Prepare Your Taxes with AppleWorks, p.54 • Laser's ImageWriter Clone, p.112

THE APPLE II MAGAZINE

nCider

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- **United States** A graphic on U. S. states and capitals.
- **Morse Code Tutor** Learn the Morse alphabet in this fun tutorial.
- **SuperBye** Say goodbye to the ENTER PREFIX prompt.
- **Desert Trader** Can you survive in this western-space opera?

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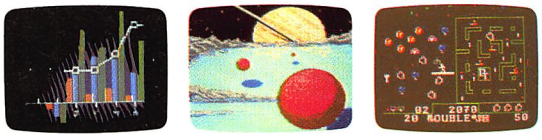

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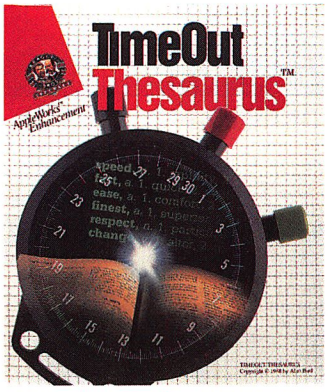

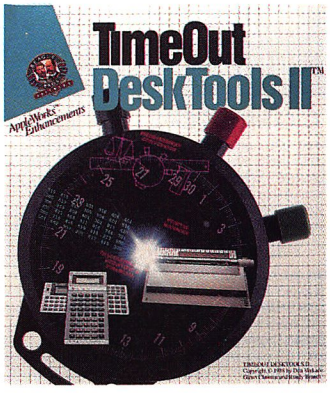

The TimeOut™ series is the best thing to come along for AppleWorks users in a *long* time. These widely acclaimed AppleWorks add-ons aren't like add-ons at all. They are integrated so well with AppleWorks they seem built-in—like they have always been there. And you can access them instantly from *inside* AppleWorks. Our original seven TimeOut products (QuickSpell, SuperFonts, Graph, UltraMacros, SideSpread, FileMaster and DeskTools) revolutionized the way you use AppleWorks. Now there are more TimeOut products that have just been added to the family.

TimeOut Thesaurus™

Thesaurus gives you instant access to nearly 50,000 online synonyms. Stop wasting time looking up synonyms by hand in your old paperback thesaurus. With Thesaurus you can just put the cursor on the word you want a synonym for, press Open-Apple-Escape and you will see a list of synonyms from the built-in Random House word list. Synonyms are listed by parts of speech—noun, verb, etc. If you see a word that suits you, select it and the original word in your document will automatically be replaced with the new word. If you see a word that you *almost* like, you can get a list of synonyms for that word—you can get synonyms for synonyms up to eight levels deep. And Thesaurus is smart. It automatically removes and adds suffixes as needed to let you find the maximum number of synonyms possible. Thesaurus is the perfect companion for QuickSpell too.

TimeOut PowerPack™

PowerPack (Editor's Choice, in Cider magazine August 1988) includes ten new applications that add more muscle to AppleWorks:

TRIPLE DESKTOP allows up to 36 files on the desktop (instead of just 12).
TRIPLE CLIPBOARD creates three independent clipboards.
PROGRAM SELECTOR lets you run other programs and automatically return to AppleWorks.
LINE SORTER alphabetizes lists of words or numbers in the word processor.
HELP SCREENS let you make your own customized help screens.
FILE LIBRARIAN reads your disk directories into a data base file where you can search and sort on any category.
DESKTOP SORTER arranges the desktop index any way you want.
CATEGORY SEARCH lets you search one particular category instead of all.
AWP TO TXT saves true text without all those unwanted carriage returns.
ASCII VALUES converts numbers to ASCII, hex, binary and screen equivalents.

TimeOut DeskTools II™

DeskTools II adds all kinds of goodies to AppleWorks:

AREA CODE FINDER shows you area codes for the U.S. by city or state.
CALCULATOR PLUS is an extremely powerful financial and scientific calculator.
CLIPBOARD VIEWER shows you the current contents of the clipboard.
MEASUREMENTS converts metric, decimal, length, weight, liquid, time, etc.
DIRECTREE shows where your files are stored on disk and lets you load them without specifying prefixes or pathnames.
DISK TESTER verifies your disk.
FILE SEARCH finds the phrase you're looking for in any file on disk, fast.
PRINTER MANAGER lets you send any control codes you want to your printer.
SCREEN BLANKER prevents screen burn-in by blanking it when not in use.
SCREEN PRINTER lets you print any portion of the screen.
STOP WATCHES keep track of up to five separate events at the same time.

TimeOut SpreadTools™

SpreadTools is packed with new applications designed especially for AppleWorks spreadsheets:

ANALYZER lets you scan your spreadsheet for errors, print out a cell cross reference, get a bird's eye view of the entire spreadsheet, adjust column widths to show entire formulas, track down cell references, and print the value of all cells.
BLOCK COPY lets you copy blocks of cells (rather than just rows or columns).
CELLINK links spreadsheets so you can import values from other spreadsheet files.
DATA CONVERTER automatically converts data from word processor to spreadsheet, spreadsheet to data base, and data base to spreadsheet.
FORMULA TO VALUE converts formula cells to values to save memory and cut down on re-calculation time.
QUICK COLUMNS lets you set column widths fast.
ROWS < — > COLUMNS lets you convert a row into a column or vice versa.

TimeOut MacroTools™

In addition to the original MacroTools (Macro Debugger, Task Launcher, Menu Maker, Token Chart, File Stats, and lots of new macros), there's also MacroTools II which has still *more* for all of you macro maniacs including Publisher, File Lister, Macro Lock and tons of new macros.

TimeOut Paint™

Paint is a bonus, pull-down menu, graphics program that we've recently added to SuperFonts and Graph. It has lots of tools and works with Hi-Res, Double Hi-Res and PrintShop pictures.

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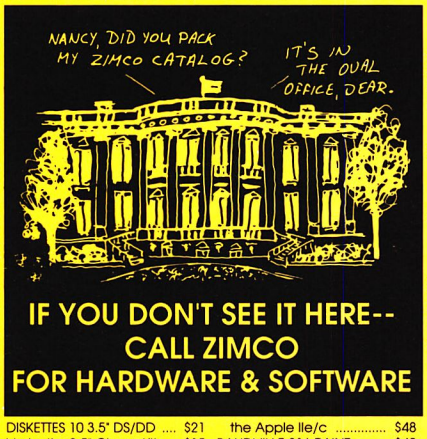

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Advertising

Associate Publisher/ National Sales Manager Dale Strang (800) 441-4403
Northeast Sales Representative Peter Slingluff (800) 441-4403
Western Sales Representative James Burns, 3350 W. Bayshore Rd. Suite 201, Palo Alto, CA 94303 (415) 328-3470
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Circle 260 on Reader Service Card.

Experts and users agree GraphicWriter is the desktop publishing program for the Apple IIGS.

New Improved Version 3.0!
Call for Details

inCider magazine says, "GraphicWriter 2.0 is a giant step forward for the Apple IIGS. It's a powerful way to produce exciting page layouts, and it's easy to do."

A+ magazine declares, "GraphicWriter facilitates a smooth blend of text and graphics, and the result is a tool that you can use for everything from writing a letter to creating page layouts with color separations."

Compute has this to say: "GraphicWriter really comes into its own when you want to integrate text and graphics." And 10,000 owners agree. Laurie Knight of Hemet, CA proclaimed, "Terrific program! It does everything I need to do." Roger Ruthberg of Philadelphia, PA thinks it's excellent, well worth twice the price."

GraphicWriter, which is color and laser printer compatible, combines word processing, graphics and page layout into one complete, easy-to-use package. The program needs only 512K of memory, and is not copy protected. And, most importantly, it's available NOW.

	GraphicWriter	Medley	Publish It!
IIGS-Specific	Yes	Yes	No (e, c, GS)
Memory Requirements	512K	1.25 MB	128K
Operating System (included)	GS/OS™	ProDOS 16	ProDOS 8
Uses Color Display	Yes (640 mode)	Yes (640 mode)	No
Suggested Retail Price	$149.95	$195.00	$99.95
LaserWriter printing	Included	Included	$39.95
SampleTemplates	Included	Available	$39.95
Clip Art	Included	Included	Included
Spelling Checker	Included	Included	Not Available
Total Cost	$149.95	$195.00	$179.85

Suggested retail only $149.95

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Actual Size

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Compatible

The SupraModem 2400 is 100% compatible with industry-standard, intelligent "**AT**" commands and all commonly used protocols (including Bell 103/212A, CCITT v.22, and CCITT v.22bis). Since the SupraModem operates asynchronously at **300**, **600**, **1200**, and **2400** baud, you can communicate at whatever rate you need to. All these features let you use the SupraModem 2400 to connect with most modems being used today.

Affordable

In addition to its low price, the SupraModem 2400 will save you money by letting you communicate at 2400 baud, thus decreasing your on-line time. The SupraModem 2400 incorporates the advanced Intel 89024MS chip set. This design utilizes fewer parts, assuring operation long after the one-year warranty period.

Easy to Use

The SupraModem 2400 is very easy to use. It features autoanswer and autodial (tone and pulse) for performing phone tasks, and it has a programmable-volume speaker for monitoring call progress. Storing phone numbers and user configurations is also simple because of the modem's programmable nonvolatile memory.

These features and others are explained thoroughly in the comprehensive *SupraModem 2400 Operator's Manual*. Once you understand the basics, the modem's quick-reference card makes finding command descriptions and other modem information quick and simple.

And to make it even easier to begin telecomputing, the SupraModem 2400 comes with introductory packages for several popular on-line services.

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inCider

Vol. 7 No. 1
January 1989

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A few years ago "high-speed telecommunications" was a very expensive proposition—when it worked. Now a new generation of 2400-baud modems is putting Apple IIs on line faster than ever, and at a fraction of the cost.

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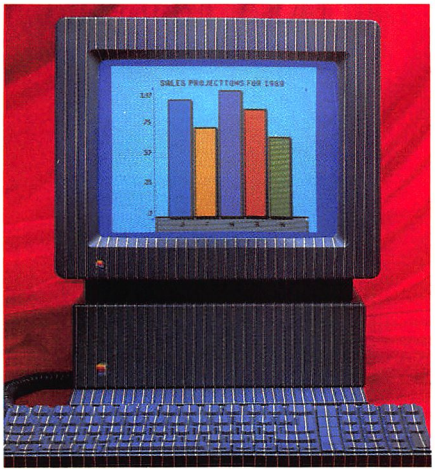
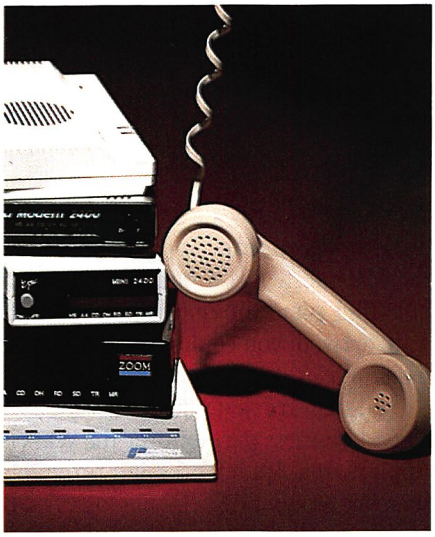


***On the cover*: No, this isn't a new IIgs from Apple. *inCider* Art Director Linda Sweeney sacrificed her IIgs in the name of creativity. Don't worry, though, the IIgs—now dressed for success—is still ticking.**



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Stattus Report and inCider *On Line will return in February.*

Software Means Business

by Dan Muse, Editor in Chief

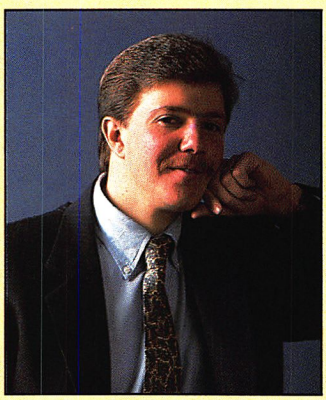
The Apple II is not a business computer. Before you organize your lynch mob or—worse yet—cancel your subscription, let me finish my thought. The Apple II is not a business computer, but there is some excellent business software for it. The Macintosh isn't a business computer, but there is more business software for it.

No computer is born a business machine, an entertainment machine, or an education machine. The power of the hardware contributes greatly to where a computer fits into the picture, but it's the type of software available for a computer that most influences computer buyers.

For example, at *inCider* we run the editorial offices with Apple IIs and AppleWorks. We prepare budgets on them, keep databases with them, and edit and transmit articles from them. The advertising and circulation departments, however, rely on IBM PCs because they need dBASE III or Lotus 1-2-3 to get their jobs done.

We use our Apple IIs everyday because AppleWorks does everything we need it to do. *inCider* shares a corporate production department with six other IDG Communications/Peterborough publications. The typesetting and page-layout system is based on a Data General minicomputer. We edit manuscripts, insert typesetting commands, and transmit them to typesetting. However, to save money and improve lead times, the day may come when we decide to produce *inCider* on a personal computer-based desktop-publishing system. Depending on what software's available for the Apple II, we may have to look at Macintoshs.

It's true that the way a company positions its machine helps determine what software is developed for it, but that doesn't necessarily dictate what people do with it. For years Apple claimed that the Macintosh was a business machine, but until some top-notch business software arrived, you couldn't find a Mac in many offices.



"The way a company positions its machine doesn't dictate what people do with it."

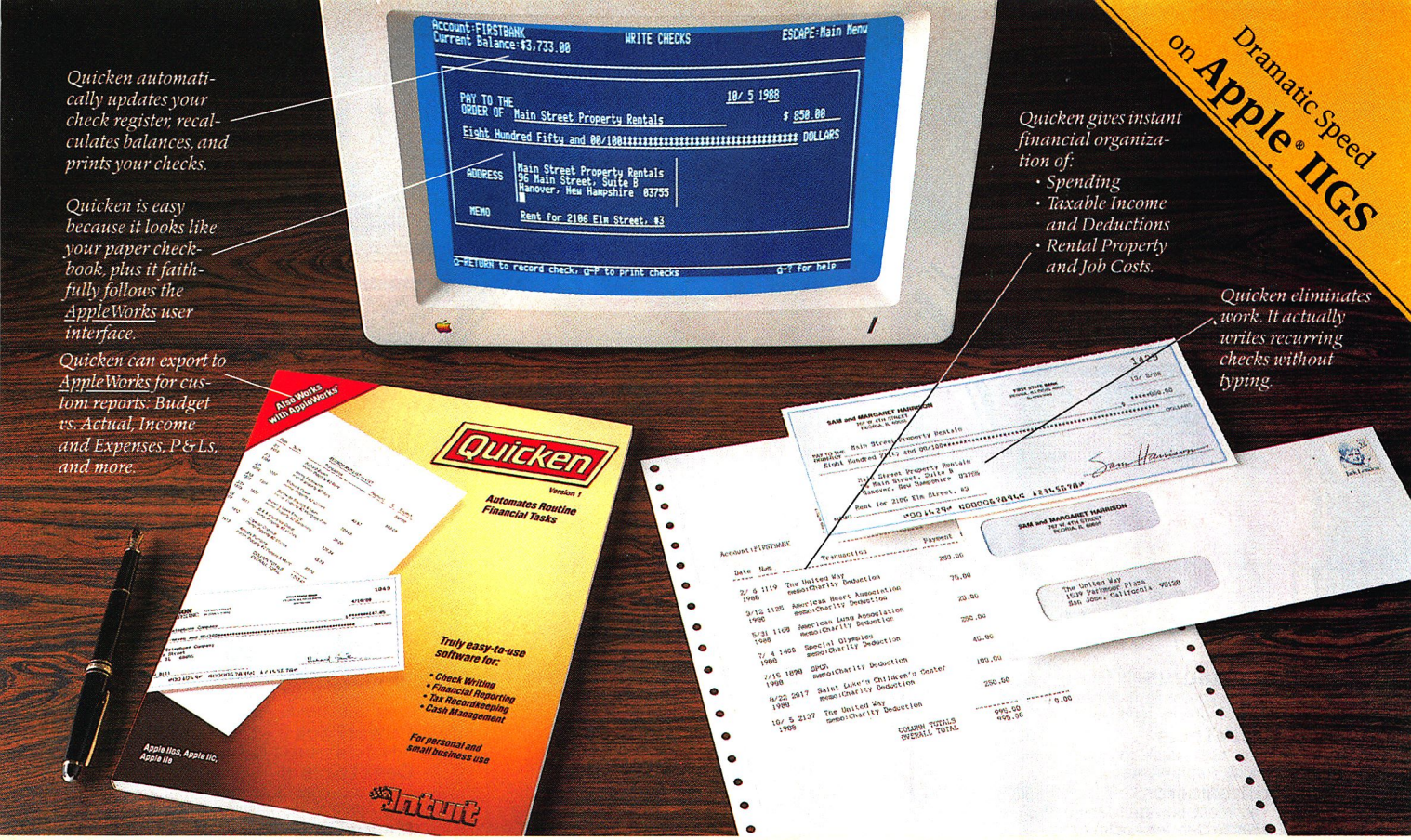
The software that's made the Apple II a good business partner over the years is AppleWorks. AppleWorks and programs such as Stone Edge Technologies' DB Master continue to make the Apple II an affordable business solution for those not caught up in marketing hype. People running businesses with Apple IIs aren't fooled by "M*A*S*H Cast Operates in Business" or "Yuppies Climb the Corporate Ladder with Mac" commercials.

AppleWorks is a great business program, so the IIe and IIc are business systems. What will make the Apple IIGS a business machine is AppleWorks GS. That doesn't mean that Claris will sell it solely as a business product. Don't expect to see AppleWorks GS advertisements in *BusinessWeek*. But Claris has invested heavily in AppleWorks GS and it has too much marketing savvy to pass up a large chunk of potential customers. Even if Claris ignores small business totally, AppleWorks GS is too good and too powerful not to work a full eight-hour day. And Apple II users are too smart not to recognize this.

The GS probably won't get past the receptionist at Fortune 1000 companies with dedicated MIS (management-information systems) and data processing departments.

While the Apple II may not fit into the picture on the Fortune 1000 level, most small businesspeople run their companies out of small offices or even the home. Apple II marketing people like to talk about the home-school connection, but there's also a home-business connection. The home *is* the office for thousands of businessmen and women. And maybe the owner wants a computer that can also teach his or her kids. Johnson's Plumbing or Carson's Catering probably doesn't need a Compaq Deskpro with an 80386 processor and Lotus 1-2-3 or dBASE III. AppleWorks with a few add-on products or DB Master is more than powerful enough for these businesses. And when the work's done, the kids can learn to spell with Stickybear or read with Reader Rabbit, and Mom and Dad can publish their church's newsletter with Publish It!. That's what makes the Apple II the most versatile personal computer you can buy.

The next time you read that Apple isn't positioning the II as a business computer, remember that Apple doesn't have that much to say about it.■



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Tied In

Our Gilbert District School System has installed ELAN systems—mentioned in "Networking–The Classroom Connection" (September 1988, p. 68, and October 1988, p. 56)—in all 11 schools. We installed our first lab four years ago and have had virtually no technical problems. Since then, we've upgraded from 10- to 40-megabyte hard drives to accommodate increases in enrollment, and as new schools open, we've been matching the equipment in the existing labs.

Compared to other network systems, the ELAN system is inexpensive. Matching existing equipment in the new labs is so reasonably priced that a lack of finances doesn't overshadow our needs. Our elementary schools use the labs with regular, accelerated, and special-education classes. In the high-school and junior-high labs, the primary users are underachieving and at-risk students.

We use Ideal software, and also run AppleWorks and Terrapin Logo. We can run MECC programs as well. Currently, we've more than met our goals in supplementing our classroom instruction and don't need additional programs.

Ann L. Mangold
District Computer Coordinator
Gilbert Public Schools
140 South Gilbert Road
Gilbert, AZ 85234

Second Opinion

Although most of the information in your MultiScribe GS review (August 1988, p. 38) is helpful and correct, I think Cynthia Field did your readers a great disservice by stating that the system memory requirement is only 512K. I've seen the program used in a number of different settings and there's no way it will do anything useful on a IIGS with only 512K.

If Dr. Field had popped the extra memory chips off the expansion card so that her machine was truly 512K, or even if she had simply checked the Control Panel's "Total RAM in Use" listing occasionally, she would have seen that the program can chew up more than 512K on a one- or two-page document. Furthermore, MultiScribe gives no warning when you've reached the memory limit—the program simply stops functioning.

D. Kinch
150 Minna Street
Brooklyn, NY 11218

Cynthia Field agrees with you regarding the limits of using MultiScribe GS with 512K, especially if you're using it with several fonts or graphics. She adds, however, that because the program is so slow at printing, you'd rarely want to create more than a one- or two-page document.

She also points out that her review states, "MultiScribe GS runs adequately on 512K, but 768K or more is recommended, especially if you want to create long documents or integrate graphics easily." Incidentally, before she expanded her GS' memory, Dr. Field did use MultiScribe with just 512K. —eds.

Advocating AppleWorks

Adam Gross states in your Letters column (August 1988, p. 12), "HyperCard is probably the most revolutionary piece of software since the introduction of MacPaint." While HyperCard may be revolutionary, what makes MacPaint so great? Yes, it was one of the first programs to utilize the Mac's user-friendly interface, but what about MacWrite?

As I understand HyperCard, it's basically an indexing system, whereby you can click on an area of text or graphics and view another related phrase or picture immediately. However, doesn't someone have to program HyperCard to perform these actions?

As far as the mice-and-menus debate goes, I love it. I own a GS, and for me, it works fine. Before I got the GS, I had a IIe with MultiScribe. It was just too slow to use! HyperCard (or another similar product) for the IIe and IIc could work almost as well on a text-only interface.

Mr. Gross says the II "is going to be stuck in AppleWorks limbo until its death." *Stuck* is too strong a word. The Apple II is quite happy with AppleWorks, as are the millions of AppleWorks users, myself included.

Daniel C. Brown
17199 Fairburn Street
Hesperia, CA 92345

Eager Beagle

Kudos to Alan Bird and Beagle Bros for actions above and beyond the call of duty. I teach literature and writing, and coordinate our high school's writing center. Our English teachers have long sought a computer spelling checker for our students that wouldn't supply the proper spelling.

Because drill aids memorization, we wanted an AppleWorks spelling checker that would identify misspelled words, but force the student to type in the correct spelling. We're not generally users of drill software, but students who must think about, or even look up, the correct spelling of a word and type it into the computer are less likely to repeat their error. Because the drill is related to their own papers, they have a continuing source of motivation: They want their own words spelled right.

When I saw Alan Bird at AppleFest, he told me to write to him and enclose our copy of QuickSpell. I did so, and several weeks later I received QuickSpell back with an extra file called QuickSpellA—the answer to our dreams. He had expunged and disabled all options relating to adding words to and getting suggested words from the dictionary. Renamed "SchoolSpell," we've added it to all our ►

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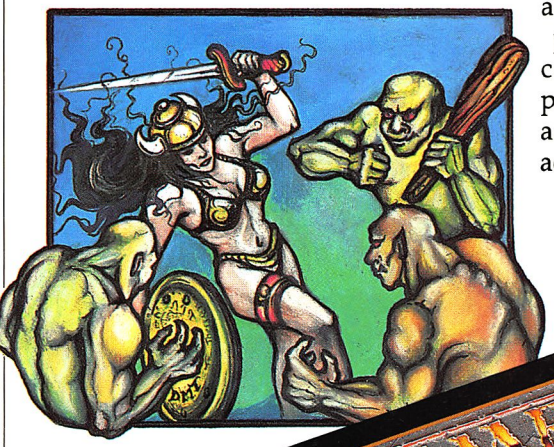

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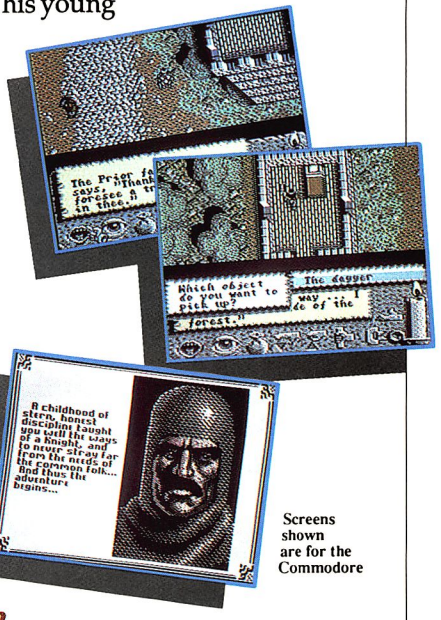

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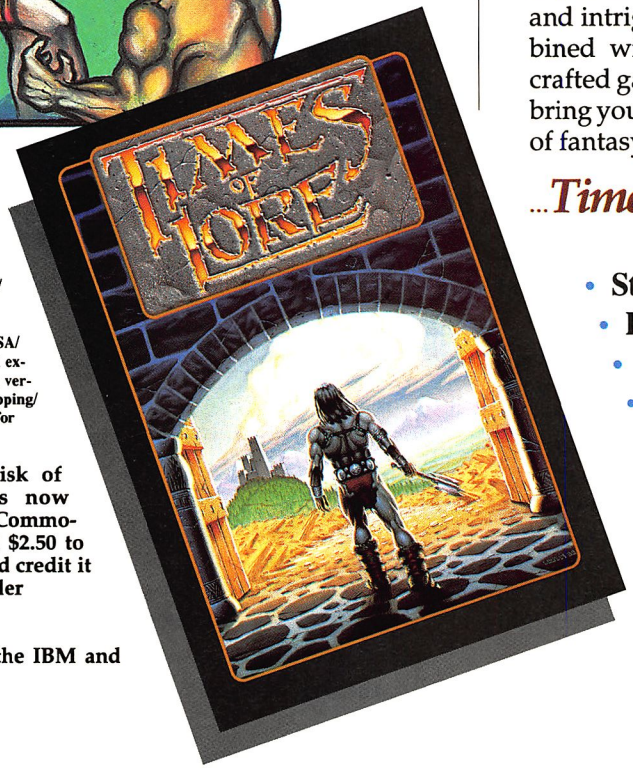

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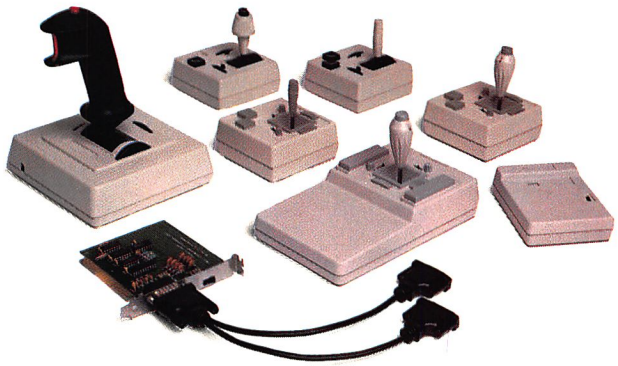

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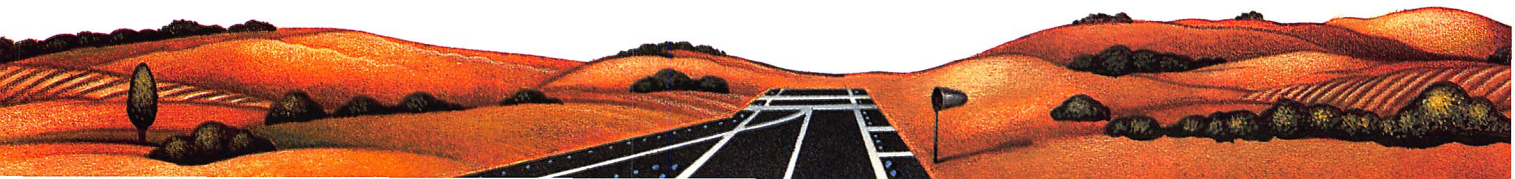

writing-center copies of AppleWorks, and our teachers are delighted with the way it works.

If the student types in the wrong "corrected" word, the spelling checker rechecks its dictionary, just as standard QuickSpell would. Because it still can't find the word in the dictionary, SchoolSpell tells the student so, and he or she must try again. We leave an old-fashioned paper dictionary on every computer, which the writer may turn to as a last resort.

Emery Roth II
Shepaug High School
Washington, CT 06794

CORRECTIONS

Third Wave Technology's phone number is incorrect as it appears in our review of MagnaCharta (October 1988, p. 41). The correct number is (800) 233-WAVE.

In our November 1988 Product Updates (p. 15) we stated that Copy II Plus (version 8.3) is now available from Central Point Software for $15 plus $3 U.S. shipping. That price applies only to upgrades to 8.3 for current Copy II Plus owners. For new purchasers, version 8.3 retails for $39.95.

To add a Control-@ printer-control code to AppleWorks, as suggested in "Habla Espanol Aqui," Letters, November 1988, p. 12, you must first patch your copy of AppleWorks with a program such as Randy Brandt's Patch Mania. (See *inCider*'s Shareware Connection ad in this issue, p.32.)□

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

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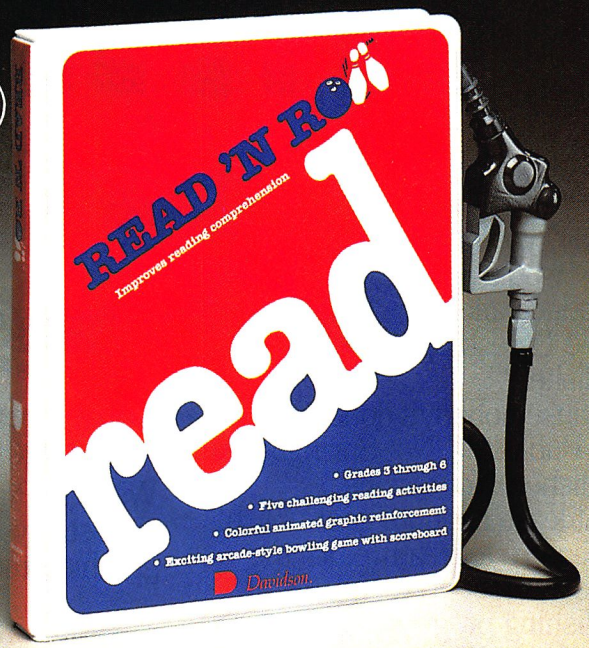

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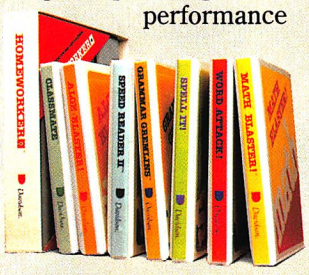

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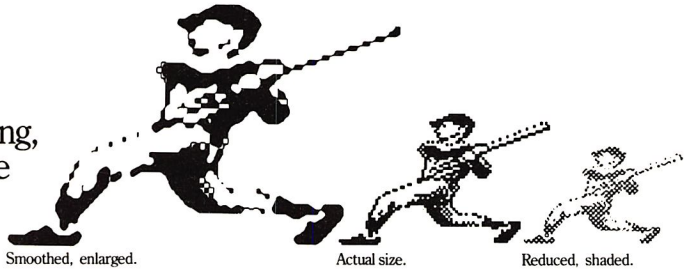

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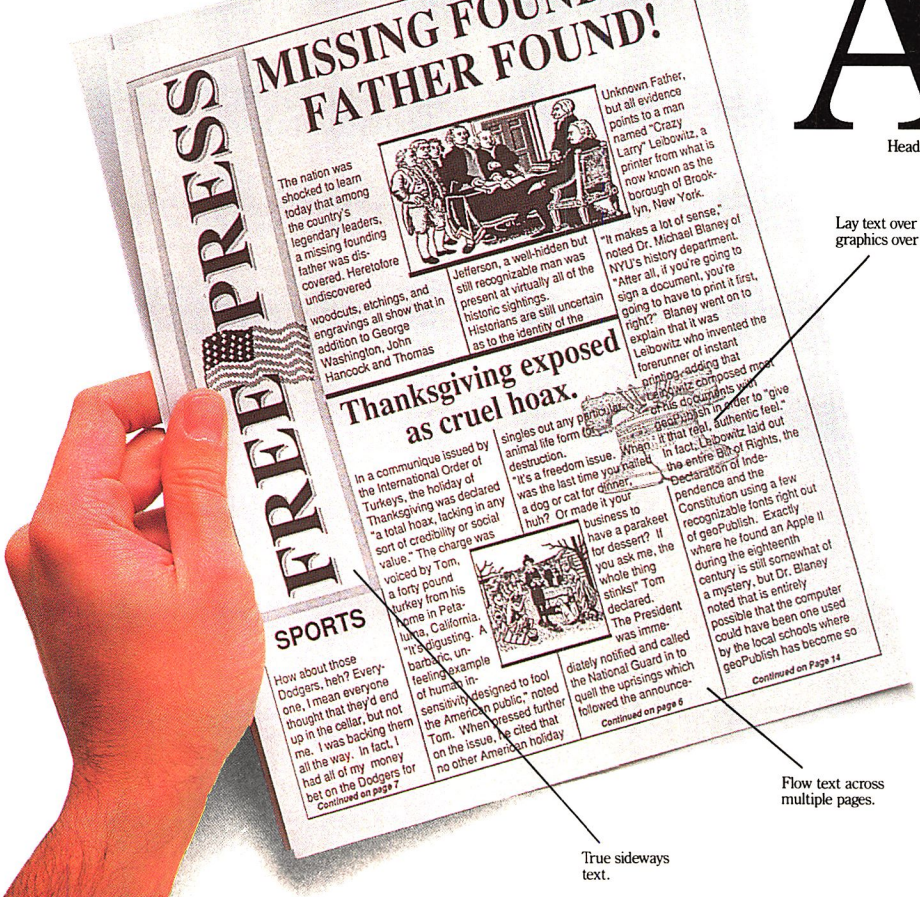

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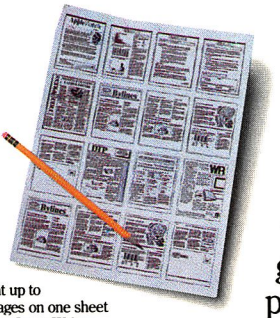

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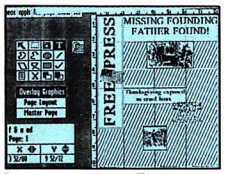

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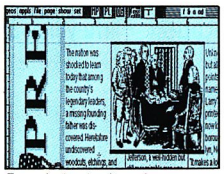
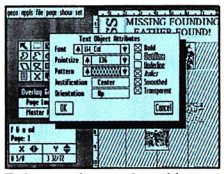


Zoom in for detail work.



