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The #1 Apple II Magazine

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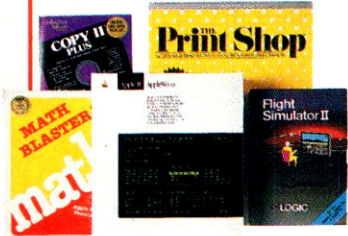
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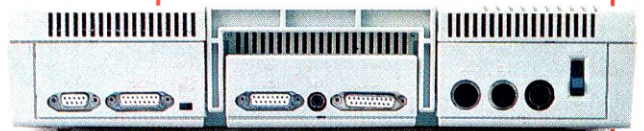


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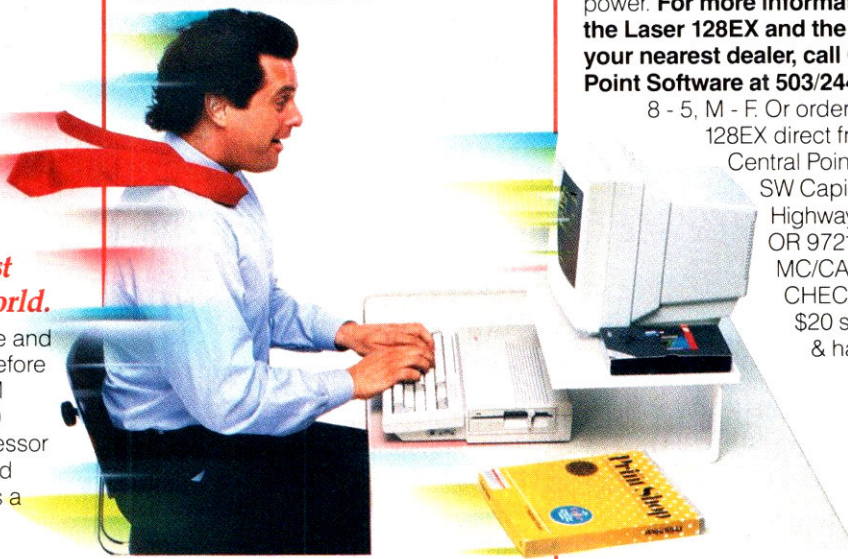
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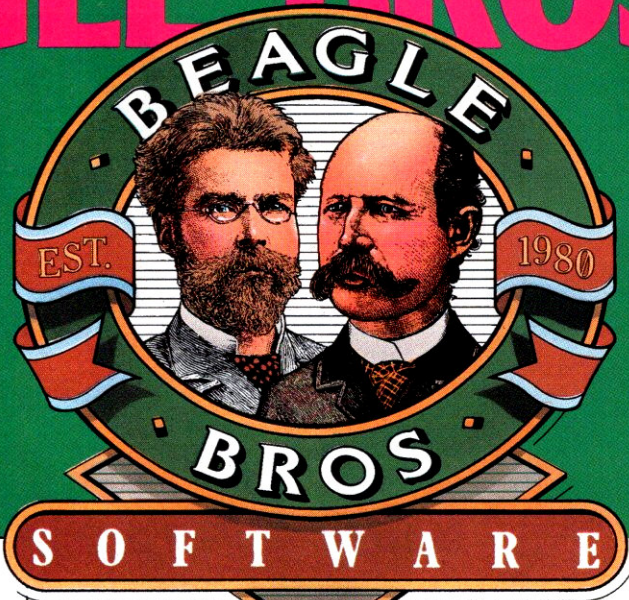
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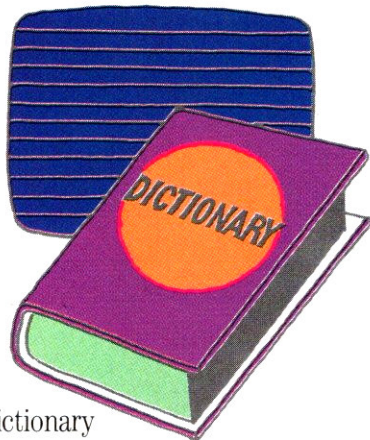
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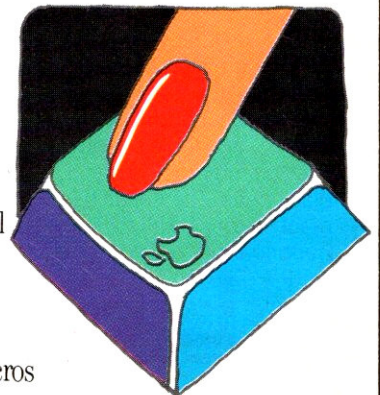
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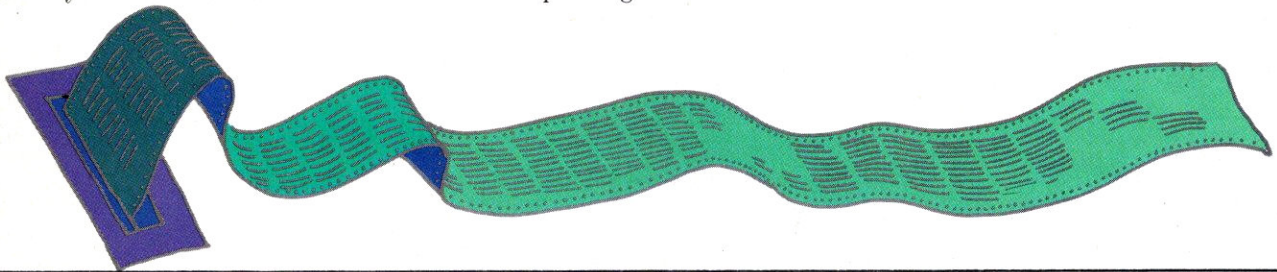
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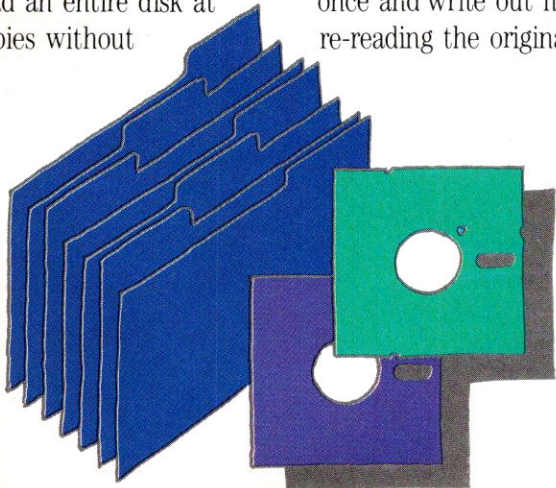
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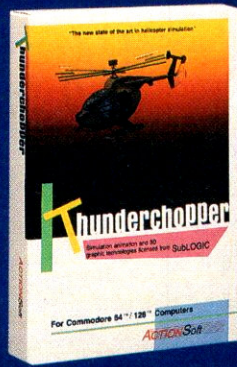
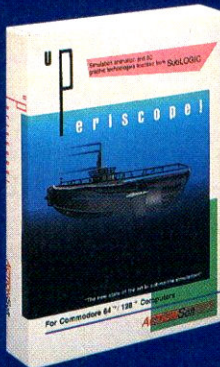
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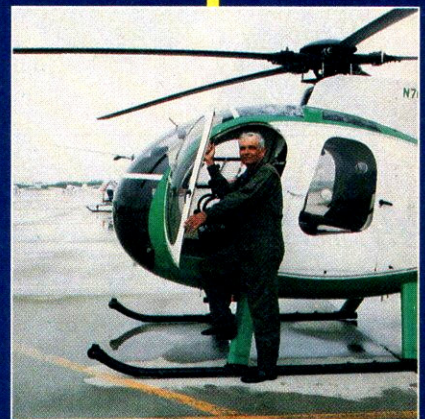
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 (415) 378-5680 FOSTER CITY, CA 94404  
**ADVERTISING/BUSINESS OFFICE** ZIFF-DAVIS PUBLISHING CO.  
 A DIVISION OF ZIFF ONE PARK AVENUE  
 COMMUNICATIONS CO. NEW YORK, NY 10016  
 (212) 503-5209  
**SUBSCRIPTION INQUIRIES** A+, P.O. BOX 2965  
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A+ The #1 Apple II Magazine ISSN (#0740-1590) is published monthly for  
 \$24.97 one year, \$43.97 two years, and \$57.97 three years. Additional post-  
 age \$5 for Canada, \$5 other foreign by Ziff-Davis Publishing Co., a division of  
 Ziff Communications Company, One Park Ave., New York, NY 10016.  
 Second-Class Postage paid at New York, NY 10016 and at additional mail-  
 ing offices. **POSTMASTER:** Send address changes to A+, P.O. Box  
 56493, Boulder, CO 80321-6493.

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 er, Inc. Apple is a registered trademark of Apple Computer, Inc. Entire  
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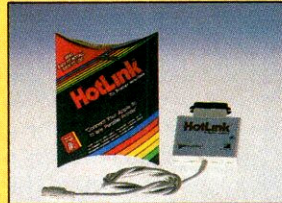


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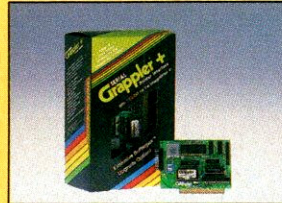
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## BARGAIN HARDWARE

### A BUYERS' GUIDE TO APPLE-COMPATIBLE PRODUCTS

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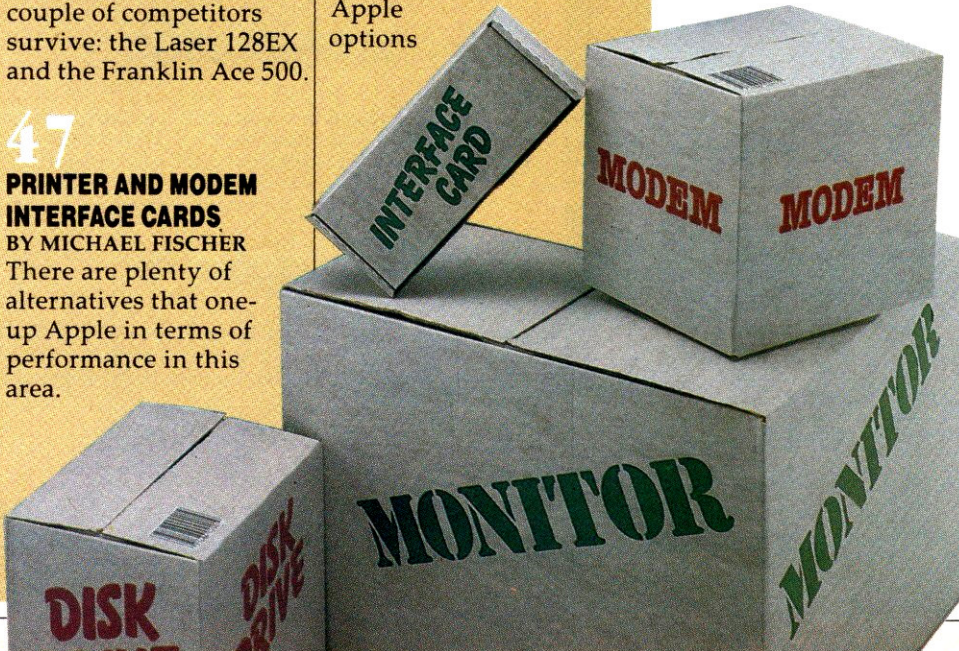
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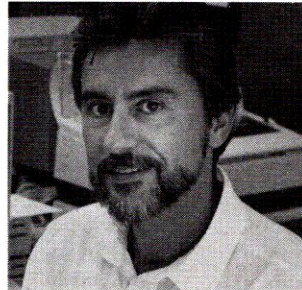
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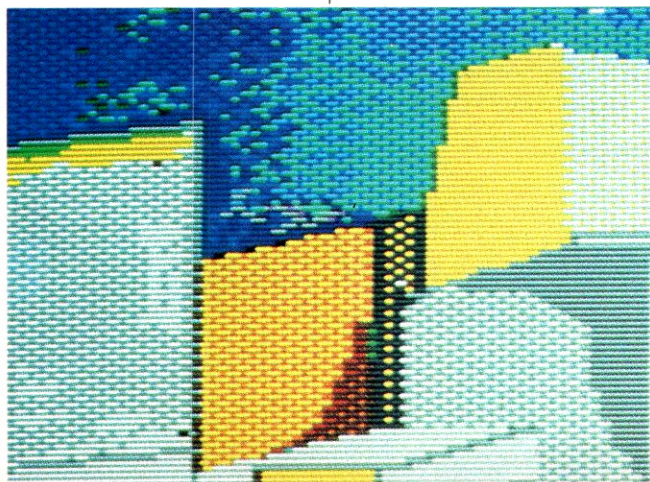
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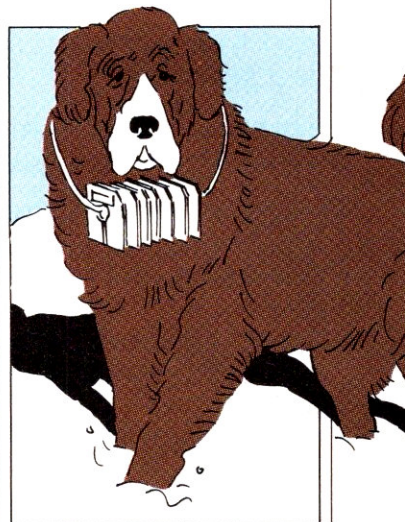
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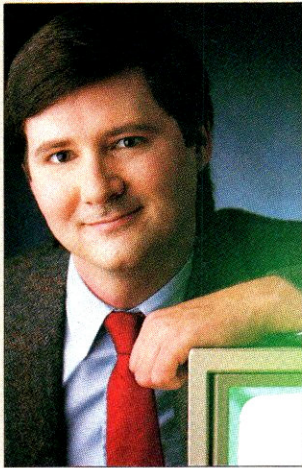
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## THE IIGS UPGRADE: A YEAR LATER

A year ago, in the February issue of *A+*, we took a look at the pros and cons of upgrading from an older Apple II to the newer Apple IIGs. As we pointed out in that issue, you can choose between two upgrade paths: buying a IIe-to-IIGs upgrade kit from Apple for about \$500 or selling your old II Plus, IIe, or IIc

CPU and buying a new IIGs CPU. Although buying the IIe-to-IIGs upgrade kit is the easy way out, we concluded that you were probably better off sell-

ing your old system and buying a new Apple IIGs computer.

When we ran that story last year, not much IIGs-specific software was on the market. If you wanted to upgrade to a IIGs, you were pretty much basing your decision on faith. The best thing the IIGs had going for it then was that it let you run AppleWorks faster, but you could get more speed for less money with an accelerator board in your older Apple. Not that many Apple II owners rushed out and upgraded to a IIGs.

Today, however, you can find a good supply of top-notch IIGs software. Although the IIGs is still in the early phases of its software life cycle, the new breed of IIGs-specific software is usually (but not always) a cut above similar software for the IIe and IIc. The word-processing programs look better on the screen, the graphics programs produce more dazzling results, the music and sound effects are many times better, and so on. Now, a year and a half after the IIGs's introduction, there is finally enough high-quality IIGs soft-

ware to provide a compelling reason to upgrade.

Don't get me wrong, I think lots of useful, fun, and otherwise fantastic software is available for the IIe and IIc. But, considering that you can run the IIe/IIc software, as well as the newer IIGs-specific software, on the IIGs, upgrading to a IIGs really does make sense if you can afford it. The eye-popping graphics, ear-filling sounds, and increased performance of the IIGs should interest any current Apple II owners.

A lot of people resist the idea of upgrading. One of the most sensible reasons people give me for not upgrading

boils down to the old saying "If it ain't broke, don't fix it." Many people are so happy with their current system that they see no reason to upgrade.

*The typical IIGs owner is middle-aged and bought the IIGs for serious applications.*

I have always thought that upgrading computers should be like upgrading cars. You buy a car, use it for a while, run up a

bunch of mileage, cause a certain amount of wear and tear, and—when you finally get the hankering for a newer model—you either sell your old car or trade it in to the dealer. That's the way I've always been with computers. I bought an Apple II ten years ago; then I upgraded it to a II Plus; about five years ago, I sold the II Plus and bought a IIe; and a year ago, I upgraded to the IIGs. Even though staying current with all the new models as they came out cost a little extra, I always felt that the benefits and enjoyment I got from the computer made the cost of upgrading well worth it.

### What People Do with Their IIGs

If you look at Apple's advertising campaign for the IIGs and talk to Apple's marketing department, you might

# EDITOR'S PAGE

# EDITOR'S PAGE

well get the idea that IIGs computers are bought only by yuppies for their kids. Not true! *A+* has recently conducted an important independent research study about the Apple IIGs that gives quite a different picture of IIGs buyers. We surveyed a random cross section of people who were recent purchasers of IIGs-specific hardware and software products (who were not necessarily *A+* readers) in order to get a scientifically selected sample. The research was conducted by an independent research firm called Data Development Corporation, and at no time was *A+* identified with the study. So here's some information about who's really buying IIGs computers and what they're using them for.

The typical IIGs owner is actually a middle-aged computer user who bought the IIGs for serious applications such as word-processing, database management, and spreadsheet analysis. The average age of

the buyers is 40, with almost a third being 45 or older. The vast majority (more than two-thirds) of IIGs owners are college graduates, with a whopping 46% of that group reporting postgraduate study. So much for Apple's theory about the IIGs being used mainly in high schools. Our breakdown shows only 22% of IIGs buyers being employed in education; the majority, 58%, are employed in the private sector, with most of the rest of the buyers working in government.

Our figures also indicate that the IIGs is not just a fun-and-games machine; in fact, people are using it mostly for general business tasks. More than 40% of the IIGs owners report using Apple IIs at work. Even including people who use their IIGs at home, the major use for the IIGs is word processing, with more than 96% of the respondents reporting that they used their IIGs for that purpose. Other productivity and business applications also rate high: 70% of IIGs owners use their computer for database management, and 61% use it for spreadsheet analysis. (Our guess is that they're using AppleWorks for

these two tasks.) Another indication of how serious IIGs users are about their computer is that 1 in 50 of our IIGs-owning respondents report that they've bought a laser printer to use with their computer.

Just as I've always thought, Apple users like to work hard and play hard; 74% report using their IIGs for personal creativity and 72% for games and entertainment.

It's encouraging to find out that the IIGs is being taken seriously by its owners and that it is in use as a computer for business and personal productivity and not simply as an educational or game machine. We'll continue to track the evolution of the IIGs and keep you posted on any new findings. Also, I'd be interested in hearing from any of you folks about how you use your Apple IIGs in business. Write to me here at *A+*, 110 Marsh Drive, Suite 103, Foster City, CA 94404.

FREDERIC E. DAVIS/EDITOR IN CHIEF

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CIRCLE 110 ON READER SERVICE CARD

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Now there's a printing program so advanced you can produce a giant wall decoration one moment and a dozen party invitations the next. Want a Happy Birthday banner decorated with candles? It's a piece of cake. Need a five-foot tall Santa Claus poster at your next Christmas party? Or a giant dinosaur? With *SuperPrint*, your wildest creations are just a few keystrokes away.

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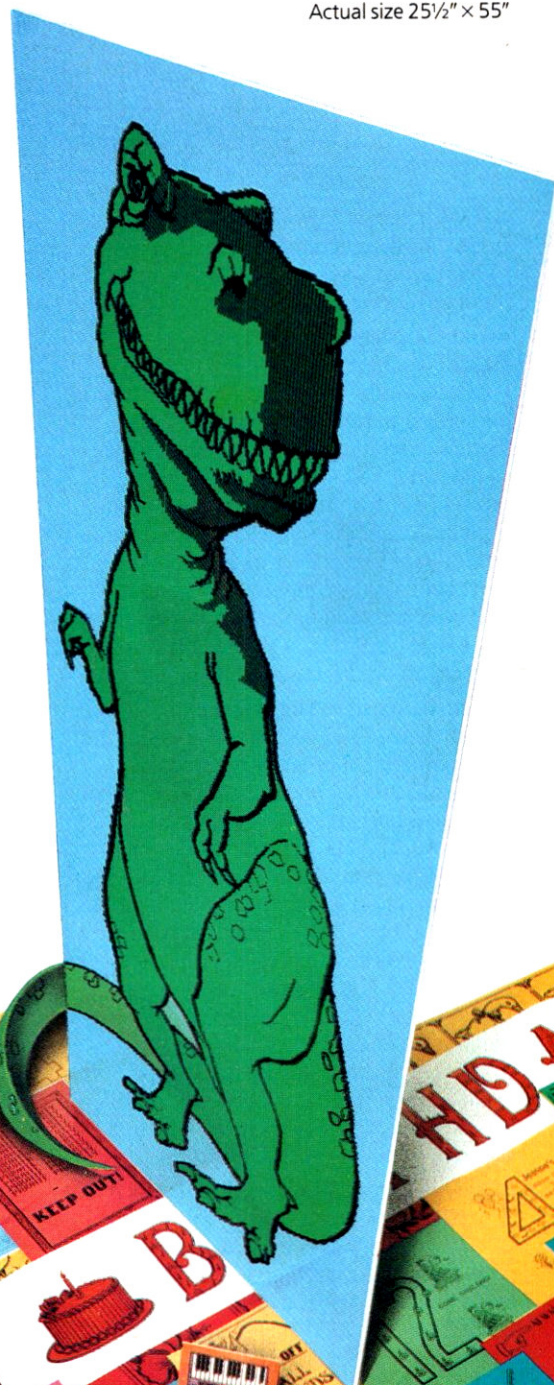
- Type Fonts: a choice of six in solid, outline, and bold formats.
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And, *SuperPrint* lets you see your creation on screen *exactly as it will print*. No other printing shop program does that!

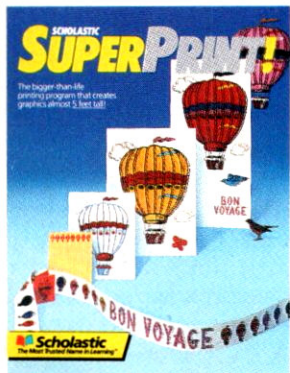
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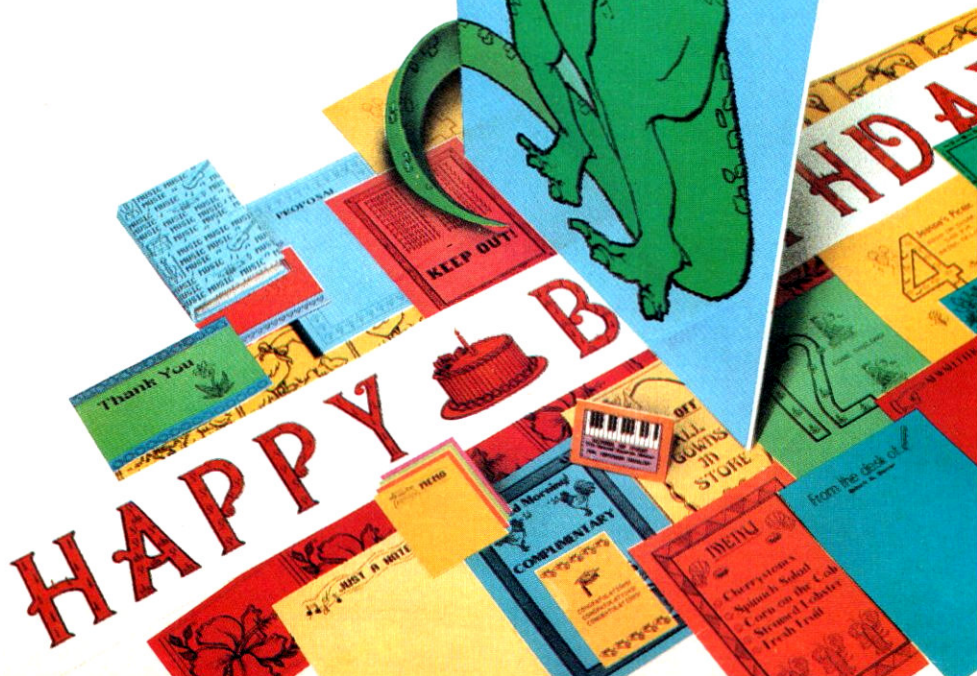
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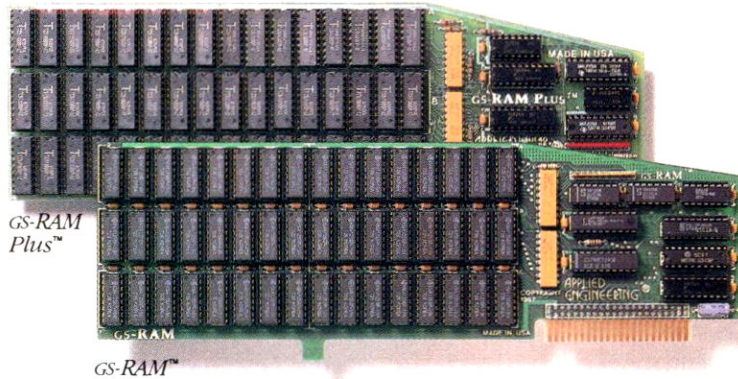
SuperPrint works with your Apple 128K and most dot matrix printers. MS DOS version available January '88.

CIRCLE 302 ON READER SERVICE CARD



# For Those Who Want the Most. From Those Who Make the Best. GS-RAM™

Now expand the IIGs' RAM and ROM with up to 8 MEG of "Instant On" memory with the all new GS-RAM!



GS-RAM has an all new design. A design that delivers higher performance including increased speed, greater expandability, and improved software.

## More Sophisticated, Yet Easier to Use

GS-RAM works with all IIGs software. In fact any program that runs on Apple's smaller memory card runs on the GS-RAM. But with GS-RAM you can have more memory, improved performance, and almost unlimited expansion capabilities. We've designed the new GS-RAM to be easier to use too—you don't have to adjust the size of your RAM disk every time you use a DMA device. No other RAM card with more than 4 banks of memory installed can make the same claim.

## More than Just Hardware

Each GS-RAM and GS-RAM Plus includes the most powerful set of IIGs software enhancements available anywhere. In fact, our nearest competitor offers only a fraction of the invaluable programs that we include with each GS-RAM card. This software includes the most powerful disk-caching program available, the GS-RAM Cache. The Cache will make most of your applications run up to 7 times faster. Also included is a diagnostic utility that lets you test your GS-RAM by graphically showing the location of any bad or improperly installed RAM chips. And for AppleWorks users, we give you our exclusive Expander program that dramatically enhances both the capabilities and speed of AppleWorks.

## Making AppleWorks Even Better

Applied Engineering's Expander program eliminates AppleWorks internal memory limits allowing it to recognize up to 8 megabytes of desktop workspace. You can increase the limits from only 7,250 lines to 22,600 lines in the word processor and from 6,350 records to 22,600 records in the database. The Expander allows all of AppleWorks, including print functions, to automatically load into RAM. The clipboard size will increase from 255 to 2,042 lines maximum. GS-RAM will automatically segment larger files so you can save them onto multiple floppies. And

GS-RAM provides a built-in print buffer that allows you to continue working in AppleWorks while your printer is still processing text. You can even load Pinpoint or MacroWorks and your favorite spelling checker into RAM for instant response.

## Grow by Kilobytes or Megabytes

We offer GS-RAM in two configurations so you can increase your memory 256K at a time (GS-RAM) or a megabyte at a time (GS-RAM Plus). Both are IIGs compatible and both come with our powerful enhancement software. GS-RAM can hold up to 1.5 MEG of 256K chips and GS-RAM Plus can hold up to 6 MEG using 1 MEG chips. And since both use standard RAM chips (not high-priced SIMM's), you'll find expanding your GS-RAM or GS-RAM Plus easy, convenient, and very economical. For further expansion, you can plug a 2 MEG "piggyback" card into the GS-RAM's expansion port for up to 3.5 MEG of total capacity. Or up to a whopping 8 MEG on GS-RAM Plus. If a GS-RAM owner outgrows 3.5 MEG, he can easily upgrade to GS-RAM Plus for a nominal charge.

## Permanent Storage for an "Instant On" Apple

With our RamKeeper™ back-up option, your GS-RAM or GS-RAM Plus will retain both programs and data while your IIGs is turned off! Now when you turn your IIGs back on, your favorite software is on your screen in under 4 seconds! With RamKeeper you can divide your IIGs memory into part "electronic hard disk," and part extended RAM. Even change the memory boundaries at any time—and in any way—you want. Because



Steve Wozniak, the creator of Apple Computer

"In quality, performance, compatibility, expandability and support, Applied Engineering's GS-RAM and GS-RAM Plus are number one."

Applied Engineering has the most experience in the industry with battery-backed memory for the Apple, you are assured of the most reliable memory back-up system available. And in the world of battery-backed memory, Reliability is everything. That's why Applied Engineering uses state-of-the-art "GEL-CELL's" instead of Ni-Cad batteries (if Ni-Cads aren't discharged periodically, they lose much of their capacity). RamKeeper has about 6 hours of "total power failure" back-up time. That's 6 times the amount of other systems. But with power from your wall outlet, RamKeeper will back-up GS-RAM, GS-RAM Plus, or most other IIGs memory cards indefinitely. Should you ever have a "total power failure," RamKeeper switches to its 6-hour battery. When power returns, RamKeeper will automatically recharge the battery to full power. RamKeeper incorporates a dual-rate charger, status L.E.D.'s, and advanced power reducing circuitry. RamKeeper comes complete with battery, software, and documentation.

## GS-RAM's Got it ALL!

- 5-year warranty — parts & labor
- 6 RAM banks (most cards have 4)
- Memory expansion port
- ROM expansion port
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- Includes hi-res self test
- No soldered-in RAM chips
- Expandable to 8 MEG
- No configuration blocks to set
- RamKeeper back-up option allows permanent storage of programs & data
- 15-day money-back guarantee
- Proudly made in the U.S.A.

GS-RAM with 256K	\$189
GS-RAM with 512K	\$259
GS-RAM with 1 MEG	\$399
GS-RAM with 1.5 MEG	\$539
GS-RAM with 2.5 to 3.5 MEG	CALL
GS-RAM Plus with 1-8 MEG	CALL
RamKeeper Option	\$179

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## COMMUNICATION GAP

**Dear A+:** I am writing to inform various U.S. companies of a problem many Canadian computer owners come across frequently: toll-free numbers. Almost every single advertisement in your magazine (and in other magazines too) have a toll-free number that can be reached only from the United States. Most of the time, the advertisements include no local phone number or address, so tracing the company is often next to impossible.

I ask that whenever it is possible, American companies advertising in magazines attempt to clear up this communication problem.

DANIEL BROWNSTONE  
WINNEPEG, MANITOBA  
CANADA

*We don't have any say-so about what appears in ads, but perhaps some manufacturers will see your letter here and take action.*

—Editors

## ALL-STAR OMISSION

**Dear A+:** I was somewhat disappointed with your All-Star issue (December 1987). In the fantasy/role-playing part of the entertainment section, I could not see how you could fail to mention New World Computing's *Might and Magic* as an All-Star.

I have *Bard's Tale I* and *II*, and *Might and Magic. I*

feel *Might and Magic* is a superior version of *Bard's Tale*, minus the music, just as *Bard's Tale* is an upgraded version of the *Wizardry* program.

DAVID CHEN  
WOODSIDE, NY

## COLOR'S NOT A GIMMICK

**Dear A+:** I just read David Thornburg's article on color in your December 1987 issue. I agree with a lot of the suggestions he makes about monochrome use and support by programmers. I do not totally agree with his opinions about color being a gimmick, however. I own, and am writing this letter on, an Apple IIGs. I admit that part of the reason I bought it was because of the color. I used to have a Commodore 64, and whenever I tried to draw, using one of the various drawing programs, I felt that my drawing had potential but was locked inside an inferior computer. I now have *DeluxePaint II* for my IIGs, and the only problem I have is coming up with more ideas. For some reason, when I try to draw normally, something gets mixed up between brain and pencil (yes, I still have some of those obsolete things). Somehow this effect is negated on the computer. I have turned out quite a number of good drawings—drawings that did

# LETTERS

# TO THE EDITOR

not come out when I tried them on paper. I realize that my success has more to do with resolution and the drawing program than color, but if those drawings weren't in color, I would be wishing they were. Although at least half of my drawings use very little color, I have to say that a drawing program without color is like *AppleWorks* without paper.

DANNY MELTZ  
NEWTON, NJ

## ANOTHER PLUS

**Dear A+:** Before I purchased a modem, I read the A+ article comparing various modems (April 1987 issue). Before I purchased a communications software package, I read the A+ article in the same issue comparing various communications-software packages. Before considering the purchase of a Z-Ram, a typewriter, or a new word-processing program, I read the appropriate A+ product evaluation. In short, I use A+'s product evaluations for almost all my decisions relating to additional computer-related purchases.

After deciding *what* to purchase, the next decision is *where*. As we all know, there are various ways to purchase computer products (at a local computer store, direct from the manufacturer, by mail order, etc). My major concern, when considering *any* purchase, is if I will receive support from the retailer if the need arises.

My understanding was that mail order was the choice of the computer-literate individuals who knew the language and could follow the enclosed directions. But when the saving at one mail-order sales company amounted to 30% more than that at the local computer store, I became determined to try this purchase method.

Again I went to A+ to help me decide on the best product to expand the memory in my Apple

# LETTERS

Ilc. After making my decision, I was faced with a situation that would take me to the Land of the Unknown—the land under the Ilc keyboard. I purchased an Applied Engineering Z-Ram Ultra II from CDA Computer Sales of West Milford, New Jersey.

Before purchasing the product, I questioned the salesperson about the ease of installation for people who have never ventured under the keyboard. He said I would most probably have no difficulty, but if I did, he'd be happy to "talk me through the process" over the telephone or provide a toll-free number for technical support.

I thought this was terrific! When I gave him the order and he realized that I was only about a 45-minute drive away, he suggested

that if I felt better about it, I could drive over and pick up the card, and he would install it for me.

I took him up on the offer. Not only did he install it so that it works perfectly, but he also installed it at no additional charge. I insisted on being billed for the installation (after all, he did use his time and expertise).

Well, I guess that's another "Plus" for A+. Not only do I have confidence in your articles and reviews, but now in at least two more of your advertisers as well—Applied Engineering and CDA Computer Sales. I'm sold!!

ALAN P. VICARI  
DEMAREST, NJ

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The success of this event is a testament to the success of the Apple II. It is a year ago that the world's first personal computer was introduced. The success of Applefest is a testament to the success of the Apple II.



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CIRCLE 333 ON READER SERVICE CARD

### TAXING PROBLEM

Dear A+: I need help!

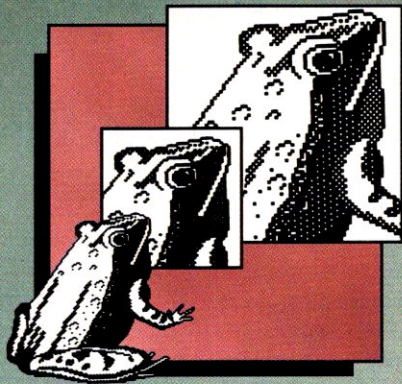
I am trying to buy some software for my Apple IIe that would help me with my 1987 1040 Tax Form. I have an Apple dot-matrix printer, so I am looking for software that not only does the arithmetic and gives me various options but also figures the amount of tax due and prints out the entire form with all the figures.

I have tried any number of computer stores and software stores with no satisfaction. Either the salesmen don't know about the software they are supposed to be selling, or, more likely, they are not interested—they never seem to understand what I am talking about. One store even tried to convince me that no such software program would be available until after the first of the year. Sometimes I get the feeling that after you have bought a computer, no one wants to know you any more, neither the manufacturer nor the retailer, unless you want to buy an entirely new setup.

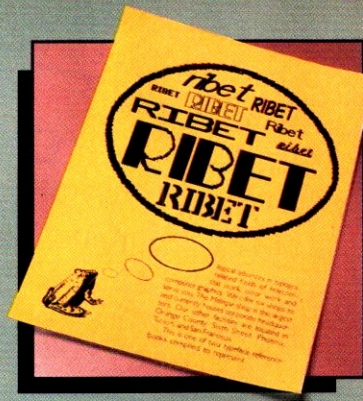
GEORGE DADAKIS  
DELRAY BEACH, FL

A+ ran a cover story in March 1987 about six tax-preparation programs for the Apple II. Of those, the Tax Preparer from HowardSoft ([619] 454-0121), Tax Advantage from Double Eagle ([213] 459-9748), 1040 Works from Personal Financial Services ([516] 261-8652), and Federal Tax Forms from Sky Computer Resources ([503] 234-7291) were able to produce IRS-approved forms. 1040 Works and Federal Tax Forms are both AppleWorks templates.—Editors

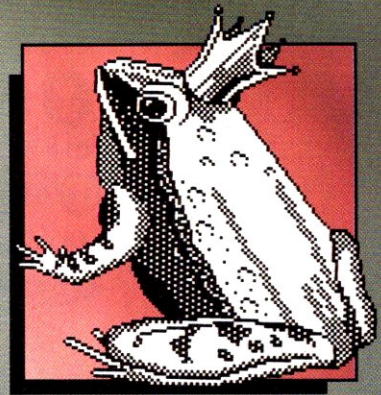




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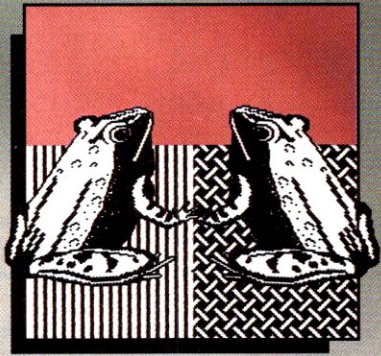
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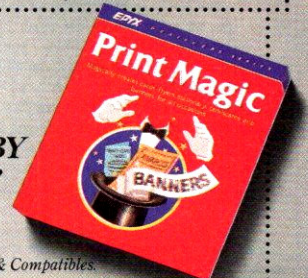
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CIRCLE 147 ON READER SERVICE CARD

Also for  
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do you exhibit a tendency to  
make punctuation errors?  
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### SENSIBLE GRAMMAR

checks your grammar, capitalization, punctuation and abbreviations. It searches out phrases that are inconcise, vague, wordy or repetitive, as well as phrases that are faulty, informal, pompous or sexist. It calls your attention to clichés and slang. It even allows you to enter your own personal trite and pet expressions and then lets you know every time you use them.

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Sensible Grammar singles out possible mistakes or improper usage and suggests a correct replacement word or phrase, but it always leaves you the option to accept or reject the suggestion.

**Sensible Grammar™** for your Apple® 128K //e and //c computer is available for \$99.95.

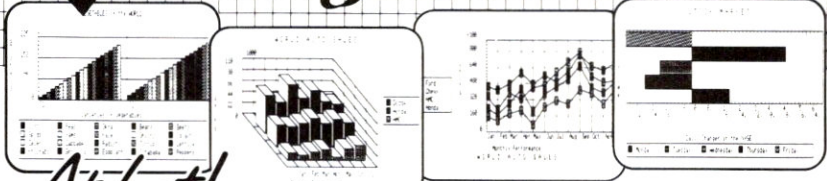
### AppleWorks Compatible!

\*Sensible Grammar works with the following word processors: AppleWorks, AppleWriter-ProdOS version (Apple Computer, Inc.); Format II Enhanced-ProdOS (Kensington Microware), MouseWrite text files (Roger Wagner Publishing); MouseWord (International Solutions); PFS:WRITE-ProdOS (Software Publishing, Inc.); Word Juggler (Quark Inc.); WordPerfect (SSI Software); Zartax-ProdOS (Computer Solutions) and others.  
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CIRCLE 130 ON READER SERVICE CARD

Formerly Quick-Chart

# MagnaCharta™



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
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MagnaCharta utilizes Macintosh™-like pull-down menus to easily select graphing options. The Apple Mouse, keyboard, or joystick can all be used to make menu selections, giving you easy access to MagnaCharta's power from one straightforward display screen. Manually entering data is as easy as "pointing & clicking," or you may load spreadsheet data directly from AppleWorks text files. Numerous Help Screens and a Quick Reference Card further enhance your ease-of-use.

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According to the February 1987 nibble® Magazine review of the leading data charting programs:  
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"MagnaCharta has three graph types not found in any of the other packages."  
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Important Note: MagnaCharta is supplied on a 5.25" floppy disk. Instructions are provided for installation on 3.5" disks and other ProdOS storage devices.

MagnaCharta is a trademark of Third Wave Technology, Inc.  
Macintosh and AppleWorks are reg. trademarks of Apple Computer Inc.

CIRCLE 144 ON READER SERVICE CARD

# LETTERS

## DESERVING BEAGLE AND IIE MIDI

Dear A+: A previous "NewsPlus" column mentioned that owners of Beagle Bros MacroWorks or Super-MacroWorks could upgrade to the new TimeOut UltraMacros by sending in their original disks and \$10 plus \$2.50 shipping.

I did so and received the UltraMacros disks (a major improvement) and documentation (very thorough) along with a short note. Beagle Bros informed me that the actual cost was \$10 more than what I had sent them. The note stated that they had shipped me the software anyway in the interest of speed. They politely requested that I mail in a \$10 check, which I immediately did. What a classy company they are!

On another matter: I write MIDI music professionally. I currently own an Apple IIe and want to get into MIDI to print music and (more importantly) make recordings of my music. All the really sophisticated music programs I'm impressed with are for the Macintosh.

