programs such as MATC-CAD or discoverCAD, you will have to sacrifice some features such as dimensioning, layers, parallels and tangents, and text modification. But then, these GS packages don't claim to be CAD stuff, just colorful drawing tools. Text in Draw Plus and TopDraw, for instance, is defined by its font, size, and style. CAD programs frequently define text as a set of drawn lines and so are able to more freely change the slant, angle, and other characteristics of text. Both Draw Plus and TopDraw also have only a limited zooming ability. They can double or halve your drawing view

a couple of times in each direction, and that's it. More complete zooming would let you choose the zoom factor, jump to a previous zoom, and move through several magnitudes of enlargement or reduction.

Neither program possesses a healthy selection of sample drawings. Draw Plus has a measly two very simple images, and TopDraw has only four files. Two of those TopDraw files, though—the RAM Card and the Spheres—are stunning images. They demonstrate how TopDraw can help you create a detailed, complex 2-D image or even a simulated 3-D solid model with shading. Strangely, neither manual includes any color prints, leaving you to learn in black and white how to use programs that emphasize color.

TopDraw

TopDraw's drawing area occupies the majority of the screen and is surrounded by the menu bar and three other windows (which you can show or hide while drawing). The Tools window contains individual icons for entering text and for drawing lines, rectangles, ovals, arcs, circles, polygons, and free-hand shapes (see figure 2). Holding down the shift key while you use these icons constrains the tools. For instance, shift-oval draws only circles, and shift-polygon draws polygons with only 45° and 90° angles. (Draw Plus has this same constraint feature with its tools.) A selection pointer lets you draw boxes around objects you want to select for copying, deleting, or modifying. The Lines window lets you choose from seven line thicknesses and lets you cap your lines with arrowheads on either or both ends. The Patterns window contains the colors and patterns available as object boundaries and fills.

TopDraw works on only one window at a time. Besides including the standard options for opening and saving files, TopDraw adds a Revert command for returning to the disk version of a file. The Load Picture command lets you read color, bit-mapped files from programs such as Paintworks Plus and DeluxePaint II.

The editing facilities include standard Cut, Copy, and Paste but also boast Duplicate, Select All, and Undo. More selection commands would be handy—to let you select by object type or color for in-

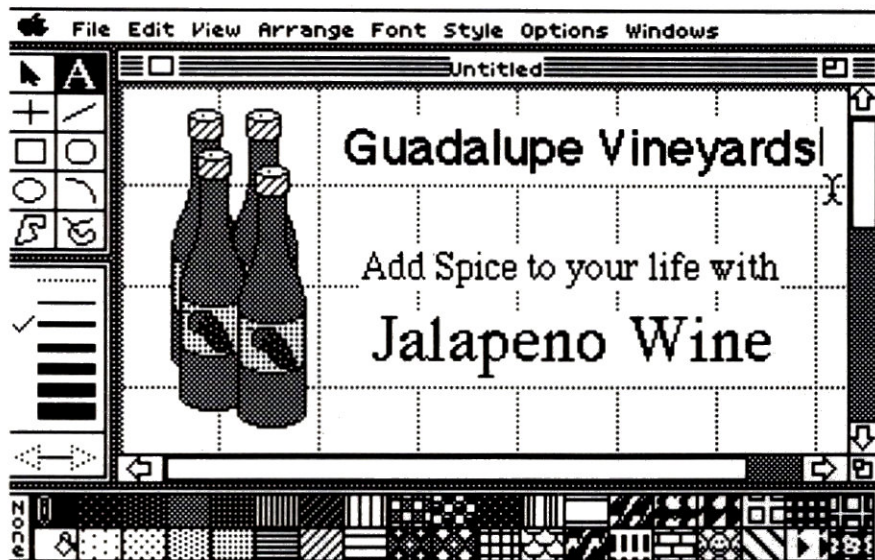
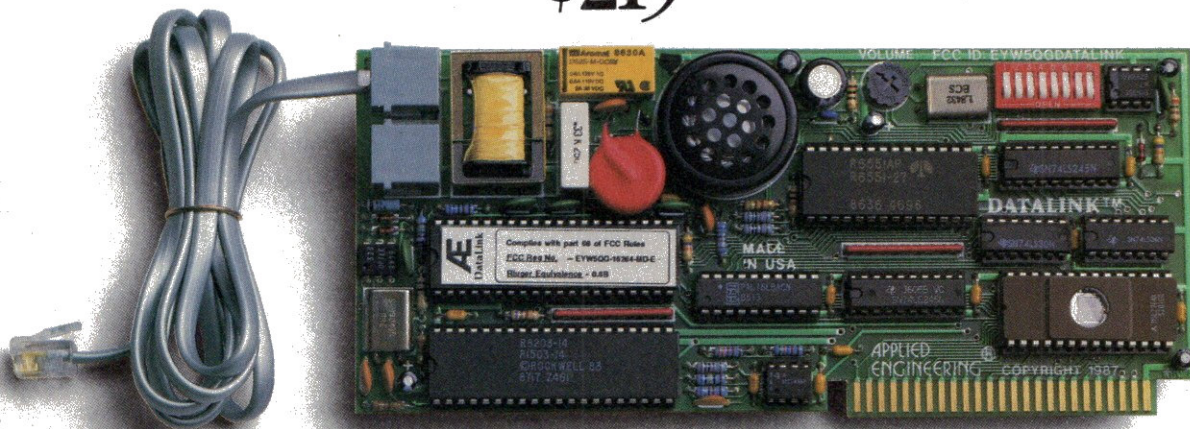


Figure 2: A menu bar and three other windows surround TopDraw's drawing area.

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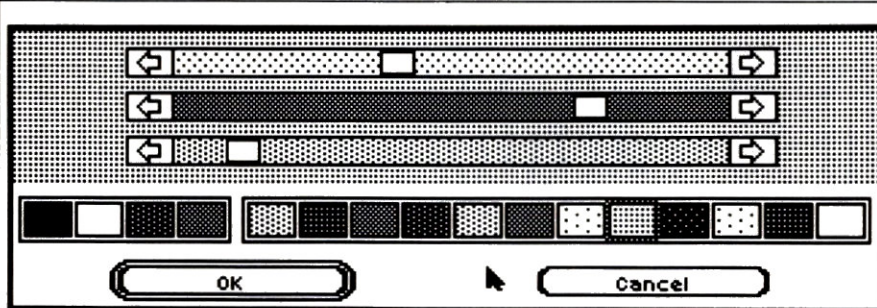


Figure 3: The palette in TopDraw's Edit Colors box shows all of the colors available.

stance—but neither of the two drawing programs obliges. TopDraw's Undo command is certainly welcome, but it can back up only a single step and doesn't work with all commands. You can undo moves, stretches, and rotations, for instance, but cannot undo the last segment of a polygon you are drawing.

The editing menu is also the place to customize your object-boundary widths, smooth polygons and arcs, or select the radius of a round-cornered rectangle. Most of these adjustments occur graphically in dialog boxes, where you can watch what happens to sample shapes as you tinker.

You can reduce or enlarge a drawing, and you can zip to a particular view of a large drawing by moving the Set View window. Individual objects in a drawing can be rotated, flipped, shuffled above or beneath other objects, aligned to a grid or another object, locked (which protects them from editing), and grouped together with other objects for mass editing.

An Options menu lets you hide or show rulers and ruler lines, monitor the size of objects as you draw them, and see how much memory is left in your system as you draw. The ruler lines sit on the top and left of the drawing area, showing the cursor's position. The Options menu is also the place for editing the colors (see figure 3), patterns, and rulers that show in the windows. You can save your option choices on disk and make them the default choices for future drawing sessions.

The basics of drawing with TopDraw are simple, and even the more advanced features, most of them tucked into the Options menu, are easy to figure out without recourse to the well-organized and indexed manual. The tutorial in the manual is long and thor-

ough, but I didn't really need to go through it. When I contacted the company for help (it has a separate number for technical support), a representative answered immediately and responded to questions. The program is copy-protected

VITAL STATISTICS

TopDraw, Version 1.00A

This color drawing program contains more object-editing and -moving commands than you might expect for such a moderate price. It is limited to working within a single drawing window and has a weak Undo command but provides a rich set of colored pattern fills and a simple palette-editing option.

CPU: Apple IIcs

RAM: 512K

DISK DRIVES: one 3.5-inch

OTHER: mouse, ImageWriter II (to produce color prints)

OPERATING SYSTEM: ProDOS 16

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with a key-disk scheme, but for \$20 extra you can buy a non-copy-protected disk or, for \$10, a backup of the copy-protected version.

Draw Plus

Draw Plus can open up to eight drawing windows at a time, all on a single drawing or on eight different drawings. Draw Plus has a Revert command, just as TopDraw does, and has the same general printing commands, although it doesn't offer the Scaled printing command of TopDraw. Draw Plus has an option for creating paint files, which you can change with a program such as Paintworks Plus—it's in the same position as TopDraw's option for loading paint files. Both programs let you select the print size for a file, ranging from a single page to many pages both horizontally and vertically.

The same tools show up here as in TopDraw, but the freehand and arc tools are hidden under the polygon and oval tools, showing only when you click the mouse and press Option-Shift. There are only four line widths (three less than in TopDraw), and the default fill patterns in Draw Plus are much simpler and less appealing than those in TopDraw. You get a color editor with sliders, just as in TopDraw, and a pattern editor, which lets you replace default patterns with your own color or black-and-white selections (see figure 4).

Draw Plus automatically selects objects after you draw them, which

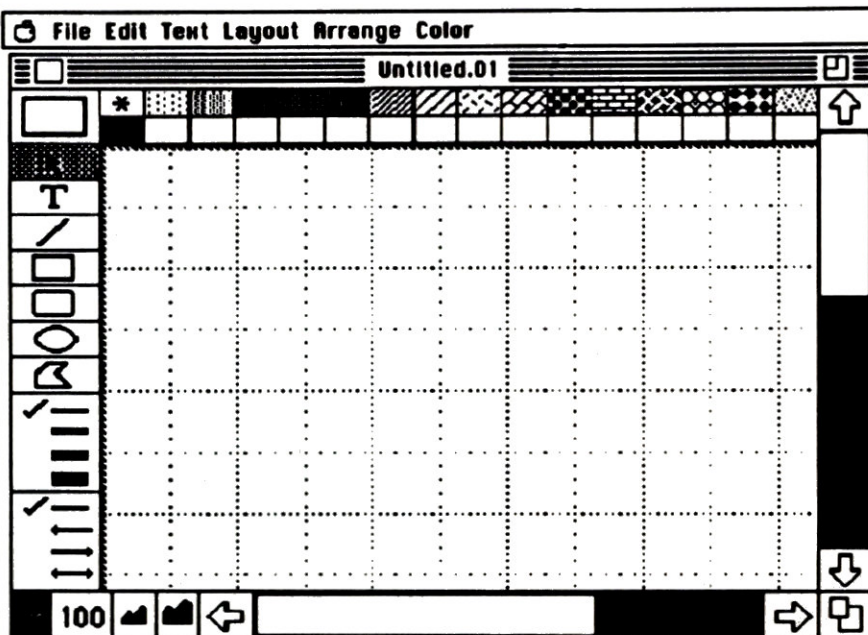


Figure 4: The Draw Plus drawing board displays everything you need to create drawings. The freehand and arc tools are hidden under the polygon and oval tools.

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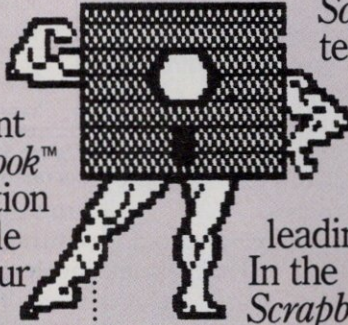
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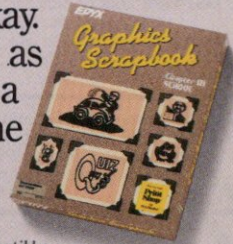
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Drawing Tips

Here are some handy hints to make your use of these two drawing programs more effective and efficient.

TopDraw

For most drawing work, you want to have objects selected for modification as soon as you draw them, so enable Auto Select in the Options menu and then use Save Defaults in the same menu to make this automatic selection the regular practice of the program.

Give yourself as much room as possible by moving or hiding the tool menus you aren't using. If you need to pop back to the program's initial state, just use the apple-W command, Clean Up Windows.

Mix—edit, that is—your palette and patterns before you start, whenever possible. Save your drawing after you do so, to save the palette and patterns.

Draw Plus

If you want bigger menu text titles, try the apple-menu Change Resolution option and switch to low-res.

Use the icon library. Customize its icons to your purposes, including objects you use frequently.

Experiment with having multiple windows open on the same drawing, using different levels of zoom in the different windows to see both detail and an overview at the same time.

To interrupt printing, press apple-period. This trick isn't in the documentation, but it works.

Both Programs

Print in black and white for quick hard copies of drawings. Doing so can take less than half the time of color printing.

Learn to use the Group command to combine objects into groups you can then copy or modify all at once.

Experiment with the transparent color (it appears as an asterisk in Draw Plus and as None in TopDraw) for filling objects. Overlapping objects can be a necessity for creating shadows and other complex effects, and transparency is a tool you'll need for competent overlapping.

Use arcs and polygons when possible, instead of freehand curves. They are easier to modify in a controlled fashion.

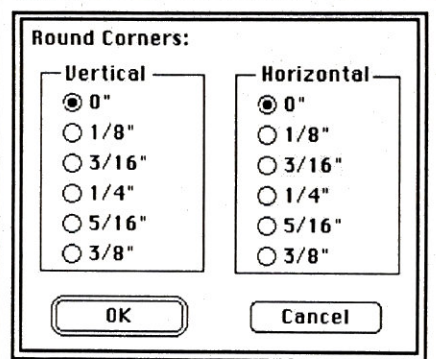


Figure 5: The Draw Plus corner-rounding command.

isn't the case in TopDraw. The basic editing commands are the same in both programs, but Draw Plus doesn't have the polygon-smoothing abilities of TopDraw, and its corner-rounding command (see figure 5) offers six vertical and six horizontal numeric radius values instead of the graphic dialog box of TopDraw. The Undo command of Draw Plus is much more fluent than TopDraw's, able to undo anything except File menu commands. You control text from a single menu that controls Uppercase, Lowercase, and Title text styles. Stuffing all these choices into one menu makes it hard to get at the fonts and styles (see figure 6).

Draw Plus can also show or hide rulers and its tool windows and lets you customize the rulers, giving you a choice of metric or English measurement and the number of divisions, for example. A Show Size command lets you see the dimensions of an object as you draw it. You can put all of these settings into a default file.

Instead of a View menu, Draw Plus offers simply a pair of zooming icons and a status box that tells you what percentage the current view is of the full-size view. You

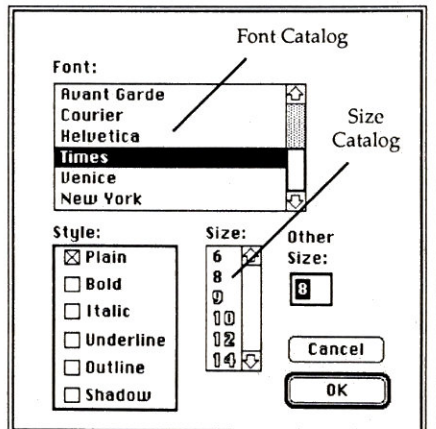


Figure 6: Choose Font lets you also choose type size and style.

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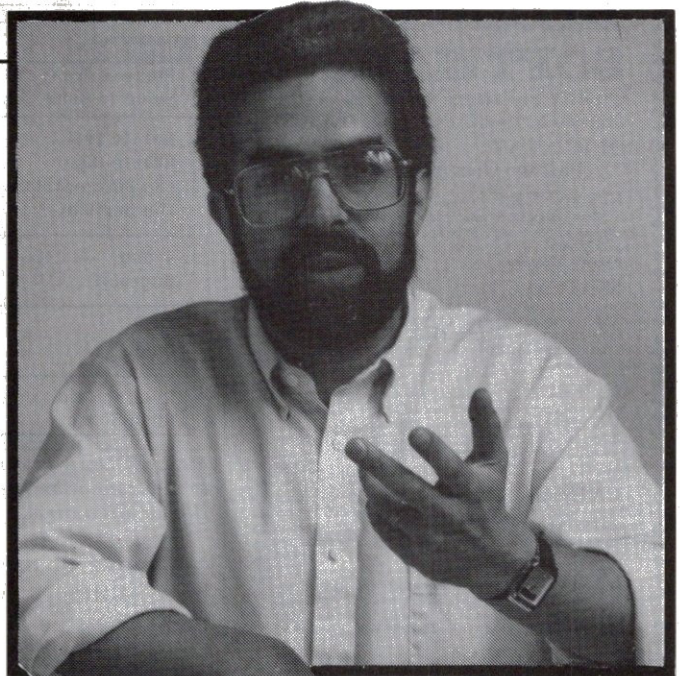
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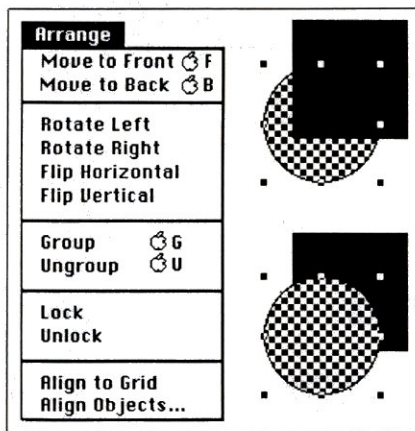


Figure 7: Draw Plus lets you move objects to the front or back, group, lock, rotate, flip, or align them.

can move objects to the front or back (although you can't shuffle them one step at a time as in TopDraw), group, lock, rotate, flip, or align them to the grid or each other (see figure 7). If you want to see how many objects you are using, in the current drawing and in all open drawings, you have to pull down the apple menu and check the About... box. This method is not as handy as the constant monitor TopDraw offers in its Options menu. The apple menu also contains a Change Resolution option for alternating between high-resolution drawing (with 4 colors mixed into 16 choices) and low resolution (with 16 true colors).

Calling Activision to ask about Draw Plus is not as easy as calling StyleWare to ask about TopDraw. Activision's phone-mail system makes you answer several menu questions before directing you to technical support. On my first call, I waited a couple of minutes before giving up, but on my second call, after threading through the same maze, I reached someone helpful and knowledgeable after just half a minute.

The tutorial in the Draw Plus manual is not as simple to follow as that of the TopDraw book, but the two manuals are generally equivalent in other respects, although TopDraw's has larger pages and includes a Quick Reference Card. Both are typeset, spiral-bound, and easy to read. Although Draw Plus was copy-protected when it was released, it is one of the products from which Activision recently dropped copy protection.

One unique feature of Draw Plus

is its icons, a small library of images you can use or modify that you can summon with a pull-down menu command and copy to the current drawing instantly.

A Toss-up

After a first run-through, I thought Draw Plus and TopDraw were almost the same program and certainly hard to choose between. After more practice with them, I see the differences, but the competition between them is still almost—excuse me—a draw. TopDraw has more object-modification and movement commands, more-accessible text options, more line widths, a simpler and richer pattern palette, more view commands, and more understandable (to me) color-editing commands. On the other hand, Draw Plus has multiple windows, more ruler-customization facility, several more text commands, a more powerful Undo command, zoom icons, and that icon library. I think I would go with Draw Plus for its multiple windows and powerful Undo, although I'd be tempted by the interface in TopDraw, with its color patterns and ability to move and hide tool windows. Either way, you'll get a fine drawing tool. +

Phillip Robinson was an engineer before he turned to writing. He has written for BYTE, InfoWorld, and other computer publications; is the author of several books; and contributes a weekly computer column to the San Jose Mercury News. He is currently an editor of the Desktop Engineering News newsletter.

VITAL STATISTICS

Draw Plus, Version 1.0

Draw Plus is a two-dimensional drawing program that can display up to eight drawing windows at a time, on one drawing or many. Its text commands are cramped into a dialog box, and it has a crude set of default fill patterns, but its rulers have a wide range of customizing options, and its icon library offers a handy place to store frequently used objects.

CPU: Apple IIgs

RAM: 512K

DISK DRIVES: one 3.5-inch

OTHER: mouse, ImageWriter II (to produce color prints)

OPERATING SYSTEM: ProDOS 16

COPY-PROTECTED: no

LIST PRICE: \$89.95

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Æ Update . . .

A new method of backing up IIGS memory is introduced by Applied Engineering. A new plug-in card called RamKeeper can be used with a GS-RAM, GS-RAM Plus, and Apple IIGS memory card and most other IIGS memory cards to keep system memory intact when the computer is turned off. RamKeeper has its own battery and separate power supply that powers your IIGS memory card when the computer is turned on and when it's off. IIGS computers can now "cold boot" in about 4 seconds with programs and data available for instant response. With RamKeeper, two IIGS memory cards can reside in the same IIGS memory slot. RamKeeper has an additional benefit by reducing the strain on the Apple IIGS power supply because it no longer has to supply power to the IIGS memory card(s).

RamFactor upgrade doubles RamCharger's battery back-up time. An upgrade kit for RamFactor, consisting of two replacement chips, will double the amount of time the RamCharger battery back-up option can last in the event of a total power failure. This upgrade costs \$20.00 and increases the back-up time from 6 to 12 hours for a 1 megabyte RamFactor. And with this upgrade, the back-up time for a 5 Meg RamFactor will be about 7 hours. Since RamCharger has its own built-in power supply, it can back up a RamFactor indefinitely. The reason for the improvement on RamFactor is to increase the back-up time in the event of a total power failure. The new RamFactor piggybacks are available in 1, 2, 3 and 4 megabyte sizes.

A new high performance parallel printer interface card is introduced by Applied Engineering. Parallel Pro is compatible with virtually all parallel printers and offers extensive graphics printing capabilities: hi-res, double hi-res, IIGS super hi-res screens, mixed graphics and text, emphasized, double sized and inverse text, 90° rotate, center, right and left justification, and spectacular color printing (up to 22 colors). A six foot cable is included for connection to a parallel printer. Parallel Pro sells for just \$89.00. Parallel Pro has an optional plug-in buffer called Buffer Pro. Buffer Pro can free your Apple from controlling the printer and can handle up to approximately 256 pages of text. The expandable 32K Buffer sells for \$89.00 and the 256K buffer sells for only \$139.00.

DataLink modem chosen Editor's Choice award from inCider Magazine in the November telecommunications issue. Part of the reason why the 300/1200 baud DataLink was chosen for this prestigious honor was due to the completeness of the DataLink package. DataLink is a full-function modem that includes full-featured communication software containing on-line help screens and the most powerful macro language available in an Apple II communications program. The DataLinker software even includes a set of ready-made macros that will allow instant access to many popular services with only a few simple keystrokes. DataLinker software has even more added features since inCider chose DataLink as Editor's Choice. Version 1.1 of the DataLinker software now supports multiple start/stop bits and parity settings that make it easier to connect with even more computer services (like some college mainframes) as well as a "Chat" mode that is useful when calling another terminal program. An update to the latest version of DataLinker software costs \$10.00 directly from Applied Engineering.

Applied Engineering's headquarters will be closed for the holidays. Applied Engineering will close its offices at 3:00 pm on Tuesday, December 24th and will re-open on Monday, January 4th. An order service will be in use during this time period for those who wish to have priority shipments when the office is re-opened on the 4th. If your dealer is out of stock, Applied Engineering will be able to take orders in time for Christmas delivery until December 22nd. However, try to order in advance of this date to save money on shipping expenses. Applied Engineering wishes everyone a wonderful holiday season and a happy New Year.

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THUNDERSCAN

Long promised, ThunderScan for the Apple II has finally arrived. Like its Macintosh sibling, ThunderScan fits into the ImageWriter printer, replacing the ribbon cartridge and transforming the printer into an inexpensive, high-quality scanner. It lets you read graphic images into your Apple II. The reason for the delay in this ThunderScan's release is obvious: ThunderScan works in standard hi res on vintage, unenhanced Apple IIe computers, all the way to the super-hi-res graphics of the Apple IIGS.

Getting Started

The ThunderScan package includes the ribbon-cartridge-shaped scanning head; software; a comprehensive User's Guide; and a gizmo

FOR THE APPLE II

that lets the device work on ImageWriter I, II, and wide-carriage ImageWriter printers. Installation is a snap; the scanning device plugs into the game port and snaps into the cartridge holder of your ImageWriter. The Configure utility lets you set the slot location of the printer and the type of printer you have. Once the scanning device is installed, you're ready to scan.

As with all roller-type scanners, your art must be flat and in single-sheet form. If you want to scan an

illustration from a magazine, you'll have to tear out the page or photocopy it. It's a good idea to photocopy certain types of art anyway—especially full-color materials—as ThunderScan recognizes intensity rather than color, and careful photocopying can give you the best control over the black-and-white intensity of your art. Once you have the art ready, you merely roll it into the printer as you would a single sheet of printer paper.

The ThunderScan software guides you carefully through the steps of producing a scan and gives you lots of control over the process. You first determine the size of the scan and its location by using the arrow keys (sometimes in concert with the apple keys) to move rect-





Figure 1: The image (left) from *Art Nouveau Typographic Ornaments* (Dan Solo, ed., Dover Books, 1982) appears as a standard-hi-res scan in the line art mode (below).



Figure 2: After using ThunderScan's format control to translate the hi-res scan of figure 1 into an ultra-hi-res picture (640 mode), I loaded the art into a paint program in the 320 mode to shrink the image and color it, carefully replacing three of the grays with color.



angles around an image of a piece of paper, complete with rulers. You also set scan format (hi res, double hi res, super hi res, ultra hi res, or special), magnification (dots per inch), and a variety of other parameters. After setting these parameters, you focus ThunderScan by moving the scanning head to the lightest area of your artwork and turning a knob until a number on the screen reads at its highest level. Now you're ready to scan.

Scanning is slow, and if you want to change any of the scanning parameters, you must return to the main menu and go through the entire setup process again. Once you're acquainted with how the various parameters work and with the proper way to set up your art, however, you shouldn't need to reset the parameters too often. The lady in figure 1 took ThunderScan less than 5 minutes to scan, but I spent about 30 minutes positioning the artwork and setting the scan parameters. If I'd copied her free-hand with the mouse or tablet and a paint program, it would have taken much longer.

After scanning, you can display the image and change some of the parameters, including the format, mode, brightness, and contrast. You can also apply a filter to the image to adjust assignments to the gray scales. In the super-hi-res formats, you can assign colors to the gray levels.

The ThunderScan software reminds you to save your scanned image as a ThunderScan file when you try to do a new scan or quit. When your scanned image is being displayed, you can save a picture file in the current format: single hi res, double hi res, or super hi res.

For super hi res, you can choose to save the image in the Paintworks Plus screen or paint format or in Apple's preferred format for DeluxePaint II and other programs. At this writing, only ThunderScan software can use the scan file, but you should save the file so you can reopen the image for later adjustment of the mode, format, and other parameters.

ThunderScan files can occupy lots of disk space, depending on the mode of scanning and the magnification you choose. If you are scanning large areas, you may have trouble fitting the scan files onto floppy disks. The picture files, of course, occupy the standard 8, 16, or 32K necessary for hi res, double hi res, or super hi res, respectively.

Printing

ThunderScan also lets you print your images. After you've removed the scanning cartridge from the printer and game port and reinstalled a ribbon cartridge in your ImageWriter, the ThunderScan software can print your graphic. Here also you have a variety of options, depending on your printer. ThunderScan allows both regular and high-quality printing on any ImageWriter and color printing on the ImageWriter II. The ImageWriter printouts were excellent, but I couldn't access the Apple LaserWriter (connected through AppleTalk) and therefore was un-

able to take advantage of ThunderScan's potential as a very-high-resolution scanner.

If you get the impression that ThunderScan offers you a lot of options, you're right. Although the software looks a bit old-fashioned to those of us who are used to programs with fancy mouse-based interfaces, it is well produced and easy to use. The excellent 70-page users' guide includes both a tutorial and a reference section.

I put ThunderScan through its paces with a wide range of artwork, from four-color magazine illustrations to simple line art. Needless to say, ThunderScan did the best job with simple line art, but it also did a credible job with the four-color illustrations. The latter looked best when I scanned and viewed them in the Apple IIGS super-hi-res modes. Line art scanned well in all modes. Once you've saved your images, you can use a paint program to spiff them up (see figure 2). The image quality, as you can see, is superb.

A note of caution here: As with any digitizer, you can reproduce all

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sorts of artwork, much of which is copyrighted. Depending on what you are doing with the artwork, you can be sued for improper use of copyrighted material so seek permission from the copyright holder to reproduce the art.

ThunderScan's natural competitors are video digitizers (see A+, May 1987). Video digitizers are terrific for capturing three-dimensional objects but require a camera (or other video source), tripod, and proper lighting to work. The flexibility of a video digitizer is more than offset by ThunderScan's ease of use and the high quality of ThunderScan images. If I had my druthers, I'd have both a video digitizer and ThunderScan, but if I could have only one digitizer, I'd opt for ThunderScan.

With desktop presentations, video, and publishing coming to the Apple II world, ThunderScan provides many needed capabilities. It was worth the wait. **+**

Michael Callery is Graphics Editor for A+ and coauthor of our monthly "Speaking of Graphics" column.

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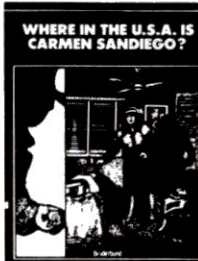
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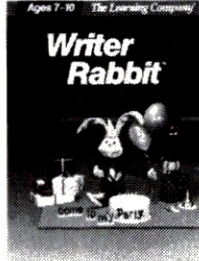
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ThunderScan is a low-cost device that replaces the ribbon cartridge in a standard ImageWriter printer and transforms the printer into a high-quality scanner.

CPU: Apple IIe, IIc, or IIgs

RAM: 64K

DISK DRIVE: one 5¼- or 3.5-inch disk drive (two drives or hard disk recommended)

OTHER: ImageWriter I, II, or Wide Carriage. Super Serial card (Apple IIe only)

OPERATING SYSTEM: ProDOS

COPY PROTECTION: no

LIST PRICE: \$249

ThunderWare, Inc.

21 Orinda Way
Orinda CA 94563
(415) 254-6581

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CIRCLE READER SERVICE NO. 430

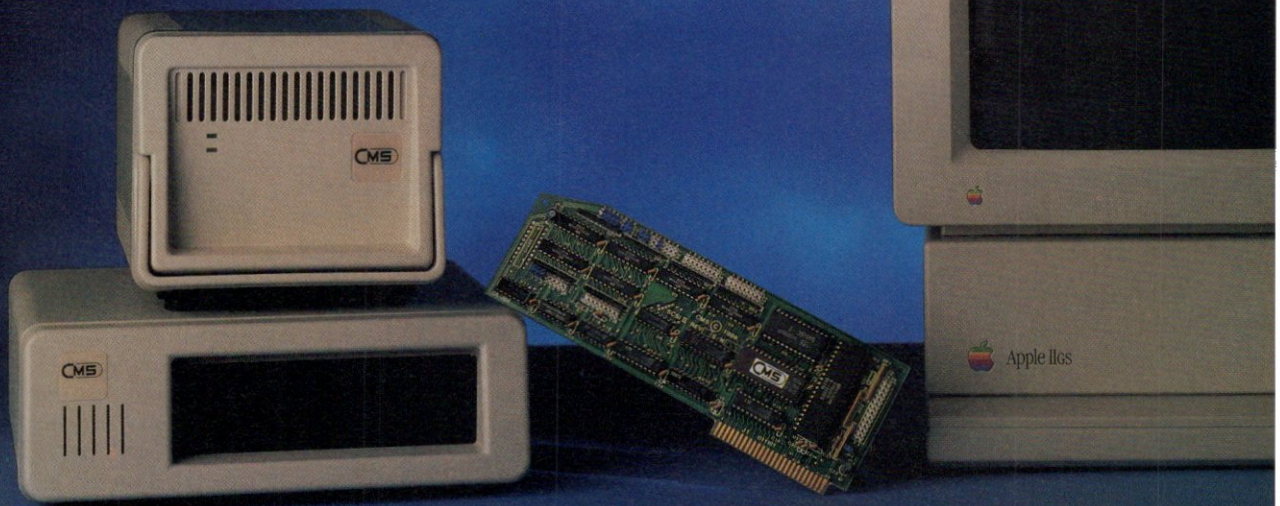
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CIRCLE 300 ON READER SERVICE CARD

PICK OF THE CROP

BY PETER TUCKER

*Five interesting
new graphics products
for the Apple II family*

PRODUCT SPOTLIGHT

THE PRINT SHOP FOR THE IIgs

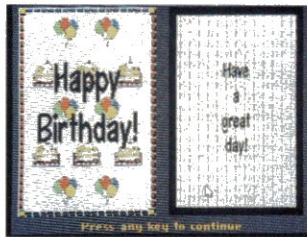
Brøderbund seems to have struck gold again with this Apple IIgs version of The Print Shop.

Based on the immensely popular Print Shop for the Apple II, this version offers an attractive graphic interface, quick mouse control, and super-hi-res graphics.

Like the original Print Shop, this version has you designing greeting cards, letterheads, ban-

ners, and assorted graphics almost immediately.

Choose from a dozen attractive typefaces, as well as a host of ready-made color graphics. You'll find full-panel designs for posters, certificates, and assorted an-

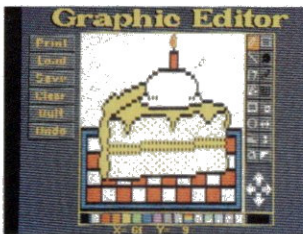


nouncements, as well as an assortment of ready-to-use letterhead designs.

For more-creative users, Print Shop IIgs includes a graphic editor. This reasonably sophisticated drawing tool lets you alter existing Print Shop graphics, create original art from scratch, or edit any DOS 3.3 or ProDOS data disk containing graphics compatible with The Print Shop.

The Print Shop IIgs, as you might expect, has a variety of useful print options: color or black and white; multiple copies; full or reduced size; and printing backwards (to produce iron-on T-shirt designs).

Owners of older versions of The Print Shop (and of Fantavision) can get this new release by sending in their old disks plus \$20.



The Print Shop IIgs

List Price: \$59.95

Requires: Apple IIgs; one 3.5-inch disk drive; 512K RAM; printer; mouse optional. ProDOS; copy-protected. Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 492-3500

CIRCLE READER SERVICE NO. 400

YOUR PRINTER AS TIME MACHINE

TimeLiner, from Tom Snyder Productions, is a new tool for the old project of creating time lines in the classroom.

Students will easily gain a visual perspective on history by entering events and editing and printing the results.

A new time line can be

as short as a day or as long as many years. You enter the proposed period of time and then begin entering the events. First type in the time each event occurred, followed by a description of the event, up to 37 characters long.

TimeLiner takes your information and puts it in the correct place, adjusting the time line to make it proportionally correct. A special merge function allows you to combine two separate time lines into one, making separate historical events easy to compare.

TimeLiner comes with six ready-to-use time lines on disk, ready to print out, add to, or change. The TimeLiner manual, in addition to providing instructions, presents a host of creative classroom applications, projects, and student worksheets.



TimeLiner

List Price: \$59.95

Requires: Apple II Plus, IIe, IIc, or IIgs; 64K RAM; printer with Super Serial or Grappler+ Plus card; 5¼-inch disk drive. Copy-protected.

Tom Snyder Productions
P.O. Box 2552
123 Mt. Auburn Street
Cambridge, MA 02238
(617) 876-4433

CIRCLE READER SERVICE NO. 403





PRINTMASTER ADDS A PLUS

From Unison World comes PrintMaster Plus, a versatile program for creating personalized cards, stationery, calendars, and banners.

With PrintMaster Plus, you have 11 borders, 122 predesigned graphics, and a variety of typefaces from which to choose.

You can combine graphics with text in any of your creations. When working on a card or poster, you can position images in half, regular, or double size. A good selection of typestyles and textures assures that your creations will be interesting and attractive.

Meanwhile, Unison World continues to release additional art libraries that contain still more graphics, borders, and fonts.