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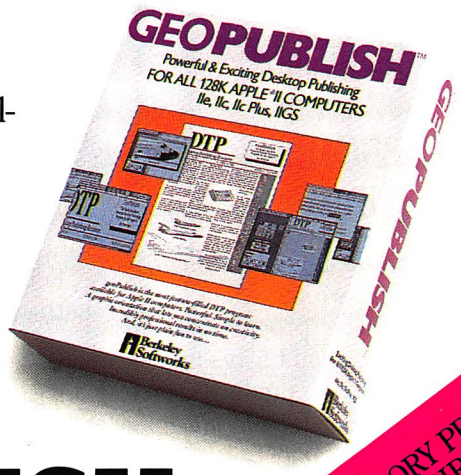

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NEWS LINE

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Paintworks Gold Contest Winners

First Prize (a complete collection of Activision software), Marion Gibson, Yakima, WA
Second Prize (two Activision products), John A. James, Baytown, TX
Third Prize (one Activision product), Donald Dewitt, Beech Bottom, WV

DISAPPEARING REVOLUTION

"Today's classrooms typically resemble their ancestors of 50 years ago more closely than operating rooms or business offices resemble their 1938 versions."

That's how the Office of Technology Assessment (OTA), a congressional committee, assessed the use of computers in education in the United States. The report, called *Power On! New Tools for Teaching and Learning*, boasted an advisory panel of educators and businesspeople that included Apple's Del Yocam. (Yocam was then executive vice president and chief operating officer at Apple Computer, but announced his retirement from Apple in October. He will leave Apple in November 1989.)

The OTA found that "although computers are widely distributed and access to them by students has increased significantly, the vast majority of schools still do not have enough of them to make the computer a central element of instruction."

The report notes three barriers to computers in schools: lack of funds, lack of teacher training, and a lack of quality educational software. Yocam expressed his concern for all three problems: "We need more funding for teacher training, and federal funding for research and development" of quality software.

When asked whether Apple couldn't help solve the schools' money problems by making its computers available for less, Yocam waxed philosophical: "We made a decision to put a man on the moon, and we did it. We'd better wake up and do something about education. But it's not politicians who solve problems, it's communities. The solutions [to all three problems] cut across the full spectrum—better teacher pay, teacher education, improving the state of the facilities, and how technology can be a catalyst for change."

Yocam also made clear that if the Apple II is a computer for education, it isn't necessarily a computer for kids. "Learning goes on throughout one's life," he explained. "From preschoolers to senior citizens, for many people around the world the Apple II is all the computer they'll ever need." **—P.S.**

PRODUCT UPDATES

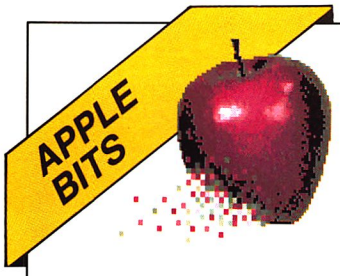
•Music Systems for Learning is shipping two versions of its **MusicShapes** program on one disk. Version 1.5 uses the Ensoniq chip to produce instrument sounds, while version 2.0 uses sounds from any MIDI instrument. Music can be swapped back and forth between the two versions. MusicShapes is available for $175 from Music Systems for Learning, 311 East 38th Street, Suite 20C, New York, NY 10016, (212) 661-6096.

•Sierra On-Line has released a three-dimensional, animated version of **King's Quest III** for the IIGS. It retails for $49.95 from Sierra On-Line, Inc., P.O. Box 485, Coarsegold, CA 93614, (209) 683-4468.

•Berkeley Softworks has introduced a new version of **GEOS** (the Graphic Environment Operating System) for the IIc Plus, Apple's new entry-level computer. The GEOS disk includes the operating system, the geoWrite word processor, the geoPaint graphics editor, the geoSpell spelling checker, and the geoMerge mail-merge program as well as utilities and desk accessories. GEOS for the IIc Plus is available for $199.95 from Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, CA 94704, (415) 644-0883.

•**816/Paint** from Baudville (Grand Rapids, MI) has always offered a lot to educa-

Illustration by Dianne K. Ritson



■Did we detect the light touch of founder **Bert Kersey** in the latest **Beagle Bros** (San Diego, CA) catalogue?

■The **Beagle Bros** cheerfully admit, in print, that **Variety Page** is vaporware, and likely to remain so. That's honest.

■Real-estate news: Both Apple and Claris are considering moves south to Santa Clara, California.

■Kudos to **Addison-Wesley** (Reading, MA) for spelling **Wordbench** like a real English word, and to **Roger Wagner** (San Diego, CA) for calling its product **HyperStudio**, because "it's used for music and painting."

■Cheap rumor: A new **Apple IIGS Plus** in 1989. But it won't be the one you read about on your local BBS.

■**Steve Jobs'** new **NeXT Computer System** looks almost as sharp as the Apple IIGS—frogdesign, trendy West German industrial stylists, designed both machines. (But the NeXT machine can't run Stickybear.)

■**Trip Hawkins**, president of **Electronic Arts** (San Mateo, CA), says that **Jobs** won't be as successful with the **NeXT** as he was with the Mac: "NeXT has the same religious leader, but not the cash cow," the Apple II, that Apple had in 1984.

■Looks like a classy south Florida publisher of nifty **desktop-publishing** art and fonts is really curious about the IIGS.

■Will **Epyx** (Foster City, CA) ship **The Games: Winter Edition** before the season ends?

■By summer mail-order discounters will be all but giving away **3½-inch floppy disks**. Shop around—why pay more?

■And which **desktop publisher** wants to package **"sound bytes"**—digitized "clip art" sounds? (We want the PeeWee Herman disk.)

■Let me explain, said **Ken Wasch**, executive director of the **Software Publishers Association** (Washington, DC), in a press release. The SPA filed suit in a "complex" copyright case because "the 9th Circuit was clearly reluctant to reach what it recognized was an absurd result, but felt itself constrained by recent Supreme Court decisions dealing with the difficult problem of eleventh-amendment immunity from suit under legislation enacted pursuant to the fourteenth amendment." Thanks for clearing that up, Ken.

■Rumor has it that one of the prototypes of Apple's new K–12 **educational Macintosh** (rumor has it coming out in '89) was purloined from Apple in '88.

■**Accolade** (San Jose, CA) has jumped feet first into Electronic Arts' and Mediagenic/Activision's game of "musical chairs." A company to watch.

■**Redmond Cable** (Redmond, WA), always quick with a cord, already stocks a **IIc Plus Adapter Cable**. It connects the five-pin DIN cables that worked with your old IIc to the eight-pin mini-DIN the IIc Plus needs. You don't need to buy new cables for your old peripherals, just a $19 converter.

■**Microprose** (Hunt Valley, MD) attacks: It has acquired **Software Simulations** (Stratford, CT) in an attempt to gain some ground on the **sports-simulation** front.

tors—like running on all Apple IIs. But now Roberta Schwartz and Michael Callery (magazine graphics editors in California) have added an educators' guide that makes 816/Paint a bargain at $125. Contact Baudville, 5380 52nd Street SE, Grand Rapids, MI 49508, (616) 698-0888.

•Optimum Resource has put **Stickybear Math** and **Stickybear Reading** on 3½-inch disks. These Stickybear packages now come with both 3½- and 5¼-inch disks and costs $39.95 each, from Optimum Resource, Inc., 10 Station Place, Norfolk, CT 06058, (203) 542-5553 or (800) 327-1473.

•Epic Technology sells a modem/software package, consisting of Epic's **2400 Classic II** modem and Checkmate Technology's **ProTerm** software. The whole business costs only $239, from Epic Technology, Inc., 5680 Stewart Avenue, Fremont, CA 94538, (415) 683-0932 or (800) 634-9992.

•Third Wave Technology has updated **MagnaCharta** to version 3.0. At $59.95 the new version can save charts as standard graphics files compatible with other programs, and features disk-resident help windows and an expanded "Hints and Techniques" section in the manual. Contact Third Wave Technology, 11934 Lorain Avenue, Cleveland, OH 44111, (216) 671-8991 or (800) 233-WAVE.

Giving Your GS the Boot

by William Kennedy, Ph.D., Technical Editor

Minimum GS System Boot Files

What's the fewest number of files I need to copy from the IIGS System Master to a 3½-inch disk so that the volume will boot?

Allen Gaston
APO NY

The minimum files to copy from the System disk to make a "bootable" volume, Allen, depend entirely on the program you want your GS disk to "boot into." Even a cursory explanation of all the IIGS System Master's files—when you need them and what they do—is beyond the scope of this column. Rather, purchase and read The Apple IIGS ProDOS 16 Reference *and* The Apple IIGS Toolbox Reference, *volumes I and II, from Addison-Wesley (6 Jacob Way, Reading, MA 01867) for a more precise guide to application requirements.*

I will, however, give you a quick list of the system files for the most common boot situations. I hope one of them will satisfy your needs. They'll boot most "application" or Applesoft BASIC programs. Other file types, if executable, require special program "launchers."

Also, I'll assume you use the latest IIGS System Master, version 4.0, née GS/OS, and know how to operate the Desktop, particularly to format volumes and copy files. If you don't have GS/OS, get it; its speed and capablities compared with those of earlier versions make it well worth the effort. Besides, it's free from your dealer ($39 if you want it in a box).

Before deciding on the minimum boot files to launch an application, first ask yourself under what version of ProDOS it runs. The IIGS can execute both 8-bit and 16-bit programs from the respective version of ProDOS. Because the Desktop icon is the same for both 8- and 16-bit applications (hand in a diamond, although some applications have specially prepared icons), you'll need to use the "Get info" option on the Desktop's "File" menu bar or some similar utility to identify an application's type.

Creating a boot volume for an 8-bit application or Applesoft BASIC program is fairly simple. Just copy the P8 file found in the System folder of the IIGS System Master to your freshly formatted 3½-inch disk. Then rename P8 to ProDOS. (Apple chose P8 as the name of the 8-bit version of ProDOS to differentiate it from the 16-bit version you normally use to boot the GS.) Finally, copy your application and all its support files to the new disk, and you're ready to boot.

Applesoft BASIC programs use, in addition to P8 (renamed PRODOS), BASIC.SYSTEM found in the IIGS System Master's System folder. So copy it along with your BASIC program to your disk. Then rename your BASIC program to STARTUP. BASIC.SYSTEM loads and executes that filename automatically. Otherwise, you'll have to type RUN and the program's name after bootup.

Building a ProDOS 16 application's boot volume is only slightly more complicated. From the IIGS System Master, copy PRODOS and the SYSTEM folder with its contents to your fresh disk along with your application and accessory files. Then either delete or rename the file START in the System folder.

Don't rename or delete the START program if you want to boot into the GS/OS Desktop (also known as the Finder on earlier versions of the System Master) and launch your application from there. You also must copy the ICON folder to your boot disk.

GS-specific applications use most, but not necessarily all, of the variety of the system's "tools" and accessory files in the System Master's SYSTEM folder. You may want to trim some of the excess files if you're strapped for additional space on disk.

For example, you don't need P8 for ProDOS 16 applications. Get rid of the DESK.ACCS folder unless your applications require special ones. Likewise, you can eliminate most, if not all, fonts in the FONTS folder except those used in special, high-resolution applications.

That should get you started. Don't be afraid to experiment by creating a boot disk and adding or eliminating files until just the "right" ones are there.

Returns Be Gone

Sometimes when I a load a converted Mac or GS document into AppleWorks, each text line contains a return character, which then overrides AppleWorks' print formatting. How can I get rid of them?

Ethan Patricks
Sorville, CA

As you may recall from earlier discussions, transporting files from machine to machine ►

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70DER

Not Another Proofer!

Yes, folks, I've resolved for the New Year to clean up some of the problems you've been having with the Applesoft Program Proofer we've published throughout 1988.

Carefully type in the Applesoft BASIC program shown in **Listing 1** (*ignore* the bracketed numbers!) and SAVE it on disk as MAKE.PROOFER; it POKEs the PROOFER program into memory (line 50). If you're using DOS 3.3, type in lines 100–120 shown in **Listing 2** instead of those in **Listing 1**.

Now type RUN. If you entered the program correctly, you should see the message "Proofer installed!" and a flashing cursor adjacent to the BASIC prompt (]). If not, press Control-Reset, LOAD MAKE.PROOFER, fix the problem, SAVE, and try RUNning it again. Most often, you can find the error in one of the DATA statements.

If all's well, type LIST. An inverse number should appear following each program line and match those appearing in brackets in **Listing 1**. If not, make sure you typed the program correctly, then recheck DATA.

Use the Proofer to compare the numbers generated by your LISTed programs with those we publish. If they're the same, you typed the line(s) correctly and the program should work.

You can activate the Proofer each time you start up BASIC from ProDOS or DOS 3.3 by typing RUN MAKE.PROOFER. Or, once MAKE.PROOFER is RUN, you can BSAVE the machine-language program it creates as PROOFER,A$300, L$C5 on your disk. You then can BLOAD PROOFER and CALL 768.

Also, if you reset your Apple or use the PR# command, you'll disconnect the Proofer. Type CALL 768 to restart it. For example, to get a listing of your program with the proofer numbers on your printer, use the following sequence:

1) LOAD or type in your program.
2) PR#1 to activate the printer.
3) CALL 768 to restore the Proofer.
4) LIST should print your program.
5) PR#0 to restore printing on screen.
6) CALL 768 to activate the Proofer.

Those of you familiar with the older version will find that the new, improved Proofer no longer counts spaces between REM and its message or DATA and the data values. So, there shouldn't be a difference in the proofer number between

```
10 REM Only one space after REM
```

and

```
10 REM     Five spaces after REM
```

Trailing spaces after a REM message or DATA list *do* count. A proofer number different from the published one by some factor of 32 is a tip-off.

In addition, the proofer number now includes the order in which you enter a line, particularly the order of values in a DATA statement. So, 10 DATA 1,2,3 will generate a different proofer number from 10 DATA 1,3,2.

The proofer numbers published from now on *won't* match those generated by the earlier version. Drop me a line if you need that older version to help you enter programs from previous *inCider* issues. □

Listing 1. ProDOS version of MAKE.PROOFER program helps debug your typed-in versions of inCider's *Applesoft BASIC programs.*

```
10  REM  MAKE.PROOFER -- NEW ProDOS version!!!  [7517]
20  REM  by Bill Kennedy  [3084]
30  REM  Copyright 1989, inCider  [4733]
40  REM   [449]
50  FOR I = 768 TO 964: READ N: POKE I,N: NEXT I  [2868]
60  CALL 768  [685]
70  TEXT : HOME : PRINT : PRINT "Proofer installed!"  [2530]
80  PRINT "BSAVE it as PROOFER,A$300,L$C5"  [6170]
90  END   [1130]
100  DATA  162,29,160,3,173,48,190,141,180,3  [7683]
110  DATA  173,49,190,141,181,3,142,48,190,140  [8137]
120  DATA  49,190,169,0,133,60,133,61,96,201  [7707]
130  DATA  141,240,3,76,176,3,134,70,132,71  [1137]
140  DATA  186,138,105,7,170,189,0,1,201,214  [1252]
150  DATA  208,7,189,255,0,201,229,240,28,189  [1214]
160  DATA  253,0,201,40,208,6,169,141,201,141  [1283]
170  DATA  208,15,189,255,0,201,13,240,91,169  [1342]
180  DATA  0,133,60,133,61,240,83,165,60,5  [1201]
190  DATA  61,240,23,32,87,219,32,87,219,165  [1249]
200  DATA  50,72,41,63,133,50,166,60,165,61  [3332]
210  DATA  32,36,237,104,133,50,160,0,132,60  [3485]
220  DATA  132,61,177,155,200,17,155,240,41,200  [3748]
230  DATA  177,155,200,24,113,155,133,66,32,189  [3765]
240  DATA  3,177,155,240,25,32,182,3,177,155  [3487]
250  DATA  201,32,208,3,200,208,247,72,32,182  [3633]
260  DATA  3,104,201,58,240,231,177,155,208,243  [5893]
270  DATA  166,70,164,71,169,141,141,67,3,76  [5464]
280  DATA  7,195,69,66,133,66,24,101,60,133  [5270]
290  DATA  60,144,2,230,61,200,96  [3732]
```

Listing 2. Substitutions in Listing 1 for the DOS 3.3 version of MAKE.PROOFER.

```
100  DATA  162,29,160,3,173,83,170,141,180,3  [7698]
110  DATA  173,84,170,141,181,3,142,83,170,140  [8202]
120  DATA  84,170,169,0,133,60,133,61,96,201  [7751]
```

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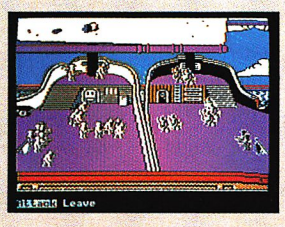

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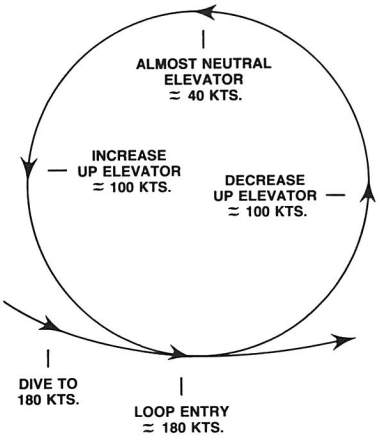
Flight notes # 3A

Better Loops with Flight Simulator - While the "Flight Physics" manual description is adequate for most, we get enough calls from frustrated computer pilots unable to perform a loop to warrant the following additional instructions. For those already successful at looping the aircraft, these instructions should help make your loops rounder and more satisfying.

After diving to the suggested looping airspeed (180 knots will do), add as much up elevator as possible without stalling the aircraft. As you pitch up and airspeed slows you will have to reduce some of this elevator pressure. Many people leave the elevator setting on high and become frustrated when the aircraft stalls before pointing straight up. In a perfectly round loop your elevator should be almost all the way back to neutral by the time you're upside down. Since airspeed is very slow at the top of the loop (and the portion of the circle traveled is small), your pitch attitude change should be gracefully slow as well. Start adding up elevator pressure again as airspeed increases. By the time you get to the bottom of the loop, the up elevator setting should be where it was when you began the maneuver and your airspeed should be adequate to begin another loop.



In summary, up elevator setting varies throughout the loop. The faster your airspeed, the greater the up elevator pressure. Flight Simulator is the only simulation on the market that accurately portrays the flight characteristics of a light aircraft when performing this maneuver. In reality there's little room for error in the amount of up elevator you can use, and meeting the challenge of performing a perfectly round loop can be a very satisfying experience. You may even find yourself more knowledgable about loops than many non-aerobatic pilots who fly real airplanes. Happy trails!

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Circle 156 on Reader Service Card.

APPLE CLINIC

Program Listing. *REM Stripper gets rid of extraneous hard carriage returns.*

```
1  REM  Text file return STRIPPER  [4998]
2  REM  by Dr. William Kennedy  [4195]
3  REM  Copyright 1988, inCider  [4846]
10 D$ =  CHR$ (4)  [759]
20  TEXT : HOME : VTAB 10  [892]
30  INPUT "ASCII file pathname?";N$: ONERR  GOTO 500  [5931]
40  PRINT : PRINT "One moment please...working."  [2389]
50  PRINT D$;"VERIFY";N$: PRINT D$;"OPEN";N$: POKE 216,0  [5244]
60 N2$ = N$ + ".S": ONERR  GOTO 80  [1880]
70  PRINT D$;"VERIFY";N2$: GOTO 600  [3578]
80  POKE 216,0: PRINT D$;"OPEN";N2$  [2521]
90  ONERR  GOTO 200  [719]
100  PRINT D$;"READ";N$  [2556]
110  GET A$: IF A$ <  >  CHR$ (13) THEN 120  [2463]
115  GET A$  [628]
120  PRINT D$;"WRITE";N2$: PRINT A$;  [3427]
130 X =  FRE (0): GOTO 100  [1873]
200  REM  End of files  [1117]
210  PRINT D$;"CLOSE"  [801]
220  PRINT : PRINT : PRINT "Done.  Press return to strip another, or"  [3526]
230  PRINT "press esc to quit -->";: GET A$: PRINT A$  [3159]
240  IF A$ =  CHR$ (13) THEN 20  [1426]
250  IF A$ <  >  CHR$ (27) THEN  PRINT  CHR$ (7);: HTAB 1: GOTO 220  [3588]
260  END  [2073]
500  REM  File not found.  [1197]
510  PRINT  CHR$ (7);: PRINT : PRINT "File not found."  [4624]
520  PRINT "Press any key to go on...";  [5671]
530  GET A$: PRINT A$: GOTO 20  [1537]
600  REM  File already exists  [3931]
610  PRINT : PRINT  CHR$ (7);"Target file already exists..."  [7362]
620  PRINT "OK to overwrite it (Y or N)?";: GET A$: PRINT A$  [7237]
630  IF A$ = "N" OR A$ = "n" THEN  PRINT D$;"CLOSE": GOTO 20  [3447]
640  IF A$ = "Y" OR A$ = "y" THEN  PRINT D$;"DELETE";N2$: GOTO 80  [5389]
650  PRINT  CHR$ (7): GOTO 620  [1672]
```

Quickies

Here are some interesting benchmark comparisons for copying 256K of AppleWorks data files:

Program	Time
Copy II Plus	3 min., 30 sec.
GS System Utilities	4 min., 15 sec.
GS Fastcopy	1 min., 20 sec.

—Jerry Wagner
Sparta, NJ

requires that you first convert the data to ASCII, or what's commonly called text-file format. Some word processors, including AppleWorks, as well as many bulletin-board "downloads," create an ASCII file via their print functions. Rather than send the document to a printer, these word processors send the same series of characters to a file on disk. Most printers require a return character at the end of each line, which they also place at the end of each line in the ASCII file.

The first step in getting rid of those offending returns is to see whether your source word processor has an option that'll let you "print" the ASCII file without returns except at the end of a paragraph. Otherwise, you might obtain a program that'll "strip" the extra returns from your converted file. Pinpoint's Point-to-Point includes such a utility as an option on its "Other Activities" menu.

Meanwhile, Stripper is a simple BASIC program that'll do the job. It operates under the principle that it's easier to add returns to a document rather than remove them. So, Stripper works by removing "stand-alone" return characters or the first of a pair of return characters. Hence, it works best if you separate paragraphs by two returns.

Type in the accompanying ***Program listing*** *and SAVE it as STRIPPER. When RUN, it requests the pathname for your ASCII file and uses that name with the suffix .S to create a new one. It then proceeds to strip the returns. Patience—it'll take a while, particularly for large files. If you want to stop stripping early, press Control-C.* ■

Apple Clinic is a forum for discussing and answering your questions and concerns about Apple II hardware and software. Address your correspondence to Apple Clinic, inCider, *80 Elm Street, Peterborough, NH 03458. Because of the volume of letters, most won't appear in print, but expect a response from Dr. Kennedy via postcard.*

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A majestic nine feet ten inches long and a shade under fifty pounds, the 1966 Big Boy surfboard represented the epitome of power and speed. Today, there's AE's new RamKeeper™.

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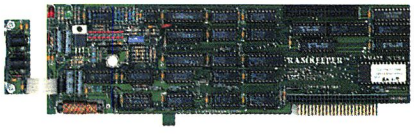
Applied Engineering's RamKeeper. A system that works like a hard disk, only better. It retains stored programs *and* data while your computer is turned off (like a hard disk), but gets up and running five times faster. RamKeeper is solid state, has no moving parts and, unlike a hard disk, has no heads to crash and no parts to wear out. And RamKeeper saves wear and tear on your disk drive, because you don't need it nearly as often.

RamKeeper even powers up to two memory cards *simultaneously* while your computer is off. And the battery backup we include keeps power to the boards, even during power failures.

Your programs and data remain stored in a permanently accessible state, always ready to run. Your computer waits for *you* . . . instead of you waiting for it.

Superior power backup.

RamKeeper comes complete with sealed Gel/Cell batteries for emergency backup in the event of a power outage. Gel/Cell's are by far the most reliable backup power source in this application. Unlike the Ni-Cads others use, Gel/Cell batteries don't lose capacity if not discharged periodically.



RamKeeper lets you keep programs and data in permanent, "electronic hard disk" memory. Turn your Apple IIGS on and you're ready to work.

Our Gel/Cell pack gives you up to six hours of total power failure backup. And the sealed battery pack stays *outside* your computer case, where an unlikely leak won't ruin your computer circuitry.

RamKeeper uses a Switching Power Supply — the same technology used by Apple for the IIGS power supply. This design uses energy much more efficiency to keep your Apple running cooler.

Powers two memory cards in the same slot.

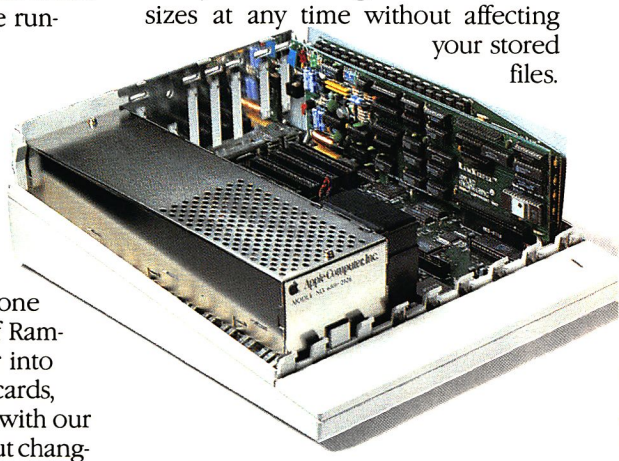
Have Apple's memory card, but now want the features of Applied's GS-RAM card? With RamKeeper, both cards act as one larger card. In one slot. Just attach one memory card to each side of RamKeeper and plug RamKeeper into the slot. And even with two cards, you can still keep slot 7 open with our optional Slot-Mover. All without changing the way either your memory card or your software now operate.

RamKeeper also works fine with only one memory card.

Makes all your memory usable memory.

RamKeeper powers up to 16 Meg. of memory. You can also mix and match different types of memory cards. For example, an Apple card that uses 256K RAM chips and an Applied Engineering card using 1 Meg. RAM chips. RamKeeper firmware automatically configures for two cards when the second card is installed. No need to manually move jumpers.

RamKeeper configures memory linearly to avoid memory gaps that can cause crashes. And *you* decide how much memory to devote to ROM and to RAM from the IIGS Desk Accessories menu. You can configure Kilobytes or Megabytes of instant ROM storage for your favorite programs. And you can change ROM and RAM sizes at any time without affecting your stored files.



RamKeeper is easy to install. Just plug it in. Even when you use two memory boards, you don't have jumpers. You can have two memory boards but use only one slot.

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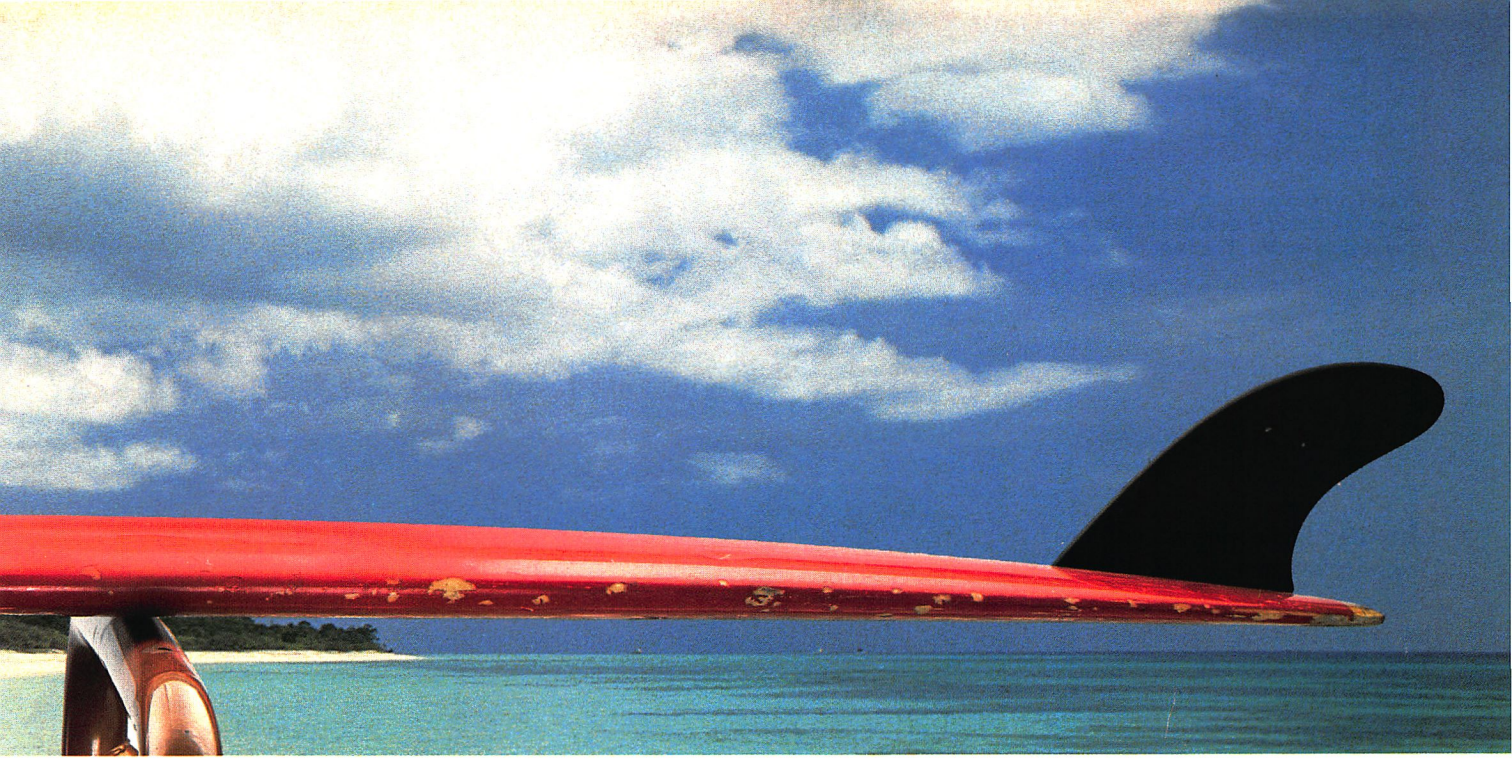


Protect from program crashes.

Reinstalling operating software is not fun. With RamKeeper you'll never have to. Since RamKeeper controlling firmware is in an EPROM, a program crash can't take out the operating software.

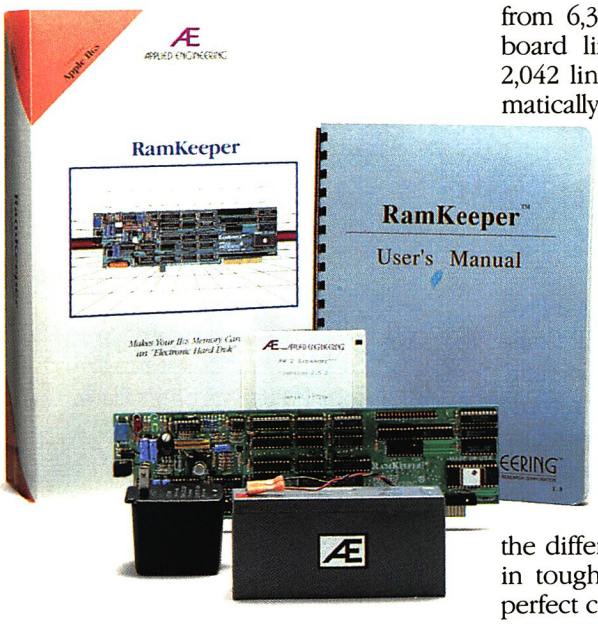
Verifies data security.

RamKeeper firmware uses optional startup checksums to verify that no data was lost while the power was off. The firmware also runs ROM and RAM memory tests without disturbing data on the card.

Significant differences.