Does anyone know of any powerful music-printing and sequencer-recording programs that will be available for the IIgs, which is limited by its 16-bit processor?

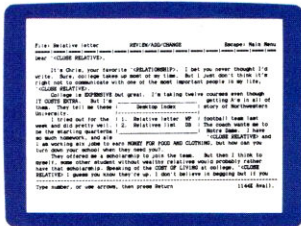
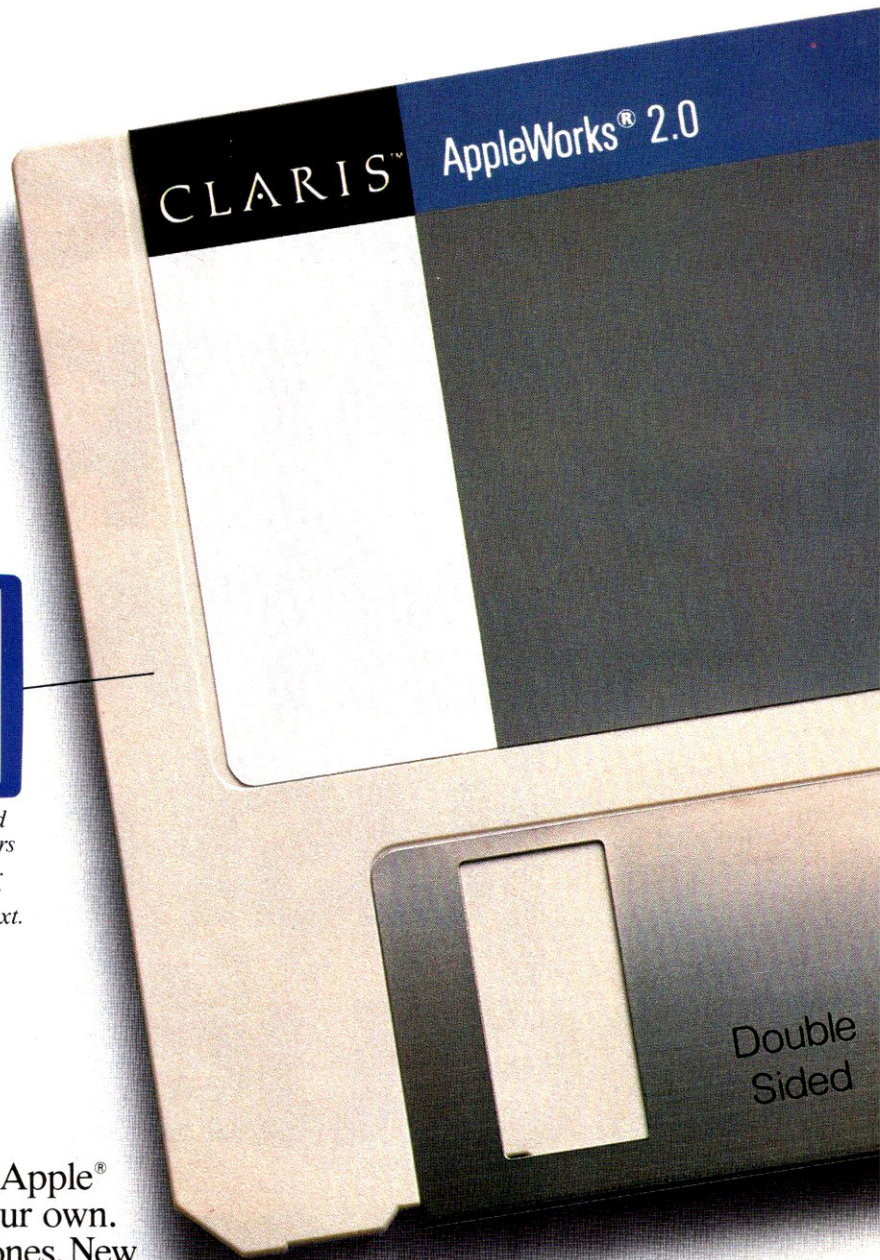
A neat rumor going around is that Apple is coming out soon with a IIgs Plus, which may have a 32-bit processor. If this supposition is true, will it give me more of what I'm looking for?

MICHAEL BOO  
STEGER, IL

The information we published about Beagle's upgrade price was based on information that company gave us just prior to the official announcement of the TimeOut series. We regret the confusion. As far as music composition and scoring are concerned, you might want to take a look at MasterTracks Pro and PolyWriter from Passport Designs ([415] 726-0280), which are among the most sophisticated such programs for the IIe. Macintosh music software is likely to migrate to the existing 16-bit IIgs—as far as we know, no 32-bit version is in the wings.—Editors

**The  
best-selling  
Apple  
software  
just got  
the ultimate  
upgrade.**

# Its own c



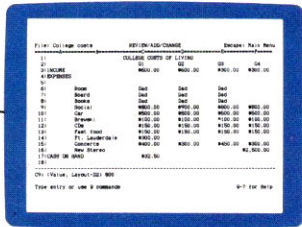
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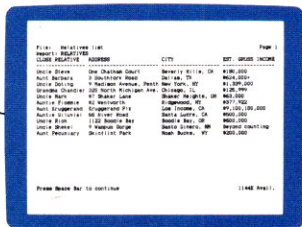
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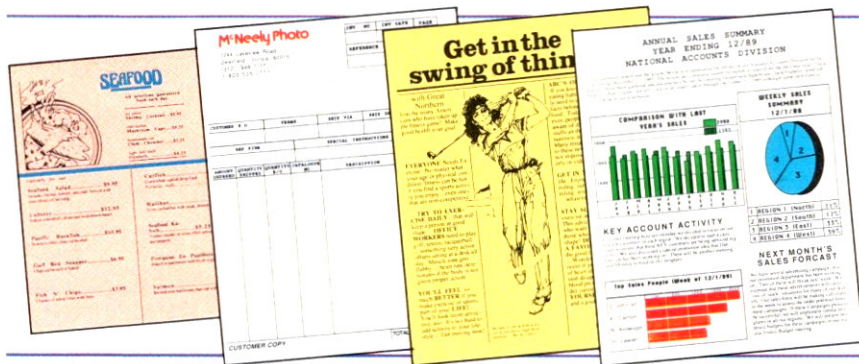
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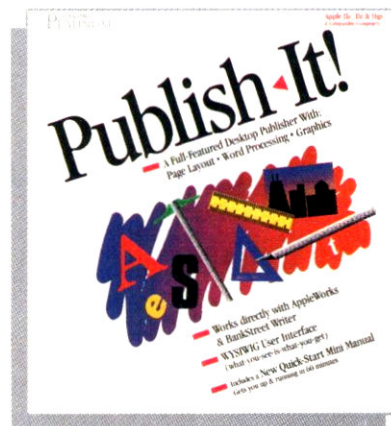
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# NEWS PLUS

*Coming soon from Apple: on-line technical support, new LaserWriter printers, and a MIDI interface for the Apple II or Macintosh*

## ON-LINE SUPPORT NETWORK

For the past several months, Apple has been secretly testing a new on-line technical-support service for its customers. The as-yet-unnamed service is expected to be similar to AppleLink (see *A+*, October 1987), which is currently available to dealers and developers only. It will contain Apple news and information; system-software updates; and, we expect, public-domain software for the Apple II

and Macintosh series. We've been told that on-line charges should be about the same as the low rates the GENie service charges (an evening rate of about \$6 per hour). Apple will be using Quantum Computer Services of Vienna, Virginia, to operate the service. Quantum has operated a similar network for Commodore users for the past several years.

Although Apple has not yet made an official announcement of the service (that's expected in late spring, perhaps to coincide with AppleFest in May), operators of other on-line services clearly know it's coming and are starting to prepare for the competition. Neil Shapiro, head of MAUG on CompuServe, the largest "unofficial" on-line Apple support group, told us, "I'm not entirely sure a company can run a users' group for its own products" and added, "I'm personally disappointed that Apple didn't come to MAUG after all the years we've supported Apple. But we

will still continue to support Apple. After all, they still make the best computers."

It is too early to predict the degree to which Apple's official service might erode the customer base of MAUG and equivalent groups on GENie, Delphi, and The Source, but at least one insider at Quantum expects a hefty migration rate of 50-80% after one year. This forecast sounds like a salesman's pipe dream to us—in fact, the Apple service will likely entice plenty of users to buy modems for the first time, which might actually lead to increased participation in other services.

## LASERWRITERS AND MIDI

On January 14, Apple announced four new peripherals for the Macintosh and Apple II product line: three different LaserWriters (the IINTX, IINT, and IISc) and a MIDI interface to musical instruments. It also released AppleShare PC, a program that lets MS-DOS users share files with Macintosh users over the AppleTalk network. (Similar software for the Apple II family is not yet available, although Apple keeps hinting it will be here really soon now. Stay tuned.)



# NEWSPLUS

Of the three laser printers, the LaserWriter IINT should attract the most interest. It is essentially a faster LaserWriter Plus and replaces that model in the product line. It contains the latest version of the PostScript page-description language in ROM and has two megabytes of RAM. The price is expected to be less than \$5000, so it will be less expensive than the LaserWriter Plus, even though you'll be getting much more power.

The IINTX, to sell for about \$6500, is an even faster PostScript printer. It is driven by a 68020 processor running at 16.67 MHz (the NT has a 68000 running at 12 MHz) and is memory-expandable. It even has a SCSI connector to which you can attach a hard-disk drive; the printer can use it to store font definitions it doesn't already have in ROM.

The IINT and IINTX are both AppleTalk printers, so they work well with

IIGS desktop applications that use the standard LaserWriter drivers (most paint, draw, and write programs).

The third new laser printer is the more economical but far less powerful LaserWriter IISC (about \$3000). It connects to a SCSI interface card, so, theoretically, you can use it on any Apple II computer except the IIc. In practice, however, it's likely to see use only with the GS, because plenty of memory will be necessary for the driver program that creates the image of the page to be printed. The IISC is not a PostScript printer, so most of the page-preparation work must be done by the computer to which it is connected. No driver is available for the GS yet, but Apple says it's working on it.

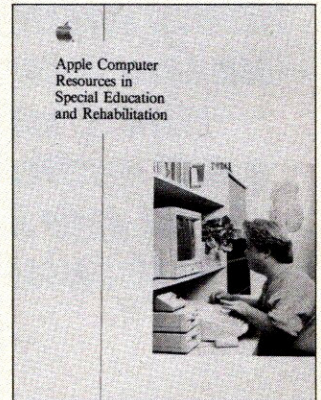
The three laser printers are identical, except for the motherboard unit mounted inside. Thus, upgrading from a IINT to a IINTX is simple: All you need to do is replace the

motherboard. Similarly, you can upgrade the IISC to a IINT or IINTX. The printers house a second-generation Canon SX engine with three times the life expectancy of the engine in the LaserWriter Plus.

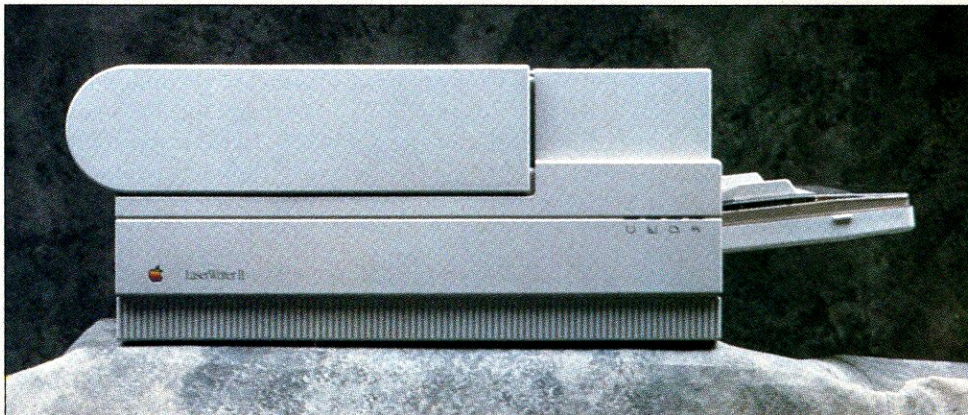
The Apple MIDI Interface (about \$150) gives an Apple II or Macintosh the capability of communicating with musical instruments that follow the international Musical Instrument Digital Interface standard. It is a small box that sports three connectors: one for computer serial I/O, one for MIDI in, and one for MIDI out. Apple supplied all the major music-software publishers with the MIDI Interface long before the January announcement of its availability, so we can expect new versions of third-party software soon. With the release of this product, we expect Apple to begin promoting both the Apple II and the Macintosh to music students and professional musicians.

## ESPECIALLY FOR SPECIAL EDUCATION

Apple Computer's Special Education office has just compiled an impressive resource guide for educators and families concerned with the enabling potential of computers. The 400-page directory contains information about 1000



products, publications, and organizations for learning-disabled people or those who help them. Although it was compiled by Apple Computer, with the help of two prominent special-education organizations, the guide—called *Apple Computer Resources in Special Education and Rehabilitation*—is published by DLM Teaching Resources, P.O. Box 4000, Allen, TX 75002; (800) 527-4747; (800) 442-4711 in TX. The cost is \$19.95, and Apple will make periodic free updates available.





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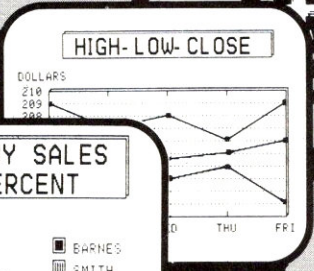
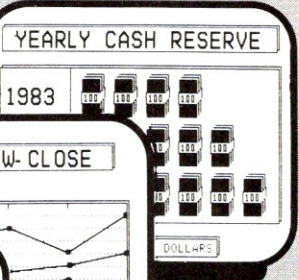
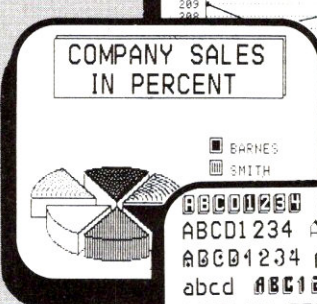
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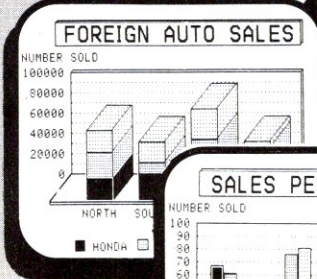
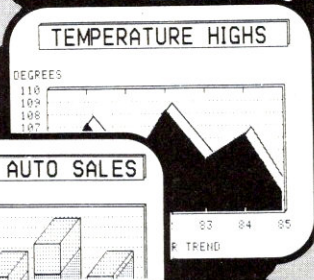
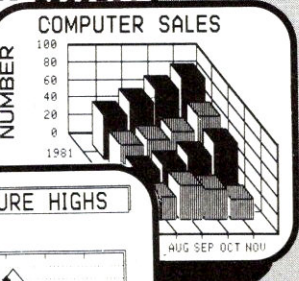
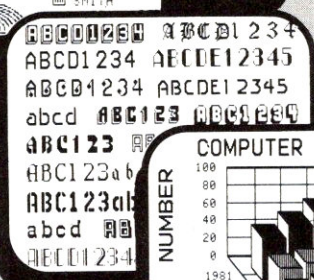
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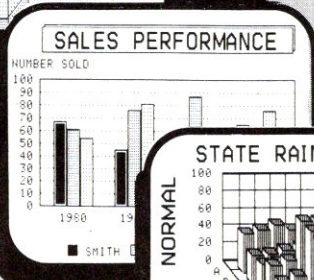
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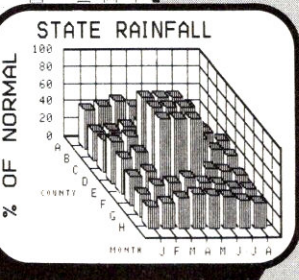
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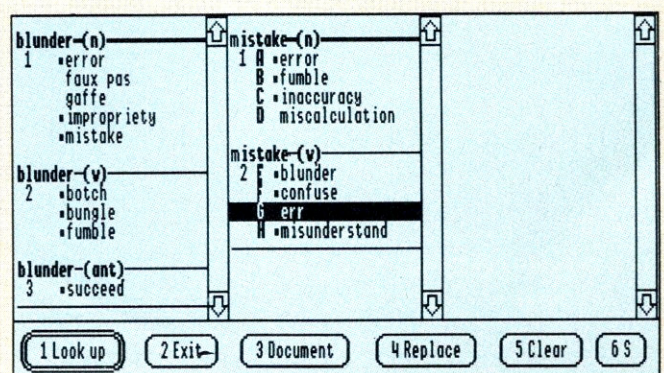
# NEWSPLUS UPDATE

■ Terrapin, Inc., has announced site licensing for its Logo programming language. For a one-time fee of \$399, a school can obtain a site license, which includes copyable disks and utilities for both the 64K and 128K versions of Terrapin's Logo for the Apple II. Schools that have previously purchased lab packs get a special deal. Terrapin, Inc., 376 Washington Street, Malden, MA 02148; (617) 322-4800.

■ The new, improved version of WordPerfect for the IIGS—Version 2.0—is out and will be shipped at no cost to people who bought the earlier release (a highly commendable policy, in our view). The new version uses the GS mouse-and-windows interface and includes a thesaurus (see screen below) and footnoting. Contact WordPerfect Corporation, 266 West Center, Orem, UT 84057; (801) 227-4020.

■ CMS Enhancements, Inc., now has a ROM upgrade available for its Apple IIe/IIGS SCSI hard-disk subsystems (see A+, November 1987). This ROM (version 11.09.87) fixes a few bugs that caused problems during use of the drive with ProDOS 16 on the GS. It also incorporates a start-up delay—necessary when you power up the Apple and the hard-disk drive at the same time from a common power source. For information on how to upgrade your ROMs, contact CMS at (714) 259-9555, ext. 257 or 237.

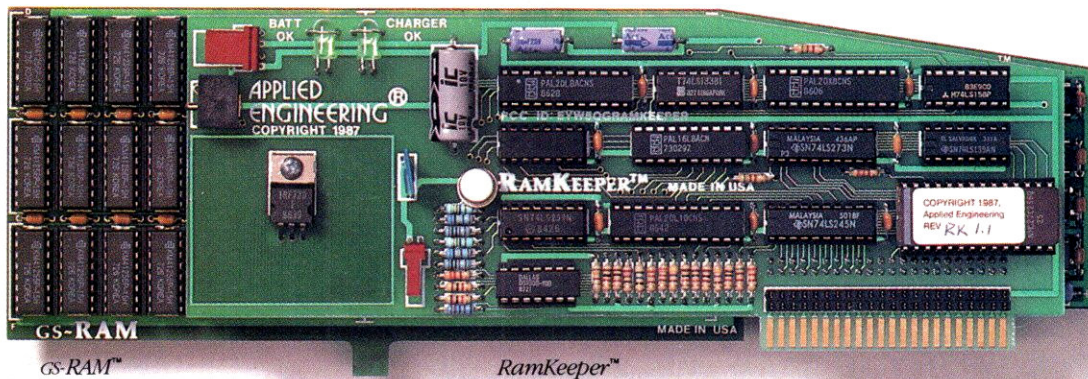
■ K-12 MicroMedia Publishing is offering a guide to 50 programs and books for educators interested in getting the most out of AppleWorks. It lists products published by K-12 MicroMedia itself, as well as other companies. Write to K-12 MicroMedia, 6 Arrow Road, Ramsey, NJ 07446; (201) 825-8888.



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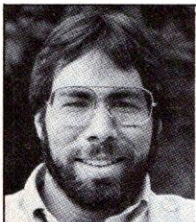
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COVER STORY BY GARY B. LITTLE

*ImageWriter-  
Compatible*

# PRINTERS

*Mannesman Tally MT85 & Seikosha SP-1000AP:  
two alternatives to Apple's dot-matrix printer*

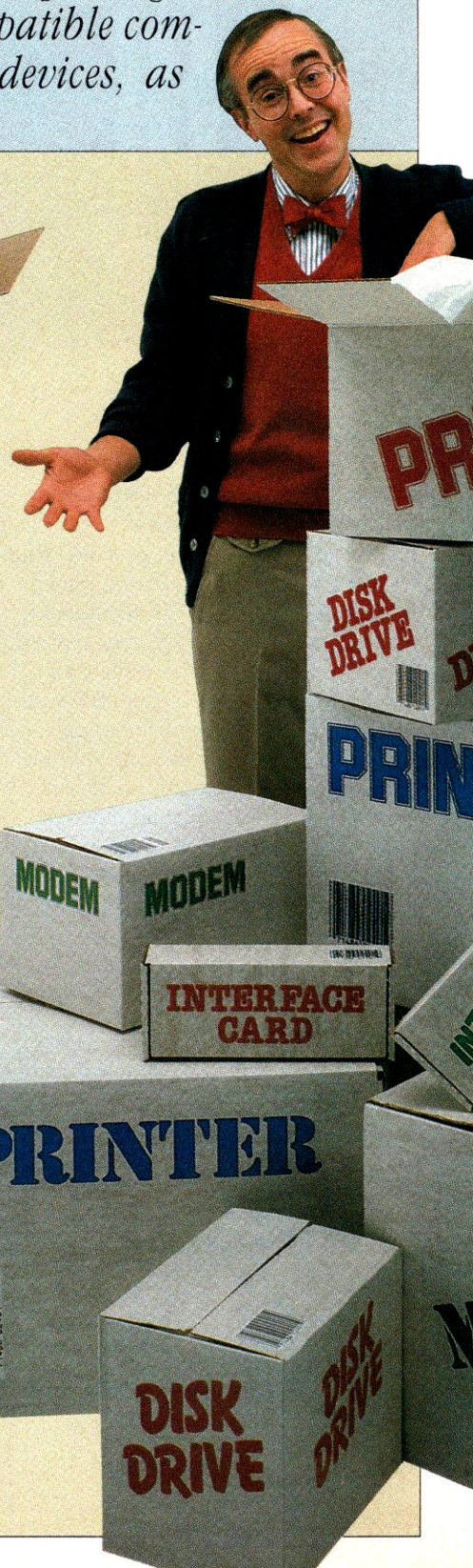
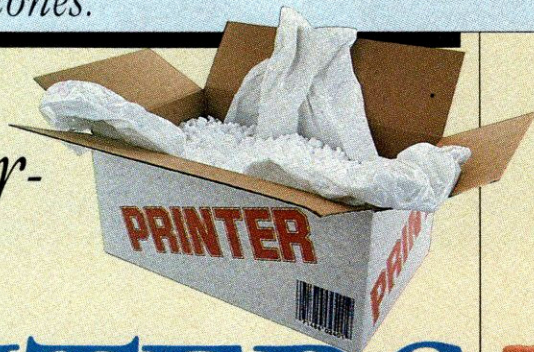
When you purchased your Apple II from your friendly authorized Apple dealer, chances are you bought an Apple ImageWriter printer at the same time. It's not that there weren't dozens of other brands of printers you could have purchased instead; there were and are. It's just that Apple's marketing wizards have somehow managed to convince an overwhelming percentage of Apple II purchasers that they must buy the official Apple printer. No other computer manufacturer that also makes printers seems to enjoy this same advantage over its customers.

The dominance of the ImageWriter has meant problems for independent printer manufacturers wishing to break into the lucrative Apple II market. Many Apple II programs (particularly GS-specific graphics programs), for example, have only the standard ImageWriter printer commands, which effectively reduces demand for other printers even more. (These

commands are for selecting such features as print quality and style, graphics density, and so on.) This ImageWriter dominance is unfortunate, because some non-Apple printers produce high-quality output for a very low price.

If you don't buy an ImageWriter printer, you may be able to avoid compatibility problems by buying a protocol converter such as Orange Micro's Grappler C/Mac/GS interface. This interface converts standard ImageWriter commands into the equivalent commands for the printer you're actually using. (See Michael Fischer's comments on this interface in "Printer and Modem Interface Cards" elsewhere in this issue.)

The other alternative is to buy an ImageWriter-compatible printer. The advantage of using a printer that emulates the Image-



Writer is that it is more likely to work with your Apple II software. Believe it or not, compatibles do exist, although I'd wager that not too many of you knew about them before now. The two I've managed to track down for this review are the Mannesmann Tally MT85 and the Seikosha SP-1000AP. (A third one, the Panasonic KXP-1080AP, has now been discontinued.) Like the ImageWriter II, both these printers have a standard eight-inch printing width, a tractor feed for continuous-form paper, a panel button for selecting print quality, and a se-

rial interface (but with a standard DB-25 connector, not Apple's mini-circular 8).

#### HOW COMPATIBLE?

It is best to classify the MT85 and the SP-1000AP as ImageWriter I-compatibles, since their command sets are supersets of the ImageWriter I's but they lack the color-printing features of the ImageWriter II. (Apple no longer manufactures the ImageWriter I.) As far as features are concerned, however, they fall somewhere between the two Apple ImageWriters. For example, each has an NLQ (near letter quality) printing mode, similar to the one on the ImageWriter II, and a front-panel NLQ selector button. Unfortunately, both printers predate the ImageWriter, so the commands for turning on the NLQ mode are different from the ImageWriter II's commands.

I used the MT85 and SP-1000AP with several programs (both word-processing and graphics software), in an attempt to identify possible areas of incompatibility. I found no such areas for the SP-1000AP, but I

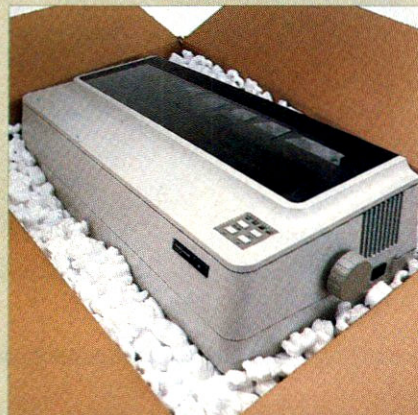
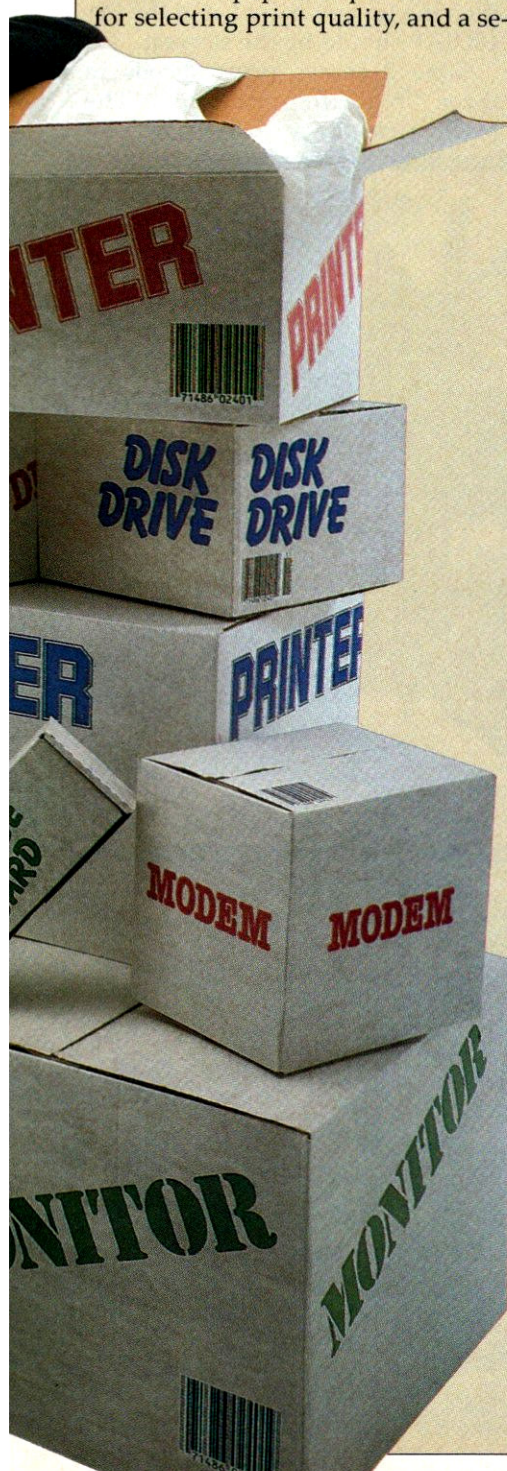
panel of the MT85, AppleWorks cancels the selection when it starts to print. This problem doesn't occur when you're using an ImageWriter II or the SP-1000AP, however. I was able to prevent cancellation by using a custom printer driver and assigning the code sequence for the NLQ mode to the 10 characters/inch option. This technique works nicely if you never need to change the character pitch.

#### COMPARING FEATURES

The four main issues to consider when shopping for an ImageWriter-compatible printer are its price, reliability and support, print speed, and print quality. Secondary issues are forms handling, portability, and special features.

#### Price

Not surprisingly, the MT85 and SP-1000AP are both less expensive

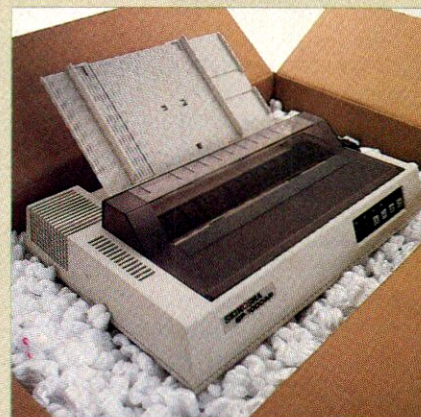


*The Mannesman Tally MT85*

did catch a couple of minor glitches on the MT85.

First, the MT85 prints a row of dots much less efficiently than does an ImageWriter (or an SP-1000AP) when it receives the data bytes for a row in several batches instead of all at once. (Pinpoint's Graphic Edge program, for example, prints double-hi-res charts in this way.) The printout looks the same, but getting it just takes much longer.

Second, although you can ostensibly select the NLQ mode by pushing a button on the control



*The Seikosha SP-1000AP*

than the \$595 ImageWriter II. The MT85 and SP-1000AP have suggested prices of \$499 and \$299, respectively. Prices from mail-order companies are even lower.

Mannesmann Tally also sells the MT86, a wide-carriage (13.6-inch) version of the MT85, for \$699. Although Apple used to sell a wide-carriage ImageWriter I, it has never manufactured a wide-carriage ImageWriter II.

#### Reliability and Support

I was not really able to determine the reliability of the ImageWriter compatibles, since I had them for only a brief time. They both worked flawlessly while I used them, however.

Knowing that any authorized Apple dealer will fix an ImageWriter II if it breaks down is com-

# BARGAIN HARDWARE

forting. The dealer networks for Mannesmann Tally and Seikosha are not nearly as comprehensive, so you should carefully investigate how easy it will be to have a compatible repaired before you buy one.

## Print Quality

To test the quality of a graphics printout, I used a GS program to print a digitized super-hi-res picture of Bob Hope in Indian headgear. The results appear below.

The samples on the facing page show the quality of the text characters these printers generate. I have included both draft and near-letter-quality samples in both pica and elite characters. The draft-mode characters are all quite simi-

lar. As for NLQ-mode characters (not available on the ImageWriter I), I prefer the MT85's to the ImageWriter II's, although both printers produce good results. The SP-1000AP's characters are the least attractive, since the *p*, *q*, *x*, and *y* are slightly taller than other lowercase characters you'd expect to be the same height.

## Print Speed

Printer manufacturers love to quote print speeds (expressed in characters per second, or cps), but these statistics are usually not a

true indicator of the actual throughput you will achieve. The actual throughput will be considerably lower if your document has many short lines or uses special printing features such as underlining and boldfacing. Nevertheless, comparing the speed ratings of different printers can give you a feel for relative speed.

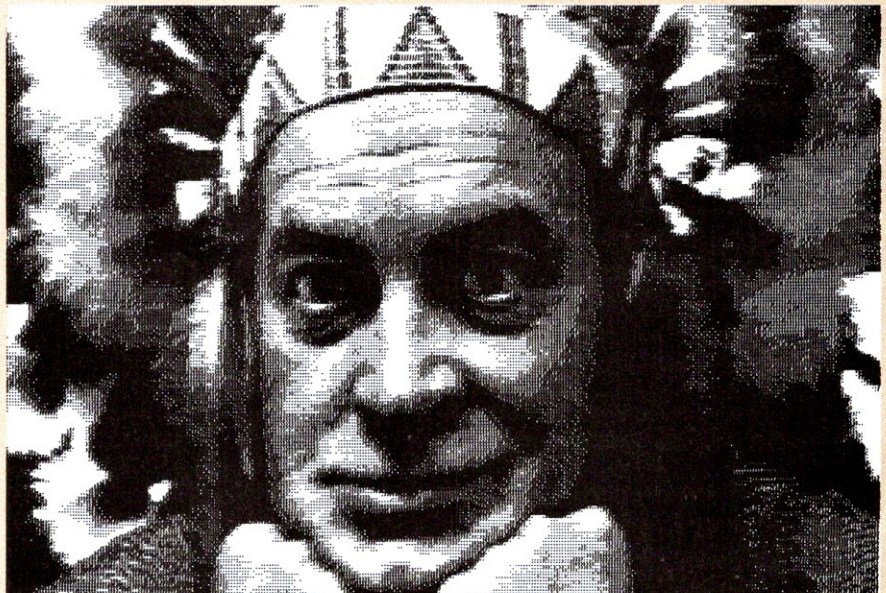
Table 1 shows the print speeds for the printers we're looking at here. You can see that the ImageWriter II should be the fastest, the MT85 should be slightly faster than the ImageWriter I, and the SP-1000AP should be the slowest.

Table 2 shows print speeds in three "real-life" situations. The MT85 turns out actually to be a bit

## THE FOUR FACES OF BOB COMPARED

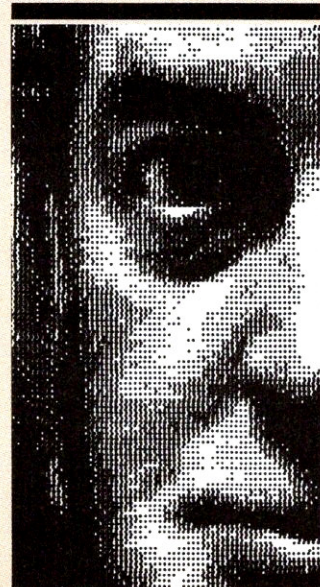
To my surprise, the now-discontinued ImageWriter I printed the most pleasing image (see face to right), the gaps between successive passes of the printhead being almost invisible.

The ImageWriter II printout appears heavily banded and washed out, even though I used the same ribbon for the test. The SP-1000AP and MT85 printouts are also banded, but, in my opinion, their quality is slightly better than that of the ImageWriter II printout. Below is a comparison of actual-size printouts for all four printers tested.

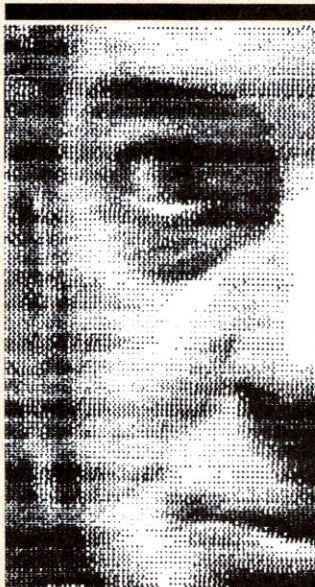


Reduction of ImageWriter I printout

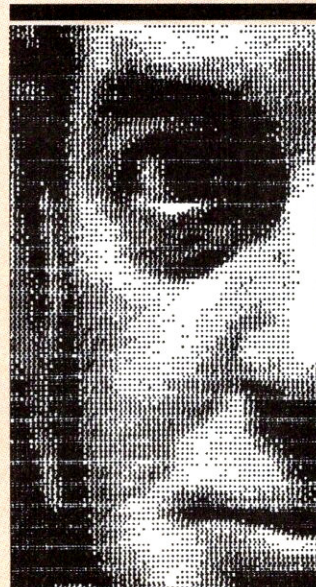
ImageWriter I



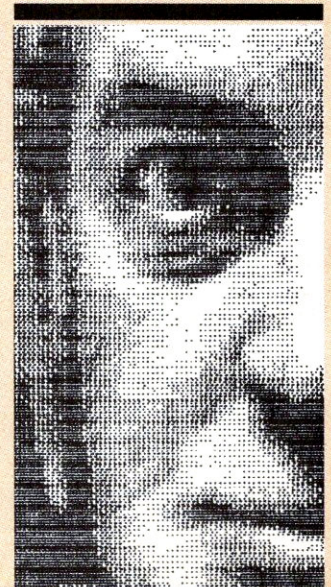
ImageWriter II



MT85

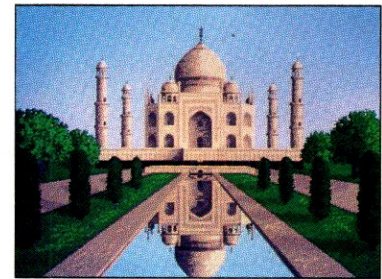
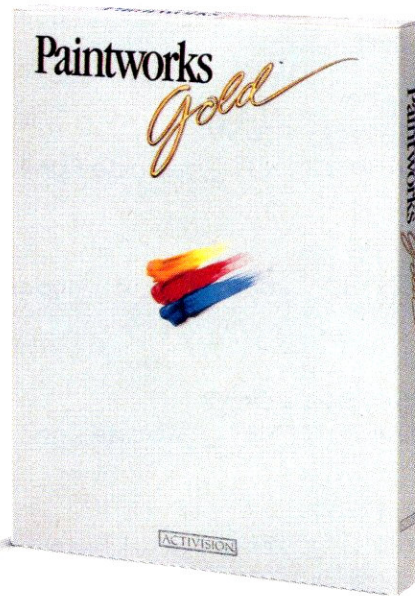


SP-1000AP



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Mask objects	✓	
Mask colors	✓	✓
Slippy colors for lasso	✓	
Variable-zoom FatBits	✓	✓
Built-in patterns	✓	
Independent gradient fills	✓	
Resize & bend objects	✓	✓
Distort objects	✓	
Anything can be a brush	✓	✓
Variable speed animation	✓	
Color cycling (simulated animation)	✓	✓
Smear, shade, & smooth	✓	✓
Smooth edges	✓	
Lasso and constrained lasso	✓	
On-line Help	✓	
<b>Total</b>	<b>21</b>	<b>9</b>



Two styles of 3-D put your pictures in perspective. To create the reflection, just rotate the Taj Mahal, mask all but the water, and use the palace itself as your brush. Fill the skies with gradient color for a setting fit for a king.



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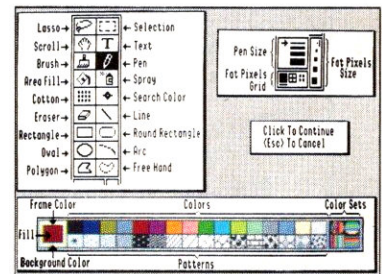
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# FOUR PRINTERS' TEXT-CHARACTER QUALITY

## *ImageWriter I draft mode*

```
This is pica (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

This is elite (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
```

## *ImageWriter II draft mode*

```
This is pica (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

This is elite (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
```

## *ImageWriter II near-letter-quality mode*

```
This is pica NLQ (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

This is elite NLQ (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
```

## *MT85 draft mode*

```
This is pica (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~0

This is elite (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~0
```

## *MT85 near-letter-quality mode*

```
This is pica NLQ (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~0

This is elite NLQ (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~0
```

## *SP-1000AP draft mode*

```
This is pica (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

This is elite (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
```

## *SP-1000AP near-letter-quality mode*

```
This is pica NLQ (10 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

This is elite NLQ (12 cpi)
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
```



# BARGAIN HARDWARE

slower than the ImageWriter I. (I've already explained the extraordinary time for the MT85 Graphic Edge screen dump.)

## Forms Handling

Like the ImageWriter, the MT85 and SP-1000AP both handle continuous forms and single sheets. A nice feature on the SP-1000AP is a lever you can pull to feed and align a single sheet without touching the platen knob. If you need an automatic cut-sheet feeder, you can buy one for only \$99 for the SP-1000AP. A similar feeder for the ImageWriter II costs \$225, and you cannot use a cut-sheet feeder with the MT85 or MT86.

## Portability

Many Apple II users like to take their computer with them whenever

they travel. The poor printer, however, usually sits alone on a desk at home, waiting for its master to return. Printers often don't

**Table 1. Manufacturers' print-speed ratings**

ImageWriter II	250 cps (draft) 180 cps (corr.) 45 cps (NLQ)
ImageWriter I	120 cps (draft)
MT 85/86	136 cps (draft) (NLQ speed not listed)
SP-1000AP	75 cps (draft) 15 cps (NLQ)

make the trip because they're just too heavy and bulky to move around.

The SP-1000AP is the lightest printer I looked at, only 11 pounds or so, and is a bit smaller than the MT85 and ImageWriter II. It's the one I'd most like to take with me on a trip. By comparison, the ImageWriter II and MT85 weigh 25 pounds and 17.5 pounds, respectively. The wide-carriage MT86 weighs in at a portly 28.7 pounds.

## Special Features

Both of the printers that I tested had unique special features that you might find useful in your computing setup.