PrintMaster Plus

List Price: \$49.95

Requires: Apple II Plus with 64K RAM or IIe, IIc, or IIgs with 128K RAM; 5¼-inch disk drive (3.5-inch disk, \$5); printer. ProDOS; not copy-protected.

Unison World
2150 Shattuck Avenue
Suite 902
Berkeley, CA 94704
(415) 848-6670

CIRCLE READER SERVICE NO. 404

816/PAINT

The extraordinary thing about 816/Paint is that this full-featured paint program brings high-resolution graphics to the entire Apple II family.

In fact, 816/Paint is four paint programs in one. The Super-Hi-Res 320 and 640 graphic modes, for Apple IIgs users, require at least 512K of RAM. The Standard-Hi-Res and Double-Hi-Res modes, for either IIe, IIc, or IIgs users, require at least 128K of RAM.

Familiar pull-down menus provide instant access to a full selection of options, including File, Edit, and typestyles and sizes. An Apple II mouse



or compatible input device is necessary.

The Drawing Toolbox provides numerous options for artists. From freehand sketching, spray painting, straight lines, ovals, and boxes to color fill: 816/Paint provides most everything.

816/Paint

List Price: \$75

Requires: Apple IIgs with 512K RAM or Apple IIe or IIc with 128K RAM; mouse or compatible input device. Copy-protected.

Baudville
1001 Medical Park Drive,
S.E.

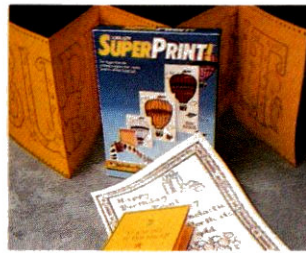
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(616) 957-3036

CIRCLE READER SERVICE NO. 405

SUPERPRINT! CERTAINLY IS

Is bigger really better? See for yourself with SuperPrint! from Scholastic.

Like many other products, SuperPrint! produces banners, posters, personalized stationery, and greeting cards. Its

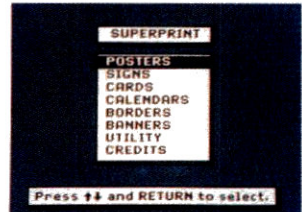


real claim to fame, though, is its jumbo-size posters, almost five feet tall.

The library of graphic images that comes with SuperPrint! includes 14 different poster images (dinosaur, pirate, wizard, and giraffe, to name a few) that can get the super-size treatment. A further collection of clip art includes animals, vehicles, foods, and musical instruments. Six differ-

ent typestyles are also available.

SuperPrint! includes a unique vertical scrolling option that lets you place text or graphics any-



where on your poster.

Three additional graphic packs are available, covering science, history, people, places, holidays, special events, and sports.

SuperPrint!

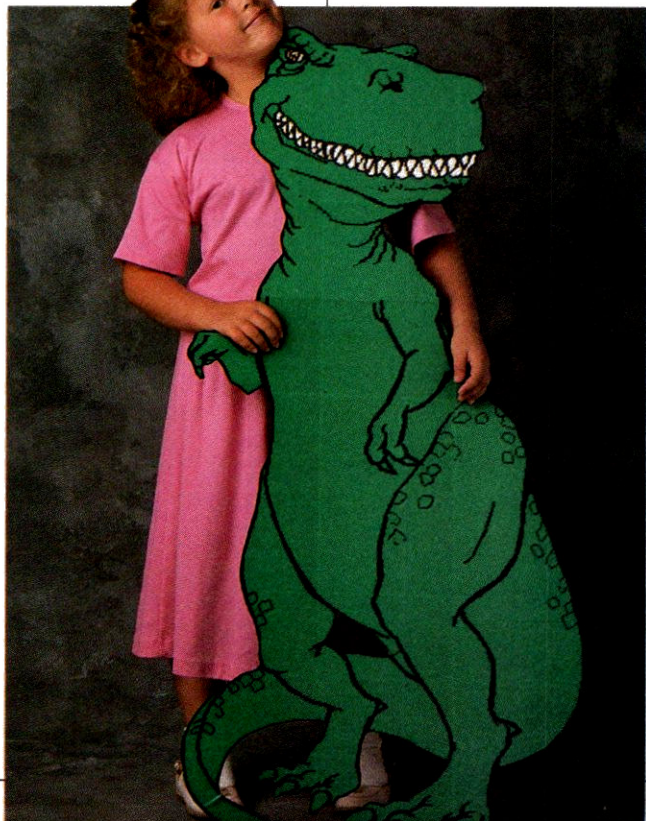
List Price: \$74.95

Requires: Apple IIe, IIc, or IIgs; 128K RAM; 3.5- or 5¼-inch disk drive; printer. ProDOS; copy-protected.

Scholastic, Inc.
2931 East McCarty Street
P.O. Box 7502
Jefferson City, MO 65102
(314) 636-5271

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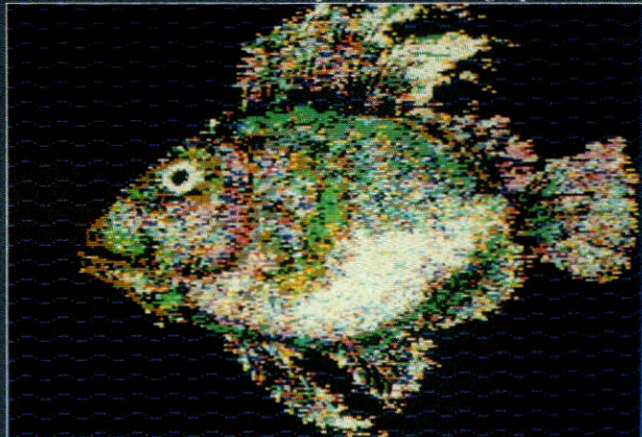
CIRCLE 192 ON READER SERVICE CARD

SPEAKING OF GRAPHICS GALLERY

We cannot help but marvel at the talent of our readers. Although the medium is the same, an Apple II computer the unique style of each artist shows through. Mike Woodward's boat is like a finely executed water color, whereas Cherry Simpson's painterly images are more akin to oil paintings. Compare these to John Capurso's wonderful line drawing, Cuong Trinh's richly detailed City, and Ellen Carr's "hard edge" lighthouse. We could go on and on—we are impressed!



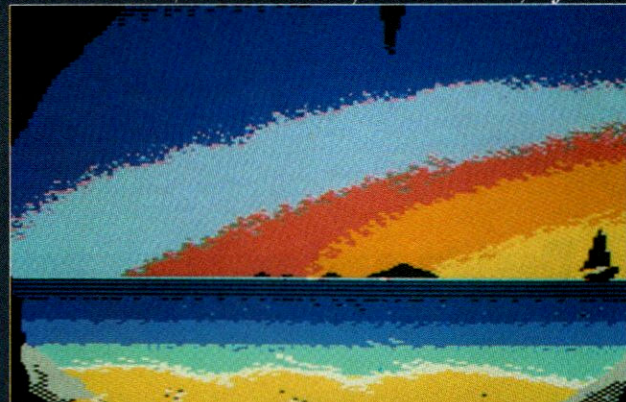
BOAT, J.M. (MIKE) WOODWARD, *LaGrange, TX*.
Mike works for an oil company in drilling operations.



BEACH and FISH, CHERRY D. SIMPSON, *Denton, TX*. Graphic designer and teacher. You've seen the work of some of her students in our October Gallery.

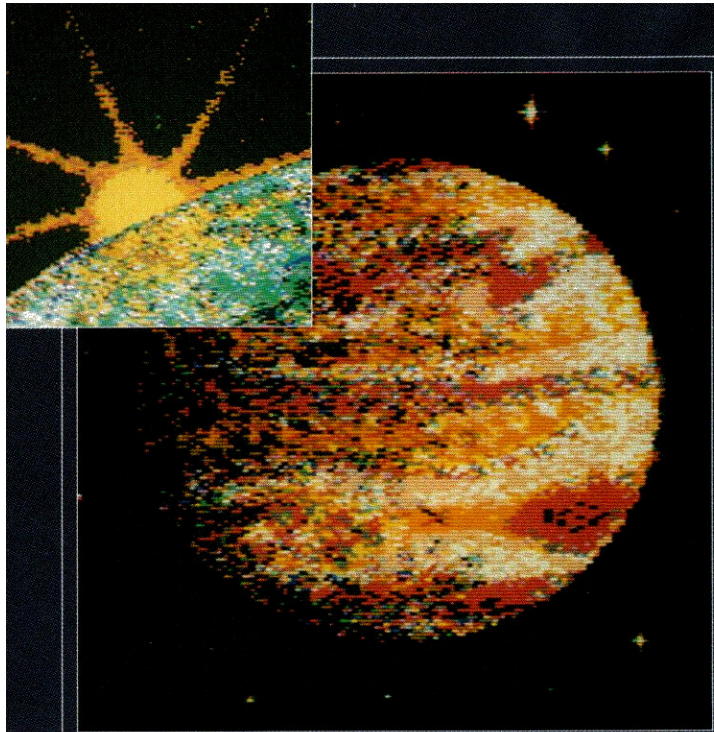


LIGHTHOUSE, ELLEN CARR, *Turnersville, NJ*

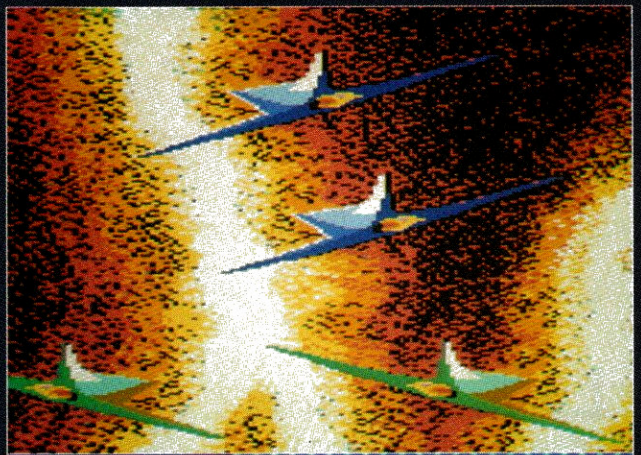


SEA, WILSON LEE, *North Andover, MA*
CITY, CUONG TRINH, *Houston, TX*





SUNRISE and PLANET X, **ROBERT KUBASKO**, Wyoming, PA. Robert is a high-school student.



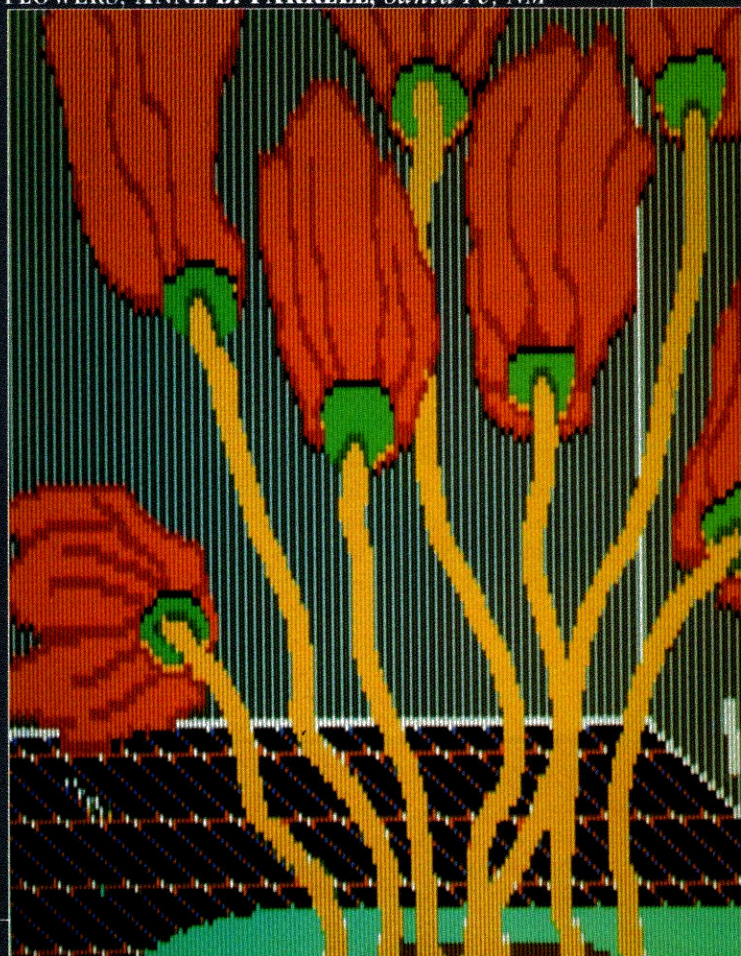
SHIP and FISH SCHOOL, **ANDREW ALT**, Park Ridge, IL



FLOWERS, **ANNE B. FARRELL**, Santa Fe, NM



KABUKI and CITY, **JOHN CAPURSO**, Nashua, NH



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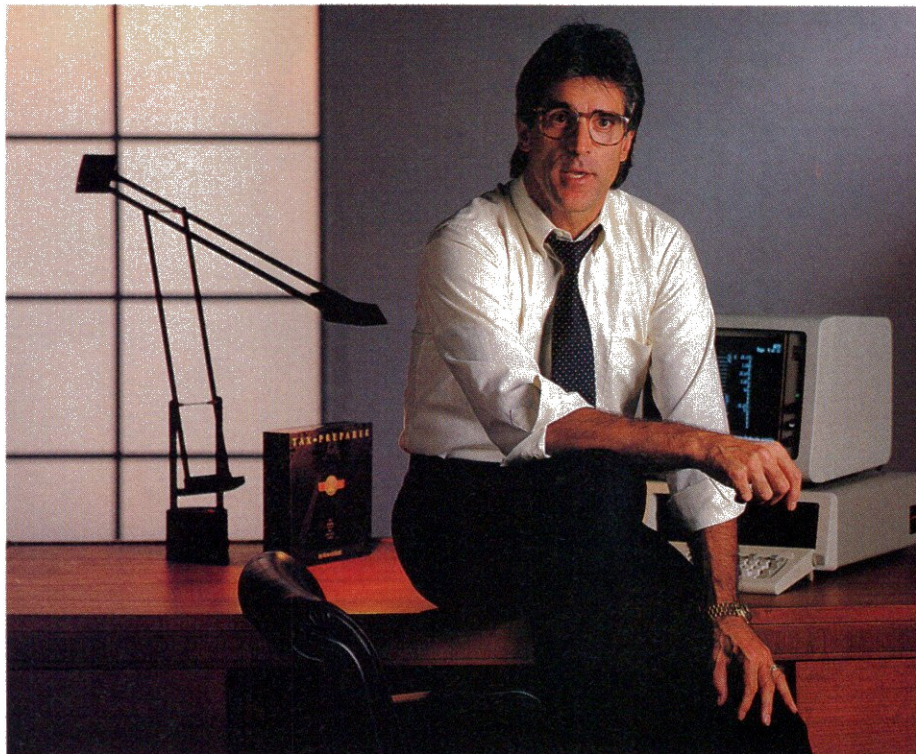
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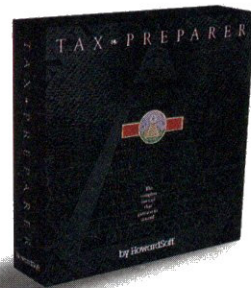
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QUICK TAKE

BY LEE HAYWARD

**Page layout comes to the Apple II—
for those who have the time.**

PRINTRIX

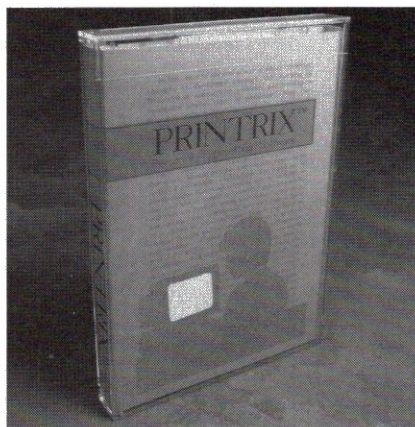
What is an Apple II owner to do? It's so hard to keep up with technology. No sooner did you buy your computer than someone came out with a bigger and better model. What is worse, a whole new area can open up. Take desktop publishing. What to do? You can buy a Macintosh computer, of course. But chances are you're more likely to make a smaller investment in Apple II software such as The Newsroom or MultiScribe—or the latest alternative—a powerful and full-featured page-layout program called Printrix.

Printrix works with word-processing files from AppleWorks, AppleWriter, WordPerfect, and Word Juggler, or ProDOS ASCII text files from other programs. Using these files, you can control the printout with different fonts, spacing, or graphics. The program includes 43 fonts and can use standard-hi-res graphics; Print Shop graphics; or Graffiles from Fontrix, another program from Data Transforms. You can also convert and use the collection of fonts from the Fontrix font collection.

Using Printrix means you first have to configure your Printrix program for your computer, printer, and word-processing software—an easy job once you get started. Welcome to the world of ProDOS pathnames. You need to start Printrix; exit to BASIC; flip over the disk; set the prefix; and, finally, run the Configure pro-

gram. The manual spells out this procedure step by step. When Configure is finished, you restart Printrix. Sample files and a tutorial move you through the various parts of the program.

When you're ready to actually use Printrix, the first step is to prepare your word-processing file. You write the document as you normally would and then add im-



bedded commands for Printrix, referring to the Command Quick Reference Card, which comes in the Printrix package. The imbedded commands tell Printrix where to start a new font, set the margins, and change the font color (if your printer can give you color); they also control the spacing of lines and characters and placement of graphics.

To begin, you probably want to change the fonts in your text, just to get a feel for the program. Changing fonts involves the com-

mand $F = n$, where n is a number from 1 to 4. Four fonts are stored per layout file, but you can load other layout files, meaning that you can use an unlimited number of fonts.

Wherever you place an $F = n$ command, the font changes, even in mid-sentence.

After you've saved your text, you load Printrix and construct a layout file, which sets the four fonts as well as the margins, spacing parameters, graphic formats, and any other parameters you need. You can construct different layout files for different applications, although you can set up a default file to load automatically.

Now you are ready to print. The program accesses the fonts and the word-processing file as needed during printing, so you'll want to use two disk drives (although the program will wait for you if you don't mind shuffling disks).

The printout is spectacular and gratifying after all the work, but Printrix is not the easiest program to use, nor is it bug free. The manual, which is required reading, gets off to a good start, but it tends to skip around. Its index is helpful, however.

Since I am fairly computer-literate and am comfortable with ProDOS pathnames and structure, I decided to test Printrix with a simple one-page letter I use to introduce people to The AppleWorks Users Group. I went into the text and added the needed commands

for the fonts I wanted. I also decided, while playing around, to print the document in two columns, a feature Printrix offers. Six hours later, I had a final printout. Granted, this excessive time expenditure was due in part to first exposure to a new and full-featured program, but part of the blame belongs to Printrix and its inconvenient user interface.

The program has its quirks. You need to be comfortable with prefixes and pathnames—Printrix is not

a Print Shop-type menu-driven program. My first problem involved changing fonts. You can place four fonts in each layout file. When I tried to change the fonts, I went through the procedures and specified the pathnames, and the program accessed the disk, but the new font didn't load. No error message of any type appeared—the font just didn't change. This glitch happened several times until I finally figured out how to fix it. The program has other minor new-pro-

gram bugs that I'm sure Data Transforms will correct eventually.

Another price to pay in using this program is the time it requires to print. A single-page document, in near letter quality with an ImageWriter II, printed in about two minutes. The same document, with four fonts, medium quality, and two columns took more than 20 minutes. You can specify five different print qualities. Quality 1 means one printhead pass per line, and quality 5 gives you five passes per line. Making and seeing changes in a document is tedious, since the program has no preview or fast-draft mode. (Version 1.1 of Printrix, which may be available by the time this review comes out, will have a preview mode, however.) The moral is to make sure you don't make any mistakes. Because of the way the program prints, a print buffer does not speed up access to the computer.

You can copy the program onto a 3.5-inch disk, which helps organize all the parts of the program (it is not copy-protected). A more convenient user interface and a draft-print or screen-print mode would really enhance this program. Be willing to spend some time learning Printrix.

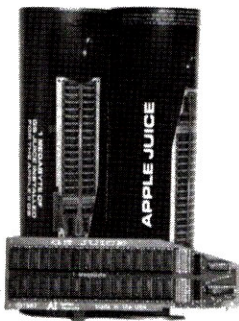
It is not a program to use for short memos, but if you really want an impressive looking document with fancy fonts and text that wraps around graphics, it is—currently—the way to go. +

Lee Hayward is a media specialist at Arrowhead Elementary School near Denver and is the chairman of The AppleWorks Users Group.

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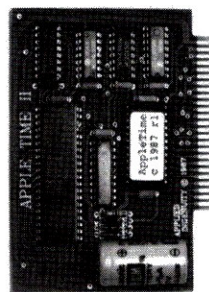
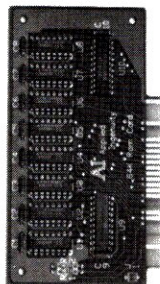
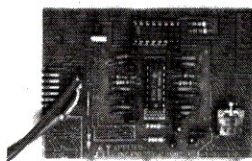
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VITAL STATISTICS

PRINTRIX

Printrix is software that enhances and controls the final appearance of printed documents.

CPU: Apple IIe with Extended 80-Column Card, IIc, or IIgs

RAM: 128K

DISK DRIVES: one 5¼-inch (two highly recommended); 3.5-inch diskette available for \$5

OTHER: printer (works with most common printers, including Hewlett-Packard laser printers)

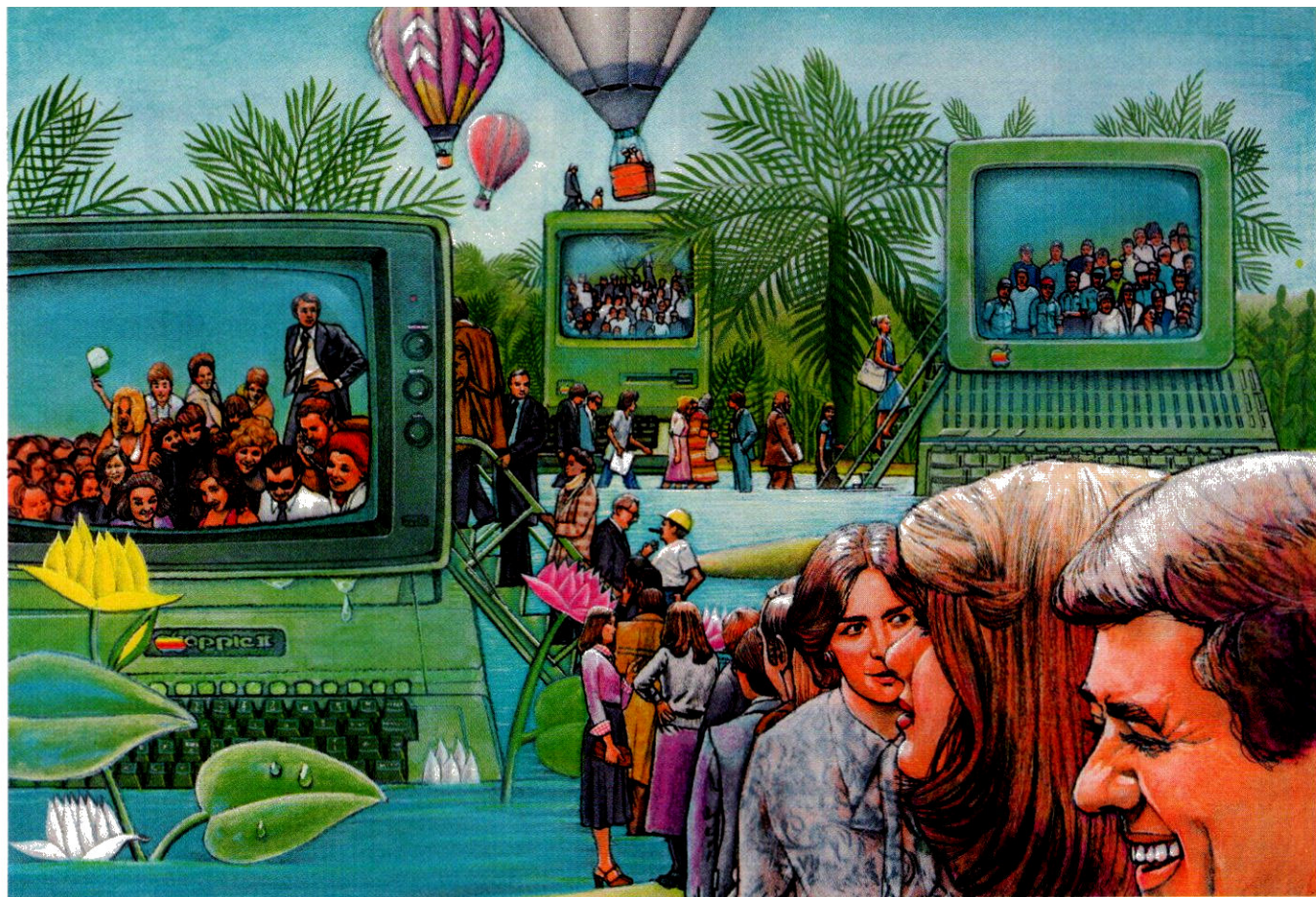
OPERATING SYSTEM: ProDOS

COPY-PROTECTED: no

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BY MIKE MARKOWITZ

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In a few more years, the drawing board and T-square will be as obsolete as the slide rule in American engineering and manufacturing offices. Computer-aided design and drafting that used to require specialized \$100,000 workstations is now at home on desktop CAD systems that cost less than \$10,000. Electronics, aerospace, architecture, technical illustration, and many other fields are experiencing a growing demand for trained CAD operators. Thousands of drafters need to adapt their skills to the world of computers. Vocational and technical educators, in particular, must face a real challenge in meeting this demand. A roomful of PC-based CAD systems may be "low cost" to an auto maker or planning department, but not to a school district.

Apple II to the rescue.

Drafting Isn't Drawing

A drafting program differs in several important ways from the paint and draw programs familiar to most Apple users. Drafting requires great precision in the placement and dimensioning of objects. CADApple, an Apple II drafting package, can store and manipulate numbers to seven significant digits. That means a line can be precisely 132.0625 inches long. Whereas simple drawing programs are limited to a single screen, or an 8×11-inch page, CADApple uses

real-world coordinates. If you are drawing a room 20 feet square, that is how big the computer makes the lines. You have to zoom out to see the big picture and zoom in to work on fine details. Also, paint and draw programs use dot-matrix printers, whereas drafting pro-



grams need pen plotters to deliver smooth, sharp lines for technical drawings.

CADApple, now up to version 3.5, is a veteran drafting program with more than 5000 users, largely in high schools and colleges. The price has recently been reduced from \$1495 to \$995. The latest revision (which was not available for review at this writing) will be able to use the 320×200 and 640×200 video modes of the Apple IIgs.

CADApple has 17 submenus, with a total of 179 options. About the only thing CADApple's missing that you find on high-end CAD workstations is the ability to create fancy curves, such as parabolas, cubic splines, and logarithmic spirals. The high price of this program will make it prohibitive for most educators, however.

A Better Price

Besides considering the latest update of CADApple, though, you can now also look at Entry Level CADApple, a downsized and repackaged version of its bigger brother that's much less expensive. It comes on four disks, like its sibling, but it can run on a 64K system and costs only \$99. It has only 12 submenus and far fewer options. Documentation has been reduced to a 45-page booklet and a superbly illustrated 170-page textbook authored by a quartet of community-college drafting professors.

The package includes three function-key templates (for the Apple II Plus, IIe, and IIc) and a professionally narrated audiocassette tape with a guided tour of the program.

Entry Level CADApple works under the Apple Pascal operating system (version 1.3)—a significant drawback for most Apple users. Pascal handles drives, files, and devices according to its own rather tricky and cryptic syntax. I never could figure out how to set up my

extra memory as a RAMdisk, which was a shame, since the program is painfully slow, with disk access required for almost every menu selection, and occasional disk swapping, even on a two-drive system. The Help files, for example, are on a separate disk, so any Help call requires a disk swap. On the other hand, the program is virtually fail-safe; everything saves to the work file on disk as it is created, so a system crash or power failure cannot destroy more than a

few seconds of your work.

The documentation includes an extensive reference section on the Pascal system Filer, but beginners can expect a slow, frustrating learning curve.

What You See . . .

The limitations of the Apple II graphics screen impose an awkward display format on Entry Level CADApple. You must toggle between a text screen (for menus); a graphics screen (for drawing); and a split screen, in which a text line

that reads out the coordinates of the cursor and some status codes replaces the bottom sixth of the drawing window.

With a Videx UltraTerm or VideoTerm card in slot #3, however, you can use two monitors, with text on one and graphics on the other.

You create all graphic objects—arcs, circles, ellipses, lines, polygons, rectangles, points, and text—in Entry Level CADApple by using single-letter commands from the Add menu.

You can set up a grid and have the cursor “snap” between points, to aid in precise positioning and alignment—great for drawing schematics, org charts, and floor plans. Keyboard input can be absolute (grid coordinates of a point), relative (x and y distance from the last point specified), or polar (angle and distance from a reference point).

You can draw lines in several solid, broken, and dotted styles and up to eight different colors, depending on the type of plotter you are using.

An important feature of the program is its ability to do dimensioning (provide text showing the measurements of lines and angles in the drawing). Using this feature can be a little tricky, since you have to place the cursor *exactly* on the end points of the entity you want to dimension.

The program accepts input from the keyboard; a joystick; a mouse; or digitizing tablets from Houston Instruments, Kurta, and Summagraphics. You can toggle between keyboard input and other modes, using a function key.

Plotters that work with this software include the Apple Color Plotter and those from Hewlett-Packard, Houston Instruments, Ioline, and Roland.

Registered owners enjoy a 90-day warranty, and the disks are not copy-protected. Lucky owners of 3.5-inch drives can copy all the program files to one 800K disk, which speeds up operations dramatically.

Evaluation

The product should be rewritten, optimized for speed, and designed to run under ProDOS. The Apple II family will never have a math co-processor to speed up number



MDIdeas, Inc.

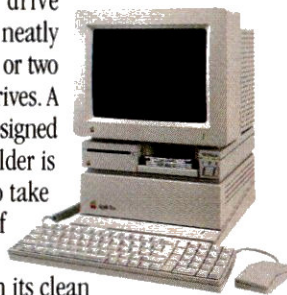


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Memory intensive software like AppleWorks runs faster. You can put Pinpoint or MacroWorks *and* your spelling checking into RAM at the same time for instant response. And you can work with massive files without constantly going back to your disk drive.

Run AppleWorks 20 times faster.

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No other expansion board, not even

Apple's, gets so much out of AppleWorks.

RamWorks III gives you a huge AppleWorks desktop — 366K with the 512K RamWorks III and on up to 2251K with the 3 MEG RamWorks III (even after *all* of AppleWorks automatically loads in memory).

RamWorks eliminates AppleWorks' internal memory limits. While AppleWorks 2.0 makes up to 6,350 database records available, you get up to 22,600 with RamWorks. Instead of AppleWorks' 7,250 word processing lines, you get up to 22,600 lines. And Clipboard capacity zooms from AppleWorks' 255 lines to 2042 lines.

RamWorks boards include an AppleWorks print buffer — up to 125K in the 512K model — so you can keep working while your printer is printing. Also, you don't have to buy a separate print buffer, a savings of up to \$250.00.

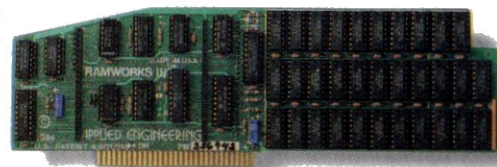
Autosegments large files.

RamWorks automatically segments large files so they can be saved on two

or more disks. When you need to work with the file, you simply load it in the same sequence you saved it.

Add up to 3 MEG without using a single expansion slot.

RamWorks III, even when it's carrying its full 3 MEG of new memory, fits in your IIe's auxiliary slot. Your valuable expansion Slots 1 through 7 are free for other peripheral cards.



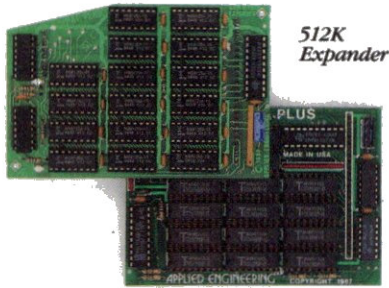
RamWorks III expansion board

If you don't need all of that power now, you can start with as little as 64K. It's easy to add memory to the expandable RamWorks III board as your needs grow.

You can go to 1 MEG on the main board using standard RAMs. That's

more memory than most people ever use. (1 MEG is about 500 pages of text.)

For even more power, snap an Applied 512K, 1 MEG or 2 MEG expander card into the RamWorks III low profile connector. The expander card won't interfere with Slot 1.



2 MEG plus Expander

Recover your investment in the wrong card.

Most of it anyway.

If you bought some one else's RAM card — one that's not recognized by your programs — RamWorks III can help recoup your loss. Pull the memory chips off your old card and plug them into RamWorks III.

Truly compatible.

RamWorks III is compatible with more off-the-shelf software than any other RAM card. It is recognized by all memory intensive programs.

Its power enhances AppleWorks, Pinpoint, Howard-Soft, FlashCalc, PROFILER, Managing Your Money, SuperCalc 3a, VIP Professional and many, many more ... even software written specifically for Apple cards.

RamWorks III is compatible with most hardware add-ons like ProFile and Sider hard disks.

Of course, RamWorks III is fully compatible with all IIs — enhanced or unenhanced, American or European.



"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

Easy to install and use.

RamWorks III quickly plugs into your Ii's auxiliary slot. You get memory expansion and super-sharp 80 column text (U.S. Patent 4601018).

RamWorks III comes with every-

thing you need to get up and running. The easy-to-understand manual shows you how to get the most from your new memory. The two accompanying 5¼" disks include a graphics utility program, AppleWorks enhancement program, ProDOS and DOS 3.3 RamDrive™ and other useful utility software.

Superior color graphics, more readable text.

The ColorLink™ RGB option gives brilliant, sharp graphics and text.

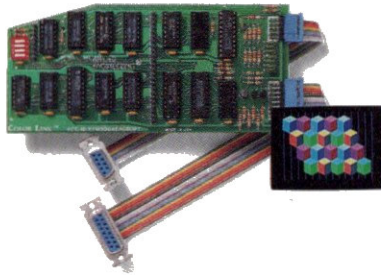
It meets all Apple standards for RGB output control. So it's compatible with more off-the-shelf software.

You can use Apple or IBM RGB monitors. ColorLink provides Apple standard analog and IBM standard digital RGB outputs (cables included).

ColorLink offers four text colors so you can use the one that's easiest on your eyes (others offer only green).

The ColorLink option plugs into the back of RamWorks III. It doesn't interfere with Slot 1.

You can order ColorLink with your RamWorks III board or add it later.



ColorLink® RGB option. IBM digital output cable. Apple analog output cable.

Optional 16 bit power.

You can explore powerful programming possibilities with Applied's optional 65C816 card. It's capable of linearly addressing more than 1 MEG.

It connects to RamWorks III's built-in CPU port. Instead of using another slot, Applied's 65C816 card simply replaces the 65C02. It maintains complete 8-bit compatibility.

The RamWorks basic® alternative.

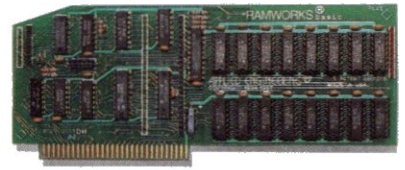
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crunching for precision graphics, so programmers need to squeeze maximum performance out of the hardware.

The program could be improved by a mouse-based interface that used icons and pull-down menus. Professional CAD/CAM workstations are increasingly adopting this sort of interface, so programs designed for training need to keep up with the trend.

CADApple's maker should provide drivers for screen dumps to popular dot-matrix (and laser) printers. No low-cost dot-matrix printer can equal the fine line quality of a pen plotter, but sometimes a quick-and-dirty printout is sufficient for teachers and students.