Applied Engineering's longer experience with battery-backed memory boards shows in the way we designed and built RamKeeper. There are significant differences between RamKeeper and other systems:

- RamKeeper includes a Gel/Cell battery for 6 hours of total power failure backup, other use the shorter-life Ni-Cads and charge extra for them
- RamKeeper powers up to 16 Meg., others power only up to 8 Meg. maximum
- RamKeeper permits mixing and matching different memory cards and chip sizes, others have more limited combinations
- RamKeeper automatically configures for two cards, others have manually-moved jumpers
- RamKeeper configures linearly to eliminate memory gaps, others don't
- RamKeeper includes EPROM-protected operating software, others use floppy installation



It all comes with RamKeeper ... board, Gel/Cell battery pack, easy-to-understand instructions, and Applied's powerful AppleWorks Expander software.

- RamKeeper's software expands AppleWorks internal limits, others don't
- RamKeeper includes disk-caching software, others don't

Free AppleWorks Enhancement software.

Applied Engineering's powerful AppleWorks Enhancement software comes free with RamKeeper. It's well worth the purchase price alone. Our software makes AppleWorks faster and far more powerful by eliminating internal memory limits. Word processor limits increase from 7,250 to 22,600 lines. Database limits increase from 6,350 to 22,600 records. Clipboard limits increase from 255 to 2,042 lines. Our software even automatically segments large files so you can save them on multiple floppies

In addition, RamKeeper comes with the most powerful disk-caching program available anywhere. The cache tremendously accelerates access time to the Apple 3.5 Drive. Creating, in effect, a speed booster on top of a speed booster . . . a potent combination that runs most applications up to *seven times faster.* That's the difference between paddling out in tough chop and surfing in on a perfect curl.

RamKeeper is proudly made in the U.S.A. and is backed with a five year parts and labor warranty. And a 15-day money-back guarantee.

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Video Title Shop, Home Video Producer, VCR Companion; Story Sketcher; Riddle Magic; At a Glance; Games Editors Play: Skate or Die, The Last Ninja, Zany Golf, Short Takes

Video Wizardry

If your home videos look anything like mine, you probably see something like this—the kids running up Main Street USA at Disney World, followed by a picnic at Aunt Martha's, cutting to Christmas of some undetermined year, and ending with a segment showing the dog refusing to do any cute tricks. No rhyme, no reason, and definitely no transition—unless you count the several grainy seconds between filming sessions.

Now there are three programs to help you make sense of your home movies. Home Video Producer, Video Title Shop, and VCR Companion let you add text, graphics, and animation to your video-cassette recordings—simply and expediently. With any of the three programs, you can design various types of title screens on your computer, hook up a VCR (or camcorder) between your computer and monitor, and record the title screen on a video cassette.

VIDEO TITLE SHOP

Datasoft, 19808 Nordhoff Place, Chatsworth, CA 91311, (800) 245-4525
Apple II (GS in emulation)
$29.95
Rating: ■■■

LIGHTS, CAMERA, ACTION

The programs reviewed here operate in similar ways. Each presents a blank work area (referred to as a *canvas*, *frame*, or *clapboard*, depending on the program you're using) upon which you can place borders, graphics, text, and so on. With overlay techniques and "page flipping," you can add special effects and animation, sequencing additional screens to create an impressive presentation.

To better illustrate the process, try to visualize the following film clip. In the first frame, you select a background color and border, then place a small wedding-cake icon in one corner and a ring icon in another. Next, you add a text overlay that reads "The Wedding of." Move on to the second frame and select a "wipe" transition to erase the first frame. Have frame 3 scroll the name of the bride down from the top of the screen while "&" and the name of the groom scroll up from the bottom. Next, select fizzle from the command list and watch frame 4 dissolve, revealing frame 5, which you've designed to show the time and place superimposed on an appropriate full-screen graphics background.

When you run these cells in an uninterrupted sequence (like a film), your production is ready to record on videotape. You can add additional cells and special effects to create a more sophisticated introduction if you like. All three programs allow you full control over the timing of the separate parts of your presentation, giving you the chance to determine how long you want a scene to last or how fast you want a transition or special effect to take place.

If this example sounds complicated, rest assured it really isn't. Despite the complexity and professional appearance of the final presentation, VCR Companion, Home Video Producer, and Video Title Shop do all the hard work; you simply select the options you want to include in your creation.

Though all three programs offer the same basic end result, each of the three includes certain unique qualities and trade-offs that warrant a closer look.

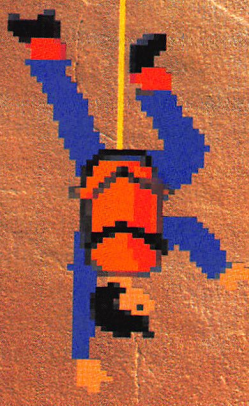
One by One

Video Title Shop (VTS) was created by Datasoft and is distributed by Electronic Arts. It's an excellent product for the money. Twenty dollars less than either of the other two packages, it offers more-than-acceptable output with a decent variety of graphics and transition. ►

inCider's Ratings

Excellent—remarkable, a must buy	■■■■■
Very good—impressive and recommended	■■■■
Good—average, solid performance	■■■
Fair—flawed but adequate	■■
Poor—unacceptable or unusable	■

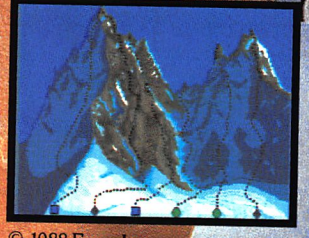
ONE MISTAKE AND IT'S THE BIG PANCAKE.



You're at the foot of one of the world's highest mountains. And you're not snapping pictures. Because this is the FINAL ASSAULT. The only mountain climbing game in the Alps or anywhere else.

IF YOU'RE AFRAID OF HEIGHTS, FORGET IT.

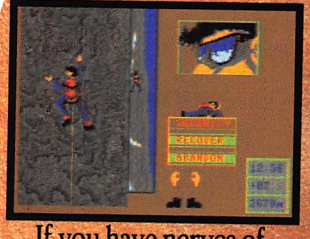
You'll experience the terror and elation of one of the most grueling sports ever. And you'll be tested every step of the way.



Did you pick the right course? (There are six treacherous possibilities.)

What about supplies? If you run out of soup, you'll be stuck with snow sandwiches.

Forget your spikes or ice picks? You could end up a permanent part of the scenery.



If you have nerves of steel, even when you're dangling 40 feet off a cliff, you might just be one of the lucky few to plant your flag at the peak.

To make the stakes even higher, play with an EPYX high performance joystick.

© 1988 Epyx, Inc.

Commodore 64/128, Amiga, Apple IIGS, Atari ST, IBM & compatibles. Screens from Atari ST.

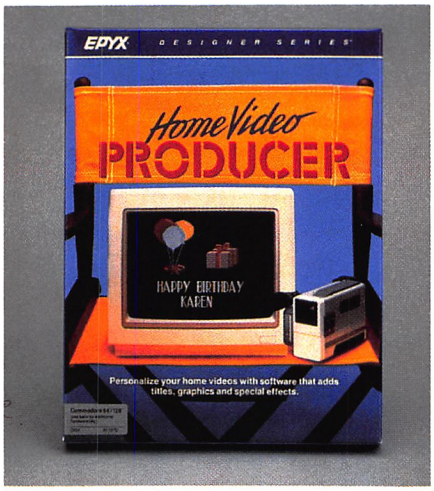
Circle 202 on Reader Service Card.

EPYX®

VTS does little in the way of built-in special effects or graphics, but it provides three times as many full-screen backgrounds (depicting a wide range of subjects). Datasoft's entry is also the only one to include a built-in, full-featured paint program almost as powerful as some of the best stand-alone paint programs currently available. You can even create your own text fonts.

VTS has the most awkward user interface of the three, eschewing pull-down menus in exchange for keyboard commands. The program uses the control key in conjunction with other mnemonic keys to activate program features. For example, Control-E puts you into Edit mode, while Control-S saves your work. Use the arrow keys to access subcategories; accept selections with the Escape key. Using Escape for such an important feature takes a little getting used to because it's such a departure from its typical function.

Despite numerous key combinations needed to manipulate VTS' features, the program isn't that difficult to operate. Because of its lack of intuitiveness, you'll have to consult the program's documentation and Quick Reference Lists often; you'll need the instructions less and less as you get used to it, though.



HOME VIDEO PRODUCER

Epyx, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606
Videotape-enhancement utility; Apple II family (GS in emulation)
$49.95
Rating: ■■■

The Easy Approach

Home Video Producer (HVP) from Epyx takes a slightly different tack. Epyx's strategy appears to have been to make the program as easy to use as possible, building in numerous features that let you type in your information and have the program take over from there.

For example, HVP includes a dozen good-looking graphics templates covering the most commonly taped situations (holidays, weddings, sporting events, and so on). To use a template, simply select the subject matter, type in the requested information and let the program do the rest. You sacrifice some variety and features, but you'll save time and effort—and you'll still end up with a quality production.

HVP uses a friendly interface, employing menus and windows for the selection process. On-screen graphics (those used by the program itself) are attractive and helpful, especially when combined with the ever-present information bars. Selection icons logically represent the function they serve and the program contains a satisfactory number of options.

One of the program's most outstanding features is the large number of graphics clips available to enhance your layouts. HVP includes 75 different pictures from which to choose. When you add those ►

At a Glance

Paintworks Gold (November 1988, p. 26, by Carol Holzberg), Activision, Inc., 3885 Bohannon Drive, Menlo Park, CA 94025, (415) 329-7699, $99.95
Rating: ■■■■

Paintworks Gold is currently the "Cadillac" of the GS paint circuit. Its many features set Paintworks Gold apart from other GS paint programs—you can play with perspective and manipulate object position and shape, for example. Using pull-down menus, you can cut, copy, paste, mix colors, flip and rotate images, and bend and distort images for special effects.

If you want to do animation, Paintworks Gold gives you two techniques. You can compress a series of pictures into a single file, or you cycle a series of colors through an individual picture.

With Paintworks Gold's "slippy" colors, you can move objects without leaving a hole in the background. You can mask colors to protect them from alteration, and you can make colors transparent. You can also change the intensity and brightness of the red, green, and blue shades in your working color.

Paintworks Gold lets you print on the Epson series (in draft mode). The program also comes with a clip-art disk.

Managing Your Money 3.0 (November 1988, p. 34, by Gregory Glau), MECA Ventures Inc., 355 Riverside Avenue, Westport, CT 06880, (203) 222-9150, $149.95
Rating: ■■■■

The latest version of Managing Your Money builds on the program's initial strengths and successes. It now comes on both 3½- and 5¼-inch disks; you can send your financial data to other programs; and the software now incorporates the latest tax laws. There are also a newsletter and update service to which you can subscribe.

The program's structure is similar to that of a book. Each disk is like a chapter focusing on one area. The difference is that Managing Your Money gives you more than instructions—it also gives you the tools to put your financial matters in order. At the end of the year, the program summarizes all your transactions in as much detail as you need. Chapters include a notepad, checkbook and budget data, a tax estimator, insurance needs, a financial calculator, stock tracking, net worth, a card file, and a report generator.

The manual includes every help screen you might encounter in the program. Also, remember there will be plenty of disk swapping with 5¼-inch disks, and that can be confusing.

In all, Managing Your Money is an effective way to keep track of where you spend your money.

Continued

YOUR BATTLESHIP JUST BIT THE BIG ONE.

Now, you're mad. Really flamed. So assess your losses, aim your guns and turn your enemy into fish food.

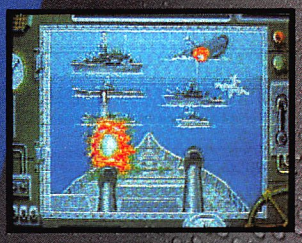
ONE OF THE MOST POPULAR GAMES OF ALL TIME COMES TO LIFE ON THE COMPUTER.

As commander of a powerful naval fleet, you'll see destroyers and carriers sinking in a cloud of smoke. Watch planes strafing by so low, you'll practically feel the pilots breathing.

Commodore 64/128, Amiga, Atari ST, IBM PC and compatibles. Battleship is a trademark of Milton Bradley used under license. © Milton Bradley. All rights reserved. Screens from Atari ST.

See shrapnel flying through the air like it's the 4th of July, without a picnic.

If you're still floating when it's all over, you'll be honored in a glorious, well-deserved victory celebration.



Battleship. So real, you'll taste the salt water.

Sink your opponent faster and easier using an EPYX high performance joystick.

©1988, Epyx, Inc.

EPYX®

Circle 201 on Reader Service Card.

Programs & Peripherals

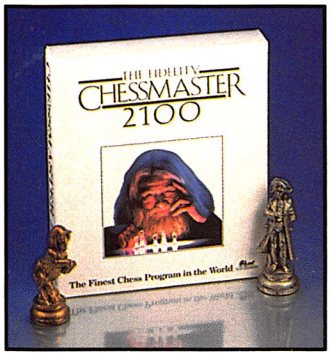
Modems

Anchor Automation 1200E	119.
2400E	159.
Applied Engineering	
DataLink Modem 1200B *(Int II+, IIe or IIGS)*	139.
DataLink Modem 2400B *(Int II+, IIe or IIGS)*	185.
EPIC Epic 2400 Classic II Internal	155.
Epic 2400 Mini Modem Ext.	155.
Hayes Hayes 1200 Baud Smartmodem	299.
Hayes 2400 Baud Smartmodem	449.
MDIdeas Commlink 2400	179.
Practical Peripherals	
Practical Modem 1200 SA Mini	85.
Practical Modem 1200 SA	109.
Practical Modem 2400 SA	189.
Prometheus Pro Modem 2400 *(External)*	309.
Pro Modem 2400G *(Non Expandable)*	179.
Pro Modem 2400A *(Single Card)*	199.
Pro Modem 1200A *(Single Card)*	155.
Pro Modem 300c	82.
Supra Corporation	
Supra Modem 2400 *(Hayes Compatible)*	149.
U.S. Robotics	
U.S. Robotics Courier 1200	199.
U.S. Robotics Courier 2400	349.
U.S. Robotics Courier 2400E	379.
U.S. Robotics Courier HST 9600	689.

Printer Interface Cards

Apple	
Apple Super Serial Card	119.
Applied Engineering	
BufferPro 32K	99.
BufferPro 128K or 256K	Call
Serial Pro *(II+, IIe, IIGS)*	115.
Parallel Pro *(II+, IIe, IIGS)*	85.
Orange Micro	
Grappler C/Mac/GS	84.
ProGrappler *(Apple IIe or IIGS)*	84.
Serial Grappler Plus	62.
Hot Link	49.
SMT No Slot Clock	42.
Print Tech II *(Parallel Interface)*	37.
Thirdware	
Finger Print GSi Ver 2 *(Includes Desktop Accessories-IIGS)*	79.
Finger Print Plus *(Specify Cables: Parallel, Serial or ImageWriter II-II+ & IIe)*	89.

Chessmaster 2100 by Electronic Arts



Chessmaster 2100 is the newest release of the best chess game for the Apple II. You'll find all of the powerful, impressive features of Chessmaster 2000 plus new classic games, more in-depth analysis, and triple the number of selectable skill levels. Along with the familiar 2-D and 3-D modes, you can now view all important information at once in "War Room" mode! For novices, *Chessmaster 2100* offers 'teach' and 'hint' modes that show how to think through a chess match, and for the aspirant grandmaster, there are over 150,000 moves in the opening library and a "Rate My Play" evaluation routine. *Chessmaster 2100* comes with a U.S. Chess Federation tutorial, offers on-line help, lets you save and print games, and lets you import your own chess set from any popular paint program!

Chessmaster 2100 ..... **33.**

Utilities & Languages

Absoft	
AC/Basic *(16-bit BASIC Compiler for IIGS)*	84.
Beagle Brothers Beagle Compiler	46.
Funk Software	
Sideways Prodos & Dos 3.3	45.
Roger Wagner SoftSwitch *(IIGS)*	39.
Merlin 8/16 *(IIe, IIc, IIGS)*	79.
The Byte Works	
ORCA/Pascal Desktop Debugger	80.
ORCA/M *(IIGS)*	39.
ORCA/Pascal DeskTop *(IIGS)*	***Special*** 34.
TML Systems	
TML Basic *(IIGS)*	***Special*** 84.
TML Pascal *(IIGS)*	84.
TML Source Code Library *(IIGS)*	35.
TML Speech Toolkit *(IIGS)*	49.
Zedcor	
ZBASIC 4.0 Interactive Compiler	39.

Disk Drives & Hard Disk SubSystems

American Micro Research ***(Micro Sci)***	
A5 D Half Height 5¼" Drive *(IIGS Daisychain)*	165.
A.5 Half Height *(II+ & IIe)*	139.
A.5C Half Height *(IIc)*	139.
Micro Sci C2 Controller	52.
Applied Engineering Transdrive 360K	219.
Transdrive Dual 360K	305.
Transdrive Half Height 360K	119.
Chinook CT-20 Hard Drive *(AP & IIGS)*	639.
CT-20c Hard Drive IIc	739.
CT-30 Hard Drive *(AP & IIGS)*	739.
CT-40 Hard Drive *(AP & IIGS)*	839.
CMS	
"SD Series - Stack" Platinum IIe, IIGS	
20 MB w/SCSI II card	645.
43 MB w/SCSI II card	845.
60 MB w/SCSI II card	950.
Cutting Edge	
XL 30 Plus SCSI Hard Drive *(IIe & IIGS)*	629.
XL 45 Plus SCSI Hard Drive *(IIe & IIGS)*	829.
Rodime	
Rodime 20Plus Ext HD *(IIe, IIGS)*	629.
Rodime 45Plus Ext HD *(IIe, IIGS)*	939.
Rodime 60Plus Ext HD *(IIe, IIGS)*	1019.
Rodime 100 Plus Ext HD *(IIe, IIGS)*	1169.
Rodime 140 Plus Ext HD *(IIe, IIGS)*	1319.
Video Technology	
Universal Disk Controller	79.
Laser 800KB Drive	185.
Universal Disk Controller/800KB Drive Bundle	259.

California Games for the IIGs by Epyx

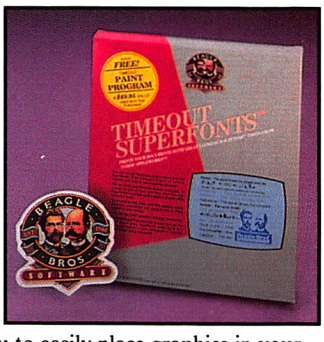
California Games is the hottest new game simulator under the sun on any coast! Surfing, skateboarding, BMX-biking, rollerskating, disk throwing and footbag events are wrapped into a challenge for one to eight players. California's beaches and dunes are the setting for monster waves and torturous trails. When you're bored with water and sand, head for the half-pipes and the parks, and try tricky aerials and snaky slaloms! To round out the test of true champions, there are disk throwing and footbag events to complete a grueling test of skill and coordination. *California Games* offers all the action in one package — and at one low price!

California Games for the IIGs ..... **29.**

Accessories

Apple Computer Apple Mouse IIe	125.
Apple Mouse IIc	85.
Applied Engineering TimeMaster H.O.	79.
IBM Style Keyboard or Sonic Blaster *(IIGS)*	119.
Audio Animator *(IIGS)*	185.
Asher Engineering	
Turbo Trackball *(IIe or IIGS)*	69.
Bose RoomMate Powered Speaker System	229.
CH Products Hayes Flight Stick	52.
Hayes Mach II Joystick *(Beige or Platinum)*	29.
Hayes Mach III Joystick *(Beige or Platinum)*	36.
Hayes Mach IV Plus Quad or ADB	65.
Mirage Quad or ADB (Turns joystick into mouse)	39.
Curtis Curtis Emerald	36.
Curtis Ruby	55.
Cutting Edge EADB-105 Extended Keyboard *(IIGS)*	125.
DataDesk DataDesk ADB-101 Enhanced Keyboard *(IIGS)*	149.
Digital Vision Computer Eyes II or C	109.
Computer Eyes IIGS	209.
Ergotron Mouse Cleaner 360° *(IIGS)*	15.
Epyx Epyx 500J Joystick	27.
Kalmar	
Teakwood Rolltop Disk Case *(Holds 50)*	18.
Kensington Mouse Pocket *(Reg. or ADB)*	8.
Mouseway *(Mousepad)*	8.
Apple IIGS Dust Cover or Imagewriter I or II Cover	9.
Mouse Cleaning Kit w/Pocket	17.
Disk Drive Cleaning Kit *(3.5" Drives Only)*	20.
Apple Security System	34.
Printer Muffler 80	43.
Printer Muffler 132	58.
Printer Muffler Stand 80 or 132	24.
AntiGlare Filter IIGS	39.
System Saver *(Platinum or Beige)*	69.
System Saver *(IIGS)*	79.
New Turbo Mouse *(Reg. or ADB)*	119.
Kraft	
Universal 3 Button Joystick *(IIe or IIc)*	34.
Koala Technologies	
Koala Pad Plus w/Graphics Exhibitor	84.
Kurta IS ADB Tablet w/stylus *(IIGS)*	339.
MDIdeas Digitizer Professional *(IIGS)*	139.
The Conserver *(IIGS Switched Surge Suppressor w/Fan)*	99.
SuperSonic *(Stereo Card for IIGS)*	49.
SuperSonic Digitizer *(IIGS)*	49.
Mouse Systems A+ Mouse *(IIc)*	65.
A+ ADB Mouse *(IIGS)*	85.
MousTrak MousePad 7"x9" Size	8.
MousePad 9"x11" Size	9.
MousePad L/F *(Low Friction)*	9.
Ribbons *Available colors: black, blue, brown, green, orange, purple, red, yellow, silver or gold*	
ImageWriter Ribbon-Color	4.
ImageWriter Ribbon-Black six pack	20.
ImageWriter II - 4 Color Ribbon	9.
ImageWriter Rainbow Pk. (6 Colors)	20.
Street Electronics Cricket *(IIc)*	125.
Echo IIb Speech Synthesizer *(II+, IIe, IIGS)*	109.

TimeOut SuperFonts by Beagle Brothers



TimeOut SuperFonts lets you dress up your word processing docu ents easily and quickly without ever leaving AppleWorks! *TimeOut SuperFonts* pops up inside AppleWorks to let you access attractive Macintosh fonts in a variety of styles and sizes. You can print text in sizes from 6 to 127 points, with any combination of bold, italic, underline, shadow, and outline that you desire. *TimeOut SuperFonts* features high quality and 50% reduction printing modes, allows you to easily place graphics in your word processing files, and preview your page before printing. *TimeOut SuperFonts* with a **free** paint program, and many fonts with special and foreign characters.

TimeOut SuperFonts ..... **45.**

choices to the various borders, backgrounds, fonts, and types of transitions offered, it becomes obvious that HVP allows for a wide variety of combinations.

Despite having to skip over IBM and Commodore instructions, you'll find HVP's documentation easy to read. Included along with a basic walkthrough (tools, borders, and so on) are tips on both hardware use and esthetics.

The fact that HVP is such a self-contained program overcomes some of its limitations. Unlike Datasoft's or Broderbund's computer/VCR utility, Epyx's doesn't let you import graphics from other sources, nor does it contain a graphics editor of any type. While you can buy separate graphics disks for the other two programs, no such disks are yet available from Epyx. Also worth noting is that Home Video Producer is the only one of the three programs that isn't copy-protected.

VCR COMPANION

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3500
Videotape-enhancement utility; $49.95
Rating: ■■■■

The Best for Last

While all three programs are valuable, Broderbund's VCR Companion is the most well rounded, providing beautiful graphics with an excellent menu-driven interface and the widest selection of options. Graphics screens are so sharp you'll swear you're looking at a GS, even if you're not.

Upon loading VCR Companion, you may get a feeling of déjà vu. Broderbund has patterned the program after its award-winning Print Shop. By doing so, the company has given the public a program so simple the documentation is virtually unnecessary. VCR Companion also lets you use a mouse, making the entire creation process a simple matter of point and click.

While VCR Companion doesn't have as many full backgrounds as Datasoft's program or anywhere near the number of individual graphics clips as Epyx's HVP does, it provides a dozen choices in every category offered, including areas not touched by the other two (like back- ►

Continued

FingerPrint GSi (November 1988, p. 37, by James Trunzo), Thirdware Computer Products, 4747 N.W. 72nd Avenue, Miami, FL 33166, $99
Rating: ■■■■

FingerPrint GSi lets you save a screen image quickly by printing it. This graphics-utility card has been available to IIe owners for some time; the new version is designed for the GS.

You can install the FingerPrint card in five minutes—the manual contains step-by-step directions and it's impossible to plug it in the wrong way. Thread the ribbon cable out the front of the machine and attach the self-adhesive activator button (with a picture of a fingerprint on it) to the front of your GS.

After running two installation tests, you're ready to print a screen. Press the fingerprint button, then click your mouse or hit Return. The screen starts to print, and that's all there is to it.

FingerPrint gives you several printing options—color, zoom, 90-degree rotation, and cropping, among others. You can also add text.

The Graphics Studio (August 1988, p. 28, by Cynthia Field), Accolade, 550 South Winchester Boulevard, San Jose, CA 95128, (408) 296-8400, $59.95
Rating: ■■■

The Graphics Studio is a good program somewhat hampered by its deviation from the standard GS user interface. It's got enough features and tools to satisfy almost anyone—the resizable eraser is especially nice.

Two other advanced features are noteworthy: Color-cycling animation lets you use as many palettes as you like—not just one—to simulate activity; and you can use a special file included on the program disk to create and display slide shows of your artwork.

The user's guide is disappointing, with both tutorial and reference sections loosely organized and superficially written.

Two more things you'll want to know: The Graphics Studio supports only the ImageWriter printer and it requires 768K.

ComputerEyes for the IIGS (July 1988, p. 33, by Robert Ryan), Digital Vision, 66 Eastern Avenue, Dedham, MA 02026, (617) 329-5400, $249.95
Rating: ■■■■

ComputerEyes GS is a color video digitizer with two major components: a GS expansion card that converts analog video signals to your computer's digital data, and software to manipulate it. The result is a system that lets you capture a video picture (from a VCR, videodisc player, video camera, or camcorder) and display it as an Apple IIGS picture.

ComputerEyes GS requires 512K. The digitization board is a compact unit you can plug into any GS expansion slot. (The manual recommends slot 3,4, or 7 to avoid conflicts with the machine's ports.) Note that ComputerEyes doesn't put out an RGB signal, so you can't preview the video source on the standard GS monitor.

ComputerEyes' software lets you edit the images you've captured or those you've loaded from disk—you can set the number of colors or grey levels, the separation between colors, and capture speed.

Within limits, ComputerEyes is a very good image-acquisition system. It lets you capture beautiful shots you can use with your GS software or modify with a paint program.

Bee-Cause (February 1988, p. 92, by Carol Holzberg), Q.E.D. Computing, P.O. Box 5037, Kent, WA 98064-5037, (206) 432-2779, $40
Rating: ■■■

Bee-Cause is a no-frills science simulation. It doesn't have any sound, it's almost entirely text, and the animation is limited—but students will learn the importance of recording observations, asking questions, testing hypotheses, and interpreting data as they simulate the everyday occurrence of a bee visiting a flower.

The program is easy to use, with menus and on-screen instructions to guide students through their options.

ground patterns). Furthermore, the fonts available in VCR Companion include such exotic choices as Neon, Slime (the letters drip like those in a horror film), and Film.

VCR Companion also contains twice as many transition types as do the others, and it's the only one of the three that provides pregenerated special effects and animation. *Special effects* differ from *transition effects* in that they occur on a page, rather than between pages. For example, the special effect Stars generates small hires stars over your background or text, twinkling off and on randomly and highlighting the scene.

The package comes with a full-color folded quick-reference card. The manual includes plenty of screen shots, a tips section called "Creative Ideas," a menu flowchart, and an illustrated list of icons.

Broderbund's package also integrates with Dazzle Draw and Animate, to enhance the value of all three products.

THE END

No matter which program suits your taste, needs, and budget, all three can claim excellent documentation, especially if you're talking about integrating your computer and VCR. After all, once you create your masterpiece, you'll want to do something with it. VCR Companion, Video Title Shop, and Home Video Producer provide detailed, illustrated instructions on connecting the various pieces of equipment and present it in such a straightforward manner that even easily intimidated stumblers like this reviewer can make the right hook-ups with no trouble whatever.

The manuals also point out other uses for the programs besides titling home videos. Each of the programs can cycle through a production, creating numerous or endless repetitions, perfect for in-store advertising or displays. You can also use video sequences to make video greetings disks, lesson tapes, and audiovisual aids for school reports or business presentations.

VCR Companion, Video Title Shop, and Home Video Producer are all fine products in their own right. Add a star to a program's rating if you've been looking for a program just like it.■

James V. Trunzo
Leechburg, PA

PS Lovers' Utility Set

Big Red COMPUTER CLUB

Do you love Print Shop™ IIGS?

Do you love *Print Shop IIGS*? We do! That's why we've created the ***PS Lovers' Utility Set-GS*** (***P.L.U.S.-GS*** for short). ***P.L.U.S.-GS*** is a set of utility programs designed especially for the Apple IIGS® version of Print Shop. Here's what you can do with ***P.L.U.S.-GS***:

- Print Graphics Catalogs
- Print Border Catalogs
- Print Font Catalogs
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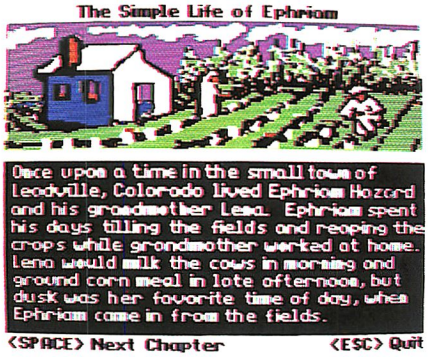

Perk up those language-arts classes with Story Sketcher, MindPlay's newest writing toolkit. This is the stuff computer-assisted instruction is all about. Designed for children in grades 4–12, Story Sketcher focuses on the short story and demonstrates how this medium is different from a novel, a play, or an essay.

With words, pictures, story ideas, and an outline guide that give youngsters the opportunity to express themselves, Story Sketcher even offers instruction in using the computer as a desktop publisher, albeit a very rudimentary one. Because it also includes a simple word processor for typing and editing, it helps integrate word processing into the writing curriculum.

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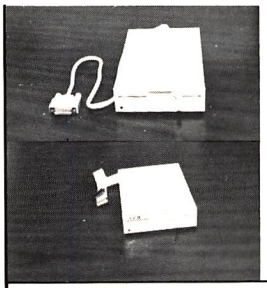
Story Sketcher is a language-arts supplement that should be used to reinforce writing skills taught in class. The program includes on-screen instructions, easy-to-use menus, and all the essentials children will need to express themselves, such as outline suggestions, story ideas, colorful graphics, and printing options.

The main menu offers four choices—Write/Edit a Story, Read a Story, Instructions, and Challenge Upgrade. Students press the spacebar to move around the menu and the return key to make selections. The instructions clearly summarize the program's features, but children should still read the sample story on side 2 of the program disk before writing a story of their own.

When students are ready to write a story of their own, they must first choose a topic. If they need a story starter suggestion, they can select See Story Ideas from the Write/Edit a Story menu and choose from 20 possibilities. My favorites are "As you are walking home from school, you see an alligator in the center of the road," "The cold, wet wind is beating on your face," and "The telephone rings." One of the Challenge Upgrade options lets teachers modify the list of story ideas so that students always have something fresh to spark their creativity.