The Seikosha SP-1000AP has an italic printing mode that's not present on the ImageWriter or the

**Table 2. Speed tests for the printers tested (all times are in seconds)**

Action Performed	ImageWriter I	ImageWriter II	MT85	SP-1000AP
Print a 11gs super-hi-res picture	128 cps	117 cps	155 cps	265 cps
Print a six-page word-processing document with AppleWorks	167 cps (draft)	98 cps (draft) 124 cps (corr.) 511 cps (NLQ)	173 cps (draft) 547 cps (NLQ)	321 cps (draft) 1243 cps (NLQ)
Print a double-hi-res picture with Graphic Edge	184 cps	92 cps	1248 cps	230 cps

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EPSON MX, FX, RX 100/185	6.00	5.50
OKIDATA 80/82/90/92/93, STAR SG10	2.50	2.00
OKIDATA 120/182/192/193	6.00	5.50
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standard MT85. It also lets you change the left margin of a printed page by using its control-panel buttons.

The Mannesmann Tally MT85 has three major unique features. First, you can use a font cartridge with it by plugging it into an opening on the front of the printer. Mannesmann Tally sells three cartridges: Letter Gothic, Italics II, and Courier. Second, you set printer options with control-panel buttons

instead of by adjusting DIP switches. Third, you can replace the serial-interface board in the printer with a parallel-interface board; the parallel board contains a ROM that makes the printer emulate an IBM/Epson printer.

The main features of an Image-

Writer II that the compatibles cannot handle are color printing and an extended character set containing MouseText icons.

#### RECOMMENDATIONS

If speed is at the top of your list of important features, you should buy the ImageWriter II, although the MT85 comes close to matching it in the NLQ printing mode. If you require the ability to print in color, the ImageWriter II is your only choice. Print quality for graphics is about the same for all three printers. For text, the MT85 and ImageWriter II both have a very nice NLQ mode, but the SP-1000AP doesn't.

Buy the MT86 if you need a wide-carriage printer for spreadsheet output or wide reports. Your only alternative is a secondhand wide-carriage ImageWriter I, which may be hard to find.

If low price or portability is your main concern, the SP-1000AP is clearly the printer to buy. Keep in mind, however, that the SP-1000AP is much slower than the other printers, and its print quality is not as attractive. +

*Gary Little is the editor of A+ and the author of Exploring the Apple IIGS (Addison-Wesley, 1987).*

#### VITAL STATISTICS

##### MT85 and MT86

Mannesmann Tally  
8301 South 180th Street  
Kent, WA 98032  
(206) 251-5644

**List Price:** MT85, \$499; MT86, \$699; font cartridges, \$38.50 each

CIRCLE READER SERVICE NO. 370

##### SP-1000AP

Seikosha America, Inc.  
1111 MacArthur Blvd.  
Mahwah, NJ 07430  
(201) 529-4655

**List Price:** SP-1000AP, \$299; cut-sheet feeder, \$99

CIRCLE READER SERVICE NO. 371

##### ImageWriter II

Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, CA 95014  
(408) 996-1010

**List Price:** ImageWriter II, \$595; cut-sheet feeder, \$225

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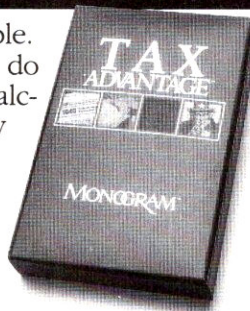
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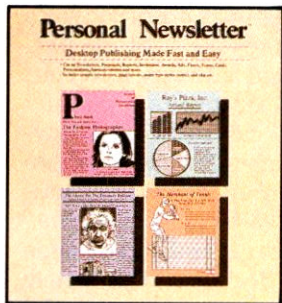
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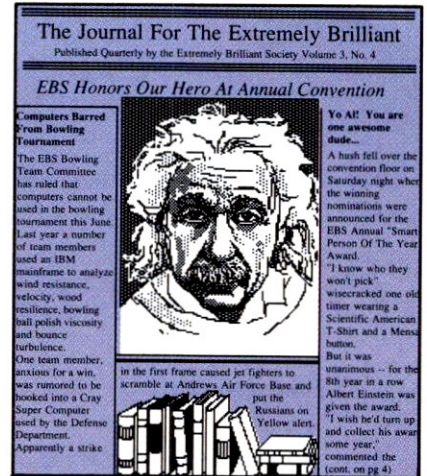
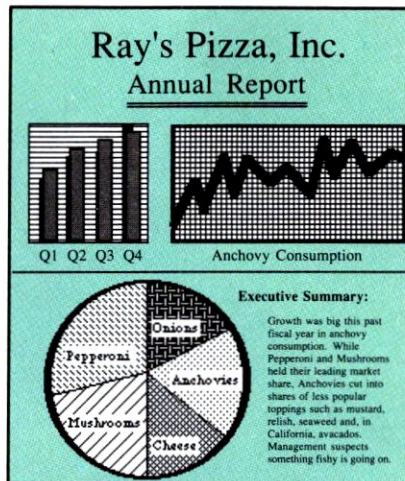
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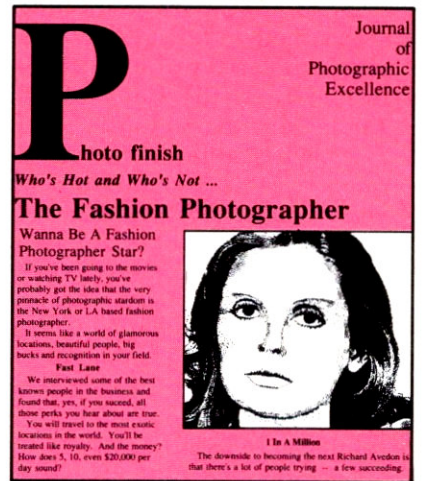
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**M**any of us spend a lot of time determining which printer and modem to buy and then routinely purchase any old interface card to connect them to the Apple II. Interface cards are not created equal, however, and the differences among them can be significant.

COVER STORY BY MICHAEL FISCHER

## Printer and Modem

# INTERFACE CARDS

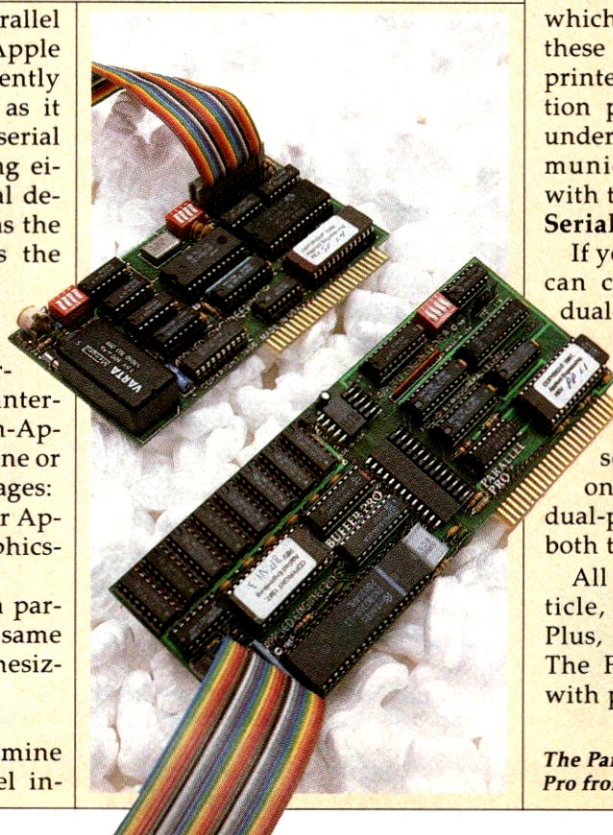


If you need to connect a parallel printer, the standard is the Apple Parallel Interface Card, currently being phased out by Apple as it concentrates exclusively on serial printers. If you are connecting either a modem (always a serial device) or a serial printer such as the ImageWriter, the standard is the Apple Super Serial Card.

As with other hardware categories this issue surveys, you can find numerous alternatives to these Apple-brand interface cards. The compatible non-Apple alternatives usually offer one or more of the following advantages:

- More features than the similar Apple card, such as built-in graphics-printing routines;
- Multiple functions, such as a parallel and serial port on the same card or a clock or speech synthesizer; and/or
- Lower cost.

In this article, I'll first examine serial interfaces, then parallel in-



terfaces, and finally multifunction cards. (Some of these interface cards show up under more than one category because they perform multiple functions.)

Keep in mind that even if you purchase an Apple IIc or IIgs and use the built-in serial ports, there are still interesting add-on devices you may want to take advantage of. Several products allow you to convert the serial output to a parallel format so you can hook up a low-cost parallel printer. I'll look at two of these converters below. No similar device is available from Apple.

The graphics capabilities of some of the cards I discuss in this article are printer-specific; that is, the cards produce graphics output using the built-in commands only when you use them with particular printers. The table on the page 37 shows which cards work with which printers. Note, though, that these cards work well with other printers too, as long as the application program that you are using understands the printer and communicates directly with it (not with the card).

### Serial Interfaces

If you need a serial interface, you can choose a single-purpose or dual-purpose unit. In principle, you can use a serial interface with either a serial printer, such as the ImageWriter, or a modem. A single-purpose serial interface works with only one type of serial device; a dual-purpose device works with both types.

All the serial interfaces in this article, except for the Fingerprint Plus, are dual-purpose interfaces. The Fingerprint Plus works only with printers.

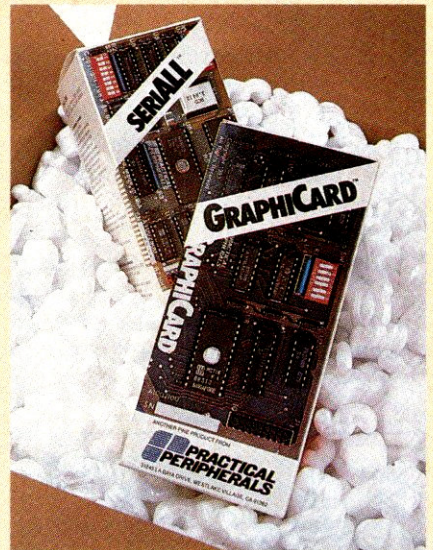
*The Parallel Pro, Serial Pro, and Buffer Pro from Applied Engineering*



**Systems Manufacturing Technology**



**Apricorn**



**Practical Peripherals**

Nearly all serial cards are capable of emulating an Apple Super Serial Card. Exceptions are cards such as the CCS Model 7710, which uses a serial chip called the Motorola 6850 instead of the 6551 chip on the Super Serial card. All cards designed in the last three years or so seem to be using the more-advanced 6551 chip.

Serial communication, whether to a printer or a modem, requires control of different settings that describe exactly how the communication is taking place. These settings typically include the speed of transmission and the bit format of each character. You can set each of the interface cards to run at nearly all the speeds and data formats in use today. With the 6551 chip (but not the 6850), you can change these settings from inside a program, so don't buy a card with a 6850 chip to control a modem.

When you print a copy of what's on the screen on the printer, you are said to be dumping the screen. Depending on the capability of your card, you can print either of the two 40-column text screens, the 80-column text screen, low-resolution graphics, either of the two high-resolution graphics screens (full or mixed), the double-high-resolution graphics screen, or the Apple IIGS super-high-resolution graphics screen.

If you are printing a hi-res graphics screen, some of the cards let you rotate the image, enlarge it, select a part of it to print, invert it, print it in color, print it at a higher density, or mix the graphics with four lines of text. Neither of Apple's cards have commands for performing these types of operations.

The table on page 38 contains a summary of the screen-dump capabilities of the serial-interface cards.

### Parallel Interfaces

The choices for parallel interfaces are similar to those for serial interfaces, but you generally use a parallel interface only with a printer, so you have fewer features to consider. In fact, except for specialized requirements, you have only two categories to take into account with parallel interfaces: text printing and graphics printing.

Built-in commands typically let you control such text-output features as

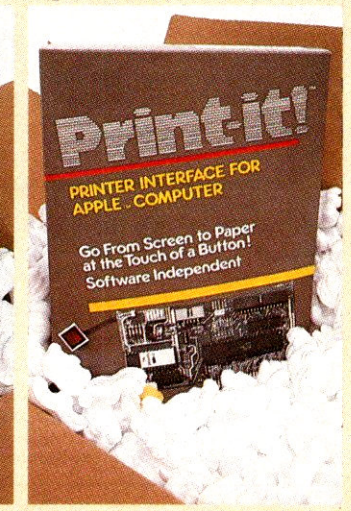
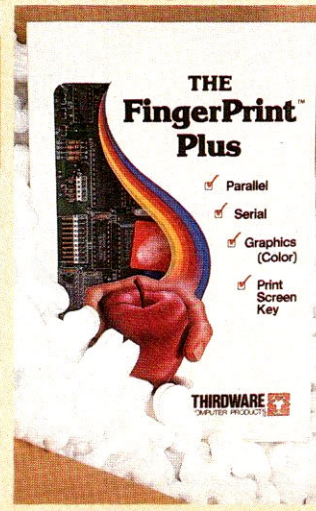
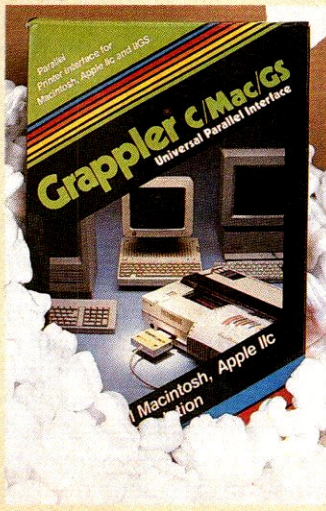
- Left margin, right margin, page length, and number of lines per inch;
- Page format, including a title line, footer line, and page number;
- Formatted listings of BASIC programs; and
- Printing the contents of the text screen.

One parallel card, the Pro-Grappler, has an extensive collec-

**Orange Micro**

**Thirdware Computer Products Apricorn**

**Texprint Inc.**



tion of character-formatting commands such as Text Size, Draft Mode, Double Strike, Emphasized, Near Letter Quality, Underline, Italics, Superscript, and Subscript. In general, though, applications don't take advantage of those text-formatting commands, so they're not too important.

You should not confuse the ability of the interface card to format text with the ability of a program, such as AppleWorks, to do the same. Even if the interface card

cannot perform a particular formatting action, a software program, given the proper information about your printer, can often format the text in the desired way, lessening the importance of which interface card you're using.

You'll generally find the same

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HARDWARE**

graphics-printing features available for parallel-interface cards as for serial-interface cards. The second table on page 38 shows these features.

**Multifunction Cards**

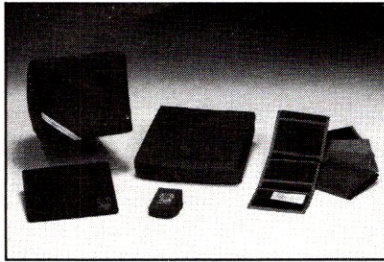
Some of the interface cards we've discussed have more than one feature built into them—both a serial and a parallel connection, for example. The cards with both a serial and parallel interface include Fingerprint Plus, Print-It!, Slotbuster II, and Videx PSIO. This combination is not available from Apple; in fact, Apple does not sell any sort of multifunction card.

Two of the cards, Serial Pro and Slotbuster II, have a clock function among their features. In both cases, you must patch the ProDOS program to have it recognize the clock. Luckily, both products come with the software for this operation.

You can also select a card with a buffer, which is an area of memory that holds data that is waiting to go to the printer. A buffer allows you to send the data to the printer and continue with other computer tasks before the printer has finished printing. For instance, the Buffer Pro from Applied Engineering is an optional add-on card for the Parallel Pro that provides 8-256K of buffer space. You can also add memory chips to the Slotbuster II to increase the buffer from its standard 8K up to 64K.

As far as screen dumps are concerned, the Fingerprint Plus and Print-It! cards are in a class by themselves. Both have a special button that permits you to interrupt any program and print a copy of the screen display of that program. You can use this snapshot feature even with software that doesn't normally permit printing. You merely press the button, which attaches to the interface card with a special cable, and make your selections from a menu—a convenient feature.

By far the most extensive collection of functions belongs to the aptly named Slotbuster II. Besides this card's options for a serial interface (for either printer or modem), a parallel interface, a clock, and a buffer, it also has an optional speech synthesizer that can read your documents aloud—especially useful for the visually impaired. Unlike the features of some other



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220	Monitor, CPU/Keyboard, Mouse, Printer	\$29.95*
230	Monitor, CPU/Keyboard, Mouse, Printer, External Drive	\$31.95*
<b>IIGS Cover Sets</b>		Base Price*
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310	Monitor/CPU, Keyboard, Mouse, External Drive	\$31.95*
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AT 87

# PRINTER COMPATIBILITY CHART

	Applicon Graphics	FingerPrint Plus	GraphicCard	Image Perfect	Parallel Pro	Print-III	Pro Scrapper	SerialALL	Serial Pro	Slotbuster II	Super-Serial Imager	Videx UniPrint
Anadex	■		■	■				■				■
Apple DMP	■	■	■			■		■		■		■
Apple Scribe		■				■				■		
BMC			■			■						
Brother							■					
Canon						■						
Centronics	■											■
CGP-220						■						
Citizen							■					
C. Itoh	■	■		■	■	■	■	■		■	■	■
DAK Gorilla Banana			■									
DAK Olivetti			■									
DataProducts		■							■			■
Epson	■	■	■	■	■	■	■	■		■	■	■
HP Thinkjet							■					
IBM ProPrinter					■		■					
IDS			■			■		■				
ImageWriter		■	■			■		■	■	■	■	
Juki			■									
Leading Edge												■
Legend		■										
Mannesmann		■	■			■		■				■
NEC	■	■	■	■	■	■	■	■		■		■
Okidata	■	■	■	■	■	■	■	■		■	■	
Omni 800			■									
Panasonic		■	■			■	■					
ProWriter						■						
Quadcolor						■						
Quadjet		■										
Seikosha												■
Spirit 80			■									
Star Micronics	■	■			■	■	■			■	■	■
TI						■						
Toshiba		■	■		■		■					
Transtar						■						

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multifunction cards, none of these features interfere with cards in other slots.

The Slotbuster can also send signals to a BSR X-10 command console, as long as the console is the model with the ultrasonic receiver that works with the BSR cordless controller. The BSR X-10 system allows you to turn various electrical switches in your house on and off by remote control.

**Serial-to-Parallel Converters**

The features of the two serial-to-parallel converters reviewed here differ significantly.

The ApriCord IIC is a basic unit consisting of a cable that connects

to the Apple IIC serial printer port on one end and to your parallel printer on the other. You can adjust a single switch to select between a seven-bit and eight-bit data character. In addition, you can issue commands to the device to echo the data to the screen, send a line feed with every carriage return, and break lines into specified lengths. The converter has graphics-dump software on disk, but you must

## SERIAL GRAPHIC PRINTER CARDS

Features	Apricorn Super Serial Pro	Envoy	FingerPrint Plus	Print-It!	Serial Grappler +	Serial ALL	Serial Pro	Slotbuster II	Super Serial Imager	Videx PS10
Text Dump (40/80 columns)	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	No
Low-Res Dump	No	No	Yes	Yes	No	No	No	No	Yes	No
Hi-Res Dump	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Double-Hi-Res Dump	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes
Super-Hi-Res Dump	No	No	No	No	No	No	No	No	No	No
Mixed Text/Graphics Dump	N/A	N/A	N/A	Yes	Yes	Yes	Yes	No	No	Yes
Rotation	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Enlargement	N/A	N/A	2X	2X	2X	2X	No	2X	Selectable	N/A
Inversion	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Emphasis	N/A	N/A	No	Yes	Yes	Yes	No	No	Yes	N/A
Color	N/A	N/A	Yes	Yes	Yes	No	No	No	No	N/A
Selection of Part of Screen	N/A	N/A	Yes	No	No	No	No	No	No	N/A
Price	\$79.95	\$109	\$149	\$199	\$89	\$119	\$139	\$149.95	\$99.95	\$229

## PARALLEL GRAPHIC PRINTER CARDS

Features	Apricorn Graphics	FingerPrint Plus	GraphiCard	Image Perfect	Parallel Pro	Print-It!	Pro Grappler	Slotbuster II	Videx UniPrint
Low-Res Dump	No	Yes	No	No	No	Yes	No	No	No
Hi-Res Dump	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes <sup>1</sup>
Double-Hi-Res Dump	No	Yes	No	No	Yes	Yes	Yes	No	No
Super-Hi-Res Dump	No	No	No	No	Yes	No	Yes	No	No
Mixed Text/Graphics Dump	No	No	Yes	No	Yes	Yes	Yes	No	No
Rotation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Enlargement	2X	2X	2X	2X	No	2X	Selectable	2X	2X,3X
Inversion	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Emphasis	No	No	Yes	No	No	Yes	Yes	No	No
Color	No	Yes	No	No	Yes	Yes	Yes	No	No
Price	\$89.95	\$149	\$79	\$89	\$89	\$199	\$119	\$169.90	\$89

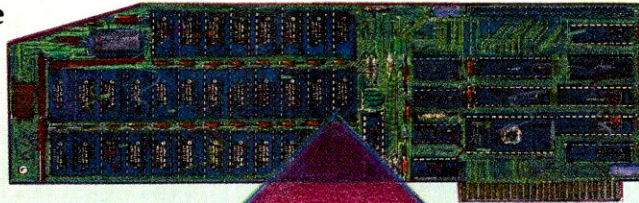
1. Videx UniPrint cannot print the two hi-res pages side by side.



# RAMUP™

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- Eliminates disk swapping
- Increases productivity
- Move easily from program to program — at will
- INSTANT ACCESS!

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AppleWorks to Sensible Speller	2.6 sec.
Sensible Speller to Sensible Grammar	1.3 sec.
Power on to AppleWorks	* 2.8 sec.
Control A- Reset to AppleWorks	* 2.9 sec.

\* Requires Battery backup option

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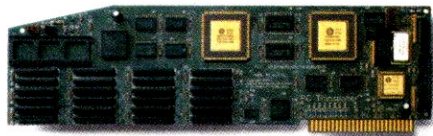
Now your Apple II can run over 10,000 programs you could never use before. Like Lotus<sup>®</sup> 1-2-3<sup>®</sup>, MultiMate<sup>®</sup>, dBASE III PLUS<sup>®</sup>. Even Flight Simulator<sup>®</sup>.

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Sure, a stripped-down IBM



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You don't have to buy new hardware to use PC Transporter.

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

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

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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.

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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

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**128K ZIP** 40.00

**PC Transporter** per set

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**Co-processor**

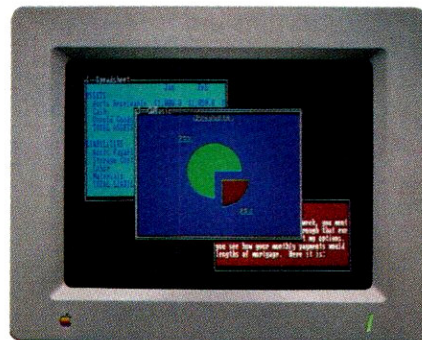
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The brains behind PC Transporter were also behind your Apple II.

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.

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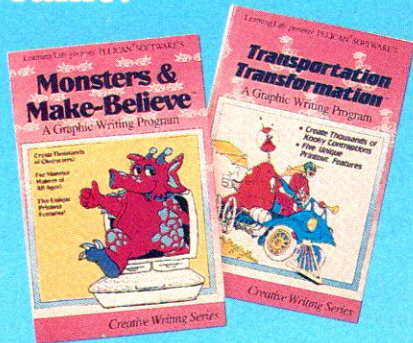
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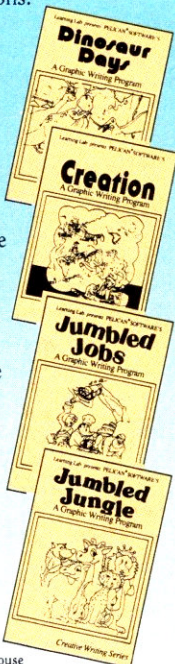
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have previously saved the graphics screen on a disk to use it.

The Grappler C/Mac/GS is a serial-to-parallel converter that works with the Apple IIc/IIGS and the Macintosh series. You can set the unit to do basic serial-to-parallel conversion. A more impressive feature of the converter, though, is its ability to convert commands that are meant to produce graphics on an ImageWriter printer to those that produce similar graphics on a parallel printer. This conversion ability is especially important if you're using any of the many GS programs that work with the ImageWriter only. The Grappler C/Mac/GS works with many C. Itoh, Epson, Okidata, and Star Micro-nics printers.

If you use the converter with an Apple IIGS, you can install a classic desk accessory that lets you perform nearly all the text- and graphics-manipulation functions available with the ProGrappler.

If you use the converter with an Apple IIc, the software lets you print graphics that you've saved on a disk, under either the ProDOS or DOS 3.3 operating system. This software provides you with nearly all the graphics capability of the ProGrappler, except the ability to select an area of the picture, specify how much to enlarge the picture, and print GS super-high-resolution graphics (which you can't create on an Apple IIc anyway).

### Not Automatic

Selecting an interface card for your Apple computer should not be an automatic decision. As with nearly every other computer-related purchase, you need to decide what features you want and what you are willing to pay for them. And, as you have seen, many different options are open to you, allowing you to choose from more than the basic serial or parallel interface from Apple. The bottom line is that the Apple cards have a performance/price ratio that is much lower than that of other cards. The Apple name gets you a basic level of functionality at a relatively high price—you can ordinarily obtain many more features for a better price elsewhere. +

*Michael Fischer's latest book is Apple IIGS Technical Reference, from Osborne/McGraw-Hill.*

## VITAL STATISTICS

### SERIAL INTERFACES

#### Apricorn Super Serial Pro

Apricorn  
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#### Envoy

Systems Manufacturing  
Technology, Inc.  
1145 Linda Vista Drive  
San Marcos, CA 92069  
(619) 744-3590

**List Price:** \$109

CIRCLE READER SERVICE NO. 377

#### Serial Pro

(includes clock)

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

**List Price:** \$139

Contact company directly

#### Super Serial Imager

Apricorn  
10670 Treena Street, #10  
San Diego, CA 92131  
(619) 271-4880

**List Price:** \$99.95

CIRCLE READER SERVICE NO. 379

### PARALLEL INTERFACES

#### Apricorn Graphics Printer Interface

Apricorn  
10670 Treena Street, #10  
San Diego, CA 92131  
(619) 271-4880

**List Price:** \$89.95

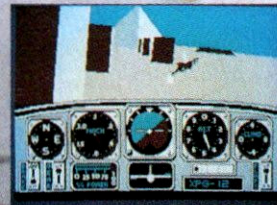
CIRCLE READER SERVICE NO. 380

# "Finally, The Right Stuff"

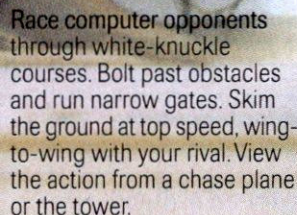
-NY Times (Aug. 25, 1987)

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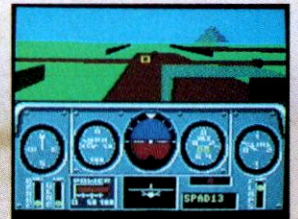
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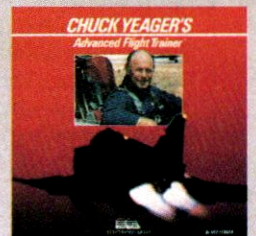


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Contact company directly

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 (619) 744-3590

**List Price: \$79**

CIRCLE READER SERVICE NO. 383

**Printer Pro**

Apricorn  
 10670 Treena Street, #10  
 San Diego, CA 92131  
 (619) 271-4880

**List Price: \$59.95**

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**ProGrappler**

Orange Micro, Inc.  
 1400 North Lakeview Avenue  
 Anaheim, CA 92807  
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**List Price: \$119**

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San Diego, CA 92131  
(619) 271-4880

List Price: \$59.95

CIRCLE READER SERVICE NO. 390

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Orange Micro, Inc.  
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Anaheim, CA 92807  
(714) 779-2772

List Price: \$99

CIRCLE READER SERVICE NO. 391

## BUFFER

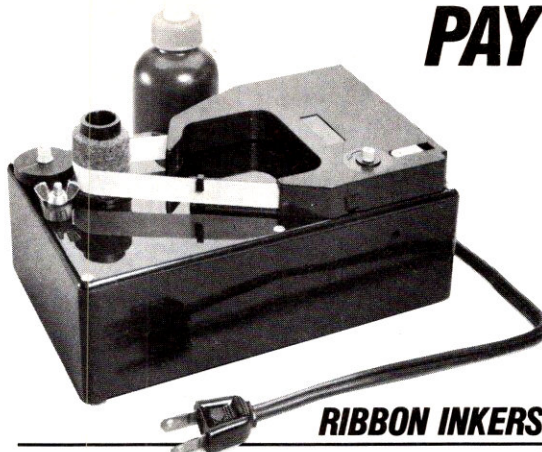
### Buffer Pro

(optional buffer for Parallel Pro interface)

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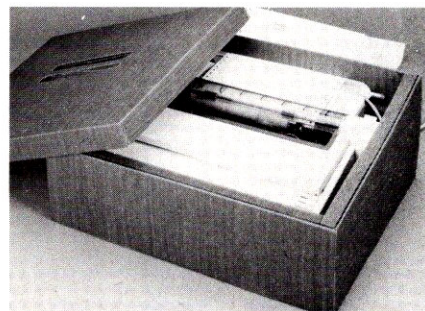
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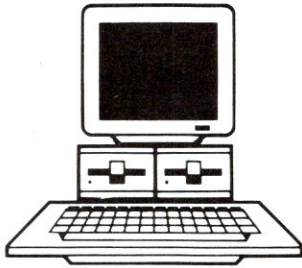
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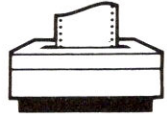
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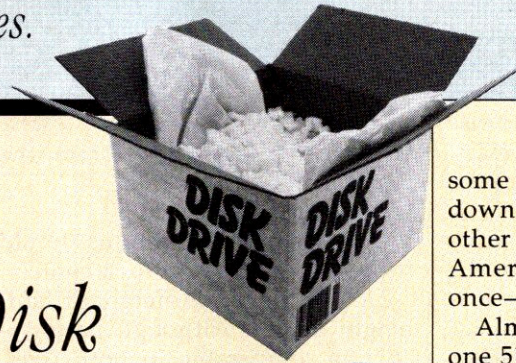


**BARGAIN  
HARDWARE**

**O**n its journey from a bare circuit board to the IIGs, Apple Computer, Inc., probably has released more different kinds of disk drives than it has any other peripheral for the Apple II line (see A+, January 1987). The proliferation of Apple disk drives is limited, though, compared with the number of third-party, Apple-compatible disk drives.

COVER STORY BY BOB LINDSTROM

## Alternative Disk DRIVES



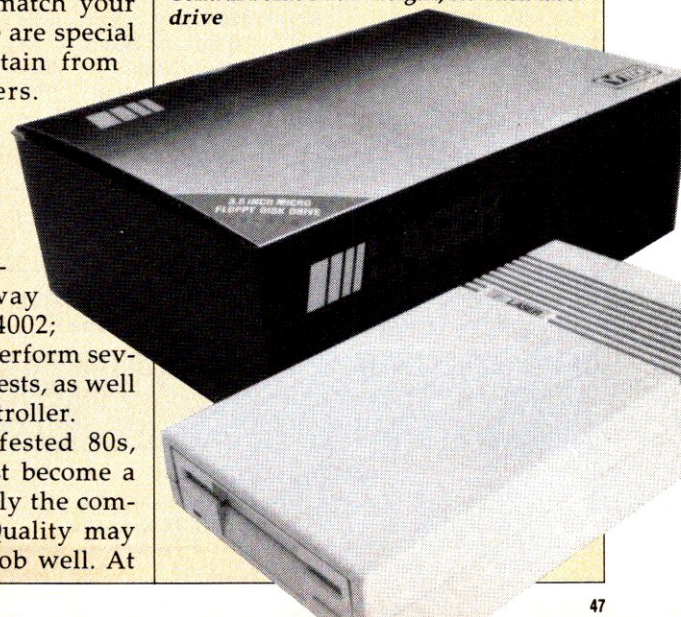
some of these prices, if they break down, why repair them? Buy another and live up to that great American principle "Just use it once—and then throw it away."

Almost all Apple owners want one 5¼-inch disk drive or more in their computer system. Although the durability and high capacity of the newer 3.5-inch diskette is rapidly catching on, the garden-variety floppy disk remains the standard format for Apple II data storage. Lots of programs still come in the 5¼-inch format only.

### What's Your Connection?

The first consideration is how you're connecting the drive to your computer. Apple has made two types of drive controllers over the years, one with a single DB-19 connector and the other with two posts for 20-pin rectangular connectors. Most third-party drives advertised

Central Point's half-height, 3.5-inch laser drive



How do you want your drive? You can get 19- and 20-pin configurations; with or without a disk-controller card; full-height and half-height; white, beige, and platinum; the 143K-capacity 5¼-inch drive or the 800K 3.5-inch drive; speed-adjustable or phase-locked; Maple, Laser, Jameco, Micro Sci, Pico, TechCraft, American Mitec, Videotech. One company, Kinson Products Corporation, even gives away an LCD wristwatch with its Meiji-brand disk drives.

Browsing for third-party Apple-compatible drives can make you as dizzy as a spinning floppy disk. Rather than compare the countless brands, let's take a look at some of the general principles involved in selecting a non-Apple drive.

In truth, the choices aren't quite as puzzling as they might seem. Once you've identified the hardware you have and the hardware you want, disk-drive requirements tend to fall into place.

### Why Not Apple?

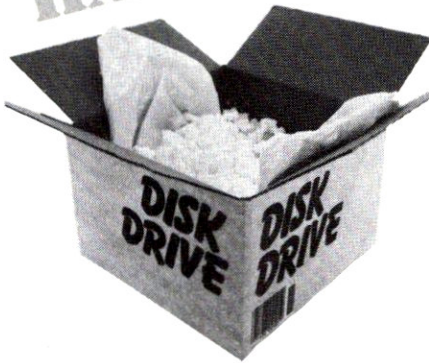
Why buy a non-Apple-brand disk drive, anyway? Two reasons: price and appearance.

Alternative drives are often considerably less expensive than Apple-brand drives (which range in price from \$299 to \$399) and suffer little, if any, reduction in performance. Prices for non-Apple drives range from \$75 to \$225, depending on features and format. Also if your computer is an Apple II clone, you may want to forgo an Apple-brand drive in favor of a unit cosmetically designed to match your system. And then there are special features you might obtain from non-Apple controllers.

One special 5¼-inch disk-controller card is the \$59.95 Applesurance Diagnostic Disk Controller Card, available from Jameco Electronics (1355 Shoreway Road, Belmont, CA 94002; [415] 592-8097). It can perform several system diagnostic tests, as well as act as a standard controller.

In the computer-infested 80s, disk drives have almost become a generic item, particularly the common 5¼-inch drives. Quality may vary, but most do the job well. At

**BARGAIN  
HARDWARE**



have 20-pin connectors, so make sure you have the correct controller. The Central Point Software Universal Disk Controller (UDC) is a \$90 disk-controller card for the II Plus and Iie that works with 3.5-inch drives or 5¼-inch drives with DB-19 or 20-pin connectors.

If you're using a Iic or daisy-chaining drives from the SmartPort of a IIGS, you definitely need a "Iic/GS-compatible" drive with a DB-19 connector. Be aware that most third-party 5¼-inch drives do not have a pass-through ("daisy-chain") connector, so you can use only one of these in a IIGS SmartPort daisy-chain or with Apple's current 5¼-inch drive controller.

If you have 20-pin 5¼-inch drives that you want to use in the DB-19 drive port of the Iic or IIGS (or with Apple's new controller), don't despair or buy a new drive. Plug adapters are available from several suppliers, including Jameco and Pico Products. Typically selling for less than \$20, these adapters turn a 20-pin drive into a Iic-compatible DB-19 drive. The adapters also permit IIGS owners to daisy-

chain a 5¼-inch drive from the SmartPort.

**Height and Speed**

Two additional questions should help narrow your 5¼-inch choice.

Do you want full-height or half-height drives? Although performance is comparable in both sizes, the half-height drives occupy less vertical space in a crowded computer environment. The full-height drives, however, tend to be slightly less expensive.

Do you want to alter the speed of the drive? After you've used a

drive for a while, the speed can change from its optimum value. If it changes too much, you may not be able to use disks formatted with other drives, so the ability to adjust the speed can be important.

**3.5-Inch Choices**

The choices in 3.5-inch drives are much more limited than those for their 5¼-inch disk-drive counterparts, but the alternatives are expected to grow with the popularity of the format. At present, the major option is Central Point's half-height, 3.5-inch Laser drive (\$199), which works with the Iie and IIGS (with Central Point's UDC) and the Apple Macintosh. The drawback here is that some copy-protected programs fail to run from these drives. Central Point is in good company with this problem—many of these programs don't like the Apple UniDisk 3.5 either.

So mix and match them, stack and pack them. Disk drives are like potato chips. Almost nobody can stop after just one. **+**

*Bob Lindstrom is a free-lance writer and A+'s entertainment editor.*

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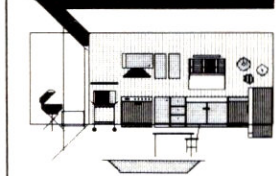
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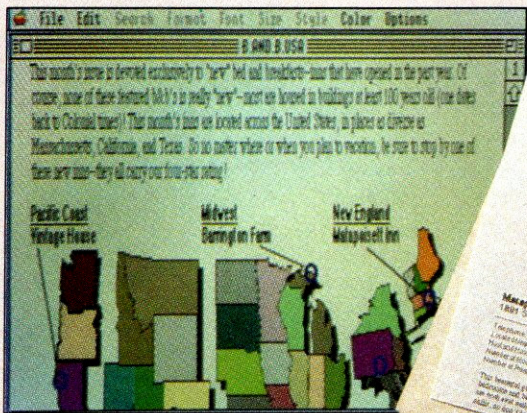
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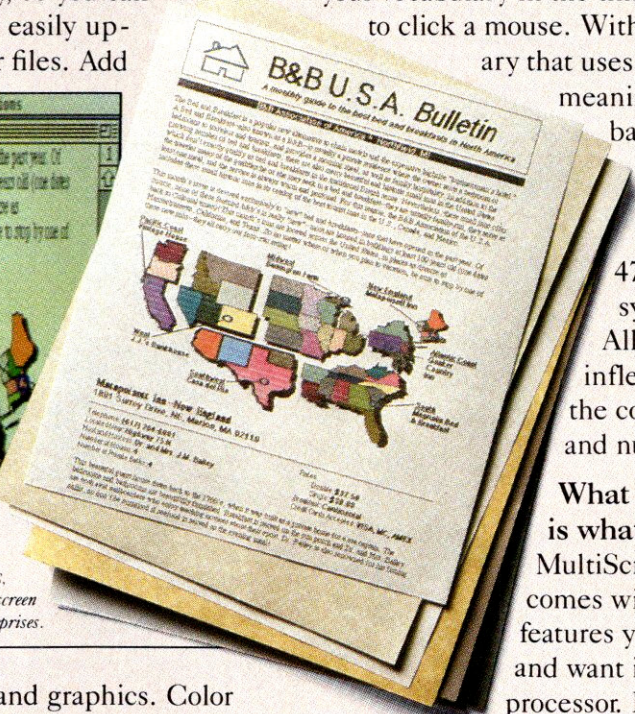


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**BARGAIN  
HARDWARE**

**A**t one time, the Apple market was filled with exotic fruits of all kinds, including oranges, pineapples, and bananas. An Apple II by any other name was occasionally a lemon, though. Some look-alikes weren't quite work-alikes, and they failed to run certain Apple II programs. Nonetheless, imported Apple imitators did provide a low-cost alternative.

**COVER STORY** BY BOB LINDSTROM

## Alternatives to Apple II COMPUTERS

Apple Computer's dedication to protecting its patents and copyrights, along with the cooperation of U.S. Customs officials, eventually managed to spoil the strange imported fruits. One by one, the look-alikes fell to the ground and disappeared.

At present, two legal Apple clones dominate: the Laser 128 and the Franklin Ace 500. Both offer features Apple chose not to include in its own designs.

### Laser 128 and 128EX

The Laser 128 and a newer version, the Laser 128EX, are manufactured by Video Technology and sold primarily by Central Point Software. Highly compatible with the Apple II line of software and more fully featured than the Apple IIe/c, the Laser 128EX is a first-rate Apple alternative. (See our full review in the December 1987 issue.)

Not content to be merely an Apple work-alike, the Laser 128EX represents a different view of what an Apple II-compatible should be. It has some of the portability of the IIc yet more expansion flexibility than the IIc and some standard features available only as options on Apple II computers. Paying a retail price of \$579—often discounted to \$499—you can assemble a Laser 128EX system for about half the cost of an Apple IIe/c system with

comparable features.

The Laser 128EX boasts several other benefits. In addition to a IIc-like serial printer port, the Laser has a Centronics-standard parallel printer port. The other ports are a mouse/joystick port, an RGB-monitor port, a composite-video port, and a IIc-compatible modem port. On the side of the Laser is an Apple-compatible expansion slot that can accept standard Apple cards, although the cards are dangerously exposed there. The slot also accepts a two-slot expansion chassis (\$50) from Video Technology.

Additional features are a variable clock rate that enables the Laser to run more than three times faster than a IIe/c; a built-in memory-expansion board that accepts up to one megabyte of dynamic RAM; and Central Point's Universal Disk Controller, which works with inexpensive 3.5-inch disk drives, along with conventional 5¼-inch drives.