Despite these limitations, I recommend Entry Level CADApple to any high school, community college, or vocational program that needs a low-cost way to get started in computer-aided design.

Secondhand Apple II computers are available to schools at very low cost, so the biggest capital expense would be for plotters. The cheapest new single-pen plotter might cost about \$500. By sharing a plotter between two or three workstations, a school can set up a CAD lab for less than \$1000 per seat, including software.

Other CAD programs for the Apple may be available at lower cost, but I have seen none that offer so much value for less than \$100. +

Mike Markowitz is a computer engineer for a large Southern California aerospace firm, where he has taught introductory CAD/CAM classes. He has written about Apple II computing since 1983.

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ENTRY LEVEL CADAPPLE

A low-cost, introductory computer-aided design package, intended for schools. It includes a textbook and audiotape.

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Sideways reads AppleWorks spreadsheet files directly. It even displays your spreadsheet right on the screen, and lets you use familiar AppleWorks-style menus and Open-Apple commands

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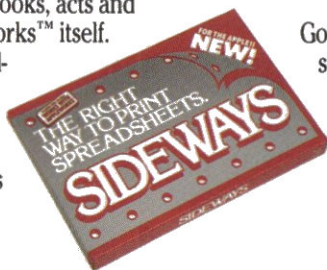
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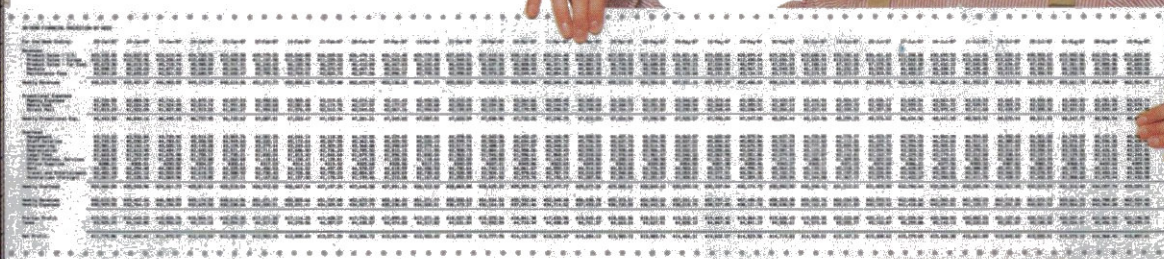
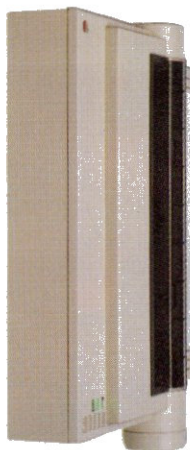
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A+ APPLEWORKS REPORT

FEATURE REPORT
*TIMEOUT GRAPH AND
GRAPHIC EDGE*

SHORT REPORT
*ACCESSORIZING WITH
ZIPFILES*

TIP FOLDER

FEATURE REPORT
BY CHARLES RUBIN

TWO NEW GRAPHICS PROGRAMS

AppleWorks users who want to produce business graphs from their spreadsheets have long had few choices. In the November 1987 issue of *A+*, we just about covered the universe of AppleWorks graphing programs, by reviewing Visualizer IIe and GraphMerge. Since then, both Beagle Bros and Pinpoint have introduced products to help you create graphs from spreadsheets. The Beagle program works from within AppleWorks and is easy to use, whereas the stand-alone Pinpoint product is more powerful and complex.

TIMEOUT GRAPH

Timeout Graph, one of Beagle Bros' new Timeout desk accessories for AppleWorks, lets you create seven basic types of business graphs from AppleWorks spreadsheet data. To use it, you must modify your AppleWorks start-up disk, after which you can access Timeout Graph (or any other Timeout accessories you may have) from inside AppleWorks by holding down the open-apple and Escape keys, as long as the disk containing the desk-accessory files is in an available disk drive.

Being able to run Timeout Graph

from inside AppleWorks offers two key advantages. You don't have to quit AppleWorks and run a separate program when you want to produce a spreadsheet graph, and because Timeout Graph uses the spreadsheet's own facilities for cursor movement and selection of data points, it's faster at these activities than graphing programs that work by themselves. Timeout Graph works with spreadsheet files of any size and is compatible with most other AppleWorks enhancements, including Super MacroWorks, AutoWorks, and the Pinpoint accessories, and RAM-card modification software from Applied Engineering and Checkmate.

Fast and Easy Graphs

As a desk accessory, Timeout Graph doesn't offer as many graphic-enhancement options as a full-featured, stand-alone program would, but it is fast and easy to use. You load the spreadsheet you want to graph and then use the open-apple and Escape keys to bring up the Timeout menu showing the available accessories. Once you've chosen Graph, the program loads, offering a menu of basic options at the bottom of the spreadsheet

screen. Choosing any of these options brings up one or more sub-menus. With the Type command, you can select from bar, stacked bar, line, pie, XY, high-low, and area graphs. The Data command lets you select up to eight sets of data for plotting. Because Timeout Graph uses the spreadsheet's own facilities to select data, you can use open-apple/arrow-key combinations to select groups of cells.

Using the Options command, you can add main titles and subtitles to the graph, specify a legend for each data set, select a specific scale (or use auto-scaling), or display horizontal and vertical grid lines. Scale numbers can be displayed in all the AppleWorks spreadsheet formats: dollars, percentages, and so on. Scale numbers and legends appear in the program's built-in font, and you can't select a different font. The View command plots the graph on the screen.

Trade-offs

One drawback of having these graphing features within AppleWorks is that, because AppleWorks itself can't handle color, you can't display color graphs. On the other

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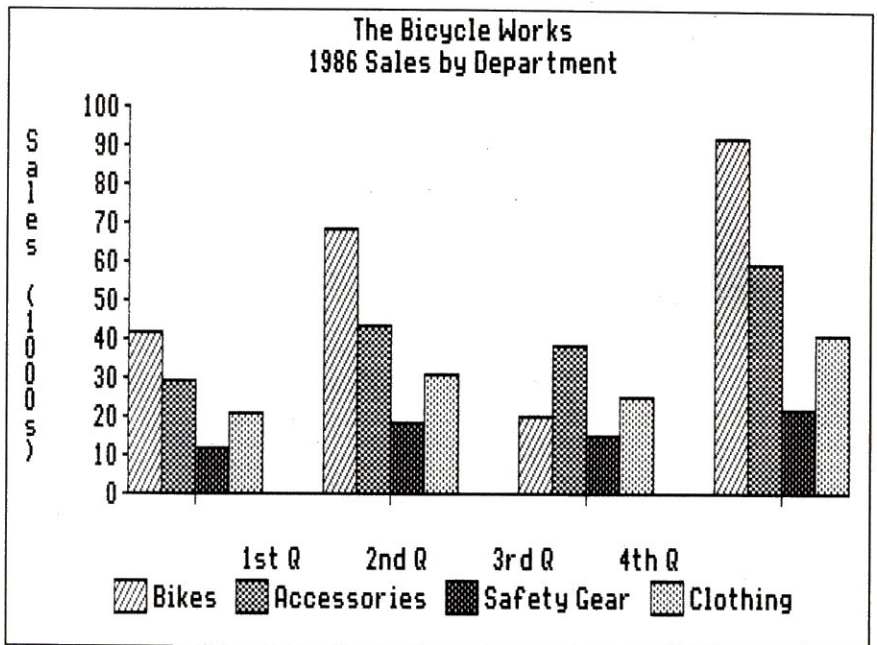
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FEATURE REPORT



A bar chart from Beagle Bros' Timeout Graph. The program lets you create seven types of business graphs from AppleWorks spreadsheets.

hand, updating a graph with changed spreadsheet data is easy. You can press the Escape key twice from a graph screen to return to the basic spreadsheet file, change a number or two, and then run Timeout Graph again and use the View command to plot the changes. Timeout Graph remembers any graph settings you've chosen for a spreadsheet file, as long as that file is on the desktop, and you can save the settings with the spreadsheet file by using a Save command on Graph's basic menu. You can save only one graph definition per spreadsheet file, though.

Along with graph definitions, you can save displayed graphs themselves as standard double-hi-res picture files, so you can produce a graph and further enhance it with Beagle Graphics or another double-hi-res graphics program. The Print command lets you print the last graph you viewed in one of three different sizes.

Timeout Graph handles all your basic business-graphing needs. It comes with an excellent manual, which includes a thorough tutorial covering all basic functions and specific sections on enhancing pie graphs (with exploded slices or shaded slices) and XY graphs. A reference section clearly explains all the program's features and de-

tails the advantages of using each type of graph, so you can choose the best type to display your data. Timeout Graph is a well-designed program that compares favorably with Visualizer IIe, at about the same price, and lets you create graphs without ever leaving AppleWorks.

GRAPHIC EDGE

Graphic Edge is Pinpoint's new stand-alone graphing program. It creates eight different chart types from an AppleWorks spreadsheet's data, and it lets you store up to ten different graph definitions with each spreadsheet file. Along with business graphics, Graphic Edge has an array of options and drawing tools you can use to add pictures or graphic enhancements to business graphs, to quickly create bullet charts or flowcharts, or to create double-hi-res pictures for use in other programs. You can use more than 20 font/style combinations for text on your graphs or pictures, including London, Chicago, and Geneva fonts in Roman, italic, and bold styles. The program has 16 different fill patterns and 16 different colors to choose from for displaying or printing graphics or text. You can even load in picture files from other programs and add them to graphs you have plotted.

Graphic Edge has three distinct

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With WordPerfect, you can produce flawless footnotes and endnotes. Or check your spelling with a 115,000-word dictionary. Or find the right word using the thesaurus. With the flick of a finger you can open an unlimited number of windows, each containing different documents. You can interchange text between documents. And you can

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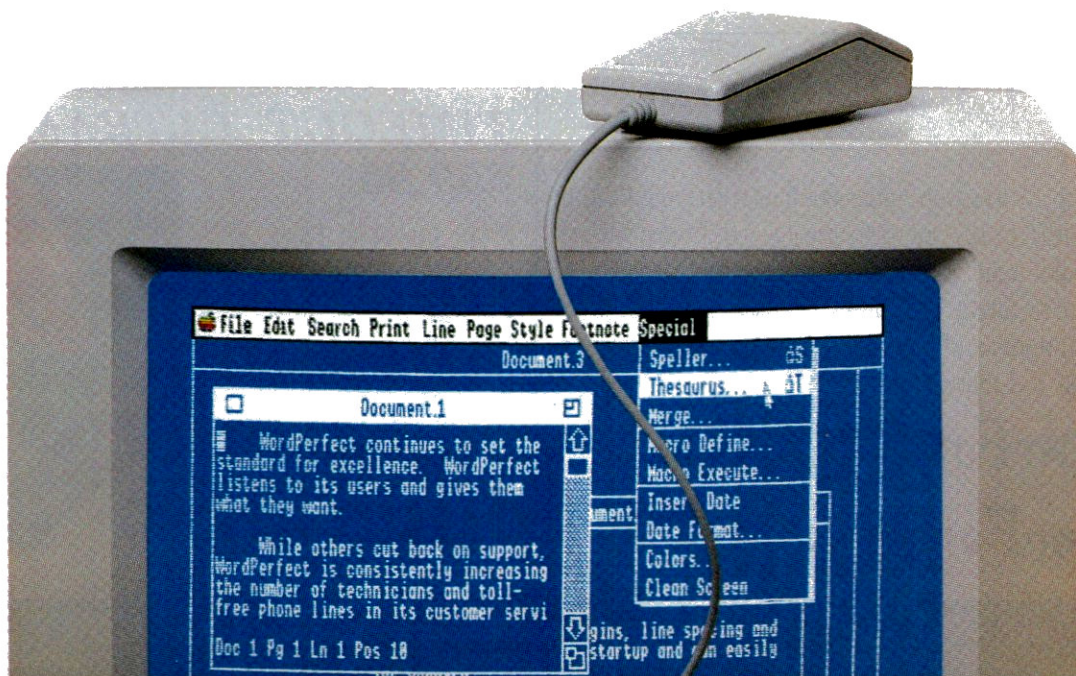
perform scores of other functions like mail merge, macros, on-screen formatting, super/subscript, automatic page numbering, and more.

WordPerfect Flexibility.

In addition to running on the IIgs, WordPerfect is available for the IIe/IIc (with a 50,000-word dictionary). And files from both versions can be interchanged with WordPerfect files generated on other machines, including IBM® PC compatibles and some minicomputers.

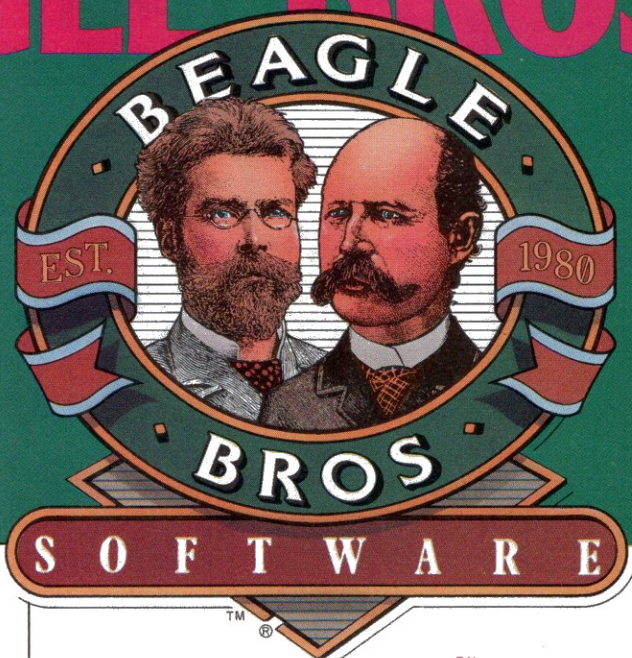
No other word processor lets you flex the word processing muscle of your IIgs like WordPerfect. For more information, including special programs for educators, call or write WordPerfect Corp., 288 West Center St., Orem, Utah 84057 (801) 225-5000.

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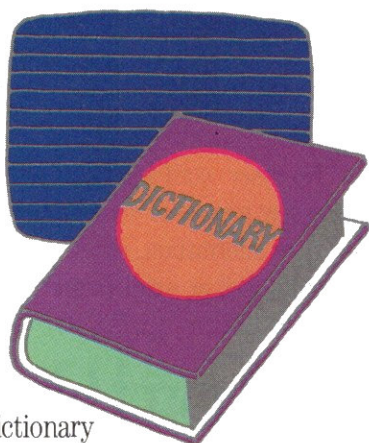
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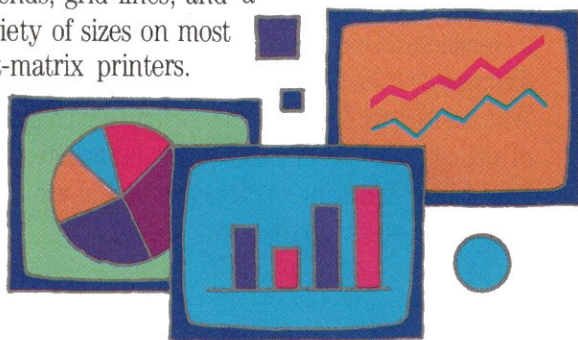
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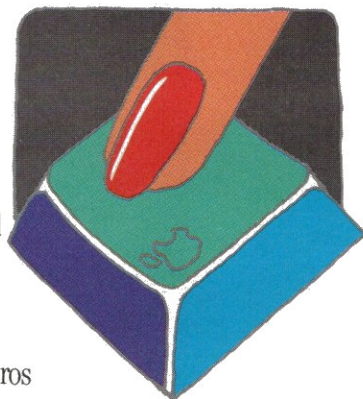
Creates graphs directly from spreadsheets or databases in any of 9 graph types: Bar, Line, Pie, XY (scatter), Stacked Bar, Area, Hi-Lo, Exploded Pie, and Point. It features automatic or manual scaling of the X and Y axes, graph and axes titles, legends, grid lines, and a variety of sizes on most dot-matrix printers.



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More powerful than ANY macro program available for Appleworks. Includes many special features that let you have complete control over Timeout and Appleworks all at the touch of one keystroke. You can also define up to 500 different macros at one time.



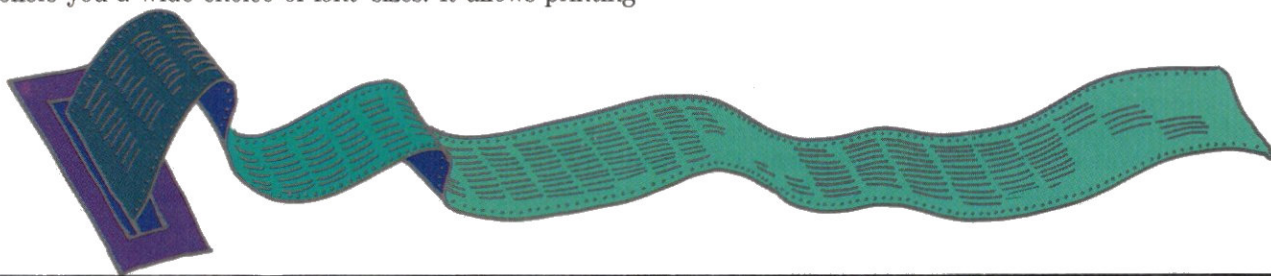
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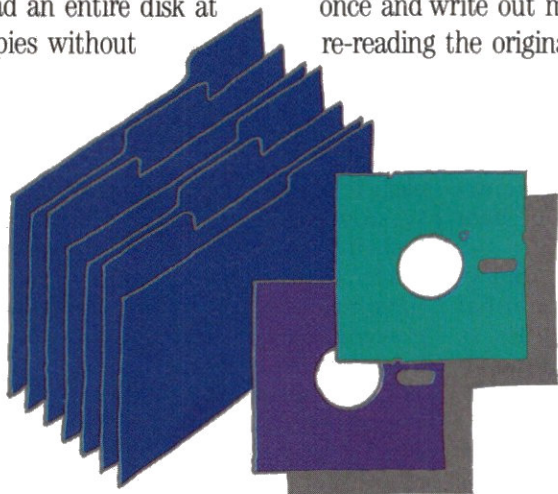
Rotates your spreadsheets 90 degrees enabling you to print sideways with no limit on the size of the file to be printed. It offers you a wide choice of font sizes. It allows printing

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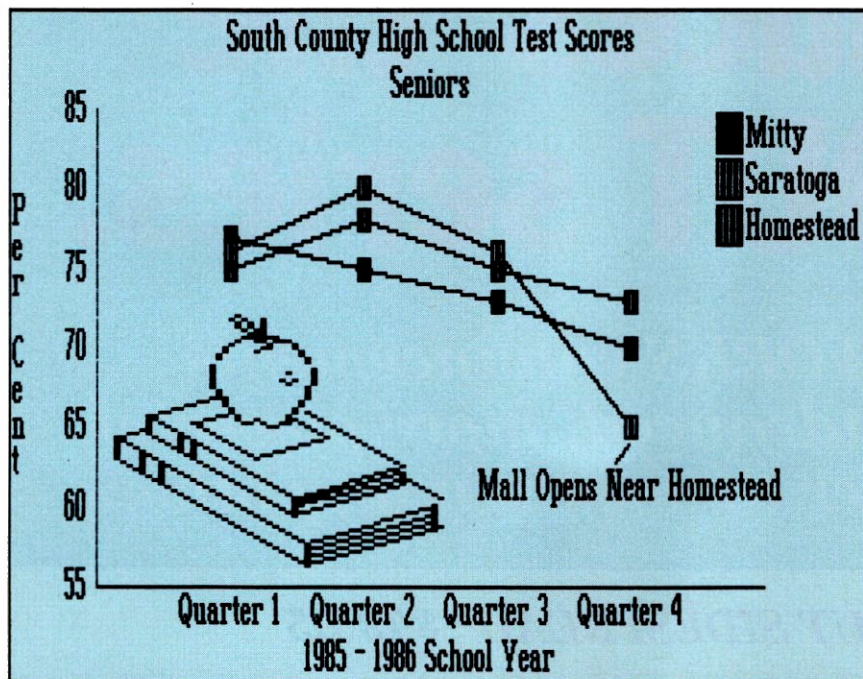


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Pinpoint's Graphic Edge works with three different levels of graphic objects, treating each level independently.

working environments—the file-card, worksheet, and drawing environments—each with its own set of commands and capabilities. The file-card environment looks a lot like the AppleWorks desktop, with file cards containing menu options that let you add, remove, or save desktop files (which are spreadsheets with graph definitions linked to them) or make new files. You can work with up to 12 spreadsheet or double-hi-res files on the desktop at a time. The Other Activities menu lets you format disks, make subdirectories, specify the type of printer you're using, select the type of RAM card you're using (the program works with Apple, Applied Engineering, AST, and Checkmate RAM cards), select a standard chart definition to use automatically, and edit one of the program's ten fill patterns that identify different data sets.

Worksheets

Graphic Edge's worksheet environment lets you select a chart type and charting options and identify the data sets you want plotted. The menu that appears when you load a spreadsheet file contains only options for defining a graph, plotting a graph, or displaying the data points and charting options of the current chart definition. Before

you can define a graph, you must name the file that will contain the set of chart options you select. If you have already created one or more chart definitions for the spreadsheet file you have loaded, you can select a particular chart definition by number or create a new definition.

Using the Define Graph option from the basic menu, you can select from eight different graph types: point, line, bar, stacked bar, area, high-low, pie, and XY. The program has no option for exploded pie charts, but you can edit all the elements of a chart in the drawing environment to create any type of chart explosion. You can select up to ten sets of data points for plotting. Cursor movements and screen scrolling are a little slow when you select data, and you can't use AppleWorks spreadsheet shortcuts such as open-apple/arrow key to select ranges of data quickly.

Chart options include x- and y-axis grids; automatic or manual scaling; main titles and subtitles, as well as x- and y-axis titles; time labels (to denote quarters, months, and so on); and legend labels. You can also enhance graphs with tick marks inside the grids, frames around graphs and legend boxes,

and different colors or patterns for different data sets. If you want to enter a chart title that isn't contained in a spreadsheet cell, you can specify any cell's contents as the title and then edit the title later in the drawing environment to produce the title you want.

You can choose to display chart elements in color or black and white, but the color option works well only with composite color monitors. The manual warns that text and small objects don't display well on RGB monitors such as the IIGS monitor—a common problem with color programs on the IIGS.

Drawing

Once you've displayed a graph (or if you choose the option to create a new graphic file within the file-card environment), you enter Graphic Edge's double-hi-res drawing environment. You can draw lines, boxes, rounded boxes, ovals, or text on the screen, using the Apple's cursor keys (the program does not work with the mouse). You can also edit any part of a graph or any graphic object you've drawn on the screen.

Graphic Edge works with three different levels of graphic objects. First, graph objects are the lines, grids, titles, and legends the computer draws when you plot spreadsheet data. You can select individual objects and move them, change their color or pattern, or edit the text in legends or titles. The second level—user objects—includes lines, boxes, and text you add by using the drawing tools. Last but not least, pictures and bit maps are images of the screen that you can save as files. (A bit map is a portion of a graphic screen.)

The different levels of graphic objects are what give Graphic Edge its real power. The program treats each level of objects independently, so you can load a picture from disk into a screen that contains a graph, to dress up the graph. If you have a standard company logo in a graphic file, for example, you can load that file into each graph you plot to achieve a standard look. You can also plot a graph, save it as a picture, and then load it in on top of another picture so the graph has a full background. You can use

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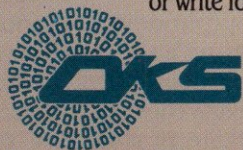
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graphics from clip-art disks, from programs such as The Print Shop, or from files you've created with Dazzle Draw or other programs to customize spreadsheet graphs almost infinitely. Graphic Edge can even load Print Shop graphics from either DOS 3.3 or ProDOS disks.

Goodies

Along with moving or editing the text in user objects or graph objects, you can use "goodies" available within the drawing environment to select different brush sizes (to change the thickness of lines, boxes, or chart frames), colors, or patterns to draw with, or to change the text font. You can select right, left, or center justification for text when you type. The program has dozens of other options: you can add shaded boxes around text. You can move graphic objects in front of or behind other graphic objects. You can change the colors or patterns of bars or pie slices on charts. You can set the program to redraw the screen automatically, or only when you tell it to.

When you're finished with your graphic creation in the drawing environment, you can save it as a double-hi-res file, in binary format for use with Dazzle Draw, or as a photo file. You can also save portions of the screen as bit maps. With the Picture File option or the Bit Map option, you can create a picture and then use Pinpoint's GraphMerge to paste it into an AppleWorks word-processing document. You can choose to save all the objects on a screen or only the user objects you have added yourself. When you print a picture, it prints in the full-screen size—the program offers no size selection for printed charts.

Another important feature of Graphic Edge is that it saves graphic objects as sets of mathematical coordinates, so the resolution of those objects adjusts to the resolution of the output device. Pinpoint is contemplating a service that will produce high-quality color slides of Graphic Edge files for its users.

Graphic Edge is a flexible program that goes far beyond basic business graphics. Although its drawing tools don't rival those in

FEATURE REPORT

Dazzle Draw or other hi-res drawing programs, it offers enough power to let you create some artful embellishments to business graphs or produce quick bullet charts, organizational charts, or other business tools. When Graphic Edge's drawing tools aren't enough, you can import drawings from other programs with ease.

This program is powerful but

also complex. The three levels of interaction and the nests of menus in the worksheet and drawing environments make it somewhat harder to learn than simpler programs such as Visualizer II or Timeout Graph. You don't get a real sense of how the program is organized and what its full capabilities are until you've read chapter 4 of the manual.

Nevertheless, Graphic Edge is the program to choose if you want maximum graphic flexibility when producing business graphs and if you don't mind having to do it with a stand-alone program. You can create and save multiple chart definitions with your spreadsheets so you can produce recurring updates of graphs with ease, and the program lets you use custom artwork you've created with other programs.

As an additional enticement, Pinpoint is offering enhancements to Graphic Edge, including a font editor that lets you create your own custom fonts, a clip-art collection,

and a slide-show maker that lets you store and display graphic screens in sequence. Graphic Edge takes business graphics out of a world of lines and boxes and makes them an art form. **+**

A+ *Small-Business Editor Charles Rubin is the author of AppleWorks and Command Performance: AppleWorks, both from Microsoft Press.*

VITAL STATISTICS

TIMEOUT GRAPH

This Timeout desk accessory for AppleWorks lets you create seven basic types of business graphs from AppleWorks spreadsheet data.

CPU: Apple IIe, IIc, or IIgs

RAM: 128K

DISK DRIVES: one 5¼- or 3.5-inch

OPERATING SYSTEM: ProDOS, AppleWorks 2.0

COPY-PROTECTION: no

LIST PRICE: \$89.95

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VITAL STATISTICS

GRAPHIC EDGE

A stand-alone graphing program that creates eight different chart types from AppleWorks spreadsheet data

CPU: Apple IIe (enhanced), IIc, or IIgs

RAM: 128K

DISK DRIVES: one 5¼-inch

OPERATING SYSTEM: ProDOS

COPY-PROTECTION: no

LIST PRICE: \$89

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SHORT REPORT

BY LEE HAYWARD

ZIPFILES TEMPLATES

AppleWorks, as we all know, is one of the best-selling programs of all time. Because of its popularity, it has inspired a large collection of related software, hardware, and other enhancements, not to men-

tion three users' groups devoted exclusively to AppleWorks and a seemingly endless supply of public-domain templates that help you do almost anything you'd like. AWUG, The AppleWorks Users

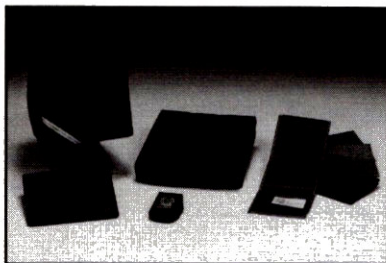
Group, with which I am connected, has a collection of more than 1100 templates. So, when I was asked to review ZipFiles templates for AppleWorks, I wondered what it could have that I hadn't already seen.

Well, I was pleased with what I saw. Petit Designs sells six different sets of templates. I received Desktop Accessories ZipFiles, which are considered by the author to be low-cost alternatives to Pinpoint or Jeeves. This disk includes 11 accessory spreadsheet files and one file that contains all the other templates.

The two Calendar accessory files generate calendars to the year 2000. A Calendar is a full month and takes a full screen to view, whereas the Compact Calendar shows four months at a time. Both have an interesting note feature. An asterisk appears next to the date, and when you place the cursor on it, a one-line note shows up on the bottom of the screen.

Another accessory, the Task List, lets you list and rank things to do. KwikEnvelope and KwikLabel print envelopes and labels, using the print block from the spreadsheet. Both files suggest keeping a directory of names and addresses in an AppleWorks spreadsheet file for quick printing. Calculator Set performs simple scientific, factorial, or trigonometric calculations and appears as a graphic of a calculator, with a space to enter a problem that the AppleWorks spreadsheet program can calculate. Sleeve List is supposed to print a screen dump of an AppleWorks catalog in 17 characters per inch (cpi). It does so by loading a word-processing file set to print at 17 cpi. Then you go to Add files to the desktop and do a screen dump. In theory, the printer is now set to 17 cpi and will dump at this setting. My ImageWriter kept reverting to 10 cpi for the screen dump, however.

Flash Pad contains all the aforementioned files on one spreadsheet, which means you have to have only one file on the desktop to access all the accessories. Even if you haven't added any of your in-



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AT 87

CIRCLE 136 ON READER SERVICE CARD

SHORT REPORT

formation to the files, this file takes up about 18K of desktop space, a sizable percentage of a 55K desktop. Flash Pad includes a unique mapping system that shows you where the various accessories and instructions reside, so you can speed to those areas. The program's author suggests using a macro program to set up one- or two-key-stroke access to these accessories.

On the surface, none of these templates are all that exciting. Then why do I like them? The answer lies in their programming. They boast unique components that everyone who designs templates should look at, including visual alarms and flags that are programmed to "light up," depending on different circumstances. The speed-map idea should be used for clarity and ease of use by anyone who constructs large spreadsheet templates.

The manual comes in AppleWorks word-processing files on the back of the program disk. The author plans to supply a printed manual "when sales warrant the expense." The manual, like the software, is well thought out. As AppleWorks files, the templates are not copy-protected and can work with any other AppleWorks accessories that you currently use. +

Lee Hayward is a media specialist at Arrowhead Elementary School in the Cherry Creek School District near Denver, Colorado. In his spare time, he is the chairman of The AppleWorks Users Group, a clearinghouse for AppleWorks templates.

VITAL STATISTICS

ZIPFILES

AppleWorks templates that are set up as desk accessories

CPU: Apple IIe, IIc, or IIgs

RAM: 128K

DISK DRIVES: one 5 1/4-inch

OTHER: AppleWorks

OPERATING SYSTEM: ProDOS

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TIP FOLDER

BY JOHN H. CARTER

CONVERTING GRADES

The September 1987 issue of *A+* (page 105) contained an inquiry entitled "Grading Spreadsheet." The macro in figure 1 for use with Super MacroWorks converts numerical grades to letter grades (90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, and <60 = F). The grade for a zero entry is marked with I (for incomplete). You can modify the macro for alternative criteria.

The macro is compiled by open-apple/=. To use the macro:

1. Numerical grades must be in a column. No text or blank entries are allowed in the columns.
2. The column of grades, if generated by formula, *must* be copied to and then from the clipboard as "values only."
3. Insert a -1 below the last numerical grade to indicate the end of the list.

4. Visually scan the numerical grades for any values that are less than 20 (but not 0), since they provide a letter grade of A instead of F.

5. Activate the macro by placing the cursor on the topmost grade

and typing closed-apple/G

Letter grades will appear in the column immediately to the right of the numerical grades.

JOHN H. CARTER
HOLLISTON, MA

```
start
g:(asp)(rtn)(oa-u)(sa-h)(sa-i)(sa-j)(sa-k)(sa-l)(sa-m)
(sa-n)(sa-o)(sa-p)(sa-q)(sa-r)(rpt)!
h:(asp)(if)0(esc)(right)" I (rtn)(left)(down)(sa-g)!
i:(asp)(if)1(esc)(right)" A (rtn)(left)(down)(sa-g)!
j:(asp)(if)9(esc)(right)" A (rtn)(left)(down)(sa-g)!
k:(asp)(if)8(esc)(right)" B (rtn)(left)(down)(sa-g)!
l:(asp)(if)7(esc)(right)" C (rtn)(left)(down)(sa-g)!
m:(asp)(if)6(esc)(right)" D (rtn)(left)(down)(sa-g)!
n:(asp)(if)5(esc)(right)" F (rtn)(left)(down)(sa-g)!
o:(asp)(if)4(esc)(right)" F (rtn)(left)(down)(sa-g)!
p:(asp)(if)3(esc)(right)" F (rtn)(left)(down)(sa-g)!
q:(asp)(if)2(esc)(right)" F (rtn)(left)(down)(sa-g)!
r:(asp)(if)-(esc)(right)" end (rtn)(stop)!
end
```

Figure 1: Using this macro converts numerical grades to letter grades.

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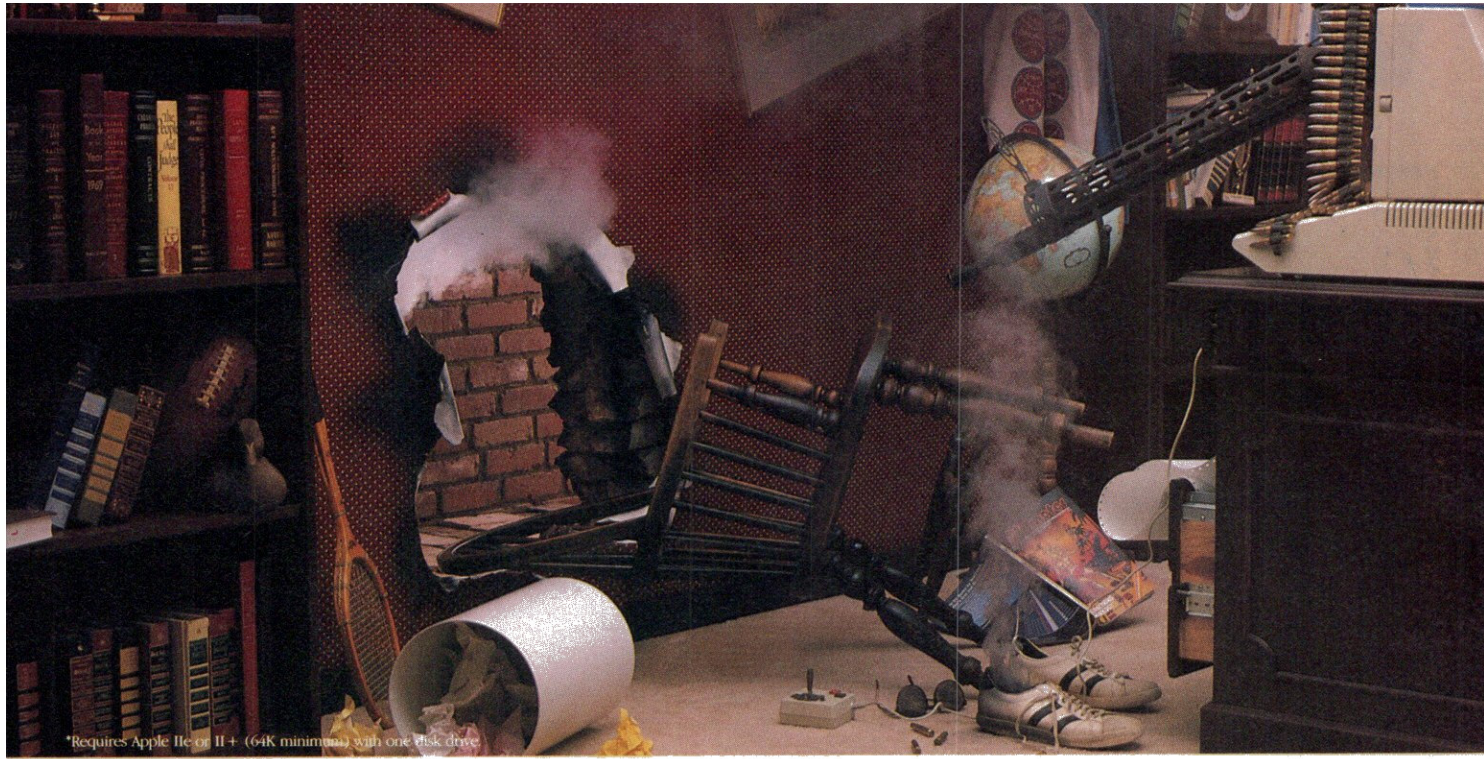
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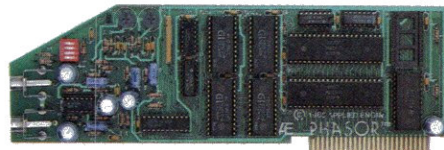
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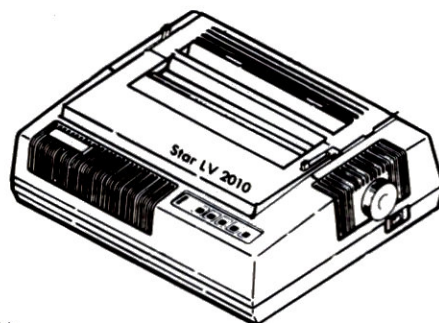
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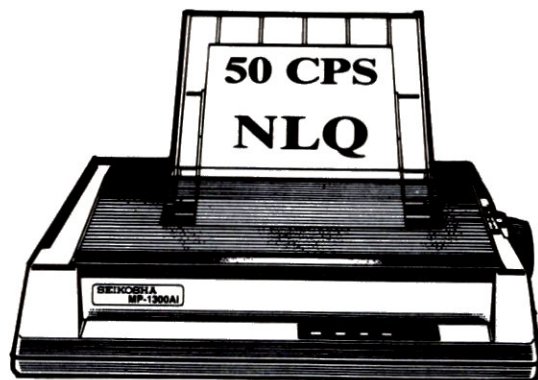
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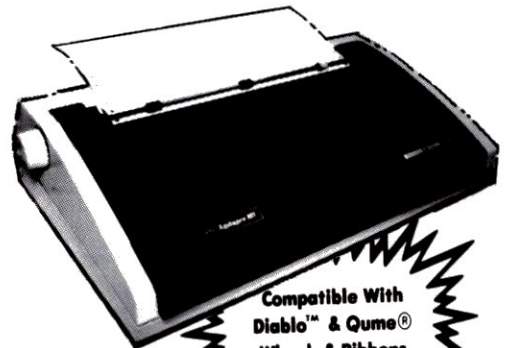
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The Learning Curve

BY DAVID D. THORNBURG

THOUGHTS ABOUT LEARNING

Educational software should promote higher-level thinking skills.