After selecting a story idea, students should sit for a moment, close their eyes,

Cont. on page 82



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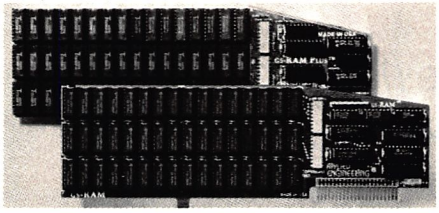

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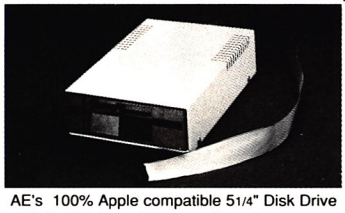

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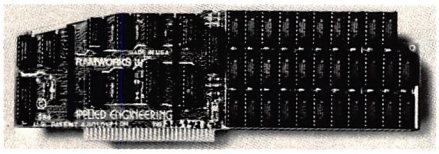

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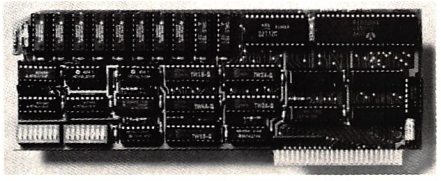

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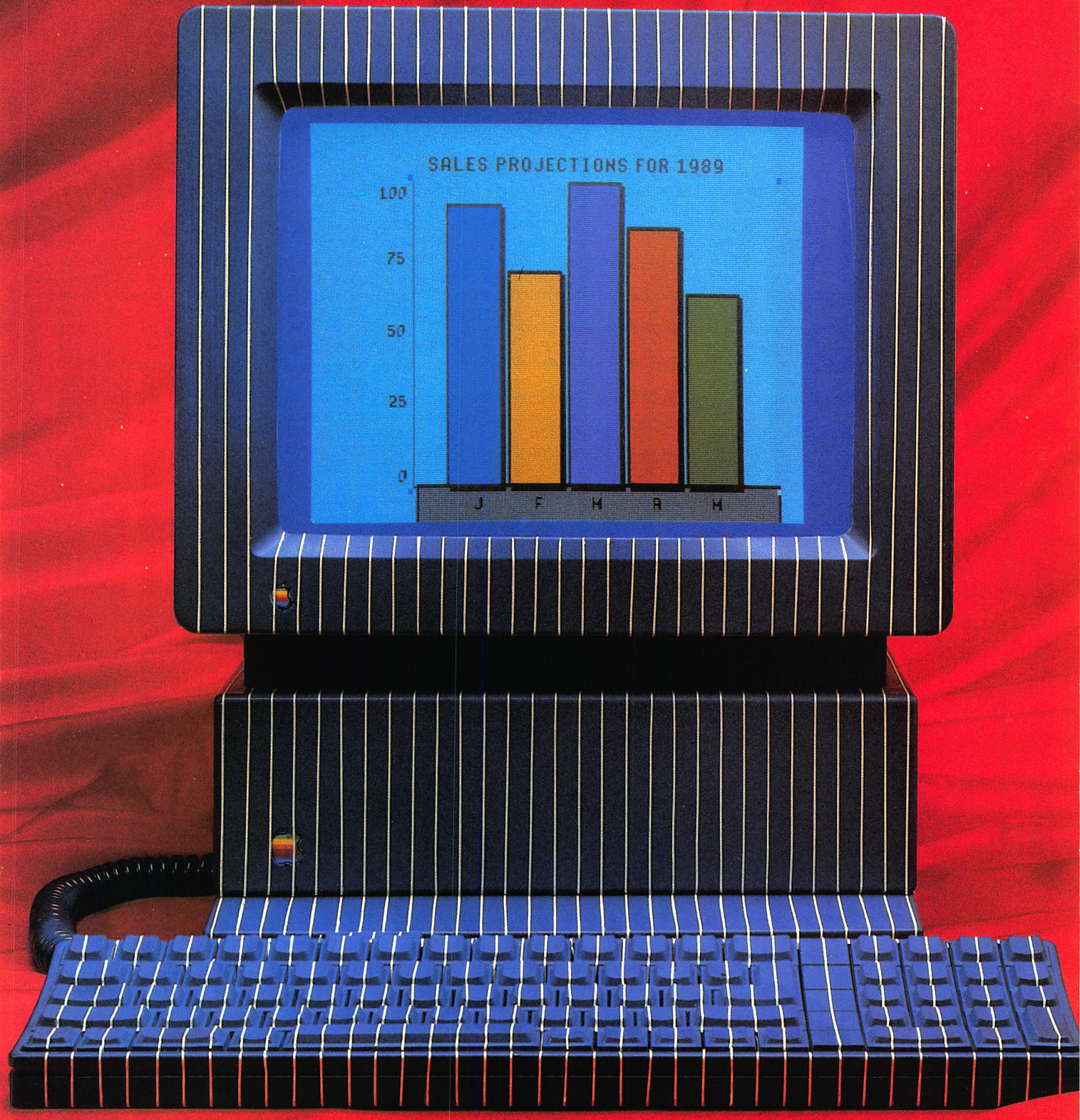

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AS USUAL

Your favorite "home" computer is right at home in the office, too—businesses of all types and sizes are discovering the power and efficiency of Apple II systems.

IF THE APPLE II *DOESN'T* BELONG IN BUSINESS, SOMEONE really ought to tell Bill Monnier. Bill's the president of Corvette Clinic, a Highland Park, Illinois, service, repair, and mail-order facility specializing in 'vettes, Camaros, and TransAms. His company's Apple IIe and IIGS are doing just fine, thank you, handling virtually all operations, including full-fledged accounting, payroll, mail-list management, and inventory.

Corvette Clinic isn't an isolated example. Retailers, tradespeople, investment brokers, entrepreneurs, administrators, doctors, lawyers—perhaps even some Indian chiefs—employ Apple II hardware and software to automate their daily operations. (For a look at some ancillary hardware that can help your business succeed, see the accompanying sidebar, "Fax: No Longer Fiction for Small Business.")

Literally hundreds of products underscore the Apple II's rightful place in business: in document preparation, database report handling, spreadsheet number crunching, and desktop publishing. You'll find some Apple II applications that are flexible and unstructured enough to adapt to your home and educational needs, as well; others are strictly business. Let's take a fresh look at just a few of the Apple II business programs that help keep America working—without benefit of the Mac or Big Blue. (For more information on the four "basics" mentioned above, see "Polish Your Words" and "A Rhapsody of Words," November 1988, pp. 60 and ►

Rx for Success

If your medical or dental practice still schedules appointments, manages patient records, or completes insurance claim forms manually, it could be time to transplant an Apple II to your receptionist's desk. At least three companies offer software to help streamline these mundane aspects of the daily routine.

Andent provides a series of stand-alone programs for the 64K Apple II. Among them are Applointments, a computerized appointment book; Prescription Form Writer, a preprinted prescription generator; and Recall List, a preconfigured patient address/telephone book to keep track of "last" and "next" visits.

Dental-Medical Office Data, a database system, includes a text editor as well as Patient File, Appointments, Insurance Lists, Phone Lists, Employee Records, Mail List, Inventory, and Checkbook. Medical Insurance Form Writer automates completion of the Universal Health Insurance Claim Form. Each copy of the program disk accommodates 100 families and multiple practitioners. Written in BASIC, the program's code is listable, a nice touch for the physician who might want to customize the software.

According to Ellis J. Neiburger, D.D.S., Andent's director and author of the book *Computers for Professional Practice*, the company sells a similar program, Dental Insurance Form Writer, that fills in the standard American Dental Association Form. All Andent programs are covered by a ten-day refund policy.

If you're already an AppleWorks 2.0 user—or you'd like to be—take a close look at two medical-practice *template* packages (ready-made files) offered by Applied Scientific. Templates are low-priced, they're not copy-protected, and they use the same commands as your host program.

Surgery Billing and Anesthesia Billing, for instance, include patient database files as well as word-processing-file facsimiles of various insurance claim forms, including the Universal Health Insurance Claim Form and the Blue Cross/Blue Shield 4C1 form. Use AppleWorks' record-selection rules to choose appropriate patient records, then its mail-merge feature to print the actual forms.

For direct billing, the "Statement" template prints on NEBS' Two-Way Statement Mailer, a form that provides the statement, an office copy, and both outgoing and return envelopes. A predrafted patient cover letter and collection letter are included on disk for your convenience.

These Applied Scientific templates were designed by Robert J. Flaherty, M.D., and carry an "absolute, unconditional money-back guarantee."

If you want to fully automate your office's operations, single-purpose stand-alone products or templates probably won't suffice. Instead you'll want to investigate the dental-office management system designed by Gregory Fox, D.M.D., and Dental Management Associates. Dr. Fox's program, in development as this article went to press, centers around DB Mas- ►

72, respectively; "The Easy Solution" and "Tame Your Files," July 1988, pp. 50 and 57, respectively; "Spreadsheets for All Reasons," September 1986, p. 60; and "Be Your Own Publisher," February 1988, p. 40.)

DATABASE HORSEPOWER

"I think it's the greatest thing that's happened to me," says Iris Folkson of what may be the most powerful relational database-management program for the Apple II family, **DB Master Professional** from Stone Edge Technologies.

Folkson's beta-testing the program, scheduled to be released by early 1989. As a bookkeeper at the New York City corporate-law firm of Tannenbaum Dubin and Robinson, Folkson has developed a DB Master Professional application that turbocharges her office's billing and escrow-account management operations. She began automating the law office about five years ago with an Apple IIe and the older, flat-file version of DB Master. She would calculate time sheets, prepare bills to be typed, and enter the information into an accounts-receivable file.

What used to take a week DB Master Professional now does in a day. Folkson has configured four files: time sheets, bills, accounts receivable, and addresses. "I enter the time sheet for the month," she explains. "If we're going to bill, I respond yes to the yes/no field I included. The program automatically sends the dollar amount to the bill file along with the client's name. I then go into the bill file, which, following the relational rules I've defined, calls up the balance due from accounts receivable and billing information from the addresses file. I instruct the program to print a bill on our ImageWriter LQ for anyone whose account shows a balance due."

The free-form nature and multifile juggling power of DB Master Professional make it suitable for just about any kind of business. Folkson is so convinced of the program's value that she uses it on her home-office GS to computerize her husband's business: women's-clothing sales. According to Barney Stone, head of Stone Edge Technologies, libraries and retailers are also expected to join the ranks of law-

Photography by White/Packert

yers and sales representatives as scanners like the **PC300** series from TPS Electronics become available. "The TPS scanner plugs into the GS' desktop bus and supports DB Master Professional directly," Stone adds. "At AppleFest last fall we tried the scanner on a box of Chiclets (TM), and our program read the bar code just as if someone had typed it in from the keyboard."

I KNOW I CAN

In reality, though, not all businesses need the power of a relational database program. Integrated programs such as **AppleWorks** from Claris Corporation may provide better service.

Val Campbell, secretary-treasurer of Division 338 of the Brotherhood of Locomotive Engineers in Green Bay, Wisconsin, puts all three AppleWorks modules—word processor, database manager, and spreadsheet—to work managing his union local. "You wouldn't believe the amount of paperwork," he notes. "On a bigger railroad, a general committee would do everything for the members."

Campbell has set up spreadsheets for bookkeeping ledgers, database files for mailing lists, and word-processing files for Division correspondence. Whether it's tracking payments, managing political-action information, or reporting tax-deductible dues, union responsibilities that used to take Campbell the better part of a day now take him a couple of hours, thanks to his GS and AppleWorks.

LESS IS MORE

Val Campbell's not alone in his enthusiasm for AppleWorks. Tom Smith, convention manager for Better Homes and Gardens Real Estate Service in Des Moines, Iowa, says, "Having multiple functions back to back gives me a tremendous time-saving advantage." Smith has planned up to 40 meetings per year—including an annual national convention with a budget approaching $1 million—for the more than 26,000 independent owners, managers, and sales personnel in the company's network.

Among Smith's power files is a 460-row budget-planning spreadsheet that assists him in tracking attendees and rev- ►

ter Professional and is expected to cost around $1200.

Other powerful, full-featured programs for dentists and physicians include CMA Micro Computer's Medical IIP and Dental IIP. Medical IIP, for example, not only does your billing and keeps an appointment book, but maintains a complete patient database with each record large enough to accommodate up to 440 standard office visits. The program includes handy accessories such as a file-folder label and Rolodex (TM) card-printing utility. Medical IIP's text processor lets you design patient reminders and other office forms as well as prepare referral letters and reports for other physicians.

According to the company, Medical IIP works "fast enough to operate with a substantial amount of 'phone-in' appointment activity." Not surprisingly, a workhorse like this demands a fully configured computer system: a GS with 512K, a 20-megabyte SCSI (small-computer systems interface) hard-disk drive, one 3½-inch and one 5¼-inch floppy-disk drive, a mouse, and a printer.

Technical support is free for 90 days. After that, you have a wide variety of options, including an Extended Assurance Plan (with free updates) or Pay-As-You-Go plans with charges levied for each phone call. Custom programming is also available.□ —C.F.

PRODUCT INFORMATION

Applointments, $75
Computers for Professional Practice, $14.95
Dental Insurance Form Writer
Medical Insurance Form Writer
$100 each
Dental-Medical Office Data, $150
Prescription Form Writer, $20
Recall List, $39
Andent, Inc.
1000 North Avenue
Waukegan, IL 60085
(312) 223-5077
Reader Service No. 340

Dental Management Associates
Gregory Fox, D.M.D.
P.O. Box 576
Moorestown, NJ 08057
(609) 722-1565

Medical IIP
Dental IIP
CMA Micro Computer
P.O. Box 2080
Yucca Valley, CA 92286-2080
(619) 365-9718
$1995.95 each
Reader Service No. 341

Surgery Billing
Anesthesia Billing
Applied Scientific
416 Arnold
Bozeman, MT 59715
(406) 586-1157
$100 each
Reader Service No. 342

PRODUCT INFORMATION

AppleWorks
Claris Corporation
440 Clyde Avenue
Mountain View, CA 94043
(415) 960-1500
$249
Reader Service No. 325

BusinessWorks
Manzanita Software Systems
One SierraGate Plaza
Suite 200-A
Roseville, CA 95678
(916) 781-3880
$495
Reader Service No. 326

CT-20, $650
CT-20c,$850
Chinook Technologies
601 Main Street
#635
Longmont, CO 80501
(303) 678-5544
Reader Service No. 327

DB Master Professional
Stone Edge Technologies
P.O. Box 200
Maple Glen, PA 19002
(215) 641-1825
$295
Reader Service No. 328

The Dome Simplified Bookkeeping System for Computers
Great American Software
9 Columbia Drive
Amherst, NH 03031
(603) 889-5400
$59.95
Reader Service No. 329

The Invoicer
Miccasoft
406 Windsor
New Braunfels, TX 78132
(512) 629-4341
w/ Accounts Receivable, $125
w/ Accounts Receivable, Sales Tracking, Inventory, $187.50
Reader Service No. 330

OmniDrive Network Server
Corvus Systems
160 Great Oaks Boulevard
San Jose, CA 95119-1347
(408) 281-4100
(800) 426-7887
$2795 (20MB)–$4495 (40MB)
Reader Service No. 331

PC385 Scanner
TPS Electronics
4047 Transport
Palo Alto, CA 94043
(415) 856-6833
$595 (GS only)
Reader Service No. 332

Real Estate Analyzer
HowardSoft
1224 Prospect Street
Suite 150
La Jolla, CA 92037
(619) 454-0121
$295
Reader Service No. 333

Zip Chip
Zip Technology
11340 W. Olympic Blvd.
Suite 350
Los Angeles, CA 90064
(213) 473-7662
(800) 628-3278
$179 plus $4 U.S. shipping
Reader Service No. 334

Z-RAM Ultra 2
Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
$209 (0K)–$319 (256K)
Reader Service No. 335

enues and in performing projections for any fixed or variable cost. "I can change the price of a coffee break by 50 cents or the cost of entertainment and immediately see the effect on the bottom line," he explains.

Smith has also designed a flow chart-type database planner to keep track of due dates and divisions of activity. He uses macros "all the time," and has designed his own desk accessories, including a word-processing template "notepad" and a spreadsheet template "calculator."

By his own admission, Smith makes "pretty severe demands" on his office system and traveling companion, an Apple IIc enhanced with a Zip Technology **Zip Chip** and an Applied Engineering **Z-RAM Ultra 2** memory-expansion card. "I toss the IIc in the case and rent a printer and monitor at the meeting site," he says. "I also take **The Print Shop** with me for creating ad hoc announcements. I only wish Apple had fulfilled its promise to deliver a good flat screen and a battery pack to create a functional portable system."

Smith speaks for many AppleWorks owners when he notes, "A lot of people overbuy on software and then don't use its capabilities. I've bought and believe in a program with better-than-modest capacity to do what I need done. I for one am very comfortable with the file-card interface, but [Claris'] direction seems to be to 'mouse' everything. I don't need that. I'd rather see its efforts put into further development of AppleWorks."

FUEL EFFICIENCY

Fundamentally, both DB Master Professional and AppleWorks are do-it-yourself programs. But many Apple II users, like John Freeman at William Donovan & Company in LaJolla, California, prefer ready-to-run programs such as **Real Estate Analyzer** from HowardSoft. (For a look at "ready-made" programs and templates for medical professionals and school administrators, see the accompanying sidebars, "Rx for Success" and "If Your Business Is Education.")

Freeman uses HowardSoft's powerful number cruncher on an Apple IIe to help clients find the "million-dollar-plus"

commercial properties that best suit their investment objectives. He usually prepares five or six printed investment scenarios before his clients come into the office. Working with the information he enters about loans, depreciation, income, expenses, and expected growth/inflation rates, the program projects multiyear comparisons based on calculations of capitalization rates, cash flow, and rates of return.

"We get different price breakdowns; we put in different rents and expenses. We can go back on a fixed price and change rents if we think they're too low," Freeman says. "Since no one has a crystal ball, whether they're into stocks or real estate, we tend to be conservative and project growth rates of 3–4 percent. If a client thinks the rate should be 8 percent, I can put that in and get an immediate report. We're a small company without access to a mainframe computer, and Real Estate Analyzer gives us a lot of flexibility."

CRAWL BEFORE YOU WALK

One function that's common to all businesses is watching where the money goes. For the business owner or self-employed person who's about to computerize, but doesn't know where to start, Great American Software may provide the answer: **The Dome Simplified Bookkeeping System for Computers**.

This program's claim to fame is simplicity over power; it mimics both in operation and in appearance the printed version of the classic Dome system. It requires only 64K and one floppy drive.

The noncopy-protected DOS 3.3 program disk keeps a year's worth of data. (Make a new copy of the program each year.) Select weekly or monthly bookkeeping methods to track income and expenses and to perform payroll functions. The Dome system prints basic reports: Check Register, Sales/Cash Receipts Register, Payroll Register, Vendor Analysis, and Income Statement.

Make no mistake—Dome is no full-featured business accounting program. It may nevertheless provide an economical way for newcomers to business computing to test the waters before ►

If Your Business Is Education

Running a school is no small task, but you can reduce the workload when you employ an untiring administrative assistant like the Apple II. Equipped with the right software, the Apple in your office can, among other duties, maintain student records, devise schedules, print report cards, generate bills, and manage disciplinary data.

Surfside Software, exclusive publishers of Mount Castor Industries school administrative software, is one company offering at least a half-dozen programs to help your school of 1000 or so students run more efficiently.

The Inspector stores attendance records, finds cases of chronic absenteeism, and prints summary reports. The Inspector shares data with The Classifier and The Reporter, programs that generate and print class rosters/schedules and report cards, respectively. The Notifier and The Bookkeeper perform midterm reporting and billing. The company's disciplinary records/reporting program, The Enforcer, keeps track of up to 8000 interactions involving as many as 255 kinds of offenses and punishments. These programs run on Apple IIs with 48K–128K of random-access memory (RAM) and require two 5¼-inch drives and a printer.

If a GS helps run your school, Surfside provides each of the above-named programs in enhanced versions for that model; these editions offer more features and improved performance.

Among Surfside's other GS programs are The Guidance Partner, which tracks contacts with students and the status of their college applications, scholarship awards, and SAT scores; and The Transcriber, which maintains a complete grade history and calculates grade-point averages and class ranking for each student.

Surfside Software offers a 30-day, money-back guarantee, free "intensive care" technical support for 90 days, and generous upgrade/update policies.

If administrative details are bogging you and your staff down, maybe you should make it your business to check out these award-winning school-administration programs.□ —C.F.

PRODUCT INFORMATION

The Bookkeeper
The Classifier
The Reporter Toolkit
$195 each
The Classifier II, $895
The Enforcer
The Notifier, $295 each
The Inspector, $345
The Classifier 2GS
The Enforcer 2GS
The Guidance Partner
The Inspector 2GS
The Locator 2GS
The Reporter
The Reporter 2GS
The Transcriber 2GS
$495 each
Complete 2GS Suite, $2495
Surfside Software
P.O. Box 1112
East Orleans, MA 02643
(800) 942-9008
(508) 255-1120
Reader Service No. 338

Fax: No Longer Fiction for Small Business

How often does Federal Express bail *you* out of touchy situations? Like other overnight courier services, including the U.S. Post Office's Express Mail, Federal Express speeds all kinds of documents anywhere coast to coast in less than 24 hours. But think: What would happen if a business report or a sales order had to be delivered stat?

Sure, the Apple II in *your* office may be equipped with a modem. (See "No Substitute for Speed," p. 49 in this issue, for *inCider*'s survey of low-cost 2400-baud modems for the Apple II family.) But if the office on the receiving end doesn't have a similar setup, you're stuck—unless you both have a "fax" machine.

A fax—short for *facsimile*—device works something like a combination copier/telephone/answering machine. The copier component creates a page-by-page electronic image of a printed document. The image is transmitted over telephone lines to a compatible fax machine in the recipient's office or mail room. Some fax units have gray-scale capabilities to transmit illustrations such as technical drawings or bar graphs, not just text.

Even after regular business hours, your fax machine can stand sentry to receive documents from remote facsimile machines (a valuable capability that nevertheless raises the spectre of "junk fax").

Because fax machines feed on a continuous supply of paper, often the more costly thermal variety that comes in rolls, you pay indirectly for any fax transmissions you receive. If your unattended fax machine has a dedicated telephone line, you should probably guard its phone number—as you would the one for your car phone.

Fax machines, like computer modems, operate at different speeds. A group I machine may take more than five minutes to transmit a single page, for example, while a group IV machine can send that page within seconds. Just like sending files by modem (uploading), transmitting documents by fax results in lower phone bills if you can do it quickly, or at times when phone rates are lower.

For now, group III faxes are the prevailing standard. Within this group are some lower-priced fax units that offer reasonable price/performance tradeoffs. Check with your local office-supply salespeople on the availability of these so-called "personal fax" machines. Manufacturer names to look for include AT&T, Brother International, Canon U.S.A., Fujitsu, Harris/3M, Hitachi America, Mita, Mitsubishi, Panafax, Ricoh, Sanyo, Tandy, and Toshiba America.

Group III machines transmit over ordinary telephone lines and can even receive documents from computers equipped with fax boards, special interface cards that emulate group III faxes. At press time, we weren't aware of any fax boards for Apple II computers, but we're hoping some manufacturers prove us wrong. We'll keep you posted.□ —C.F.

committing to a power system like the others described here. (See the accompanying sidebar, "At Home in Any Business," for other accounting programs for small business.)

BUSINESS CLASS

If your business' accounting requirements go beyond simple bookkeeping, consider **The Invoicer** from MiccaSoft. Bob Arwine, president of the Arwine Company in Seattle, Washington, uses The Invoicer with Sales Tracking/Inventory/Accounts Receivable modules to help run *three* businesses: a sales company representing 25 national and local product lines, including Pulsar watches and Hagen-Renaker miniature ceramics; the Alaska Jewelry Company with 700–800 products and 150 customers; and Northern Novelties, a novelty T-shirt marketing firm with 50 products and some 300 customers.

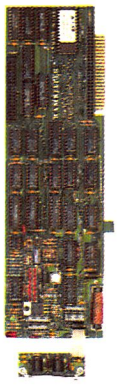
"I find The Invoicer outstanding," observes Arwine. "It's a midlevel program that untrained people can soon learn to operate with a minimum of trouble. We had clerks who weren't computer trained running our program within two to three hours and successfully generating invoices."

According to Arwine, the program was easy to install on the company's enhanced IIes and IIcs. Arwine has installed a Chinook Technology **CT-20** hard-disk drive on one IIe and intends to add a **CT-20c** to one of the IIcs. "With the hard disk, we have unlimited capacity," he notes. "We can make subdirectories for each of our companies, or we can run them each on 3½-inch disks. I can tell you truthfully, I don't know what other people are getting out of their IBMs and Macintoshes, but as far as running small companies, you could literally do everything you'd want to do with a IIe or IIc. I'm amazed that these little IIcs can do as much as they can if you build up the memory a little bit. Zip Chips take care of speed, and with the Chinook hard drive, we can only ask ourselves, 'What more do we want?' "

THE WORKS

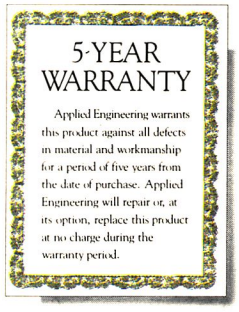
Bill Monnier at Corvette Clinic echoes ►

Why we sell more Apple expansion cards than Apple.™

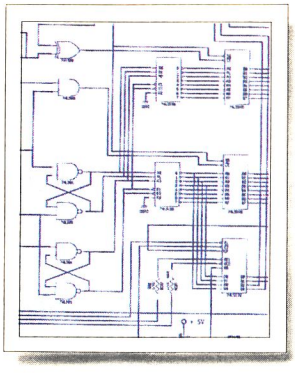


We specialize more.

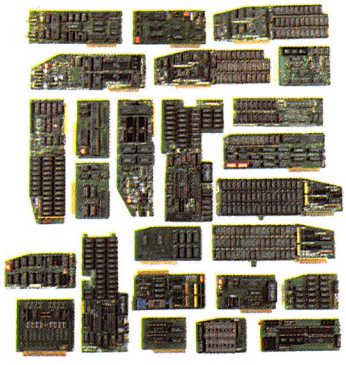
We support more.



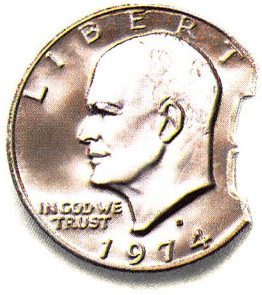
We guarantee more.



We innovate more.



We offer more.



We cost less.

When you add it up, you'll add us on.

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At Home in Any Business

Give high-powered accounting systems like BusinessWorks their due: They're full-featured and extraordinarily capable. Yet they may be overkill for *your* business. If the bookkeeping functions around your office are modest, why not consider using a personal-finance (a.k.a. home-accounting) program?

Two hallmarks of personal financial-management programs are they're easy to learn and they're easy on the pocketbook. In general, these programs afford plenty of flexibility in setting up your chart of accounts. Further, many home-finance programs support single-entry bookkeeping, a feature that can quell debit/credit anxiety in even the most extreme nonaccountants.

You might say that personal-finance programs are like intelligent checkbooks. They remind you when recurring expenses come due, they print batches of checks at your command, and they generate the kinds of reports bankers like to see—notably profit-and-loss statements.

Generally speaking, they offer budgeting options, sometimes with bar-graph displays and printouts for comparing budgeted versus year-to-date amounts. Some finance programs include built-in loan calculators—a handy feature if your business is about to expand.

Certain home-accounting programs export data to the AppleWorks spreadsheet, a feature that affords you the opportunity to perform advanced analyses—or to complete your tax return with, shall we say, less pain.

In an upcoming issue, we'll zoom in for a closer look at the so-called home-accounting programs listed below. For now, consider the possibility that at least one of these candidates might feel right at home in your small business. □

—C.F.

PRODUCT INFORMATION

Managing Your Money
MECA
355 Riverside Avenue
Westport, CT 06880
(203) 222-9087
$149.95
Reader Service No. 345

On Balance
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3500
$59.95

Quicken
Intuit
540 University Avenue
Palo Alto, CA 94301
(415) 322-0573
$49.95
Reader Service No. 346

Smart Money
Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614
(209) 683-4468
$79.95
Reader Service No. 347

Sylvia Porter's Personal Finance Series Volume 1: Your Personal Financial Planner
Timeworks
444 Lake Cook Road
Deerfield, IL 60015
(800) 535-9497
(312) 948-9200
$99.95
Reader Service No. 348

Arwine's sentiments when he describes his company's implementation of **BusinessWorks** from Manzanita Software Systems. Monnier and Office Manager Angie Johnson have installed all five BusinessWorks modules (General Ledger, Accounts Receivable, Accounts Payable, Inventory Control, and Payroll) on the 18-megabyte Corvus **OmniDrive** serving the Apple IIe and the GS in their offices.

"I didn't know anything about computers when I came to work here and I was a little afraid when I first started, but I was surprised," Johnson remarks. "Now the program's a little slow for *me* sometimes!"

Monnier adds, "The program was extremely easy to set up. Before BusinessWorks, we spent two years of trial and error with different accounting packages. With BusinessWorks we've encountered no limitations at all. Even my accountant loves the program."

Among Corvette Clinic's recent projects were putting all inventory parts on line and transferring the customer mailing list from another program. The service department isn't computerized yet, but Monnier and Johnson already have designs on that.

FACING FACTS

Perhaps relishing their part in pushing the proverbial rock uphill, successful men and women in electronic cottages, office condos, malls, and industrial parks throughout the country continue to praise the Apple II and the many capable programs that fire its powerful business engine.

Nonbelievers who persist in thinking that Apple IIs are just educational toys for schoolchildren would be wise to cut the rhetoric. The reality is far more convincing. ■

Cynthia Field is a free-lance journalist specializing in computers and technology. She is a contributing editor and the author of Field Trip, inCider's *column on educational software, and Press Room, our bimonthly column on desktop publishing. Write to her at 60 Border Drive, Wakefield, RI 02879. Enclose a stamped, self-addressed envelope if you'd like a personal reply.*

NO SUBSTITUTE *for* SPEED

It's not exactly talk that's cheap these days—it's telecommunications. A new generation of high-speed modems is putting Apple IIs on line faster than ever—and at a fraction of the cost you'd expect.

It's the biggest bargain in computer hardware—eight times the power for almost half the price. What kind of equipment gives you that kind of deal? *Modems.* Five years ago the most popular modem for an Apple II was the 300-baud Hayes MicroModem II; you could buy one for around $350. Today you can buy 2400 baud for about $180. This 16-fold differential makes high-speed telecommunications—the transfer of data over ordinary phone lines—available to everyone who owns a computer. (See "Power On Line," December 1988, p. 55, for more information on communications software and services.)

Let's look at specifics. Applied Engineering's **DataLink 2400**, the **Epic 2400 MiniModem**, Practical Peripherals' **Practical Modem 2400**, the **SupraModem 2400**, U.S.Robotics' **Sportster 2400**, and the **Zoom MX 2400** are six examples of high-quality, low-cost modems you can buy for your Apple II. Which one suits your telecommunications needs?

THERE AND BACK AGAIN

Before you decide which modem to buy, take the time to find out why you need one—you'll be in a better position to make an informed choice.

Let's start with the basics of your Apple's inner workings. Your computer is a *digital* device: It manipulates information—numbers, letters, keyboard symbols, and graphics—by opening and closing a series of minute electronic switches on its internal boards and inside its peripherals. Each piece of information is symbolized by a unique, standardized *pattern* of switches, which programmers write as a series of 1s (open, or on) and 0s (closed, or off), called ASCII code. Each 1 or 0 is called a *bit*; a series of eight, representing one character of information, is known as a *byte*.

Telephones are different. Because the direct current that drives digital computers doesn't work well over long distances, telephones use an *analog* signal to carry your voice over a phone line. (*Analog* signals are continuously variable—not just on or off.) To make your Apple II communicate with other computers over standard phone lines, you use a device called a *modem* (short for *mo*dulator/*dem*odulator), which translates the digital signals of your computer into the analog signals of the phone system and back again.

Modems are *serial* devices—that is, they send and receive one bit of information at a time. Computers are *parallel* machines—they work with 8, 16, 32, or more bits at a time,

by Robert M. Ryan, Contributing Editor

Photography by Frank Cordelle

depending on the design of the computer. Most external modems, therefore, require that you provide a serial interface—either a serial card or a serial port—between the modem and your computer. The serial interface disassembles your computer's outgoing parallel signal into a stream of bits for your modem and assembles an incoming bit stream.

Internal modems, however, don't require a serial interface. An internal modem comes on a card that fits into one of the internal expansion slots in your Apple. Internal modems are ideal for computers with slots—such as the IIGS, IIe, or II Plus—because they eliminate the need for a serial interface by including one on the card. Applied Engineering's DataLink is the only internal modem of the six tested here.

Modems are also classified by *baud rate*, a measure of the speed at which data are transferred. Baud rate is often more accurately referred to as *bps* (bits per second). Data transferred over a phone line are normally sent in 10-bit packets, of which 7 or 8 bits are data and the rest delimit the data or help in error checking. A 2400-baud modem can transfer 240 10-bit packets per second. Because in most cases one packet is equivalent to one character, a 2400-baud modem can transfer around 240 characters per second—the practical limit for transfer over a phone line. Higher baud rates normally require dedicated and more reliable data lines.

All six modems discussed here have a maximum transfer rate of 2400 baud; you can't use speed alone to determine which modem to buy. Four criteria you *can* use are performance, ease of use, total cost, and durability.

HOW WELL DOES IT WORK?

A comparison of several products normally revolves around the *performance* of each product: Which one is fastest or performs better at a specific function? In the case of 2400-baud modems, though, this question is moot. To work at all, each modem must work precisely at 2400 baud. In tests that involved connecting to bulletin-board systems and commercial telecommunications services, all six worked flawlessly. None demonstrated any performance advantage over the others. This makes choosing a modem a much more subjective exercise than choosing any other type of peripheral.

HOW EASY IS IT TO USE?

The most important aspect of ease of use is *software compatibility*: Can you buy telecommunications software that works with the modem? In this area, no one modem has an advantage. All six are driven by the industry standard, the *AT command set* used in the Hayes MicroModem 2400. All commercial Apple II communications software supports this command set.

Status lights also add to a modem's ease of use by conveying information about your telecommunications connection. On the industry-standard Hayes MicroModem, for instance, they indicate when the modem is operating at high speed, when it's in auto-answer mode, when it detects a carrier signal, and other useful information. The Zoom MX 2400, the SupraModem 2400, and the Epic 2400 MiniModem all have complete sets of status lights. The Practical Modem 2400 lacks only a sending-data indicator, while the Sportster 2400 lacks everything but a send/receive-data indicator. Because the DataLink 2400 is internal, of course, it has no status lights.

The presence of both a phone jack and a data jack on the modem also contributes to a modem's ease of use. Having both lets you connect your telephone and your modem to your phone line at the same time, so that you don't have to disconnect one to use the other. Only the Epic 2400 MiniModem lacks a dual connector.