The Laser line also incorporates a wide variety of peripherals, all cosmetically styled for visual compatibility with the 128EX. They include 5¼- and 3.5-inch disk drives, mouse, joystick, and monochrome monitor.

### Franklin Ace 500

The other prominent Apple clone is from Franklin Computer Corporation. Franklin was one of the pioneering manufacturers of Apple-compatible computers, and its Ace 500 computer is a highly compatible alternative to Apple-brand hardware.

The basic Ace 500 system has 256K of RAM, one 5¼-inch disk



*The Laser 128EX is a first-rate alternative.*

drive, standard parallel and serial ports, a mouse/joystick port, RGB-color and Apple-compatible composite-video output, and a 90-key full-stroke keyboard with numeric keypad.

The Ace 500 also offers four different text colors in the RGB mode, a built-in screen-dump utility, and text-editing keys. It carries a retail price of \$499. Franklin also sells a IIc-compatible, external 5¼-inch disk drive that cosmetically complements the Ace system.

### Investigate the Options

So, if you're shopping for an Ap-

# BARGAIN HARDWARE

ple II-line computer, investigate the options. If standard printer and modem ports, additional built-in options, or faster operation are high on your list—and you don't need to see that rainbow-hued fruit on the case—an Apple by any other name may be just as sweet. +

*Bob Lindstrom is a free-lance writer and A+ 's entertainment editor.*

## FURTHER INFORMATION

Central Point Software  
9700 S.W. Capitol Highway  
Portland, OR 97219  
(503) 244-5782

Video Technology  
400 Anthony Trail  
Northbrook, IL 60062  
(312) 272-6760

Franklin Computer Corporation  
Route 73 and Haddonfield Road  
Pennsauken, NJ 08110  
(609) 488-0666

# TRACKSTAR 128

Another possible alternative to a real Apple II is the TrackStar 128 board, designed by Diamond Computer Systems and available through Tandy Corporation's Radio Shack stores for just under \$400. It is effectively an Applied Engineering PC Transporter in reverse: a board that plugs into an IBM PC (or compatible) so that you can run Apple II software alongside your MS-DOS favorites.

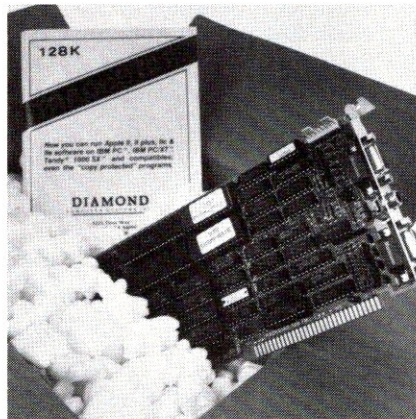
A good feature of the TrackStar is that you can boot most Apple-formatted 5¼-inch disks directly from the standard PC floppy drive in your system. Some copy-protected disks won't boot, but you can use them by hooking up a real Apple drive to the TrackStar. TrackStar also takes advantage of other PC devices for I/O operations: the monitor, the keyboard, the parallel port, and the serial port. On the TrackStar board itself is a joystick port and a game I/O connector.

The TrackStar bills itself as IIe- and IIc-compatible, but it is really like a IIc with a parallel port substituted for a serial port. The differences are that there is no mouse option, and you can't use 3.5-inch or hard-disk drives. The on-screen character set is unattractive, and there are no MouseText symbols.

The F9 and F10 function keys on the PC keyboard become the open and solid-apple keys for Apple software. Another function key brings up a special control panel you can use to reset the system or

change system parameters. From the control panel, you can also assign arbitrary character strings to PC function keys F3-F8, making it easy to enter common phrases. (You can define eight sets of function definitions and switch among them.) The Alt-Esc combination toggles between the MS-DOS and Apple modes, letting you switch easily between operating systems.

The TrackStar comes with a utility program on disk for transferring text and binary files between the MS-DOS and Apple DOS 3.3 operating systems. The utility intelligently takes care of fixing differ-



ences in text-file formats—inserting a line feed after each carriage return and clearing bit 7 of each byte during transfer to MS-DOS and eliminating line feeds and setting bit 7 during transfer to DOS 3.3. There is no equivalent ProDOS utility, which is surprising, since ProDOS has been Apple's standard operating system for more than four years. You have to use Apple's Convert utility to move files between ProDOS and DOS 3.3 before converting to MS-DOS.

How compatible is the TrackStar? It seems to work fine with AppleWorks, but I discovered strange problems with other programs I tested it with: Merlin Pro (an assembler) crashed during a simple catalog listing, the output of a low-res graphics program didn't appear on the screen, and communications programs wouldn't work with the PC serial port. I gave up on testing compatibility after trying these few programs. (The TrackStar manual also warns that some printing programs that directly access hardware locations may not work.)

If I had only \$400 to spend for an Apple-compatible computer, I'd be nervous about spending it on the TrackStar. It's convenient to have two computers in one box and to be able to transfer files between operating systems, but scrupulous compatibility is more important to me. TrackStar needs a serious ROM upgrade, and, until it gets one, I'd rather accumulate another \$100, get a Laser 128EX, and use communications programs to transfer files through serial ports.

—Gary Little

## VITAL STATISTICS

### TrackStar 128

Diamond Computer Systems, Inc.  
1225 Tiros Way  
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**List Price:** \$395 (available widely through Radio Shack stores [product number 25-1028] for \$399.95)

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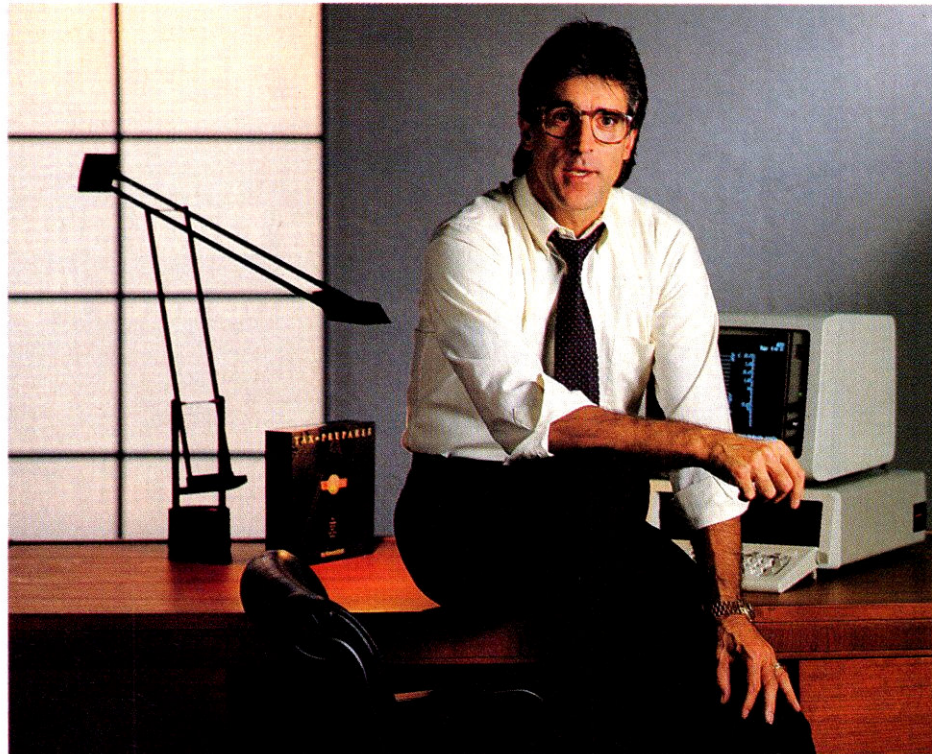
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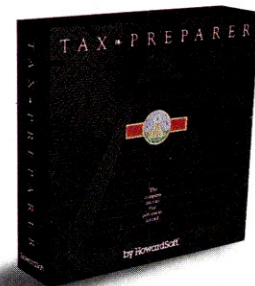
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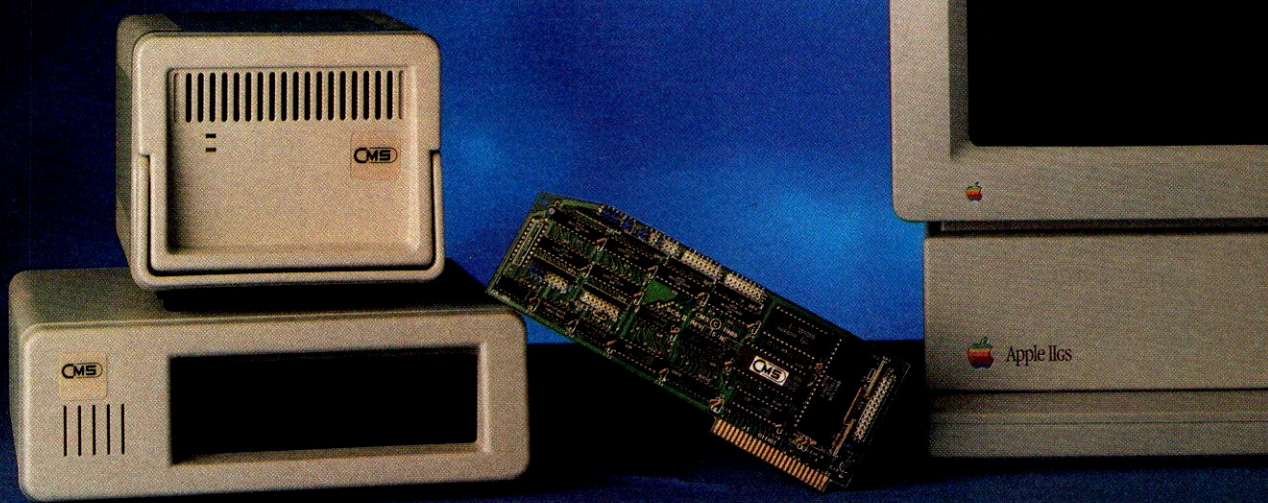
# ***ProDOS Power***

## **SCSI Hard Disk Subsystems for Apple IIgs and Apple IIe**

**20, 40, 60 and 80 MB capacities  
One year warranty**

**BEST PRICE • BEST PERFORMANCE**

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of your nearest CMS dealer.**



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1372 Valencia Avenue, Tustin, CA 92680 (714) 259-9555  
Telex (023) 371-8711 FAX (714) 549-4004



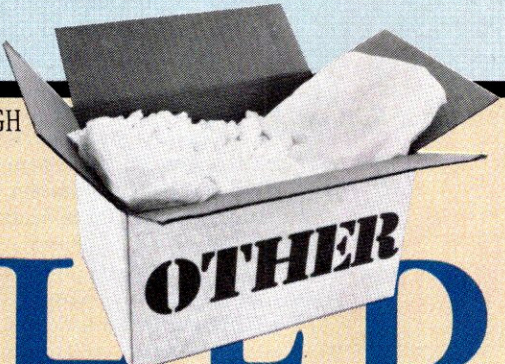
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CMS logo is a registered trademark of CMS Enhancements, Inc.



**BARGAIN  
HARDWARE**

**H**ere's a look at some non-Apple ways to get information into your system, plus a summary of other Apple alternatives we've covered in previous issues.

COVER STORY BY LISA RALEIGH



# OTHER ALTERNATIVES

Apple Computer offers a couple of standard ways for you to enter and manipulate data. The IIe, IIc, and IIGS all come with keyboards, but only the GS comes with a mouse as standard equipment. If you want an AppleMouse for your IIe, you'll have to fork over another \$149 (the price includes an interface card). The IIc mouse is \$99. Besides keyboards and mice, Apple offers a \$99 numeric keypad for the IIe but none for the IIc. (On the IIGS, a keypad is built into the keyboard.)

## Apple IIc Detachable Numeric Keypad

If you want to use a numeric keypad with your IIc, Apple can't help you out, so here's the alternative. This ten-key device requires you to open your IIc and hook up a cable that intercepts the keyboard signal so the IIc knows the keypad is there. It includes left-, right-, and down-arrow keys (no "up" key, however), as well as +, -, and decimal keys. List Price: \$99.95. Roger Coats, P.O. Box 171466, San Diego, CA 92117; (800) 438-2883; in CA (619) 274-1253.

## Numerical Keypad

This keypad's claim to fame is its low price: It's about a third less costly than the Apple-labeled key-

pad for the IIe. It has a standard ten-key arrangement and plugs into the keypad socket on the Apple IIe motherboard. List Price: \$69.95. Emco, 3533 Old Conejo Road, #102, Newbury Park, CA 91320; (805) 449-6871.

## Laser Mouse

Central Point Software sells this mouse to go along with its Apple IIc clone, the Laser 128EX. It also works with the IIc, however, and costs 20% less than the Apple-brand IIc mouse does. List Price: \$79. Central Point Software, 9700 S.W. Capitol Highway, Portland, OR 97219; (503) 244-5782.

## Turbo Mouse and Turbo Mouse ADB

Using the Turbo Mouse takes a little practice if you've been using a mouse a lot, but it offers a couple of advantages: It gives you precise control over your cursor position and doesn't require maneuvering room. Basically the Turbo Mouse is a trackball with left- and right-hand buttons (which operate identically). To use it with the IIc, you just plug it into the mouse port. On the IIe, however, it requires Apple's mouse card, so it's a pretty pricey alternative (you can buy Apple's mouse card only bundled

with Apple's mouse for \$149, so when you add the price of the Turbo Mouse, you're pushing \$300).

The ADB version of the Turbo Mouse is an alternative to the IIGS mouse—it plugs into the GS keyboard, just as a mouse would. You can also daisy-chain the mouse off the Turbo Mouse ADB if you want to have both devices at hand. List Price: \$129.95 for either version. Kensington Microware Ltd., 251 Park Avenue South, New York, NY 10010; (800) 535-4242; in NY (212) 475-5200.

## OTHER OPTIONS

So that we completely cover the universe of alternatives to Apple products, here's a reference to previous *A+* issues in which we discussed other hardware categories:

- Monitors.** When it comes to Apple-compatible monitors, composite is composite is composite, and there are hundreds of alternative monitors from which to choose—too many for us to adequately compare. In the February 1987 issue, however, we ran an extensive story describing the nature of composite versus RGB signals (and within that, the difference between digital and analog RGB), with guidelines showing the trade-offs between cost and graphics performance.

- Memory.** For a full run-down on memory and enhancement cards, reach back for the August 1986 issue of *A+*. More recently, in the May 1987 issue, we compared add-on memory cards for the Apple IIGS.

- Modems.** The April 1987 issue of *A+* featured telecommunications as the cover topic. Within that, we had a buyers' guide to modems plus three full pages of charts comparing different models.

- Hard-disk drives.** See our November 1987 cover story on hard-disk drives for a full description of the main models on the market. +

## PICK OF THE CROP

BY PETER TUCKER

# PRODUCT SPOTLIGHT

### KEEPING THE GS COOL AND SAFE

Apple IIGS owners may have noticed a couple of inventive new fan and surge-suppression units. Both offer valuable options for your system.

From MDIdeas comes The Conserver, sporting a unique design that can hold one or two of your 3.5-inch disk drives.

The Conserver offers full surge suppression, AC line-conditioning filters, and a cooling fan. Six rear-mounted AC outlets are controllable from three power switches on the front.

Kensington, the company that six years ago introduced System Saver for the Apple II, now offers System Saver GS.

This attractive unit offers a cooling fan, four AC outlets, surge suppression with

a circuit-breaker/Reset button, and two front-mounted power switches.

Both systems offer Apple IIGS owners useful features, not the least of which are those convenient front-mounted power switches. Why didn't Apple think of that?

#### The Conserver

**List Price:** \$129.95

**Requires:** Apple IIGS

MDIdeas, Inc.  
1163 Triton Drive  
Foster City, CA 94404  
(415) 573-0580

CIRCLE READER SERVICE NO. 401

#### System Saver GS

**List Price:** \$99.95

**Requires:** Apple IIGS

Kensington Microware, Ltd.  
251 Park Avenue South  
New York, NY 10010  
(800) 535-4242  
(212) 475-5200

CIRCLE READER SERVICE NO. 402

### SCIENCE TOOLKIT BODY LAB

All eager Science Toolkit users should be happy to investigate Module 3: Body Lab, just released by Brøderbund.

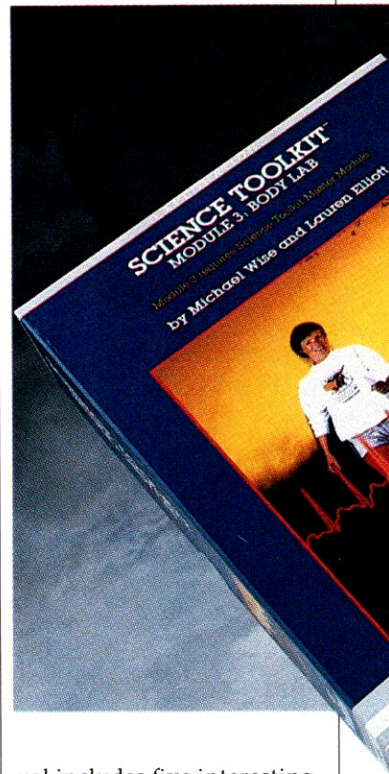
Body Lab extends the capabilities of the master module with three new instruments: a heart-rate meter, a lung-volume meter, and a response timer. The kit itself includes software, a users' manual and experiment guide, and an assemble-it-yourself spirometer (an instrument for measuring the air entering and leaving the lungs).

You use the ingenious spirometer in conjunction with the photocell (from the master module) and the on-screen lung-volume meter. Blowing into this air turbine spins a vane past the light source. The computer translates the change in light into lung capacity.

The heart-rate meter lets you measure beats within a range of 50-200 beats per minute. You measure the rate manually for ten beats and then let the on-screen instrument calculate the rate. You can also print out a graph with the heart-rate plotter.

The response timer measures the time someone takes to react to a light or sound stimulus. A flashing screen light or a computer beep starts the timing, and pushing the space bar stops the timer. You can connect external switches via the master-module interface box.

The Body Lab users' man-



ual includes five interesting experiments that put these tools through their paces.

#### The Body Lab

**List Price:** \$39.95

**Requires:** Apple II Plus, IIe, IIC, or IIGS; 64K RAM; 5¼-inch disk drive; Science Toolkit master module.

Copy-protected.

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

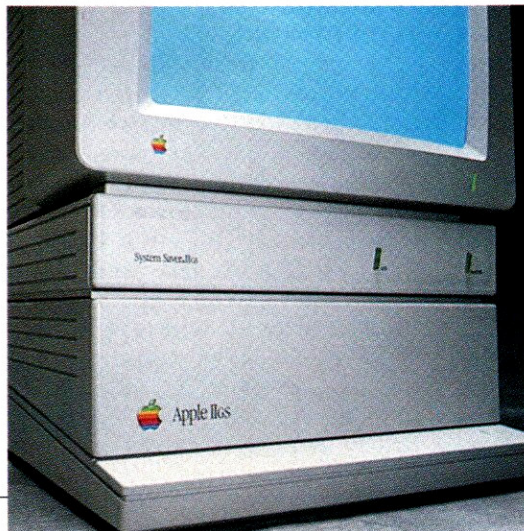
CIRCLE READER SERVICE NO. 403

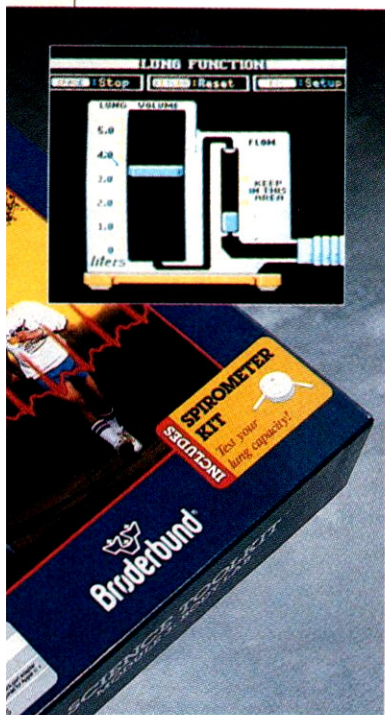
### APPLE IIGS TECHNICAL LIBRARY

This series of official publications from Apple Computer, Inc., is undoubtedly the definitive source of GS technical information.

The manuals, published by Addison-Wesley, cover information ranging from the new logic board and firmware to a complete description of the more than 800 routines in the IIGS Toolbox. You'll find information related to the new ProDOS 16 operating system and Macintosh-style event-driven programming as well.

The entire Apple Technical Library includes reference manuals for the IIe, IIC, and IIGS, as well as refer-





ences to printers, communication standards, and programming languages. You'll also find tutorials and references for Applesoft BASIC and Instant Pascal programmers in the Technical Library.

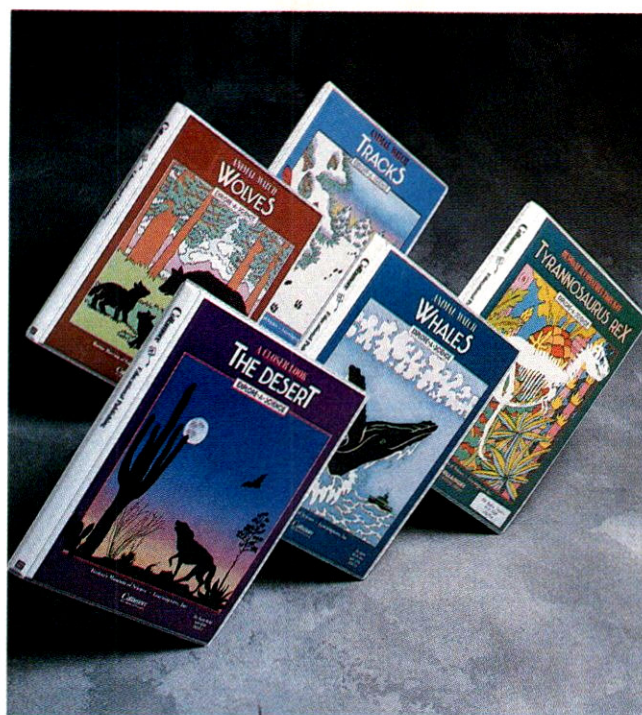
Titles in the Apple IIGS Technical Library include



*Technical Introduction to the Apple IIGS* (\$9.95); *Apple IIGS Hardware Reference* (\$24.95); *Apple IIGS Firmware Reference* (\$24.95); *Apple IIGS Toolbox Reference, Volumes I and II* (\$25.95 each); and *Apple IIGS ProDOS 16 Reference* (\$29.95).

Apple Technical Library  
Addison-Wesley  
Publishing Company  
1 Jacob Way  
Reading, MA 01867  
(800) 447-2226

CIRCLE READER SERVICE NO. 404



## LEARNING WITH EXPLORE-A-SCIENCE

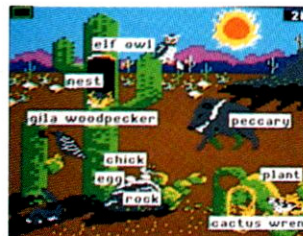
The unique look and feel of the Explore-A-Science series from D.C. Heath and Company will motivate most any youngster in the pursuit of science topics.

Each Explore-A-Science topic consists of a series of delightfully animated and highly interactive scenes. The program invites students, who use an accompanying workbook, to manipulate objects or animals during a discussion. With the help of pull-down menus, students can add elements or experiment with each scene.

In *The Desert*, for instance, you dig into the burrows of the kangaroo rat and the kit fox, watching them sleep during the midday heat. Nearby, a trapdoor spider catches an antilean blue butterfly. The sun blazes overhead, owls fly, and a poisonous sidewinder slithers nearby.

You can create entirely new scenes, label various objects and animals, and print out new scenes in color or black and white.

Explore-A-Science assembles an abundance of information against a delightfully illustrated and animated background. In fact, the whole concept of Explore-A-Science is of a versatile envi-



ronment that encourages creativity and exploration.

The series titles at present are *The Desert*; *Tyrannosaurus Rex*; and three *Animal Watch* editions: *Wolves*, *Whales*, and *Tracks*. The series was developed jointly by Learningways, Inc., and Boston's Museum of Science.



## Explore-A-Science series

List Price: \$75 each

Requires: Apple IIe, IIc, or IIGS; 128K RAM; mouse, joystick, KoalaPad, or keyboard

D.C. Heath & Company  
2700 North Richardt  
Avenue  
Indianapolis, IN 46219  
(800) 334-3284

CIRCLE READER SERVICE NO. 405

## MAC INKER GOES MULTICOLOR

From the versatile folks at Computer Friends comes a multicolor Mac Inker adapter for your ImageWriter II color ribbons.

If you already have the Mac Inker 234IM (for reinking black ImageWriter I and II ribbons), you'll simply have to buy this multicolor adapter and four bottles of ink. If you don't already own a Mac Inker, you'll have to buy the basic unit along with the multicolor adapter. The basic unit comes in two models: The dedicated Mac Inker (designed exclusively for ImageWriter ribbons) and the Universal Mac Inker, which allows you to handle just about any fabric ribbon cartridge.

Just attach your worn and weary ribbon cartridge, fill the ink wells, and set the wheels in motion. A motor winds the ribbon, passing it by four inkwells, and your ribbon is reinked in about 14 minutes.

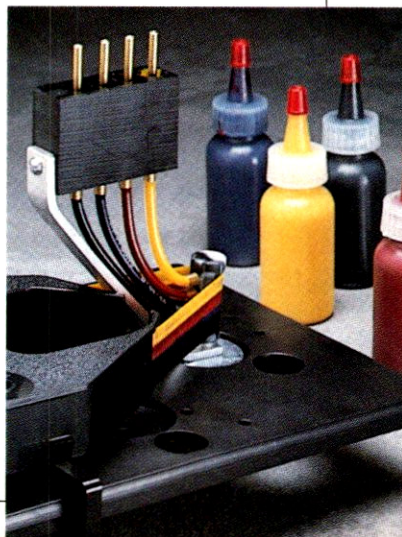
## Mac Inker Products

List Price: Multicolored Mac Inker Adaptor, \$40; Mac Inker 234IM (for ImageWriter ribbons only), \$42; Universal Mac Inker, \$60

Requires: ImageWriter Computer Friends, Inc.  
14250 N.W. Science Park Drive  
Portland, OR 97229  
(503) 643-5379

CIRCLE READER SERVICE NO. 406

FOR MORE PRODUCT INFORMATION, SEE "ROUNDUP," PAGE 118.



# Programs, Peripherals,

## Apple Compatible Computers

<b>Central Point Software</b>		<i>Controller, Built-In Expansion Slot, and Ports for all Peripherals!</i>	
Laser 128 Computer	379.	Laser 128 2nd Disk Drive (5 1/4" 1/2" height)	89.
<i>The Laser 128 includes an Expansion Slot, RGB Video Output, Parallel Printer Port, and a 10 Key Numeric Keypad!</i>		Laser 128 800K 3.5" Drive w/Controller	259.
Laser 128EX Computer	479.	Laser 128 2-Slot Expansion Box	49.
<i>The Laser EX includes a Built-in RAM Expansion Board, Universal Disk</i>		Laser 128 Cables (Parallel, Serial, RGB or Modem)	16.
		Laser 128 Mouse	49.

## Backup Utilities & Boards

<b>Alpha Logic Locksmith 6.0</b>	36.	<b>FWB Software</b>	
<b>Central Point Software</b>		Disk Util II (HGS)	47.
Copy II Plus Ver. 8 (5.25" & 3.5" Bit Copy)	23.		

## Business Software

<b>Activision</b>		Command.Com	42.
Writer's Choice Elite (Not Protected HGS)	62.	Graphics Edge	40.
List Plus (Merges w/Writer's Choice HGS)	62.	Pinpoint II Upgrade Kit	19.
<b>Advanced Logic Systems SpellWorks</b>	16.	PinPoint Ram Enhancement	19.
Apple Apple Works (IIe, IIc, HGS)	215.	PinPoint Modem Enhancement	19.
Apple Writer II 2.0 ProDos (IIe, IIc)	125.	ProFILER 3.0	74.
<b>Beagle Brothers</b> Timeout Graph	55.	<b>Random House II Write (IIe, IIc, HGS)</b>	54.
Timeout SuperFonts	49.	IIFile (IIe, IIc, HGS)	54.
Timeout QuickSpell	45.	<b>Roger Wagner Publishing</b>	
Timeout UltraMacros	37.	Mouse Write (IIe, IIc, HGS)	89.
Timeout Sidespread, FileMaster, or DeskTools	32.	Scholastic Talking Text Writer (HGS)	149.
<b>BPI Systems</b>		<b>Sensible Software</b>	
(Accounting Systems for the IIe, IIc & HGS)		Sensible Grammar ProDos (3.5" & 5.25")	59.
BPI General Accounting ProDos	139.	Sensible Speller-Dos or ProDos w/3.5 & 5.25"	69.
BPI AR/AP or Inventory ProDos (ea.)	139.	Sensible Writer (3.5" & 5.25")	54.
BPI Payroll ProDos	139.	<b>Siera On-Line Smart Money</b>	54.
<b>Broderbund</b> On Balance	42.	<b>Simon &amp; Schuster</b>	
Bank Street Writer Plus	54.	Webster's Spelling Checker (ProDos)	39.
<b>Dac Software</b> Dac-Easy Accounting	54.	<b>Sir-Tech Software, Inc.</b>	
<b>Datapak</b> Graphicwriter 2.0 (HGS)	79.	The Clan Practical Accountant	42.
Notes 'N Files (HGS)	69.	<b>SoftView</b> TaxView Federal 1987 (HGS)	72.
<b>DHA Systems Software</b> FastPak Mail	42.	TaxView Planner Supplement 1987-1991 (HGS)	49.
<b>Electronic Arts</b> DeluxeWrite	69.	California or New York Supplement 1987 (HGS)	39.
<b>Intuit</b> Quicken	35.	<b>Software Publishing</b>	
<b>Manzanita BusinessWorks</b>		All Programs for IIe with 128K or IIc	119.
System Manager (Required)	69.	PFS: Workmates (File/Report/Plan/Write)	69.
GL/AR/AP or Inventory Control	139.	PFS: Graph	69.
Payroll Module	139.	PFS: File/Report Bundle	69.
<b>BusinessWorks Bundle (Sys. Manager, G/L, A/P, A/R, Inventory)</b>	299.	PFS: Write w/Speller	39.
<b>MECA</b>		<b>Softsync</b> Personal Newsletter	61.
Managing Your Money 3.0 (IIe, IIc, HGS)	99.	<b>Softwood</b> GS File	52.
ReportWorks or Think Works	38.	StyleWare, Inc.	
<b>Monogram</b> Dollars and Sense (IIe, IIc or IIc)	75.	Multiscribe 3.0 w/Speller (128K IIe or IIc)	65.
<b>Nolo Press</b> Will Writer (Version 2.0)	36.	Multiscribe GS 3.0 (Apple HGS)	39.
<b>Peachtrec</b> Back To Basics		DeskWorks	69.
Accounting System: GL/AR/AP	135.	Picture Manager or Desk Accessories	27.
<b>Pinpoint Publishing</b> Pinpoint HGS Starter Kit	89.	Multiscribe Fontpaks 1-8 (each)	15.
Pinpoint	49.	<b>Timeworks</b> Publish-It	69.
Pinpoint Spelling Checker	42.	<b>VIP Software</b>	
Pinpoint Document Checker	42.	(Apple IIc or Enhanced IIc)	149.
Pinpoint Speller/Document Checker Combo	59.	VIP Professional (HGS Version)	169.
Pinpoint Toolkit	42.	<b>Word Perfect Corporation</b>	
Infomerge	48.	WordPerfect V1.1 w/Speller (IIe & IIc)	89.
Key Player	30.	WordPerfect (Apple HGS)	89.
Run/Run	30.		

## Entertainment Software

<b>Access Software</b>		Nord & Bert, Plundered Hearts, Stationfall, The Lurking Horror, or Zork I (each)	27.
World Class Leader Board Golf	28.	Hitchhiker's Guide to The Galaxy	21.
Famous Courses of the World	14.	Beyond Zork (IIe, IIc, HGS)	34.
<b>Accolade</b> Mean 18 (HGS) or Hardball (HGS)	27.	Beyond Zork (IIe)	34.
Famous Course Disk Vol. 2	12.	The Zork Trilogy	46.
Famous Course Disk Vol. 3 & 4	22.	<b>Micro League Sports</b> Micro League Baseball	27.
Hard Ball	22.	General Manager/Owner Disk	27.
<b>Activision</b> Aliens	24.	<b>Microprose</b> F-15 Strike Eagle or Silent Service	23.
Blackjack Academy	28.	Silent Service (HGS)	28.
Firepower	18.	<b>Mindscape</b>	
GBA Championship Basketball (HGS)	31.	Defender of the Crown (Apple HGS)	34.
GFL Championship Football	27.	Balance of Power	34.
Hacker II or Hacker II (HGS)	27.	Sub Mission	28.
Might & Magic	32.	Super Ice Hockey	28.
Portal or Shanghai (HGS)	30.	Sinbad, S.D.I. or King of Chicago (HGS)	34.
Star Rank Boxing II	28.	Indoor Sports, Uridium, or Xevious	21.
Tass Times In Tonetown (HGS) or Maniac Mansion	24.	<b>One Step Software</b>	
Top Fuel Eliminator	21.	Golf's Best Pinhurst or St. Andrews	15.
<b>Artworx</b> Bridge 5.0	21.	<b>PBI Software</b> The Tower Of Myraglen (HGS)	34.
<b>Baudville</b> Dream Zone (HGS)	31.	Strategic Conquest II or Cavern Cobra (HGS)	31.
Ski Crazed or Video Vegas	19.	Sea Strike or Monte Carlo (HGS)	25.
<b>Broderbund</b> 2400 A.D.	27.	<b>Random House</b> APBA Major League Baseball	41.
Airheart or Wings of Fury (IIe, IIc, HGS)	24.	<b>Sierra On-Line</b>	
Championship Lode Runner or Karateka	42.	Space Quest or Space Quest (HGS)	34.
Ultima IV or Ultima V	32.	Championship Boxing	34.
Autoduel	42.	Kings Quest I, II, or III (APII or HGS Ver.)	34.
Moebius	27.	Leisure Suit Larry (APII or HGS Ver.)	27.
<b>Data East</b> Karate Champ or Kung Fu Master	15.	Thexder (HGS)	24.
Tag Team Wrestling or Commando	24.	The Black Cauldron	37.
<b>Electronic Arts</b>		3-D Helicopter Simulation (HGS)	24.
Bards Tale (HGS), Instant Music (HGS), or Music Construction Set (HGS) (each)	39.	<b>Simon &amp; Schuster</b>	
It's Only Rock & Roll or Hot & Cool Jazz	22.	Star Trek (Kobayashi Alternative)	21.
Bards Tale II, or Starfleet I (each)	34.	Star Trek (The Promethean Prophecy)	27.
Amnesia, Bard's Tale, or Robot Rascals (each)	32.	<b>Sir-Tech</b> Wizardry	32.
Alternate Reality: The Dungeoneer, Arctic Fox, ChessMaster 2000, Legacy of the Ancients, Mavis Beacon Typing, Russia The Great War, Scrabble, PHM Pegasus or World Tour Golf (HGS) (each)	29.	Knight of Diamonds	32.
EOS: Earth Orbit Station, Strike Fleet, or Marble Madness or Marble Madness (HGS) (each)	25.	Legacy of Lylgammyn	32.
Dark Lord or Force 7	16.	Return of Werdna	39.
Adventure Construction Set, Lords of Conquest, Make Your Own Murder Party, or Realm of Impossibility (each)	12.	Deep Space-Operation Copernicus	27.
<b>EPYX</b>		<b>Software Simulations</b>	
California Games (IIe or HGS Ver.), Championship Wrestling, Destroyer (IIe or HGS Ver.), Omnicron Conspiracy, Sub Battle Simulator (IIe or HGS Ver.), Summer Games II, Street Sports: Baseball, Street Sports: Baseball, Winter Games (IIe or HGS Ver.), or World Games (IIe or HGS Ver.) (each)	26.	Pure Stat College Basketball (IIe, IIc, HGS)	28.
Rad Warrior	18.	Baseball (IIe, IIc, HGS)	28.
The Movie Monster Game	15.	Football (IIe, IIc, HGS)	21.
World's Greatest Baseball Game or Football Game	15.	<b>Spectrum</b> Holobyte Gato	12.
<b>Hayden Software</b> Sargon III	15.	Gato (HGS)	25.
<b>Infocom</b>		Intrigue or Lunar Explorer	18.
Border Zone, Bureaucracy, Hollywood Hyjinx, Leather Goddesses Of Phobos, Moon Mist,		Orbiter (HGS), Wilderness or Dondra	31.

## Utilities & Languages

<b>Absoft</b>		<b>Roger Wagner</b> SoftSwitch (HGS)	39.
AC Basic (16-bit BASIC Compiler for HGS)	99.	Merlin 8/16 (IIe, IIc, HGS)	79.
<b>Apple Computer</b> Apple II Instant Pascal	119.	<b>The Byte Works</b> ORCA Pascal (HGS)	89.
Apple Pascal V1.3	215.	ORCA Pascal Desktop Debugger	99.
<b>Beagle Brothers</b>		ORCA/M 4.1	72.
Beagle Screens, Big U, MacroWorks, or Pro-Byter (each)	21.	ORCA/M GS	49.
Beagle Compiler	46.	APW DeskTop	42.
Beagle G.P.L.E. or Super MacroWorks	31.	<b>TML Systems</b> TML Basic for the GS	89.
D-Code, Extra K, Power Print or Triple Dump (each)	25.	TML Pascal for the GS	35.
<b>Borland</b> Turbo Pascal 3.0 (Req. CP/M)	48.	TML Source Code Library for the GS	49.
<b>Funk Software</b> Sideways Prodos & Dos 3.3	47.	TML Speech Toolkit	89.
		TML Pascal APW	89.
		<b>Zedcor</b> ZBasic 4.0	39.

## Accelerators/Ramcards/Z-80/80 Column Cards

<b>Apple Computer</b>		RamWorks Basic (256K or 512K)	Call
Apple IIe Extended 80 Col. Card	89.	Phasor (IIe, IIc, and HGS)	139.
Apple IIc Enhancement Kit	49.	Pocket Rocket (16K Ram II & II+)	69.
<b>Applied Engineering</b>		TransWarp Accelerator (II+ and IIe)	169.
RamWorks III (64K to 3 MB)	Call	ViewMaster 80 (II+)	129.
RamWorks Expander (512K or 2MB Ver.)	Call	Z-80 Plus (IIe, IIc, HGS)	129.
2 Meg Plus RamWorks Expander (1 or 2MB)	Call	<b>AST Research</b>	
PC Transporter (384K to 768K)	Call	Ramstack Plus HGS (256K Exp. to 1MB)	105.
RamFactor (256K to 1MB)	Call	<b>Checkmate Technology</b>	
Z-RAM Ultra I (256K or 512K)	Call	MemorySaver (HGS)	129.
Z-RAM Ultra 2 or 3 (256K to 1MB)	Call	<b>Orange Micro</b>	
GS-RAM (256K to 1.5 Meg)	Call	RamPak 4GS	Call
GS-Ram Plus (1MB to 6MB)	Call	(512k Exp. to 4MB w/Utilities)	149.

## Printer Interface Cards

<b>Apple</b>		<b>Thirdware</b>	
Apple Super Serial Card	119.	Finger Print GSI	
<b>Applied Engineering</b>		(Includes Desktop Accessories - HGS)	69.
Serial Pro Plus (IIe, HGS)	119.	Finger Print Plus	
Parallel Pro (IIe, IIc, HGS)	79.	(Specify Cables: Parallel, Serial or ImageWriter II-II+ & IIc)	89.
<b>Orange Micro</b>		FingerPrint IIc (Specify Internal or External Version)	74.
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<b>Variable Feasts</b>	35.	<b>Mindscape Crossword Magic,</b>	
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<b>Stepping Stones Level I</b>	25.	<b>Peachtree/Eduware Algebra 1, 2, 3, or 4</b>	25.
<b>Stepping Stones Level II</b>	25.	<b>Algebra 5 &amp; 6</b>	31.
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<b>Applied Engineering</b>		<b>ProModem 1200G (Non Expandable)</b>	149.
<b>DataLink Modem (300/1200 Baud</b>		<b>Pro Modem 2400 (External)</b>	309.
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<b>Hayes Hayes Micromodem Ile (Internal)</b>	159.	<b>Pro Modem 1200A (Single Card)</b>	189.
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<b>Hayes 2400 Baud Smartmodem</b>	449.	<b>U.S. Robotics Courier 2400</b>	349.
<b>Practical Peripherals</b>		<b>U.S. Robotics Courier 2400E</b>	379.
<b>Practical Modem 1200 SA</b>	129.	<b>U.S. Robotics Courier HST 9600</b>	689.

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<b>Micro Sci C2 Controller</b>	52.	<b>Apple Ile (Beige)</b>	139.
<b>Central Point Software</b>		<b>Half Height 5 1/4" Drive for</b>	
<b>Mix and Match 5 1/4" &amp; 3 1/2" Drives:</b>		<b>Apple Ile or Ilc (Beige)</b>	139.
<b>Universal Disk Controller</b>	79.	<b>Half Height 5 1/4" Drive for</b>	
<b>Central Point 800KB Drive</b>	185.	<b>Apple Ile or Ilc (Platinum)</b>	149.
<b>Universal Disk Controller/800KB</b>		<b>Half Height 5 1/4" Drive Platinum for IIGS</b>	169.
<b>Drive Bundle</b>	259.	<b>Apple Ilc Drive Adaptor</b>	15.
<b>First Class Peripherals</b>		<b>Mitac</b>	
<b>Sider 20MB Hard Drive</b>	549.	<b>AD-3C Slimline Ile</b>	129.