Last October's issue of *A+* contained a "debate" between Jan Davidson and me on the merits of drill-and-practice software in the classroom. Jan (whose company is a world leader in the development and sale of such software) took issue with some of my published commentaries on the topic. In fact, our differences of opinion have nothing to do with whether or not children should use drill to reinforce basic skills—we both agree that basic skills are important. The point I made was that the classroom computer is a scarce resource and that it should be reserved for tasks that students cannot perform with workbooks or other traditional classroom tools.

As I thought further about this comment, I realized that the computer is such a flexible tool that it can easily develop and reinforce all the thinking skills that are important in learning, but that most of the energy in software development has been expended on software for one of the lowest levels of thinking skills, the acquisition of factual information.

This month I want to explore the challenges that face developers of

software designed to help promote and support "higher-order thinking skills" and creativity.

How Do We Learn?

I recently came across an interesting model of learning attributed to Chuck House at Hewlett-Packard. He identifies four stages of the learning process:

Step 1. You don't know that you don't know,



Step 2. You know that you don't know,

Step 3. You know that you know, and

Step 4. You don't know that you know.

Let's explore this model for a task such as learning to ride a bicycle. At some stage in the learners' life, the word *bicycle* doesn't exist.

They have never seen a bicycle and, consequently, don't know that they don't know how to ride one (step 1).

Next, our learners see someone riding a bicycle and try to ride one as well, falling down in the process (step 2).

Through diligent effort, the learners are able to ride the bicycle, with much attention to every

move. The wobbliness of the bike at this stage is an indication of the thinking that is going on—the learners *know* that they know how to ride a bike.

Finally, bike riding becomes second nature. The skills are so well ingrained that the riders don't have to think about it anymore—they just hop on the bike and take off down the street (step 4).

Many personal-computer drill programs are designed to help students move from step 3 to step 4, to make computation or reading or some other task such a common experience that learners don't have

to think about it much, if at all. Unfortunately, these programs are sometimes used by learners who are trying to make the transition from step 2 to step 3—the software is being used for the acquisition rather than the reinforcement of a skill.

Skill acquisition is important, and computers can be an appropri-

ate aid in this area, but the software for skill acquisition should be markedly different from that for skill reinforcement.

Thinking Skills

Let's explore the scope of the thinking skills that we use (or should be able to use) every day. The following model is my own extension of a taxonomy of thinking skills by Benjamin Bloom. His list comprises six thinking skills arranged in the following hierarchy, starting with the lowest-level skill:

1. Knowledge—the ability to recall information,
2. Comprehension—the simple understanding of knowledge,
3. Application—the ability to use principles in new situations,
4. Analysis—the capacity to break a complex situation or problem into parts,
5. Synthesis—the capacity to construct new things by applying several separate principles or ideas, and
6. Evaluation—the capacity to

make judgments about one's own thinking.

To this list I have added three more thinking skills of an even higher order:

7. Creativity—the power to spontaneously develop new solutions to challenges, to invent new things through spontaneous insight,
8. Intuition—the capacity to "know" or understand the characteristics of a situation without prior factual knowledge, and
9. Connection to the "collective unconscious"—the Jungian domain in which (among other things) discoveries in one part of the planet are "spontaneously" rediscovered in other parts at about the same time without direct communication between the discoverers.

I've come to the conclusion that children seem to be born with skills 7-9 and that they need to be taught skills 1-6. Unfortunately, there seems to be overwhelming evidence that through lack of validation and support, the highest three skills are submerged by the time a child reaches sixth grade (if not before then). The recent interest in developing skills 4-6 is a positive sign, since mastery of these higher-order thinking skills is essential for students. I believe these skills can be approached from the analytical or from the intuitive perspective—or from both perspectives at the same time.

Unfortunately, philosophical discussions of this topic seem to have little impact on reality (although this situation is starting to change). Even through high school, most of the teaching and almost all of the standardized tests focus on the three lowest-order thinking skills. If the status quo is to change, educators need to understand the immense power of higher-order thinking and ways that these skills can allow children to explore the traditional educational topics.

For example, a history lesson can consist of a lecture in which the students are expected to memorize names, dates, and places for later regurgitation on an examination. Alternatively, the same subject matter can become a class project in which the teacher gives the students tools with which they can construct their own knowledge base on the topic. With the second

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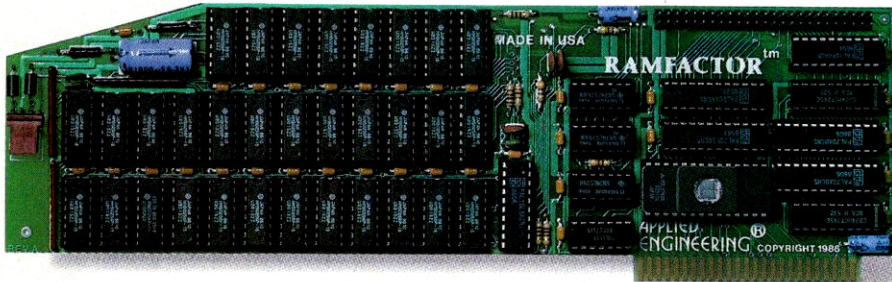
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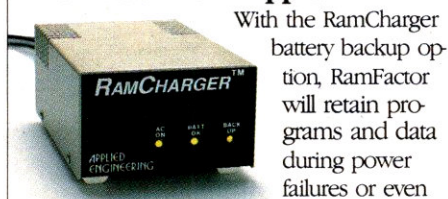
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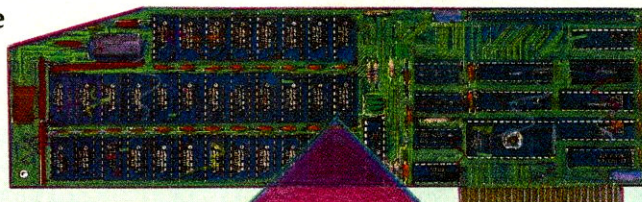
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alternative, student retention of knowledge (not to mention enthusiasm for study) is likely to be high. **Where Do Computers Fit In?**

Computers, being adaptable machines, can support any style of learning. Creating programs that support the first three levels of Bloom's taxonomy is easy, since a rich collection of source material is available and because student interaction with a computer tends to follow a simple stimulus/response model: The computer asks a question, the student responds, and the computer evaluates the response.

The next three levels require more sophistication on the part of program designers. Programs in these areas tend to present opportunities for students to respond to a question in several different but equally correct ways, or they ensure that student interaction with the program is so intense that the computer becomes "transparent." Good user interfaces are essential for all educational software, but they become more important as you move up the hierarchy of thinking skills.

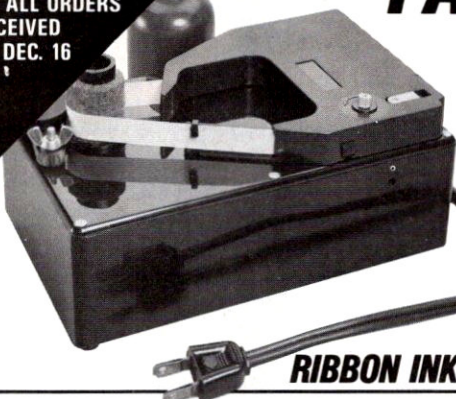
The top three levels generally place stringent demands on computational hardware. A program that supports the user's creative process must be instantly responsive. Perceptible delays can block creativity, as can poor resolution and limited color. Note that powerful hardware is not enough, however. The Apple IIGS is well suited for software in the creative domain—it has a fast CPU, lots of colors, and excellent sound capabilities—but the first software specifically for this machine was designed to show off the machine's capabilities, not to respond properly to human beings.

As I asserted last month, I have yet to see a graphics programs for the IIGS that is worth opening the box for. The problem is not the hardware—it is developers' lack of understanding of users' needs.

When you consider the role of computers in creativity and intuition, think of the computer as a support tool like a pencil, not as a cocreator of ideas.

Some deceptively simple programs can further the development of intuitive skills, and I will publish one of them in next month's column. **+**

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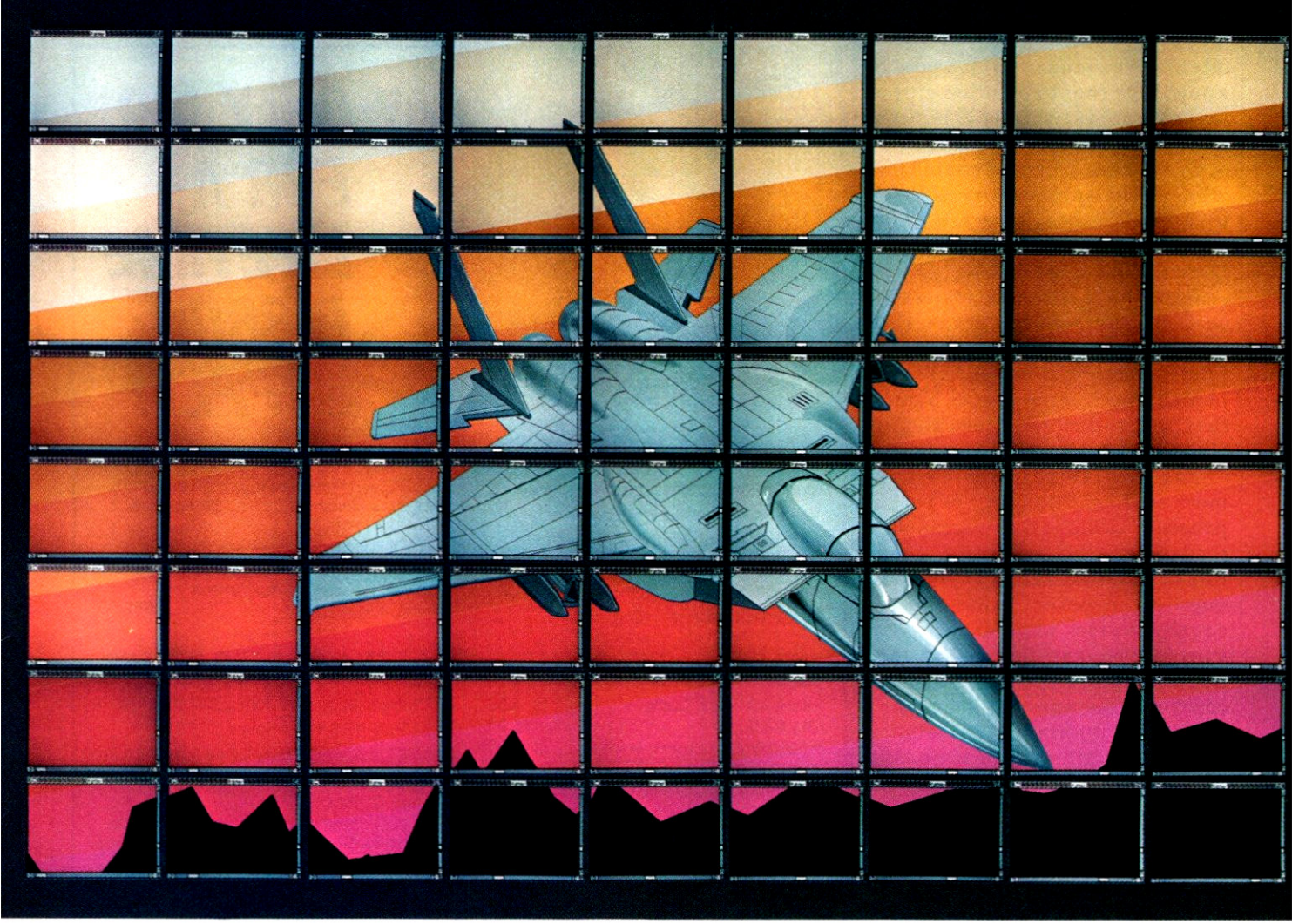
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Drawing by Dale Crawford of StyleWare

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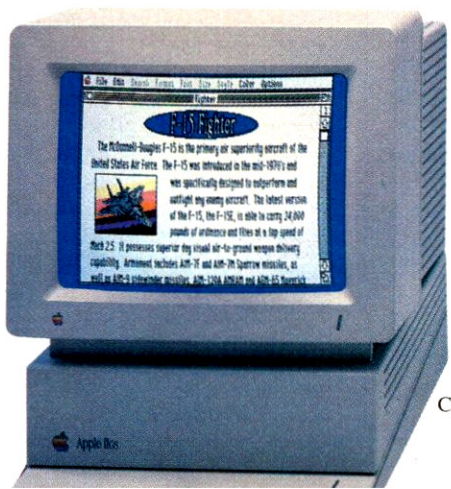
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CIRCLE 155 ON READER SERVICE CARD

BY JENNIFER BRAWER

A+ TEACHERS' TOOLBOX

Computerized puzzles, comics, and word games provide unique educational opportunities.

Remember all the comics, puzzles, and word games that helped pass the time on a long car trip or while you waited for the orthodontist? I didn't take many car trips as a child, but I did have buck teeth and spent hours of my early years in the waiting room. Crossword puzzles, word mazes, riddles, and Mad Libs were some of my orthodontist-waiting-room favorites. The activities were entertaining and humorous, and they provided an educational alternative to thinking about the impending torture of braces.

I recently served as one of the judges of the A+ "How I Use the II to Teach" contest and was amazed at the number of entries submitted by parents and teachers who used computerized word games and cartoon programs as supplemental language-arts activities. By far the most popular program mentioned was Crossword Magic from Mindscape. The program's popularity among our

contestants inspired me to look around for other cartoon, word-game, and puzzle programs that combined humor with learning something about language.

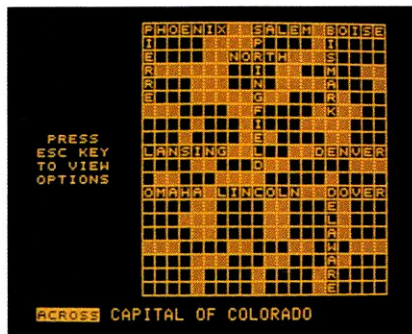
Word-game and puzzle programs provide a nontraditional framework for gathering, organiz-

ing, and presenting information. They can also lead to some special educational opportunities for students. Because the programs are so easy to use, students have the means to create their own classroom materials. Subsequent use of student-generated puzzles or word games as quizzes or learning activities is a creative way for children to participate in their own education.

Crossword Magic

Crossword Magic is so versatile that it can construct crossword puzzles for any subject area in any language that uses Roman symbols. Unlike most educational software, the subject matter and puzzle form can only be custom-designed; there are no predesigned puzzles on the disk. A library of puzzle

disks for use in conjunction with Crossword Magic is available, however. There are disks for mathematics, science, reading, social studies, spelling, and language arts. Each disk contains 20 puzzles that you can



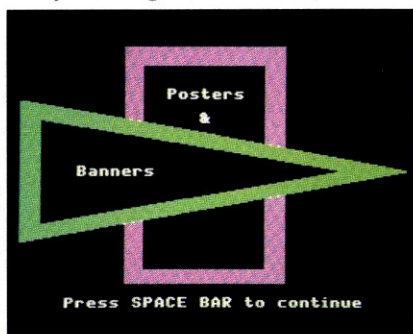
Crossword Magic



Wordmaze



Scrabble



Puzzles and Posters



Comic Strip Maker



Computer Mad Libs

You can use computerized cartoon programs as supplemental language-arts activities.

modify to correlate with a curriculum. The software comes with a comprehensive teachers' manual containing reproducible examples of the variety of topics that can be explored with crossword puzzles.

Wordmaze

Like Crossword Magic, Wordmaze is useful in any subject area. It takes words from preconstructed lists contained on the disk or from lists created by teachers or students and hides them among random letters. The words are difficult to identify because they are positioned in all sorts of odd directions. Selecting the words hidden among the rows and columns of letters requires good spelling, vocabulary, and visual-discrimination skills. The size of the maze is adjustable, with a word maze consisting of 3-letter words as easy to construct as one containing 20-letter words.

Scrabble

The computer edition of the classic Selchow & Righter board game Scrabble is an amusing alternative to crossword-puzzle programs. Electronic Arts distributes this product, which comes from Leisure Genius, a London-based entertainment-software company. The computer version of Scrabble remains



Puzzles and Posters

remarkably faithful to the original board game. Two to four players can play, and, if no human challengers are available, the program can provide up to three opponents in any one game. The playing vocabulary comprises more than

20,000 words selected from *The Official Scrabble Player's Dictionary*. The program uses the vocabulary to check and challenge all entries. The vocabulary is also available to computer opponents, and you can be sure that these challengers will pick the most obscure word with the highest point value every time.

Puzzles and Posters

Puzzles and Posters consists of four utility programs for teachers that create puzzles, mazes, and banners. The first program, Word Search, constructs word-search puzzles from word lists that can contain up to 50 entries with up to 15 characters each. After you create the word list, the program asks you how you want the words arranged and which words to include in the puzzle. The program can print multiple copies of the puzzles, each with a different arrangement of background letters. The Crossword Puzzle option constructs crossword puzzles from a word list. The program requests a clue for each word-list entry. The program can use lists created for Word Search but asks you to provide the clues.

The two remaining options on

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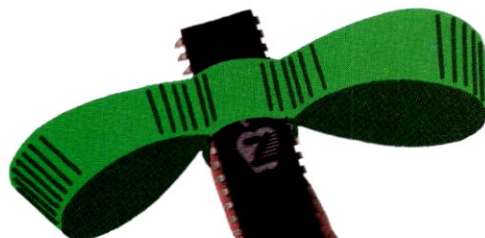
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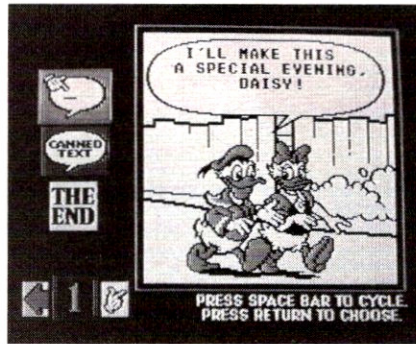
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the Puzzles and Posters disk are graphics utilities. A-Maze-Ment designs and prints mazes (the labyrinth kind) as small as 3×3 (letters) or as large as 23×25 . Each maze is unique. Posters and Banners, the remaining program option, lets you design and print original posters and banners. It does not have an extensive array of design options but does offer the bare necessities, such as borders for the posters and the capability to print up to 99 characters for the banners.

Comic Strip Maker

Cartoon programs are useful as prewriting or remedial activities for learning-disabled students and younger children. Most cartoon programs allow the construction of one picture at a time. In the Walt Disney Comic Strip Maker, up to three frames are available for the construction of a comic strip. Designing comic strips using the popular Disney cartoon characters provides practice in developing an idea, organizing and sequencing events, practicing vocabulary and spelling, and writing a short story. Offering movable graphics and a variety of speech balloons, or thought clouds, this type of pro-



Comic Strip Maker

gram is a valuable teaching tool and vehicle for written expression.

The program has some special features that make it particularly useful as an educational program. Of note is the program option Branch-A-Comic. Students work with predesigned pictures and must choose the frames that combine to make the best possible story. The exercise provides an introduction to the concept of a story tree.

Computer Mad Libs

Now I am going to ask you to stretch your imagination and consider the educational benefits of Mad Libs. Yes, a computer version of the classic party game and do-it-

yourself laugh kit Mad Libs is now available for the IIGs. Computer Mad Libs help students create off-the-wall stories by asking for particular parts of speech and then inserting them in preexisting text. The option to hear the words selected for a story is only a keystroke away—speech technology built into the program can “speak” the word if you enter it with a carriage return. You can alter words to make changes in pronunciation. The final product is a wacky rendition of “Little Red Riding Hood” or one of seven other illustrated stories. Amid the laughter and silliness of this word game, children can sharpen their understanding of the parts of speech.

Riddle Magic

“Where do little cows eat?” They eat, of course, “in the calfateria.” I plagiarized this particular riddle from a newly released program, Riddle Magic, from Mindscape. Riddle Magic teaches students how to create their own riddles and riddle books using a method developed by “America’s Riddle King,” Mike Thaler.

And what do you call a pig who is determined to create the best rid-

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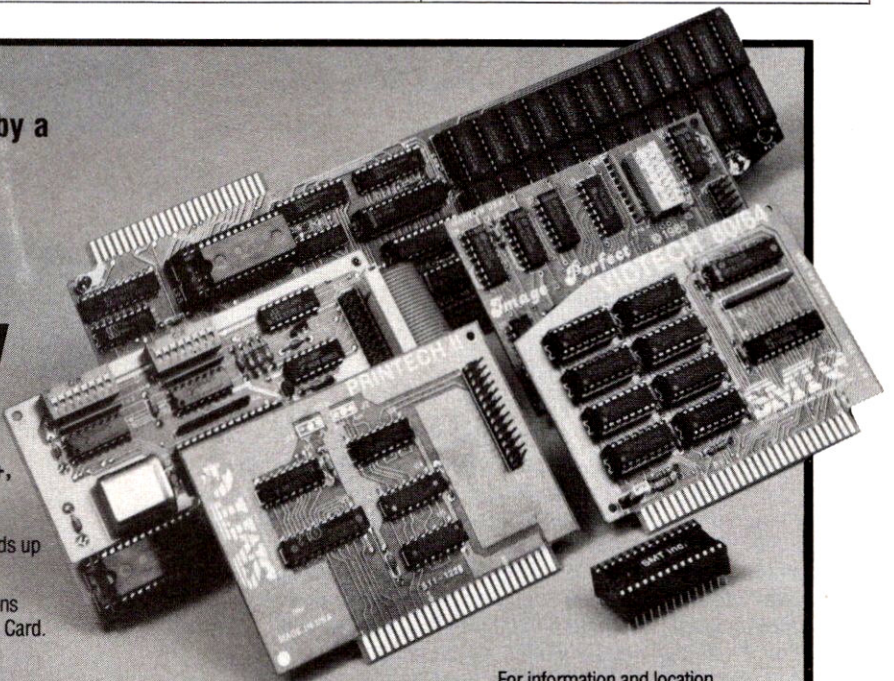
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1040 Department of the Treasury - Internal Revenue Service **1987**

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Label Your first name and initial (if joint return, also give spouse's name and initial) Last name
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Your Social Security number
 123 45 6789

Spouse's Social Security number
 987 65 4321

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Do you want \$1 to go to this fund? Yes No

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5 Qualifying widow(er) with dependent child (your spouse died in 1987). (See page 7 of instructions.)

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Caution: If you can be claimed as a dependent on another person's tax return (such as your parents' return), do not check box 6a. But be sure to check the box on line 32b.

Number of boxes checked on 6a and 6b: **2**

Number of children on 6c who lived with you: **2**

Number of children on 6c who didn't live with you due to divorce or separation: **0**

(1) Name (first, initial, and last name)	(2) Check if under age 5	(3) If age 5 or over, dependent's Social Security number	(4) Relationship	(5) No. of months lived in your home
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Lisa S. Moore	<input checked="" type="checkbox"/>		daughter	12

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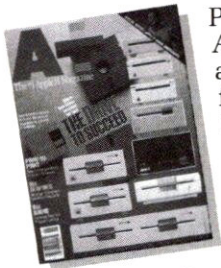
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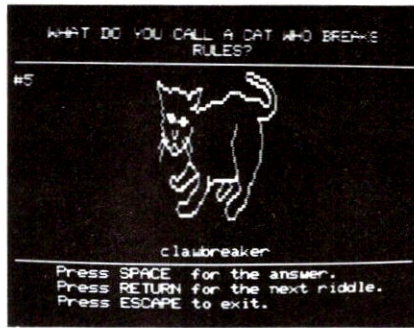
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Riddle Magic

dle? *Hambitious*, of course (once you start, you'll have trouble stopping!). *Riddle Magic* includes a built-in dictionary for riddle making, three variations of the basic riddle-making method, a word-

processing program for entering original riddles, and compatibility with *Print Shop* graphics for illustration. The program has definite educational objectives that are appropriate for grades 3-12. Children can develop research skills and vocabulary as well as gain experience in the use of synonyms, rhyming words, and syllabication. On the more creative side, children can use their imagination, think about the elements of humor, and have an overall positive experience with language. +

Jennifer Brawer is the A+ education editor and has never written a book about Apple computers.

VITAL STATISTICS

Crossword Magic, Crossword Magic Puzzle Disk, Riddle Magic, and Wordmaze

Mindscape, Inc.
3444 Dundee Road
Northbrook, IL 60062
(312) 480-7667

List Price: Crossword Magic: \$49.95; puzzle disks, \$14.95 each or \$59.95 for entire set; Wordmaze: \$49.95; Riddle Magic: \$49.95

Requires: Crossword Magic, Crossword Magic Puzzle Disks, and Wordmaze require any Apple II computer with 48K RAM; Riddle Magic requires any Apple II computer with 64K RAM; all require one disk drive; printer recommended. Copy-protected.

CIRCLE READER SERVICE NO. 365

The Computer Edition of Scrabble Brand Crossword Game

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171

List Price: \$39.95

Requires: Any Apple II computer; 64K RAM; one 5¼-inch disk drive.

CIRCLE READER SERVICE NO. 366

Puzzles and Posters
MECC

3490 Lexington Ave., North

St. Paul, MN 55126
(612) 481-3500

List Price: 5¼-inch, \$49; 3.5-inch, \$55

Requires: Any Apple II computer; 64K RAM; one 5¼- or 3.5-inch disk drive; printer. Copy protected.

CIRCLE READER SERVICE NO. 367

Walt Disney Comic Strip Maker (School Version)

Walt Disney Personal
Computer Software
500 South Buena Vista
Street
Burbank, CA 91521
(818) 569-7397

List Price: \$44.95

Requires: Apple II Plus, IIe, or IIc; one 5¼-inch disk drive; printer recommended. Copy-protected. (The home version is available from Bantam Software. See the January 1987 issue of *A+* for a complete review.)

CIRCLE READER SERVICE NO. 368

Computer Mad Libs

First Byte
2845 Temple Avenue
Long Beach, CA 90806
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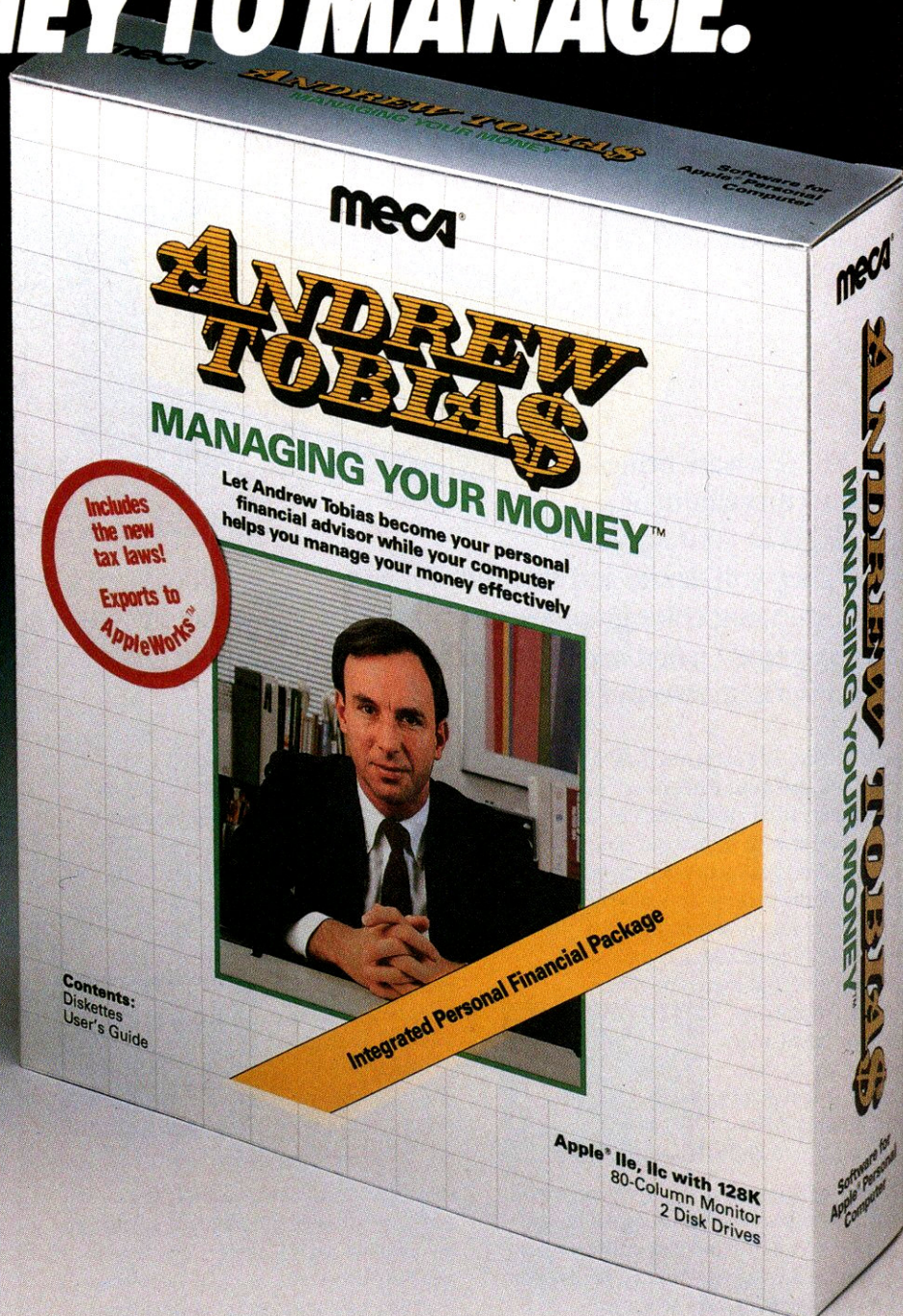
Requires: Apple IIGs; 512K RAM; one 3.5-inch disk drive; printer recommended. Copy-protected.

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PC Magazine, 1987

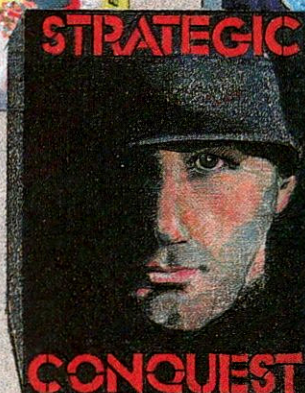
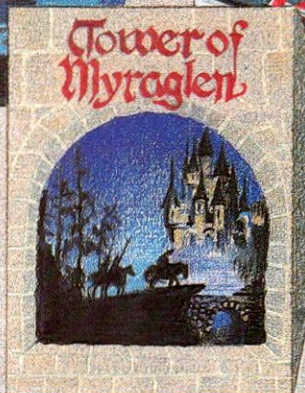
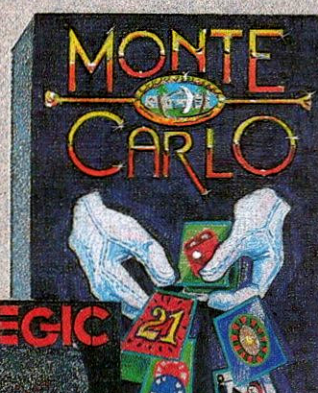
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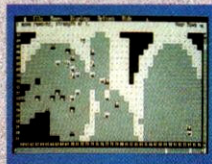
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Q U I C K T A K E

BY RUSEL DEMARIA

A IIgs program for preparing mailing lists and form letters

NOTES•N•FILES

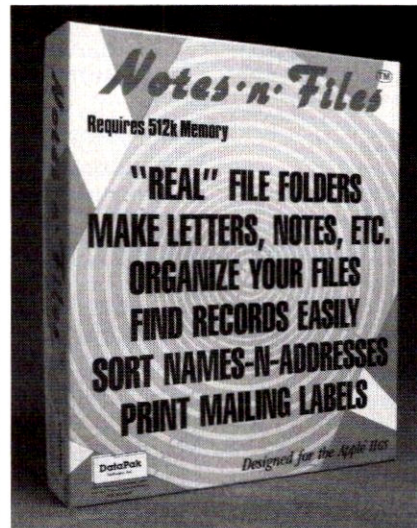
Notes•n•Files, from DataPak Software, Inc., is designed to take the drudgery out of mailing lists and form letters. It combines a simple but effective database with text processing and uses an intuitive file-cabinet metaphor. Pull-down menus, dialog boxes, icons, and detailed graphic screens form the IIGS look and feel of the product, while specialized features such as record flagging, indexing, and conditional filtering of records power the data-management end.

Each Notes•n•Files database centers on a two-drawer filing cabinet graphically depicted on the screen (see figure 1). Each drawer contains alphabetically arranged folders, each of which represents one record in the file (about 2500 folders per 800K data disk). Double-clicking on a folder opens a folder window. Icons that represent the documents in the folder are stacked on the right side of this window.

You can page through these icons one at a time, double-clicking to choose a document, or you can open the Folder Summary on the right side. The Folder Summary shows the names of the fields it contains (name, address, phone, etc.) as well as a list of all the documents in the folder and their creation dates. Double-clicking on a document name in the Folder Summary opens that document. Use the Folder Summary also to add to or change the database information.

Each Folder Summary contains a

preset list of 15 fields, and, although you can change the field names, the field types are always the same. Notes•n•Files has no calculated fields and treats numbers the same as text. The program provides four miscellaneous fields as well as a Comments field that allows longer entries. You might rename miscellaneous fields to repre-



sent specific information—an Amount Owed field, for instance, or a label to categorize employees by job description (you can use it later for sorting or to select specific groups of records).