TOTAL COST

A modem is just one leg of the telecommunications triad. To get "on line" you also need a serial interface, as discussed above, and a telecommunications program to run the hardware. Of the modems under consideration, only the DataLink 2400 provides a complete telecommunications solution: its own on-board serial interface and its own software. It's not as complete as stand-alone packages such as Point-to-Point and ASCII Express Pro, but it does perform basic functions such as dialing, data capture, and protocol transfer. DataLink's $239 price tag, therefore, is the total cost of your

PRODUCT INFORMATION

DataLink 2400
Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
$239
Reader Service No. 312

Sportster 2400
U.S. Robotics
8100 N. McCormick Blvd.
Skokie, IL 60076
(312) 982-5010
$249
Reader Service No. 315

Epic 2400 MiniModem
Epic Technology
5680 Stewart Avenue
Fremont, CA 94538
(415) 683-0932
$219 ($239 w/ProTerm)
Reader Service No. 313

SupraModem 2400
Supra Corporation
1133 Commercial Way
Albany, OR 97321
(503) 967-9075
$179.95
Reader Service No. 316

Practical Modem 2400
Practical Peripherals
31245 LeBaya Drive
Westlake, CA 91362
(818) 706-0333
$239
Reader Service No. 314

Zoom MX 2400
Zoom Telephonics
207 South Street
Boston, MA 02111
(617) 423-1072
$199
Reader Service No. 317

telecommunications setup.

The five external modems require separate software and a serial interface. If you own a IIc or GS, the interface is built into your computer. Apple II Plus and IIe owners need to buy a serial card (about $70). A commercial communications program runs $40–$120. Thus, a IIc or GS owner must add at least $40 to the cost of the modem; other Apple owners must add at least $110. No matter what your situation, the SupraModem, with a list price of $179.95, is the clear price leader among externals; yet the DataLink, with everything included, is still cheaper than the SupraModem plus serial card and software.

HOW WILL IT STAND UP TO HARD USE?

This category is the most subjective of all. Without leaving each modem on for six months or more, it's difficult to say which ones are more likely to suffer from short-lived power supplies or burned-out chips.

You can make some assumptions, though. First, a modem with a larger number of components is more likely to suffer failure than a modem with fewer components. Second, modems in tough, thick plastic cases are less susceptible to shock than modems in more fragile cases.

The U.S. Robotics Sportster will probably prove to be the most durable of the six modems tested: It has both a low component count and a tough plastic shell. Next in line are the Epic 2400 MiniModem and the SupraModem 2400, which feature relatively few components and a solid case, respectively. At the low end of expected durability are the Zoom MX 2400 and the Practical Modem 2400. These last two have a large number of components and flimsier plastic cases.

Applied's DataLink is another story altogether. Because it's internal, it's pretty safe from the hazards of impact. As long as you use a cooling fan, you should have no problem.

All things considered, the SupraModem 2400 remains the best buy among the low-cost modems examined here. It's full-featured, reliable, and less expensive than the rest. The AE DataLink is a fine choice for II Plus and IIe owners, but its built-in serial interface is unnecessary for GS owners.

Whatever your choice, you'll be happy to learn that all these modems come with free subscriptions to one or more commercial information services. Getting up to speed in telecommunications has never been so easy—or so affordable.■

Bob Ryan is a technical editor at AmigaWorld *magazine (IDG Communications/Peterborough) and is a former* inCider *technical editor. Write to him c/o* inCider, *80 Elm Street, Peterborough, NH 03458.*

Editor's note: As we were putting together this review, Prometheus Products released its new ProModem 2400A 2400-baud internal modem. ProModem 2400A sells for $179, includes ProCom-A telecommunications software, is Hayes compatible, and works with the Apple II, IIe, and IIGS. The external ProModem 2400G retails for $249. For more information, contact Prometheus at 7225 S.W. Bonita, Tigard, OR 97223, (503) 624-0571. Look for a review in an upcoming issue.

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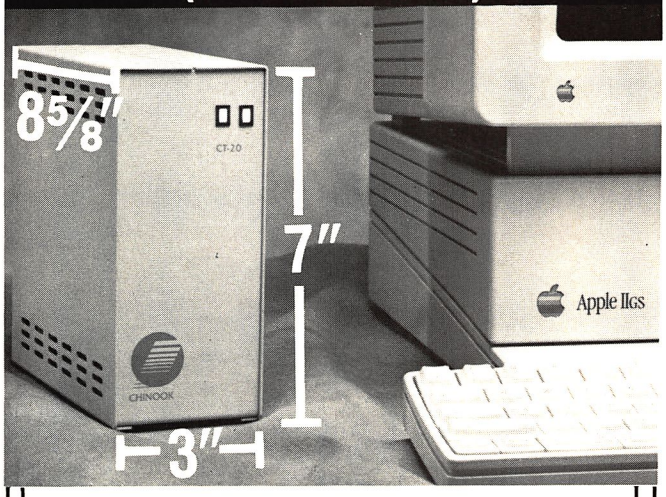

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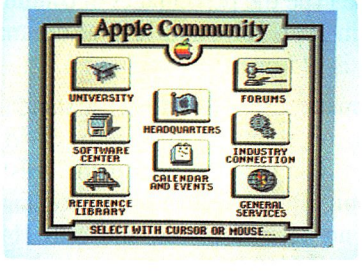

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Preparing Your Income Tax

Get ready for April with an AppleWorks spreadsheet that forecasts your taxes down to the penny.

by Ruth K. Witkin

Though we've just waved good-bye to 1988, it's never too early to prepare for that dreaded date—April 15. Uncle Sam makes the rules, sure, but you can plan how best to abide by those rules. One way is to estimate taxes early on so that you can pursue possible steps to reduce Uncle Sam's bite.

Overwhelming reader response to a question in "From My Mailbag" (March 1988, p. 97) inspired this column. Dale R. Barrows of Overland Park, Kansas, sent me a tax schedule for married taxpayers (see the accompanying **Table**) and asked how to create a spreadsheet to perform the calculations. I suggested IF/LOOKUP formulas and invited readers to send me solutions. And send you did!

All my correspondents devised formulas giving the correct answer but using different approaches. Joseph I. Young of Tappan, New York, Bob Van Arsdol of Corpus Christi, Texas, and C.E. Maddy of Huntington Beach, California, used an approach in which a formula in each level adds the base tax to the result of multiplying the difference between the taxable income level and taxable income. David McCormack of Minot, North Dakota, took a different tack, using the MAX and MIN functions to determine the tax. Robert J. Levy of Lyndhurst, Ohio, offered yet another approach. He used the IF and AND functions to calculate each level of the tax schedule.

In these three instances, one formula handles each level in one tax schedule. But if you want to play around with several "what-if" situations (for example, compare the effects of filing jointly and separately) or want to figure the tax exposure of friends or relatives, you'll love the nifty approach of J.C. Lievens of San Diego, California, which I built into the tax-forecasting spreadsheet in **Figures 1** and **2**. Yes, it does look a great deal like Form 1040, but it isn't an exact match. That's because this spreadsheet lets you estimate your tax vulnerability, not produce a ready-to-file tax return.

over	but not over	the tax is	of the amount over
$ 0	$ 3000	11%	$ 0
3000	28,000	330 + 15%	3000
28,000	45,000	4080 + 28%	28,000
45,000	90,000	8840 + 35%	45,000
90,000	-----	24,590 + 38.5%	90,000

Table. *Schedule Y of Federal 1040-ES Estimated Tax Calculations.*

A single, sleek LOOKUP formula in column L calculates the result in each of four schedules (X, two Ys, and Z), which the formulas in J9 through J12 then copy. A CHOOSE formula in C52 then uses the filing status in G4 to pluck the amount from one of these cells. The key to success is the structure of the lookup tables, which you'll learn more about when you enter the formulas.

Because Congress has changed the tax laws 19 times in 23 years, there's no guarantee these schedules, deductions, and percentages will be totally accurate when tax time rolls around. Be sure to double-check all the facts.

A SPREADSHEET FROM SCRATCH

Bring up a new spreadsheet file and name it **TAXES**. Using **Figures 1** and **2** as a guide, follow these instructions to set up the spreadsheet:

- **Column width.** Each column is now nine characters wide. Use OA-L to change these column widths: column A to 60 characters, B to 1 character (it holds only a dollar sign), C to 12, D to 2, and E to 4 characters. Change columns F to 18 characters, I to 5, L to 8, and M to 4 characters. Columns G, H, J, and K remain at 9 characters.

- **Labels, numbers, and other entries.** Enter all the labels and numbers *except the numbers generated by formulas*. The boxed number next to the cell indicates these numbers. To indent the labels in column A, type quotation marks and press the spacebar once before typing. Press the spacebar eight times to indent the spreadsheet title in A1. In column B, type quotation marks before typing each dollar sign. To create the arrows in H3 and H4, type quotation marks followed by a less-than (<) sign and eight minus signs. Type the percentages in column I and in H44, H45, and H46 as decimals (that is, *.15* or *.075*).

- **Formats.** Use OA-V to set a standard value of commas with zero decimal places. Use OA-L to format the cells in column I (rows 18–39) for percentages with no decimal places, and cells H44, H45, and H46 for percentages with one decimal place. Center the spreadsheet title in C2. Center or right-align labels in the work area to agree with **Figure 2**.

- **Lines.** Use equal or minus signs to enter the horizontal lines. Type quotation marks first, then hold down the key. Type 11 equal or minus signs to create the short lines in column C. To create the vertical lines, type the vertical character twice in E1. (The vertical character shares the backslash key.) Center the characters, then copy down column E. Do the same in column M.

When you've finished, press OA-S to store the spreadsheet on disk. ►

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ENTERING THE FORMULAS

The next step is to enter the formulas shown in **Figures 1** and **2**. Place the cursor on the cell receiving the formula, build the formula shown in the description, then press Return.

Protect each formula immediately after creating it. Later, when you copy the formulas, you'll be copying the protection, too, which reduces the number of steps. To protect, leave the cursor on the formula cell, press OA-L, and hit Return to confirm *Entry*. Type **PN** to select *Protection Nothing*. As you enter the formulas, some of the cells will differ from those shown in **Figures 1** and **2**. When the spreadsheet's complete with all 20 formulas, the calculations should then match.

FORMULA 1: TOTAL INCOME

Formula 1 adds the income amounts (C4 through C17) to produce the total income in C19. Formula 1 includes C3 (an empty cell) and C18 (a line), which let you later insert a row between these cells and have AppleWorks adjust the formula to include the new amount. You will, of course, need to change the spreadsheet layout first to avoid disrupting the tax schedules to the right. This can be a *big* (but do-able) job.

Cell location: C19

Description: @SUM(C18.C3)

Remember, protect this and every other formula as you create it.

FORMULA 2: TOTAL ADJUSTMENTS

Formula 2 adds adjustments to income (C22 through C29) to produce total adjustments in C31. It includes empty cell C21 and the line in C30.

Cell location: C31

Description: @SUM(C30.C21)

FORMULA 3: ADJUSTED GROSS INCOME (AGI)

Formula 3 subtracts total income (C19) from total adjustments (C31) to produce adjusted gross income in C33.

Cell location: C33

Description: +C19−C31

FORMULAS 4–6: DEDUCTIONS IN EXCESS

Each of the following formulas copies the amount that Formula 20 generates in the work area.

Formula	Cell Location	Description
4	C36	+L44
5	C44	+L45
6	C46	+L46

FORMULA 7: TOTAL DEDUCTIONS

Formula 7 is an IF formula that produces one of two answers. The Test state- ►

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By Bill Basham **inCider Editors' Choice**

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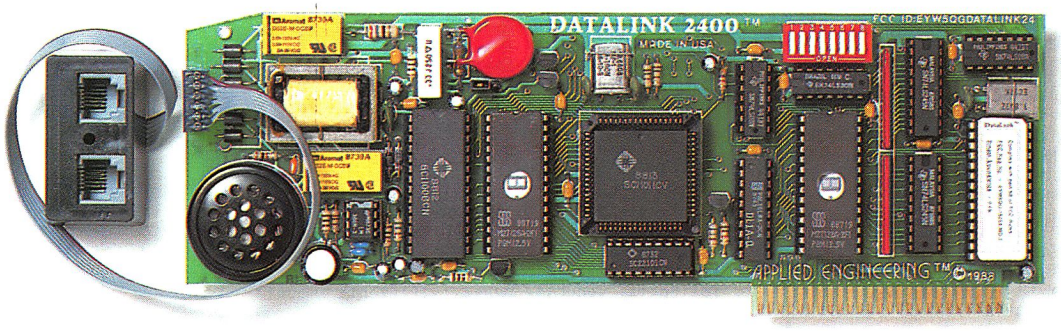

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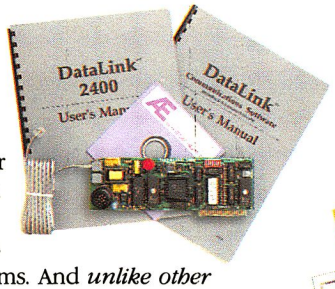

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```
==============================A============================B=====C======D=
 1|                        TAX FORECAST FOR 1988
 2|=========================================================================
 3|INCOME:
 4| Wages, salaries, tips, etc.                          $      61,425
 5| Interest income (taxable amount)                            3,550
 6| Dividend income                                               600
 7| Refund of state and local income taxes (taxable amount)       820
 8| Alimony received                                                0
 9| Business income or (loss)                                  14,325
10| Capital gain or (loss)                                      1,050
11| Other gains or (losses)                                         0
12| Pensions, IRA distributions, annuities, rollovers (taxable)     0
13| Rents, royalties, partnerships, estates, trusts, etc.       1,855
14| Farm income or (loss)                                           0
15| Unemployment compensation                                       0
16| Social security benefits (taxable amount)                       0
17| Other income                                                    0
18|                                                       -----------
19|  TOTAL INCOME                                        $      83,625 [1]
20|
21|ADJUSTMENTS TO INCOME:
22| Reimbursed employee business expenses                $         425
23| Your IRA deduction                                          2,000
24| Spouse's IRA deduction                                      2,000
25| Self-employed health insurance deduction                        0
26| Keogh contribution and SEP deduction                        1,891
27| Penalty on early withdrawal of savings                          0
28| Alimony paid                                                    0
29| Other adjustments                                               0
30|                                                       -----------
31|  TOTAL ADJUSTMENTS                                   $       6,316 [2]
32|                                                       -----------
33|   ADJUSTED GROSS INCOME (AGI)                        $      77,309 [3]
34|                                                       ===========
35|DEDUCTIONS:
36| Unreimbursed medical and dental (in excess of 7.5% of AGI) $       1,257 [4]
37| State and local taxes (excluding sales tax)                 1,234
38| Real estate taxes                                           4,555
39| Home mortgage interest                                      1,022
40| Home mortgage points                                            0
41| Investment interest                                             0
42| Personal interest (deductible portion)                          0
43| Contributions                                               1,500
44| Casualty or theft loss (in excess of 10% of AGI)                0 [5]
45| Moving expenses                                                 0
46| Other deductions (in excess of 2% of AGI)                       0 [6]
47|                                                       -----------
48|  TOTAL DEDUCTIONS (or standard deduction if greater) $       9,568 [7]
49|
50|PERSONAL EXEMPTIONS                                   $       7,800 [8]
51|TAXABLE INCOME                                        $      59,941 [9]
52|ESTIMATED TAX (before credits)                        $      12,917 [10]
53|TAX CREDITS (child care, elderly, business)                    375
54|ESTIMATED TAX (after credits)                                12,542 [11]
55|TAX WITHHELD AND ESTIMATED TAX PAID                          12,456
56|AMOUNT YOU OWE OR (REFUND)                          $          86 [12]
```

Figure 1. *Completed tax-forecast spreadsheet.*

ment compares the sum of the deductions in C36 through C46 with the standard deduction in H9 through H12 (which it finds by using the LOOKUP function), based on the filing status shown in G4. If total deductions are greater than the standard deduction, the Then statement enters the total deductions in C48. If the standard deduction is greater, the Else statement enters the standard deduction instead.

Formula 7 is too long to enter in the traditional manner. A neat little technique lets you do it easily.

Cell location: C48

Description: @IF(@SUM (C47.C35) >@LOOKUP (G4,G9.G12),@SUM (C47.C35),@LOOKUP (G4,G9.G12))

Now place the cursor on C48. The edit line lets you enter more characters than the entry line. It's the same line with this difference: In entry mode, the word *Value* takes up room, while in edit mode, the line is empty. First, give AppleWorks something to edit: Type **1** and press Re- ►

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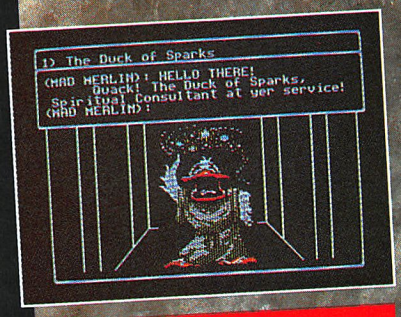

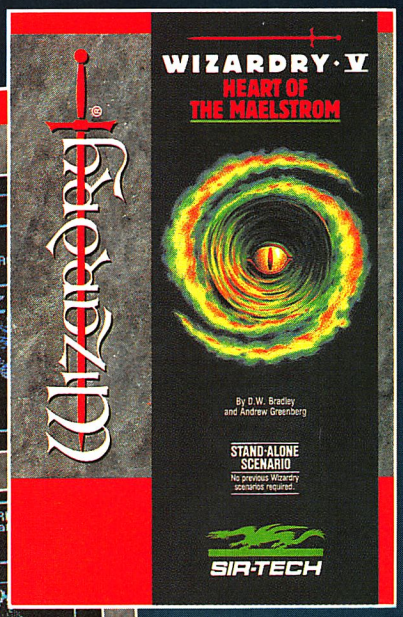

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```
=====E==========F============G========H======I======J========K=======L=====M==
 1|  ||                          *** WORK AREA ***                            ||
 2|  || ========================================================================||
 3|  || ENTER EXEMPTIONS          4 <--------                                  ||
 4|  || FILING STATUS CODE        2 <--------                                  ||
 5|  ||                                                                        ||
 6|  || ========================================================================||
 7|  || FILING STATUS        CODE   DEDUCTION      ESTIMATE                    ||
 8|  || ------------------------------------------------------------------------||
 9|  || Single                 1      3,000         15,303 [13]               ||
10|  || Married-Jointly        2      5,000         12,917 [14]               ||
11|  || Married-Separately     3      2,500         16,050 [15]               ||
12|  || Head of Household      4      4,400         13,677 [16]               ||
13|  ||                                                                        ||
14|  || ========================================================================||
15|  || TAXABLE INCOME     BASE TAX  +EXCESS AT  -TAXABLE INCOME = ESTIMATE    ||
16|  || ------------------------------------------------------------------------||
17|  || Table 1 - Single (Schedule X)                                          ||
18|  ||             0         0         0   15%         0         0    15,303 ||[17]
19|  ||        17,850     2,678    17,850   28%    17,850    17,850         0 ||[18]
20|  ||        43,150     9,762    43,150   33%    43,150    43,150           ||
21|  ||        89,560    25,077    89,560   28%    89,560    89,560           ||
22|  ||                                                                        ||
23|  || Table 2 - Married Filing Jointly (Schedule Y)                         ||
24|  ||             0         0         0   15%         0         0    12,917 ||
25|  ||        29,750     4,463    29,750   28%    29,750    29,750         0 ||
26|  ||        71,900    16,265    71,900   33%    71,900    71,900           ||
27|  ||       149,250    41,791   149,250   28%   149,250   149,250           ||
28|  ||                                                                        ||
29|  || Table 3 - Married Filing Separately (Schedule Y)                      ||
30|  ||             0         0         0   15%         0         0    16,050 ||
31|  ||        14,875     2,232    14,875   28%    14,875    14,875         0 ||
32|  ||        35,950     8,133    35,950   33%    35,950    35,950           ||
33|  ||        74,625    20,896    74,625   28%    74,625    74,625           ||
34|  ||                                                                        ||
35|  || Table 4 - Head of Household (Schedule Z)                              ||
36|  ||             0         0         0   15%         0         0    13,677 ||
37|  ||        23,900     3,585    23,900   28%    23,900    23,900         0 ||
38|  ||        61,650    14,155    61,650   33%    61,650    61,650           ||
39|  ||       123,790    34,361   123,790   28%   123,790   123,790           ||
40|  ||                                                                        ||
41|  || ========================================================================||
42|  || DEDUCTIONS                Percent      % of AGI  Amount   Excess      ||
43|  || ------------------------------------------------------------------------||
44|  || Unreimbursed medical/dental   7.5%        5,798 [19] 7,055    1,257 ||[20]
45|  || Casualty or theft loss       10.0%        7,731                 0      ||
46|  || Other deductions              2.0%        1,546                 0      ||
47|  ||                                                                        ||
48|  || ========================================================================||
49|  || NOTES TO MYSELF:                                                       ||
50|  ||                                                                        ||
```

Figure 2. *Work area in tax-forecast spreadsheet.*

turn. Now press OA-U to enter edit mode. Press OA-Y to get rid of the 1. Now type the entire formula, pressing Return when you've finished.

FORMULA 8: PERSONAL EXEMPTIONS

Formula 8 multiplies the number of exemptions in G3 by $1950 (the amount you can claim for each exemption) and enters the result in C50.

Cell location: C50

Description: +G3*1950

FORMULA 9: TAXABLE INCOME

Formula 9 subtracts total deductions (C48) and personal exemptions (C50) from adjusted gross income (C33) to produce the taxable income in C51.

Cell location: C51

Description: +C33−(C48+C50)

FORMULA 10: ESTIMATED TAX (BEFORE CREDITS)

Formula 10 uses the CHOOSE function to enter the appropriate tax in C52. Using the filing status in G4 as an index, it retrieves the tax amount from one of the cells in J9 through J12.

Cell location: C52

Description: CHOOSE (G4,J9,J10,J11,J12)

FORMULA 11: ESTIMATED TAX (AFTER CREDITS)

Formula 11 subtracts the tax credits (C53) from the estimated tax before credits (C52) to produce the estimated tax after credits in C54.

Cell location: C54

Description: +C52−C53

FORMULA 12: AMOUNT YOU OWE OR (REFUND)

Formula 12 subtracts the amount of tax withheld and estimated tax paid (C55) from estimated tax after credits (C54) to produce the amount you owe or the refund you can expect in C56.

Cell location: C56

Description: +C54−C55

FORMULAS 13–16: TAX-ESTIMATE ADDITIONS

Each of these formulas adds the amount that Formulas 17 and 18 calculate in each tax schedule.

Formula	Cell Location	Description
13	J9	+L18+L19
14	J10	+L24+L25
15	J11	+L30+L31
16	J12	+L36+L37

FORMULA 17: ESTIMATE FOR SINGLE FILER (SCHEDULE X)

Figure 2 shows four tax schedules for 1988. Each schedule contains three lookup tables—one in columns F and G, another in columns H and I, and still another in columns J and K. This split is necessary because the AppleWorks LOOKUP function can work only with two adjacent columns or rows. Formula 17 is a LOOKUP formula that calculates the tax in L18, L24, L30, and L36. It works with three types of information, hence the three tables.

The tax schedule calls for a base tax (column G) based on a certain level of taxable income plus a percentage of any amount in excess of that level until the next level. In L18, Formula 17 searches F18 through F21 to find the largest number less than or equal to the taxable income in C51, and retrieves the corresponding number in G18 through G21. This is the base tax. ►

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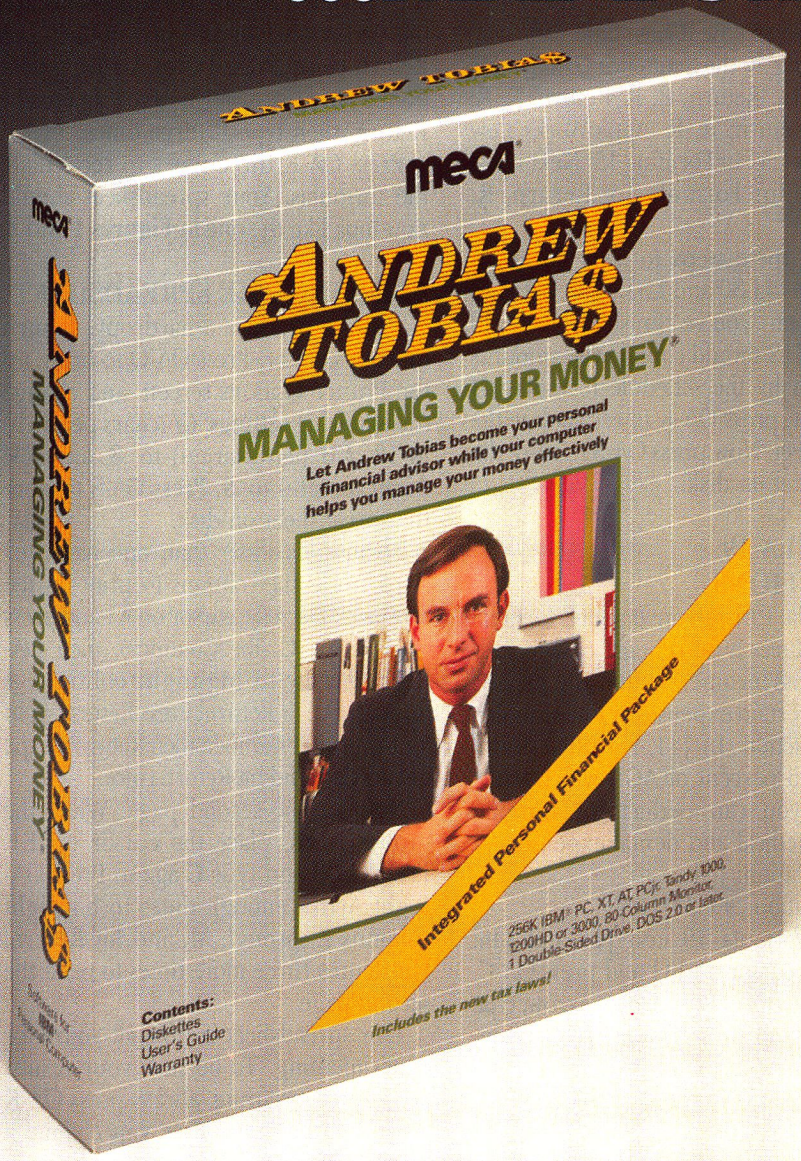

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Next, it searches H18 through H21 for the largest number less than or equal to taxable income, and retrieves the corresponding percentage from I18 through I21. It multiplies this amount by the result of subtracting taxable income, which it finds by searching J18 through J21 and retrieving the corresponding number in K18 through K21. This is the excess income between levels. The formula adds the base tax and excess tax to produce the estimated tax in the single-filer category.

Here's another long formula to type in.

Cell location: L18

Description: @LOOKUP(C51,F18
.F21)+(@LOOKUP(C51,H18.H21)
*(C51−@LOOKUP(C51,J18.J21)))

Place the cursor on L18. Type **1** and press Return. Press OA-U to enter edit mode, and press OA-Y to delete the 1. Type the entire formula and press Return when you're finished.

FORMULA 18: TAXABLE INCOME OVER TOP OF SCHEDULE

Formula 18 satisfies the "surcharge" provision that eliminates 28 percent of personal exemptions if taxable income is above the top rate in the respective schedule. In L19, it looks at taxable income (C51) to see whether it's greater than the top rate in the schedule (K21). If this is the case, the Then statement multiplies the number of exemptions in G3 by $546 (28 percent of the standard exemption of $1950) and enters the result in L19. If taxable income is less than the top rate, the Else statement enters a zero instead.

Cell location: L19

Description: @IF(C51>K21,G3*546,0)

COPYING THE FORMULAS

Be sure to protect Formulas 17 and 18, because you're about to copy them to the other schedules. Place the cursor on L18 and press OA-C to start the Copy command. Hit Return to confirm *Within worksheet*. Press the down-arrow key to highlight L18 and L19, and hit Return once more. Move the cursor to L24 and hit Return again.

AppleWorks now asks whether C51 is *No change* (an absolute cell reference) or *Relative*. Cell C51 is absolute in each of its four appearances in Formula 14, so press Return now and each time AppleWorks highlights C51. All other cell references are relative, so type **R** each time.

Following is the sequence to type for Formula 14: Return, **R**, **R**, Return, **R**, **R**, Return, Return, **R**, **R**. AppleWorks now highlights C51 in Formula 15. Next is the sequence for Formula 15: Return, **R**, Return.

Repeat these steps to copy Formulas 17 and 18 to L30 and L31, then L36 and L37. When you've finished, cells J9 through J12 should contain the amounts generated by the schedule formulas. If they don't, press OA-K to recalculate the spreadsheet. Now press OA-S to store the spreadsheet on disk.

FORMULA 19: DEDUCTIONS

Formula 19 is a convenience formula that produces a percentage of AGI (adjusted gross income), so that you can see whether certain expenses or losses qualify as a deduction. In J44, Formula 19 calculates 7.5 percent of AGI, which is the amount you can deduct for unreimbursed medical and dental expenses.

Cell location: J44

Description: +C33*H44

Copy Formula 19 into J45 and J46: Leave the cursor on J44 and press OA-C. Hit Return twice. Press Down Arrow, type a period, and press Down Arrow again. Hit Return twice, then type **R**.

FORMULA 20: EXCESS

Formula 20 produces one of two answers. If K44 is greater than zero (which means you've entered a number), the Then statement subtracts the amount generated by Formula 19 in J44 from the amount in K44, producing the excess amount you can deduct. If you leave K44 empty, the Else statement produces a zero in L44, which prevents a negative number from appearing when you subtract the AGI amount from nothing.

Cell location: L44

Description: @IF(K44>0,K44−J44,0)

With an amount of 7055 in K44, Formula 20 produces 1257, which Formula 4 copies to C36 in the tax forecast. Now copy Formula 20 into L45 and L46: Leave the cursor on L44 and press OA-C. Hit Return twice. Press Down Arrow, type a period, and press Down Arrow again. Hit Return, then type **R** three times.

Press OA-K three times to recalculate the formulas. Your spreadsheet should now look like the one in **Figures 1** and **2**.

PRINTING THE SPREADSHEET

Time to produce a hardcopy, so turn on your printer. Press OA-O to bring up the Printer Options screen, and change the following settings: *CI* (chars per inch) to **12**, *LM* (left margin) to **.8**, and *RM* (right margin) to **.9**. Press OA-S to store the spreadsheet on disk.

Because it's wider than one page, tell AppleWorks the columns to print on the first page: Place the cursor on A1 and press OA-P. Type **C** (for Columns), then OA-Right Arrow to highlight columns A through D. Hit Return. Press Return again (or the printer number, then Return). Type today's date and hit Return twice.

Now for the second page: When the printer stops, place the cursor on E1. Press OA-P and type **C** again. Press OA-Right Arrow enough times to highlight columns E through M, and hit Return. Hit Return three more times to print the second page.