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<b>Apple Computer</b>		<b>Kraft</b>	
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<b>Apple Mouse Ilc</b>	89.	<b>Joystick (Ile, Ilc, Ilc)</b>	34.
<b>Applied Engineering</b>		<b>Koala Technologies</b>	
<b>TimeMaster H.O.</b>	85.	<b>Koala Pad Plus w/Graphics Exhibitor</b>	84.
<b>Ile System Clock</b>	55.	<b>MDideas</b>	
<b>AST Research</b>		<b>Converter (IGS Switched Surge</b>	
<b>AST-VisionPlus Digitizer (IGS)</b>	219.	<b>Suppressor w/Fan)</b>	119.
<b>CH Products</b>		<b>SuperSonic (Stereo Card for IIGS)</b>	52.
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<b>Curtis Emerald</b>	36.	<b>MousePad 7"x9" Size</b>	8.
<b>Curtis Ruby</b>	54.	<b>MousePad 9"x11" Size</b>	9.
<b>Curtis Sapphire</b>	47.	<b>MousePad L/F (Low Friction)</b>	9.
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<b>Epson LX-800</b>	Call	<b>Microline 193Plus (200cps Dot Matrix 15")</b>	489.
<b>FX-86c</b>	Call	<b>Microline 292P (240cps Dot Matrix 10")</b>	539.
<b>FX-286c</b>	Call	<b>Microline 293P (240cps Dot Matrix 15")</b>	639.
<b>EX-800 or EX-1000</b>	Call	<b>Panasonic</b>	
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<b>Okidata</b>		<b>KXP-10921 (240 cps) NLQ Mode</b>	329.
<b>Microline 182P (120cps Dot Matrix 10")</b>	249.		

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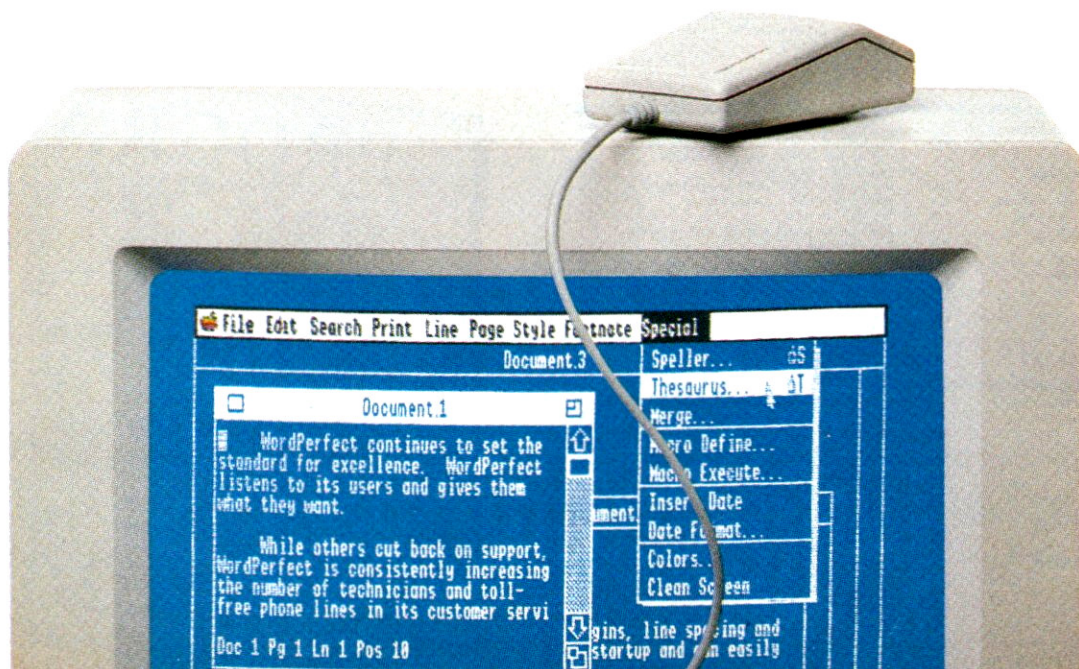
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*Part II: Authoring-  
systems tutorial*

# USING YOUR APPLE II WITH A VCR

Many Apple II owners are finding ways to merge computer and video technology. Every expansion slot of my own Apple II, for instance, is filled with interface boards that transform it into a complete audiovisual production tool. The most useful slot of all is the one that holds my interactive-video controller card. Teamed up with an authoring program, the card lets me script interactive computer programs that include not only text and graphics but also the sights and sounds recorded on videotape.

In last month's issue, I covered the function of the interactive-video interface and noted how the accompanying software could control a VCR through this interface at two steps in the development process: during the logging of scenes on the video and then under control of an interactive program created with an authoring program. This month I describe how to create interactive video by using the authoring program of BCD Associates' The Instructor authoring system. Many other authoring systems are available—for a sampling, see "Authoring Systems," which accompanies this article. Keep in mind that you can also use these authoring systems to create text- and graphics-based programs

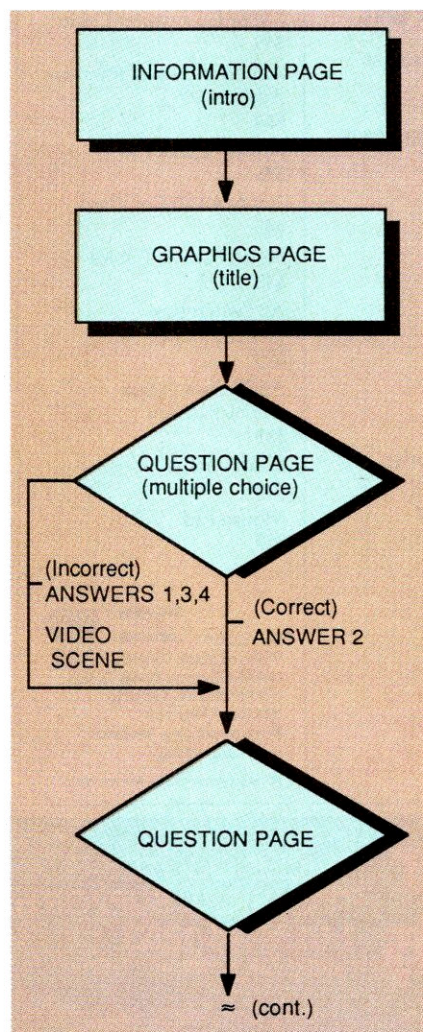


Figure 1: Simple authoring-system flowchart

without video segments.

Interactive video programs are often pigeonholed as "lessons" because of their effectiveness in educational settings—a question/answer format with added audio/video reinforcement works well in a classroom setting. Despite this prevalent view, the only limits are those of the authoring system; the tape controller; and, mostly, your imagination.

As an educational-AV producer who specializes in computer topics, I recently finished a video production on the concepts of database management and wanted to create an on-line version of the questions, which otherwise involved an accompanying study guide. Previously, after viewing the first part of the video series, students used the study-guide questions to check their comprehension of the concepts up to that point. On checking the answer key, students could refer back to the video for any questions they'd answered incorrectly—a simple yet effective approach to testing for comprehension.

To create an interactive version of the study guide, I loaded the database-management videocassette into the VCR and ran The Instructor's "logger" program to mark video segments by pressing the

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space bar at the beginning of each desired "scene" that related to a question in the study guide. On marking the last scene, I stored the log of numbered scenes and their respective beginning and ending points as a file on a disk. This same disk (called the student program disk) contained the lesson file and the "run-time" version of the authoring program.

With study guide and authoring-program manual in hand, I created a simple flowchart (see figure 1) and notes describing the structure I anticipated for my first lesson.

I would present each question in the study guide as an on-screen "page" with a list of multiple-choice answers below it. If students selected an incorrect answer, the program would display the appropriate video segment after notifying them that their answer was incorrect. On answering correctly, students would see a short message complimenting them on their correct response. Each of these separate "branches" would then proceed to the next question page until the test was over. When students ran the interactive lesson, automatic features of the authoring program would not only display standard reinforcement after each correct or incorrect answer but also tally each student's score, present it on the screen with appropriate comments, and store it in a data file for subsequent teacher review.

Now I had little work to do other than start the lesson with a page of information, followed by a graphics title page. Then, for each question, I needed only to select a question-page style and type in the question, along with each possible answer and its branching.

### Authoring the Lesson

From the main menu of The Instructor authoring system, I selected the Author/Change a Course

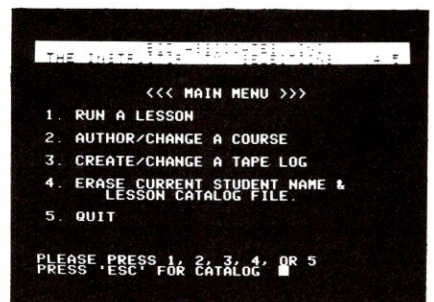


Figure 2: First, choose Author/Change A Course from the main menu.

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option, which loaded the authoring program Auto-Question (see figure 2). From the next menu, I selected Create a Lesson and typed a filename for the new lesson file.

The next screen displayed a list of page styles (see figure 3), from which I chose Information for page 1 of the lesson. The subsequent screen prompted me to type up to five lines for each paragraph (two paragraphs maximum). I got a chance to correct any mistakes after typing in the text for each para-

graph (see figure 4).

For page 2, I selected the Graphics page style and was presented with a screen (see figure 5) that prompted me to type in the filename of the graphics file and specify if any video scenes should be presented (none in this case) and which page to branch to next (page 3). This authoring program, like others, can display a previously prepared graphics image—as long as you've saved it in the standard Apple-graphics file format.

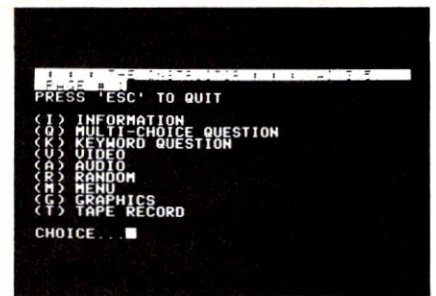


Figure 3: The Instructor's list of page styles

Next, from the list of page styles, I selected the Question style for page 3 of the lesson. A Question page screen appeared next, and the program prompted me to type in the text for the question (see figure 6). After doing so, I was prompted to type the first possible answer. Since the first answer to the multiple-choice question was incorrect, I responded to prompts for a video scene by indicating that the video should start and end with scene 1. The program then asked me which page to branch to after a user had selected the first response and

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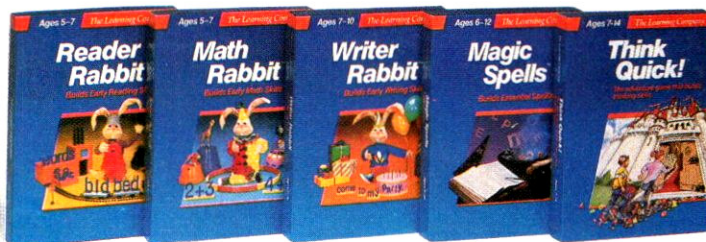
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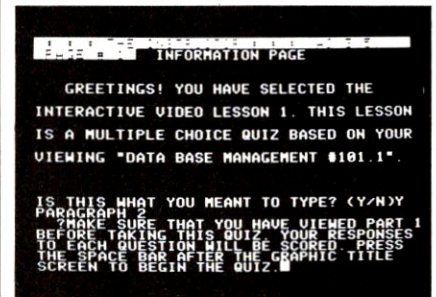


Figure 4: The Information page offers an opportunity to check your work.

viewed scene 1. My choice for this and all other answers to this question was to have the program branch to page 4, the next page, for the next question.

After typing in answer 2 for the question (which happened to be the correct answer), I selected No Video Scene by pressing Return af-

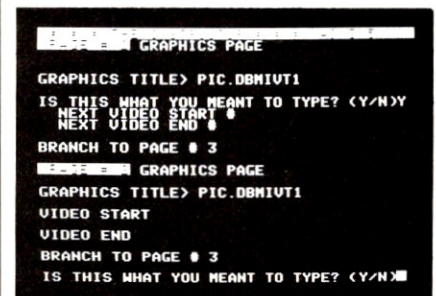
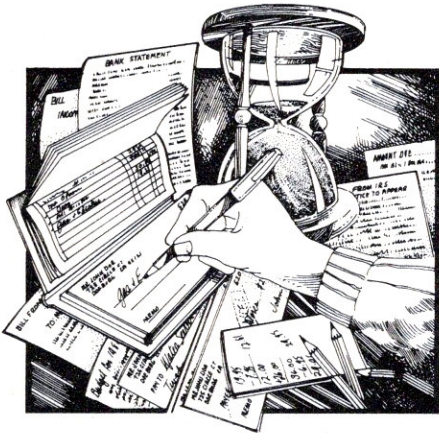


Figure 5: The Instructor's Graphics page style screen

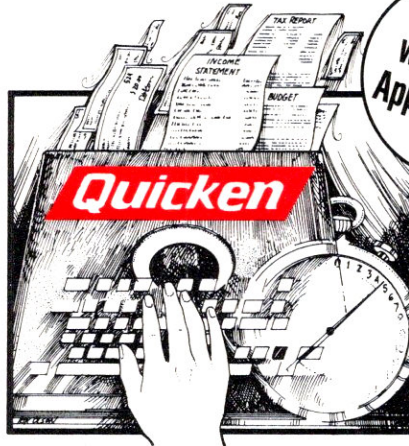
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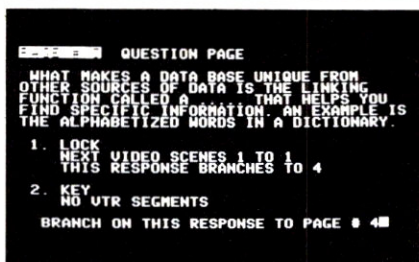


Figure 6: The Question page

ter each prompt for Video Scene Start and End. I then chose branching to page 4. For the remaining

two, incorrect, responses to this question, I chose video scene 1 and branching to page 4. Having entered all four responses and their consequences, I next had to decide whether I would want "standard" computer reinforcement, an indication of whether the response was incorrect or correct.

Typing Y to select computer reinforcement means that incorrect responses elicit the message SORRY, THAT'S NOT CORRECT, (followed by the student's name). This message ap-

pears briefly, just before the remedial video scene. A correct answer earns the student a THAT'S A GOOD ANSWER, (followed by the student's name) before the program branches to the next question.

The last prompt during page entry asks if you want to score the page. If you answer Y to this prompt, the program will store a tally of each student's responses as a separate record in a file of student records. Each record contains responses and scores identified by

## AUTHORING SYSTEMS

Although the authoring software described here all accomplishes the same objectives—creating interactive programs with or without video—the means by which each one achieves this result varies. You can see the difference from the moment you boot the program disk.

The more menus and prompts that appear on each screen, asking you what you want to do and offering you a range of choices, the more that software can be considered an authoring system. An authoring system offers not only lesson-generating features but also tape logging, a text editor, disk utilities, and record-management subprograms—all within a fully prompted, menu-driven user interface. The downside of all this convenience is the fenced-in feeling you get when your mastery of the program propels your imagination to places the authors of the authoring system didn't contemplate. Although authoring systems by BCD Associates and Whitney Educational Services provide extra software drivers and subprogram modules, you must incorporate changes outside the comfortable confines of the authoring system.

The less information you see on the screen, the more that authoring tool is like a "command-driven" authoring language. It can be as unwelcoming as a BASIC prompt awaiting your mastery of the language's vocabulary and syntax as you type in a series of commands and their related parameters. It can also be as unlimited as your imagination. The limits that you encounter are more likely to be those of the computer system itself. The

most popular authoring language, PILOT, even lets users create new commands that extend the language itself.

The venerable PILOT authoring language has appeared in many incarnations since the 1970s. SuperPILOT is the name of the current Apple II version. It contains many updates to take advantage of graphics, sound, and interactive video. Whitney Educational Services and Nationwide Computer & Video support this language with their interface cards by providing special command modules that extend the SuperPILOT command set to include control over videotape and/or videodisc players. These commands are interpreted into the appropriate control signals for the video devices by special "driver" routines attached to the authoring-language software.

SuperPILOT is available from the Apple Programmers and Developers Association—if you're adventurous, you can still find devices that work with it. If you prefer the greater structure of an authoring system, here's a list of some of the most popular ones:

### Insight 2000 Plus

Whitney Educational Services  
415 South Eldorado Street  
San Mateo, CA 94402  
(415) 340-9822

List Price: \$990

Requires: Apple II Plus, IIe, or IIGs; Whitney Educational Services' Supercircuit II interface

CIRCLE READER SERVICE NO. 365

### The Instructor

BCD Associates  
7510 North Broadway, Suite 205

Oklahoma City, OK 73116  
(405) 843-4574

List Price: \$395

Requires: Apple II Plus, IIe, or IIGs (with Micro Video Graphics IIGS TIP adaptor); BCD Associates' Model 450 interface

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### Lesson Proctor with VILM

Nationwide Computer & Video  
P.O. Box 61  
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In PA (215) 295-0055

List Price: \$545

Requires: Apple II Plus, IIe, or IIGs; includes SuperPILOT authoring language and VILM interface

CIRCLE READER SERVICE NO. 367

### I.A.T.V. Authoring System

Micro Video Graphics  
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# AppleWorks Is Great!

But...

Let's face it. AppleWorks is a great program, but as a data base manager it leaves a lot to the imagination. Like, imagine more than 30 categories per record. (Lots more!) And using up to 30 screens in the single record display. Or scrolling left and right to see more fields in a multi-record display. And entering up to 250 characters per category.

## ACE REPORTER

Imagine printing reports in almost any form: multiple-across mailing labels, columnar reports, mail-merge letters. Even complex forms like school or medical records or invoices. Reports that include free-form text, and printstyles like bold, large and underline, and every easy-to-use formatting option you're ever likely to need.

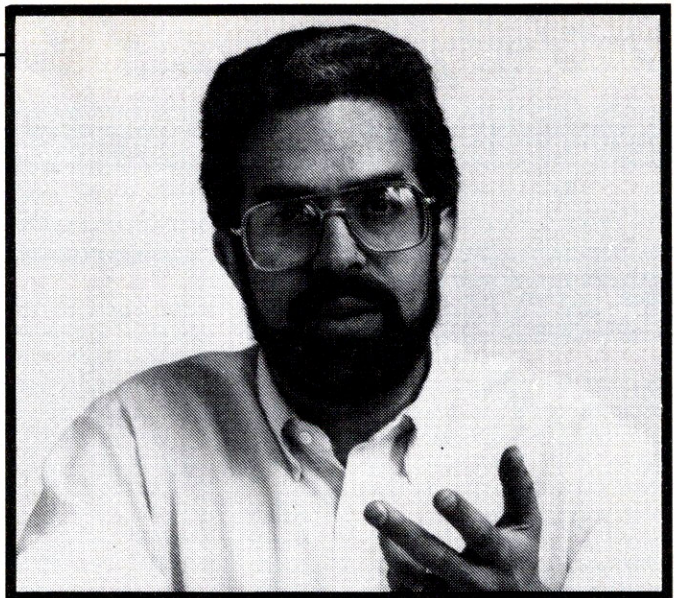
## FORMULAS FOR SUCCESS

Imagine calculated categories—lots of them. Not just in reports, but within the records themselves, too. Using multiple levels of parentheses, and date math and string comparisons and other functions. Imagine reports with calculations based on subtotals and totals. Reports that can even group records by week, month, calendar quarter or year.

## DB Master vs. AppleWorks

Features and Maximum Capacities	AppleWorks	DB Master Version Five	DB Master Version Five Professional
■ RELATIONAL IMPORT (look-up) and EXPORT (posting) RULES	No	No	YES!
■ fields (categories) per record	30	200	200
■ max. record length (bytes)	1,024	2,000	2,000
■ screens per record	1	30	30
■ characters per field (category)	76	250	250
■ RAM or disk based?	RAM	Disk (1)	Disk (1)
■ passwords for file security	No	No	Yes
■ required fields	No	No	Yes
■ field validation rules	No	No	Yes
■ criteria per search or select	3	20-50	20-50
■ computed values within records	None	99 (2)	99 (2)
■ computed values per report	3	50 (2)	50 (2)
■ date calculations	No	Yes	Yes
■ field types	3	13 (3)	13 (3)
■ automatic date and time fields	No	Yes	Yes
■ current mon/day/year searches	No	Yes	Yes
■ report formats per file	8	255	255
■ multiple-across mailing labels	No	Yes	Yes
■ forms-style reports	No	Yes	Yes
■ report lines per record	15	255	255
■ calculations based on subtotals	No	Yes	Yes
■ free-form text in reports	No	Yes	Yes
■ print fields and/or free-form text in various printstyles	No	Yes (4)	Yes (4)
■ print simple bar graphs	No	Yes	Yes
■ multiple levels of header and footer lines for reports	No	Yes	Yes
■ include fields in header and footer lines	No	Yes	Yes
■ multiple levels of group subtotals in reports	No	Yes	Yes
■ add and/or delete fields without losing report formats	No	Yes	Yes
■ works with RAM disks	Yes	Yes	Yes
■ copy protected?	No	No	No

(1) up to 50 disks per file; 5 1/4", 3 1/2" or mixed; up to 10 megabytes per file on hard disk  
 (2) use + - \* / > < = > AND, OR, NOT, SQR, ABS, SGN, INT, MIN, MAX, up to 7 levels of parenthesis; text comparisons, days-between dates, calculated dates, special "Current Date" function, etc.  
 (3) text, 3 numeric types, S cents, yes/no, date, add date, edit date, add time, edit time, user-defined, label  
 (4) underlined, bold, compressed, large, italics and user-defined print styles; depend on printer's capabilities



Barney Stone

Designer, DB Master

## RELATIONAL? SENSATIONAL!

And if that's not enough, imagine a *relational* data base manager. One that does automatic look ups and posting. Imagine an invoice file that looks up customer names and addresses in a customer file, then descriptions and prices in an inventory file, then posts quantities shipped and back-ordered back to the inventory file, and finally posts the amount due to the appropriate record in the customer file. Imagine doing this easily, without any programming.

## RECOMBINANT DBM

Is your AppleWorks data split into several files? Imagine combining them into one convenient file. Do the AppleWorks files have different categories, so each record in one file has a corresponding record in the other file? And they really should have been a single record, but there were too many categories? Imagine combining them properly, so the information that belongs together is in one record.

## DREAM ON!

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GREETINGS! YOU HAVE SELECTED THE INTERACTIVE VIDEO LESSON 1. THIS LESSON IS A MULTIPLE CHOICE QUIZ BASED ON YOUR VIEWING "DATA BASE MANAGEMENT #101.1" MAKE SURE THAT YOU HAVE VIEWED PART 1 BEFORE TAKING THIS QUIZ. YOUR RESPONSES TO EACH QUESTION WILL BE SCORED. PRESS THE SPACE BAR AFTER THE GRAPHIC TITLE SCREEN TO BEGIN THE QUIZ.

PRESS SPACE BAR TO PROCEED... ■

Figure 7: An introductory information page

each student's name, a student identification number, and the lesson date.

Before running a lesson, you should copy the lesson file onto a student program disk, along with the tape-log data file (which contains scene information) and the parts of the authoring program that are essential for "run-time" execution of the lesson.

By selecting the Change a Course option from the main menu of this authoring system, you can print the entire lesson file to your screen or printer and select each page for editing.

I'm happy to report that my first interactive-authoring attempt was completely successful. Much credit goes to the simplicity of the menu-driven Instructor authoring system and a sensible users' manual.

When students run the lesson, they first see the information page

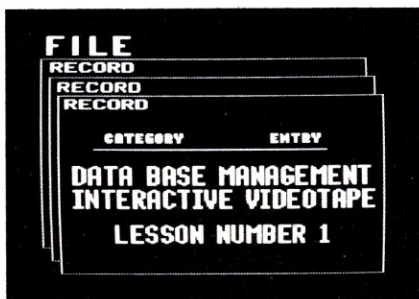


Figure 8: The graphics title page

that introduces it (see figure 7). Subsequent efforts have taught me to create more attractive information-page layouts by placing less text on each page and segmenting areas of text with a row of hyphens or asterisks (unless you're using the Graphics page style, you can use only keyboard letters, numbers, and symbols).

The graphics title page appears next, after which the first question of the lesson begins (see figure 8). After students complete the last question of the lesson, the program

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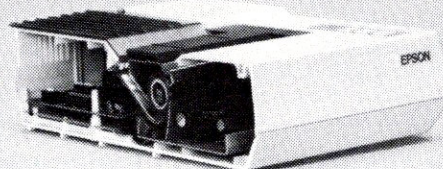
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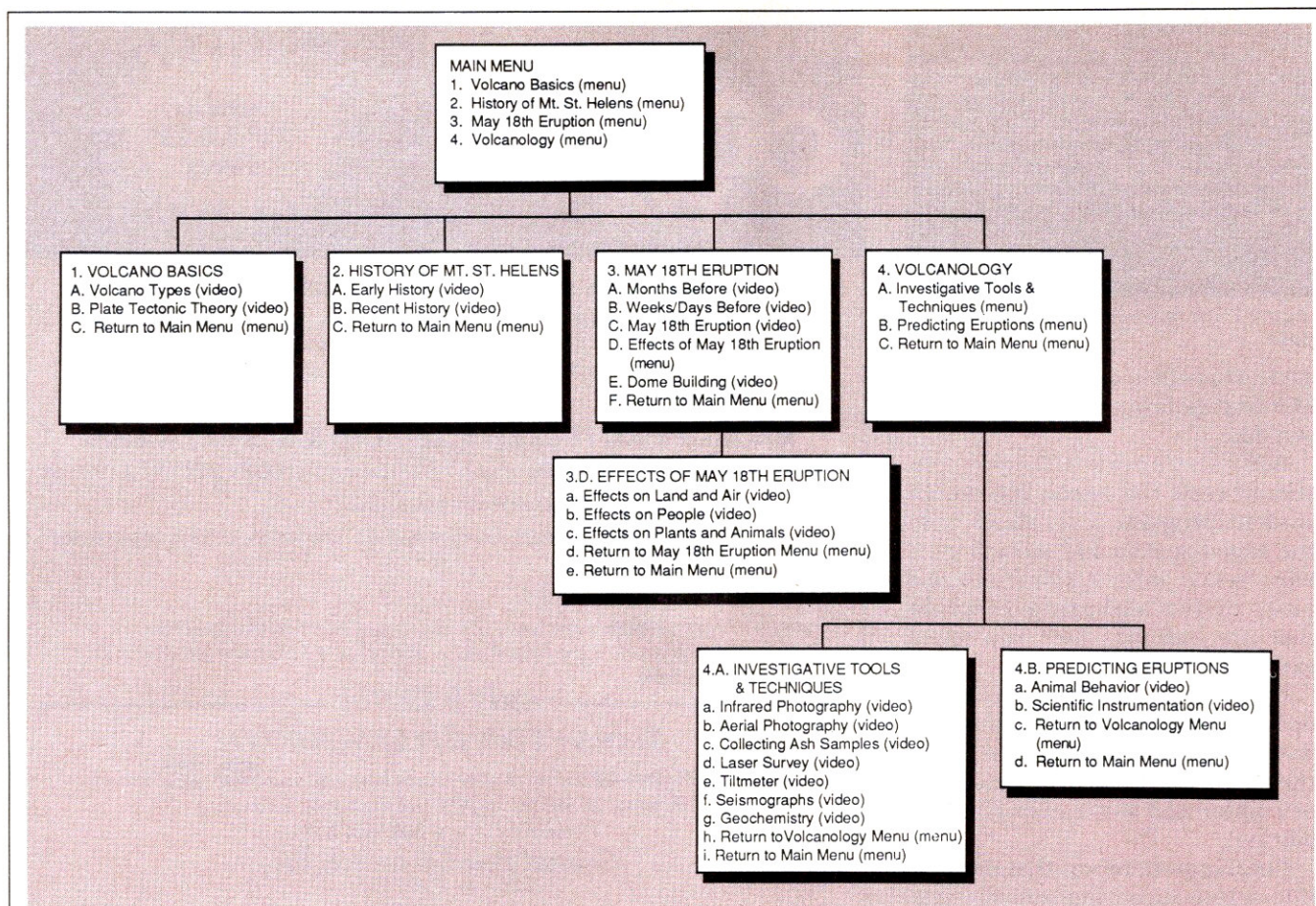


Figure 9: A diagrammatic listing that shows the function of each of the program's menu items.

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automatically shows them the results of the test and records the score to disk. For the ambitious, it offers a chance to repeat the lesson.

You can use a record-reader program to print the record file to the screen or printer. This file contains all that you need to analyze student progress, namely individual responses to each question and scores for the entire lesson.

#### **Audiovisual Database**

Besides creating an interactive tutorial that tests users on videotaped material, you can also use an authoring system to create a front end that aids in simply viewing a videotape.

One of the most intuitive, yet effective, forms for interactive video is a presentation style based on menu selection of video scenes. Its structure can be as simple as a few menu-style pages, each of which contains items that describe a related video scene. At some point in the development of a complex menu structure, you begin to approach the conceptual framework of an audiovisual database. Like a traditional database, it lets you search for data (audiovisual, text,

or graphics, in this case) by selecting items on a menu.

What follows is a listing of each page of a menu-based program about volcanoes, for use in an Earth Science class. Although the content is specific to this particular application, the structure is also applicable to presentation formats outside the classroom.

The duration of the original videocassette program far exceeded the time available in a typical class period. This problem was easy to solve by the use of menu-based selection of scenes, each of which was shorter than the class period.

The diagrammatic listing of the program's pages (see figure 9) shows the function of each menu item—whether it displays a video scene or branches to another menu without showing a video scene. For example, the main menu contains four items, each of which branches to a submenu for more detailed choices on that subject.

The first level of nesting reveals that some items on these submenus show a video scene when you select them and then branch back to the same menu for additional

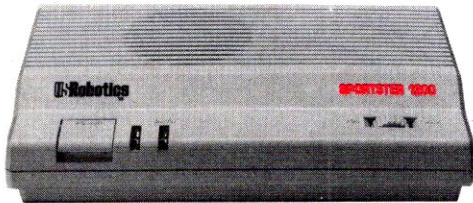
choices, and other items do not show a video scene but branch to a lower level of submenu for more detailed information.

Like explorers in a labyrinth, users need a consistent and clear system of trail markers to work down to the lowest level and return to the top. The last item on any submenu provides the means to return to the top (main) menu. On the lowest level, the next-to-last item branches up to the next higher level of submenus.

#### **Unlimited Prospects**

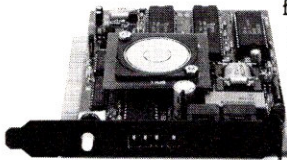
Creating useful interactive video lessons is easy, once you've installed the appropriate hardware and software. All you need is access to interesting material on videotape, and there's certainly no shortage of that these days. With your authoring system in hand, the types of interactive video lessons you can create are limited only by your imagination. +

*Paul Henry is president of Program House in Butler, New Jersey, which provides training and audiovisual production (including interactive video) in computer applications.*



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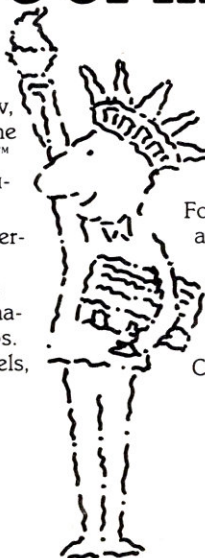
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# SPEAKING OF GRAPHICS

*Graphics software that's keeping up with advances in hardware*

BY ROBERTA SCHWARTZ AND MICHAEL CALLERY

A successful product isn't likely to stay successful unless its developer continues to upgrade it as hardware capabilities improve and competing products appear. This month we look at three products that have recently been upgraded for the Apple IIGS: The Print Shop, Fantavision, and ComputerEyes.

## The Print Shop

The Print Shop is probably the most popular graphics program ever. Although it does not, as we've previously noted in this column, foster the same type of creativity that a paint program does, it's a superb tool for creating signs, banners, cards, and other printed material. The program's success is due to numerous factors, including the simple user interface, the high quality of the fonts and graphics provided with the program (and available from third parties), and the quality and range of printer drivers. The first major revision of The Print Shop allowed you to print in color (see *ComputerEyes for the IIGS captures real-world images in full color*, A+, November 1986).

The GS incarnation is a total rewrite by Cory Kosak, with nearly every feature improved.

You can see the care that went into this update when you start up The Print Shop for the Apple IIGS: The title screen is a faithful rendition of the graphic on the box. The main menu—and all subsequent screens—are gorgeous. Menu selections are indicated by gray buttons shaded for a three-dimensional effect. The program doesn't use Ap-

ple's Desktop interface but continues the sequential menus of earlier Print Shops. This version allows you to create greeting cards, signs, letterhead stationery, and banners. Letterhead is new to this version of The Print Shop, and the Screen Effects choice, available in the previous revision, is gone.

You make your choices with the arrow keys or the mouse. As you

are so much better in this version than in older versions, however, that we think you'll probably want to stick to the new stuff.

Which brings us to the most significant improvement over earlier Print Shops: multicolored graphics. The panels, borders, and graphics are fully colored. Although the current version of The Print Shop for the Apple II does handle colored graphics, the

whole image must be the same color, and you see the color only after it's printed on an ImageWriter II or other color printer that works with the program. If you load a graphic from the standard Print Shop, you assign it a color and see that color on-screen. By loading an old graphic into the Print Shop GS Graphic Editor, you can transform it into a multicolored image. The Graphic Editor, by the way, has been significantly overhauled and has many new tools, including a selection rectangle, text tool, color-exchange tool, and so on. The text module has also undergone major revision and

can now produce lowercase letters—it's about time!

Brøderbund has another winner here—which is not to say the product is perfect. We still object to plodding through menus if we want to change something. You can only "go back" and "go forward." We also wish Brøderbund had added the calendar feature of the Print Shop Companion.

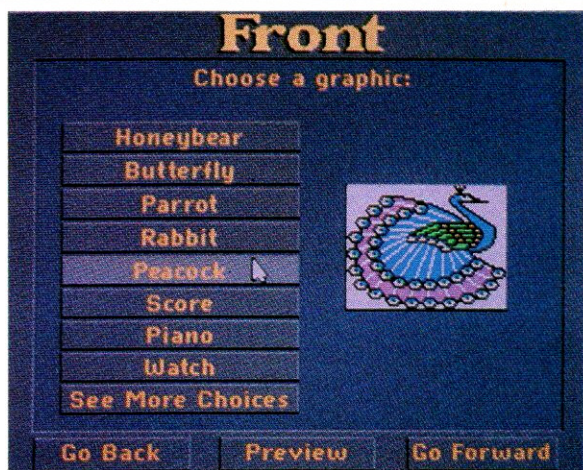
The program is copy-protected, which we don't like to see on pro-

## IIGS UPDATES AND UPGRADES



*ComputerEyes for the IIGS captures real-world images in full color.*

progress through the menu selections, the program almost always shows you what you're working with. That is, you can select a graphic by picture as well as by name, and when you choose a typeface, it appears on the screen. The GS version of The Print Shop can use graphics and typefaces from earlier versions—select the From Other Disk choice, and a list of names appears from which to choose. The graphics and typefaces



The Print Shop for IIGS gives you multicolored graphics.

ductivity products, but you can install it on a hard disk (the program asks you to insert the master disk each time you start up). A new school program from Brøderbund, though, allows schools to purchase class sets of selected products at a reduced price.

### Fantavision

Scott Anderson's animation marvel, Fantavision, has also undergone a face-lift. Unlike The Print Shop for the Apple IIGS, however, this update is mostly cosmetic. The program's tools and interface are identical to those of the Apple II/c version of Fantavision (see *A+*, February 1986). The primary enhancement is in the area of sound. A new item on the Goodies menu lets you add digitized sound effects to your animations.

For teaching the principles of animation, Fantavision is unparalleled. Because the program automatically "in-betweens"—generates the intermediate frames that

connect two "key frames"—you can produce animations rapidly. To make them look good, however, requires some effort. On the surface, for example, creating a bouncing-ball animation is simple. Create the first frame with a ball at the top of the screen, clone the frame twice, go to the second frame, select the ball, and drag it to the bottom of the screen. The program does the rest. These actions

will create a bouncing ball, but it won't be realistic. When objects bounce, they squash when they hit the surface. To make the bounce look real, you must create more intermediate key frames. Fantavision's Squash feature makes it easy to insert a couple of squashed frames between the first and last frames, so your bouncing ball can really bounce.

The GS version of Fantavision includes a Matinee option on the crown menu. When you select this option, you're treated to a large collection of sample Fantavision animations, all of which you can load and study.

Some of them are astonishing—a simple collection of lines becomes a man swimming or a chorus line kicking, for instance.

You can load a GS super-hi-res screen as a background and animate on top of it. The palette of the screen you've loaded becomes the Fantavision palette—the only control you have over the palette. We wish Anderson had incorporated a palette-editing facility in the program. Our solution was to create a blank picture containing our desired colors and load it as a background.

Fantavision is object-oriented; it works with points and lines rather than with blocks of pixels. Therefore, you cannot achieve the detail you can with Animate, Brøderbund's companion product for double-hi-res animation. Unlike

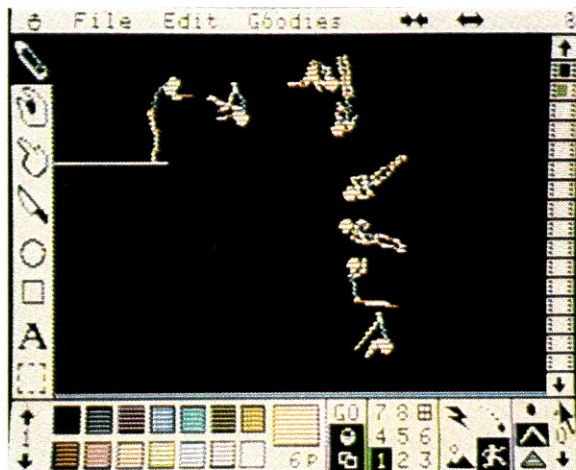
with Animate, however, you don't have to draw each frame, so creating impressive animation is much simpler.

You can make a self-booting animation disk, but you cannot incorporate your work in your own programs. Like The Print Shop, Fantavision is copy-protected.

### ComputerEyes

The last time we talked about ComputerEyes, a low-cost, high-quality video-digitizing system, Digital Vision hadn't released its color version for the Apple IIGS (see *A+*, January 1988.) Well, now it has, and it was worth waiting for. Plug the ComputerEyes board into any slot, connect your video source, and you're off.

This new version lets you capture images in three modes: Color 320 Super (up to 16 colors out of



Fantavision's primary enhancement is in its sound.

the GS's 4096 colors); B/W 320 Super (16 shades of gray); and B/W 640 Super, which uses four shades of gray. Images are captured quickly—in 6-12 seconds—depending

## VITAL STATISTICS

### THE PRINT SHOP FOR THE APPLE IIGS

Significantly enhanced update of Brøderbund's classic card/banner/sign-creation program. If you have a GS, you want this version.

**CPU:** Apple IIGS

**RAM:** 512K

**DISK DRIVES:** one 3.5-inch

**OPERATING SYSTEM:** ProDOS

**COPY PROTECTION:** yes (hard-disk installable; key-disk system)

**MOUSE:** optional

**LIST PRICE:** \$59.95

Brøderbund  
17 Paul Drive  
San Rafael, CA 94903  
(415) 492-3200

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## VITAL STATISTICS

### FANTAVISION FOR THE APPLE IIGS

Updated version of the only object-oriented, "in-betweening" animation program—a good tool for learning about animation

**CPU:** Apple IIGS

**RAM:** 256K

**DISK DRIVES:** one 3.5-inch

**OPERATING SYSTEM:** ProDOS

**COPY PROTECTION:** yes

**MOUSE:** required

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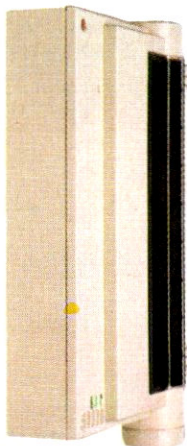
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1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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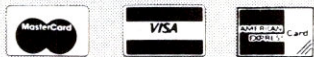
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**With these new products, Apple IIcs owners have potent tools for tapping the power of their computers.**

on the mode you select. The program is powerful and easy to use.

ComputerEyes not only lets you capture images, but it also offers several features that we, as artists, particularly appreciate.

As in the black-and-white super-hi-res version, you can convert images to high contrast, mirrored, inverted, scrolled, reduced, and expanded. Color brings new options, though.

After you've captured an image, you can redefine its appearance by adjusting the brightness; contrast; number of colors/levels; red, green, and blue sliders; and color separation. You can readjust the appearance of the image as many times as you want without losing the original image data. It's fun to change the red, green, and blue sliders, just to get some unusual color effects.

Being able to adjust the number of colors and levels in your image is significant if you intend to enhance your captured images with a paint program such as Paintworks Plus, DeluxePaint, or 8/16 Paint, all of which can load ComputerEyes files. Let's suppose you can't adjust the number of colors. You capture an image with 16 colors and load that image into a paint program. Now, you decide you'd like to add some lettering in a particular shade of red. If you change any of the 16 palette colors to this red, the change will affect every area of your captured image that has the color you changed, which can easily destroy the image. With the option to adjust the number of colors, you can choose to capture your image in only 15 colors—the palette shows white for the unused color. Now, when you load the image into a paint program, you can replace the white with that special shade of red without affecting the original scanned image.