You can have as many windows open as memory allows. In fact, as one DataPak spokesman stated, "You can be as messy in Notes as you are on your own desk." Handling all the graphics is sometimes slow and response time sluggish,

so you're generally better off if you keep the number of open windows to a minimum. You can, however, cut and paste information between documents and even move documents easily from folder to folder.

Notes•n•Files includes two built-in indexes and a Master List. You can view the contents of either drawer in the Master List and select the alphabetical point for the starting record. Double-clicking on a folder name in the Master List opens that folder.

You can use the two indexes to modify field order and display and also to determine new sorts and subsorts of the data. Either index list can be used in place of the Master List. When you select the Master List, Index 1, or Index 2 icon at the bottom of the desktop screen, the folders in the cabinet change sort order and folder label to reflect the field order of the selected list.

Both the Master List and the two indexes feature optional AND and OR conditional criteria for record filtering, which means you can display all folders from New York AND with a last name Smith, or display all folders from New York OR California, and so on. You use these same conditional filters when printing mailing labels and form letters.

The word-processing section of Notes•n•Files includes features such as word wrap, variable tabs and margins, auto paragraph indents, and several justification options. You can print documents in

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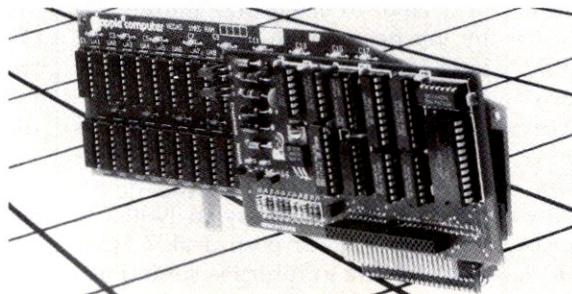
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several sizes, too (3×5 card, letter, legal, or wide). You can selectively change fonts and sizes within documents, but, to date, only two fonts and three sizes are available. Keyboard handling in documents is fairly slow—a fast typist can easily get ahead of the screen display.

You can imbed database information anywhere in text by inserting field names within brackets. During printing, documents automatically reformat to accommodate text from the field variables. Unfortunately, you can't display form letters on the screen that contain field data. Also, Notes•n•Files makes it easy to work with standard document formats. You can keep standard documents (form-letter templates or letterheads, for instance) in a special Stationery window. You open these standard documents as templates for recurring jobs and use Save Document As to change the filename without affecting the original template.

Printing labels is a snap. They come in three styles, printing one-, two-, or three-across. A test-print option allows you to align the paper before beginning a label run.

One particularly useful feature is Record Flag. This option instructs the program to enter the current date into special fields whenever you print labels or form letters for a particular folder. Thus, you can determine if a specific letter has gone out to a particular person or group. You can also set up a print run that uses conditional criteria to exclude any folders flagged after a specific date—useful for mass mailings and for situations that might require follow-up correspondence.

Notes•n•Files is a versatile mail-

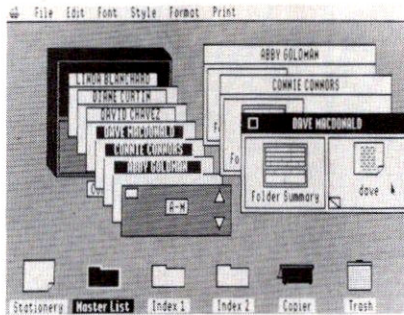


Figure 1: Each Notes•n•Files database centers on a two-drawer filing cabinet depicted on the screen. Each drawer contains alphabetically arranged folders.

ing-list manager, and the manual is carefully written to explain its use, doing a superlative job for the most part. A few confusing sections and a need for more specific examples are only minor flaws.

The program's many features are easy to use, powerful, and effective. It does not boast blazing speed, and its documents are limited to ten pages maximum, but it's an excellent tool for managing a mailing list and performing routine mailing chores. +

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VITAL STATISTICS

NOTES-N-FILES

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CPU: Apple IIas

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DISK DRIVES: one 3.5-inch (second disk drive or hard-disk drive recommended)

OPERATING SYSTEM: ProDOS 16

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ENTERTAINMENT GAMEPORT

BY BOB LINDSTROM

*The latest scoop
on adventure
mapping, game
hints, and
hamburgers*

AUTO-MAPPING

What are seven of the most disheartening words in the English language?

"You are in twisty little maze."

Suddenly, the carefree, danger-defying life of a computer adventurer becomes an accountant's nightmare. Game playing turns from key punching to wielding finely sharpened No. 3 pencils and squinting at blue-lined grid paper. Hands dart from computer to pen as you scratch out the part of that twisty maze you are in when you go north.

Mapping—for some, it's the ultimate adventuring challenge; for others, it has all the thrill of writing a last-minute term paper. Since the earliest

days of computer entertainment, mapping has been an integral part of the experience. When 16K of RAM seemed like unlimited memory, popping a maze into an adventure game was a relatively simple and efficient means of adding difficulty without overtaxing the limits of the computer. The appearance of bigger computers generally didn't inspire games with more imaginative challenges—just bigger maps.

Enough. In 1987, mapping fans were blessed with a watershed achievement in mapping complexity: Wizardry IV. Roe Adams and Robert Woodhead conceived ten levels of mapping ecstasy in this ingenious game. It's a brilliant accomplishment and should satisfy the paper- and graphite-hungry mapping community for some time to come.

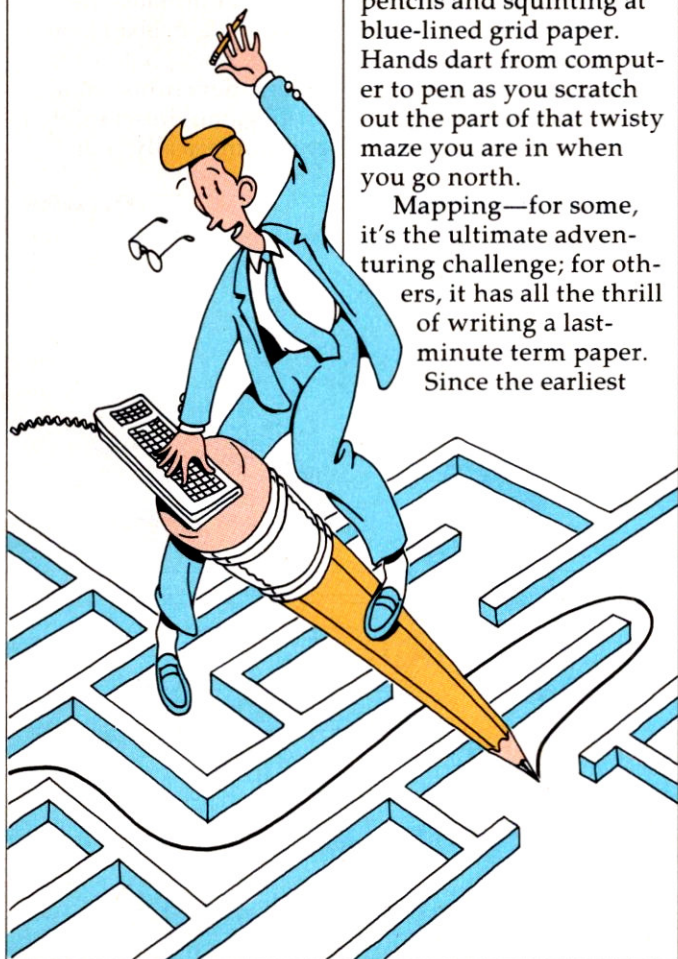
So, let the rest of us move on to different challenges.

As intriguing as mapping is for many, it stands as an obstacle to others. How many "GamePort" readers, dedicated computer gamers all, shun role-playing or text adventures because they despise mapping? How many of the great unwashed—those poor souls who don't play computer games—have

avoided the genre because they want to become engrossed in the fantasy and not buried in the paperwork? Downplaying the importance of mapping may lure the mass audience that publishers dream about.

As 1987 came to an end, a small nonmapping movement began to develop. In his latest Info-com text adventure, Beyond Zork, Brian Moriarty provides an auto-mapping feature. The computer sketches out a map in one corner of the screen as you explore the landscape. Though Moriarty insists that the feature does not eliminate the need to map, it does remove some of the paper burden and enables the addition of geographical puzzles and is an inventive means of making the game different for every player.

Some useful items in Beyond Zork are randomly scattered by the computer within a predefined geographical area. A magic ax, for example, is always in the woods for some adventurers, but in a clearing or a thicket for others. "I never liked the syndrome of playing a game and then getting into a conference and getting a move-by-move solution," said Moriarty in an interview at AppleFest in San Francisco last fall. "This will



GAMEPORT

Auto-mapping is an inventive means of making the game different for every player.

make that kind of thing almost impossible."

By reducing the mapping requirements, Moriarty has opened the portal for new, ingenious kinds of puzzles.

The Bard's Tale III: Thief of Fate, from Electronic Arts, also includes an auto-mapping feature. As you wander, the computer fills in a dungeon map in an on-screen window. According to co-designer Brian Fargo, several of the early maps in the game are completely drawn as you enter a dungeon, to help players quickly become involved in the fantasy.

What auto-mapping brings to BTIII is the freedom to use dungeons of various sizes. No more can BT enthusiasts count on dungeons of a specific shape or grid design.

Another Electronic Arts role-playing game, Wasteland, scorns the concept of unlimited geographical spaces entirely and directs its computing power toward more elaborate interaction between human players and their computerized colleagues—less breadth but more depth.

So, in 1988, let's hope for less of the past and more of the future. Mapping is a grand problem but not the only possible problem. Game designers

have been trapped in a twisty little maze. Count the move away from mapping as encouragement to step out of the labyrinth and move into new regions of game design.

IN LIEU OF AUTO-MAPPING

All right, so I don't love mapping. Call me a quitter, call me cowardly, call me a weenie. Hey, just because I said it was OK, you don't really have to do it.

In any case, we all know that dedicated "GamePort" readers dig zestfully into a mapping challenge, a slight smirk lighting their uncommonly attractive faces and a self-confident chuckle bubbling from their lips. They stand undaunted by brain-numbing obstacles that would paralyze less capable mortals (readers of competitive computer magazines, for instance).

Considering our mutual superiority among gamers, we can only conclude that the dozens of letters I receive each month asking for game hints are actually being written by imposters who are using your names. Yeah, that's the ticket.

Because of the volume of mail, I can't personally answer every hint request that I get, but I can point those questioning individuals toward Marvin K. Simon's book *Keys to Solving Computer Ad-*

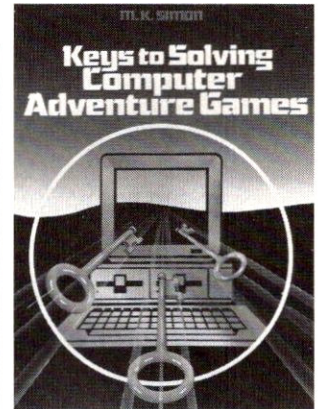
GAMEPORT

venture Games published by Prentice-Hall.

The title wrongly implies that this book is a cerebral dissertation on the procedures and techniques that will lead the perceptive adventure-game practitioner to a triumphant conclusion. But forget that—it's just what you want, the Real Poop on adventure games.

There are maps and hints to 25 adventures and complete walk-through solutions to 19 of them. All in all, this is a 286-page guided tour, from twisty little frustrations to pat-on-the-back victories.

A problem with adventure-game help books is that players often have to glance selectively at a complete walk-through solution in order to get a



nudge out of their current predicament. And too often, while searching for "just a hint," gamers' eyes will stray guiltily over the page and cull much more than they need or want.

Simon's hint-handling system eliminates the wandering-eyeball syndrome. A single Master List gathers hints from all 25 games in scrambled and numerically coded

BY TOM MURRAY

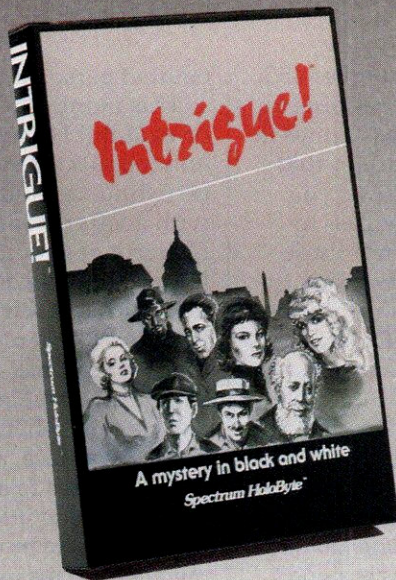
LAUGHTRACK



EDNA'S PERIPHERAL VISION

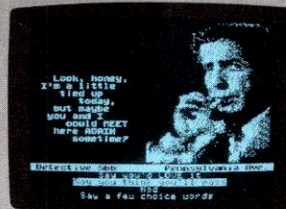
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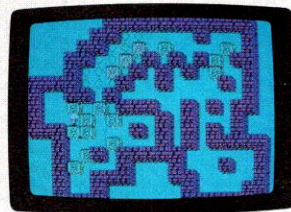
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GAMEPORT

order. Hint number 455, for example, pertains to the Park in Tass Times in Tonetown. Turn to that hint and discover you should "show pass to stelgad." Even if those snoopy eyes wander, the surrounding hints, unrelated to Tass Times, won't tell more than you want to know.

From Ballyhoo to The Neverending Story, from Leather Goddesses of Phobos to The Mist, *Keys to Solving Computer Adventure Games* is a good way to forestall those midnight frustrations.

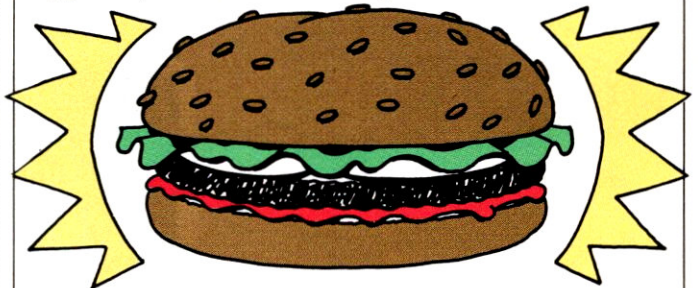
mented personal touch.

This month the legend of wild Bill Heineman and his subterranean embellishments continues with a letter from Kevin Flaherty of Corona del Mar, California. Flaherty identifies himself as a friend of Heineman's and reveals: "Bill has a thing about burgers. Hamburgers! He loves them. Any kind, anywhere, anytime! He likes to say, 'Burger.' He would buy burgers in the morning, put them in his desk, and eat them for lunch.

"On the GS version of Tass Times in Tonetown," Flaherty continues, "Type, BURGER. Do this while you are inside the cabin... there is a glow burger later on in the game, so this function is deactivated when you leave the cabin." Try it. You'll be surprised at the results and impressed by one man's almost

YUMMY: THE LEGEND CONTINUES

In the October issue, a "GamePort" reader sleuthed out a secret graphics screen in the Apple IIe/c and IIGs ver-



sions of Tass Times in Tonetown. The picture, ironically dubbed Yummy, shows a helmeted marauder swinging an ax and beheading an innocent programmer. It turned out that the picture was the clandestine signature of programmer Bill Heineman. He just likes to sneak it into his projects as an undocu-

mystical regard for a combination of beef and bread that the rest of us see as a mere hamburger.

Thanks for the inside info, Kevin, and remember: You, too, can submit hints, cheats, or "Easter eggs" to our new address: GamePort, A + Magazine, 110 Marsh Drive, Suite 103, Foster City, CA 94404. +

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⚓ "Magnificent game"
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"*PIRATES!* is excellent... a great swashbuckling game, enormously good fun... it should keep you playing for months." (Popular Computing Weekly, U.K.)

"... your game has exceeded my wildest expectations... I have run up more game time on the computer in 3 days than in the entire month previous." (C.J.M., Buffalo, N.Y.)

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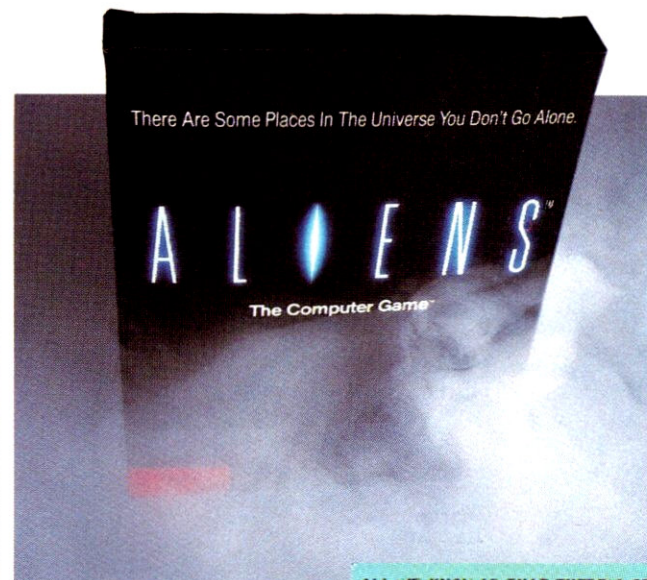
ENTERTAIN

Battle your way through submarine simulations, Aliens adventures, sonic sensations, and Eastern Front formats with this month's games.

SUBMERGED

CONVOY IN SIGHT!! The cry rings out through the darkened control room of the sub as you rush to the periscope and scan the horizon for a pair of Japanese tankers, escorted by too many destroyers. They're pulling away from you, tiny black silhouettes, gradually shrinking to dots. You decide to surface and run into torpedo range at maximum speed. Bad Move.

You've been spotted. The destroyers are firing. **DIVE! DIVE! DIVE!** You go deep, 300 feet, as much as your hull can withstand. You cut your engines to save battery power and make as little noise as possible. You hear the splash of depth



charges hitting the water and then the explosions. Too close. Only one chance now . . .

You press the ? key to release debris and an oil slick to convince the enemy you're sunk. It works. The propeller noises fade out.

They're breaking out the sake in celebration on that destroyer. No glory for you, but you live to fight another day.

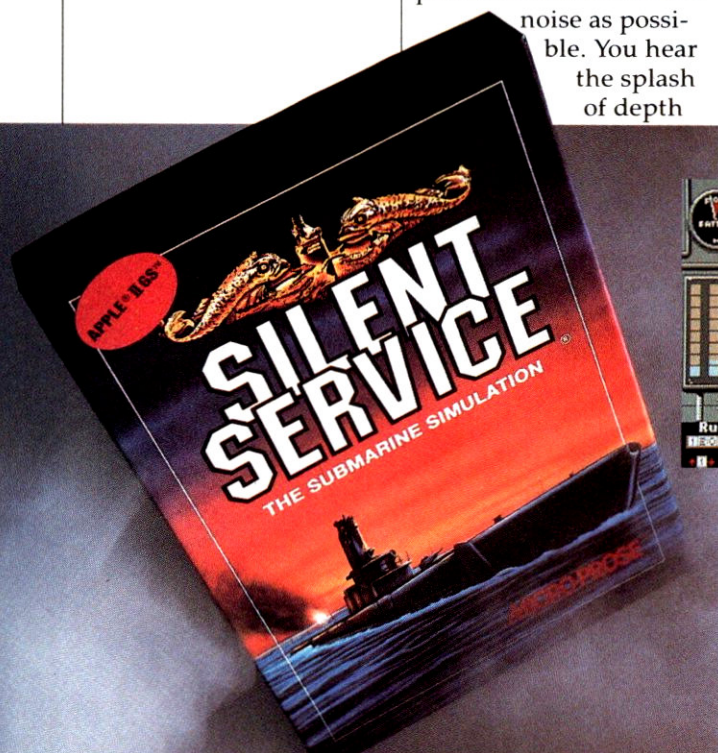
ALL WE KNOW IS THAT THERE'S STILL NO CONTACT WITH THE COLONY AND THAT A XENOMORPH MAY BE INVOLVED.



a realistically detailed control room, using the mouse to move an animated figure between various battle stations. When you're on the surface, you can get a wide-angle view from the bridge or spot targets with binoculars. When submerged, you can use the periscope down to a depth of 44 feet. Below that, you have only your ears and the plot on the map table to guide you.

You steer, rotate the scope, launch torpedoes, and fire your deck gun by clicking on various icons at the bottom of the screen.

You can speed up the action (up to a factor of 4) by clicking on a time-



Silent Service is the best game yet for the Apple IIgs. It simulates U.S. submarine operations in the Pacific during the Second World War. You command your sub from

MENT REVIEWS

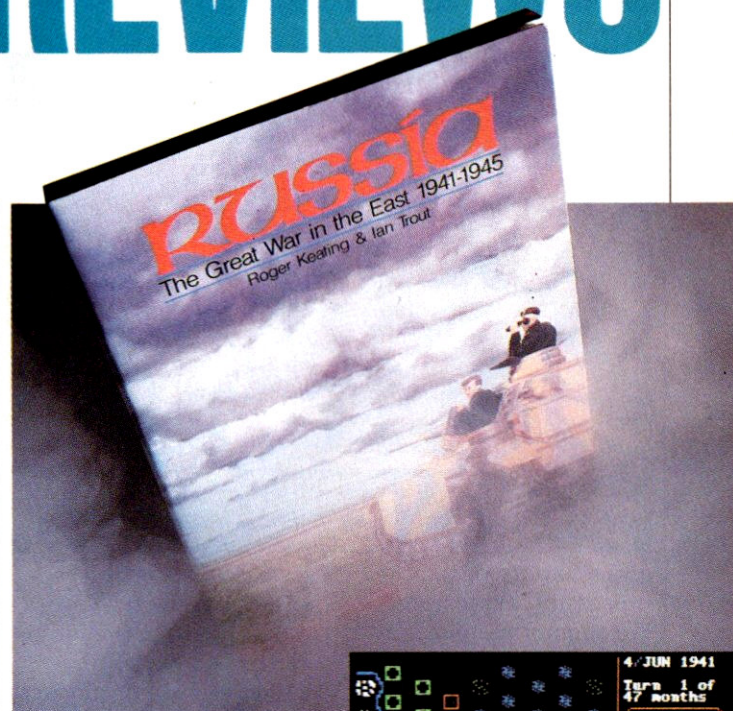
scale indicator. You can also use keyboard commands for various game functions. For example, pressing I identifies the target in the cross hairs on your scope, and pressing Control-E blows your emergency tanks, to halt an uncontrolled dive.

You can play Silent Service on three levels, selected from an opening screen. Torpedo/Gun Practice gives you the feel of pointing and shooting, with moored hulks as targets. Convoy Actions are six historical battles from different periods of the war, some easy, some very tough. War Patrols require you to set out from a base and hunt down your own convoys, being sure to leave enough fuel to get back to base. Before starting a War Patrol, you

must identify a ship silhouette, using small drawings scattered throughout the manual—a standard MicroProse defense against software piracy.

The most important thing for a player to remember is that torpedoes run out of steam at 4500 yards. It's best to wait until a target is no more than 3000 yards away, to ensure a hit. You only have 24 "fish"—14 forward and 10 aft. A torpedo tube takes ten agonizingly long minutes to reload, so make every shot count. Your little deck gun has 80 rounds and can reach out 8000 yards, but it is deadly only to small ships.

The game also offers increasing levels of difficulty, with enemy escorts using better tactics, con-



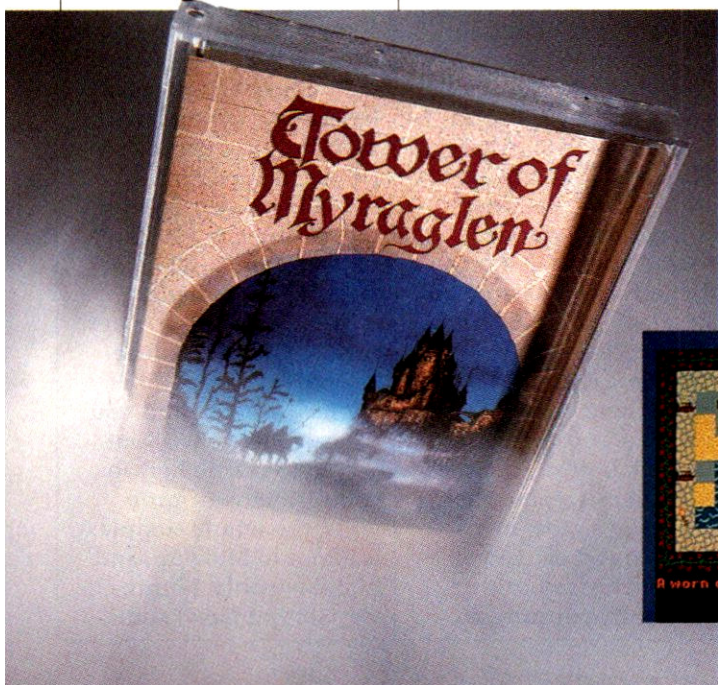
voys zigzagging to throw off your aim, and dud torpedoes (which were frequent and demoralizing until 1943) giving you fits. Your victories can be recorded on the disk, in a submariner's Hall of Fame, where your rank gradually advances.

Historical research and attention to detail are superb. The 47-page manual is packed with maps, diagrams, tactical hints, and historical background. The same manual serves for seven versions of the game, on different computers—not a problem. I recommend making up your own



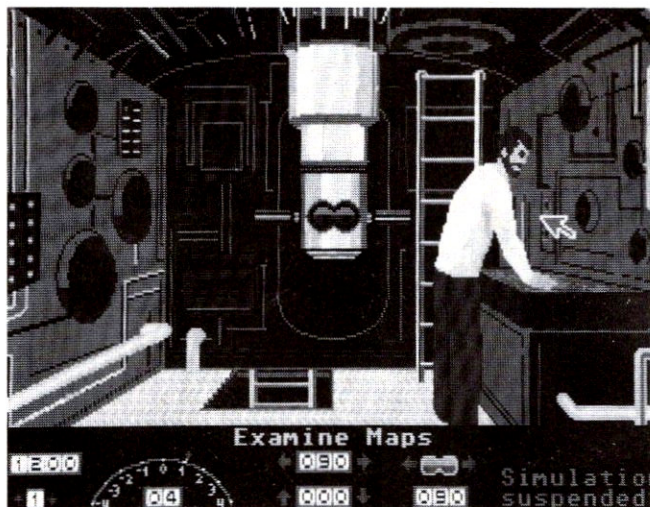
quick-reference card to keep beside the monitor.

The quality of the color graphics and sound is outstanding. An entire wall of detailed gauges and indicators changes with your situation. When a torpedo strikes a ship, you see the smoke and flames. When a shell misses a ship, you see the splash. The appearance of a target changes realistically, depending on the range and angle. There are more than a dozen digitized sound effects, including the sonar "ping" of approaching destroyers, the splash of depth charges hitting the water, the "whoosh" of torpedo launching, the crackling sound of an enemy ship breaking up,



REVIEWS

REVIEWS



and a variety of motor noises and explosions. For greater realism, and to avoid disturbing the neighbors, I recommend playing Silent Service with earphones, rather than external speakers. The game was designed by Sid Meier, and the IIgs version was developed by Ed Magnin. They should give lessons to other game designers.

Mike Markowitz

SILENT SERVICE

MicroProse Software, Inc.
120 Lakefront Drive
Hunt Valley, MD 21030
(301) 667-1151

LIST PRICE: \$39.95

REQUIRES: Apple IIgs; 256K RAM; one 3.5-inch disk drive; mouse, color monitor, and earphones recommended. Copy-protected.

CIRCLE READER SERVICE NO. 410

PLAY IT AGAIN, RIPLEY

Why would anyone want to return to the place where she saw all her crew members killed, one after another? I guess Ripley is just cast in the mold of a heroine.

Aliens is actually a col-

lection of six action games based on the sequel, *Aliens*, to the movie *Alien*. This series of games exactly duplicates the movie's sequence of events. For instance, in the first level, you must identify all your equipment and, thus equipped, use a joystick to guide the Drop-Ship down through the varying atmospheric conditions of LV-426 to a planet's surface. Basically, you follow a twisting, tube-like outline and attempt to stay in its center. This part of the game is pretty easy and tunes you up for what's to come.

If you fail at this attempt to land (or at any of the other five mission levels), you can try again. You can also proceed to the next level without completing the current one, but you won't be able to see the final screens of the game if you haven't completed any earlier levels.

The second mission is the most interesting level. Here, you attempt to guide four lost marines back to the armored per-

sonnel carrier. Using the joystick, you maneuver each marine, one at a time, through a series of rooms in sublevel 3 of the atmosphere processor. The screen shows a readout of each marine's vital statistics and a danger screen that shows when aliens are near. Since you can control (and see) only one marine at a time, the game becomes a race to bring the marines all safely through the maze while you're switching quickly to any marine currently in danger.

Although killing the aliens is easy with a shot from a machine gun, the enemy comes quickly and can overwhelm an unwary soldier.

If you can get two or more marines into the same room, they are safe from alien attack. Also, if a marine is captured by aliens, you have a short time in which to bring another soldier to his rescue. Don't take too long, though—the aliens are quick to finish their captives. Get any marines safely to the APC, and you can continue on to Mission Three, the Operations Room Rampage.

In the operations room, you have only a flamethrower to hold off an attacking horde of aliens. A simple touch of the flame is enough to make them retreat temporarily, and firing the joystick button fries any alien in range, but there are always more attackers, and occasionally one catches you unawares by running al-

A mistake, miscalculation, or moment of inattention, and you'll lose again.

most twice as fast as the others. Any aliens that get by you capture one of your party until none are left and you lose. If you hold the aliens off long enough, your compatriots will have time to cut a hole into the steel door, and you will escape to Mission Four.

The Air Duct Maze Scramble has you and a little girl named Newt scrambling through an alien-infested maze of air ducts with an escort of three marines. The maze is fairly convoluted, with ducts passing over and under each other, and it extends horizontally over four screens. If an alien spots you, it makes a beeline for you. If it catches you, your only alternative is to press the joystick button, thereby sacrificing a marine, who detonates a grenade but dies in the process. The secret to the air duct is stealth and patience.

Well, somewhere after the air-duct adventure, you've lost Newt. The aliens have her, and you refuse to leave without trying to rescue her. To complicate your problems, the whole complex is about to blow up, and you have only 17 minutes to find Newt some-

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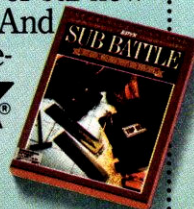
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STARGLIDER

STARGLIDER

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The novella accompanying the product incorporates many clues necessary to survive the increasing levels of combat difficulty and sets the mood for the player as the protector of the human race.



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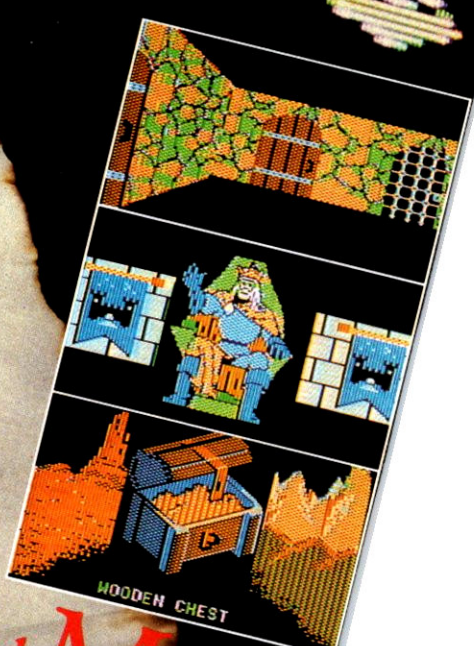
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Apple II. Displays from other

REVIEWS

CLOBBER) STEREO SYSTEM!!!!

When Apple put the Ensoniq sound chip into the IIGs, it opened (CREEEAACK) a demon's forge of sonic impact. With its ability to digitize and play back real-life sounds, the chip turns the IIGs into a computerized tape recorder.

The potential of IIGs sound was not lost on PBI Software. Its sister company, MDIdeas, markets the SuperSonic stereo card, an add-on board that reroutes IIGs audio from Apple's typically scrawny internal speaker to an external hi-fi and does it in two-channel stereo. The audio power is overwhelming. The output rivals that of the finest digital synthesizers. Little wonder, then, that PBI's adventure game is a showcase for MDIdeas' stereo card.

But what can digital sound contribute to computer gaming? The answer is audible a few seconds into Tower of Myraglen. A brooding castle appears on the screen, and lightning sears the night sky. (WHAM) A full post-romantic orchestra blasts a volley of fanfares (TA TA-TA DAAHH). Violins and cellos climb chromatically into the stratosphere (VRUUM-VRUUM-DEEDLE). And a real thunderclap (BBRRRROOMMM) climaxes the tidal wave of symphonic grandeur.

The knight's heels click and echo through the Myraglen halls. As

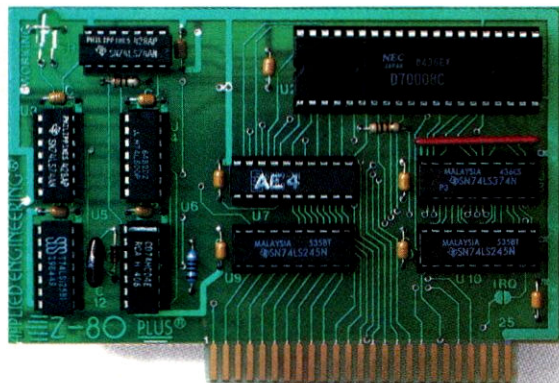
You'll find yourself returning just to listen to the keening of restless spirits and the gurgles of slime monsters.

the hero moves across the screen, footsteps ricochet from one speaker to the other. Enter a roomful of monsters, and sonic hell breaks loose with grunts, groans, and growls ping-ponging on all sides. You can play the game without stereo sound, but its addition makes the action roar to life. Furthermore, the sound is an integral part of the game. Audible cues throughout Myraglen contribute clues and warnings of events to come.

The story is traditional role-playing fare. An evil force has taken the Medallion of Soul Stealing, and only one knight has the purity, strength, and daring to recover the talisman and defeat ultimate evil. Guess who that is.

Designers Richard L. Seaborne and Jeffrey A. Lefferts haven't fashioned this tower as a monument to hack-and-slash antics, even though an unlimited supply of arrows frequently find use in real-time combat. Each of the ten levels of the tower contains puzzles to be solved, objects to be recovered, and se-

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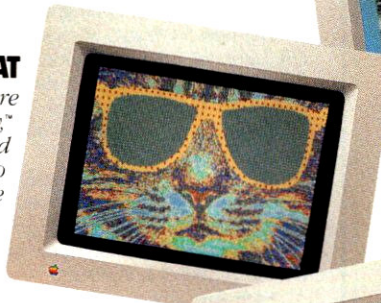


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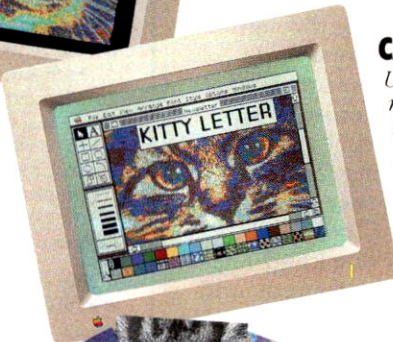
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CIRCLE 114 ON READER SERVICE CARD

REVIEWS

cret passages to be found. You must increase your fortitude by locating weapons and armor, but don't neglect to choose your battles carefully and spend hit points wisely. Rambos in chain mail won't live to see the tenth level.

The puzzles are logical, although sometimes fiendish. Level 1 includes a particularly surreal problem unique to the Apple IIGs. I'll say no more. Hints are tucked away throughout the corridors if the adventurer is sufficiently observant to spot them. Mapping is helpful but not required. Myraglen contains medium-level challenges and places more emphasis on entertainment than on difficulty.

Graphically, Tower of Myraglen descends from the lineage of Epyx's Temple of Apshai. The super-hi-res screen boasts lots of color and a wealth of detail, realized by the game's audiovisual wizard Lefferts. The basic tile-graphic style, however, remains simple. An on-screen window provides an animated overhead view of the hero, the current room, and its inhabitants and contents. Additional windows display character status and occasionally offer hints and room descriptions.