This spreadsheet is now all yours for experimenting. To be sure your results are entirely accurate, always press OA-K at least three times after you change a number.■

Ruth K. Witkin is a consultant in computer applications for business. Her published works include the template disks and handbooks Success with AppleWorks I, II, *and* III *(*inCider, *IDG Communications/Peterborough),* Managing with AppleWorks *(Howard W. Sams & Co.), and* Personal Money Management with AppleWorks *(John Wiley & Sons). Write to her at 5 Patricia Street, Plainview NY 11803. Enclose a stamped, self-addressed envelope for a reply.*

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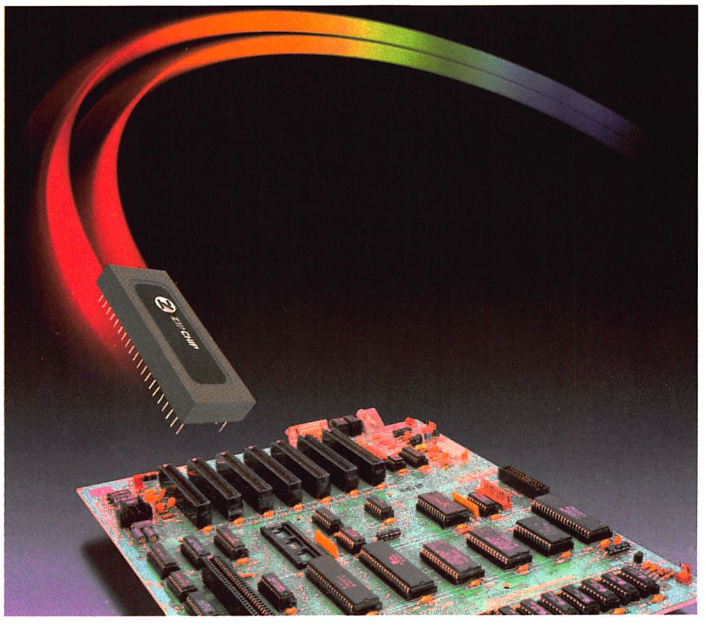

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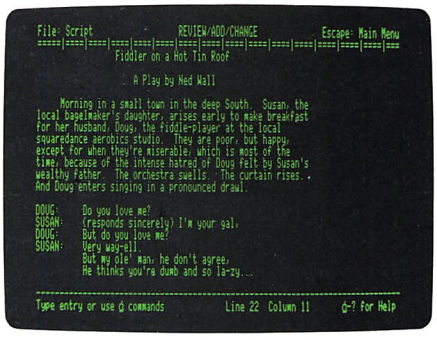

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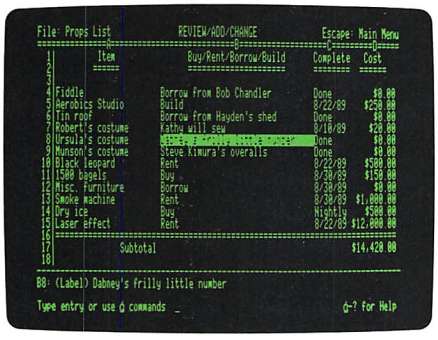

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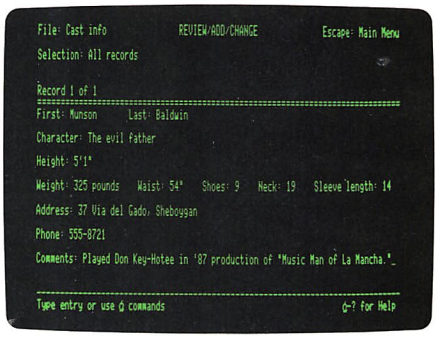

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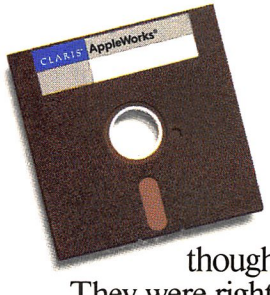

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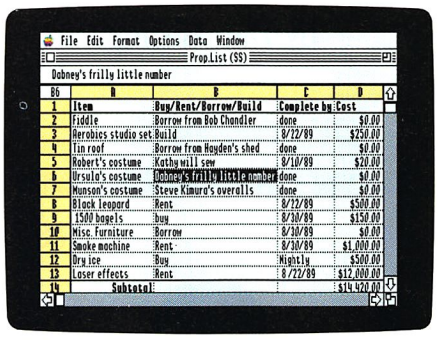

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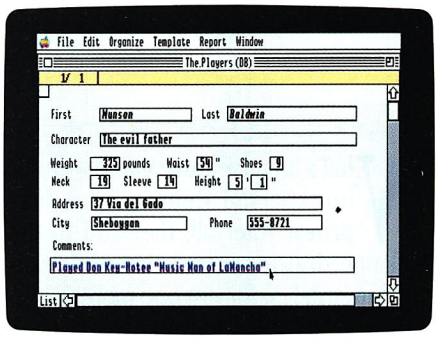

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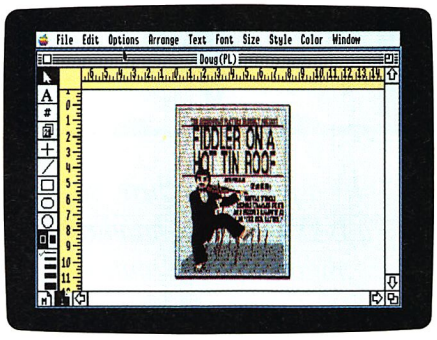

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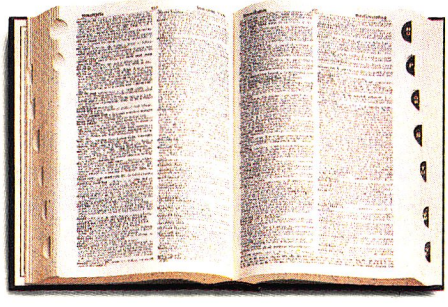

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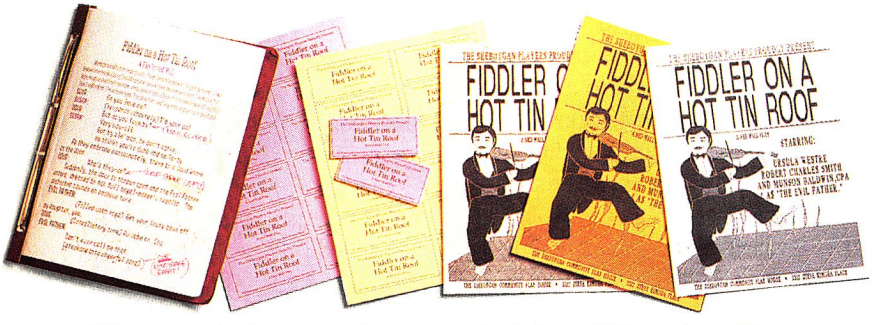

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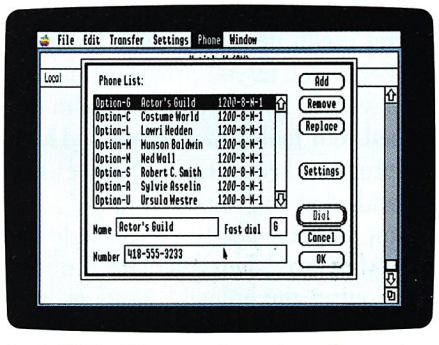

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Animal Life

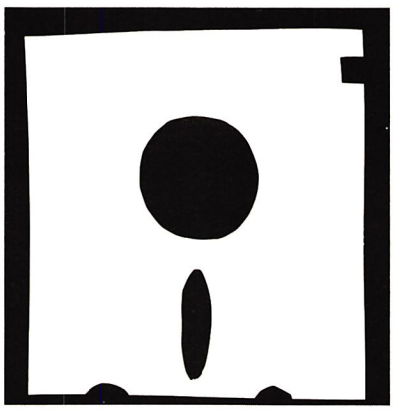
by Dan Bishop

What's an adventure game without unexpected demises and surprises? After all, they add to the challenge, drawing us back time and again after bitter defeat for just one more try.

In my last two columns (November 1988, p. 96, and December 1988, p. 86) I presented Labyrinthian Caverns, a game program in which you're trapped in a cavernous maze and must work your way past various obstacles to reach the exit and escape. November's installment described how to set up a computerized maze and keep track of your moves and postition within the maze. That version included several stationary obstacles you must avoid to escape from the caverns.

December's article contained a **Program listing** for the complete game, which provides several menacing creatures that at level 3 play roam through the caverns and attack unsuspecting adventurers. For protection, you'll discover several useful items you may decide to carry with you as you progress through the passages. The December column described your tools and weapons and how the program keeps track of where they are and what you've picked up.

Now on to the beasts! I'll conclude the series with an explanation of the routines that control the animals' locations and behavior. I've left Labyrinthian Caverns open for you to add more menacing creatures and additional tools or weapons, so I'll also describe how you can tailor the program to suit your own imagination.



It's a jungle out there, but a BASIC animal-handling routine lets you control your critters.

MOVING THE ANIMALS

The main program in Labyrinthian Caverns cycles through lines 15–55 until the program ends. Line 45 calls the animal-handling routine, starting at line 2000, only if you're not already dealing with an object in your current square. That is, "object mode," OM, must be zero. (Recall that OM is set to 1 when you encounter an object, enabling the menu choices that let you pick up an object.)

The first thing that happens at line 2000 is a call to change the animals' locations within the caverns (lines 150–177). This occurs at level 3 play only. If LV, level of play, is 1 or 2, line 150 returns the program immediately to line 2000. In this case, the lion and bat locations remain the same as designated at the start of the game in the READ/DATA statements of lines 8151 and 8152.

Otherwise, at level 3 play, Labyrinthian Caverns generates random positions for the lion, A(1,1) and A(1,2), and for the bat horde, A(2,1) and A(2,2). The program also checks the randomly selected row and column positions for each menace to make sure it appears in one of the grid's passages and not in a wall position (line 170). If the square corresponds to a wall (coded in the maze with a 9) rather than an open space (0), the program cycles back to line 160 to generate a new random row-and-column position.

If you play the game and feel that the lion and bats seem to attack too frequently, remove line 170 from the program. (Simply type REM right after the line number to change the command into a remark.) This will let the program position the lion and bats in inaccessible locations more than half the time and reduce the number of times they might attack.

THE ANIMALS ATTACK

When program control returns to line 2000, Labyrinthian Caverns compares each animal's row/column values with your row/column values to determine whether you're under attack. The program handles this with a simple loop (lines 2005–2015) that increments the animal index, I (the letter), from 1 (one) to 5. The loop uses the following codes: 1 for the lion, 2 for the bats, and 5 for the giant spider (which remains stationary). Recall that the index for the player is 0 (zero). So prepare to be under attack by an animal "I" only if your row, A(0,1), and column, A(0,2), are the same as those of the animal: A(I,1) and A(I,2).

If the program determines that one of the animals is attacking you, it changes that animal's status flag, A(I,0), from 0 to 1 and sets AM, the animal-mode flag, equal to that animal's code: AM = I. This is how the program keeps track of the animal that attacked after leaving this loop.

Line 2015 ends the animal-handling routine if AM is still zero after checking each animal's location. If you're under ►

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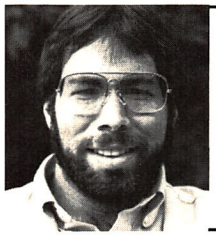

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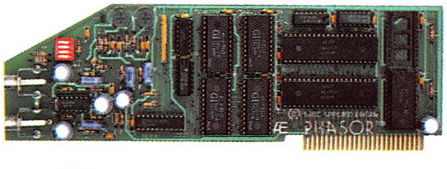

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attack, line 2025 uses the value of AM to determine which message to display on screen. Lines 2050–2053 warn of a hungry lion attacking; lines 2060–2063 describe an attacking bat horde; and lines 2090–2093 announce your entanglement in a web and the approach of a terrible, mammoth spider.

Note that the program hasn't used the two animal-index codes 3 and 4. This omission lets you modify the program easily to add creatures of your own making. You can devise a creature that either moves around through the caverns (in level 3 play) like the lion and bats, or a stationary one, like the spider. For either type, lines 2070–2079 and 2080–2089 are available for you to enter appropriate PRINT commands to display an attack warning of your own animals 3 and 4. The program checks these two index values automatically.

If you want either or both additions to move randomly about the caverns with the lion and bats, make just one small change in the "move animals" routine described earlier: The loop in line 155 cycles through indexes 1 and 2 (the lion and the bats) as written; if you want your animal 3 to also move about, change the *2* to *3* in line 155. If you want both animals to move about, change the *2* in line 155 to *4*. The line will then read

155 FOR I = 1 to 4: A(I,0) = 0

and the program will loop four times through these instructions instead of twice.

You'll need to make other changes, as well, to handle additional animals, and I'll describe these as we go along.

SAVE YOURSELF

As soon as Labyrinthian Caverns displays the animal-attack message, the program jumps to lines 2100–2174. These lines handle your response to the attack. If you answer, "Quit the game" (chicken!), Labyrinthian Caverns sets the game-end flag, XX, and the program ends immediately. Similarly, if the attack occurs on your last available move (MV ►

Program listing. *Labyrinthian Caverns' animal-handling routine. See December's Applesoft Adviser for the complete program.*

```
146  REM   [681]
147  REM  ********************  [620]
148  REM  MOVE ANIMALS  [916]
149  REM  ********************  [708]
150  IF LV <  > 3 THEN 177: REM  MOVE ONLY IF LEVEL 3
     PLAY  [3453]
155  FOR I = 1 TO 2:A(I,Ø) = Ø  [1675]
160 A(I,1) =  INT ( RND (1) * (RW - 2) + 2)  [3462]
165 A(I,2) =  INT ( RND (1) * (CL - 1) + 2)  [3473]
170  IF MZ(A(I,1),A(I,2)) <  > Ø THEN  GOTO 160  [1907]
175  NEXT I  [320]
176  REM  GOSUB 9000  [926]
177  RETURN   [636]
1995  REM   [3656]
1996  REM  ************************  [2447]
1997  REM  ANIMAL ATTACK ROUTINES  [1787]
1998  REM  ************************  [2553]
1999  REM   [4232]
2000 AM = Ø: GOSUB 150: REM  MOVE ANIMALS  [2368]
2005  FOR I = 1 TO 5  [827]
2010  IF A(I,1) = A(Ø,1) AND A(I,2) = A(Ø,2) THEN AM =
    I:A(I,Ø) = 1:I = 5  [6191]
2015  NEXT I: IF AM = Ø THEN  RETURN   [1386]
2018  IF AM = 3 OR AM = 4 THEN AM = Ø: RETURN   [2889]
2020  GOSUB 400  [643]
2025  ON AM GOSUB 2050,2060,2070,2080,2090  [6039]
2030  PRINT "WHAT ARE YOU GOING TO DO NOW?": GOTO 210
    Ø  [3534]
2050  PRINT "QUIET! YOU CAN JUST MAKE OUT THE"  [6768]
2051  PRINT "RASPY BREATHING OF AN ANIMAL..."  [6407]
2052  PRINT "IT SNARLS MENACINGLY. IT ATTACKS!"  [6890]
2053  RETURN   [3498]
2060  PRINT "THE HORRENDOUS NOISE OF THOUSANDS OF"  [7519]
2061  PRINT "BAT WINGS FILLS THE AIR AND SURROUNDS"  [7604]
2062  PRINT "YOU. BLOOD SUCKING VAMPIRE BATS ENGULF"  [7546]
2063  PRINT "YOU.": RETURN   [2683]
2070  RETURN   [715]
2080  RETURN   [8615]
2090  PRINT "YOU HAVE BECOME ENTANGLED IN A MAMMOTH"  [7837]
2091  PRINT "SPIDER WEB. TWO LARGE RED SPIDER EYES"  [7582]
2092  PRINT "ARE WATCHING YOUR HUNGRILY."  [5800]
2093  PRINT "THE SPIDER IS INCHING CLOSER, CLOSER..."
    : RETURN   [15970]
2100  GOSUB 300: IF M = M1 THEN XX = 1: RETURN   [7017]
2105  IF MV > NM THEN  GOSUB 780:XX = 1: RETURN   [4599]
2110  IF M > 4 THEN  GOTO 2300  [977]
2115  GOSUB 500  [992]
2120  IF WM = 1 THEN  GOSUB 2165: RETURN   [3203]
2125  IF XX = 1 THEN  RETURN   [1135]
2140  GOSUB 400  [968]
2145 A(AM,Ø) =  INT ( RND (1) * 4): IF A(AM,Ø) > 1 THEN
    2165  [4460]
2150  PRINT "BY STEALTH AND CUNNING, YOU MANAGED"  [7263]
2155  PRINT "TO ESCAPE THE "A2$(AM)" THIS TIME."  [7440]
2160 A(AM,Ø) = Ø:AM = Ø: RETURN   [2839]
2165  GOSUB 400  [1029]
2166  PRINT "UNFORTUNATELY, THE "A1$(AM)" "A2$(AM)  [7781]
2167  PRINT "WON THIS TIME. A "A2$(AM + 5)" MIGHT"  [5650]
2168  PRINT "HAVE HELPED. BETTER LUCK NEXT TIME."  [2344]
2169 XX = 1: RETURN   [2337]
2170  GOSUB 400  [246]
2171  PRINT "SORRY, A "A1$(OV)" "A2$(OV)" IS"  [2215]
2172  PRINT "NOT VERY EFFECTIVE AGAINST A "A1$(AM)  [2837]
2173  PRINT A2$(AM)"."  [995]
2174  PRINT "WHAT IS YOUR NEXT MOVE?": RETURN   [3602]
```

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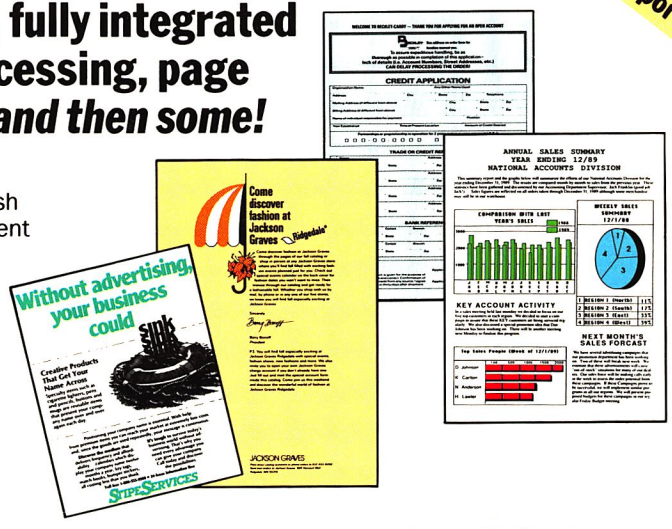

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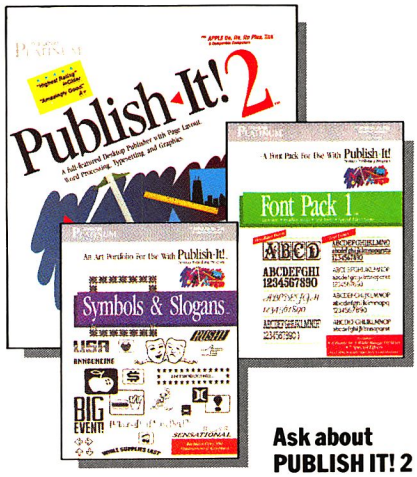

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```
2300  IF M = 7 THEN  GOTO 2320  [1428]
2305  GOSUB 400: PRINT "WHILE YOU WERE FIDDLING AROUN
    D"  [2939]
2310  PRINT "THE "A2$(AM)" GOT THE BETTER OF YOU."  [7205]
2315  PRINT "BETTER LUCK NEXT TIME.":XX = 1: RETURN   [9020]
2320  IF NO = 0 THEN EM = 1: GOSUB 800: GOTO 2100  [3203]
2325 OV$ = "USE":OW = 2: GOSUB 1150  [3172]
2330  IF OV = 0 THEN  GOSUB 400: PRINT "WHAT NEXT?": GOTO
    2100  [3715]
2335  IF OV <  > AM + 5 THEN  GOSUB 2170: GOTO 2145  [2378]
2340  GOSUB 400: PRINT "GOOD WORK. YOU FOUGHT OFF THE
     "A2$(AM)  [3036]
2345  PRINT "WITH YOUR "A1$(OV)" "A2$(OV)  [5751]
2350  PRINT "AND ARE FREE TO CONTINUE ON YOUR WAY."  [7740]
2355  PRINT "WHAT IS YOUR NEXT MOVE?":A(AM,0) = 0:AM =
    0: RETURN   [7588]
```

End

exceeds NM), it's curtains no matter what your menu choice is.

TO FLEE

You might decide to out-maneuver the beast by making a move to another square. Line 2115 uses the "player move" subroutine (beginning at line 500) to evaluate your move. If you move into a wall, that subroutine returns with WM set to 1. The program assumes that this blunder at such a critical time will give the animal the advantage, and you lose the encounter. The program also sets the game-end flag, XX, if you move into one of the disaster squares. In either case, Labyrinthian Caverns officially informs you of your demise and encourages you to play again.

But what happens if you do manage to move into an available square? The results are up for grabs. Line 2145 generates a random number between zero and three. If the result is two or three, you lose the encounter. If the result is zero or one, you win. If you want to add an injury factor, you can add line 2157, as follows:

```
2157 IJ=IJ+4
```

The program decreases IJ by one (line 570) automatically for each move that follows. Until the injury factor is reduced to zero, each actual move counts more than one move against the total number of moves allowed.

If you want to give yourself a better chance for escape, change the IF statement in line 2145 to read:

```
IF A(AM,0) > 2 THEN 2165
```

This will make it possible for you to escape three times out of every four.

TO FIGHT

Your alternative to escape is to fight the attacking creature. (Incidentally, don't choose to pick up an object or lay one down when you're under attack. The result is always fatal.) To fight a creature successfully, you must possess the appropriate weapon at the time of the attack. This is no small feat, because the program lets you carry only two objects at a time and you must find those objects before you can claim them.

When you're attacked, you may choose to use one of the objects you're carrying. If you're holding more than one object, the program asks you to type the name of the item you want to use. If you select the appropriate weapon to fend off the creature, Labyrinthian Caverns lets you go on your way without further ado. If not, the program politely informs you that your selection isn't appropriate and asks you to try again. The program knows the appropriate weapon for each animal because the index codes for the weapons are exactly five units larger than the index codes for the animals. For example, the lion's index is 1 and the club's index ►

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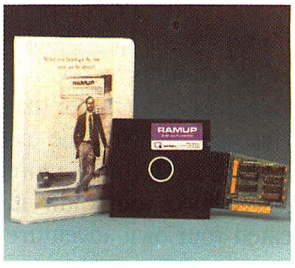

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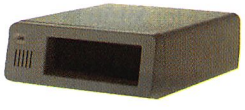

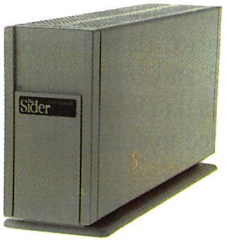

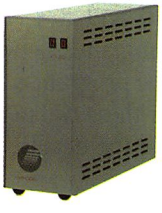

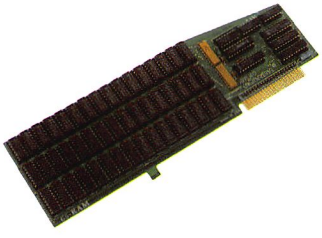

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is 6; the bat horde's index is 2 and the horn's is 7; the spider's index is 5 and the bug spray's is 10.

Follow the same pattern if you add two creatures of your own with index values of 3 and 4. The weapon for animal 3 must have an index value of 8, while that for animal 4 must be 9. The program assigns these index values automatically when it first reads in the items. Note that lines 8153, 8154, 8158, and 8159 are "NOT-USED." The program reads line 8153 as item 3, line 8154 as item 4, line 8158 as item 8, and line 8159 as item 9.

Each data entry consists of four elements, separated by commas. The first two are the adjective and noun for the item, such as hungry, lion, and smelly, spray (don't forget the commas). The last two elements are the row (2–10) and column (2–22) values for the starting location for that item or creature. Be sure you assign a location that exists within a passage and not one that corresponds to a wall. Also, keep in mind that at levels 1 and 2 of play, these locations remain the same throughout the game. So don't let a creature block your only route to the weapon you'll need to defend yourself.

There's one more step you must take to add an object or weapon to Labyrinthian Caverns. The program must be able to display a message that informs you when you enter the square containing this item. For item 8, simply add the appropriate PRINT commands (ending with a RETURN, of course) between lines 870 and 874. For item 9, place these commands between lines 885 and 879. The program is already designed to look for these two items; all you need to do is add the details.

"You can devise a creature that either moves around through the caverns like the lion and bats, or a stationary one, like the spider."

GAMING EVOLUTION

As adventure games go, Labyrinthian Caverns is about as basic as you can get, yet it includes most of the features found in more elaborate game programs. The code lends itself to tinkering, and there's probably no better way to get a feel for BASIC than to modify an existing program and see what happens.

If you're hesitant to add a creature of your own, for instance, simply change one of the existing creatures by revising the PRINT and DATA statements for that one animal. This may give you the experience and confidence to make more daring changes. Before you know it, you'll have created your own adventure program.

Look for the complete program listing in December's issue. If your computer store or bookshop no longer has that issue, write to *inCider* at 80 Elm Street, Peterborough, NH 03458, to request a reprint of the column. You can also download the program free of charge from *inCider*'s bulletin-board system (603-924-9801) or obtain a copy of Labyrinthian Caverns on 5¼-inch disk from me for $9.50.■

Dan Bishop owns and operates a microcomputer consulting business. Write to him at 4124 Beaver Creek Drive, Fort Collins, CO 80525. Enclose a self-addressed, stamped envelope if you'd like a personal reply.

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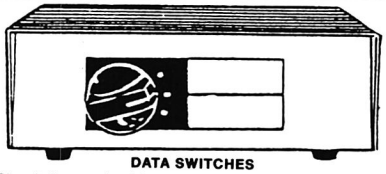

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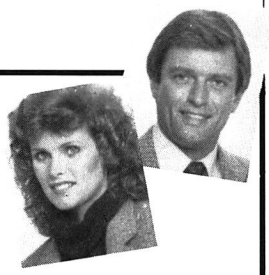

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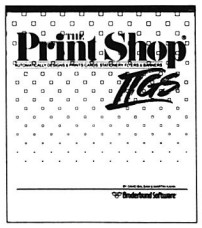

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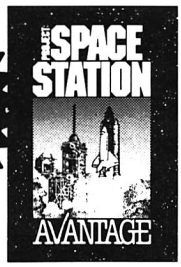

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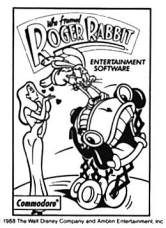

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Head of the Class

by Cynthia E. Field, Ph.D.

To become *educated*, not merely *schooled*, presupposes more than just rote mastery of facts and figures. This month Field Trip takes a look at three "can do" programs that foster in children the study habits they need to feel self-confident and successful.

I've also researched a free, easy-to-use educational-software recommendation service: The Wright Selection. This guide can help parents feel surer of the programs they choose for their children.

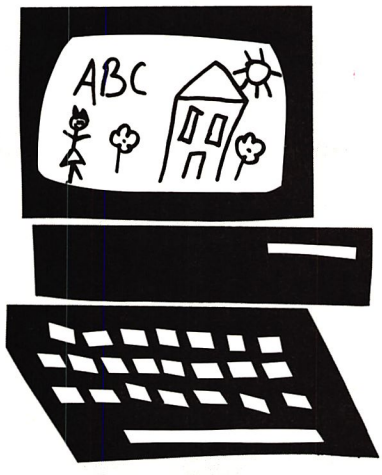
Let's get started....

MENTOR-IN-A-BOX

Could your child benefit from an inexpensive, full-time, educational efficiency expert? If so, consider Davidson & Associates' **Homeworker**. This outstanding ProDOS-based program, which requires a 128K IIe, IIc, or IIGS, is clearly appropriate for junior-high and high-school students. As a teacher, I've encountered more than a few junior-college and university freshman who could also use a Homeworker-type assist in the study-skills department. Some middle-school prodigies I've known would love Homeworker's businesslike style, too.

At first blush, Homeworker, priced at $59.95, may seem expensive. But Homeworker's six integrated modules together with its three-ring, dress-for-success organizer/binder and its accompanying how-to book on expert studying strategies make this product an unusually good value.

Homeworker's program modules include Textwriter, Outliner, Calculator, Calendar, Flash Card Maker, and Grade Keeper. Textwriter, a word processor, is full-featured enough for routine school-related writing tasks. Use Textwriter to prepare research notes, lab reports, book reports, compositions, and other homework assignments. Outliner helps kids organize their thoughts in up to four levels. Use the zoom box (Open apple-Z) to elaborate on a particular topic. Jot down ideas or write full sentences; you can transfer them later to your "work in progress" via the program's clipboard function. Because Outliner lets you insert, delete, and reshuffle ideas at will, it's perfect for one-shot rewriting, reordering, and printing from class notes.



Apple II software helps kids start developing good study habits early.

Calculator, a graphics pop-up accessory, looks like an ordinary four-function model, but it has an unusually good memory—ten registers. It's unusually intelligent, too—its accompanying conversion tables switch automatically between English and metric equivalents. Homeworker's Calendar is an indispensable aid for marking assignment due dates or keeping track of social and sports events. Indicate less-crucial engagements with a period, or highlight vital dates (like prom night or final-exam days) with an exclamation point.

Name a successful student who *doesn't* use flash cards, those popular memory joggers that help you increase your vocabulary, memorize historical facts, or master foreign-language words. Flash Card Maker lets you set up your own databases and create sets of cards to carry with you. The software prints dashed lines that tell you where to cut cards and fold them.

Grade Keeper is a spreadsheet-type module that quantifies academic success. Type in assignment/test dates, grades, and weights for each subject you're studying in school. Grade Keeper calculates a running average for each class as well as a grade-point average. Play "what if" with your grades: Would working extra hard to score an A on your next paper pay off in your final mark? Homeworker helps you determine how to invest your time and effort most effectively.

Don't worry: You won't spend precious study time learning to use Homeworker. The program sports stacking file-card menus, and its mnemonic commands are a cinch to learn.

Like the popular integrated program AppleWorks in appearance, friendliness, and quality, Homeworker offers students the necessary tools for moving to the head of the class.

FORM AND SUBSTANCE

Term Paper Writer from Activision/Mediagenic takes the tedium out of doing research reports. The program's four modules—Notetaker, Outliner, Writer, and Footnote/Bibliography Compiler—help you collect information, track references, and organize and communicate your ideas.

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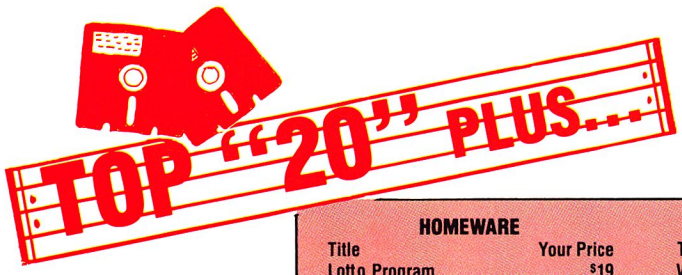

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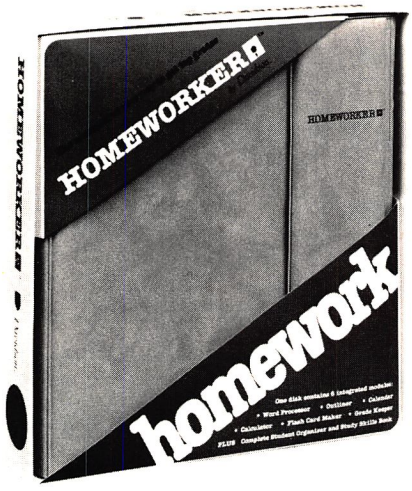
ation), and APA (American Psychological Association) formats. Term Paper Writer tallies and arranges footnotes and prepares a bibliography automatically.

The latest version of Term Paper Writer (a modified DOS 3.3 program that runs on the 128K Apple IIe, IIc, and Laser 128 series, but stumbles and falls on the GS) can handle reports of more than 20 pages. You can install the program, which is no longer copy-protected, on a hard-disk drive. The size of your drive's DOS partition determines maximum manuscript length.

TEST-TAKING STRATEGIES

Homeworker helps in day-to-day organization and efficiency; Term Paper Writer simplifies research-writing projects. What more is there in a student's life? Those dreaded exams, of course.

The Test Taker's Edge from Sunburst Communications helps students in sixth grade and up prepare confidently for objective tests of the multiple-choice, matching, true/false, and fill-in-the-blank varieties.



Homeworker's six modules—word processor, outline utility, calculator, calendar, personal gradebook spreadsheet, and flash-card database manager and print utility—feature easy-to-use file-card menus and mnemonic commands to help students stay organized.

Two versions of The Test Taker's Edge are available: one includes a vocabulary data disk; the other, a social-studies data disk. The Test Taker's Edge requires only 64K.

Use either version to create custom data files with as many as 100 pairs of facts. Any subject area is suitable—from geography (states and capitals) to biology (common names and and scientific names) to language arts (words and parts of speech) to math (fractions and decimal equivalents). You can print fact sheets for study or review away from the computer.

After you've created a database (or selected one of the information files that come with the program), choose the items on which you want to be tested and the test format you'd like to practice.

Billed as a "personal study tool," this program can help reduce text anxiety three ways. First, The Test Taker's Edge helps you learn subject matter you need to know. Second, the program puts you at ease taking four of the most common types of exams. Third, the "Test Taker's Tips" included in the program manual provide more than a half-dozen time-honored strategies for optimum test performance.

THE WRIGHT SELECTION

Much as I'd like to, this monthly column can't do it all. While you're waiting for the next issue of *inCider*, you can keep learning more about children's software by checking out **The Wright Selection**. This database contains about 350 of what Jeanne Wright, Ed.D., a fourth-grade teacher and the developer of the service, considers the best educational-software products for preschool through sixth grade.

According to Wright, this free search service is available at selected independent computer dealers as well as in Walden software stores nationwide. Each participating store pays an annual sub- ►

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When the program prompts you, simply press *C* to continue. Type *A* to display the customized selection on the computer screen; type *B* to obtain a printout.

Wright and her business associate, Clifford E. Grey, oversee the software-selection and database-update processes. Reviewers include teachers, parents, and grandparents, as well as kids. The service solicits programs for review from large and small publishers alike. Prime movers in the industry, such as Davidson, MECC, and The Learning Company, are represented, as well as smaller developers like Aquarius, Trillium, and Troll. ►

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For a company to qualify its products for review by The Wright Selection, the software publisher must agree either to sell its products at wholesale prices directly to retailers, or offer its programs through major software distributors such as Soft-Kat, Ingram, or Banana. Consequently, a few companies that publish extraordinary educational products don't appear in The Wright Selection. These firms, such as Sunburst Communications, bypass the middlemen and sell directly to end users.

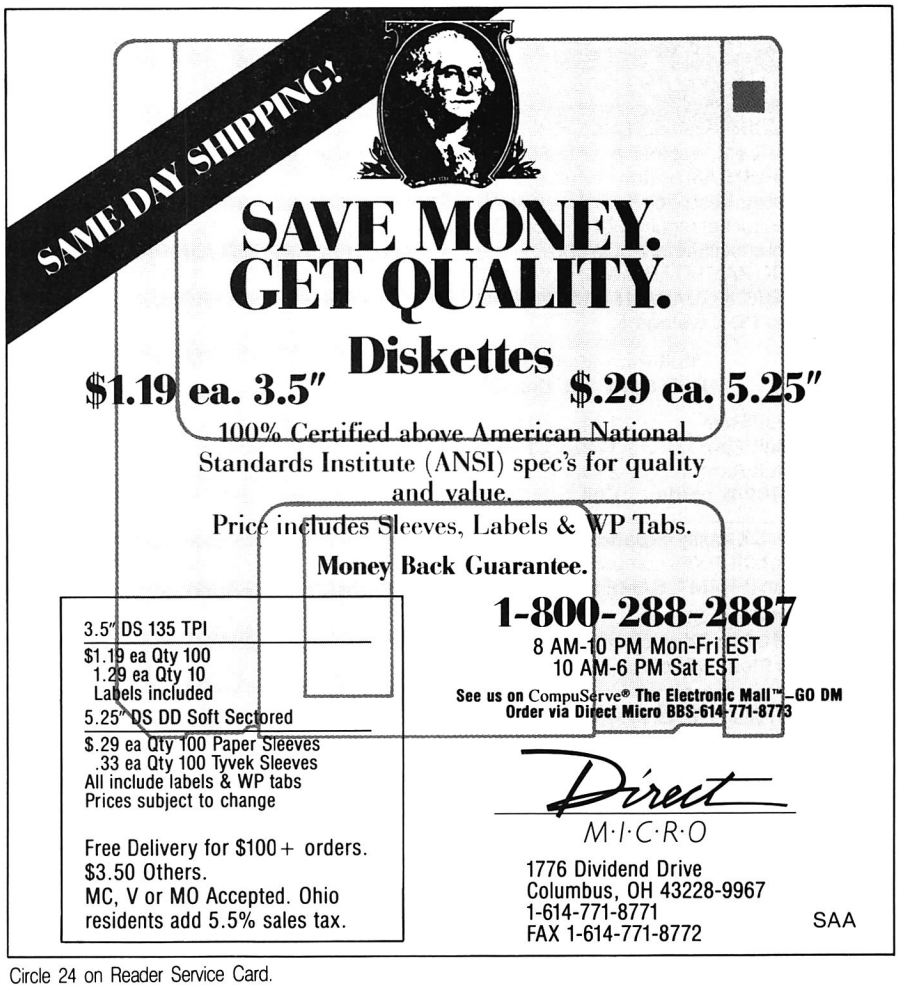
FOR YOUR INFORMATION

Your database search displays and prints a program's title, an annotated description, and retail price. Programs that require hardware add-ons such as speech-synthesis cards or special input devices aren't included in The Wright Selection.

Also left out is a program publisher's name. This omission could make it difficult for a parent to solicit more information about a program before committing to a purchase. Shopping for discounts on programs recommended by The Wright Selection could be impractical, too. Jeanne Wright explains candidly that a retail-store owner who invests in the database service expects customers to buy their software from him or her.

For the retailer, The Wright Selection makes his or her salespeople "instant experts" and increases profits. For the parent, this easy-to-use database can be a quick and convenient supplement to magazine reviews and recommendations from friends and teachers.■

Cynthia E. Field is a free-lance journalist specializing in computer-related topics. She is a contributing editor and the author of Press Room, our column on desktop publishing. Write to her at 60 Border Drive, Wakefield, RI 02879. Enclose a self-addressed, stamped envelope if you'd like a personal reply.



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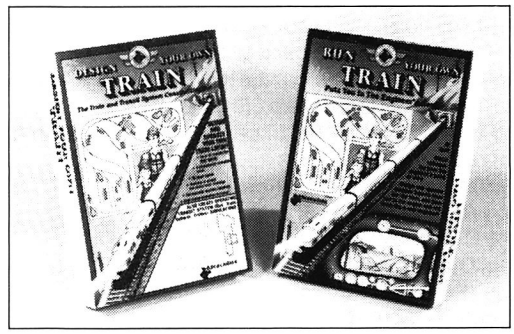

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Cont. from p. 36

and think about what they want to write. The program includes a 14-question outline to help children organize their thoughts. They can get at the outline from the Write/Edit a Story menu.

The outline encourages writers to consider who the main character is, where and when the story takes place, why the main theme happens, what other events occur, how the story ends, how the story's events change the character, the mood of the story, from whose point of view the story is told, and such special techniques as foreshadowing and irony.

Once the students type in answers to the outline questions, they will have thought through the details of their stories. They can then print a hardcopy of the outline for reference. Story Sketcher supports ImageWriter, Epson, Grappler Plus, Pkaso, and Silentype printer interfaces.

Like other MindPlay software, Story Sketcher includes a Challenge Upgrade feature that makes the program adaptable to a variety of teaching situations. Instructors can use Challenge Upgrade to tailor the program to individual, student, or class needs. They can toggle the sound on or off, have students write with or without graphics, set the program for one or two disk drives, use the program's outline guide to focus on the important elements of a short story, work with Story Sketcher's own standard story ideas or with original custom ideas, add or delete custom story ideas, or create a custom outline to reinforce special concepts.

Students will need a data disk for each short story they create. The Challenge Upgrade menu has a formatting option for this purpose. MindPlay notes that you should initialize disks before writing a story, because all material not saved to disk will be lost when a student exits the program.

THE FIRST WORD

When students are ready to write the story, have them choose Write a Story from the Write menu and give their story a name; select Begin a New Chapter and give it a number; and then either start writ-

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ing or work on the picture that will illustrate the beginning of the chapter. Story Sketcher includes 18 colorful, ready-made backgrounds, such as street scenes, rolling hills, flowing rivers, outer space, and a house interior. There are also six single-color, blank-scene backgrounds.

After choosing a backdrop, students can customize the scene by adding graphics. The software includes a library of 118 characters and objects, including animals, plants, musical instruments, people, vehicles, buildings, and furniture. Students pick a graphic, move it to the appropriate spot on the backdrop, and place it by pressing Return. You can also flip or remove graphics if necessary. The *Teacher's Supplement* includes a complete list of available backgrounds and graphics.

MindPlay suggests that the illustrations may also serve as story starter ideas for an exercise called free writing. In this case, teachers ask students to select a background, add a graphic or two, and then reflect on the illustration for a few moments. The object of the exercise is to have students write as quickly as possible for about seven minutes. Teachers should tell the children that the goal is to get out ideas; they can correct missing words, misspellings, and grammatical errors later.

This exercise emphasizes that writing is a process. First, students must think of an idea and put it down on paper, then make revisions. Revisions involve making corrections, rearranging the sequence of events, or modifying the illustration. Since editing a story doesn't require an entire rewrite, students quickly learn the value of word processing.

Story Sketcher's word processor isn't very powerful, though. It offers word wrap and a few other features—tabs for indentation, Control-B to go to the beginning of the chapter, Control-E to move to the end of the chapter, and the delete key to erase. The arrow keys position the cursor anywhere within the text, although there are no options for moving, cutting, or pasting a block of text.

When a student selects Quit Chapter, Story Sketcher asks whether he or she ►

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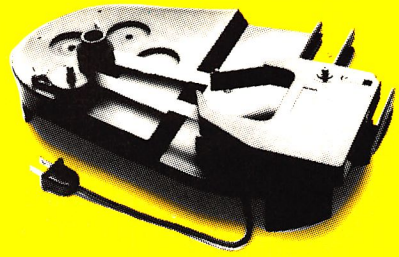

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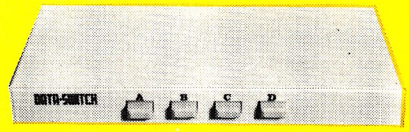

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wants to save the new or edited chapter. Once a chapter is saved, another menu appears. The options on this menu include moving to the next chapter, selecting a specific chapter by number, renaming or renumbering a chapter, copying or moving the entire text of one chapter to another, or quit. Exiting this menu returns students to the Write menu, where they can continue working or print a hardcopy of a particular chapter or the entire story.

(The program doesn't support color printing, though, so the final product will be black-and-white.)

Encourage children to use the graphics capabilities of the program to design an illustrated cover. They can then keep bound copies of their story on display in the classroom or the school library. MindPlay even suggests selling students' work as a class fund-raising project.

EPILOGUE

Story Sketcher draws on the GS' power as a writing tool. It demonstrates how you can use educational software to make writing an easier, more effective, more interesting experience: Give students the opportunity to be productive in a structured, yet open-ended, writing environment. It fosters creativity with the help of ready-made graphics and the illustrations students design for themselves. Teachers and students alike will appreciate the way Story Sketcher enhances the writing process. ■

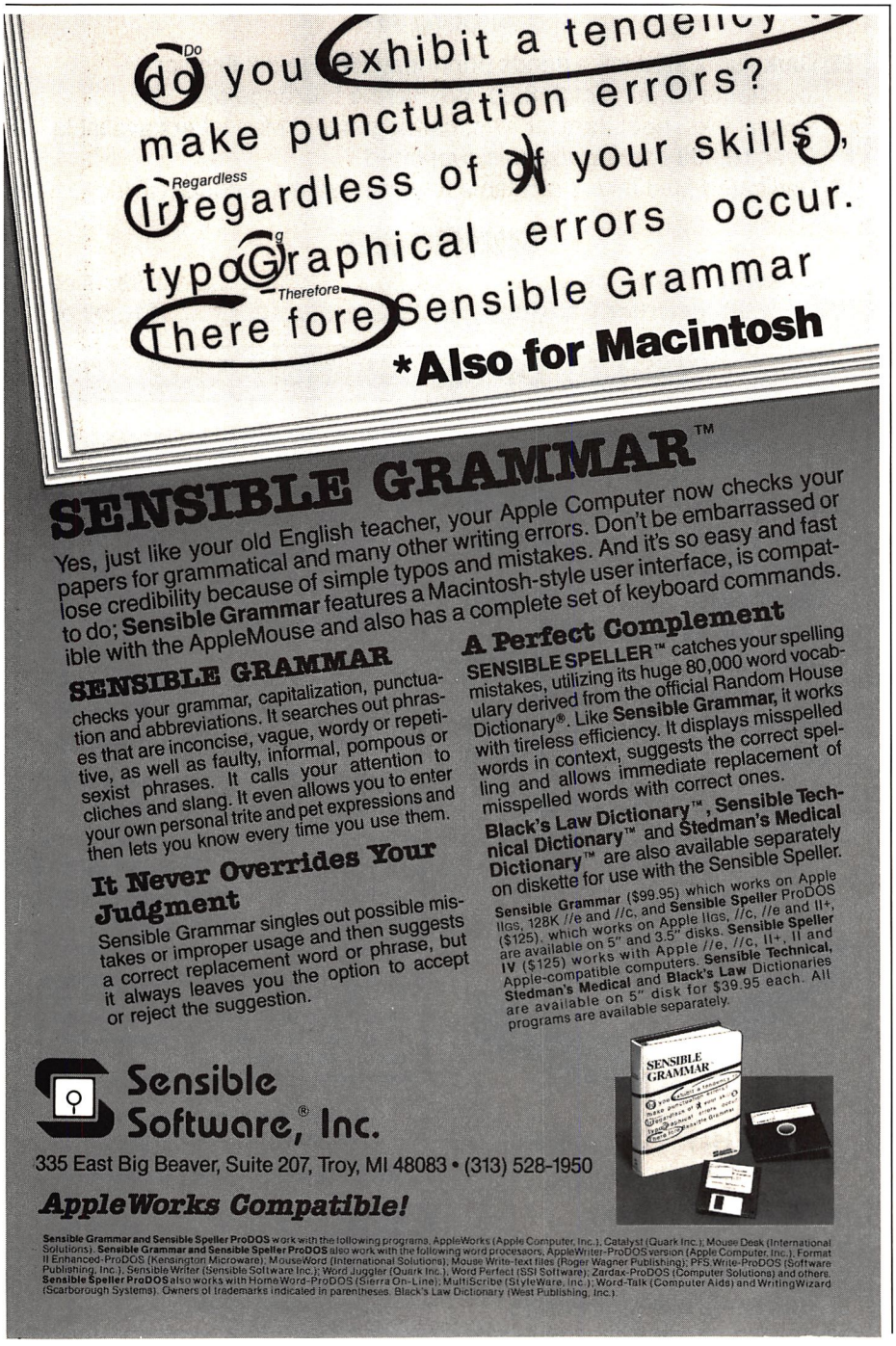
Carol S. Holzberg, Ph.D.
Shutesbury, MA

Hey Diddle Diddle
RIDDLE MAGIC

Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (800) 221-9884, (800) 942-7315 (IL)
Riddle-creation program; any 64K Apple II, printer recommended
$49.95
Rating: ■■■

Putting words into riddles is a clever way for teachers to supplement the traditional language-arts curriculum. Riddle Magic will help teachers and students alike create riddles and riddle books complete with illustrations.

Although Riddle Magic helps integrate humor into the classroom, it's not an exercise in silliness. Designed for students in grades 3–12, Riddle Magic is more a way to promote enthusiasm for reading, writing, and language acquisi-



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tion, using a method developed by "America's Riddle King," Mike Thaler.

GET READY, GET SET

When you first boot up Riddle Magic, select Utilities from the Main Menu to configure the program to work with your printer and interface card. Riddle Magic saves the printer-setup information on the program disk so that you won't have to configure the program every time you load it into memory.

First-time users should press the spacebar after the title screen to look at the 25 illustrated riddles stored on disk. After viewing each riddle, you can continue or press Escape to return to the Main Menu. Throughout the program's operation, pressing Escape will return you to the previous screen and eventually to the Main Menu.

Students should have their own data disks to store riddles, so you should copy side 2 of the Riddle Magic disk (the side reserved for data) to separate data disks. That will also make using the program much easier if you have two drives. Using a second drive for a data disk will eliminate much of the disk swapping needed if you have only one disk drive.

WRITE ON

Once you're all set up, you're ready to learn how to write riddles. Choose the Riddle Tutor from the Main Menu and work through each step.

The method is really quite simple. Pick one of five riddle subjects stored on disk (pig, cat, cow, mouse, or frog), choose a related word (such as *ham*, to go along with pig), drop the first letter from that word (*ham* would become *am*), and find a word that begins with that partial word (such as *ambitious*). Add the dropped letter back (to form *hambitious*), and that becomes your riddle answer.

Then write a riddle question—something like "What do you call an overachieving pig?" Answer: hambitious. Practice this technique with a number of subject words provided on disk. It won't take long before you become a riddle-writing expert.

As students compose their own riddles, they'll gain experience in rhyming, playing with synonyms, and hunting for words in a dictionary or thesaurus. Riddle Magic has a built-in dictionary of 1800 words. You can search for complete words or look up letters or groups of letters appearing in any part of a word.

To use the dictionary, select Advanced from the Riddle Maker menu and type in what you're looking for. By typing *-on*, for example, you can call up all words ending in *on*, such as *ambition*. If you type *on-*, you get all words beginning with *on*, such as *onset*. By typing *on* without hyphens you'll see all words containing *on*.

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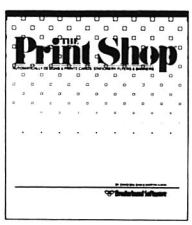

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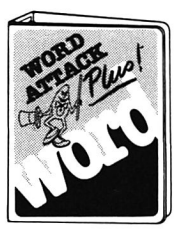

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Einswine), and places (the pork spa of Texas—Hamarillo), the program could come in handy as a humorous way to teach standard subjects such as geography, science, literature, and history.

For my next attempt, I tried a computer-related word—Apple. Here's the result. What do you call the computer of choice for the common folk? Answer: an Applebian. What's the name of a famous prehistoric computer? Answer: an Appleiosaurus. It isn't difficult to see that I'm still a riddle-making novice, but even future experts have to start somewhere.

If the five-step method still has you going around in circles, choose Riddle Maker from the Main Menu for more help. Riddle Maker offers four additional ways to use variations on the method outlined above to make riddles.

Variations include "no letter drop"—a technique that requires designing a riddle whose answer is the subject or the related word itself (such as "Where do pigs land their planes?" Answer: at an airpork). There's also the "single-letter drop" (dropping the first letter from the related word, as before), "double-letter drop" (dropping the first two letters of your related word, so *Apple* becomes *ple*), and "sound substitutes," with which you try to substitute a word that sounds like your related word (such as *orch* for *ork*).

Once you've composed a riddle, you can write the riddle question and its answer. Choose Riddle Writer from the Main Menu and follow the on-screen prompts to type your riddle in the appropriate riddle box. A simple word processor is included on disk to help you edit what you write. The editor has four commands—Control-J to move the cursor down a line, Control-K to move the cursor up a line, Control-D to delete a character, and Control-X to erase the entire contents of a question or answer box. If you forget the commands, you can see a help screen by pressing Control-I.

PICTURE THIS

After you type in your riddle, Riddle Magic lets you add illustrations. You can

use one of the many picture starters stored on disk, or import a Print Shop-compatible graphic from another disk. Using Print Shop graphics is one of Riddle Magic's best features. Hundreds of compatible graphics are available. To copy them to your data disk, simply access the utilities from the Main Menu, select Copy, and follow the on-screen prompts. You'll have to insert the original graphics disk in drive 1 and press Return. When the copying is complete, you'll return to the Main Menu.

You can save up to 100 riddles on a single data disk. You can delete riddles from disk, but you can't get rid of illustrations once you've saved them.

Students can print individual riddles or a book of riddles complete with cover page with the Riddle Printer. Two riddles are printed on each page, separated by a perforated line down the middle of the page. Students can cut them or leave them whole.

Mindscape packages Riddle Magic with a double-sided program/data disk, backup disk, and *Teacher's Manual*. The program disk is copy-protected, but you can duplicate the data disk. The manual contains clearly written instructions, a printout of all dictionary words, and a number of activity sheets you can reproduce for your students. The off-line activity sheets will provide valuable assistance in learning the Riddle King method.

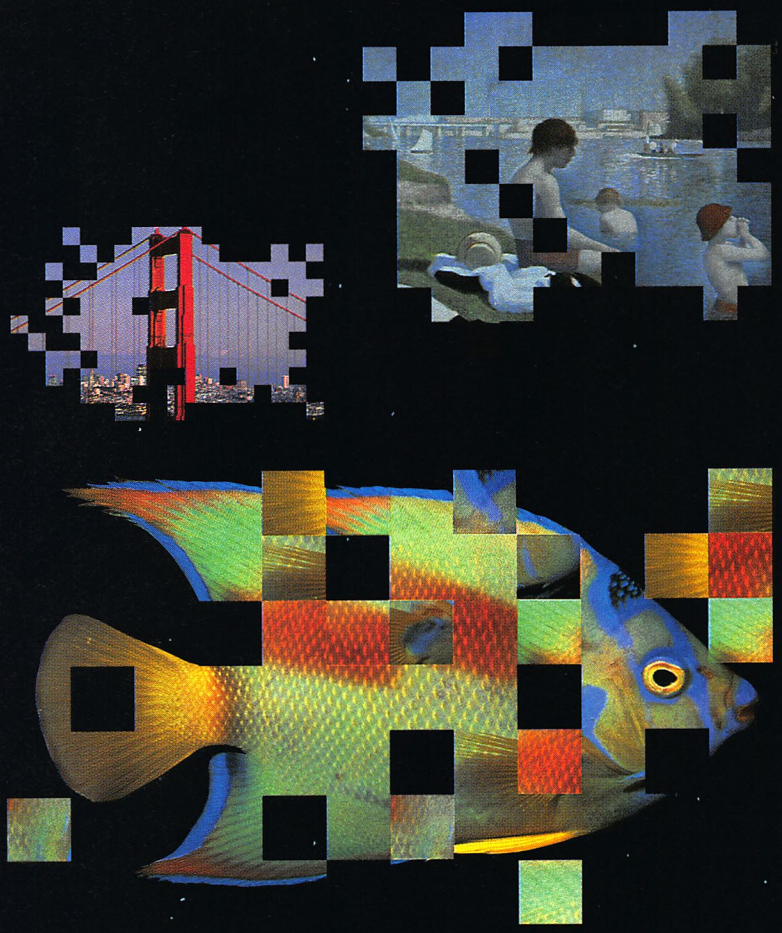
THE PUNCH LINE

Riddle Magic is innovative, humorous, and a noteworthy addition to the host of language-arts software packages currently on the market. Kids will enjoy writing riddles and designing riddle books. Teachers will find that the program educates as it entertains—but the product is inherently limited.

After all, there can be only one "Riddle King," and that place of honor belongs to Mike Thaler. How many riddles will your students produce before they begin to feel constrained by its literary form? ■

Carol S. Holzberg, Ph.D.
Shutesbury, MA

Now you see it.



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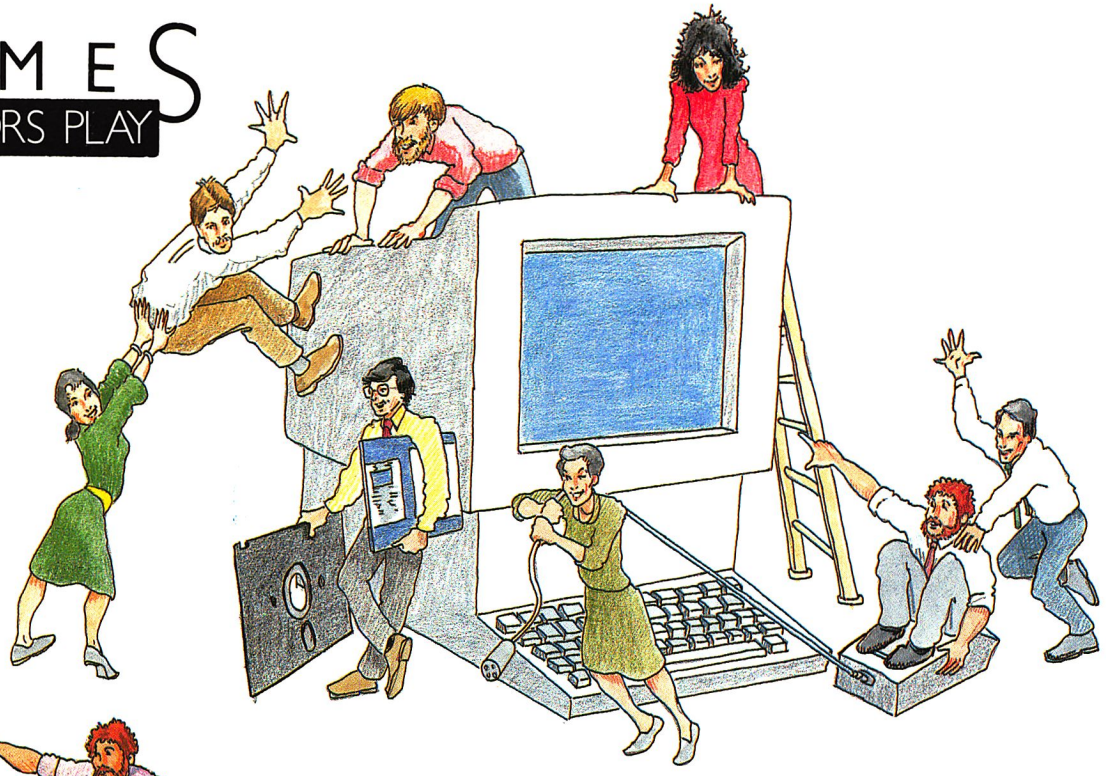
GAMES EDITORS PLAY



Lafe Low plays...

Skate or Die, *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, $39.95 GS only*

I'm no punk-rock-crazed maniac, but I could feel myself getting weirder as I skated through the various "events" in Skate or Die. It's got all the "rad" happenings—twist and turn in a downhill run through the park, crank out some outrageous aerials in the half pipe, soar in the high jump.

The half pipe was my favorite. It's great to be able to try all these wild tricks without worrying about losing your knees (or worse). Just by accident, I managed to pop off some wild footplants and rock-and-rolls (skate lingo for, respectively, an aerial in which you push off with your foot, and a maneuver in which you pop your front wheels over the top of a ramp, then drop back in).

I wasn't too enthused with the Downhill Jam (in which you skate next to a berserk buffoon who's trying to knock you down) or the Pool Joust (just what it sounds like—skating in an empty pool and "jousting" with an opponent). My skating was a lot more peaceful.

I was heavily into skateboarding way back when (I still ride it to the mailbox occasionally, despite the puzzled glances of my younger neighbors), so Skate or Die brings back a few memories. Of course, I never wore spiked leather gloves or a fuchsia mohawk.

...and plays...

The Last Ninja, *Activision, 3885 Bohannon Drive, Menlo Park, CA 94025, (415) 329-0500, $44.95 GS, $34.95 IIe/IIc*

As the sole survivor of the Brotherhood of the White Ninja, you must find the murderous Shogun who has slaughtered the rest of your brethren and taken over the Ninja palace. That's quite a tall order, considering you're but one valiant warrior up against Samurai guards, mean monsters, tall cliffs, deep rivers, and other natural (and unnatural) hazards. But you're not just anyone. You're a Ninja.

That means your bare hands and feet are as deadly as the weapons you can carry. In fact, that's all you have when you start out on your quest in the wastelands of the island of Lin Fen. After defeating a few of the advance guards, however, you'll find the tools you need to carry on—a samurai sword, numchukas, shuriken throwing stars, smoke bombs, and other trinkets.

Your journey of revenge will take you through the six regions of Lin Fen—the wastelands, the wilderness, the palace gardens, the dungeons, the palace interior, and the inner sanctum. Well, your journey *might* take you that far. Mine is stalled somewhere in the wastelands where there's a dragon that won't let me pass by without roasting me medium-well.

Paul Statt plays..

Zany Golf, *Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, (800) 245-4525 (orders only), $39.95 GS only*

Miniature golf is a curious game. It requires little athletic ability but con-

siderable skill. The miniature version takes a serious (solemn among my friends) sport like golf, adds garish colors and outlandish challenges—like putting though a day-glo windmill—and makes it silly, fun, and possible for all.

I'm surprised the computer version, Zany Golf, took this long. The game exploits the abilities of the GS. The nine zany holes are colorful and bizarre. The first is a windmill, in homage to classic mini-golf, but playing all nine is like falling into a dream: Elements of reality appear, but by the ninth hole you won't recognize the place. The Zany Golf music would make it on Broadway: I actually found myself whistling after the ninth hole.

Not many games make sense with a mouse, but Zany Golf's mouse interface is so simple you probably won't need the instruction sheet.

The game is quick; the scrolling is excellent. Moving from one hole to the next takes time, but the action is fast. Zany Golf surprised me by requiring only 512K. (It's written under ProDOS 8 for speed, but the graphics and sound are pure GS.)

How long can you play Zany Golf? I've devoted three solid hours to it and can play seven holes (if I cheat and pretend to be four golfers). Another three hours and it'll be easy. After I master it, I'll spend *another* three hours boasting that I can play it. Nine hours for 40 bucks is a good deal, anyway. You'll sometimes feel you're playing Marble Madness, and at times Pinball Construction Set. That's no criticism of Will Harvey, who wrote Zany Golf. He's simply a gamemaker's gamemaker, one of the few game programmers with enough imagination to maintain a consistent style. I'm glad he likes the Apple IIGS and knows how to use it.■

Short Takes . . .

Ticket to Hollywood
■■■

Blue Lion Software, 90 Sherman Street, Cambridge, MA 02140, (617) 876-2500, $39.95

Your goal is to deduce the name of a famous movie star from ten clues. To find the clues, you'll track down leads to find the director first. Nostalgia's the thing—you'll move through 80 years of Hollywood history to find your answers. (See Games Editors Play, December 1988, p. 117.)

Sub Battle Simulator
■■■

Epyx, P.O. Box 8020, Redwood City, CA 94063, (415) 366-0606, $49.95

Sub Battle Simulator is historically accurate—you can command a German or American submarine against a variety of enemies—and the graphics screens are fantastic. It won't sink Silent Service, but it's sure to attract a whole new fleet of recruits. (See Games Editors Play, December 1988, p. 116.)

A Question of Scruples: The Computer Edition
■

Leisure Genius/Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, $39.95

Answer a series of questions designed to test your morality level, and let the other players guess whether you're telling the truth. This game will even analyze your personality for you. I can't see any reason to play it. (See Games Editors Play, December 1988, p. 116.)

Anchorman
■■■■

Virginia Real Software, P.O. Box 8545, Norfolk, VA 23503, (804) 587-4952, $39.95

With Anchorman, you can bowl a few frames without ever leaving your desk. You can play with either keyboard or joystick. Either way, it's not as easy as it sounds. (See Games Editors Play, November 1988, p. 46.)

Club Backgammon
■■■

California Dreams, 780 Montague Expressway, Suite 403, San Jose, CA 95131, (408) 435-1445, $39.95

Club Backgammon is a realistic adaptation of the popular board game of the same name. You can ask your computer opponent to play as a beginner, intermediate, or expert. A fine choice when you can't find a friend to play. (See Games Editors Play, November 1988, p. 46.)

Soko-Ban
■■

Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501, (415) 522-3584, $29.95

Soko-Ban means "warehouseman" in Japanese. This maze game makes moving boxes around as much fun as it can possibly be—more fun than you'd think, but it does become mindless quickly. (See Games Editors Play, November 1988, p. 47.)

Thexder
■■■■

Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614, (209) 683-4468, $34.95

You'll race through a mazelike series of caverns, firing your laser at assorted enemies. This GS game is a mix of familiar and the bizarre—you've never seen creatures like this before. It even includes cool music: new-wave compu-rock as you play. (See Games Editors Play, February 1988, p. 36.)

Hardball!
■■■■

Accolade, 550 South Winchester Boulevard, Suite 200, San Jose, CA 95128, (408) 296-8400, $34.95

The measuring stick by which all baseball games are judged. It's not perfect (it'd be nice if you could select the location of your pitch without your opponent seeing it, for instance), but Hardball!'s the best game we've seen on a II. (See "Baseball Fantasies," Mace on Games, April 1987, p. 105.)

Wings of Fury
■■■■

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 492-3500, $34.95

In this World War II flight simulation, you choose your rank, then fly the corresponding island bombing raid. Your final targets are the enemy ships—but in the meantime, watch out for enemy planes looking for a fight! Joystick required. (See Games Editors Play, April 1988, p. 43.)

L.A. Crackdown
■■■

Epyx, P.O. Box 8020, Redwood City, CA 94063, (415) 366-0606, $49.95

You monitor the activities of another detective from the safety of your surveillance van. Have your colleague interrogate suspects, plant bugs, photograph clues, and make arrests. Make the right moves and you'll bust the drug ring. It's kind of like Leisure Suit Larry joins *The Rookies*.□

NEW PRODUCTS

edited by Pat Payne

Hardware

READ ALL ABOUT IT

FingerPrint GSi version II lets you print any screen image in sizes up to 130 feet wide by 100 feet high. At $129, this screen-interrupt card lets you print the image on your computer screen at any time or save it to disk for later use with a paint program. You can **create billboards**, posters, signs, and even scenery for a play.

FingerPrint GSi version II is designed to work with the IIGS, and requires one free expansion slot for installation. Contact Thirdware Computer Products, 4747 N.W. 72nd Avenue, Miami, FL 33166, (305) 592-7522 or (800) 446-5987, or circle Reader Service number 358 for more information.

FREE FLOATING

Need numbers fast? With the Floating Point Engine your computer can do mathematical **calculations** at an average speed of 12 megahertz. Simply install this card in any peripheral expansion slot and it'll work automatically with any software that supports the Apple Standard Arithmetic Numeric Environment (SANE). The Floating Point Engine sells for $199.95 and is available from Innovative Systems, P.O. Box 444, Severn, MD 21144-0444, (301) 768-4599. For more information, circle Reader Service number 359.

HEAR YE!

The SoundAce, from Parallax, is a **low-cost digitizer** designed for the Apple IIGS. You can manipulate the sounds you record, including such features as graphics cut and paste, pitch blend, echo, mixing, and backward playback. Priced at $69.95, the package includes a microphone and a preamplifier. It also requires a free expansion slot. Contact the company at 5249 Locust Avenue. Carmichael. CA 95608, (916) 721-5451, or circle Reader Service number 360 for more information.

TURN IT UP

The OCS 2-40 is a **40-watt amplifier** small enough to fit beneath a 3½-inch disk drive. It features a volume control, an input jack for headphones, and two speaker output jacks. It's even platinum colored to blend in with your Apple system. The OCS 2-40 retails for $179 from Orange County Speaker, 13686 Newhope, Garden Grove, CA 92643, (714) 530-3860. Circle Reader Service number 361 for more information.

BEHIND BARS

Designed to make life easier for small-business people, the PC-385 **Bar Code Reader** connects to your IIGS through the Apple Desktop Bus (ADB), letting you enter bar-code information (such as product prices) without having to type it in. The $595 unit has its own microprocessor and connects to the keyboard. For more information, contact TPS Electronics, 4047 Transport, Palo Alto, CA 94303, (415) 856-6833, or circle Reader Service number 362.

Software

ALL IN ONE

Thanks to Roger Wagner's HyperStudio, GS and Mac owners now share one more feature. Similar to HyperCard on the Macintosh, HyperStudio lets you **combine super-hi-res graphics, digitized sound, and text** in one application file. You can either produce these files within HyperStudio or import them from other programs, including Paintworks Gold, DeluxePaint II, the AppleWorks word processor, and FutureSound. The HyperStudio package, available for $129.95, includes an amplified speaker, digitization hardware, and a microphone. Contact Roger Wagner Publishing at 1050 Pioneer Way, Suite P, El Cajon, CA 92020, (619) 442-0522, or circle Reader Service number 350 for more information.

The platinum-colored OCS 2-40 40-watt amplifier fits beneath your disk drive to blend in with your Apple system.

Roger Wagner's HyperStudio lets you combine text, graphics, and sound.

CREATIVE KIDS

With Electronic Arts' Cartooners, kids develop their creativity and have fun while **composing animated movies**, complete with music and sound effects. The program includes characters, scenery, and speech balloons for storytelling and is compatible with Instant Music (and its music data disks) and DeluxePaint II, also from Electronic Arts. When finished, kids can then print their cartoons to show off their storybooks. Cartooners, priced at $59.95, requires an Apple IIGS with 768K. For more information, contact Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171, or circle Reader Service number 351.

GR-GR-GR-APHICS!

GEOS users can now choose from their own series of clip-art disks. A company called Those Designers has developed eight double-sided disks of **geoPaint graphics**, retailing for $15.95 each. For more information, contact Those Designers, Department A, 3330 Lewis Avenue, Signal Hill, CA 90807, (213) 427-6742, or circle Reader Service number 352.

CROSS-TRAINING

Enjoy the best of both worlds with Cross-Works, a new utility program that lets you transfer and **convert files between Apple IIs and IBM PCs** and compatibles. Cross-Works transfers files via cable at 19,200 bits per second, then converts those files automatically to popular program formats. All files transferred to the Apple become AppleWorks database, word processor, or spreadsheet compatible; those transferred to the IBM become compatible with WordPerfect, Lotus 1-2-3, or dBASE III, depending on file type.

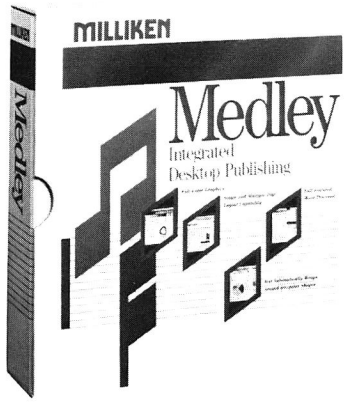
The program package sells for $79.95 (plus $3.50 shipping and handling) and includes disks for both the Apple and the IBM, a universal cable, and a manual. Contact SoftSpoken Company, P.O. Box 97623, Raleigh, NC 27624, (919) 878-7725, or circle Reader Service number 353 for more information.

PUBLISHING POWER

Medley, an **integrated desktop-publishing program** from Milliken, includes a word processor, a page-layout program, and a graphics program as well as a clip-art disk, a spelling checker, and a thesaurus. The $195 program requires an Apple IIGS with 1¼ megabytes of RAM and a 3½-inch disk drive. (A second drive and a color RGB monitor are recommended.) For more information, contact Milliken Publishing Company at P.O. Box 21579, St. Louis, MO, 63132-0579, (314) 991-4220, or circle Reader Service number 354.

GRAPHIC DESCRIPTION

The **Graphic Images** clip-art set consists of more than 100 digitized and highly detailed images. You can resize and reshape them according to your needs and your graphics-software capabilities. The Graphic Images set retails for $29.95 from Oltrad Graphics, 5100 North Sixth, Suite 139, Fresno, CA 93710, (209) 224-2864. For more information, circle Reader Service number 355.

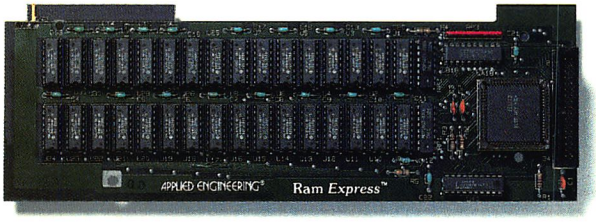


Milliken combines six desktop-publishing features in Medley.

HIDE AND SEEK

If you're constantly searching through a pile of disks for the one you need, **Directory Labeler** II Version 1.1 has come to your rescue. It lets you print the contents of ProDOS volumes, including file title and date, and the volume name, onto peel-off labels. You can then sort the file list for printing by creation ►

Ram Express™ for the IIc and IIc Plus



More than a memory card.

The IIc is a fine computer and Apple is rightfully proud of their new IIc Plus. With two operating speeds, a 65C02 processor and an internal 3.5 drive, the 128K computer has almost everything going for it. Almost.

We say 'almost' because for many software titles, 128K just won't cut it. That's why AE makes Ram Express™, the fully compatible memory card for the IIc Plus and original IIc's with memory expansion connectors. Available in user-upgradeable 256K, 512K and 1 MEG sizes, Ram Express adds the memory you need, and a whole lot more.

AppleWorks Enhancement

With Ram Express, AppleWorks word processor lines rocket from 7,250 to more than 22,500 and the maximum number of records zooms from 6,350 to more than 22,500! Ram Express even expands the clipboard and automatically segments large files so they can be saved on two or more disks. And with Ram Express you'll run AppleWorks 10 times faster with one disk drive than an ordinary IIc could with two disk drives.

Ram Express is also a high speed, solid-state disk drive, loading and saving your programs more than 20 times faster. Copy a disk in one pass by simply inserting and removing the original, and inserting a blank disk.

And installation in the IIc Plus is easier than ever. Remove six screws from the cover, lift the keyboard, plug Ram Express into the connector and start enjoying a world of software titles you couldn't touch with 128K.

Optional Clock

Ram Express's optional clock displays the time and date on screens and automatically time and date stamps AppleWorks files. The clock option is even compatible with Apple's memory card for the IIc.

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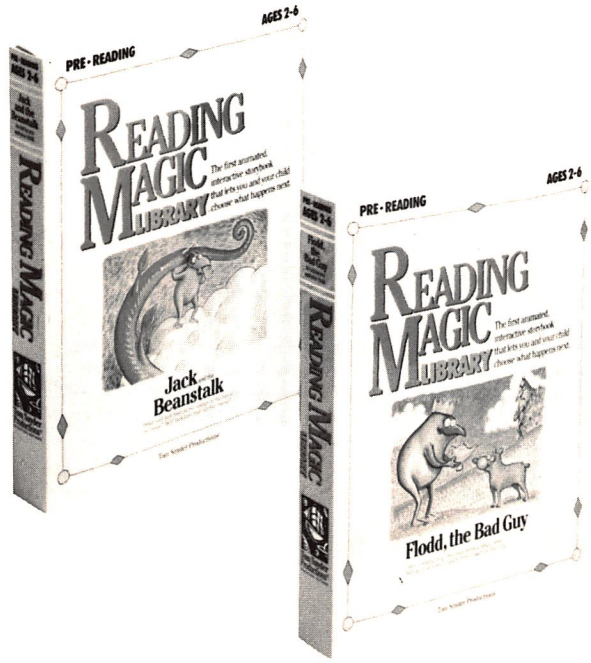


Tom Snyder has another hit with his animated Reading Magic interactive storybooks.

date, modification date, name, or file type. Directory Labeler II Version 1.1 sells for $19.95 from Sourceware, 6899 South Yukon Court, Littleton, CO 80123, (303) 933-9148. Circle Reader Service number 356 for more information.

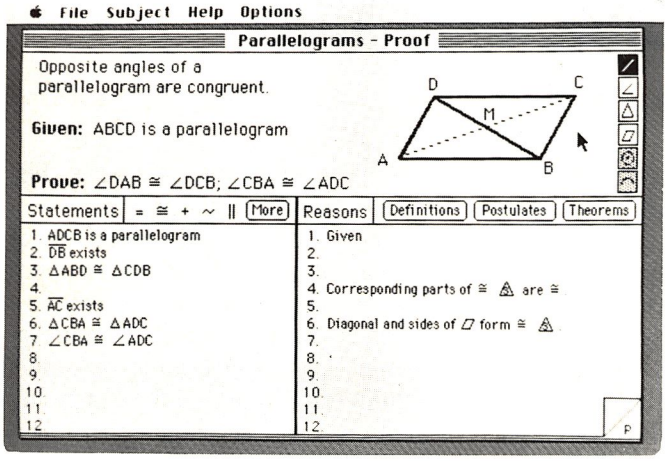
READ ALONG

Tom Snyder Productions is bringing parents and children together with Lapware home-education software. Known more formally as the Reading Magic Library series, these two programs are **animated storybooks** parents and kids can read together, deciding at each turn what should happen next in the story. The interactive stories—Jack and the Beanstalk and Flodd, the Bad Guy—are available for $34.95 each. Contact Tom Snyder Productions, 90 Sherman Street, Cambridge, MA 02140, (617) 876-4433, or circle Reader Service number 357 for more information.

SOFTWARE SQUARED

Geometry, an **interactive geometry tutorial** from Broderbund, is designed to take advantage of the IIGS' graphics capabilities. The program, aimed at high-school and college geometry students, includes more than 300 problems, and offers immediate feedback, references, and hints. It covers the requirements for a one-year geometry course and is compatible with all major textbooks.

The School Edition retails for $89.95; the Lab Pack, with five disks, is available for $179.95. For more information, contact Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3500 or (800) 527-6263.



With Broderbund's Geometry, students can hone their mathematical skills.

Resources

STAMP IT OUT

Computer viruses can destroy large amounts of your data. What can you do about it? ***Computer Viruses—a High-Tech Disease*** explains what a virus is, how it works, and how you can protect yourself from it. The book is available for $18.95 from Abacus dealers. For more information, contact the company at 5370 52nd Street SE, Grand Rapids, MI 49508, (616) 698-0330, or circle Reader Service number 363.

FINDING FACTS

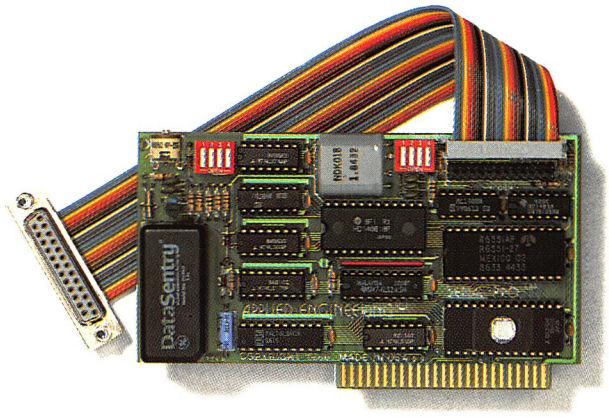
The ***GS/OS Reference, Volume I*** is a beta-draft technical reference that documents how applications interact with GS/OS. It describes all application-level GS/OS calls and documents the file-system translators. Members of the Apple Programmers and Developers Association can obtain a copy for $24.95. For more information, contact APDA at 290 S.W. 43rd Street, Renton, WA 98055, (206) 251-6548.

PAPER POWER

Add polish to a school or business presentation with **high-quality paper**. The Pro-Tech line from James River Corporation includes riblaid, linen, and brushed cotton printer paper, each available in a variety of colors and with matching business envelopes. Pro-Tech Brushed Cotton paper sells for $29.95 per 250 sheets; the Pro-Tech Linen and Pro-Tech Riblaid retail for $24.95 each. Contact James River Corporation, 356B Sewall Street, Ludlow, MA 01056. To find the closest dealer, call (413) 589-7592 or (800) 521-5035, or circle Reader Service number 364 for more information.

Product descriptions contained in this section are based on information supplied to us by the respective manufacturers. These announcements are provided solely as a service to our readers and do not constitute endorsement by inCider *of any given product.*

Serial Pro® The intelligent multifunction card from Applied Engineering.



Serial Pro is a powerful multifunction card for the Apple IIe, II+, IIGS and compatible computers. Serial Pro combines a powerful serial port for interfacing to a printer, modem or other serial device, with a full function clock/calendar. Serial Pro's serial port is compatible with virtually all letter quality and dot matrix printers, including Apple's Imagewriter and Imagewriter II, and can communicate with the fastest external modems at baud rates from 50 to 19,200.

Set up is easy, because unlike other cards, there are no switches to program serial parameters or disks to use. Serial Pro has a built-in setup screen that allows all parameters to be set. And on-screen help that makes it super-easy. An on-board battery stores your selections for over 20 years, but you can change them at any time. Serial Pro is the perfect upgrade for Super Serial card owners looking for more performance or a built-in clock.

Serial Port Features • Fully Super Serial Card compatible but more versatile and easier to use • Compatible with printers • Compatible with modems • Prints graphics to printer (without software) in normal mode, 90° rotation, double size, side by side, and black/white inversion • Variable word length, number of stop bits and parity selection • Crystal controlled circuits are used to provide ultra accurate baud rates.

Clock Calendar Features • ProDos, DOS and AppleWorks compatible. Displays time and date on the AppleWorks screen • Automatically time and date stamps AppleWorks files • 20 year auto recharging nickel-cadmium battery • Realtime interrupts • Built-in on screen time and date settings (no software needed) • Does not use phantom slots.

Serial Pro is perfect for Apple IIe, II+, IIGS or compatible owners in need of a serial port or clock/calendar or both. But unlike other multifunction cards on the market, Serial Pro does not use phantom slots, so all the slots in your computer are useable.

Serial Pro comes complete with manual and instructions for interfacing to all the leading printers and modems.

Serial Pro **$139**

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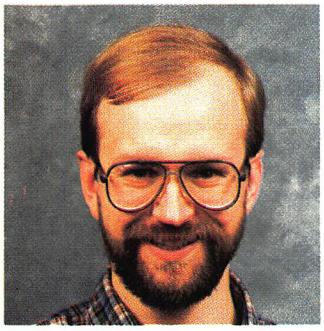
Winning the Battle



by Scott Mace

"War games are as much a study of history as they are intellectual puzzles."

Since the time of Napoleon, military commanders have studied conflict situations to help them prepare for the real thing, trying out various tactics and strategies and judging the outcome. Today's computer war games, based on history's most famous battles, are simplified versions of such simulations.

All games simulate something, but war games are as much a study of history as they are intellectual puzzles. Like a good historical novel, wars have beginnings, middles, and ends. And like a good chess game, the various strategies used throughout a war game are complex, forcing players to think many moves ahead in an attempt to guess every action and reaction.

You can't alter history, of course, so another fascinating aspect of war gaming involves speculating on how the world would have been different if a war's outcome had gone the other way—the mechanics of affecting the course of a war more than the actual historical events. Purely strategic exercises can often produce a different outcome by factoring in conditions such as poor weather, low morale, or just plain bad luck.

THE FRONT LINE

The first computer war games were note-for-note recreations of early board games. The new generation is more colorful, easier to use, and faster. The best news is that you can now build your own game scenarios with easy-to-use software tools. **Under Fire**, from veteran war-game publisher Avalon Hill (Monarch Avalon, 4517 Harford Road, Baltimore, MD 21214, 301-254-9200, $59.95), is a good example. With World War II weapons and forces at your disposal you play as the American, Russian, or German force, but it's not based on any actual historical situation or terrain. The Mapmaker feature the program includes lets you build an infinite series of battle terrains based on any map you want—historical or imaginary.

Under Fire/Avalon Hill

Each player (even if one of them is your computer opponent) enters all orders before his or her turn starts. Your Apple II then executes the orders one by one until the opposing forces encounter each other. All players get to control the movement of their troops, but if you don't want to manage the actual fighting, your computer can do it for you. This feature makes Under Fire different from most other war games, which let you enter only one move at a time and usually force you to do all the fighting.

THE COURSE OF HISTORY

Perhaps the best and most prolific historical war-game series comes from Strategic Studies Group (1747 Orleans Court, Walnut Creek, CO 94598, 415-932-3019), which has brought the best of traditional board war games to the Apple II. The first thing you'll notice in each package is a colorful fold-out map, a handy way to see all the terrain in the game, only some of which appears on screen at any time. You can play against a human opponent or your Apple.

Players in each game have clear objectives and a limited amount of time in which to accomplish them. This can be both a handicap and a blessing. Sometimes it's very difficult to complete your mission within the allotted time. On ►

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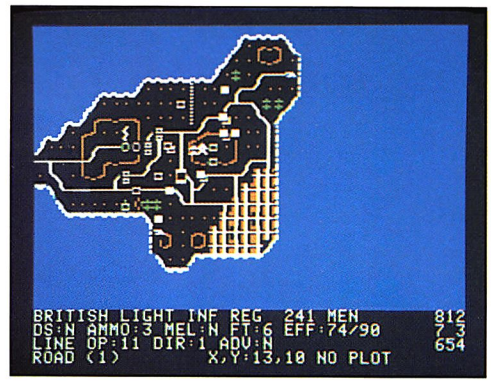
MACE ON GAMES



SSI's Sons of Liberty includes strategic maps of Revolutionary War battles, such as the one above showing Bunker Hill.

the other hand, some war games can go on for hours, days, even weeks. Trying to finish before your time runs out is more challenging and entertaining, anyway.

SSG's simulations cover a variety of historical conflicts. **Halls of Montezuma: A Battle History of the United States Marine Corps** ($40) goes back as far as the Marine landing in Mexico City in 1847. It also includes a World War I battle, the battles of Iwo Jima and Okinawa, Korean War engagements at Pusan and Inchon, and the battle for Hue during the Vietnam conflict. **Russia: The Great War in the East 1941–1945** ($40) and **Rommel: Battles for North Africa** ($40) cover two of the major campaigns of World War II.

Decisive Battles of the Civil War in two volumes ($40 each) takes you to Bull Run, Chancellorsville, Gaines Mill, and Chattanooga. These games are especially fascinating, because you'll be considering an intriguing additional human factor: Military brigades in the Civil War sometimes just fell apart from low morale or lack of discipline. When they did, the remaining men of the brigade would go into the reserves, then return to duty.

Strategic Simulations Inc. (SSI, 1046 North Rengstorff Avenue, Mountain View, CA 94043, 415-964-1353) also offers an impressive array of historical simulations, from **Sons of Liberty** ($39.95), which takes you to the battles of the Revolutionary War, to **Panzer Strike!** ($49.95) and the many notable theaters of World War II, plus some speculative campaigns that look at how possible conflicts of World War III may come about.

If you've avoided computer war games because they seemed too dull or too cumbersome, take heart: They've lost some weight and gotten a facelift. And contrary to what many people think, war games don't glorify battle. Instead they emphasize how truly fascinating historical conflicts can be. Once they get involved in an accurate re-creation of a battle, players who fell asleep during high-school history class may find themselves delving deep into the political, social, economic, and psychological factors that influenced the outcome of a war.■

Scott Mace is editor and publisher of Microcosm, *a monthly newsletter on computer games. Write to him at 6510 Copper Ridge Drive #T-1, Baltimore, MD 21209. Enclose a stamped, self-addressed envelope if you'd like a personal reply.*

Circle 56 on Reader Service Card.

HINTS/TECHNIQUES

Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what Hints/Techniques is all about. It's an information swap for readers who want to share their programming pointers, DOS tips, hardware secrets, AppleWorks applications, WPL enhancements, and all those other insights that make you go "Aha!" in the night.

The Box Game

by Peter Spiro

Tired of *Scrabble*? The Box Game (**Listing 1**) creates a simple but fun board game involving a grid of boxes. Each box consists of two broken and two solid lines. Your object is to uncover the lines so that the fourth line of each box will be solid. When you succeed, your Apple places a dot in the center of that box and you score a point.

To move a line, hit A or the up-arrow key to go up, Z or the down-arrow key to go down, or the right- and left-arrow keys to shift accordingly. The spacebar changes the line from vertical to horizontal and back again. When you've positioned the line and want to uncover that spot on the grid, press Return. Press Escape to quit.■

Write to Peter Spiro at 1020 Nautilus Lane, Mamaroneck, NY 10543.

***Listing 1.** The Box Game.*