You can print your super-hi-res images to an Apple ImageWriter printer. If you have an Image-

Writer II, you have the added luxury of color printing, and if you own another type of printer, you can always print your images from a paint or print program that works with your particular model.

ComputerEyes allows you to convert an image that you've captured, or loaded from disk, to a different Apple graphics format, meaning that you can freely convert your graphics among hi-res, double-hi-res, and super-hi-res formats. You'll benefit from this feature even when you're not working with digitized images.

Digital Vision has consistently kept up with the latest graphics technology. When our Apple computers can display a million colors at a 5000 X 5000-pixel resolution, you can bet a version of ComputerEyes will be able to handle the new mode.

### We're Getting There

With the upgrades and updates we've discussed here and the new products that are coming out, Apple IIcs owners have potent tools for tapping the power of their computers. We have noticed some startling gaps, however. We'd like to see a super-hi-res business-graphics program. Visualizer has the market to itself, and we think some competition might be good for all of us. We'd also like to see a bit-mapped animation program such as Animate or Take One in a super-hi-res version.

What kind of tools do you need? Drop us a line and tell us what products you'd like to see updated or developed. +

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**MOUSE:** optional

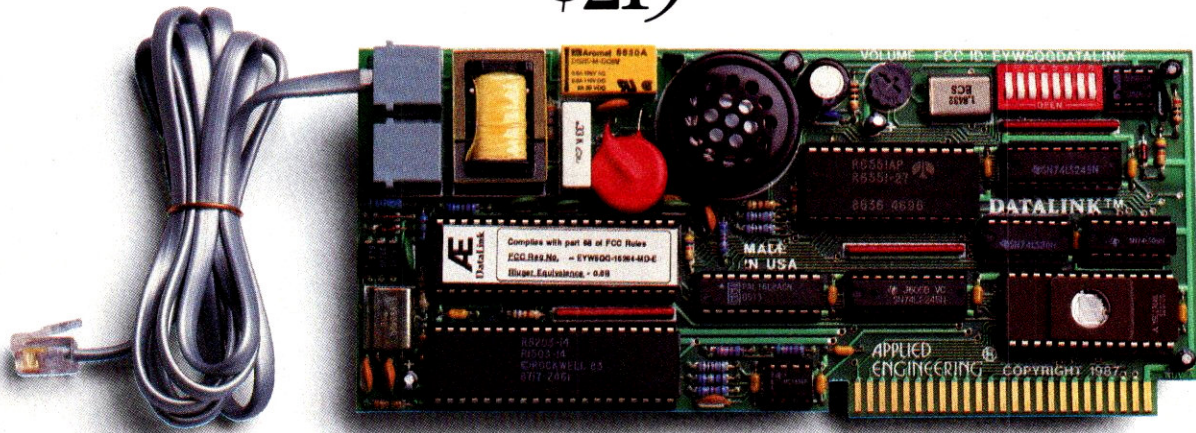
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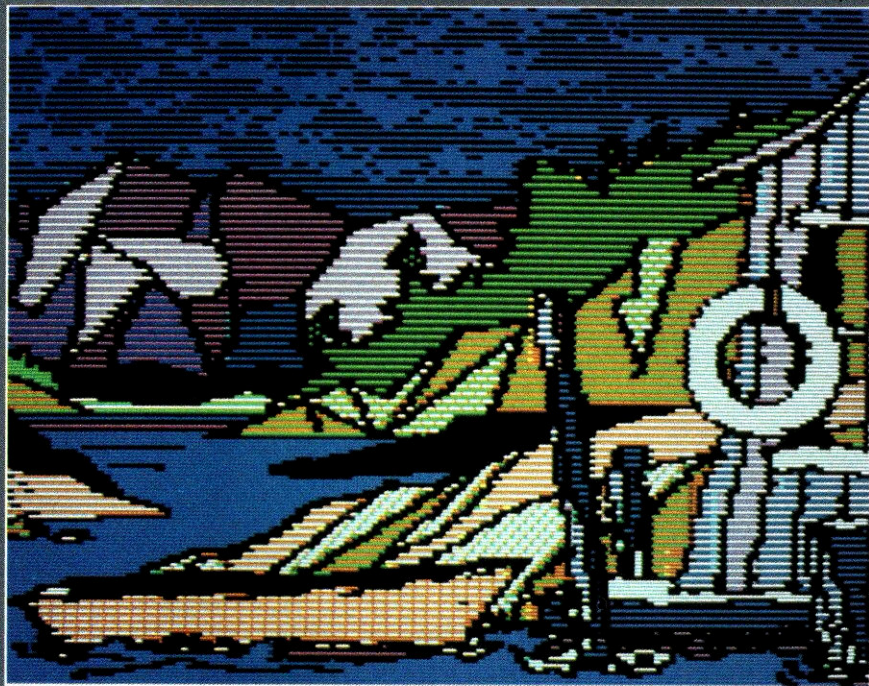
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MARKETPLACE IN TUNIS BY August Macke, MARK WIDHOME, *Hersey, PA*





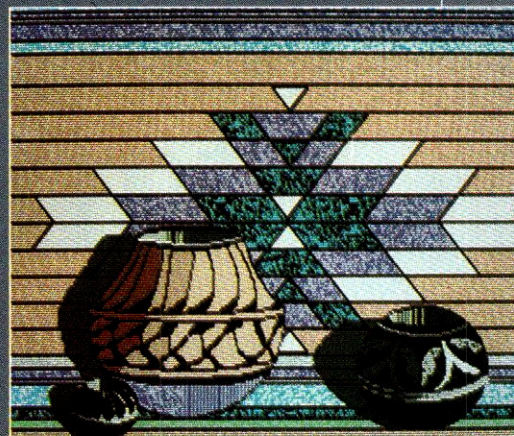
CATTAILS, **KATIE DARDEN**,  
*Pinole, CA*



ROCK FORMATION, **DICK DAVIES**, *Mountain View, CA*



MOUNTAIN GOAT, **JERRY KNAPP**, *Salem, OR*



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# A+ APPLEWORKS FEATURE REPORT TIMEOUT DESKTOOLS BEEF UP APPLEWORKS REPORT

## FEATURE REPORT

BY CHARLES RUBIN

## TIMEOUT DESKTOOLS BEEF UP APPLEWORKS

AppleWorks' popularity, together with its limitations, have created a whole industry of enhancement products. Among the spelling checkers, graphing programs, report generators, and outliners, most are stand-alone products. The best enhancements for users who like the integration in AppleWorks, however, are tools that work from inside AppleWorks itself, so you don't have to quit the program to gain access to them. A champion of this concept is Pinpoint, whose Pinpoint Desktop Accessories have become popular with tens of thousands of AppleWorks users. Now, Beagle Bros has introduced the TimeOut series of enhancements to give Pinpoint a run for its money.

In contrast to the Pinpoint Desktop Accessories package, which hasn't yet evolved into more than a set of desk accessories and has only two other applications that can integrate with it (a macro program and a spelling checker), the TimeOut series comes out of the starting gate with several different packages, all of which integrate under a menu inside AppleWorks. Along with TimeOut Desktools (\$49.95), a

collection of desk accessories, Beagle Bros is offering UltraMacros (\$59.95), a macro program; QuickSpell (\$69.95), a spelling checker; FileMaster (\$49.95), a collection of file-management utilities; Graph (\$89.95), a business graphing program; SuperFonts (\$79.95), a custom font program; and SideSpread

(\$49.95), a sideways spreadsheet-printing utility.

Although these application programs come in separate packages, they all commingle in the TimeOut environment under AppleWorks, so you can have any of these programs' capabilities available without having to quit AppleWorks.

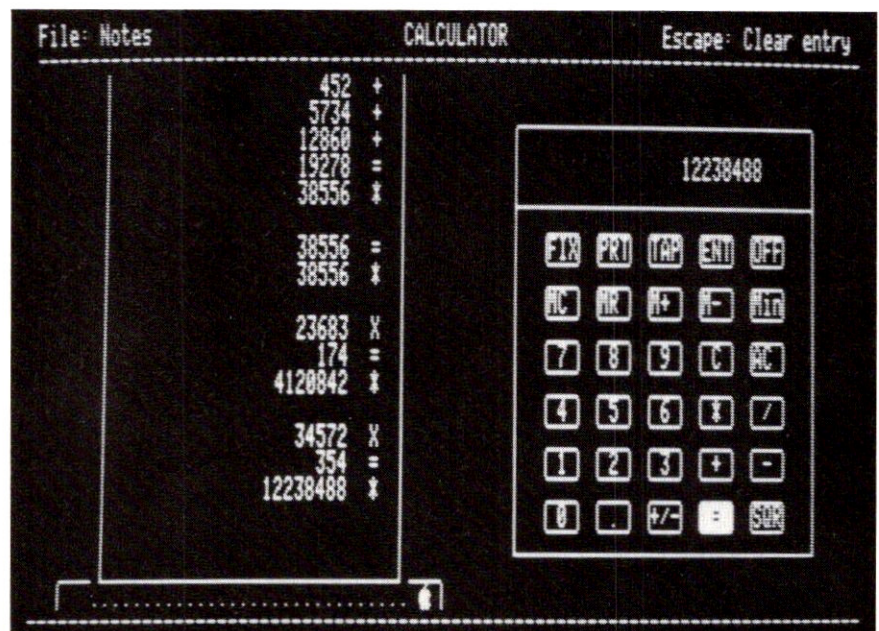
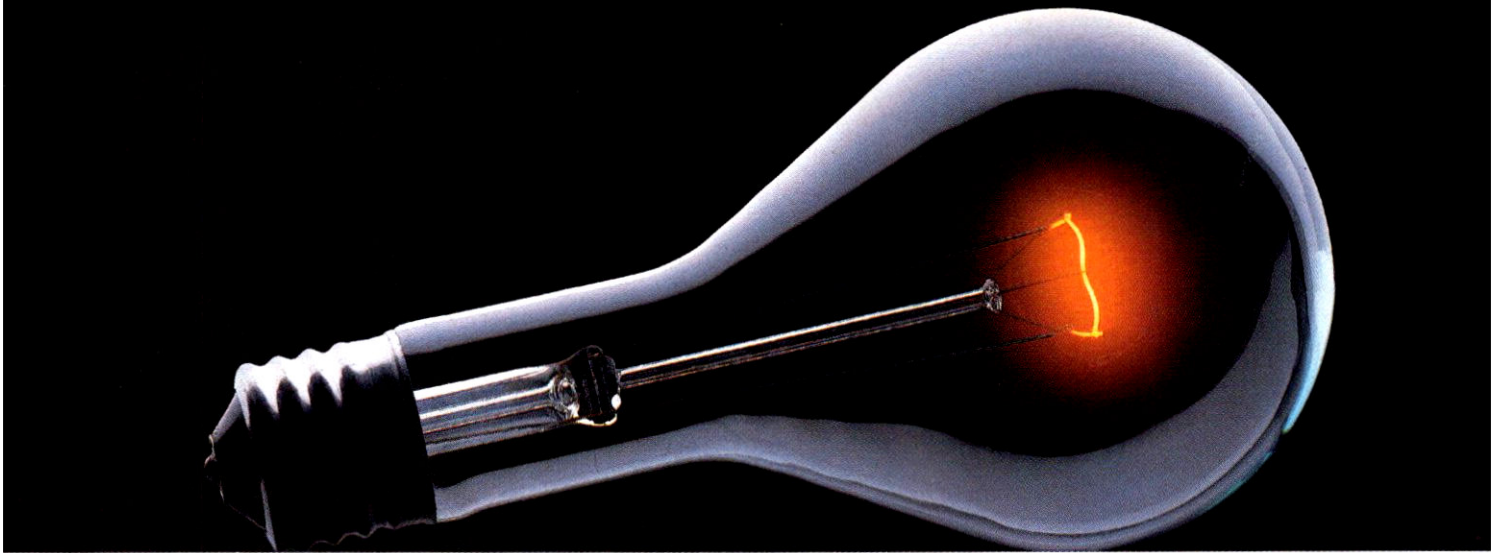


Figure 1: TimeOut's calculator accessory offers standard four-function math, along with a square-root key, a memory feature, and a visible "paper tape".



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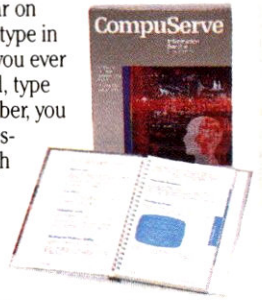
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## FEATURE REPORT

Furthermore, you can install any one of the packages in AppleWorks by itself and then add others later—Pinpoint, on the other hand, requires you to add its desk accessories before anything else.

Space constrains me to a detailed review of only the TimeOut Desktools product, but an overview of how the series works is in order first. The TimeOut products work only with AppleWorks version 2.0, unlike the Pinpoint accessories, which work with any version of AppleWorks, as well as AppleWriter, ProDOS Basic, Word Perfect, BusinessWorks, and other Pinpoint programs.

### Installation

To install any or all TimeOut products, you modify an AppleWorks start-up disk and then copy the individual TimeOut applications to an accessories disk. Which ever applications you've copied to the accessories disk are the ones that show up on the TimeOut menu when you display it. Once your accessories are in place and you've modified AppleWorks, you can call up the TimeOut menu by typing open-apple/Escape.

One big difference between setting up the TimeOut products and getting the Pinpoint accessories ready to use is that every TimeOut package comes with a set of utilities for configuring the accessories to make the best use of your system—the utilities are the same in each package. These utilities also install on the TimeOut menu in AppleWorks, and they let you specify printer or modem information or other default options in the other TimeOut programs. You simply call up the Utilities menu, select the application you want to configure, and then choose the options you want. Other options in the Utilities program let you load individual TimeOut applications onto your RAM card, dump them from RAM, or set them to load into RAM automatically whenever you start AppleWorks. You can also change the names of the TimeOut applications as they appear on the menu, if you like.

The important thing here is that you can deal with all these configuration options on the fly, as you

work, and the changes you make take place immediately (except for any new menu names you specify), without your having to reboot AppleWorks. With the Pinpoint accessories, you must quit AppleWorks and reinstall Pinpoint from scratch whenever you want to change configurations.

So, although the TimeOut applications work only with Apple-

Works, Beagle Bros has made customizing them for the changing needs of your Apple system easy.

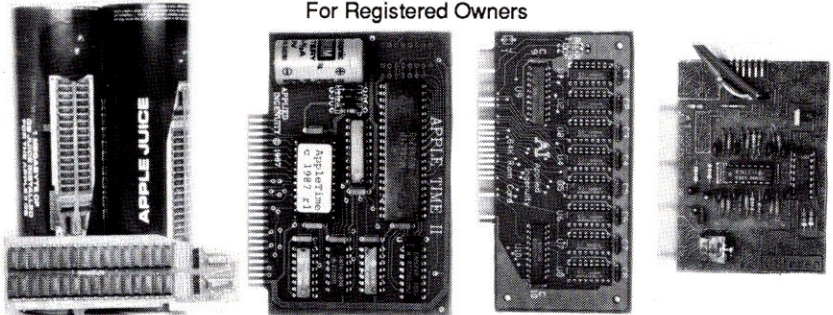
### TimeOut DeskTools

The TimeOut Desktools package includes 12 desk accessories. Many of the specific accessories are different from those in the Pinpoint collection, but where the accessories are the same, the TimeOut accessories try to improve on Pin-

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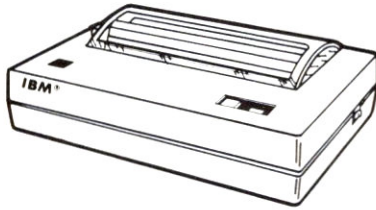
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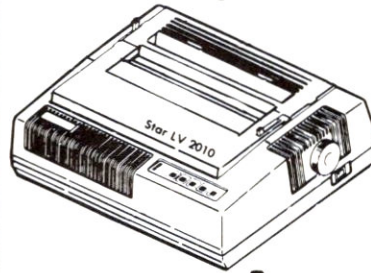
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point's in various ways.

The Calculator, for example, offers standard four-function math, along with a square-root key, a memory feature, and a visible "paper tape" that shows you previous calculations (see figure 1). You can browse through the tape, make changes to it, and print it out on paper. Unfortunately, as with the Pinpoint calculator, you can't copy a total from this calculator to the AppleWorks Clipboard.

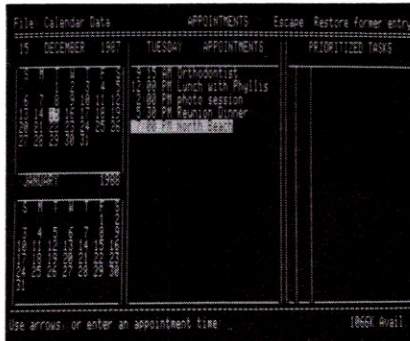
The Calendar program displays two months at a time, along with a list of appointments for the selected day and a task list of reminders (see figure 2). Unlike the Pinpoint Calendar, which maintains its own private database file, the TimeOut calendar uses a standard AppleWorks database file for storing appointments. You must load the calendar database file to the Desktop before you can use the Calendar accessory. The drawback is that you must remember to load the database file, and you run the risk of modifying the file, possibly chang-

ing its structure so the Calendar program can no longer read it.

You manually place calendar appointments in chronological order on any given day, but the task list lets you enter priority codes and then sort the list in order of priorities. The task list also has a place for checking off items as you complete them. Along with showing tasks, appointments, and two months of a calendar, the program has an alternate display that shows all your appointments for the current

week. Each of these different modes has its own commands, which gets a little confusing, but then this program is a powerful time-management tool.

Three other accessories TimeOut has in common with Pinpoint are a dialer, a notepad, and an envelope addresser. The Dialer accessory dials either a telephone number that you have selected on an AppleWorks word-processing, database, or spreadsheet screen; a number you enter from the keyboard; a number you select from a telephone list; or the last number dialed—depending on which option you choose from the screen after you choose the Dialer accessory from the TimeOut menu. Using the Utilities program, you can configure the dialer's default area code, dialing method, telephone-book entries, modem slot number, and telephone-access number (for internal phone systems). Another option lets you tell the dialer you're using an accelerator card, since it affects dialing speed.



*Figure 2: The Calendar program displays two months at a time, along with a list of appointments and a task list.*

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## FEATURE REPORT

The Note Pad accessory (see figure 3) opens a small window on the screen and a notepad file, as you've specified with the configuration option in the Utilities program. Notes in Pinpoint are stored as individual files, but the TimeOut Note Pad uses a large file, which can contain up to 32 pages of notes. The file you specify on the configuration screen automatically loads when you choose the Note Pad accessory, but you must manually save changes to the file, or else they

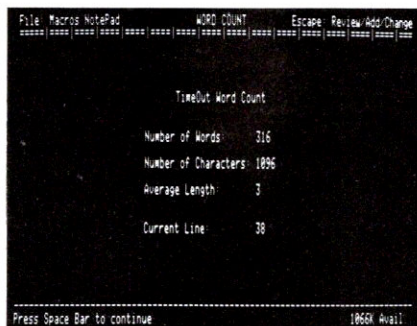


Figure 3: The Note Pad accessory opens a small window on the screen and a notepad file that can contain up to 32 pages of notes.

will disappear when you quit AppleWorks. You can load alternative notepad files if you want. In addition to entering, deleting, or editing information, you can also search for a text string or the next blank page in the file. Unfortunately, the notepad window here is much smaller than the one in Pinpoint, so you can't store as much information per page, and the files are stored as ASCII files, rather than standard word-processing files as in Pinpoint.

The Envelope Addresser accessory asks you to identify the beginning of an address block on an AppleWorks screen, and then it finds the end of the block itself (or you can help it along with arrow keys, if necessary). You then use arrow keys to move the address block around on an outlined envelope on the screen (see figure 4). You can identify a return-address block for the envelope as well, but the program always places this block in the upper left corner of the envelope. Two additional features missing from Pinpoint's version of this accessory are the ability to add extra lines to the envelope by typ-

ing them from the keyboard (when you want to send it to someone's attention, for example) and the ability to change individual lines of text on the envelope to all uppercase letters. When you're done with the layout and custom text, the Envelope Addresser prints the information on an envelope.

### Unique Accessories

The remaining TimeOut DeskTools accessories are unique. The Case Converter automatically changes the case of text in AppleWorks word-processing, spreadsheet, or database files. The case changes affect the entire file. You can change everything to all uppercase letters or all lowercase letters, or you can capitalize the first letter of each word in a file or only of the first word in each sentence. Like the other TimeOut DeskTools, the Case Converter accessory does its work at blinding speed—the changes are instantaneous.

The Clock accessory opens a window containing the current date and time, according to your AppleWorks program. If you have a clock, it will be the date and time of the clock; otherwise, it will be the date you entered at the AppleWorks start-up screen, and no time will appear.

The Data Converter instantly converts spreadsheet or database data on the Clipboard into the alternate format: Spreadsheet data

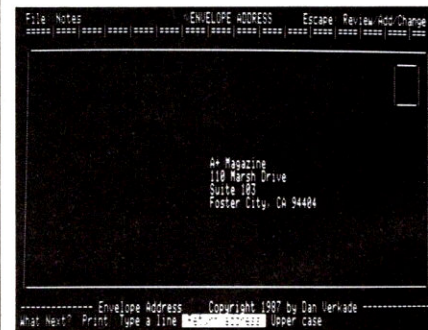


Figure 4: You can use arrow keys to move the address around on an outlined envelope on the screen.

you've copied to the Clipboard becomes database data, and vice versa. You can use a macro program instead to accomplish this task, but this method is much faster and simpler. The only drawback is that it works only on Clipboard data, not entire files.



## FEATURE REPORT

The File Encrypter turns any AppleWorks file into encrypted garbage that is unreadable, thereby protecting the data in that file from prying eyes. The program operates on the current desktop file. When you encrypt a file, you enter a file-encryption key of up to ten characters, which becomes the password for displaying the file in its normal state. To decrypt a file, you must enter the encryption key you originally specified when you encrypted the file. The only potential problem with this encrypter is that the encrypted file can be edited just as any other AppleWorks file can. If you change the encrypted file in any way—deleting or editing any of its characters—the file will be permanently indecipherable. You will also have a problem if you forget the encryption key you specified, but Beagle Bros can recover any encrypted file (as long as it hasn't been modified) for a \$10 fee.

The Page Preview accessory displays miniature versions of up to three pages of a word-processing file on the screen, side by side, as they will appear when they're printed out. This feature is handy for checking page breaks, margins, spacing, and other aspects of the final appearance of a document before you print it.

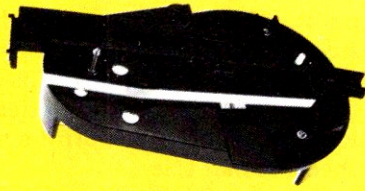
The Puzzle accessory is an arrangement of 15 numbered tiles that you try to slide around to put in order. This puzzle has no productive value and may be habit-forming. Each time you quit the puzzle, the program rescrambles it.

Finally, there's a word-count program for the professional writers in the audience. This accessory works on the currently displayed word-processing file and quickly determines the number of words and characters in the file, along with the average length of the words it contains.

### Only the Beginning

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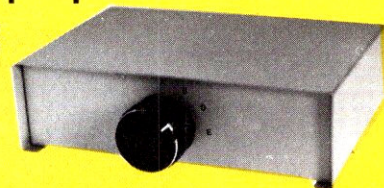
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## FEATURE REPORT

though. Here's a quick rundown of the other TimeOut applications:

TimeOut Graph is a full-featured business graphing program that lets you produce nine different types of graphs from AppleWorks spreadsheet files (see a full review in the January 1988 issue of *A+*).

TimeOut UltraMacros is billed as the ultimate macro program. It includes more than 50 programming commands that give you access to screen attributes and memory locations. Macros can read the screen and act on what they find there. You can also create macros that execute at specific times, if you have a clock, and there's even a screen saver that blanks your Apple's screen if you don't press any keys for a while.

TimeOut QuickSpell is a fast spelling checker that checks word-processing files, using the 80,000-word *Random House Dictionary* as well as a custom dictionary you create. The program lets you correct words either in context or from an alphabetical list of misspellings.

TimeOut SideSpread lets you print AppleWorks spreadsheets sideways so you don't have to worry about how many columns a file has. It comes with a variety of fonts, and it lets you print spreadsheets at half size.

TimeOut FileMaster is a pop-up improvement on the ProDOS Filer. It lets you copy, compare, delete, lock, or unlock files. You can use a

RAM card to make quick copies of disks, and it erases and formats ProDOS disks in two seconds.

TimeOut SuperFonts lets you use custom typefaces to print AppleWorks word-processing files. You can vary typefaces and typestyles within documents, add graphics to documents, and preview pages before printing.

Beagle Bros has done its homework in creating a very useful collection of AppleWorks enhancement products, all of which work from inside the AppleWorks program. The collection currently has some obvious omissions, such as a report generator and a communications program, but the breadth and quality of this opening salvo in the AppleWorks enhancement wars bodes well for more useful programs in the future. +

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CIRCLE 187 ON READER SERVICE CARD

# LEARNING CURVE

*Educators are awaiting a product that already exists—Tutor-Tech.*

BY DAVID D. THORNBURG

Last October I attended the Computer Using Educators' meeting in San Jose, California. A consistent murmur ran through the conference on the topic of HyperCard.

For the benefit of those of you who haven't yet heard of this product, HyperCard is a programming language for the Macintosh that allows the creation of extremely sophisticated computer programs with a fraction of the effort necessary with a traditional programming language such as C or Pascal. Among other things, HyperCard can handle the highly visual user interface to which Mac users have grown accustomed, and it allows even rank beginners to create applications in which users go from one frame of information to another by clicking the mouse on "buttons" on the screen.

The educators' excitement about this product seemed to stem from the continuing quest for the Holy Grail of educational computing: an easy-to-use authoring system that doesn't make you take hours to create a 15-minute lesson and that someone other than a rocket scientist can use.

Of course, educational computing has been down this road before. In the realm of dialogue-based computer-assisted instruction, PILOT was seen as the perfect authoring language, because of its easy syntax and ability to analyze text. Dr. John Starkweather, PILOT's inventor, developed this language so children could create

their own programs. A lot of work in the 1970s showed how far this language could go, yet it never caught on.

The reasons for PILOT's failure are complex and probably not completely understood. I think one of the contributing factors is that, as with other traditional programming languages, PILOT's programming domain looks different from

quency of commands that the teacher types.

I've long felt that direct-manipulation programming languages—languages for which the programming and execution domains are highly similar—would be excellent authoring systems for educators. This promise is what the educators saw lurking in HyperCard.

## What Is HyperCard?

There are many ways of looking at HyperCard. For an educator who wants to create simple lessons, the following model is pretty accurate: Imagine a graphics program that lets you create many screens containing images and text. Each of these screens has an identifier of some sort—a number or a name. Now imagine that each screen can contain several "buttons," visible or invisible areas that, when selected, cause the computer to bring another screen image into view. Since any screen can contain several buttons and a button can point to any image, you can end up with fairly

## HYPERCARD AND HYPERHYPE

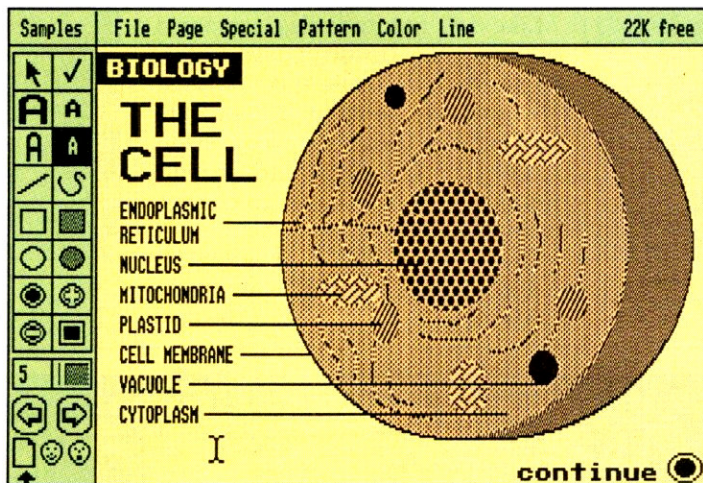


Figure 1: Tutor-Tech, a programming language that lets you create complex lessons with screens containing graphics and text, gives Apple II users what HyperCard gives Macintosh users and has been available for two years.

its execution domain. Teachers are used to creating instructional materials in the form in which they will be used. For example, they draw a picture on an overhead transparency and then project the image onto the screen for the students to see. No translation is necessary between the authoring and presentation domains. Such is not the case, of course, for traditional programming languages, in which the creation of a picture that the student sees is the result of a complex se-

quence of commands.

For example, a history unit might contain a few screens describing the pioneers' trek across the Oregon Trail. Each screen would contain a button for advancing to the next frame when the student was ready. Later in the lesson, the program might ask the student a question and present several buttons corresponding to different choices. Each button would be linked to an appropriate frame, thus allowing individualized prog-

ress through the lesson.

This capability represents only a fraction of the strength of HyperCard, but it shows one of the major ways this tool can serve educators. **The Feeding Frenzy**

Because of the fever pitch with which this product has been promoted by the press, it is little wonder that educators have been caught up in the HyperCard HyperHype. At the CUE Conference, otherwise rational people were seen conjuring up grand plans for their own educational software built in HyperCard.

There is only one tiny problem. HyperCard was created for the Macintosh. More specifically, it was created for a Mac with at least one megabyte of RAM and two 800K disk drives. To really work well, it requires a hard-disk drive.

The reality of today's classrooms is quite different. I attended one session in which teachers were complaining that some of the newer educational software was

going to require an Apple IIGS with 512K of RAM. "Where are we supposed to get the money for these computers?" the teachers complained. Today we have little hope for schools full of Apple IIGSs, let alone fully loaded Macintoshes. The excitement HyperCard engenders has the potential to backfire,

**On the surface, for the applications I've described, Tutor-Tech looks exactly like HyperCard—or, to be more accurate, HyperCard looks just like Tutor-Tech.**

once it dawns on teachers that their classrooms haven't a fraction of the hardware necessary to work with this product. As IBM's Harvey Long is fond of saying, this situation is anti-Pavlovian: "If you ain't got no food, don't ring no bells!" **What about the Apple II?**

Like it or not, today's classrooms are equipped (mostly) with 128K Apple IIe or equivalent computers. Furthermore, as long as teachers and parents allow our education budgets to get ripped to shreds, this situation is unlikely to change in the near future.

Given this scenario, it is logical to ask why someone doesn't create a version of HyperCard for the Ap-

ple II. In an interview published in Danny Goodman's *Complete HyperCard Handbook*, Bill Atkinson, HyperCard's designer, said that he might come up with a version of this product for the Apple II—someday.

This task presents some challenges, not the least of which is that the product already exists!

### Back to the Future

Those of you who have been following this column for a while may remember the "Learning Curve" I wrote in the July 1986 issue of *A+*. The topic for that month was a \$195 authoring system called Tutor-Tech, published by Techware, Inc. (P.O. Box 1085, Altamonte Springs, Florida 32715; [305] 834-3431).

On the surface, for the applications I've described here, Tutor-Tech looks exactly like HyperCard—or, to be more accurate, HyperCard looks just like Tutor-Tech (see figures 1-4).

I first saw Tutor-Tech at the Flori-

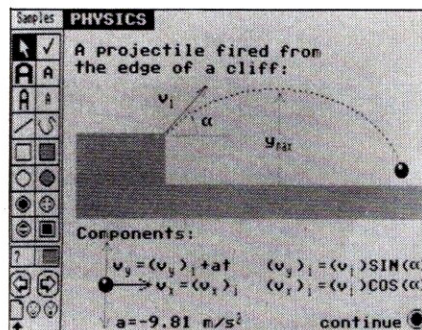


Figure 2: Like HyperCard, Tutor-Tech lets you create graphics and text on each screen.



Figure 3: Tutor-Tech lets you place buttons or a text-response field anywhere on the screen.

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da Instructional Computer Conference in January of '86. At that time, the authors were finished with the Apple II version of the product and were busy putting the finishing touches on the Macintosh version.

The Apple II version (which requires 128K of RAM and a mouse) provides a complete menu-driven graphics system with which the graphics and text associated with each frame can be created. You get a range of text sizes and the usual assortment of graphics tools that we've come to expect: freehand lines, rectangles, straight lines, circles, and the like.

In addition to creating graphic and text fields on each screen, you can place buttons or a text-response field anywhere on the screen. Each button has a destination frame that is loaded when you click on the button. The text-response field is a little more sophisticated. When creating this field, the author indicates what the proper response should be, and when a student enters a response in this field, the program examines the response to see if it contains the teacher's response. Based on the re-

sult of this comparison, the program branches to one of two frames.

Tutor-Tech buttons can do more than jump from one frame to another. You can also program them to increase or decrease students' scores. Once a lesson is finished, the teacher can examine the scores to see how well they did. You can

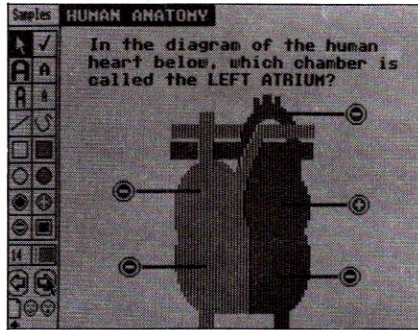


Figure 4: When a student enters a response in the text response field, the program checks to see whether it matches the teacher's programmed response.

add this capability to HyperCard buttons if you are willing to master HyperTalk, the formal programming language that underlies the product. With Tutor-Tech, this ability is built in.

## Comparing the Products

These two products have similar capabilities, up to a point. Because HyperCard works with a full-blown programming language (HyperTalk), you can use it to build quite sophisticated applications. Tutor-Tech, on the other hand, is limited to the application type that is simplest to create in HyperCard: collections of frames that you can link with buttons.

Both products can link to frames within a given set as well as to other sets of frames. A single Tutor-Tech lesson can be 250 pages long (provided that you don't run out of RAM first). HyperCard documents are disk-resident, so the size limitation depends on the disk rather than the available RAM.

HyperCard saves the graphics you create as bit-mapped images rather than as collections of objects (circles, rectangles, and so on)—an interesting if illogical choice, given the otherwise object-oriented nature of this product. Tutor-Tech graphics, on the other hand, are object-oriented. In addition to giving you the benefits that come when you're editing a complex picture,

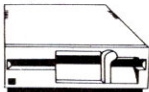
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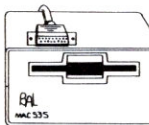
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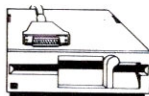
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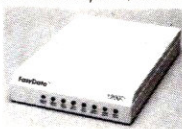
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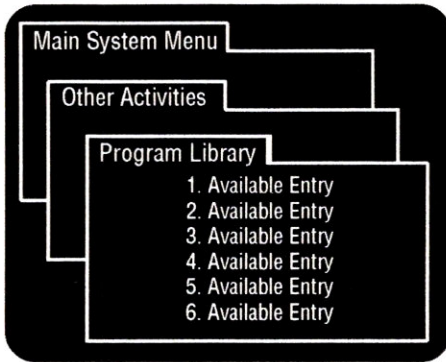
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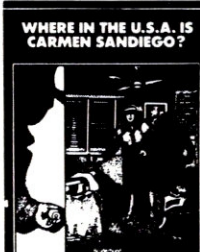
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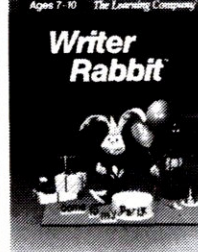
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CIRCLE 183 ON READER SERVICE CARD

*I find it amazing that Tutor-Tech has gone virtually unnoticed in the press.*

this choice also makes much more efficient use of memory.

**Why All the Excitement Now?**

Some people may think that HyperCard is a rip-off of Tutor-Tech, but I sincerely doubt it. Even though Apple's booth was located a few feet away from Techware's at the January '86 Florida conference, I've yet to find an Apple employee who knows about the product.

Of course, for educators, this news isn't particularly reassuring.

There are many hundreds of excellent software companies that have devoted their energies to the creation of spectacular programs of immense value to educators. Many of the most innovative products (such as Tutor-Tech) are created by companies that have very small "war chests" with which to launch advertising campaigns. Their sales are largely a result of word of mouth. Apple, to its credit, does try to support small publishers with publicity and booth space, but apparently no one in Apple's education group knew to be excited about Tutor-Tech, even when HyperCard came out.

**No Level Playing Field**

I find it amazing that a product that shows off the Apple II as beautifully as Tutor-Tech does has gone virtually unnoticed in the press. I'd like to think that we who follow this industry have maintained our ability to judge the value of a product by something other than the glossiness of its press kit.

HyperCard was on the cover of a lot of magazines last year and, as far as achievements go, I think Tutor-Tech is just as newsworthy. Success in the educational-software field is hard enough to obtain. If the only programs that get attention are the ones with massive ad and PR underpinnings, we will drive the small, talented companies out of business.

The next time someone raves about HyperCard, tell them it's not a bad program for the Macintosh but that, fortunately, Apple II users have had access to a similar tool since January 1986.



# Meet the Winners

*A+ magazine's first  
annual "How I Use the  
II to Teach" contest*

Several years ago, Apple Computer distributed a poster listing 100 ways to use an Apple II. From the response to *A+* magazine's first annual "How I Use the II to Teach" contest, which took place last summer, it's time to upgrade the poster to version 2.0: "Hundreds of Ways to Use the Apple II."

Although not all of the more than 800 contest entrants could emerge as winners, the judges were impressed with the many creative applications of the Apple II computer that these enthusiasts had devised. The judges selected 25 first-prize winners and a grand-prize winner in each of two categories: classroom and home/personal. In this article, we'll get to meet the grand-prize winners, but first let's consider some of the other contest finalists.

## **The Apple II in the Classroom**

Classroom teachers use Apple II computers to do everything from instructing preschoolers to teaching graduate students—to solving classroom problems; accessing distant databases; and controlling other teaching tools such as robots, VCRs, and laserdisc players.

Michael Blyth, a first-prize winner and high-school English teacher from Staten Island, New York, shares the art of mystery writing with his students through his Compudunit program. Rita Henry, a science teacher at Glen Ridge High School, New Jersey, has de-

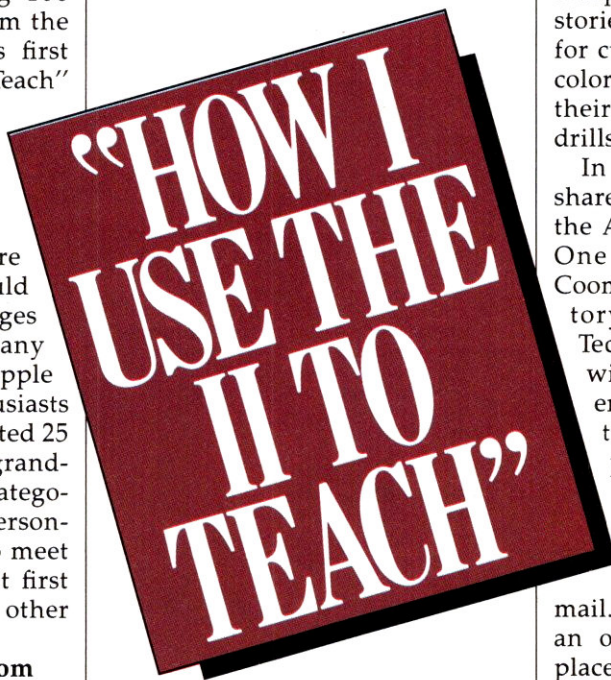
veloped interactive programs on astronomy and earth sciences in which an Apple IIe controls a videodisc player. Helen Hamerstrom and her colleagues teach French, using an Apple IIe to create interactive video from material she filmed in France last summer (see *A+* February 1988, page 32). Janet Calvert, a teacher from Bloomfield, New Jersey, assists her deaf students in communicating with pen pals throughout the United States, using an Apple IIe and a modem.

Other teachers have used Apple II computers to electronically "clip" stories from major news databases for current-events classes, to teach color and light theory, and to plan their high-school marching-band drills.

In their entries, some teachers share unique situations in which the Apple II is an invaluable tool. One such teacher is Norman Coombs, a blind professor of history at Rochester Institute of Technology. An Apple II Plus with an Echo Speech Synthesizer and modem connects him to the institute's mainframe computer. Students submit their work by electronic mail. His II Plus reads their work to him, and he returns grades and comments via electronic mail. Coombs also has developed an on-line "conference" that replaces some class discussions. With the National Technical Institute for the Deaf located on campus, he often has deaf students in his class. When they come to visit Coombs in his office, he uses a program that he wrote that lets the students read the screen and Coombs hear the synthesizer.

## **The Apple II at Home**

The entries in the Home/Personal category are just as varied and creative as those in the classroom category. They recount teaching experiences involving parents and children, brothers and sisters, and neighbors. They are about people



helping people through technology. Apple computers are not cold, impersonal teaching machines, but humane personal tools in the hands of creative aficionados.