The game comes on two disks: a start-up disk and a game disk. You store saved games on the game disk, and you can make copies for each game in progress.

Overall, Tower of Myr-

aglen is an enjoyable diversion. It won't yield the hours of role-playing challenge of, say, a Wizardry, Bard's Tale, or Ultima fantasy, nor do its handsome, uncomplicated visuals do much to push the envelope of IIGs graphics. It's just fun to play. And, oh those noisemakers. When you've mastered the tenth level and slain the last demon, you'll find yourself returning just to listen to the keening of restless spirits (WWWWHOOOO), the rumble of pulsating crystals (HHUUUMMMM), and the gurgles of slime monsters (BLLURRP).

Bob Lindstrom

TOWER OF MYRAGLEN

PBI Software, Inc.
1163 Triton Drive
Foster City, CA 94404
(800) 843-5722

LIST PRICE: \$54.95

REQUIRES: Apple IIGs; 512K RAM; one 3.5-inch disk drive; color monitor and stereo card optional. Not copy-protected; works with mouse.

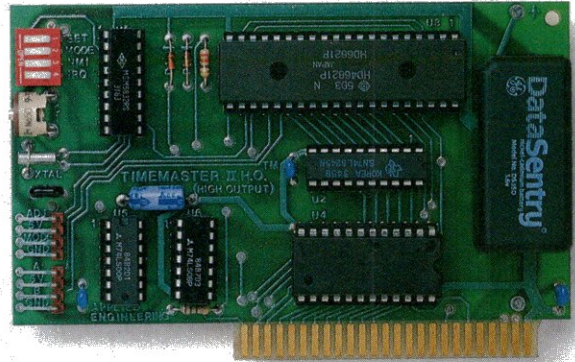
CIRCLE READER SERVICE NO. 412

EASTERN FRONT

The Eastern Front of World War II exerts a powerful fascination over the minds of war-gamers. In terms of the size of the armies, masses of guns and tanks, vast distances, and staggering casualties, it ranks as the greatest conflict in human history.

Games involving the Eastern Front have always been popular, but they have also gained a

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REVIEWS

REVIEWS



reputation for mind-numbing complexity and appalling length. Russia, by Roger Keating and Ian Trout, is a welcome exception. The game provides situations that require historically realistic strategic decisions, yet you can play it out in a single evening.

Australians Keating and Trout design and program computer war games as a labor of love. Under the Strategic Studies Group label, their credits include Carriers at War, Europe Ablaze, and Battlefront. Their distinctive style involves extensive nested menus that regulate the flow of the game, and elaborate utilities that enable players to design their own scenarios.

Russia includes a grand-campaign game, which places you in the role of Supreme Commander (Hitler or Stalin), as well as three short scenarios covering the drive on Leningrad (summer 1941), the Battle of Stalingrad (1942), and the Battle of Kursk (1943). In the campaign game, each

turn represents a month; in the scenarios, each turn is about a week of real time. Each hexagon on the screen grid represents a patch of terrain more than 40 miles across, and the individual units are groups of 3 to 6 divisions—anywhere from 30,000 to more than 100,000 men. The game uses 27 different unit-type symbols, ranging from German SS Panzer Korps to Soviet Cavalry armies.

Weather played a critical role in this war, and the game models the tactical effects of mud and snow separately for each of 11 regions on the map. Only one region (9 × 9 hexes) is visible on the screen at a time, but you can scroll the map in any direction by moving the cursor.

The sequence of play varies, depending on whether you are playing a scenario or the campaign game and also on whether you are playing against the computer or a human opponent. Typically, you begin a turn by reviewing the status re-

ports for your subordinate units: fatigue levels, training, and overall condition. You might then select Map Walk from the menu, to examine your units and the terrain in detail. Another option lets you view the schedule of expected reinforcements. Finally you select

Russia is highly detailed and complex, but the basic game system is so smooth that it shouldn't frighten beginners.

the all-important Operations menu, which has two options: Doctrine and Orders. Doctrine determines the overall level of activity (Main Effort, Normal, or Rest). Orders depend on the condition of an individual unit and whether it is in contact with the enemy. You can order a unit to hold, deploy, advance, retreat, defend, probe, or assault.

After each side has issued orders, the program automatically resolves combat and movement. Unlike board war games, where the players determine every detail of fire and maneuver, units in Russia have a mind of their own. You give armies under a Main Effort doctrine an objective city, and they advance toward it automatically. Retreating forces pick their own path. Forces in contact select their own targets. It

is all rather disconcerting for players, but it accurately simulates the "fog of war."

The game comes in a handsome album folder with a full-color, double-sided map for each player and a variety of reference cards. A 72-page players' manual is well illustrated and includes a helpful tutorial, but it badly needs an index.

If you have a dot-matrix parallel printer and a graphics-interface card, a screen-dump feature will let you print out the current screen by pressing Control-P. This printing method does not work for serial printers such as the ImageWriter, though.

Russia is a highly detailed and complex historical simulation that offers plenty of challenge to experienced war-gamers, but the basic game system is so smooth that it should not frighten away beginners. The design is based on a deep understanding of the war, balancing the effects of dozens of historical variables in relation to your command decisions. SSG publishes a quarterly journal, *RUN 5*, packed with design notes and new scenarios for its games.

Mike Markowitz

RUSSIA: THE GREAT WAR IN THE EAST 1941-1945

SSG, Inc.
1747 Orleans Court
Walnut Creek, CA 94598
(415) 932-3019

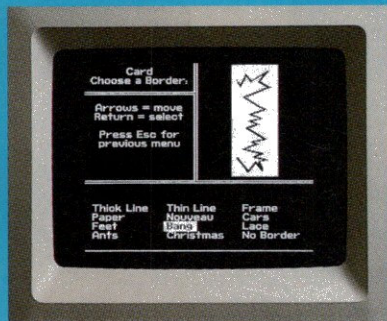
LIST PRICE: \$40

REQUIRES: Apple II Plus, IIe, IIc, or IIgs; 64K RAM; one 5¼-inch disk drive. Copy-protected (one backup allowed).

CIRCLE READER SERVICE NO. 413

A greeting card in 5 minutes? Easy.

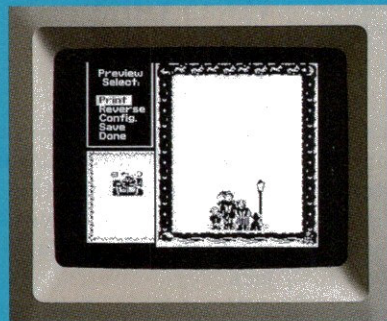
RUNAWAY BESTSELLER!



10:00 — Pick from 11 beautiful borders.



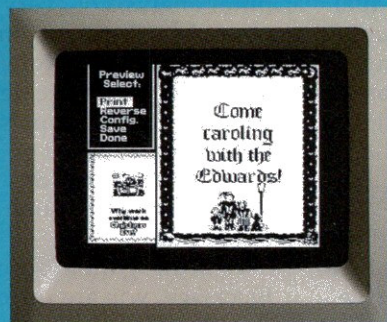
10:01 — Select from more than a hundred high-quality graphics— hundreds more when you add the Art Galleries.



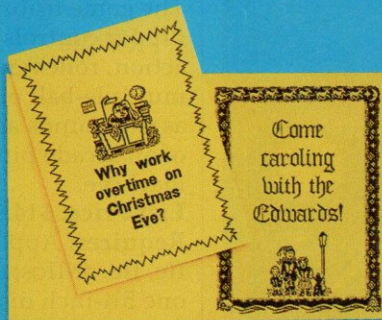
10:02 — Preview and make changes anytime without starting over. What a time saver!



10:03 — Craft your message from 9 expressive typefaces in upper and lower case.



10:04 — And preview again.



TAH-DAH!

Truly original calendars, cards, posters, banners and stationery are so much easier with PrintMaster Plus. In fact, the process you see here is impossible with other specialty printing programs. And PrintMaster Plus gives you terrific artwork — not outline art but highly detailed, one-of-a-kind graphics with a difference.



Accept no substitutes. Ask your dealer for PrintMaster Plus and the Art Galleries today. Or use the convenient order form. For more information, call Unison World at 415-848-6666.



Unison World

PrintMaster Plus, Art Gallery I, II, III, and Unison World are trademarks of Kyocera Unison, Inc. Apple is a registered trademark of Apple Computer, Inc. Copyright 1987, Kyocera Unison, Inc.

Clip and mail to Unison World, Box 3056, Berkeley, California, 94703
YES! Send me the best. Please rush me the following:

- ___ PrintMaster Plus for Apple II with 128K \$49.95
- ___ Art Gallery I — 140 extra general theme graphics \$29.95
- ___ Art Gallery II — 140 extra general theme graphics \$29.95
- ___ Art Gallery III — 140 fantasy theme graphics **NEW!** \$29.95

Subtotal _____

CA residents add 7% sales tax _____

Total _____

___ Check ___ Money Order ___ Visa/MasterCard

CARD NO _____ EXP DATE _____

SIGNATURE _____

NAME (PLEASE PRINT) _____

STREET ADDRESS _____ APT _____

CITY _____ STATE _____ ZIP _____



PrintMaster Plus™

Easily the best.

CIRCLE 112 ON READER SERVICE CARD

BY SHANON CULLEN

A collection of interesting products for you and your Apple II-series computer

PRODUCT ROUNDUP

CHOPLIFTER! AND DAVID'S MIDNIGHT MAGIC PACKAGED TOGETHER

A double-pack software package featuring the games Choplifter! and

David's Midnight Magic and Choplifter! are now available in a double-pack package.

David's Midnight Magic is now available from Brøderbund.

Choplifter! involves rescuing 32 hostages from an enemy called the Bungelings. The hostages



Two new programs from Applications Plus are designed to teach you how to win at video poker and blackjack.

VEGAS VIDEO POKER, BEATING THE HOUSE AT BLACKJACK

Applications Plus has released two new software programs designed to teach you how to win at video poker and blackjack.

Vegas Video Poker prepares you to play the casino version of video poker by providing computer analysis of every possible poker hand and offering strategies to win more often with greater payoffs. The program's strategies are based on a computer analysis of more than two million poker hands.

In Beating the House at Blackjack, you are introduced to a card-counting technique called the Plus-Minus System. The program allows you to practice this new technique in a variety of simulated situations using standard casino rules. You can control the num-

are locked in barracks and must be freed and airlifted by helicopter to safety while the helicopter fights off tanks, jet fighters, and drone air mines.

David's Midnight Magic is an arcade-style game for one to four players. The game features dual flipper controls, bumper action, rollovers, and multiple-ball play as well as the sounds and lights of an arcade pinball machine.

List Price: \$14.95

Requires: Apple II Plus, IIe, IIc, or IIGs; 64K RAM; one 5¼-inch disk drive. Copy-protected; joystick required.

Brøderbund Software, Inc.

17 Paul Drive
San Rafael, CA
94903-2101
(415) 492-3500

CIRCLE READER SERVICE NO. 501



APPLE II+, IIe, IIc, IIGS

sk

Brøderbund

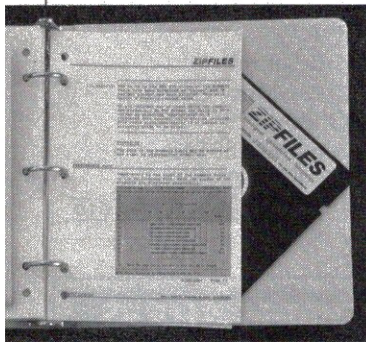
ber of additional players in the game, the numbers of card decks used, and the amount that is wagered.

You can also gain access to the card count and to strategy and error tables during play. The program provides feedback on how well you have used the system.

List Price: Poker, \$29.95; Blackjack, \$34.95

Requires: Apple II Plus, IIe, IIc, or IIGs; 48K RAM; one 5¼-inch disk drive. Not copy-protected. Applications Plus, Inc. 15720 Harmony Way Apple Valley, MN 55124 (612) 432-5560

CIRCLE READER SERVICE NO. 502



The Tax ZipFiles template covers Form 1040 and schedules A, C, D, and E.

TAX ZIPFILES

Tax ZipFiles is an AppleWorks template that covers Form 1040 and schedules A, C, D, and E. SpeedMaps and SpeedPaging techniques provide ease of use. A Tax Ledger ZipFile is included with the program to document and sort tax-deductible expenses. This system is designed for landlords, small-business owners, or anyone who itemizes deductions. The program comes with a 100-page manual.

List Price: \$29.95

Requires: Apple IIe, IIc, or IIGs; 128K RAM; one 5¼-inch disk drive; AppleWorks (Version 1.2 or later). Not copy-protected.

Petit Design and Engineering
2650 South Shore Drive
Milwaukee, WI 53207
(414) 483-9056

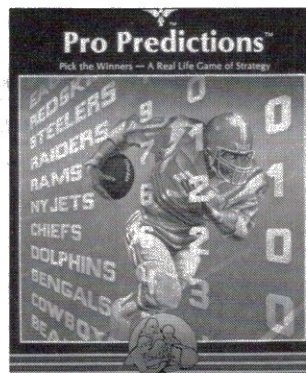
CIRCLE READER SERVICE NO. 503

PRO PREDICTIONS

Pro Predictions allows you to analyze, forecast, and produce a wide range of statistics on professional football. With the program you can predict the outcome of weekly games, predict probable scores and point spreads, evaluate each team's offensive and defensive strengths, and review division standings and team and division power ratings.

List Price: \$69.95

Requires: Apple II Plus, IIe, IIc, or IIGs; 48K RAM; one 5¼-inch disk drive; 80-column printer optional. Not copy-protected.



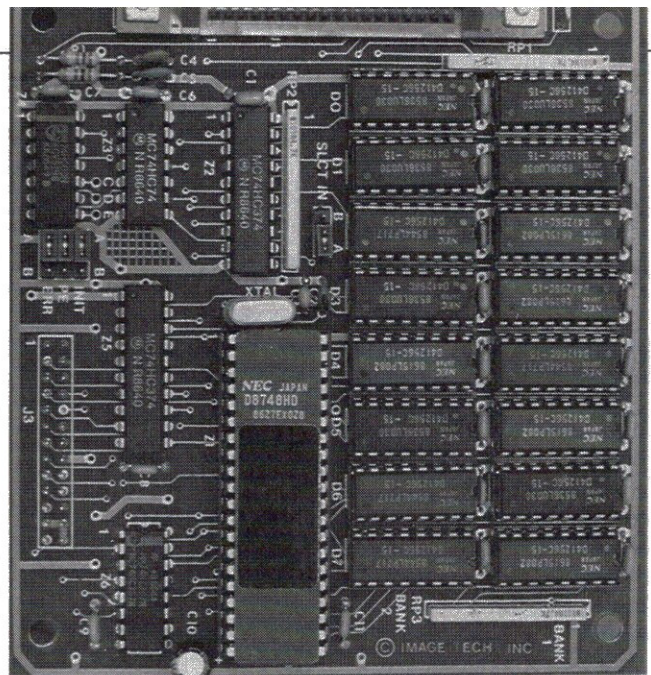
Dynacomp's Pro Predictions

Dynacomp, Inc.
1064 Gravel Road
Webster, NY 14580
(716) 671-6160
(716) 671-6167

CIRCLE READER SERVICE NO. 504

PLOTTER STATION, ACCESSORIES BIN

Devoke has introduced the Plotter Station and the optional Accessories Bin. The Plotter Station is a desktop plotter organizer made of black plastic, with a wide surface to accommodate the largest plotters. Three large com-



Epson's large-capacity print buffer

partments hold paper and transparencies up to 11 × 17 inches. Space is also provided for the optional Accessories Bin.

The six-inch-high Accessories Bin holds up to 90 tall or short plotter pens, with additional room for ink and other supplies. The bin is made of 3/8-inch-thick smoke-colored acrylic and has a hinged, clear acrylic lid that provides a view of the supplies inside.

List Price: station, \$69.95; bin, \$36.95
Devoke Company
P.O. Box 58051
Santa Clara, CA
95052-8051
(800) 822-3132
(408) 980-1366

CIRCLE READER SERVICE NO. 505

EPSON PRINT BUFFER

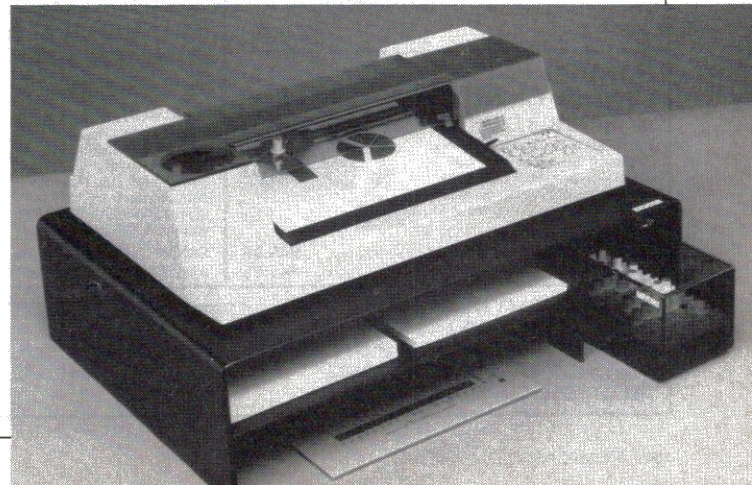
An inexpensive, large-capacity print buffer is now available that plugs inside most Epson dot-matrix parallel printers. The print buffer works automatically every time material is transferred to the printer and can be expanded to 512K RAM.

List Price: \$109 (no additional RAM chips provided); 256K RAM, \$133; 512K RAM, \$157

Requires: Epson dot-matrix parallel printer. Image Technology, Inc. 8150 South Akron Street Suite 405 Englewood, CO 80112 (303) 799-6433

CIRCLE READER SERVICE NO. 506

Devoke's Plotter Station and Accessories Bin



PRODUCT ROUNDUP

HARDWARE

GROUNDING WAFER

The Grounding Wafer provides a method for connecting static-control equipment to the ground of an electrical system. The wafer slips over the blades of a three-prong plug and makes secure contact with the ground pin. Protection from shock hazard is provided with a built-in, 1-megohm, current-limiting resistor.

The Grounding Wafer has a six-foot-long lead wire.

Standard terminations such as banana plugs,

ring lugs, alligator clips, and snap fasteners provide methods of connecting the Grounding Wafer to such static-control devices as CRT antiglare screens, wrist straps, table mats, and field-service kits.

List Price: \$5.95 to \$7.75, depending on type
Pilgrim Electric Company
105 Newtown Road
Plainview, NY 11803
(516) 420-8990

CIRCLE READER SERVICE NO. 507

DELAYED-POWER OPTION

A delayed-power option is now available on 10-, 15-, and 20-amp Kleen Line Classic Filter Suppressors. The delayed-power feature permits delayed power-up of subsidiary equipment initiated by a master device "turn-on."

List Price: \$145

Electronic Specialists, Inc.

171 South Main Street
Natick, MA 01760
(800) 225-4876
(617) 655-1532

CIRCLE READER SERVICE NO. 508

DATA I/O 8 CARD

This analog and digital interface card allows computers to make electrical measurements, send and receive control signals, and generate waveforms for industrial, scientific, and educational applications. The DATA I/O 8 can be programmed in BASIC or in assembly language and can be installed in any slot, 1 through 7. The card provides 24 digital input bits and 24 latched digital output bits.

List Price: \$295 (includes card, four cables, and 40-page manual)

Requires: Apple II Plus or IIe

Naylor Industries

P.O. Box 33187
Indianapolis, IN 46203
(317) 783-6049

CIRCLE READER SERVICE NO. 509

DISKEY

DisKey provides data protection for 5¼-inch floppy-disk systems and eliminates the need for removal and reattachment of adhesive-backed write/protect tabs. Designed to fit most 5¼-inch disk drives, DisKey inserts into the left side of the disk-drive opening, above the floppy disk. You can insert it at any time after the floppy disk is in place.

List Price: \$2.98

Requires: 5¼-inch disk drive.

CroResearch

100 Meadow Court
P.O. Box 129
Lyons, CO 80540
(303) 823-5088

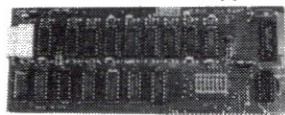
CIRCLE READER SERVICE NO. 510

80C/64K CARD \$49.95

12" MONITOR \$59.95

1200B MODEM \$119.95

16K RAM Card for Apple II and II+

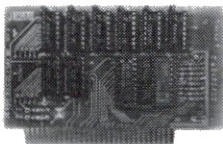


The JE860 RAM Card (Language Card) allows the Apple II and II+ computers to expand from 48K to 64K. Complete with instructions.

JE860. \$39.95

Extended 80-Column Card

Appleworks Compatible!

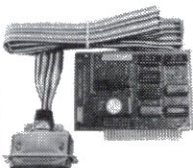


The JE864 is an extended 80-column/64K RAM card. Ideal for word processing. Ultra High Resolution Graphics capability. Complete with instructions.

JE864. \$49.95

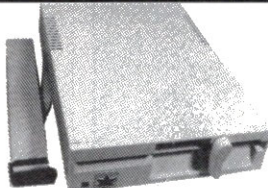
Parallel Printer Card for Apple II, II+ and IIe

The JE880 is a parallel printer interface for most of today's dot matrix printers. 64K Buffer card for JE880 is also available (JE883, below). Complete with instructions.



JE880 Printer Card \$49.95
JE883 64K Buffer for JE880 \$49.95

5¼" Half Height Disk Drive for Apple II, II+ and IIe



for Apple II, II+ and IIe

• Direct drive • 143K formatted storage • 35 tracks • Super quiet • Works with Apple Controllers or other Apple compatible controllers (JE875, see below) • Complete with connector — just plug into your controller

ADD12 Disk Drive (for II, II+ and IIe). \$99.95
JE875 Controller Card (for II, II+ and IIe). . . . \$49.95
AAC Adapts std. Apple drives for use with IIc \$14.95

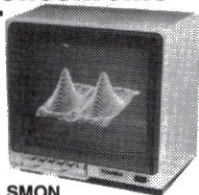
5¼" Half-Height Disk Drive for Apple IIc

Same specs as ADD12 (above) except no controller needed.

ADD2C Disk Drive (for IIc) \$109.95

Franklin 12" Monochrome Green Monitor for Apple II, II+, IIe and IIc

• Composite video output • Bandwidth: 18MHz • Resolution: 800 lines @ ctr. • Power consumption: 15-18W
Size: 12"W x 11½"D x 12"H
Weight: 17.25 lbs.



SMON (Franklin 12" Monitor). \$59.95
AMON (Casper 12" w/Tilt Swivel Base). \$99.95

Cooling Fan for Apple II, II+ & IIe

• Line surge suppression
• Snaps on the side of Apple II, II+ and IIe enclosures
• Eliminates overheating
• Switch on front serves as power switch for fan and computer • Includes two additional AC outlets



APF. \$29.95

Switching Power Supply for Apple II, II+ and IIe

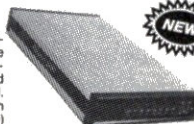


• Can drive four floppy disk drives and up to eight expansion cards • Short circuit and overload protection • Fits inside the Apple computer • Fully regulated • Apple type plug-in power cord included • Data included

KHP4007. \$34.95

2400/1200/300 Baud External Modems for Apple II, II+, IIe, IIc and IIgs

• Hayes command command compatible • Bell 103/212A compatible
• Auto-dial/auto-answer • Auto-protocol selection • FCC approved
• 1-year warranty • Software not incl.
• Serial card needed for operation excluding IIgs (See AP140, below)



1200C 1200/300 Baud Ext. Modem. \$119.95
2400E 2400/1200/300 Ext. Modem. \$219.95
AP140 Super Serial Card for Apple II, II+ & IIe \$ 79.95

1355 SHOREWAY ROAD
BELMONT, CALIFORNIA 94002
ORDER HOTLINE (415) 592-8097
Telex #176043 FAX (415) 592-2503
ALL OTHER INQUIRIES (415) 592-8121



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1/88

CIRCLE 308 ON READER SERVICE CARD

SOFTWARE

LOAN QUALIFIER

This spreadsheet template is designed as a tool for mortgage brokers, loan officers, and real-estate agents. Loan Qualifier is capable of calculating all the costs associated with a loan and can prepare a client worksheet of loan comparisons.

The Loan Qualifier

ENTER HERE ONLY				
1	PROGRAM	0	Y1M2C3	
90	LTV	0	INDEX	
1	P=1,R=0	0	MARGIN	
150000	VALUE	0	PMT-ADJ	
0	1ST-INT	0	PMT-CAP	
0	1ST-PAY	0	INT-ADJ	
135000	1ST-LN	0	INT-CAP	
0	PITI,S2	0	TOT-CAP	
800	PROP-TX	5	MONTH	
0	2ND-LN	1	IMP,1,0	
5000	INCOME	1	F=1,A=0	
250	DEBTS	1	TTX=1,0	
12	RATE	0	0-4 UNT	
30	TERM	0	HODUES	
2	POINTS	5	MI-FEE	
200	FEE	.29	MI-RNWL	
LOAN-FE	2700.00	ESCROW	0.00	
APRAISL	225.00	TITLE	152.50	
CREDIT	30.00	NOTARY	10.00	
TAX SER	40.00	RECOFD	18.00	
DOC-FEE	200.00	TRAN-TX	247.50	
DISCONT	0.00	PEST RPT	85.00	
PROCESS	250.00	RECUR	3131.50	
PP-INT	1350.00	N-RECUR	3958.00	
HODUES	0.00	COSTS:	7089.50	
INSUR	405.00	MI-FEE	-----	
TAX-PRO	100.00	INS-IMP	67.50	
MI-FEE	875.00	TAX-IMP	468.75	
INS-IMP	67.50	MI-IMP	65.25	
TAX-IMP	468.75	TOTAL:	22089.5	
MI-IMP	65.25	INCOME:	5282.79	
MONTHLY		INCOME%	32.23	
TOTAL:	1611.25	DEBT%	37.23	
-----		LTV%	90.00	
		BLEND%	12.00	
135000	1ST P&I	1388.83	INSUR	33.75
0	2ND P&I	0.00	MI-PYMT	32.83
	TAXES	156.25	HODUES	0.0

The Loan Qualifier spreadsheet template is designed as a tool for mortgage brokers, loan officers, and real-estate agents.

template handles purchases or refinances with first or second mortgages; assumptions; seller carry-backs; equity; and fixed-, variable-, or blended-rate loans. It can also support single-family, PUDs, and multiunit real-estate transactions.

List Price: \$99

Requires: Apple II Plus, IIe, or IIc; 64K RAM; one or two (recommended) 5¼-inch disk drives.

Mouse and printer op-

tional; VisiCalc, FlashCalc, or AppleWorks spreadsheet required. Financial Microware P.O. Box 40 Cupertino, CA 95015 (408) 733-6705

CIRCLE READER SERVICE NO. 511

MCGUFFY'S GRADER

McGuffy's Grader is a teachers' record book that allows up to nine classes to fit on one data disk, with up to 3000 entries per class. The program accepts grading scales with up to 15 divisions and weighs assignments individually or by type. Spreadsheet editing lets you change scores. You can type comments for each student, and the program can analyze test scores for any assignment.

Users can design progress reports to occupy one-third, one-half, or a full page. Printouts in-

PRODUCT ROUNDUP

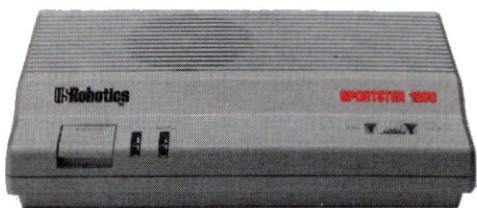
clude student progress reports, a summary of students' work, a list of all work assigned for any class, and a list of all defined grading scales.

List Price: \$49.50 (plus shipping)

Requires: Apple IIe, IIc, or IIcs; 128K RAM; one or two (recommended) 5¼- or 3.5-inch disk drives (both disk sizes included in package). ProDOS; copy-protected. Midwest Software 22500 Orchard Lake Road, #1

Farmington, MI 48024 (800) 422-0095 (313) 477-0897

CIRCLE READER SERVICE NO. 512



Your first modem doesn't have to be large, expensive or made in Taiwan.

A new line of modems from \$139. At prices this low, you might expect a modem to come from across the ocean. But the beautifully compact Sportster 1200™ comes from USRobotics, a leading American manufacturer for over 10 years.

A Sportster internal or external modem teamed with your computer connects you to a world of information at 1200 or 2400 bps. Choose from four models,

\$139 to \$249. Easily the USA's best modem value.

1-800-DIAL-USR Ext. 69
In Illinois, call 312-982-5001

The Sportster features auto-dial, auto-redial and auto-answer. And it uses the industry standard AT command set, so it works with all data communication software.

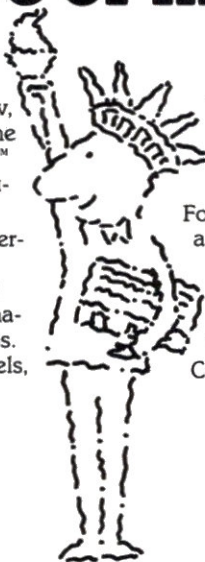
For quick reference, the bottom panel contains a printed operations summary. You also get a 28-page user's guide, a two-year warranty, USR's Telpac™ Communications Software for IBM users, and a free subscription and connect time to the CompuServe® information service.

Call us today for your nearest dealer.

USRobotics®

The Intelligent Choice In Data Communications

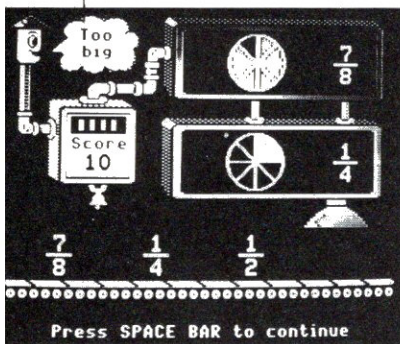
USRobotics, Sportster and Telpac are trademarks of U.S. Robotics, Inc. Other computer and software names identified by ® or ™ are trademarks and/or trademarks of their respective manufacturers.



PRODUCT ROUNDUP

FRACTION PACKAGES

Three new fraction packages are now available from MECC: Fraction Concepts, Inc.; Fraction Package Unlimited; and Fraction Munchers.



MECC's fraction packages

Fraction Concepts, Inc., uses a factory setting in which students control different machines on an assembly line filled with fractions. Topics covered include the basic definition of a fraction, types of fractions, and some simple fraction equivalences. Most of the activities include visual models of the fractions to aid students' understanding.

Fraction Practice Unlimited is a companion package to Fraction Concepts, Inc., and uses the same factory setting but with a different set of machines. Students operate these machines as they attempt to classify, rename, and compare various types of fractional numbers.

Fraction Munchers is an educational game played on a 5 x 6 grid filled with fractions. Four different games are available to test knowledge of

fractional types, equivalent fractions, comparison of fractions, and simple expressions involving fractions.

List Price: 5¼-inch version, \$55 each; 3.5-inch version, \$59 each

Requires: Apple IIe, IIc, or IIGs; 128K RAM; one 5¼- or 3.5-inch disk drive. Copy-protected. MECC
3490 Lexington Avenue North
St. Paul, MN 55126-8097
(612) 481-3500

CIRCLE READER SERVICE NO. 513

FASTHOUSE

Fasthouse is a new software program that provides a fast and convenient way to program and control the X-10 Powerhouse home-control system. Fasthouse is text-based, boots in 15 seconds, allows unlimited schedules, and permits your interface card

to be in any slot.

When used with RC Systems Slotbuster with speech-synthesizer module and ProSCAT speech software, the program offers speech capabilities that allow visually impaired users to operate it, by reading screens to them.

List Price: \$19.95 (for II Plus, IIe, and IIc version); \$39.95 (for new GS version plus IIGs cable combination); \$21.95 (new GS cable for owners of earlier IIGs version—new software will be exchanged for earlier software)

Requires: Apple II Plus (with 80-column card), IIe, IIc, or IIGs; X-10 Powerhouse interface; 64K RAM; one 5¼-inch disk drive. ProDOS; not copy-protected. Talking version requires RC Systems Slotbuster with speech-synthesizer module and ProSCAT speech software. (Powerhouse inter-

Presenting Six New Enhancements For Your Apple IIGs

4 MegaByte Memory Expansion

Wouldn't it be nice if you could get a large capacity memory expansion board for your Apple IIGs that didn't come with a ridiculously high price? That dream has come true with ON-BOARD from ON THREE.

Up to 4 MegaBytes on one board! Start with an empty board and add the memory you need: Use 1-2-3 or 4 Megabytes (4,096K) on a single card. ON-BOARD works perfectly with all DMA devices and doesn't interfere with cards in slot seven. Uses standard 1MB x 1 ram chips. The 4 MegaByte ON-BOARD includes a memory test program, a list of ram chip vendors and a full FIVE-YEAR WARRANTY! ØK \$149.95

The Best Apple IIGs Desk Accessories

New for the GS is The Desktop Manager (TDM), by far the best desk accessories available on any micro-computer. TDM is a set of powerful utilities that you can use at any time and from within any application. Don't settle for accessories that only work within AppleWorks™ or a few selected programs.

Only TDM works within virtually ALL ProDOS 8 and ProDOS 16 programs. From AppleWorks to PaintWorks Plus™ TDM is always there when you need it. A single keypress suspends the current program and lets you use one of hundreds of accessories.

TDM comes complete with a Note Pad, Appointment Calendar, Calculator, Printer Manager, Envelope Labeler, Ascii Chart, Accessory Manager, Control Panel, Device Configuration, Clipboard Tools, an installation utility, the ability to save any text or graphics screen and print any text screen with a single keypress. Also built-in is a feature to pickup and paste textual information from any application to any other application! Not copy-protected. Requires 512K minimum. \$89.95

The Disk Manager gives you the features of the System Utilities program from within all other programs. This TDM accessory lets you list, copy, delete, rename and lock/unlock files at any time. It also allows you to list the disk volumes, copy, format, erase, rename and verify disks whenever you want. \$39.95

The Communications Manager is a TDM accessory that gives you a full-featured communications program within all of your current applications. VT-52 terminal emulation combined with complete support for XModem and Binary II transfers makes it one of the most powerful comm. packages for your GS. \$49.95

Super Accessories #1 is a set of TDM accessories that provides 10 new utilities that increase the power and usefulness of your Apple IIGs. A Keyboard Lock, Show Time with job timer, Character Ruler, File Type Changer, Text Screen Printer, Hex./Regular File Viewer, Hex./Regular File Printer & a Disk Block Editor are included. \$39.95

The TDM Toolkit shows how easy it is to create TDM accessories. It's all thoroughly explained in this guide. Includes APW examples with source code and macros on disk. \$39.95

ORDER TODAY! See your local dealer for all of ON THREE's products or order by calling toll free:

(800) 443-8877 or (800) 331-1418 in California.
For information please call (805) 644-3514.

ON THREE, Inc.
4478 Market Street Suites 701-702
Ventura, California 93003

face, RC Systems Slotbuster, and ProSCAT are also available from KADO Systems.)

KADO Systems
P.O. Box 1115
Pflugerville, TX 78660
(512) 990-2390

CIRCLE READER SERVICE NO. 514

CROSSCOUNTRY CALIFORNIA

Crosscountry California is a geography simulation program that allows you to act as a truck driver, picking up and delivering commodities from city to city in California. Graphics show the geography of the state as you drive through it. The program is designed to teach economic and political geography, map-reading skills, and strategy and decision-making skills.