```
10  REM  THE BOX GAME  [2537]
20  REM  BY PETER SPIRO  [2920]
30  REM  COPYRIGHT 1988, INCIDER  [4767]
40  HOME : TEXT   [876]
50  INPUT "SIZE OF BOARD: ";S  [3805]
55  IF S > 10 THEN  PRINT "TOO BIG! MAXIMUM OF 10.": GOTO
     50  [2729]
60  DIM H(S + 2,S + 2),V(S + 2,S + 2)  [3167]
65 EX =  INT ((279 - S * 15) / 2):EY =  INT ((159 - S *
    15) / 2)  [5186]
67  REM   [1086]
70  REM  DRAW OUTLINE OF BOARD  [4263]
75  REM   [1159]
80  HGR : HCOLOR= 3  [719]
90  FOR A = 0 TO S * 15 STEP 15: HPLOT EX + A,EY: HPLOT
     EX + A,EY + S * 15: HPLOT EX,EY + A: HPLOT EX + S
      * 15,EY + A: NEXT   [8762]
100  REM   [790]
110  REM  CREATE GAME BOARD  [3597]
120  REM   [1001]
130  FOR Y = 1 TO S  [711]
140 V(1,Y) =  INT ( RND (1) * 2)  [2643]
150  NEXT Y  [247]
160  FOR X = 1 TO S  [734]
170  PRINT S + 1 - X"  ";  [854]
180 H(X,1) =  INT ( RND (1) * 2)  [2555]
190  FOR Y = 2 TO S + 1  [1221]
200 N = H(X,Y - 1) + V(X,Y - 1)  [2130]
210  IF N = 2 THEN H(X,Y) = 0: GOTO 240  [1899]
220  IF N = 0 THEN H(X,Y) = 1: GOTO 240  [1993]
230 H(X,Y) =  INT ( RND (1) * 2)  [2529]
240  NEXT Y  [397]
250  FOR Y = 1 TO S  [927]
260 N = V(X,Y) + H(X,Y) + H(X,Y + 1)  [3068]
270  IF N = 1 THEN V(X + 1,Y) = 1  [1885]
280  NEXT Y  [374]
290  NEXT X  [445]
300  REM   [3970]
310  REM  START THE GAME  [2802]
320  REM   [1073]
325  HOME   [1339]
330 M = 0  [525]
335 E = 1:F = 1  [1077]
340  VTAB 10: GET A$  [1168]
345  VTAB 23: HTAB 1: PRINT "SCORE:  ";SC;"    "  [4472]
350  IF A$ =  CHR$ (27) THEN  TEXT : HOME : END   [5189]
370  IF A$ <  >  CHR$ (13) THEN 540  [2007]
372  REM   [2757]
373  REM PLAYER HAS HIT RETURN  [4442]
374  REM   [1448]
380  HCOLOR= 3  [584]
390  IF M THEN 470  [898]
392  REM   [4876]
393  REM PLAYER IS IN HORZ. MODE  [1491]
394  REM   [2550]
400  HPLOT X,Y TO X + 15,Y  [1250]
410  IF H(E,F) = 1 THEN  HCOLOR= 0: HPLOT X + 5,Y TO X
      + 10,Y  [4081]
420  HCOLOR= 3  [224]
430  IF H(E,F) = 0 AND V(E,F) = 5 AND V(E + 1,F) = 5 AND
     H(E,F + 1) = 5 THEN  HPLOT X + 7,Y + 7 TO X + 8,Y
      + 7 TO X + 8,Y + 8 TO X + 7,Y + 8:SC = SC + 1  [10199]
```

Continued

Envelope Maker

by G.E. Boulter

If you use Apple Writer II, you know how difficult it is to print envelopes with both your recipient's name and address and your return address. The following Word-Processing Language (WPL) program now makes this a simple procedure.

To use the program, simply type in **Listing 2**, Envelope, with the correct re-

Continued

```
440  IF H(E,F) = Ø AND V(E,F - 1) = 5 AND V(E + 1,F -
     1) = 5 AND H(E,F - 1) = 5 THEN  HPLOT X + 7,Y - 8
      TO X + 8,Y - 8 TO X + 8,Y - 7 TO X + 7,Y - 7:SC =
     SC + 1  [10443]
450 H(E,F) = 5  [1415]
460  GOTO 520  [568]
462  REM   [5927]
463  REM PLAYER IS IN VERT. MODE  [1941]
464  REM   [2680]
470  HPLOT X,Y TO X,Y + 15  [1499]
480  IF V(E,F) = 1 THEN  HCOLOR= Ø: HPLOT X,Y + 5 TO X
     ,Y + 10  [3246]
490  IF V(E,F) = Ø AND H(E - 1,F + 1) = 5 AND H(E - 1,
     F) = 5 AND V(E - 1,F) = 5 THEN  HPLOT X - 8,Y + 7
      TO X - 7,Y + 7 TO X - 7,Y + 8 TO X - 8,Y + 8:SC =
     SC + 1  [10544]
500  IF V(E,F) = Ø AND H(E,F) = 5 AND H(E,F + 1) = 5 AND
     V(E + 1,F) = 5 THEN  HPLOT X + 7,Y + 7 TO X + 8,Y
      + 7 TO X + 8,Y + 8 TO X + 7,Y + 8:SC = SC + 1  [9275]
510 V(E,F) = 5  [1475]
520 XX = 150:YY = 150  [1685]
530  GOTO 340  [671]
532  REM   [5371]
533  REM PLAYER HAS NOT HIT RET.  [4691]
534  REM   [4608]
540  IF A$ =  CHR$ (21) THEN E = E + 1: IF E > S + M THEN
     E = S + M  [3754]
550  IF A$ =  CHR$ (8) THEN E = E - 1: IF E < 1 THEN E
      = 1  [3255]
560  IF A$ = "Z" OR A$ =  CHR$ (10) THEN F = F + 1: IF
     F > S + 1 - M THEN F = S + 1 - M  [5454]
570  IF A$ = "A" OR A$ =  CHR$ (11) THEN F = F - 1: IF
     F < 1 THEN F = 1  [4308]
580  IF A$ <  > " " THEN 590  [1729]
582 M =  NOT (M): IF M AND F = S + 1 THEN F = S  [2226]
585  IF M = Ø AND E = S + 1 THEN E = S  [2007]
590 X = EX + E * 15 - 15:Y = EY + F * 15 - 15  [3209]
600  HCOLOR= Ø  [538]
610  IF MM = Ø THEN  HPLOT XX + 1,YY TO XX + 14,YY  [3354]
620  IF MM THEN  HPLOT XX,YY + 1 TO XX,YY + 14  [3262]
630  IF M = Ø AND H(E,F) = 5 THEN 690  [3070]
640  IF M AND V(E,F) = 5 THEN 690  [2654]
650  HCOLOR= 3  [215]
660  IF M = Ø THEN  HPLOT X + 1,Y TO X + 14,Y  [2108]
670  IF M THEN  HPLOT X,Y + 1 TO X,Y + 14  [1993]
680 XX = X:YY = Y:MM = M  [1945]
690  GOTO 340  [319]
```

End

turn name and address. The control codes are set up for an Epson MX-100, so you may have to modify them for your own printer. Save the file as ENVELOPE.

Now type in **Listing 3**, Envelope Maker. (If you're not familiar with WPL, refer to your Apple Writer manual for general guidelines.) Save this file as ENVMAKER.

To start printing following Apple Writer's Control-P print command, type DO ENVMAKER. Be sure you've inserted your envelope in the printer and aligned it properly.■

Write to G.E. Boulter at 6S 560 Bridlespur, Naperville, IL 60540.

Got a hint of your own? inCider *would like to see it. If we can use it in Hints/Techniques, we'll buy it from you. Send your tip to* inCider, *Elm Street, Peterborough, NH 03458.*

Listing 2. *Envelope file.*

```
CTRL V  ESC 8 CTRL V
CTRL V  CTRL O CTRL V
CTRL V  ESC O CTRL V
.tm0
.pi22
.pl20
.sp1
.lm2
Gerald E and Dianne Boulter
12345 Any Street
Naperville, IL 60540

CTRL V  ESC 2 CTRL V
.lm30
CTRL V CTRL R CTRL V
CTRL V  ESC G CTRL V

Name
CTRL V  ESC H CTRL V
.ff
```

Listing 3. *Envelope Maker.*

```
START   NY
        PND
        L ENVELOPE, D2
        B
        PSX 7
        PPR  (CTRL V   CTRL L   CTRL V)
        PPR   (NOTE:  THE MAXIMUM NUMBER OF
        PPR   ADDRESS LINES WHICH CAN BE
        PPR   ENTERED IS SEVEN.  IF THIS
        PPR   NUMBER IS EXCEEDED, YOU WILL
        PPR   BE TOLD THAT YOU HAVE EXCEEDED
        PPR   THE MAXIMUM. IF NOTHING IS
        PPR   ENTERED ON A LINE, THEN THE
        PPR   ENVELOPE WILL BE PRINTED.
        PPR
        PIN Enter the Addressee's Name ==>
        =$AF!Name!$A#!
        Y?
LOOP    PPR
        PIN Enter the Address ==> =$A
        F!!$A#!
        Y?
        PCS?$A??
        PGO QUIT
        PSX -1
        PGO LOOP
        PGO ERROR
QUIT    PNP
        PPR
        PIN Any More Envelopes?  ==> =$A
        PCS/$A/Y/
        PGO START
        PCS/$A/y/
        PGO START
        Q3SYS,D1
        NY
        PQT
ERROR   PPR   (CTRL C   CTRL L   CTRL V)
        PPR
        PPR
        PPR    TOO MANY ADDRESS LINES
        PPR
        PPR
        PIN    PRESS "RETURN" TO CONTINUE
        PPR
        PGO START
```

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The Laser 190A

A Price-Conscious Printer

It's David and Goliath all over again. A small firm called Laser is going up against Apple and hopes to beat the corporate giant at its own game—shaking up the market first with its 128 series of computers (see "An Underdog's New Tricks," November 1988, p. 51), and now with the Laser 190A printer, an ImageWriter II compatible.

The 190A prints fast and clearly (in draft or near-letter-quality mode); it's about the same size as the ImageWriter, it's quieter, and it's even platinum-colored. And, like the company's other Apple-compatible products, it also costs significantly less that its Cupertino counterpart.

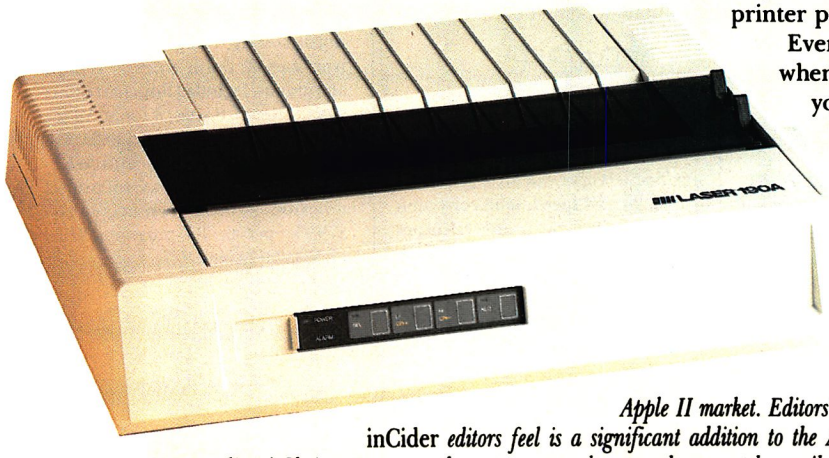
Apple's ImageWriter series—first the original model, which is no longer available, then the fast, color-capable II, and now the high-octane LQ—are all dependable, high-quality products. But you can also depend on a steep price tag. You could shell out $595 (suggested retail) for an ImageWriter II; then all your equipment would have the multicolored Apple logo on the front and you'd be happy. Or you could save almost $246 and get a nice printer that works just like the ImageWriter II—except that the paper doesn't jam as much in draft mode and it doesn't do color. (For a more detailed analysis of the Laser 190A's speed, print modes, and other options, keep an eye on *inCider*'s Reviews section for an upcoming critique.)

"Even if you'd prefer the Apple logo, you can't ignore savings of $250," says Editor in Chief Dan Muse. "Now if Laser could come out with an affordable LaserWriter compatible. . . ."

Too bad Laser hasn't come out with an original-ImageWriter compatible. That model is still *inCider*'s printer of choice. (See "Ten Best Hardware Products," December 1988, p. 43.) That would have made for a lot of happy editors, but apparently you have to stay right with the times in the compatibles business.

"It's encouraging to see Laser diversifying and coming out with peripherals," adds Review Editor Lafe Low. "It kind of sets up a system of checks and balances that should keep Apple on its toes."

"If Apple insists that everybody has to have an ImageWriter, it's only natural that a cheaper ImageWriter should appear," observes Senior Editor Paul Statt. "The Laser 190A is as fast and as good as the ImageWriter II at about half the price. Laser Computer forced Apple to come down on its IIc prices; maybe the 190A can do the same for its printer prices."



Even if you weren't around the Apple II world when the first ImageWriter was on the market, you can still get a good, dependable printer for not too much money. You owe it to yourself to take a look at Laser's 190A. It's priced at $349, from Laser Computer, a division of Video Technology, 550 East Main Street, Lake Zurich, IL 60047, (312) 540-8086. ■

Every month, hardware and software manufacturers release dozens of new products into the Apple II market. Editors' Choice singles out one product each month that the inCider *editors feel is a significant addition to the Apple II family of products. Products evaluated in Editors' Choice are among the most recent releases and may not be available yet for retail distribution.*

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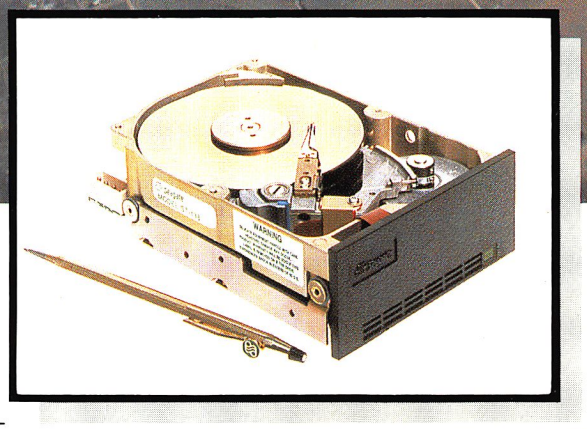

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