Susan Griffis of Indianapolis, Indiana, began creating personalized video stories and computer books for her young daughter and has turned her efforts into a small business (see *A+* February 1988). Victoria West of Austin, Texas, assists her sister with CAD (Computer Aided Dieting), and Lawrence

*Contest entries reveal that Apple computers are not cold, impersonal teaching machines, but humane personal tools in the hands of creative aficionados.*

Traub of Dallas, Texas, taught his brother programming. Wes Mun of Waipahu, Hawaii, used an Apple IIe to help his mother recover from a major stroke. William Reed of Chula Vista, California, discovered that an adult neighbor couldn't read and now privately tutors him on his Apple IIe.

#### Home Honors

The grand-prize winner in the Home/Personal category is a mother of four and a grandmother of four. Virginia Carney, 58 years old, from Newport, Arkansas, is a former high-school mathematics teacher. Virginia retired from formal teaching 11 years ago when she and her husband, J.W., moved to Arkansas to set up his medical practice.

Virginia and J.W. have owned an Apple IIe for four years. When Virginia isn't keeping J.W.'s financial records on AppleWorks, she is volunteering her time for church and community projects. She has always had an interest in helping people. During the late 70s, Virginia was a Baptist missionary in Bangladesh. Virginia's winning entry details her volunteer work with Elizabeth, a brain-injured child in her community.

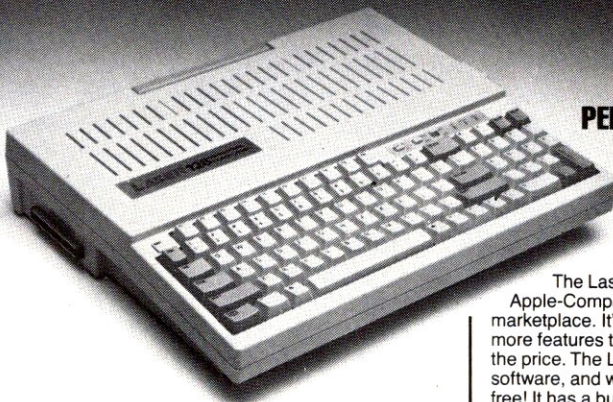
The first time Virginia Carney met Elizabeth Smith, she could see there was an intelligent mind behind her expressive eyes. Unfortunately, because of a birth-related brain injury, Elizabeth's mind had to cope with a body that didn't take orders too well.

Whether it was due to her love of children or her desire to help those in need, Virginia found herself involved with Elizabeth as a "pat-terner." She was one of many volunteers who literally moved Elizabeth through a relentless program of crawling and breathing to stimulate new pathways in the brain.

Virginia, who was spending every spare moment at home exploring the possibilities of her Apple IIe, was overjoyed when Easter Seals lent Elizabeth's parents an Apple II Plus and some software. Using her instincts as a mother and her skills as a former teacher, Virginia opened Elizabeth's world with an Apple computer.

Elizabeth was fascinated with the computer from the beginning, but she did not have the fine motor

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skills necessary to press a single key, so someone else had to enter her responses. Virginia knew this level of involvement wasn't enough for Elizabeth. Like any child, and especially as a handicapped child, Elizabeth needed to feel the thrill of accomplishment that comes from making something happen by your own action. Since Elizabeth, with some effort, could zero in on the space bar, Virginia invented space-bar games.

### Space-Bar Games

The first game was simple: a stick dog moving toward his dog house. He paused several times and had to be nudged along (by a press of the space bar). When the dog reached his house, the computer played an abbreviated version of the song "Where Oh Where Has My Little Dog Gone?". Elizabeth loved it. Virginia's imagination took over. Her next space-bar game had a garden that needed watering. As Elizabeth pressed the space bar, the flowers grew right before her eyes. There were games with toys—a doll that waved its arms to the tune of "I Dropped My Dolly in the Dirt," toy soldiers that marched to "Parade of the Wooden Soldiers," and a saucy jack-in-the-box. Another game drew the Statue of Liberty on the screen and played "The Star-Spangled Banner" as a fitting ending.

Virginia doesn't consider herself a programmer. In fact, she has never taken a programming course. She taught herself to program in BASIC by typing program listings she found in computing magazines and experimenting with them. She uses Beagle Bros software to add music and fancy touches to her programs.

### New Challenges

It wasn't long before Elizabeth's motor development and motivation improved, and she needed a challenge. She was ready to respond to several choices—not just striking the space bar. In her search to modify the keyboard, Virginia found markers that covered bathroom faucets. She fit the markers over several keys, using a clay-like substance for sticking posters to walls. The markers, hit from above, registered only the key that was centered under them. This setup allowed Elizabeth to choose among several keys, as long as they were



Grand-prize winner Virginia Carney

not adjacent to each other. Now Virginia could write new games that required a choice of responses and was able to introduce some commercial programs to Elizabeth.

Recently Elizabeth moved from Newport, but Virginia continues to maintain contact with the Smith family. Elizabeth is in school this year, and her patterning continues on a part-time basis. The Apple II remains a source of pleasure at home and an integral part of her education at school. Virginia con-

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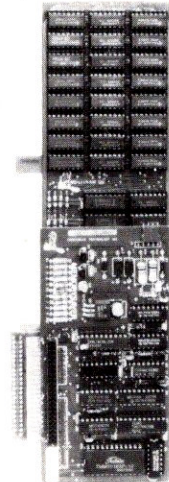
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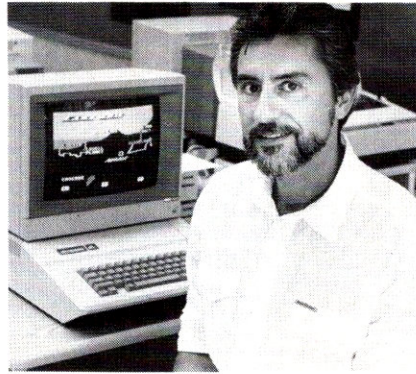
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tinues her volunteer work and to explore with her Apple computer. She's pleased that she could play a part in brightening one special little girl's future.

### Classroom Kudos

The grand-prize winner in the classroom category is Terence Nickolette. Terry, 42, from Lorain, Ohio, has a B.A. from Ohio University and an M.Ed. from Bowling Green University. He has been teaching both mathematics and science in Lorain since 1968. In the 1986-7 school year, Terry was appointed computer-science/mathematics teacher at the Lowell Academy of Math, Science and Fine Arts. He provides computer instruction for all students, grades kindergarten through 6.

Terry's winning entry chronicles



Grand-prize winner Terence Nickolette

his school's involvement in NASA's Simulated Shuttle Launch Project. Terry credits his principal and building teachers for the success of this ambitious year-long project. According to Terry, "It was a tremendous team effort by the students, teachers, and members of

the community. Everyone did an outstanding job!"

### A Giant Step into Space

As the crowd roared "Three, two, one . . . blast-off!" elementary-school students in Lorain, Ohio, took their places in Mission Control. It was their job to monitor and report the progress of the Leopard Express Shuttle and the 20 astronauts aboard.

This space simulation was sponsored by NASA's Lewis Research Center and involved eight schools in the greater Cleveland area.

As part of this year-long project, Terry organized students and teachers to conduct a simulated space-shuttle mission. Mission Control personnel and astronauts had to be selected and trained, experiments designed, and a school bus converted into a space shuttle—all of this activity in preparation for the launch of the space shuttle on its 80-mile journey to another "planet" and rendezvous with other shuttle craft at NASA's Lewis Research Center.

The extensive planning and schoolwide team effort was evident on April 8, 1987, when the Leopard Express Shuttle successfully blasted off, to the cheers of parents, students, and the mayor of Lorain.

### Mission Control

While the astronauts headed into "outer space," the students at Mission Control (aka Lowell Academy's computer lab) used 12 Apple II's to perform tasks as radio operators, cartographers, information officers, experimental systems monitors, and xenobiologists.

Student ham-radio operators, who were in continuous contact with the Leopard Express Shuttle, relayed up-to-the-minute information on the shuttle's progress and the status of the various experiments to students working at Mission Control.

Student cartographers tracked the Leopard Express and used an Apple IIe and a KoalaPad to create maps displaying its location. As the Leopard Express traveled along its route, the maps were printed and posted on the large Mission Control bulletin board.

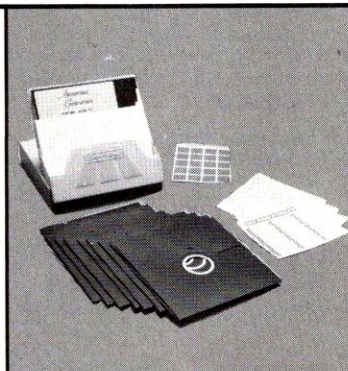
Information officers used FrEd Writer, a word-processing program, to write news releases describing the progress of the shuttle and the status of the on-board ex-

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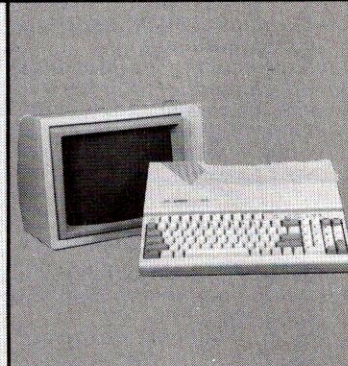


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periments. They then used The Print Shop to add graphics to their shuttle updates before posting them in Mission Control. Updates also were dispatched to the press room, where information was relayed to the entire Lowell Academy student body via the public-address system.

Experimental-systems monitors were responsible for translating data from shuttle experiments into graphs, using the MECC Graphing program. Graphs also showed the status of the on-board systems of the shuttle, such as fuel, tire pressure, and electrical power. The graphs were updated several times during the shuttle's voyage and displayed on the Mission Control bulletin board alongside the route maps and Shuttle Status reports.

#### Alien Life Forms

Two students on board the Leopard Express were xenobiologists, whose task was to establish contact with extraterrestrial life forms (the students of another participating school). Their mission was to deliver two diskettes, filled with graphic programs and messages created by Lowell Academy students, to the encountered aliens.

The launch and return of the Leopard Express Shuttle were a tremendous success for both the shuttle astronauts and the commanders at Mission Control. These students experienced science firsthand. They used the Apple II to perform real jobs. They felt the pressure of a fast-paced event and discovered how to troubleshoot problems as they occurred. It was a giant step for Terry Nickolette's students—one they will never forget—and, who knows, maybe it was also a giant step for mankind.

#### Find Out More

If you want to learn more about Terry Nickolette's involvement in NASA's Simulated Shuttle Launch Project or Virginia Carney's work with Elizabeth, write them c/o *A+* magazine. Congratulations to both for their initiative and their creative use of the Apple II computer. Their efforts made a difference!

As grand-prize winners, Terry Nickolette and Virginia Carney each received an Apple IIGS system provided by Apple Computer, Inc. In addition, each was awarded an AST Research VisionPlus video digitizer, an Applied Engineering

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*John D. Marvelle is a former director of Apple Computer Clubs International, a program sponsored by Apple Computer to promote the use of computers in grades K-12. John has a special interest in the use of personal computers for teaching and learning.*

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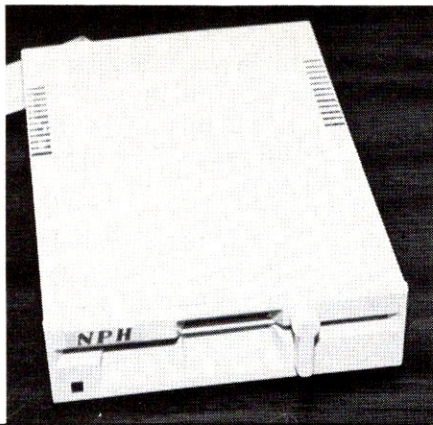
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BY JENNIFER BRAWER

On the consumer-oriented communications services such as CompuServe, you can make airline reservations, shop at the Electronic Mall, and order catalogs from Saks Fifth Avenue or Neiman-Marcus. If you would rather research an academic database than shop, you can search to your heart's content in any one of the numerous databases available from vendors such as Dialog or BRS. Whatever your interests are in using an on-line service, however, you must be prepared to pay for it. Depending on the type of service and the time of day, connect-time charges for any on-line service or database vendor can be expensive—some reference databases can cost \$90 per hour, on top of phone-company charges.

The hard reality of the high cost of on-line services can dampen any enthusiasm for telecommunications in the classroom. Since on-line time is money, students and teachers must be efficient telecommunicators. The first step toward efficiency is the selection of an on-line service that meets your curricular needs. The second step is to bring yourself and your students up to par on research and computer skills to make the most of on-line time.

Help comes in the form of special products and services that give schools access to the telecommunications community. One of them, Information Focus from Random House, is a software program that

simulates an on-line service—kind of a combination CompuServe and Dialog. It consists of two disks, a teachers' manual, and a student workbook (lab packs are available) and can be used with a single computer or in a lab.

### Information Focus

Information Focus provides a good simulation of the most popular telecommunications activities. Because the program can handle up to 50 registered users at a time, students can get a sense of participation in an electronic community. Logging on to Information Focus

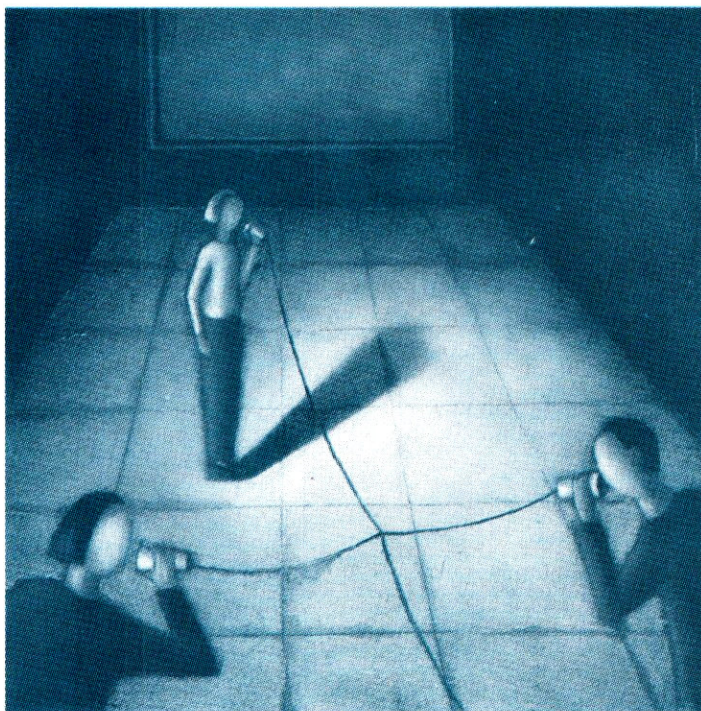
follows steps that approximate the log-on requirements for a commercial service. Once they've registered, students can use the program to communicate via electronic mail or teleconferencing, go shopping, and search several small databases. The teachers' manual and student workbook provide comprehensive guided practice through the program's elements. The exercises not only teach students how to find and manage information but also provide a framework for practicing higher-order thinking skills. Most of the lessons require students to synthesize, analyze, and draw conclusions using the information they've found in a database search or teleconference.

### MIX

When you are ready to take yourself and your class on-line, you'll want to consider MIX (McGraw-Hill Informa-

tion Exchange), a service specifically for educators. MIX has two main features: electronic mail and computer conferencing (public and private). I used the complementary MIX Simulation Disk before trying out the service myself and had no trouble finding my way around or poking my nose into a conference or two. I even had electronic mail the first time I logged onto the system: a letter from my "host," a real live person offering to help me get to know the system.

For students, MIX sponsors 40 moderated forums with an impres-



sive range of topics. Students can discuss anything from astronomy to what's going on at the Minnesota Zoo, or participate in a pen-pal exchange or shared writing project. Educators can take advantage of professional-development symposia on a variety of current issues in education as well as on specific curricular areas. An added plus when you select the conferencing option is the opportunity to participate in forums set up by such institutions as the Minnesota Department of Education and two California technology institutes, ITEA and NBEA. These organizations use MIX as their educational telecommunications network. Extra perks that come with a MIX account are access to the McGraw-Hill News and a subscription to *The On-line Educator*, which is a newsletter covering advances in telecommunications in education.

MIX sells yearly subscriptions that include the *MIX Users Guide*, a MIX Simulation diskette, and nine issues of *The On-line Educator*. The variety of subscription packages for individuals and groups is too

numerous to list here. Total costs are based on an annual fee or per-person cost of \$149.95, plus a charge for a block of connect time via Tymnet, a service that offers access to MIX through a local telephone number. Tymnet blocks are available from \$50 to \$250, and you can get a reduction in the annual fee if more than two subscriptions are on a purchase order.

### Einstein

If on-line research is the type of telecommunications activity you want for your class, consider Einstein. Einstein from Addison-Wesley is a "gateway" to a restricted set of reference databases selected expressly for their usefulness in education. The databases are owned by several well-known vendors such as VU/TEXT, Dialog, and BRS and exist in one of three formats: reference, abstract, or full text.

Two features distinguish Einstein from other gateways: unique pricing and a generic access-command structure that you can use with any database it works with. The access commands are English words.

The command syntax is fairly simple but requires some planning and familiarity with the use of Boolean logic operators to connect keywords. Each search has its own password, which gives added control over student use, and gets you up to eight references plus one full-text article or abstract, if they're available from that particular database. As for pricing, Einstein charges by the search (\$4.50 per search or \$3.25 per search plus a \$.12-per-minute telecommunications charge). These fixed costs make on-line costs easier to control and budget.

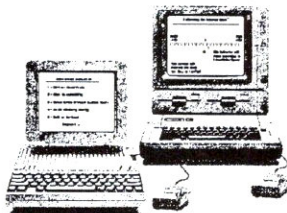
### Learning Link

If you happen to teach in New York, you might want to consider two other on-line services. The first is Learning Link, an on-line service dedicated to K-12 educators and provided by a public television station, WNET, in New York City. The information you will find on Learning Link is geared toward residents of New York, New Jersey, and Connecticut.

Learning Link's primary resource is access to local public-tele-

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vision programming information, which is helpful for planning the video portion of a curriculum area. Each program listing contains information on air dates, program length, appropriate audience, educational level, format, and a summary. Subscribers also get taping rights and instructional-television lesson plans.

Other Learning Link features include electronic mail and electronic forums (on my visit to the forums, I learned about issues in Black Studies and teaching critical viewing skills). It also has gateways to three other services: Einstein; the New York Board of Education's bulletin board, Big Net; and Searchtext (formerly Infosearch), a database for students, teachers, and parents. To use Learning Link to access Einstein or Searchtext, you need an account with those services.

One additional Learning Link feature that deserves attention in its own right is the Culture Catalog, a directory of cultural resources in New York City. You use the Culture Catalog like any database, and you can search any topic having to do with the arts by

keyword or by organization.

Accessing the Learning Link computer network involves no on-line charges, just a subscription fee. As a matter of fact, you don't incur a telephone charge either, because Learning Link has a toll-free number. Learning Link offers school (\$165) and individual (\$48) memberships, with school districts getting a 15% discount off the school rate (\$140). Now that I have ex-

pounded on this great service in New York, and you live in Texas, you may wonder why I've even mentioned Learning Link. Well, Learning Link is working with public television stations around the country to help them set up their own on-line services. The core concept of the service remains the same, but the on-line information is particular to the area the public television station serves.

### Searchtext

As I mentioned earlier, another on-line service is currently available in New York. Like Learning Link, it plans to become national sometime in the future. Searchtext is a database service for educators, students, and parents that is accessible via Learning Link or on its own. If you are interested in finding out more about it, you can log onto a Searchtext demo by calling (516) 741-1785.

Searchtext provides three major information sources: Grolier Academic American Encyclopedia, Webster's New World Concise Dictionary, and the ERIC (Educational Resource Information Center) database. Other resources on the ser-

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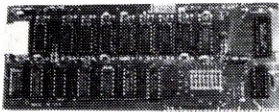
**Requires:** Apple II Plus, IIe, IIc, or IIGS; 64K RAM; one 5¼-inch disk drive

**Grade Level:** 6-10

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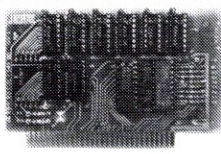
The JE860 RAM Card (Language Card) allows the Apple II and II+ computers to expand from 48K to 64K. Complete with instructions.

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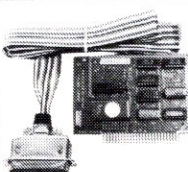


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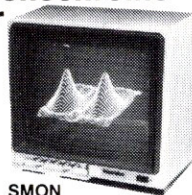
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vice are the Grolier Psychoactive Drugbase, a reference dictionary, computer forums, and transcript databases for three popular New York public-television programs: "WNET Currents," "WNET Innovation," and "The MacNeil/Lehrer News Hour." Several additional information resources are under development. One that I received permission to mention is an upcoming database that will contain *Newsday* headline stories, updated daily.

The standard cost of using the service locally is based on an annual registration fee of \$49.95 plus a service charge of \$8 per hour during the day or \$5 per hour in the evening and on weekends. As with most services, you can choose from several price packages, including some special fixed-price options. The weekend package gives you unlimited access to Searchtext for a registration fee of \$49.95 plus the \$49.95 annual fee, making the total \$99.90. A combination weeknight and weekend package lets you access the service between 8 A.M. and 5 P.M. Monday through Friday and gives you unlimited access on the weekends. The total cost of this package is \$199.90: a \$149.95 annual fee plus the \$49.95 registration fee. A \$.25 hourly telecommunication charge is added to all the Searchtext rates. +

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# ENTERTAINMENT GAMEPORT

BY BOB LINDSTROM

*Infocom opens new horizons for computer games and Strategic Simulations invites you to join in the game of political graft.*

## INFOCOMICS

*Notice: The newest products from Infocom include graphic depictions of computer entertainment. Text-adventurer discretion is advised.*

Don't get the wrong idea. Infocom isn't about to sell software in plain brown wrappers, nor are the reigning masters of text adventuring going to neglect their verbal virtuosity. Text adventuring is still alive and flourishing in Cambridge, Massachusetts. But in 1988, the company that has resist-

ed pixel power has changed its corporate mind.

Infocom is going graphic with Infocomics, a new kind of storytelling medium that combines elements of movies, comic books, and interactive fiction.

Like a comic book, Infocomics tell their tale one graphic frame at a time, each frame appearing on the screen as a simulated comic-book page. But unlike comics, Infocomics have animated action. Characters race in and out. The view pans and zooms and tilts as if a motion-picture camera were shooting it.

The visuals aren't the only surprise for Infocom fans. The puzzles and interactive challenges of text adventuring are nowhere to be seen. Like Activision's breakthrough "computer novel" Portal, Infocomics are more concerned with

spinning a yarn than, say, making you solve a maze of twisty little rooms.

At times, you have the chance to follow individual threads of the story by following a character as he strays from the main story. In Lane Mastodon, one of the first three Infocomics titles, a trio of characters is separated from each other on an alien world. Reader/players can choose which of the three characters to watch. Then, after viewing that part of the story, they can rewind back through the Infocomic and view the remaining twists of the tale. This simple approach to interactivity makes Infocomics more entertainment than interaction, more plot than puzzle solving.

"I wanted to do something with political and artistic potential but something that wasn't a book," designer Tom



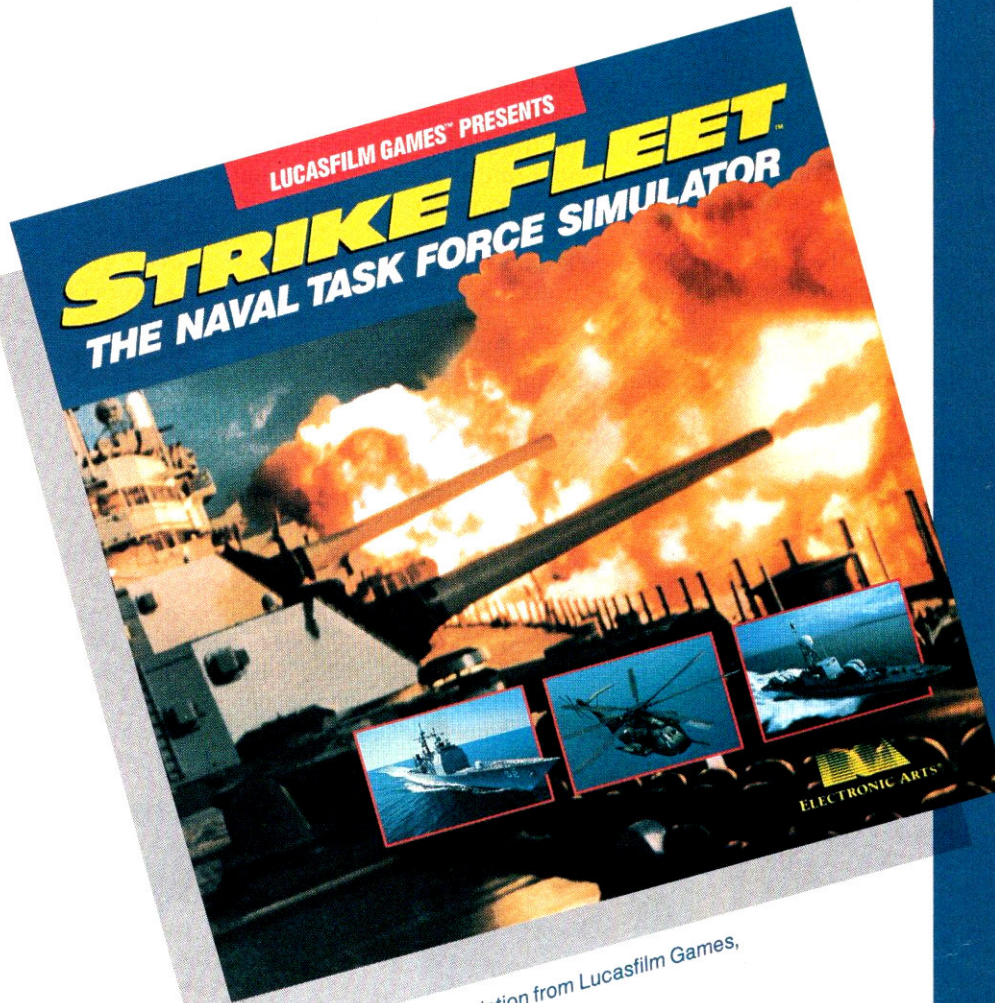
**The first three Infocomic products from Infocom: Zork Quest (top), Gamma Force (above), and Lane Mastodon (right)**



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# GAMEPORT

Snyder told "GamePort" in a telephone interview. (Tom Snyder Productions developed Infocomics for Infocom.) "I wanted to do something with genuine character development. In text- or graphic-adventure games, there isn't really character development. The writer doesn't have enough control."

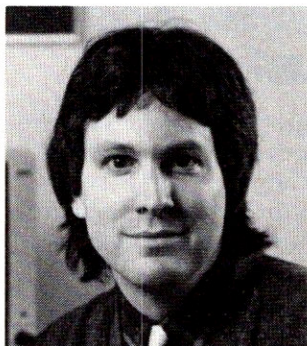
Writer, musician, teacher, and programmer—Tom Snyder is one of the most entertaining educators (or is that educational entertainers?) in the software business. His "edutainment" successes include such classics as Snooper Troops, The Halley Project, and Agent USA.

Snyder, who describes himself as "a computer nerd in 1964," took time off from school in the 60s to build a homebrew computer and enter it in a science fair at the Michigan Institute of Technology. After losing first prize to a nun who did a biology project, Snyder went on to a recording contract with Capitol Records. ("We had the worst rock band that was ever recorded.") College studies in 19th-century French literature eventually led him to a Master's degree in elementary education. With the formation of Tom Snyder Productions in 1979, the computer, music, and education threads of Snyder's life came together like the ending of an Infocomic.

Snyder is a man who brandishes his opinions like a broadsword, and

when he starts in on the subject of interactive entertainment and computer games, the blade swings wide and deep.

"Interactivity, in and of itself, is perhaps the most overrated entertainment concept of the 80s," Snyder states. "It's a great idea. Everybody who hears about it thinks



**TOM SNYDER**

it's a great idea. But in practice the level of interactivity is so impoverished that it's like the worst conversation you've ever had with the stupidest person you've ever met."

Overrated? Impoverished? Could it be that Infocom, the temple of interactivity, has a subversive influence in its midst? Perhaps. But Snyder makes some good points about the currently limited audience for video games and why computer adventuring hasn't earned widespread popularity.

"How many people start (computer) adventures and never finish them?" Snyder asks. "And how many of those people blame themselves instead of blaming the software?" Snyder sug-

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# GAMEPORT

*'Interactivity in computer games is so impoverished that it's like the worst conversation you've ever had with the stupidest person you've ever met.'*

gests that the interactive puzzle solving of some computer games wears thin for all but the hard-core computer-game audience. "I think we should be asking ourselves, is it interactivity we want or is it involvement?" he opines.

Watch your favorite movie. Your hands persepire as the rock rolls menacingly toward a desperate Indiana Jones. You edge forward on your seat as a knife-wielding silhouette looms behind the shower curtain. And when William Hurt's arms wrap seductively about Kathleen Turner's willing form in *Body Heat*, you—well, you get the idea. Motion pictures are involving, and they evoke an interactive emotional response from their viewers; but those viewers never touch a keyboard or press a fire button. They just focus all their thoughts and energies onto the screen.

That's the effect that Infocomics try to achieve: less specific input from you, more involving output from the computer.

A four-person team of programmers, writers, and artists are working on Infocomics. "I hired young comic crazies to work on it," Snyder explains, "Guys who live on Coca Cola, comic books, and professional wrestling."

The first three Infocomics are light-hearted efforts, a genial way to introduce the medium. Lane Mastodon is a satire on 1930s science-fiction comics. Gamma Force in Pit of a Thousand Screams is a superhero adventure. Zork Quest ties in with Infocom's popular text-adventure series. Each features a couple hours of entertainment for a retail price of \$12.

Snyder has more serious stories in mind for the future. In fact, his prototype Infocomic was a coming-of-age, boy-meets-girl summer romance. "Kind of like the movie *Summer of '42*, he says. And currently in development is a mature psychological thriller in the style of *Body Heat*.

Like many pioneering efforts, the first Infocomics are fascinating for the new horizons they open. They point toward more sophisticated plots and characters in computer games. Some Infocom fans will be surprised, maybe shocked, at how little Infocomics resemble the company's text adventures. Yet, Infocomics may attract an entirely new audience to computer entertainment, an audience that

# GAMEPORT

isn't interested in the hours of brain-teasing amusement in text adventuring.

It is also tantalizing to fantasize about a hybrid product that might bring together the storytelling panache of Infocomics, the verbal sophistication of an Infocom adventure, and some of the interactive challenge of role-playing adventure.

## EVERY LITTLE BOY CAN BE PRESIDENT

It's not just for smart-aleck game columnists anymore. Now you, too, can duplicate or surpass my triumph at last year's Summer Consumer Electronics Show and get yourself elected president of these United States, thanks to Strategic Simulations' President Elect—1988 Edition, a computerized simulation of the final nine weeks of a presidential campaign.

Prestige and adulation aren't the only spoils of (simulated) political war, however. Just as in real-life politics, graft is the thing. The winner of each of SSI's two contests will receive public acclaim and \$994 in cash (although I suppose you

could forgo the acclaim and take the cash under the table if you're a real stickler for authenticity).

The first qualifying round in the President Elect competition just concluded on February 12. Applications to qualify in the second round of competition must be postmarked no later than October 28.

Here's what you do: Play President Elect — 1988 Edition and take a photograph or slide of the screen labeled Electoral Vote Total. Submit the photo/slide to SSI. The player whose Democratic and Republican candidates are the same as those in the November 8, 1988, election and whose electoral vote count comes closest to matching the actual election results wins the money.

Contestants must be residents of the U.S. There is no age limit. Complete contest rules are available in every President Elect software package or from SSI, 1046 North Rengstorff Avenue, Mountain View, CA 94043. By the way, how did they arrive at \$994? Because two awards of \$994 total \$1988, it's a tidy election-year sum. +

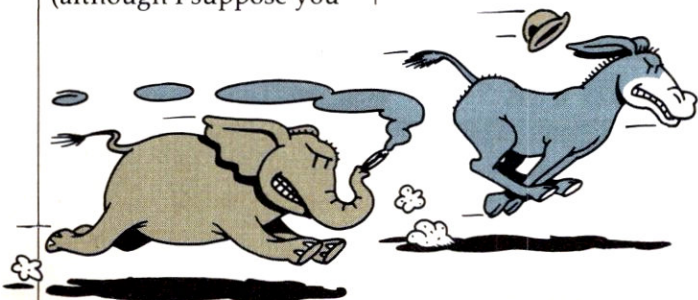
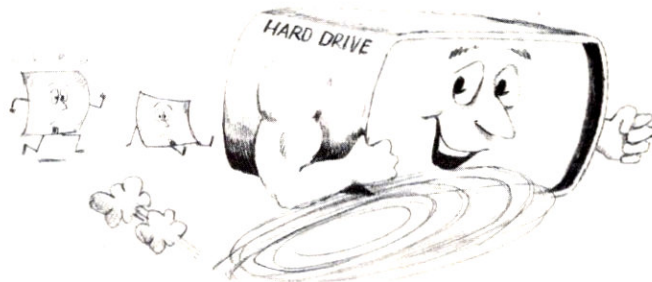


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# ENTERTAIN

*Fend off a demonic invasion, visit a haunted mansion, and try your hand at two popular game-show mainstays.*

## SLAY THOSE DEMONS

The market for fantasy/adventure games seems to be insatiable. The sources derive from Celtic and Norse mythology,



were reworked by great writers such as J.R.R. Tolkien, and were expressed as a tabletop game by Gary Gygax (Dungeons and Dragons). The best-known computer games

of this sort are Wizardry and the Ultima series. Eternal Dagger, from Strategic Simulations, is a richly detailed and skillfully programmed new example. A sequel to Wizard's Crown, it lets players transfer characters from that earlier game.

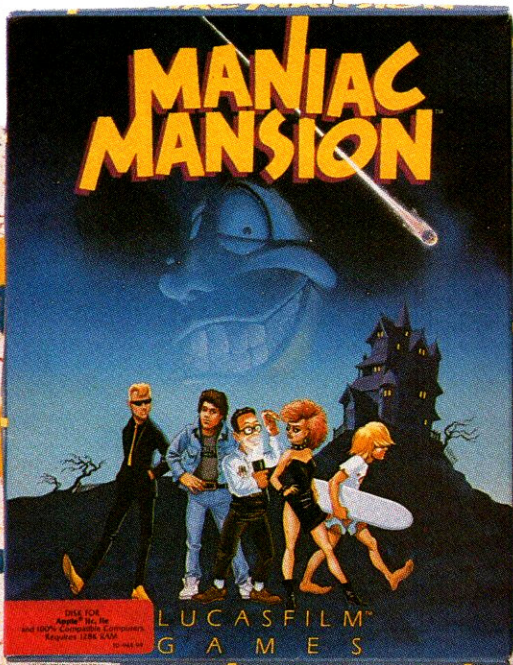
Like romance novels, fantasy/adventure games follow strict conventions

mixed terrain, plagued by roving monsters; •You have dungeons full of nasty hazards, concealing powerful magical objects; and •You have a quest or mission that you have to complete to secure the triumph of Good over Evil.

The world of Eternal Dagger is threatened by an invasion from the Demon World, in a parallel universe. Only living things can pass through the Portal between the worlds. The Eternal Dagger is a magical living weapon. You must find it and then locate the Portal and pass through it to complete your mission.

One of the challenges for the designers of such games is balancing forces. If Evil is too strong, the party will be wiped out before accom-

of format and content: •You have a party of adventurers of mixed skills (warrior, sorcerer, thief, and so on); •You have a land of



# MENT REVIEWS

plishing anything interesting. If Good is too strong, the game degenerates into a dull but gruesome slaughter of helpless demons. Eternal Dagger is well balanced. The monsters can hurt you, but even a player of modest skill can keep the party alive for quite a while. Running away from trouble is often the wisest strategy.

The world of Eternal Dagger is a sizable continent, with several offshore islands. You can see only a small part of the world on the main screen, so you have to draw your own maps—none come with the game. Documentation includes a 30-page manual and a 15-page booklet on strategy, tactics, tips, and sly maneuvers. You have to study the material pretty thoroughly to absorb all the information you need to survive in the game.

Eternal Dagger has a lot of options and information for you to manage. At any point, you can call up a display of your current equipment,

skills, health, and armor values. It's all a bit too matter-of-fact to sustain the mood (the willing suspension of disbelief) a fantasy/adventure requires. Status displays in an adventure game should look like a scribe wrote them on parchment. In SSI games, they tend to look like Mission Control consoles at the Houston Space Flight Center.

The publisher considers Eternal Dagger a game of intermediate difficulty, with an estimated playing time of 50 to 100

hours. For a game constrained by the limits of 48K of RAM, it is a good value, but as a gripping entertainment experience, it is simply not in the same league as Bard's Tale or Ultima IV.

*Mike Markowitz*

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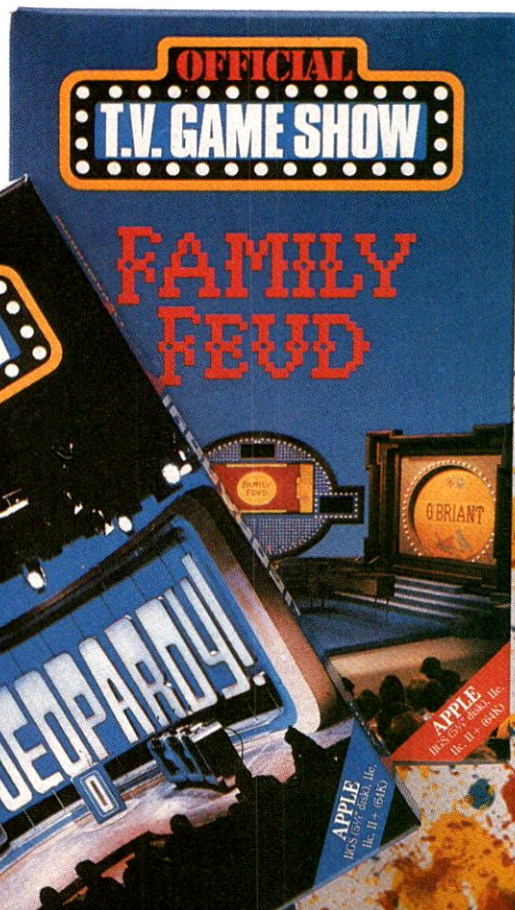
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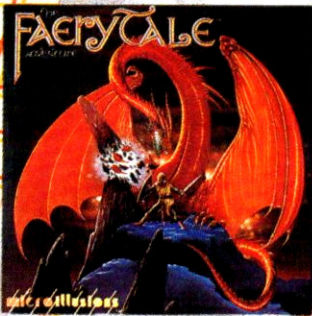
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## HAUNTING HILARITY

Ever since Steve McQueen and friends hopped into their jalopies and challenged the gelatinous threat of The Blob, movie teenagers have been keeping the whole world safe from alien destruction.

Although the Veg-o-matic horror flicks of the 1980s prefer to turn summer-camp teens into thinly sliced memories, Lucasfilm Games updates the pubescent heroics of the 50s for the 80s in Ma-





## FAERY TALE

Enter a Magical Land where you participate in the adventures of three brothers as they seek their ultimate fate in the Faery Tale Adventure. With over 19,200 playable screens, the quest takes you through a land full of vicious monsters, enchanted princesses, fearsome dragons and even a kindly old woodcutter or two.



Aims for the poor

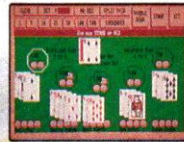


Julian finds a cave

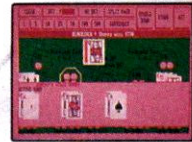


## BlackJack Academy

Everything you ever wanted to know about the game of BlackJack. For the novice learning, or the pro polishing skills, BlackJack Academy offers both high powered instruction and realistic game play. Develop your skills, and have fun playing BlackJack Academy!



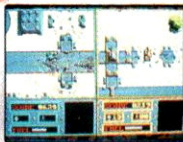
Split hands



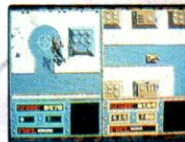
Game in play

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# REVIEWS

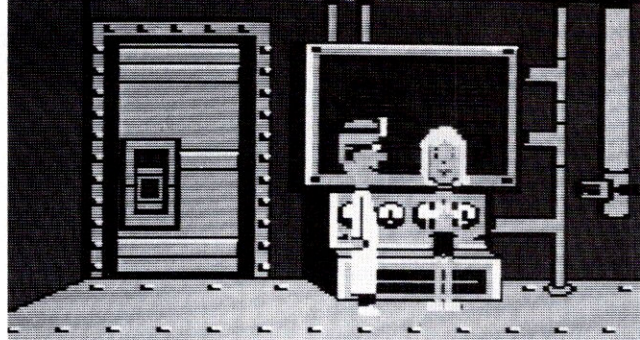
niac Mansion, a hilarious graphic adventure published by Activision.

Twenty years ago, a mysterious meteor plummeted to Earth near a Victorian mansion just outside of town. Bizarre things began to happen. Patients disappeared from the county hospital. Peculiar lights and noises were seen and heard in the old house. And then Sandy, the cheerleading

py-love princess.

Appropriately enough for a Lucasfilm Game, the specter of the silver screen joins Fred and Edna in haunting this mansion. From time to time during the game, the action unexpectedly cuts away to an animated scene taking place in another musty corner of the house. Players just sit and watch these amusing scenes for the clues,

You'll never get away with this!



cutie who went steady with Dave, was captured and taken to the mansion. Oooohhh, it's real scary, kids.