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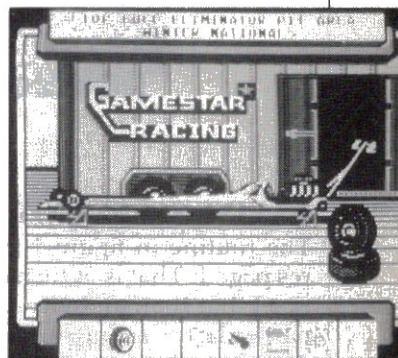
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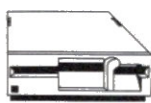
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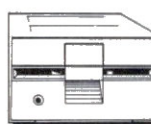
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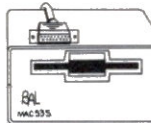
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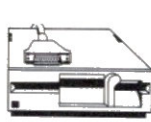
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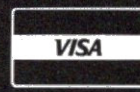
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CIRCLE 167 ON READER SERVICE CARD

TIPS AND TECHNIQUES

Readers share tips for the II

MAKING SCREEN NEGATIVES

The routine in figure 1 inverts hi-res page 1. That is, it turns off every pixel that is on and vice-versa. It is particularly useful for those who dump graphics screens to a printer. It can also be good for making "negatives" of Print Shop graphics. Simply load the graphic by typing `BLOAD graphicname,A$2000`, run my program, and then save the graphic back to disk with `BSAVE newname,A$2000,L$240`.

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SINGLE-DRIVE APPLEWORKS

If you're trying to use AppleWorks on a IIGS with a single 3.5-inch drive, here's a tip that will save you some disk swapping. First of all, name all your AppleWorks data disks /APPLEWORKS (that is, the same name as your AppleWorks start-up disk) and then copy the SEG.PR file from the AppleWorks system disk to each of your data disks. (This file contains printer and printing information.) Since the SEG.PR file isn't loaded into expanded memory at start-up time, you normally have to eject the data disk and insert the AppleWorks disk whenever you want to print. That procedure is now not necessary, since you've fooled AppleWorks into looking for the file on the data disk.

CHUNG H. SHUM
ALHAMBRA, CA

A COMPACT CATALOG

If you have more than 20 files in a directory, CAT or CATALOG produces a display that quickly scrolls off the screen—frustrating if you want to scan through all the filenames to find one in particular or to see which ones you can delete. The listing in figure 2 provides a simple remedy, a program that produces a listing of filenames in a wide format. Each file takes up 20 character positions, allowing a display of up to 40 files on a 40-column screen and up to 80 files on an 80-column screen.

The listing includes the type of file, a symbol if the file is locked (not an asterisk but a colon, for

readability), as well as the filename itself. You also get a count of the number of files. When the program asks you to press Return in order to continue, you can press Escape or Control-C if you want to quit instead.

LEON MANELIS
ORLANDO, FL

A ROUTE TO COMPATIBILITY

Here's a tip for GS users trying to boot older Apple II programs. If you're having trouble booting a program, first try adjusting the speed to Normal (using the Control Panel). If that doesn't fix the problem, try setting Display Columns to 40 instead of 80.

JONATHON EZOR
WALTHAM, MA

```
10 FOR J=768 TO 793: READ X: POKE J,X: NEXT: CALL 768
20 DATA 160,0,132,60,169,32,133,61,177,60,73,255,145
30 DATA 60,200,208,247,230,61,165,61,41,31,208,239,96
```

Figure 1: A program for inverting hi-res screen 1

```
100 PRINT : PRINT "INSERT YOUR DISK. THEN PRESS RETURN.";
110 GET X$: IF X$ = CHR$(27) OR X$ = CHR$(3) THEN END
120 D$ = CHR$(4): PRINT : PRINT D$"PREFIX": INPUT V$
130 PRINT D$"OPEN";V$,"TDIR": PRINT D$"READ";V$
140 INPUT L1$: INPUT L2$: INPUT L3$
150 PRINT L1$: PRINT L3$: GOTO 180
160 L$ = LEFT$(F$,1): IF L$ = "*" THEN L$ = ":"
170 PRINT "|"; MID$(F$,18,3);L$;MID$(F$,2,15);:N = N + 1
180 INPUT F$: IF LEN(F$) THEN 160
190 INPUT L4$:B$ = LEFT$(L4$,20):IF PEEK(1403) THEN PRINT
200 PRINT : PRINT D$"CLOSE": PRINT B$;"FILES: ";N
```

Figure 2: Producing a wide listing of filenames

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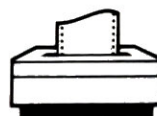


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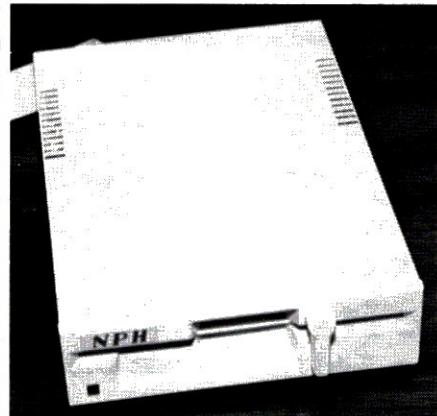
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PRODUCT ALL-STARS

The products listed in "Product All-Stars" are those that *A+* contributors have favorably reviewed or those that *A+* editors deem to be exceptional, although we may not have formally evaluated them. When *A+* has reviewed a product, however, the issue date (e.g., 12/87) appears at the end of the product description. When the issue date is followed by a "PS," it means the product appeared in "Product Spotlight" and not in a feature-length review.

SOFTWARE

ACCOUNTING

Back to Basics

This professional three-module accounting system handles receivables, payables, and general ledger for small to medium-sized businesses. Its greatest virtues are ease of use and a predefined chart of accounts (users also can create their own). The manual provides tutorials and reference guides. (12/87) **List Price:** \$195. **Requires:** Apple IIe, IIc, or IIGS; 64K RAM. *Peachtree Software, 4355 Shackleford Road, Norcross, GA 30093; (800) 247-3224*

BusinessWorks

This complete accounting package includes receivables, payables, general ledger, inventory, and payroll modules that you can use alone or as an integrated system (with required System Management module). Appropriate for companies with up to \$20 million in annual revenues. Priced like other fully functional accounting programs but much easier to use. Exports AppleWorks spreadsheet or database files. (12/87) **List Price:** System Management module, \$95; Payroll module, \$445; additional module, \$395 each. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM; at

least one UniDisk drive and one 5¼-inch disk drive. *Manzanita Software Systems, 1 Sierra Gate Plaza, Suite 200-A, Roseville, CA 95678; (916) 781-3880*

BPI Entry Series

Separate modules for general ledger, payables, receivables, payroll, and inventory comprise this longtime Apple accounting favorite. Does not maintain a historical monthly ledger record, so it can't produce an annual budget. No on-line help is available, and the manual is more utilitarian than instructional, but widespread popularity should ensure that local support is available. (12/87) **List Price:** \$295 per module. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Computer Associates International, 2195 Fortune Drive, San Jose, CA 95131; (408) 432-1727*

Q-Mar General Ledger Template

This AppleWorks template provides a less-expensive general-ledger option for AppleWorks owners. An 80-page manual gives an introduction to double-entry accounting principles. (12/87) **List Price:** \$89.95. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM; AppleWorks. *The Q-Mar Group, 5677 Oberlin Drive, San Diego, CA 92121; (619) 455-7513*

DATABASE PROGRAMS

DB Master

Larger, more capable, and with better report generation than AppleWorks, DB Master has abilities that soar above those of the AppleWorks database module. This program's bulky power can be difficult to get off the ground, however, and it is not suitable for merely routine tasks. (12/87) **List Price:** \$179. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Stone Edge Technologies, P.O. Box 200, Maple Glen, PA 19002; (215) 641-1825*

PROFILER 3.0

Combining some of the best attributes of AppleWorks and DB Master, PROFILER 3.0 provides 65,000-record capacity with an exceptionally good mouse- or keyboard-driven user interface. Simplicity of use comes at the expense of some features, though. (12/87) **List Price:** \$129. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *Pinpoint Publishing, 5865 Doyle Street, #112, Emeryville, CA 94608; (800) 633-2252; in CA (415) 654-3050*

Notes•Files

Satisfies the common database need of keeping track of names and addresses. Not a full-fledged database, but effective. Simple, even fun, to use, with desktop interface and clever icons. (1/88) **List Price:** \$129.95. **Requires:** Apple IIGS, 512K RAM. *DataPak Software, 14011 Ventura Blvd., #507 Sherman Oaks, CA 91423; (818) 905-2201*

DISK UTILITIES

ProSel

A startlingly comprehensive collection of more than a dozen disk utilities from disk-file manager to sector editor, file finder, and Mr. Fixit directory repairman. A bargain available only by mail. (12/87) **List Price:** \$40. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Glen Bredon, 521 State Road, Princeton, NJ 08540*

Copy II Plus

Yes, Copy II Plus does duplicate copy-protected software, but it also includes a library of disk utilities. Works with both DOS 3.3 and ProDOS disks, allows file copying between the two, and takes care of necessary conversions. Also copies smaller disk to image file on larger disk. (12/87) **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Central Point Software, 9700 SW Capitol Highway, Suite 100, Portland, OR 97219; (503) 244-5782*

Diversi-COPY

Uses all available RAM to make the fastest disk copy east (or west) of Silicon Valley. A multiple-copy option allows you to read once and write many times, a boon to users' group disk librarians. (12/87) **List Price:** \$30. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Diversified Software Research, Inc., 34880 Bunker Hill, Farmington, MI 48018-2728; (313) 553-9460*

MouseFiler

Macintosh-like mouse-driven menus and windows created on an 80-column text screen make MouseFiler the disk-file-management favorite of double-clickers everywhere. Efficient to use and skillfully executed. (12/87) **List Price:** \$69.95. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *Harbor Software, Inc., 403 Great Road, Suite #8, Acton, MA 01720; (617) 263-1870*

Bag of Tricks 2

The ultimate utility for recovering

data and files from 5¼-inch damaged disks. Four modules examine sectors for unusual patterns, format individual tracks, edit individual sectors, and recover DOS 3.3 or ProDOS directories. Comes with a comprehensive 158-page book. (12/87) **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Quality Software, 21610 Lassen Street, #7, Chatsworth, CA 91311; (818) 709-1721*

Universal File Conversion

This program moves files among ProDOS, DOS 3.3, Apple Pascal, and Apple CP/M disks. (12/87) **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Quality Software, 21610 Lassen Street, #7, Chatsworth, CA 91311; (818) 709-1721*

Diversi-CACHE

Disk-caching program for the IIGS speeds 3.5-inch disk operations by copying disk data blocks to RAM. Cache size is configurable and survives a hard reset. (12/87) **List Price:** \$35. **Requires:** Apple IIGS; 512K RAM. *Diversified Software Research, Inc., 34880 Bunker Hill, Farmington, MI 48018-2728; (313) 553-9460*

EDUCATION

MATHEMATICS

Number Munchers

Little creatures wander a grid while gobbling meals of arithmetical operations, equalities, inequalities, prime numbers, and factors. Requires concentration as difficulty level increases. (12/87) **Grade Level:** 3 and above. **List Price:** 5¼-inch disk, \$49; 3.5-inch disk, \$55. **Requires:** Apple II series; 64K RAM. *MECC, 3490 Lexington Avenue North, St. Paul, MN 55126; (612) 481-3500*

Math Blaster Plus

New graphics and pull-down menus give this basic math classic a classy new look. Test maker, retake option, student record keeping, report capabilities, and problem-solving activities make it a valuable teaching tool. (12/87) **Grade Level:** 1-6. **List Price:** single-user, \$49.95; five-disk lab pack, \$129.95. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *Davidson & Associates, Inc., 3135 Kashiwa Street, Torrance, CA 90505; (213) 534-4070*

Green Globbs and Graphing Equations

With an amazing instructional range, from beginning algebra to math analysis, this program teaches the relationship between equations and graphs. (12/87) **Grade Level:** 9-12. **List Price:** single-user, \$65; ten-disk lab pack, \$195. **Requires:** Apple II series, 64K RAM. *Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570; (800) 431-1934 or (914) 769-5030*

SCIENCE

Operation: Frog

Amphibian dissection without the sharp edges or the mess. Three modules: dissection and two levels of reconstruction. Organs must be removed or replaced in logical order, and students can examine body parts with a "magnifying glass." (12/87) **Grade Level:** 4-10. **List Price:** single-user, \$74.95; five-disk lab pack, \$112.45. **Requires:** Apple II Plus, IIe, or IIc; 64K RAM. *Scholastic, Inc., 730 Broadway, New York, NY 10003; (212) 505-3000*

Information Laboratory Software - Life Science

A life-science database that covers abiogenesis to zygote. Information

PRODUCT ALL-STARS

organized by subject area, then by relationships among life-science topics. Students can search in any way they choose. (12/87) **Grade Level:** 6-9. **List Price:** \$80. **Requires:** Apple IIGS, 512K RAM. Addison-Wesley Publishing Company, 2725 Sand Hill Road, Menlo Park, CA 94025; (415) 854-0300

Science Toolkit

A Master Module interface box turns your computer into a science laboratory with "probeware" sensors to measure light, speed, temperature, and centrifugal force. Companion lab add-ons study earthquakes, speed and motion, and the body. (12/87) **Grade Level:** 4-12. **List Price:** single-user Master Module, \$69.95; school edition, \$89.95; companion modules, \$39.95 each. **Requires:** Apple II series; 64K RAM. Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500

PROBLEM SOLVING

Think Quick

A fun and challenging way for younger students to improve problem-solving and decision-making skills. Run from cute slime worms while dealing with intellectual opportunities hidden in the game. (12/87) **Grade Level:** 2-9. **List Price:** \$49.95. **Requires:** Apple II series; 64K RAM. The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555; (800) 852-2255

The Enchanted Forest

Defy the wicked witch and identify the logical connection between geometrically shaped ponds in order to save woodland friends. The program teaches mathematical concepts of negation, conjunction, and disjunction. (12/87) **Grade Level:** 4-12. **List Price:** single-user, \$65; ten-disk lab pack, \$195. **Requires:** Apple II series; 64K RAM. Sunburst Communications, Inc., 39 Washington Avenue, Pleasantville, NY 10570; (800) 431-1934 or (914) 769-5030

A.I.: An Experience with Artificial Intelligence

Students design games and then teach the computer how to beat human opponents. This program explores principles of artificial intelligence central to the study of cognitive science and advanced computer programming. (12/87) **Grade Level:** 6-12. **List Price:** single-user for IIe or IIc, \$87.45; five-disk lab pack for IIe or IIc, \$137.45; single-user IIGS, \$87.45. **Requires:** Apple IIe or IIc with 128K RAM; IIGS with 256K RAM. Scholastic, Inc., 730 Broadway, New York, NY 10003; (212) 505-3000

LANGUAGE ARTS

Writer's Helper

An amazing program that guides students through creative and organizational phases of writing and then gathers student-provided information into a rough outline. Also offers techniques for evaluating document readability. (12/87) **Grade Level:** 7-12. **List Price:** \$120. **Requires:** Apple IIe (enhanced) or IIc, 64K RAM. Conduit, The University of Iowa, Oakdale Campus, Iowa City, IA 52242; (319) 335-4100

Show Time

Simulation lets students write script, give stage directions, choose cast, design set, score music, and rehearse production. **Grade Level:** 6-9. (12/87) **List Price:** \$49. **Requires:** Apple II series, 64K RAM. MECC, 3490 Lexington Avenue North, St. Paul, MN 55126; (612) 481-3500

Grammar Examiner

This simulation of a journalism career rewards good grammar, spelling, punctuation, and proofreading skills with financial and professional success. The game is challenging, the competition ruthless, and the pay lousy. Just like real life. (12/87) **Grade Level:** 10 and above. **List Price:** \$44.95. **Requires:** Apple II Plus, IIe, or IIc; 48K RAM. DesignWare, P.O. Box 77186, San Francisco, CA 94107; (415) 546-1866

SOCIAL STUDIES

Oregon Trail

Simulates experiences of westbound pioneers, circa 1840-1848. Surviving the hazards of nature, ill-health, and random fate requires skill in decision making, problem analysis, and participation. (12/87) **Grade Level:** 5-12. **List Price:** 5¼-inch disk, \$55; 3.5-inch disk, \$59. **Requires:** Apple II Plus, IIe, or IIc; 64K RAM. MECC, 3490 Lexington Avenue North, St. Paul, MN 55126; (612) 481-3500

Where in the World Is Carmen Santiago?

Capture an international criminal by culling facts from the *World Almanac and Book of Facts*. A graphically vivid way to learn world geography. (12/87) **Grade Level:** 4-9. **List Price:** single-user, \$39.95; school edition, \$49.95; lab pack, \$99.95. **Requires:** Apple II series, 64K RAM. Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500

EARLY LEARNING

Touch 'N Write

With a touch screen and fingers, young students practice Palmer Manuscript Penmanship along with letter-recognition and reading skills. (12/87) **Grade Level:** K-3. **List Price:** single-user, \$75; ten-disk lab pack, \$225. **Requires:** Apple II series, 64K RAM, Touch Window, color monitor. Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570; (800) 431-1934 or (914) 769-5030

PRODUCTIVITY

Bank Street Writer III

Easy-to-use word-processing program includes 80-, 40-, and large-type 20-column screen displays. Also incorporates thesaurus, spell-checker, search mode, user-definable keys, and pull-down menus. Teachers can use frozen-word option to create prompts that students can't delete. (12/87) **Grade Level:** 2-12. **List Price:** single-user, \$99.95; lab pack, \$162.45; network version, \$499.64. **Requires:** Apple II series; 128K RAM. Scholastic, Inc., 730 Broadway, New York, NY 10003; (212) 505-3000

Homeworker

Integrated productivity program especially for students includes word processing, outline, calendar, flash-card maker, calculator, and grade keeper. (12/87) **Grade Level:** 10 and above. **List Price:** single-user, \$89.95; ten-disk lab pack, \$249.95. **Requires:** Apple IIe (enhanced) or IIc, 128K RAM. Davidson & Associates, Inc., 3135 Kashiwa Street, Torrance, CA 90505; (213) 534-4070

The Print Shop

Design and print stationery, book-report covers, calendars, banners,

newsletters, and award certificates. The classroom productivity tool. Also available are Print Shop Companion and The Print Shop Graphics Library disks. (12/87) **Grade Level:** K-12. **List Price:** single-user, \$49.95; school edition, \$59.95; The Print Shop Companion, \$39.95; The Print Shop Graphics Library disks, \$24.95. **Requires:** Apple II Plus, IIe, or IIc; 64K RAM. Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500

ENTERTAINMENT

The Zork Trilogy

Vividly written and inventively plotted, the three Zorks represent a watershed accomplishment in text adventuring. One of the first and still one of the best. (12/87) **List Price:** \$69.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. Infocom, 125 Cambridge Park Road, Cambridge, MA 02140; (617) 492-6000; (800) 262-6868 (mail-order department)

Suspended

You awake from a cryogenic sleep and learn that the surface of the planet is in mortal danger. From a subterranean location, you guide robots into discovering what has befallen your world. A fascinating plot highlights this inventive text adventure. (12/87) **List Price:** \$14.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. Infocom, 125 Cambridge Park Road, Cambridge, MA 02140; (617) 492-6000, (800) 262-6868 (mail-order department)

The Wizard and the Princess

The first color graphic adventure. Though technically surpassed, The Wizard and the Princess still charms with quaint pictures and challenging puzzles. (12/87) **List Price:** \$7.99. **Requires:** Apple II Plus, IIe, or IIc; 64K RAM. ShareData, 7400 West Detroit Street, Suite 170, Chandler, AZ 85226; (602) 961-7519

King's Quest I & II

Control an animated Little Man as he wanders through a fairy-tale kingdom in a variety of daring quests. A breakthrough in real-time, animated graphic adventures and a delightful achievement in joystick-driven fantasy. (12/87) **List Price:** \$49.95 (upgrade from IIe or IIc version to IIGS, \$10). **Requires:** Apple IIe or IIc with 128K RAM or Apple IIGS with 512K RAM. Sierra On-Line, Inc., P.O. Box 485, Coarsegold, CA 93614; (209) 683-6858

Ultima I, III, IV

Epic in scope and fascinating in detail, this long-running series of fantasy/role-playing adventures continues to set new standards in Apple sword-and-sorcery swashbuckling. Essential to any entertainment-software library. (12/87) **List Price:** Ultima I and III, \$39.95; Ultima IV, \$59.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. Origin Systems, distributed by Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500

Wizardry I-III

The three Wizardry scenarios are renowned as the thinking man's role-playing game. With unique wit and devilish mapping challenges, Wizardry captures the illusion of life as does no other role-playing game. (12/87) **List Price:** Wizardry I, \$49.95; Wizardry II, \$34.95; Wizardry III, \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. Sir-Tech Software, P.O. Box 245, Ogdensburg, NY 13669; (315) 393-6633

The Bard's Tale I & II

Hack and slash never looked so good. Detailed, scrolling, point-of-view dungeons make Bard's Tale the glamour boy among role-playing games. The stunning graphics and sound of the IIGS version place it in a class by itself. (12/87) **List Price:** \$44.95. **Requires:** Apple II Plus, IIe, or IIc with 64K RAM or Apple IIGS with 512K RAM. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171

Shanghai

The ivory tiles of the Mah Jongg board game are piled into a computerized classic. Whether you play it as solitaire or in the head-to-head competitive mode, matching and removing the brightly colored tiles is an endlessly hypnotic experience. (12/87) **List Price:** \$44.95. **Requires:** Apple IIGS, 512K RAM. Activision, P.O. Box 7287, Mountain View, CA 94039; (800) 227-9759; in CA (415) 940-6044

Hacker II

View four simultaneous video monitors on a single Apple computer screen. Guide robots through a Soviet military installation and steal secret plans. Hacker II has the tension of an espionage film and the qualities of a software classic. Good puzzles, split-second timing, and an 11th-hour surprise. (12/87) **List Price:** \$39.95. **Requires:** Apple IIGS; 512K RAM. Activision, P.O. Box 7287, Mountain View, CA 94039; (800) 227-9759; in CA (415) 940-6044

Chessmaster 2000

Computerized chess the way it ought to be. Graphically attractive and strategically devastating, Chessmaster 2000 plays an excellent game of chess. What more could you want? (12/87) **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. Software Toolworks, Distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171

Lords of Conquest

Inspired by the board game Risk, this program gives down-home dictators the power, the prestige, and the perseverance to conquer up to 19 different worlds in a complex game of military, commercial, and political strategy. (12/87) **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171

Archon II

This elegant mix of board-game strategy and real-time arcade combat has players jockeying for mystical position in an ever-changing universe of force fields and magical influence. A sequel that's better than the original. (12/87) **List Price:** \$14.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171

Europe Ablaze

This compact and fast-paced simulation of WWII air battle is an easily mastered system of interlocking command menus that makes the complex statistics of war games accessible to newcomers. (12/87) **List Price:** \$50. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. Strategic Studies Group, distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171

Rebel Charge at Chickamauga

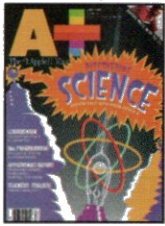
One of the most evenly contested battles of the American Civil War becomes an intensely grand tactical war game. Introductory and advanced versions of Rebel Charge make it appealing to players of vary-

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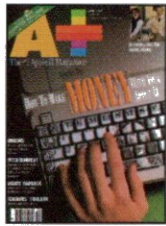
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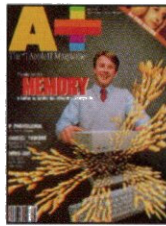
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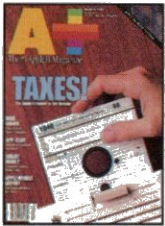
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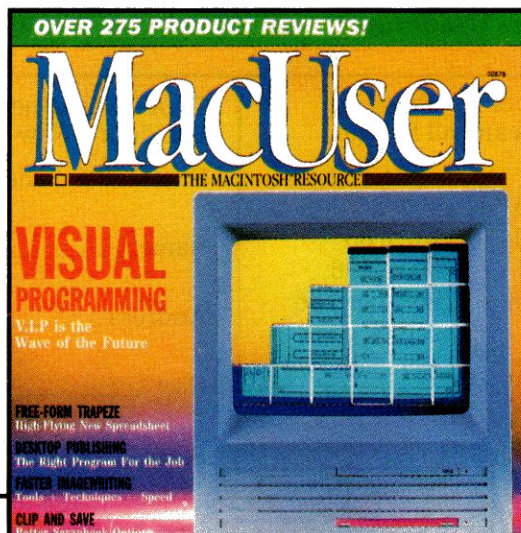
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PRODUCT ALL-STARS

ing abilities. (12/87) **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Strategic Simulations, Inc., 1046 North Kengstorff Avenue, Mountain View, CA 94043; (415) 964-1353*

Conflict in Vietnam

This war-game simulation raises and answers some questions about the unfortunate realities of U.S. military involvement in SE Asia. A well-written manual provides historical background and insight. (12/87) **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *MicroProse, 120 Lakefront Drive, Hunt Valley, MD 21030; (301) 771-1151*

Wilderness

With scrolling 360-degree graphics and life-threatening dangers, Wilderness teaches you that it's not nice to challenge Mother Nature. Optional data disks recreate exotic locales in this outdoor-survival simulation. (12/87) **List Price:** \$29.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Electric Transit, distributed by Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501; (415) 522-3584*

Flight Simulator II

Faster and flashier than the original, Flight Simulator II enables Apple II owners to soar like a mechanical bird while keeping all office-chair wheels firmly on the ground. Includes a WWI air-combat mode for action fans. (12/87) **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *subLogic Corporation, 713 Edgebrook Drive, Champaign, IL 61820; (800) 637-4983 or (217) 359-8482*

The Seven Cities of Gold

Whether you see it as a graphics adventure or as a simulation of cultural invasion, The Seven Cities of Gold is a brilliant combination of fantasy and education. It simulates the explorations, and sometimes the slaughters, of 16th-century Spanish conquistadors. (12/87) **List Price:** \$14.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171*

Loderunner

Run through a convoluted array of ladders and levels, stealing gold and eluding your pursuers. Loderunner offers more levels than you can imagine and a build-it-yourself construction set as well. Addictive, puzzle-solving game play. (12/87) **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

Pinball Construction Set

One of the classics. All the electronic tools and parts you'll need to build your own on-screen pinball machines. The granddaddy of construction sets and still the best. (12/87) **List Price:** \$14.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171*

Choplifter!

In addition to making the two-but-

ton joystick standard equipment for Apple-game players, Choplifter! brought humanity to the arcade game. Pilot a helicopter behind enemy lines and rescue wildly waving prisoners. They may be stick figures, but they'll steal your heart. Packaged with the pinball game David's Midnight Magic. (12/87) **List Price:** \$14.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

GRAPHICS

Blazing Paddles

The best standard-hi-res paint program, Blazing Paddles lets you see the entire graphic as you work. It works with a variety of input devices from mouse to light pen and has a full range of cut, paste, zoom, and color-mixing functions. (12/87) **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Baudville, 1001 Medical Park Drive SE, Grand Rapids, MI 49506; (616) 957-3036*

Dazzle Draw

This double-hi-res paint program was one of the first to emulate the Macintosh interface. All the necessary art tools are here, although it would be better if it displayed the full screen. Menu bar and tool windows obstruct the view. (12/87) **List Price:** \$49.95. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

DeluxePaint II

The best super-hi-res paint program, with every possible feature you could wish for and a few you may not have thought possible on an Apple II. It belongs in every IIGS software library. (12/87) **List Price:** \$99.95. **Requires:** Apple IIGS; 768K RAM. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171*

Take 1

Tools and keystroke commands bring animated life to hi-res graphics. The program animates graphics or text, allows integration of sound effects, and compresses hi-res backgrounds to economize on disk space. Take 1 Programmers' Toolkit helps convert animations into viewer-responsive interactive presentations. (12/87) **List Price:** Take 1, \$59.95; Take 1 Programmers' Toolkit, \$60. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Baudville, 1001 Medical Park Drive SE, Grand Rapids, MI 49506; (616) 957-3036*

Animate

This superb double-hi-res program provides tools and utilities for creating frame animation on the Apple II. Draw the frames and plot the object's path across the screen, and Animate does the rest. Animate has a pull-down-menu interface similar to that of Dazzle Draw and offers graphics compatibility with that program. (12/87) **List Price:** \$59.95. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

The Graphics Magician

This most enduring of all Apple II graphics programs offers both a game-style animation module and paint-oriented sequential-picture module in standard- and double-hi-res modes. Four years old but still in use by professional developers. (12/87) **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Polarware, P.O. Box 311, Geneva, IL 60134; (312) 232-1984*

Fontrix

Fontrix was the first Apple II program to mix text and graphics on a full-page printout. It's suitable for creating newsletters, fliers, and other printed material. Works with an astonishing array of printers and additional FontPaks font disks. (12/87) **List Price:** \$75. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Data Transforms, 616 Washington Street, Denver, CO 80203; (303) 832-1501*

Shape Mechanic and Font Mechanic

These two programs are a matched pair. Shape Mechanic converts any standard-hi-res graphic to an Apple shape. Font Mechanic provides an easy way to put text on the Apple II graphics screen using font shapes. (12/87) **List Price:** Font Mechanic, \$29.95; Shape Mechanic, \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Beagle Bros Micro Software, Inc., 3990 Old Town Avenue, San Diego, CA 92110; (619) 296-6400*

The Graphics Department

Although it's showing its age, this program remains the most comprehensive hi-res business-graphics program available. A complete set of drawing tools and 40 different fonts aid in the creation of slide shows and other presentations. (12/87) **List Price:** \$124.95. **Requires:** Apple IIe, IIc, or IIGS; 48K RAM. *Sensible Software, Inc., 335 East Big Beaver, Suite 207, Troy, MI 48484; (313) 528-1950*

HOME EDUCATION

READING AND LANGUAGE ARTS

Richard Scarry's Best Electronic Word Book Ever
Scarry's storybook characters present basic reading skills. **Grade Level:** 1-6. **List Price:** \$29.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062; (312) 480-7667*

Grammar Gremlins

Children learn basic rules of grammar as they take a trip through a haunted house. **Grade Level:** 3-6. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Davidson & Associates, 3135 Kashiwa Street, Torrance, CA 90505; (213) 543-4070*

Word Attack

Arcade-game instructional format introduces new words and their meanings. There are 675 words, 9 levels of difficulty, and an SAT preparation section. **Grade Level:** 4-12. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Davidson & Associates, 3135 Kashiwa Street, Torrance, CA 90505; (213) 543-4070*

Writer Rabbit

Children learn basic sentence and paragraph structure while playing a six-game sequence. The program allows children to write and print silly stories of their own creation. **Grade Level:** 2-4. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *The Learning Company, 6439 Kaiser Drive, Fremont, CA 94555; (800) 852-2255*

Wordmaze

Players look for secret words hidden in a maze of scrambled letters. **Grade Level:** 3 and up. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, or IIGS; 48K RAM. *Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062; (312) 480-7667*

Snoopy Writer

This program for beginning writers allows expression of ideas with the help of Snoopy and his friends. Children can write, edit, and print. **Grade Level:** 1-6. **List Price:** \$39.95. **Requires:** Apple IIe or IIc; 64K RAM. *Random House Media, 210 East 50th Street, New York, NY 10022; (212) 572-2553*

Microzine

An award-winning computer-learning library that comes on a disk. Individual disks cover a wide range of academic subject areas and grade levels. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, or IIGS; 48K RAM. *Scholastic, Inc., 730 Broadway, New York, NY 10003; (212) 505-3020*

Snake-o-nyms & Word Flip

A word game that uses synonyms and antonyms and increases in speed as scores get higher. **Grade Level:** 2 and up. **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Milliken Publishing, 1100 Research Blvd., P.O. Box 21579, St. Louis, MO 63132; (314) 991-4220*

MATHEMATICS

Alien Addition

Children can practice basic addition while they roam through space. **Grade Level:** 1-5. **List Price:** \$46. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *DLM Teaching Resources, One DLM Park, Allen, TX 75002; (800) 527-5030*

Quations

Players build math skills as they create equations on a Scrabble-like screen. Up to three can play. **Grade Level:** 4 and up. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Scholastic Software, 730 Broadway, New York, NY 10003; (212) 505-3020*

Math Rabbit

Children develop counting, addition, subtraction, and multiplication skills as they play circus games. Math Rabbit in a clown costume, number trains pulled by elephants, and music make the program visually exciting and fun. **Grade Level:** K-2. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *The Learning Company, 6439 Kaiser Drive, Fremont, CA 94555; (800) 852-2255*

Islands of Beta

You are drifting over a chain of islands in a hot-air balloon and must decide where to land. To avoid being stranded, you must solve math and logic problems. **Grade Level:** 6 and up. **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Milliken Publishing, 1100 Research Blvd., P.O. Box 21579, St. Louis, MO 63132; (314) 991-4220*

Webster's Numbers

This program teaches the basics of counting to the very young. Concepts are presented in a magical place where children race balloons, play with mosquitoes in mazes, and build with shapes. **Grade Level:** Preschool-2. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *EduWare Services, 185 Berry Street, San Francisco, CA 94107; (415) 546-1866*

Fay: That Math Woman

Fay helps children visualize math concepts by putting their answers on a number line. **Grade Level:** K-3. **List Price:** \$29.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Didatech Software, Ltd., 3812 William Street, Burnaby, BC Canada V5C 3H9; (604) 299-4435*

“A+ Magazine is accurate, interesting, well written and well designed...for these reasons, it has been named the ‘Best Computer Magazine of 1986’”

Computer Press Association

On April 7th, 1987, A+ Magazine received the prestigious Citizen America/Computer Press Award as the Best Computer Magazine. Chosen from a list of impressive entries from the Apple, IBM and general interest magazines, A+ Magazine was recognized as the Best Magazine of 1986, providing useful information to its targeted audience.

At the awards ceremony, it was said that “A+ Magazine is a lively, fast-paced magazine that is well designed and edited to invite Apple II users into its pages, satisfying their informational needs. In particular, A+ did an outstanding job in providing well rounded coverage of the new Apple IIGS...”

We are very proud and honored that our professional colleagues have recognized our achievement in creating the #1 Apple II Magazine, confirming A+ as the “Reader’s Choice” for all Apple II users.

This award as the “Best Computer Magazine” confirms that A+ Magazine is the information source for all Apple II owners and users.



The #1 Apple II Magazine




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PRODUCT ALL-STARS

GENERAL SCIENCE

Dinosaur Dig
Learn all about your favorite dinosaurs while playing games that give names, dates of existence, and size of specific dinosaurs. Children self-test their knowledge with flash cards. **Grade Level:** 3 and up. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, or IIc; 48K RAM. *Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062; (312) 480-7667*

The Secret of Science Island

Player must unlock the secrets of survival after being shipwrecked right at the start of the hurricane season. Secrets are revealed for each correct answer to a science riddle. **Grade Level:** 4 and up. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64 or 128K RAM (two versions) *Grolier Electronic Publishing Company, Sherman Turnpike, Danbury, CT 06816; (800) 858-8858 or (203) 797-3500*

The Halley Project: A Mission in our Solar System

A simulated mission through our solar system is guided by mastery of astronomy concepts. Data collection, analysis, synthesis, and hypothesis testing are encouraged by this pro-

gram. **Grade Level:** 5-12. **List Price:** \$44.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062; (312) 480-7667*

ENRICHMENT/GENERAL ENTERTAINMENT

Mr. & Mrs. Potato Head
Allows players to mix and match body parts to create their own potato people. Disk also includes three memory games to sharpen concentration skills. **Grade Level:** Preschool-3. **List Price:** \$29.95. **Requires:** Apple IIe or IIc; 64K RAM. *Random House School Division, 400 Hahn Road, Westminster, MD 21157; (800) 638-6460; in MD (301) 848-1900*

Sea Voyagers

An interactive game that chronicles the lives of New World Explorers. Players learn historical facts such as voyage routes, accomplishments, and countries of origin. **Grade Level:** 3 and up. **List Price:** \$49.95. **Requires:** Apple II Plus, IIe, or IIc; 48K RAM. *Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062; (312) 480-7667*

Great States Race

Players fly across the USA in hot-air balloons and answer questions about state capitals, cities, famous people, and other topics of interest. **Grade Level:** 4-6. **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Milliken Publishing, 1100 Research Blvd., P.O. Box 21579, St. Louis, MO 63132; (314) 991-4220*

Car Builder

In this program, you can design, build, and test custom cars that you create. The design capabilities cover the chassis, engine, and body. **Grade**

Level: 8 and up. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Weekly Reader Software, 245 Long Hill Road, Middletown, CT 06457; (203) 638-2400*

French Micro Scrabble

Scrabble in French that allows four players to compete at different skill levels. Program contains a 20,000-word spelling checker. **Grade Level:** 9th and up. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Gessler Educational Software, 900 Broadway, New York, NY 10003; (212) 673-3113*

Stickers

This flexible program encourages creativity and problem solving. Children select and position sticker items in pictures of their own design. **Grade Level:** Preschool-5. **List Price:** \$34.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Springboard Software, Inc., 7808 Creekridge Circle, Minneapolis, MN 55435; (612) 944-3915*

Crosscountry USA

A simulated big-rig driving experience that teaches geography, map reading, and money management. The goal is to deliver vital commodities to major U.S. cities with out getting caught for speeding. **Grade Level:** 5 and up. **List Price:** \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Didatech Software, Ltd., 3812 William Street, Burnaby, BC, Canada V5C 3H9; (604) 299-4435*

INTEGRATED

AppleWorks

AppleWorks has plenty of features that users want and more features than most use. The people's choice,

hardworking and affordable. It gives you spreadsheet, database, and word-processing capabilities in one tidy package. (12/87) **List Price:** \$249. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010*

Foundation

Although difficult to learn, Foundation, an integrated program with a relational database, is worth it. Appropriate for almost any data-processing application you are clever enough to know how to do. Some file-compatibility with AppleWorks. (12/87) **List Price:** \$300. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Foundation Corporation, 506 West Armitage, Chicago, IL 60614; (312) 880-5761*

MUSIC

The Music Studio

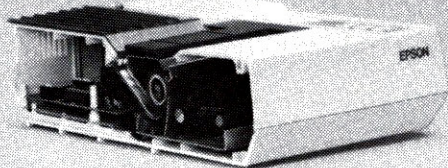
A comprehensive IIGS music-composition program with pull-down menus and mouse-driven note entry. Color-coded notation indicates which of 15 instrumental timbres are in use. Includes standard Cut, Paste, Move, and Transpose options but lacks automatic measure breaks. (12/87) **List Price:** \$79.95. **Requires:** Apple IIGS, 512K RAM. *Activision, P.O. Box 7287, Mountain View, CA 94039; (800) 227-9759; in CA (415) 940-6044*

Instant Music

Unabashed musical amusement for nonmusicians, Instant Music lets you move your mouse to play along with a variety of digitized sound tracks. Uses nonstandard musical notation of colored bars instead of notes and staves. Results can be weird, campy, and a lot of fun. Music data disks are available separately.

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(12/87) List Price: \$49.95. **Requires:** Apple IIGS; 512K RAM. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171*

KidsTime II

This music-education program uses a grand staff and simulated keyboard to assist youthful composers. In KidsNote option, you choose note duration and click on the on-screen piano key for pitch, and the note is entered on the staff. Not as musically sophisticated as other IIGS programs, but accessible for younger musicians. Includes music files with several children's songs. For ages 3-10. (12/87) List Price: \$39.95. **Requires:** Apple IIGS; 512K RAM. *Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066; (408) 438-1990*

Music Construction Set (for IIGS)

The digitized sonics of the IIGS add new interest to this venerable Apple composition program. Not as graphically imaginative as some of the competition, but simplicity and innovation make it the most foolproof of note-dragging programs. (12/87) List Price: \$49.95. **Requires:** Apple IIGS; 256K RAM. *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171*

The Music Class

Children are taught such music fundamentals as rhythm, ear-training, note-reading, and music symbols in this five-part, ten-disk package. Clever animated characters keep the subject lively. For teachers, the program tracks progress of up to 125 students. A whimsical and comprehensive training series. (12/87) List Price: \$195. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Coda Music Software, A Wenger Company, 1401*

East 79th Street, Bloomington, MN 55420; (800) 843-1337

Note-Ups

MIDI support spices up this drill-and-practice program for sight-reading and interval recognition. (12/87) List Price: \$129.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Computers & Me, Ltd., 10 Ashbrook Road, Exeter, NH 03833; (603) 772-4399*

MIDI Music Tutor

This drill-and-practice package of music fundamentals incorporates a Record Keeper that enables teachers to maintain student performance records and modify lessons. Works with MIDI instruments. (12/87) List Price: \$229.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Passport Designs, Inc., 625 Miramontes Street, #103, Half Moon Bay, CA 94019; (415) 726-0280*

Guitar Wizard

Four basic areas of study comprise this guitar-tutorial program. Locates chords in different positions; displays fingerings, intervals, and notes for various scales; teaches basics of fret-board harmony and open tunings; and suggests scales appropriate for improvisation. Astonishingly complete and full of scale runs seldom seen in guitar books. (12/87) List Price: \$29.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Baudville, 1001 Medical Park Drive SE, Grand Rapids, MI 49506; (616) 957-3036*

Stickybear Music

To accommodate less-agile young hands, this music-education program uses the space bar instead of a mouse to position notes in the staff. Notes are big and fat for youngsters to follow. For ages 7 and up. (12/87)

List Price: \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Weekly Reader Software, Optimum Resource, Inc., 10 Station Place, Norfolk, CT 06058; (800) 327-1473 or (203) 542-5553*

Peter and the Wolf Music

Prokofiev's famed instrumental story gives children an introduction to pitches, chords, and melody. For ages 3-7. (12/87) List Price: \$39.95. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM. *Fisher-Price Learning Software, 1 Kendall Square, Cambridge, MA 02139; (617) 494-1222*

Foundations of Music: A

Computer-Assisted Introduction
A beautifully written textbook, with accompanying computer disk, on scales, intervals, and other music fundamentals. (12/87) List Price: \$31.25. **Requires:** Apple II Plus, IIe, IIc, or IIGS; 48K RAM. *Wadsworth Publishing Company, 10 Davis Drive, Belmont, CA 94002; (415) 595-2350*

PERSONAL FINANCE

Quicken

One of the easiest checkbook-balancing programs. Quicken has data-entry screens that look like a checkbook and checkbook register. It follows the AppleWorks file-folder interface and can export data to AppleWorks. Provides user prompts and data-entry shortcuts. (12/87) List Price: \$49. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Intuit, 540 University Avenue, Palo Alto, CA 94301; (800) 624-8742; in CA (800) 468-8481*

On Balance

This checkbook-balancing program accepts keyboard or mouse input and reports information in statistical or bar-graph form. On Balance auto-

matically fills in the account category based on the initial letters you type. The program has limited ability to classify records for taxes or expense statements, however. (12/87) List Price: \$99.95. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *Brøderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

Dollars & Sense

With some of the hardheaded attitudes of a human CPA, Dollars & Sense lacks the flexibility of the competition, but it has more features. Doesn't export data directly to AppleWorks but can write DIF-format files (which can be imported into AppleWorks). (12/87) List Price: \$119.95. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *Monogram, 367 Van Ness Way, Torrance, CA 90501; (213) 533-5120*

TELECOMMUNICATIONS

Point-to-Point

With an AppleWorks-like file-card display and transmission-protocol support that includes Binary II, Point to Point is the telecommunications program of choice. A new full-screen editor makes it ever easier to use. (12/87) List Price: \$129. **Requires:** Apple IIe, IIc, or IIGS; 128K RAM. *Pimpoint Publishing, 5865 Doyle Street, #112, Emeryville, CA 94608; (415) 654-3050*

MouseTalk

Easy to use and mouse-driven, MouseTalk boasts a review buffer and full-screen text editor. It oddly omits the Binary II transmission protocol, however, and file operations do not follow IIGS conventions. (12/87) List Price: \$99.95. **Requires:** Apple IIe (enhanced), IIc, or IIGS; 128K RAM. *United Software Industries, Inc.,*

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Talk Is Cheap

This shareware includes Xmodem and Binary II protocols, along with an extensive macro-command language for automation of on-line functions. Turbo Xmodem download (to a RAMdisk) can speed data reception by 100%. Available from bulletin boards and data services. (12/87) **List Price:** \$30 shareware. **Requires:** Apple IIe, IIc, or IIgs; 128K RAM. *Don Elton, Carolina System Software, 3207 Berkeley Forest Drive, Columbia, SC 29209-4111; written inquiries only*

FreeTerm GS

A true IIgs desktop terminal program with transmission limit of 2400 bps. Screen updates are slow. (12/87) **List Price:** Free. **Requires:** Apple IIgs, 512K RAM. Available from bulletin boards and data services.

CommWorks

One of the earliest communications programs to work with the IIgs. CommWorks resembles Point to Point but lacks review buffer and Binary II protocol support. A 1987 enhancement added VT-100 terminal emulation. (12/87) **List Price:** \$95. **Requires:** Apple IIe, IIc, or IIgs; 128K RAM. *PBI Software, 1163 Triton Drive, Foster City, CA 94404; (415) 349-8765*

ProTERM

Works with a wide variety of models but has only limited expansion-RAM support. AutoLearn feature creates log-on sequences automatically. (12/87) **List Price:** \$95. **Requires:** Apple IIe, IIc, or IIgs; 64K RAM. *Checkmate Technology, Inc., 509 South Rockford Drive, Tempe, AZ 85281-3021; (800) 325-7347*

MAUG Message Manager

If you participate heavily in the MAUG forum on CompuServe, this software can save you hundreds of dollars per year in connect fees. The price is the connect time you need to download it from MAUG. (12/87) **Requires:** Apple IIe, IIc, or IIgs; 64K RAM.

WORD PROCESSING

WordPerfect 1.1

Remarkably full-featured, WordPerfect 1.1 offers such niceties as print spooling, automatic footnoting, subscripts and superscripts, fonts, a 50,000-word spelling checker, and mail merge. The cost of this sophistication is a marked lack of speed and a steep learning curve. (12/87) **List Price:** \$179. **Apple IIe or IIc; 128K RAM.** *WordPerfect Corporation, 288 West Center Street, Orem, UT 84057; (801) 227-4000*

Perfect Writer 2.0

This word-processing program combines a command-line interface with Mac-like menus and WYSIWYG text display. Perfect Writer is an impressive text formatter that's easy to learn and use and includes a 50,000-word spelling checker and thesaurus. (12/87) **List Price:** \$139. **Re-**

quires: Apple IIe or IIc; 64K RAM. *EMI Computer Software, Inc., 285 Mill Road, Chelmsford, MA 01824; (617) 256-3900*

MultiScribe GS 2.0

The first IIgs word-processing program to attain real stature. Lacks some features, such as automatic footnoting, but otherwise the mouse-driven design takes after and sometimes exceeds MacWrite. Variable fonts, color or black-and-white printouts, and the ability to cut and paste bit-mapped graphics make MultiScribe GS a delight. (12/87) **List Price:** \$99.95. **Requires:** Apple IIgs; 512K RAM. *StyleWare, Inc., 5250 Gulfmont, Suite 2E, Houston, TX 77081; (800) 233-4088 or (713) 668-0743*

AppleWriter II

A fine array of word-processing features include footnoting, split screens, and a programming language to set up form letters, perform math operations, and create macros. (12/87) **List Price:** \$149. **Requires:** Apple IIe or IIc; 128K RAM. *Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010*

Sensible Writer

A Mac-like word-processing program that is compatible with AppleWorks, Sensible Writer offers features such as mail merge, Undo, Lock Document, and Append Document. (12/87) **List Price:** \$99.95. **Requires:** Apple IIe (enhanced), IIc, or IIgs; 128K RAM. *Sensible Software, Inc., 335 East Big Beaver, Suite 207, Troy, MI 48011; (313) 528-1950*

MouseWrite

Mac-like design lacks full WYSIWYG capability but includes AppleWorks and DOS 3.3 file compatibility, 61,000-word spelling checker, telecommunications module, macros, and expandable desktop accessories. (12/87) **List Price:** \$149.95. **Requires:** Apple IIe, IIc, or IIgs; 128K RAM. *Roger Wagner Publishing, Inc., 1050 Pioneer Way, Suite B El Cajon, CA 92020; (619) 442-0522*

Gutenberg, Sr.

Allows users to create characters and fonts. Comes with Latin, Greek, Cyrillic, and Hebrew alphabets. Connects directly to typesetting equipment. (12/87) **List Price:** \$230; new version scheduled for early 1988 release, \$360. **Requires:** Apple IIe, IIc, or IIgs; 64K RAM. *Gutenberg Software, 47 Lewiston Road, Scarborough, Ontario M1P 1X8, Canada; (416) 757-3320*

Manuscript Manager/APA Style

Formats texts and checks writing style according to American Psychological Association conventions. (12/87) **List Price:** \$175. **Requires:** Apple IIe (enhanced), IIc, or IIgs; 128K RAM. *Pergamon Journal, Inc., Maxwell House, Fairview Park, Elmsford, NY 10523; (914) 592-7700, Ext. 312*

Bank Street Writer Plus

This newly updated word-processing program is ideal for home use. (12/87) **List Price:** \$79.95. **Requires:** Apple IIe (with 80-column card), IIc, or IIgs; 128K RAM. *Broderbund Software, 17 Paul Drive, San Rafael, CA 94903; (415) 492-3500*

HomeWord Plus

With easy-to-understand icons to get you going, HomeWord is an attractive program for home users. (12/87) **List Price:** \$69.95. **Requires:** Apple IIe or IIc; 128K RAM. *Sierra On-Line, Inc., P.O. Box 485, Coarsegold, CA 93614; (209) 683-6858.*

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HARDWARE

ACCELERATORS

TransWarp

This venerable accelerator runs your IIe or II Plus software up to 3.6 times normal speed. It speeds up both main and auxiliary memory on the IIe, so it's ideal for AppleWorks number crunching. (8/86) **List Price: \$219. Requires:** Apple II Plus or IIe. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

AUDIO/SOUND/SPEECH

Supersonic

A stereo-output card that connects to the GS Ensoniq chip. Output can be directed to a hi-fi stereo, headphones, or speakers. It works nicely with The Music Studio, Music Construction Set, KidsNotes, and other software that creates stereophonic sound. (7/87) **List Price: \$59.95. Requires:** Apple IIGS. *MDIdeas, 1163 Triton Drive, Foster City, CA 94404; (800) 843-5722; in CA (800) 573-2746*

Supersonic Digitizer

This card plugs into the Supersonic card. You can use it to digitize incoming sound so that it may be played back through the Supersonic. (7/87) **List Price: \$59.95. Requires:** Apple IIGS, Supersonic card. *MDIdeas, 1163 Triton Drive, Foster City, CA 94404; (800) 843-5722; in CA (800) 573-2746*

Phasor

A stereo music, sound, and speech synthesizer with 12 sound channels and 4 white-noise generators. Comes with software for composing songs and generating speech. **List Price: \$179. Requires:** Apple II Plus, IIe, or IIGS. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

Echo IIb

A speech synthesizer that can translate ASCII text to understandable speech. Includes software that makes the chore of adding speech to your own Applesoft programs very easy. (2/84) **List Price: \$129.95. Requires:** Apple II Plus, IIe, or IIGS. *Street Electronics, P.O. Box 50220, Santa Barbara, CA 93150; (805) 565-1612*

CLOCKS

TimeMaster H.O.

A versatile ProDOS-compatible clock that comes with plenty of software that shows how to use it with DOS 3.3, Pascal, and CP/M. Keeps track of the time and date to the millisecond and has a BSR port for X-10 home-control modules. (12/85) **List Price: \$99. Requires:** Apple II Plus, IIe, or IIGS. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

No-Slot Clock

This unique device installs underneath a ROM chip on the motherboard. It comes with software for patching ProDOS to recognize the chip. (7/87) **List Price: \$59. Requires:** Apple II Plus, IIe, or IIGS. *Systems Technology Manufacturing (SMT), 1145 Linda Vista Drive, San Marcos, CA 92049; (619) 744-3590*

DRIVES/CONTROLLERS

Universal Disk Controller

This controller card can attach two 3.5-inch drives, two 5¼-inch drives,

or one of each, to your system. (1/87) **List Price: \$90. Requires:** Apple II Plus, IIe, or IIGS. *Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219; (503) 244-5782*

Chinon 800K Drive

A low-cost 3.5-inch drive that works with the Universal Disk Controller. You can also attach it directly to the disk port on a Macintosh. (1/87) **List Price: \$199. Requires:** Apple II Plus, IIe, or IIGS. *Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219; (503) 244-5782*

HARD-DISK DRIVES

CMS SC20

A SCSI hard-disk drive with 20 megabytes of storage and an optional 40MB tape backup system. Can be shared by multiple Apple IIs and Macintoshes. (11/87) **List Price: \$895. Requires:** Apple II Plus, IIe, or IIGS. *CMS Enhancements, 1372 Valencia Avenue, Tustin, CA 92680; (714) 259-9555*

Sider D2, D4

The most popular hard-disk drive for the Apple II family, the Sider works with all major Apple II operating systems. A tape backup unit is optional. (11/87) **List Price: 20MB unit, \$695; 40MB, \$995. Requires:** Apple II Plus, IIe, or IIGS. *First Class Peripherals, 3579 Highway 50 East, Carson City, NV 89701; (800) 982-3232; in NV (702)883-4000*

ProApp 20

This versatile hard-disk drive works with DOS 3.3, ProDOS, and Pascal. You can also have a coresident Macintosh partition. (11/87) **List Price: \$850. Requires:** Apple IIc. *ProApp, Inc., 1989A Palomar Oaks Way, Carlsbad, CA 92009; (800) 225-6442; in CA (800) 843-0426.*

MEMORY CARDS

RamFactor

Plugs into a standard expansion slot (1-7) and holds up to 1MB (in 256K increments). ProDOS automatically recognizes it as a RAMdisk. Comes with AppleWorks enhancement software and battery backup option. (8/86) **List Price: \$239 for 256K. Requires:** Apple II Plus, IIe, or IIGS. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

RamWorks III

Plugs into the auxiliary slot and holds up to 1MB (in 256K increments). You can add more memory with a piggyback card. Comes with AppleWorks-enhancement and RAMdisk software for all major operating systems. Works with Color-Link RGB video option. (8/86) **List Price: \$179 for 64K. Requires:** Apple IIe. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

GS-RAM

Holds up to 1.5MB (in 256K increments) and features ROM and RAM expansion ports. Includes AppleWorks-enhancement, disk-caching, and printer-buffering software. (5/87) **List Price: \$169 for 256K. Requires:** Apple IIGS. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

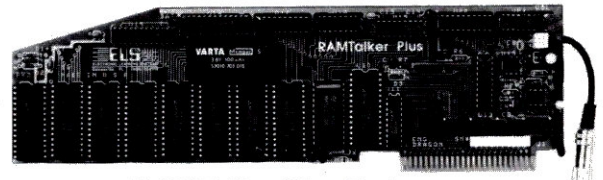
OctoRAM

Holds up to 2MB (using 256K SIMMs) or 8MB (using 1MB SIMMs). The SIMM RAM packages are the same as those on newer models of the Macintosh and are very easy to install. (5/87) **List Price: \$149.95 for 256K. Requires:** Apple IIGS. *MDIdeas, 1163 Triton Drive, Foster City, CA 94404; (800) 843-5722; in CA (800) 573-2746*

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Open-Apple is Tom Weishaar's monthly newsletter for knowledgeable Apple II users. It's thin but packed tight with Apple II lore, humor, letters, tips, advice, and solutions to your problems. Compared to other Apple II publications, **Open-Apple** has the highest new-idea-per-issue ratio, the clearest writing, the funniest cartoons, the longest index, the only warranty (all your money back if you're not satisfied), and it takes up the least shelf space. The only thing it doesn't have is the most subscribers. Yet.

II cue #27

Copy protection is stupid. It not only harms customers, in the long run it harms authors and publishers. It's a bad marketing strategy. With the IIGs in particular I advise you to stay away from copy-protected software. It's dangerous stuff. It can mess up your system and mess up your disks. It multiplies your incompatibility problems. Each dollar you spend on unprotected software is a vote for less copy protection in the future. Support unprotected software! For more, see "How about a boycott?" in the August 1987 **Open-Apple**, page 3.50.

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MODEMS

AppleMate

A low-cost, 1200-bps Hayes-compatible internal modem. (4/87) **List Price:** \$295. **Requires:** Apple II Plus, IIe, or IIGS. *Cermetek Microelectronics, 1308 Borregas Avenue, Sunnyvale, CA 94008; (408) 752-5000*

DataLink

A 1200-bps Hayes-compatible internal modem. Comes with communications software in ROM and on disk. **List Price:** \$219. **Requires:** Apple II Plus, IIe, or IIGS. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

ProModem 1200A

A 1200-bps Hayes-compatible internal modem with extended software in ROM. (4/87) **List Price:** \$295. **Requires:** Apple II Plus, IIe, or IIGS. *Prometheus Products, 4545 Cushing Parkway, Fremont, CA 94538; (415) 490-2370*

ProModem 300c

A 300-bps Hayes-compatible modem, specially designed to attach to the serial port of the IIc. **List Price:** \$119. **Requires:** Apple IIc. *Prometheus Products, 4545 Cushing Parkway, Fremont, CA 94538; (415) 490-2370*

MULTIFUNCTION CARDS

SlotBuster II

This card has a bevy of optional features: a parallel-printer port, serial-printer port, modem port, speech synthesizer, clock, and BSR controller, to name a few. None of these devices take up a phantom slot, as many other multifunction cards do. (9/87) **List Price:** \$149.95 with 8K buffer; additional options available from \$19.95 to \$57.95. **Requires:** Apple II Plus, IIe, or IIGS. *RC Systems, 121 West Winesap Road, Bothell, WA 98012; (206) 672-6909*

PARALLEL CARDS

ProGrappler

This is the latest revision of the granddaddy of parallel-interface cards. It works with a variety of printers, and its firmware facilitates the printing of screen images. (4/87 PS) **List Price:** \$119. **Requires:** Apple II Plus, IIe, or IIGS. *Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807; (800) 223-8029; in CA (714) 779-2772*

SERIAL/PARALLEL CARDS

Print-It!

This card comes with a small red button that you can attach to your keyboard. When you press the button, your program halts, and the current screen image prints immediately. The card works with more than 50 printers, both parallel and serial. **List Price:** \$199. **Requires:** Apple II Plus, IIe, or IIGS. *Texprint, 200 Reservoir Street, Needham Heights, MA 02194; (800) 255-1510; in MA (617)449-5808*

SERIAL CARDS

Serial Grappler +

This interface card is for serial printers such as the ImageWriter. It features more than 30 text- and graphics-screen dump commands and takes advantage of the color features of the ImageWriter II. **List Price:** \$89. **Requires:** Apple II Plus, IIe, or IIGS. *Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807; (800) 223-8029; in CA (714) 779-2772*

RamPak 4GS

This card holds up to 4MB, in 256K increments. It uses 256 × 4 RAM chips and comes with disk-caching software. (5/87) **List Price:** \$189 (512K). **Requires:** Apple IIGS. *Orange Micro, 1400 North Lakeview Avenue, Anaheim, CA 92807; (800) 223-8029; in CA (714) 779-2772*

RamStakPlus

Holds up to 1MB (in 256K increments) and has four ROM sockets that hold EPROM (256K maximum) or EEPROM (128K maximum) chips. Software is included for programming the EEPROMs. You must burn your own EPROMs. (5/87) **List Price:** \$129 for 256K. **Requires:** Apple IIGS. *AST Research, 2121 Allon Avenue, Irvine, CA 92714; (714) 553-0340*

Z-Ram Ultra 3

Holds up to 1MB (in 256K increments) and has an on-board clock/calendar and a Z-80B microprocessor for running CP/M applications. Comes with AppleWorks expansion and RAMdisk software. (8/86) **List Price:** \$ 329 for 256K. **Requires:** Apple IIc. *Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060*

MultiRAM CX

This card holds up to 512K (in 256K increments). It comes with AppleWorks expansion software. (8/86) **List Price:** \$179.95 for 256K. **Requires:** Apple IIc. *Checkmate Technology, 509 South Rockford Drive, Tempe, AZ 85281; (800) 325-7347; in AZ (602) 966-5802*

MemorySaver

This unique card plugs into the GS memory slot and acts as a receptacle for two GS memory cards (it works with most brands). Also has a remote-power and battery option for maintaining data on the memory cards even after you turn off the Apple or experience a power loss. **List Price:** \$149.95. **Requires:** Apple IIGS. *Checkmate Technology, 509 South Rockford Drive, Tempe, AZ 85281; (800) 325-7347; in AZ (602) 966-5802*

QCard

This low-cost card holds up to 256K (in 64K increments). It comes with AppleWorks-expansion and RAM-disk software. You can piggyback additional memory onto it. (11/87 PS) **List Price:** \$129.95 for 256K. **Requires:** Apple IIe. *Checkmate Technology, 509 South Rockford Drive, Tempe, AZ 85281; (800) 325-7347; in AZ (602) 966-5802*

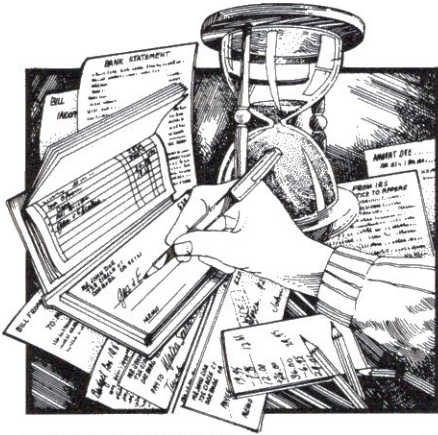
MultiRAM RGB

Holds up to 1MB (in 256K increments) and has Apple-compatible RGB video circuitry built in. Comes with AppleWorks-expansion software and DOS 3.3 and ProDOS RAMdisk software. You can piggyback additional memory to it. (8/86) **List Price:** \$189.95 for 64K. **Requires:** Apple IIe. *Checkmate Technology, 509 South Rockford Drive, Tempe, AZ 85281; (800) 325-7347; in AZ (602) 966-5802*

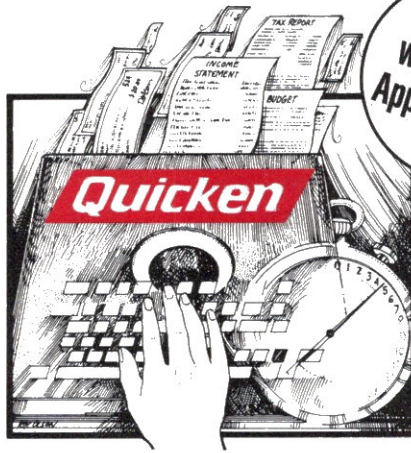
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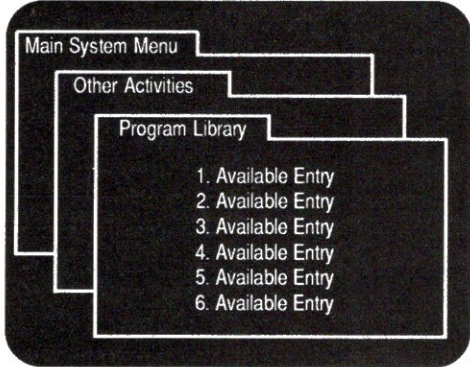
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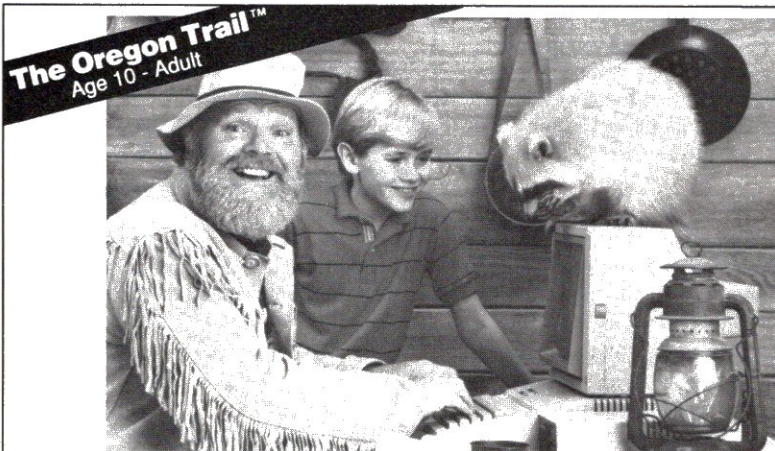
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2. Date of filing: October 1, 1987
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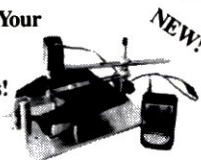
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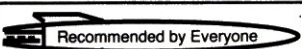
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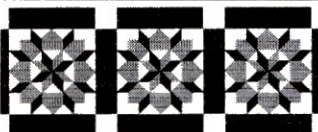
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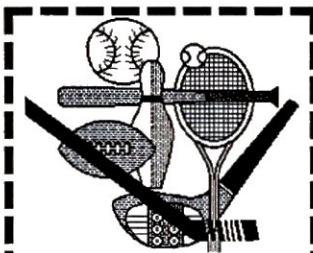
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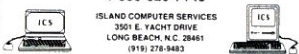
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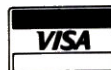
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**EDITOR'S NOTE:
APPLEWORKS AND PRINTING**

One of the common "Rescue Squad" questions I get is "how do I use my brand X printer with AppleWorks?". This kind of question is difficult to answer unless I just happen to have the manufacturer's reference manual handy (and I usually don't).

Enter the National AppleWorks Users Group (NAUG). NAUG publishes an informative wall chart that contains the printer codes for of all the most popular printers (and some of the obscure ones, too) and other useful AppleWorks information. Just punch in these codes when you're adding a custom printer to AppleWorks, and you can start taking advantage of underlining, boldfacing, superscripting, and so on. The chart is available for \$7.95 from NAUG, Box 87453, Canton, MI, 48187; (313) 397-1594.

NAUG also publishes a monthly newsletter for AppleWorks users to which you can subscribe for \$24 per year.

OLD DATA DISKS/NEW DATABASE PROGRAM

Q. I have plenty of old PFS:File data disks that I want to use with a more recent database program. What do you suggest?

MANLEY COHEN
LONG BEACH, CA

A. If you're looking for a new database program but don't want to sacrifice your PFS data, consider ProFILER 3.0 from Pinpoint Publishing (5865 Doyle Street, Emeryville, CA 94608; [415] 654-3050). Pinpoint sells an optional utility for ProFILER that converts data files from the Pascal version of PFS:File to ProFILER 2.0 files, which ProFILER 3.0 can then read. The utility also converts files from the ProDOS version of PFS:File into standard text files, which either ProFILER 2.0 or 3.0 can subsequently read.

REENTERING APPLEWORKS

Q. Is there any way to reenter AppleWorks after accidentally pressing Control-Reset?

PHIL DAVIS
COSTA MESA, CA

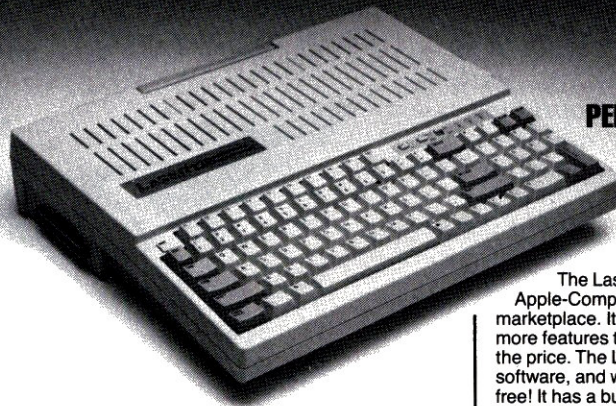
A. What you need to know is the address of the main-menu subroutine for AppleWorks, an address

that varies from version to version. Rather than trying to track it down, why not take the opportunity to purchase Super MacroWorks or any of the Timeout series of AppleWorks enhancements from Beagle Bros ([619] 296-6400). All these products automatically trap Reset and take you back to AppleWorks' main menu. (By the way, even though you have a reset handler installed, don't get into the habit of returning to the main menu this way; there's no guaran-

tee that critical internal data structures won't be damaged when you press Reset.) **+**

Gary Little is A+'s senior technical editor and author of Exploring the Apple IIGS. Please send your questions and problems to "Rescue Squad," A+, 110 Marsh Drive, Suite 103, Foster City, CA 94404. Because of limited space, we aren't able to publish responses to all of the inquiries we receive.

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CIRCLE 294 ON READER SERVICE CARD

Rescue Squad

BY GARY B. LITTLE

ProDOS FRUSTRATION

Q. I've just purchased a IIGS for my daughter and myself and have become very frustrated by the ProDOS operating system. (I'm a longtime user of MS-DOS machines.) Could you please tell me how to send a directory listing to my printer? And speaking of directories, the size of a file is indicated in blocks. How big is a block?

DAVID C. JACOBS
CORPUS CHRISTI, TX

A. Learning a new operating system is never very much fun, but you will get accustomed to it as time goes on.

In order to print your directory, first enter the Applesoft command mode (that's where you see the] prompt), enter PR#1 (with the printer on and selected), and then enter CATALOG. When printing ends, enter PR#3 to start sending output to the screen again.

A block refers to the basic unit of storage on a ProDOS mass-storage disk device and is 512 bytes in size. To convert from blocks to K units, you simply divide the number of blocks by 2.

EDITOR'S NOTE: FILE TRANSFERS

George McClelland of Southeastern Software, 7743 Briarwood Drive, New Orleans, LA 70128; (504) 246-8438, recently wrote to remind me that his Mac.Transfer program is useful for transferring text files between an Apple II and a Macintosh. The transfer requires a cable that connects the two computers via their serial ports. (You can also purchase a disk that allows transfers between a Macintosh and an MS-DOS computer.) McClelland also runs a service for converting data files between nontext formats (AppleWorks to Microsoft File, for example). Call him for a quotation.



MOUSE CONTROL

Q. I'm trying to enhance some of my Apple II programs by adding support for a mouse. My problem is that I haven't found a way yet to "get in touch" with the mouse from the Applesoft programming language.

JOHN DAWSON
WINSTON-SALEM, NC

A. Taking advantage of the mouse from inside an Applesoft program is actually quite simple. First, you must activate the mouse with the following two statements:

```
PRINT CHR$(4); "PR#4" : PRINT CHR$(1)
```

(assuming the mouse interface is in slot 4 or port 4). Follow them with a `PRINT CHR$(4); "PR#3"` to direct output back to the 80-column screen, if necessary. To read the current mouse position, use two statements of the form

```
PRINT CHR$(4); "IN#4" : INPUT "": A,B,C
```

After the computer has executed these statements, A contains the horizontal mouse position, B contains the vertical position, and C indicates the status of the mouse

button. The position values range from 0 to +1023, and the absolute value of C takes on one of four values: 1 means the button is down and was also down during the last INPUT statement; 2 means the button is down and was up during the last INPUT; 3 means the button is up and was up during the last INPUT; and 4 means the button is up and was down during the last INPUT. A negative value for C means a key has been pressed on the keyboard; subsequent readings stay negative until you clear the keyboard strobe with a `POKE -16368,0` command.

The only other command you need to be aware of is the one to turn off the mouse:

```
PRINT CHR$(4); "PR#4" : PRINT CHR$(0).
```

For more information on how to use the mouse, refer to the *Apple IIc Technical Reference Manual* (Addison-Wesley) or my *Inside the Apple IIc* (Prentice-Hall Press). There are also some useful demo programs in the appendix of the *AppleMouse II User's Manual*.

Rescue Squad continues on page 167.

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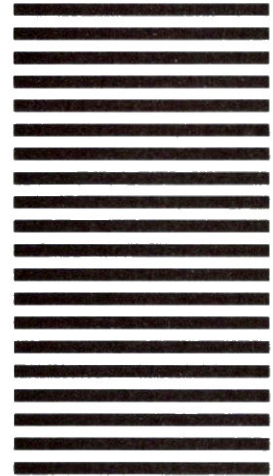
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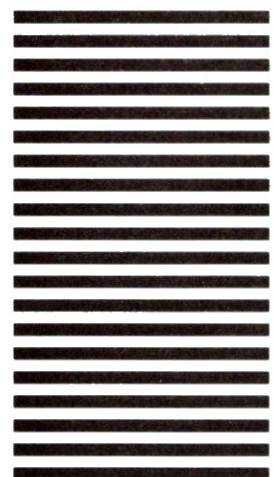
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