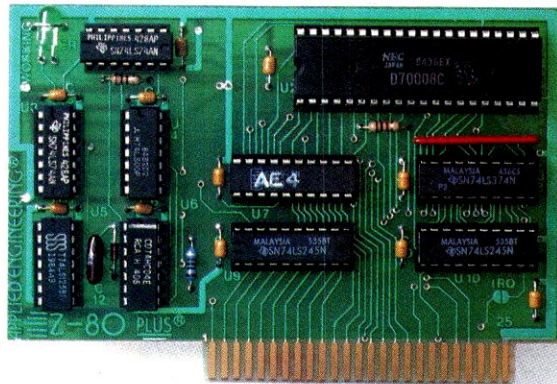
The inhabitants of Maniac Mansion look like the guests at my high-school reunion. There's Dr. Fred, the mad scientist; his snaggle-toothed wife, Nurse Edna; their nerdy son, Wierd Ed; and a pet Green Tentacle (so *that's* what happens to class presidents). And, of course, there're seven high-school daredevils, ranging from Honor Society maven to punk rocker, all of them ready to rescue Sandy from her too-close-for-comfort encounter. You choose two of them to join Dave as he ventures into the mansion to save his pup-

hints, or helps they may have to offer. For instance, when the scene makes a cinematic cut to Wierd Ed in his bedroom thinking how hungry he is, your teens better not be near the icebox, or the creepy glutton will have them locked in the dungeon faster than you can say Motley Crüe.

Playing this adventure is also very much like directing a film. The graphics take the IIe/c/GS one step closer to true Saturday morning cartoon graphics. As you direct the characters' actions, the experience is a bit like calling the shots on your own movie as the fully animated characters roam detailed halls, stairways, and rooms.

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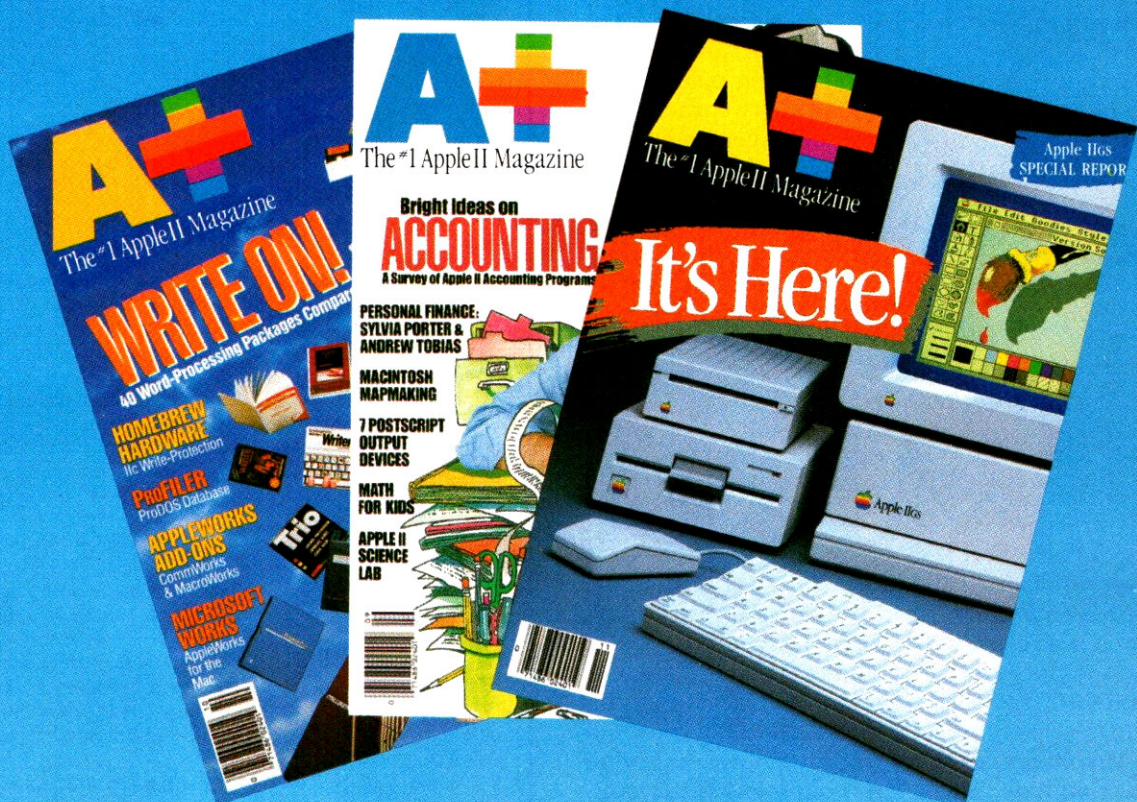
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# REVIEWS

only one of many elements, however, that make Maniac Mansion a pacesetter. You can play this adventure entirely with a joystick, operating it under keyboard control only if you prefer to. A joystick-controlled cursor allows point-and-click selection of verbs, objects, and character movement. It's an excellent nontyping alternative for Apple gamers young and old who might want to try their joystick hand at an adventure but demur at the thought of soiling their fire-button fingers on a keyboard.

As funny as it is fun, Maniac Mansion has a nicely demented sense of humor that adds another dimension of entertainment to the computer-macho difficulty of most adventure games.

Best of all, Maniac Mansion is open-ended and repeatable. Each teen hero has unique abilities that inspire different ways to uncover the mysteries of the mansion. Don't try to fix a radio, for instance, unless you have the class electronics nerd on your side. And if you need a musician, don't ask Dave, the kind of guy who wonders whatever happened to The Archies.

Maniac Mansion won't stop you cold if you lack the manpower to pull off a solution, however. You just have to figure out a different approach, including some that require ingenious cooperation among your three characters. The game is

refreshingly free of dead ends, and every time you choose a new group of teenagers, the mansion takes on new shades of challenge.

On the negative side, the wholly animated game design imposes lots of waiting as your characters walk from one location to the next, a situation that may annoy some impatient text adventurers. Here's where the speed of the IIGS can come in handy. The additional IIGS speed combined with the convenience of keyboard cursor control really streamlines game play.

The Load/Save Game option is fragile. If you unwittingly insert your Save Game disk into the disk drive before choosing the Save option, the program freezes. A warning and a means of recovery would be preferable.

Maniac Mansion is just plain fun. Its animated setting requires players to relax and resign themselves to a leisurely game-playing pace. Once you've made the adjustment, though, you'll relish this adventure for its great gags, charming graphics, and tantalizing puzzles.

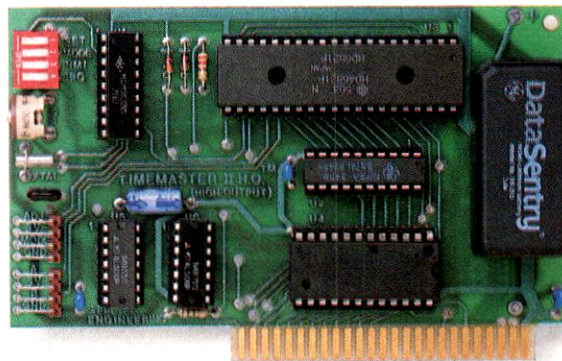
Bob Lindstrom

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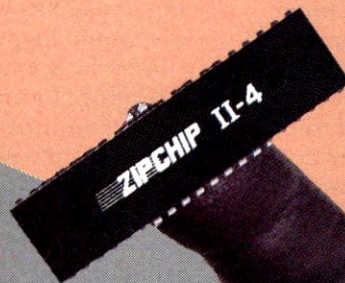
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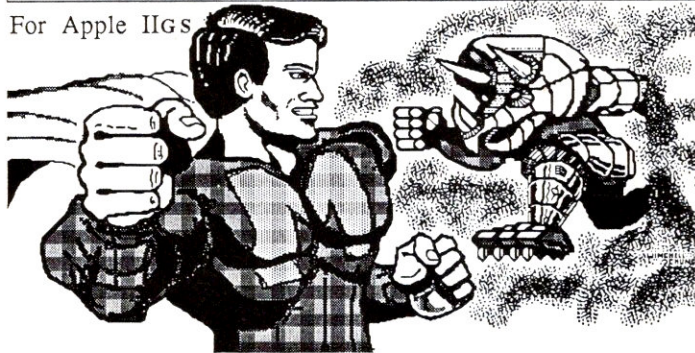




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# REVIEWS

know the correct answer to be—just respond with what you *think* was said most often in the survey, and you'll do all right. The colorful graphic representation of your family registers either joy or disappointment when you come up with either a correct or an incorrect response.

Fans of the televised "Family Feud" will probably notice that four of the mainstays of the television version are missing here: the unctuous, kissy-kissy master of ceremonies; the useless gifts the competing families bestow on the host; the

lollipop tree with the bonus hundred-dollar bills; and the family members saying "Good answer!" when one of their own utters a particularly stupid response. A more serious omission is that the game doesn't tell you what the number 1 responses in the fast-money round were if you don't happen to give them yourself.

Jeopardy, in contrast to Family Feud, is a game of facts and trivia; thus, it relies less on personalities than on pure knowledge and memory, losing little in its computer translation. Three contes-

BY TOM MURRAY

# LAUGHTRACK



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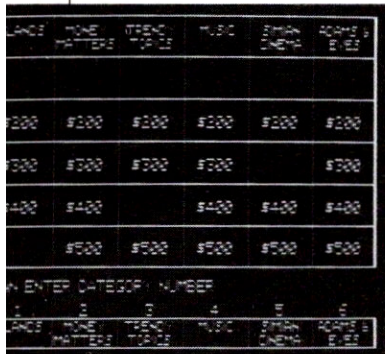
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CIRCLE 158 ON READER SERVICE CARD

# REVIEWS

tants vie to come up with the correct question for the answers on the 30-square game board, which is divided into six



subject categories and five money levels. The trivia subjects range anywhere from mammals to movies (according to Jeopardy's package).

The computer version follows its television counterpart exactly, going from the initial round into the second round (also called Double Jeopardy because the amount of money you can win with a correct response is twice what it was in first round) and then into Final Jeopardy, where you can wager any or all of your game winnings on a single question. Along the way, one Daily Double in each round permits the player who uncovers it and provides the correct question to get more than the face value of the answer.

In both Family Feud and Jeopardy, you have to give your responses by doing a bit of typing. Both games have a particularly lenient parser (the part of the program that recognizes words and phrases). The computer

looks for key parts of words rather than whole words, so if spelling is not your strong suit, the program may still know what you're going after. Because no host or judges are present, however, you are at the mercy of preprogrammed synonyms. For example, in Family Feud, for the question about the business partners I quoted above, I typed in *revenue*, and the program said that was incorrect; it was after *income* or *profit*.

Will any of my quibbles stand in the way of your enjoying these games? Absolutely not. You know these games. You grew up watching them. And as an added incentive, the games sell at an extremely modest price. I heartily applaud the publisher, ShareData, for keeping its product within any game-buyer's budget. So now I'm giving you fair warning: When I pass in front of your house, I want to hear "Good answer!" coming from inside. And then, after you've spent hours practicing, I want you to give away home-computer versions to all the people you beat.

Donald Oliver

## FAMILY FEUD JEOPARDY

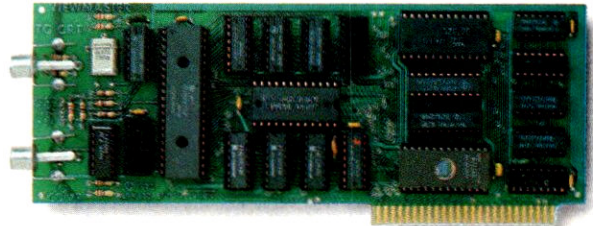
ShareData, Inc.  
7400 West Detroit C-170  
Chandler, AZ 85226  
(800) 328-6061

**LIST PRICE:** \$12.95 each  
**REQUIRES:** Apple II Plus, IIe, IIc, or IIgs;  
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VISION 80	✓	✓		✓				
OMNIVISION		✓					✓	✓
VIEWMAX 80	✓	✓		✓			✓	✓
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BY SHANON CULLEN

*A collection of interesting products for you and your Apple II-series computer*

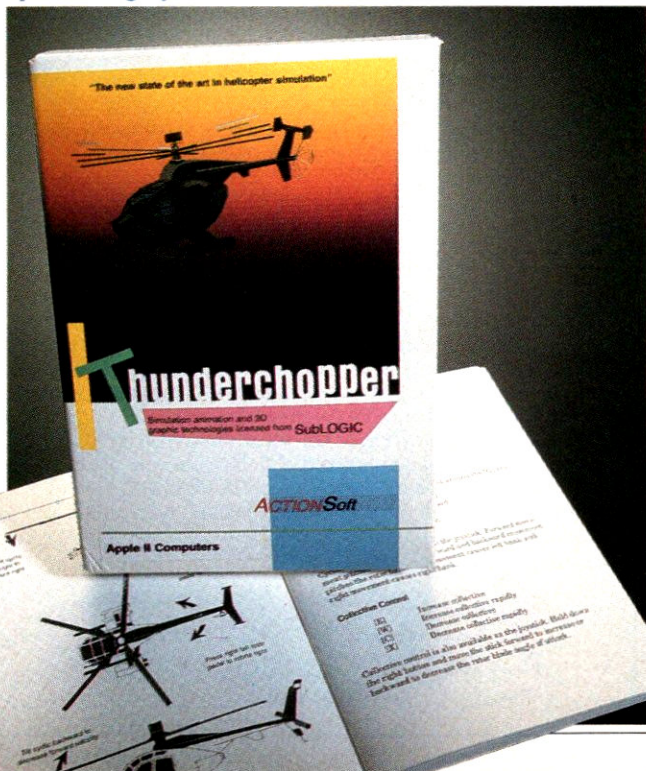
# PRODUCT ROUNDUP

## THUNDERCHOPPER

ThunderChopper is a helicopter simulation that puts you at the controls of an advanced Hughes 530 MG Defender. The program contains escort,

land and sea rescue, and combat scenarios. High-speed 3-D graphics offer out-the-window views in day-, dusk-, and night-flight modes. The helicopter's on-board flight

**ThunderChopper, a helicopter simulation game with high-speed 3-D graphics**



**The Easy Working Series from Spinnaker features three productivity programs that can be used separately or in combination.**

computer provides mission instructions and pilot-performance feedback. It also monitors the status of all systems and includes a terrain-map display with full zoom control.

**List Price:** \$29.95

**Requires:** Apple IIe, IIc, or IIgs; 64K RAM; one 5¼-inch disk drive; joystick optional. Not copy-protected.

ActionSoft  
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(217) 398-8388

CIRCLE READER SERVICE NO. 501

## EASY WORKING SERIES

The Easy Working Series from Spinnaker features three productivity programs: The Writer, The Planner, and The Filer, each at a very low price.

The Writer is a word-processing program with a built-in spelling checker. Editing features include Insert, Delete, Cut, Paste, and Copy.

The Planner is a spreadsheet program that gives you more than 50,000 cell locations. The program contains extensive math operations and six working templates: Expense Recorder, Gas Mileage Calculator, Home Budget, Profit and Loss Statement, Balance Sheet, and Personal Net Worth Statement.

The Filer is a database program that can contain more than 10,000 records per file and allows multiple databases per disk.

The Easy Working programs can be used separately or in combination with other programs in the series.

**List Price:** \$9.95 each

**Requires:** Apple IIe or IIc, 128K RAM, one 5¼-inch disk drive, monitor with 80-column capability. Not copy-protected. Spinnaker Software Corporation  
One Kendall Square  
Cambridge, MA 02139  
(617) 494-1200

CIRCLE READER SERVICE NO. 502



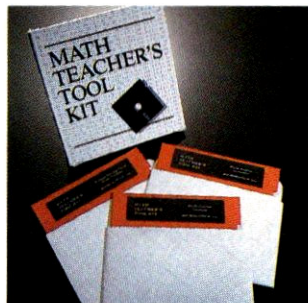
## MATH TEACHER'S TOOL KIT

The Math Teacher's Tool Kit is a set of teacher utilities that allows you to design math worksheets for individual students or groups of students. The programs let you print out an unlimited number of math problems and check student work with a computer-generated answer key and grading scale. The three program sets are Whole Numbers, Decimals, and Fractions. Each set comprises three disks, covering concepts, operations, and problem solving respectively.

**List Price:** \$30 per disk; \$80 per set of three disks  
**Requires:** Apple II Plus, IIe, IIc, or IIGs; 48K RAM; one 5¼-inch disk drive; printer. Copy-protected. Micromatics, Inc.

P.O. Box 28211  
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 (301) 529-0541

CIRCLE READER SERVICE NO. 503



**The Math Teacher's Tool Kit includes three program sets.**

## BEST OF APPLE II PUBLIC DOMAIN SOFTWARE, EDITION II

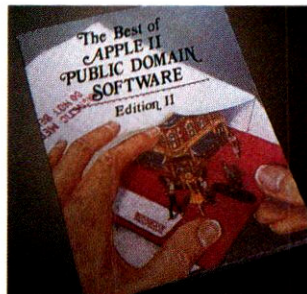
This book contains information about thousands of public-domain software programs, divided into 25 categories ranging from agriculture to word processing. Since the first edition, descriptions of 100 new disks have been added, as have three new categories: religion, CAD, and programming. In addition to introductory descriptions of all programs and re-

views of some programs, the book includes feature-length coverage of the most popular disks in the collection. The book is indexed in three ways: by subject, disk number, and filenames.

**List Price:** \$9.95

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CIRCLE READER SERVICE NO. 504



**The Best of... Edition II, from the Public Domain Exchange**

## BUSINESS WITH A TWIST

Business with a Twist is a business simulation designed for students in grades 6-9. The program contains seven interactive games that teach students to make sound business decisions while delivering quality food products to consumers. Business experiences include using a spreadsheet, searching in a database, making decisions that affect profit and loss, planning an advertising campaign, and learning about the nutritional benefits of the food products they are marketing.

**List Price:** \$38.50

**Requires:** Apple II Plus, IIe, or IIc; 48K RAM; one 5¼-inch disk drive; 80-column card. Not copy-protected.

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**Business with a Twist, a business simulation for students in grades 6-9, contains seven interactive games.**

## TEACH YOURSELF ESSENTIALS OF ACCOUNTING

This self-paced program by Robert N. Anthony teaches fundamental accounting concepts.

Topics include how to post journal entries, how to design an accounting system for your business, and what you can and cannot learn from a balance sheet. You can work through the course in the given order or directly

access any topic from the ten sections for review. The documentation includes examples of standard accounting forms and post tests.

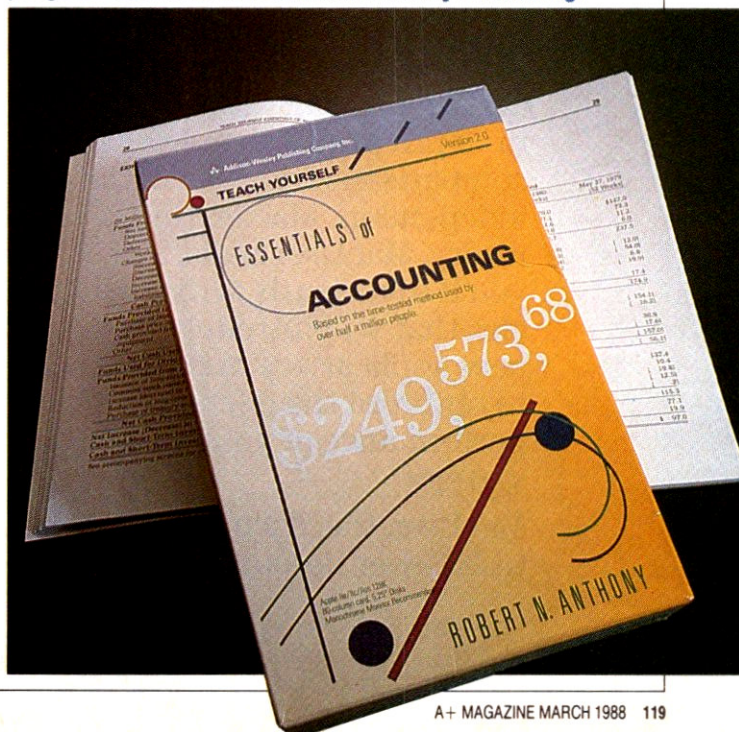
**List Price:** \$49.95

**Requires:** Apple IIe, IIc, or IIGs; 128K RAM; one 5¼-inch disk drive; 80-column card. Not copy-protected.

Addison-Wesley  
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**Teach Yourself Essentials of Accounting is a self-paced program available from Addison-Wesley Publishing.**



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# PRODUCT ROUNDUP

## HARDWARE

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**List Price:** \$39.95  
Kalglo Electronics, Inc.  
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Bethlehem, PA  
18017-9359

(800) 524-0400  
(215) 837-0700

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### FILTERED SAFE-STRIP

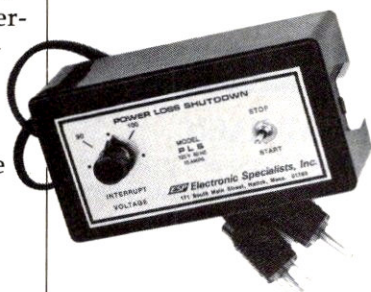
This surge suppressor provides twice the level of surge protection as does the original Safe-Strip and filters out noise from electromagnetic and radio-frequency interference (EMI-RFI). The suppressor features six outlets (four controlled and two unswitched), an illuminated master on/off switch, and a seven-foot power cable. The new Safe-Strip also has a resettable 15-amp circuit breaker for current-overload protection.

**List Price:** \$39.95  
Curtis Manufacturing Company, Inc.  
305 Union Street  
Peterborough, NH 03458  
(603) 924-3821

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### POWER LOSS SHUTDOWN

The Power Loss Shutdown is designed to protect microcomputers operating on UPS or SPS power by shutting down an entire computer system if commercial AC power has not yet been restored when UPS or SPS batteries have discharged. Models with adjustable AC line drop-out voltage level are available to accommodate the inherent brownout-protection capabilities of some UPS systems.



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(617) 655-1532

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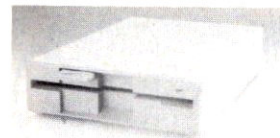
### DICONIX 300W

The Diconix 300W is a transportable printer designed to accommodate paper up to 14.8 inches wide. The printer uses ink-jet technology and operates at draft speeds of up to 310 characters per second. It is 2.87 inches high, 9.17 inches deep, and 19 inches wide, and it weighs 12.8 pounds. The Diconix 300W has automatic paper-handling capabilities for both continuous and sheet-fed paper. Elite or pica type size is available in draft, near-letter-quality, and quality modes. The printer comes with

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CIRCLE 138 ON READER SERVICE CARD

## Solid-Apple



**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.

### Il cue #40

There are a number of alternative Basics available for the Apple II. No matter whether you want speed, structure, local variables, no line numbers, or portability, there's a version that offers it. *The Beagle Compiler* offers speed and support for expanded memory. *Blankenship Basic* offers structure. *Micol Basic* has both speed and structure. *ZBasic* is portable to CP/M, the Macintosh, and MS-DOS. For more, see "Basic choices" in the December 1987 **Open-Apple**, page 3.88.

### From our fan mail:

There is a new and free Apple user group publication called *Tech Tidbits*. The *Tidbits* purportedly have a list of Apple II publications, but they omit **Open-Apple**, which is far and away the best and most important resource of them all.

Don Lancaster  
"Ask the Guru"  
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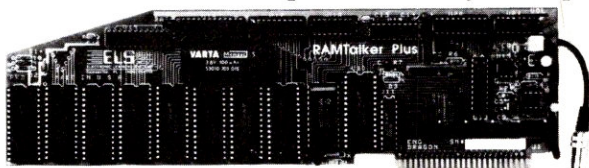
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# PRODUCT ROUNDUP

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## SOFTWARE

### PRINT MAGIC

Print Magic is a printing program that allows you to place text and graphics anywhere on a page or cut and paste graphics and text from one page onto another page. The high-resolution graphics can be flipped, inverted, copied, enlarged, or modified. You can create original designs by using a drawing toolbox that includes 24 paintbrushes; 5 pens; a variety of patterns; and automatically generated circles, ovals, boxes, rectangles, and lines.

Print Magic includes a collection of detailed graphics, typefaces, and borders. Art can also be imported from the Epyx Graphics Scrapbook collection, from graphics disks compatible with The Print Shop and The Newsroom, and from other popular graphics programs.

**List Price:** \$59.95  
**Requires:** Apple II Plus, IIe, IIc, or IIGs; 128K RAM; one 5¼-inch disk drive; mouse recommended. DOS 3.3; not copy-protected.  
Epyx  
600 Galveston Drive

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**List Price:** \$150

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Conduit

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CIRCLE READER SERVICE NO. 513

# TIPS AND TECHNIQUES

*Readers share tips for the II*

## MORE EPSON AND APPLEWORKS

In the July 1987 issue of *A+*, reader Paul Riker revealed one way to print in near letter quality (NLQ) from AppleWorks, using an Epson printer with SelecType. I used his method (inserting Pause Here and selecting NLQ with SelecType) for quite some time, but I was still unable to print NLQ from the spreadsheet or database modules. Another way to do it is to define a custom printer (with a name such as Epson NLQ) and modify its character-per-inch settings. For example, I changed the control codes in my 10-cpi setting to Esc x, which turns on NLQ print whenever 10 cpi is selected in the word-processor, database, or spreadsheet modules and also eliminates the hassle of using SelecType.

Another trick is to put typstyles such as italics or emphasized in unused character-per-inch settings. For example, when I select 9 cpi with my custom printer, it prints in italics. All the control codes for the typstyles are in the Epson manual. This method of redefining cpi settings should work for any printer, as long as you can define it as a custom printer.

KENNETH L. STUTZMAN  
DENVER, CO

## MULTISCRIBE FONT LOADING

If you are using MultiScribe GS 2.0 with one 3.5-inch drive and one

5¼-inch drive, you probably hate all the disk swapping you have to do while loading a font. The solution is to put the fonts onto a 5¼-inch disk so you can use an 800K data disk.

Here's how: Using the DeskTop or Finder, format a 5¼-inch disk with any name; then create a folder called SYSTEM and another folder inside SYSTEM called FONTS. Copy all the fonts you usually need from the MultiScribe disk to the FONTS folder (all but three will fit).

Finally, rename the 5¼-inch disk /STYLEWARE.2 (which is also the name of the program disk). After you reboot the StyleWare program disk, you can remove it, insert your 3.5-inch data disk and 5¼-inch fonts disk, and continue using the program without being asked for the start-up disk when you select new fonts.

NATHAN MERRILL  
DANBURY, CT

## APPLEWRITER ENVELOPES

I use AppleWriter IIe constantly in business and personal correspondence. Since I first started using it, however, I've been frustrated by the lack of an easy way to address an envelope following the writing of a letter. It has always meant clearing memory and retyping the address and printing it to the envelope, or inserting several control

codes into the body of the document after the letter has been printed, to start and stop printing of the address.

Now I've devised a method of quickly addressing an envelope after printing of the document itself. It utilizes the Glossary feature and requires only the typing of open-apple/E (or any other user-defined letter) to print the envelope address. The procedure is as follows: ([ ] stands for the Control key, and ] stands for Return, as in all the Apple Writer IIe commands).

Boot AppleWriter IIe. Type [G] to enter the Glossary Selection mode. Type the Shift key and ? for "define." Type the following as a new glossary definition:

```
e[B].EPO][F]<><>]EscapeDown-
arrow.EP1[F]<><]
EscapeDownarrow.EPO[P]?]LM45]NP]LM8]]
[B][F]/.EP1//]Yn[B][F]/.EPO//]Yn[B]
[F]<><>]Yn
```

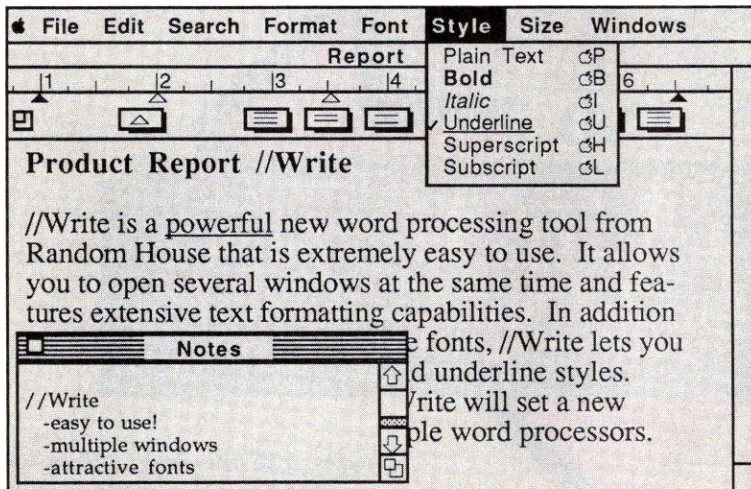
When you're typing in the definition, don't type out E-s-c-a-p-e and D-o-w-n-a-r-r-o-w; just press the Escape and down-arrow keys.

When you're finished with the above string of characters, press Return to store it in the temporary glossary buffer. (Don't type a Return until the entire list is typed.) Then type [Q] to enter the Additional Functions menu. Select F (Save[G]lossary File).

Give the above glossary string a name (for example, I called mine LTR, for *letter*) and press Return to save the file to the AppleWriter IIe disk. (You can also save it to your

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# //Write



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**System Requirements:**  
//Write runs on the Apple IIe/c (128K) and Apple IIgs.  
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//Write developed by UNICOM Software Development Group.  
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CIRCLE 283 ON READER SERVICE CARD

files disk by typing the complete pathname.)

All control characters in the above string show on the screen as inverse characters. Escape shows as an inverse [, and downarrow shows as an inverse J.

This glossary file works great on long, standard-size envelopes. If you use shorter-style envelopes for your correspondence, simply redefine the command LM45 to whatever distance you find suitable for starting the printing of the address. The command LM8 should be set to whatever the default value is on your AppleWriter IIe Print/Program Command menu to return the left margin to your letter-writing setup after you print the envelope.

How does it work? It couldn't be simpler! Whenever you boot AppleWriter IIe, immediately type [Q] to enter the Additional Functions menu. Select item E (Load [G]lossary File), type LTR, and press Return. The glossary file is now loaded. Proceed to type your letter and print it as usual.

As soon as you have printed your letter (with the cursor now at the end of the letter), remove the letter from the printer and insert the envelope. Now for the exciting part: Simply type open-apple/E, and the entire address prints on the envelope after only two keystrokes from you.

ALF H. CLAUSEN  
NORTHRIDGE, CA

### PC PURSUIT

If you want more information on the PC Pursuit service mentioned in the A+ "Telecommunications" column last August, call the PC Pursuit Information BBS at (800) 835-3001. It's a free call, and the board answers any questions you may have about the service, including updates on PC Pursuit-able area codes.

JEROD M. BENNETT  
WESTMINSTER, CA

*Please send your Apple II tips to A+, 110 Marsh Drive, Suite 103, Foster City, CA 94404; ATTN: Tips and Techniques. We pay \$25 for each tip we publish, so be sure to include your name, address, and Social Security number.*

# PRODUCT ALL-STARS

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Template

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Diversi-CACHE

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System  
Oregon Trail  
Where in the World Is  
Carmen Sandiego?

Every three months, *A+* will publish its list of Product All-Stars—those hardware and software products that *A+* editors and contributors consider exceptional. Watch for this quarterly guide beginning in the June issue. Here's a listing of products that will be covered in detail in the All-Stars guide.

### ENTERTAINMENT

The Zork Trilogy  
Suspended  
The Wizard and the  
Princess  
King's Quest I & II  
Ultima I, III, IV  
Wizardry I-III  
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Shanghai  
Hacker II  
Chessmaster 2000  
Lords of Conquest  
Archon II  
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Chickamauga  
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Wilderness  
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Dazzle Draw  
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Animate  
The Graphics Magician  
Fontrix  
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Draw Plus  
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Graphic Edge

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AppleWorks  
Foundation

### MUSIC

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Instant Music  
KidsTime II  
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(for IIGs)  
The Music Class  
Note-Us  
MIDI Music Tutor  
Guitar Wizard  
Stickybear Music  
Peter and the Wolf Music  
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Introduction

### PERSONAL FINANCE

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On Balance  
Dollars & Sense

### TELECOMMUNICATIONS

CommWorks  
MouseTalk  
Point-to-Point  
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Talk Is Cheap

### WORD PROCESSING

WordPerfect 1.1  
Perfect Writer 2.0  
MultiScribe GS 2.0  
AppleWriter II  
Sensible Writer  
MouseWrite  
Bank Street Writer Plus  
HomeWord Plus

## HARDWARE

### ACCELERATORS

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Sider D2, D4

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AppleMate  
DataLink  
ProModem 300c

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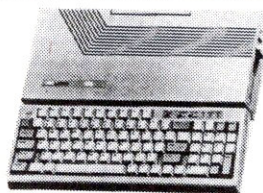
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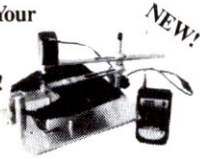
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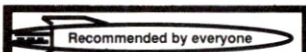
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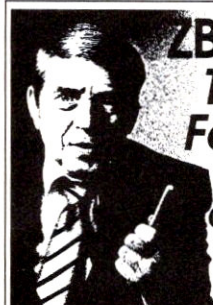
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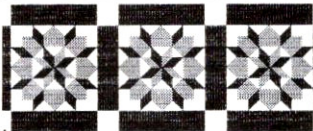
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Reviewed in March, '87 issue of inCider Magazine, pg. 38.  
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**WHICH VERSION IS FOR ME?**

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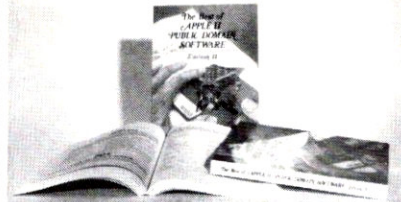
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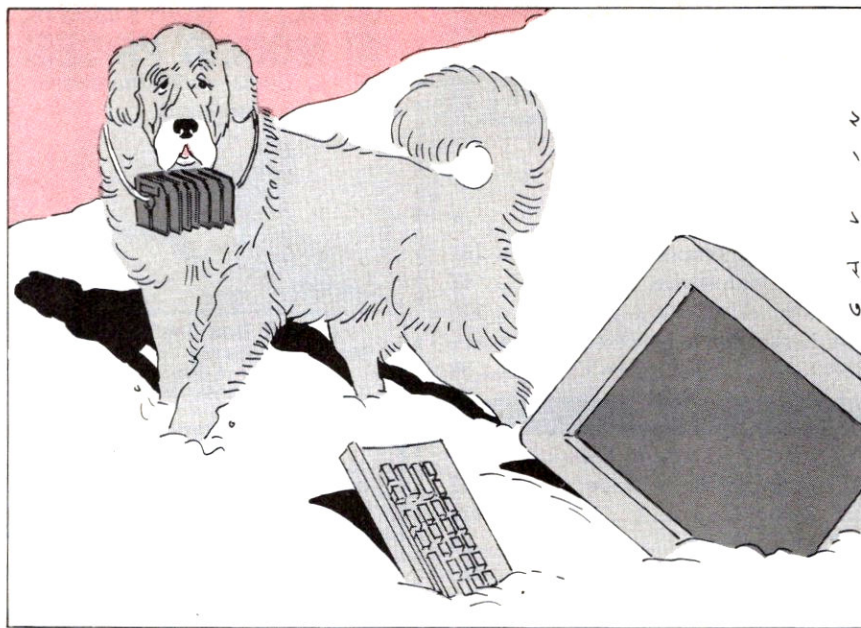
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# RESCUE SQUAD

BY GARY B. LITTLE

## MORE NUMERIC PRECISION

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JOE SULLIVAN  
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**Q.** I've been considering purchasing an Apple extended keyboard for my GS. How can a program determine if a special function key is being pressed?

LYMAN G. JONES  
BRONX, NY

Function Key	ASCII Character
F1 (undo)	z
F2 (cut)	x
F3 (copy)	c
F4 (paste)	v
F5	^
F6	a
F7	b
F8	d
F9	e
F10	m
F11	g
F12	o
F13 (print screen)	i
F14 (scroll lock)	k
F15 (pause)	q
Help	r
Home	s
Page Up	t
Del	u
End	w
Page Down	y

Figure 1: The ASCII characters generated by the special function keys on the Apple Extended keyboard.

**A.** The Apple extended keyboard has 21 special function keys that are not present on the standard GS keyboard. They are labeled F1 through F15, Help, Home, Page Up, Del, End, and Page Down. Figure 1 shows the ASCII characters generated by each of the special function keys. The GS considers all of them to be keypad keys, meaning that bit 4 of the Keyboard Modifier register (at \$C025) is set to 1 when any of them is pressed. As a result, when you read an ASCII character code from the keyboard, PEEK(49189) = 16 if it was generated by a keypad key. Note that the extended keyboard does exhibit one minor problem when you use it with the GS: The indicator lights for Num Lock, Caps Lock, and Scroll Lock don't work.

## SPORTS SCHEDULER

**Q.** I am looking for a program to help me schedule our city's baseball and hockey leagues. The information I want to feed the computer is the time slots and dates of 10-12 teams. Can you help?

DAVID LEE  
THORSBY, ALBERTA  
CANADA

**A.** PCR Software, 45 Pond Street, Norwell, MA 02061; (617) 871-5398 sells a program that will probably suit you fine, since it can handle any league with 4-22 teams. The program sells for \$119.99 and runs on a IIe, IIc, or IIGs.

## WEIRD CABLES

**Q.** I want to connect my IIGs to a Thomson analog RGB monitor (Model 31381), but I need an adapter cable. Do you know where I can find one?

HANS MAHNCKE  
HONG KONG

**A.** My favorite source for weird cables is Redmond Cable, 17371-A1 NE 67th Court, Redmond, WA 98052; (206) 882-2009. The company doesn't have this particular adapter in its inventory, but the folks there have assured me that they can make one for you quickly. I encourage anyone who might need a special cable to contact Redmond Cable for assistance—it has the expertise and a liberal money-back policy that you can avail yourself of if you purchase a cable that doesn't seem to do the job. +

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Apple IIe	C.	H.
Laser 128	D.	I.
IBM or clone	E.	J.

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Productivity Software for Home	L.
Educational Software	M.
Entertainment Software	N.
Programming/ Language Software	O.

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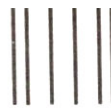
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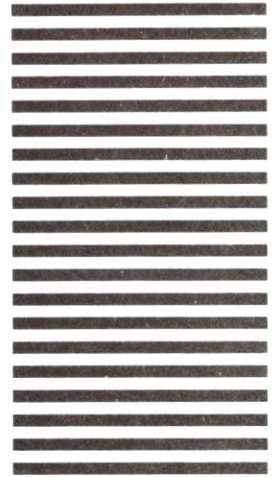
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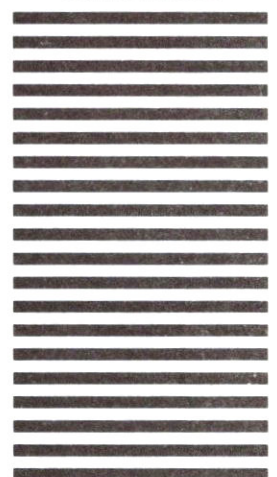
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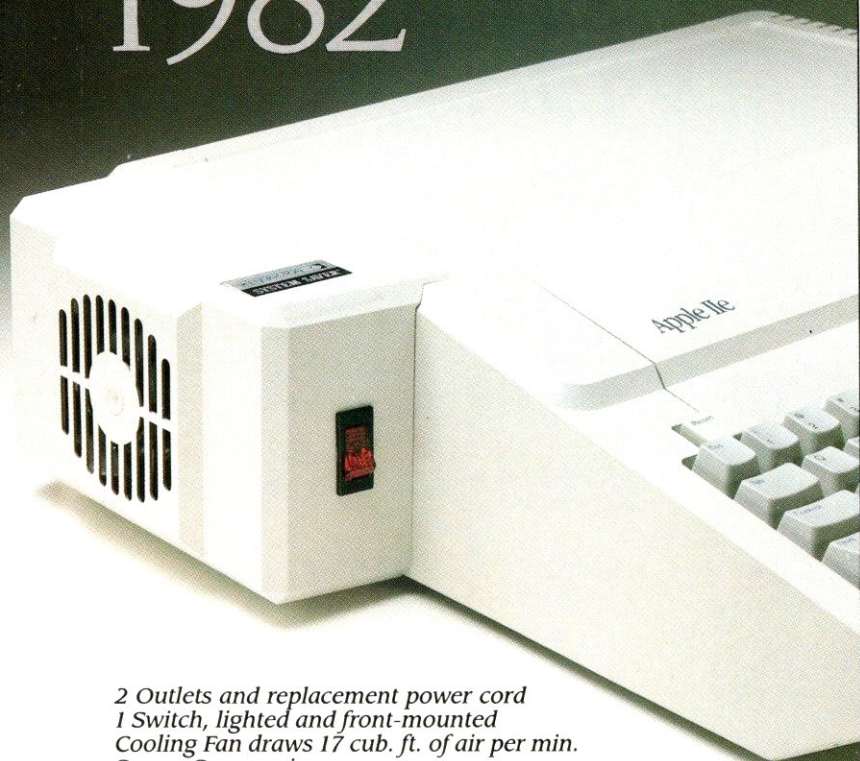
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