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The Apple II Review

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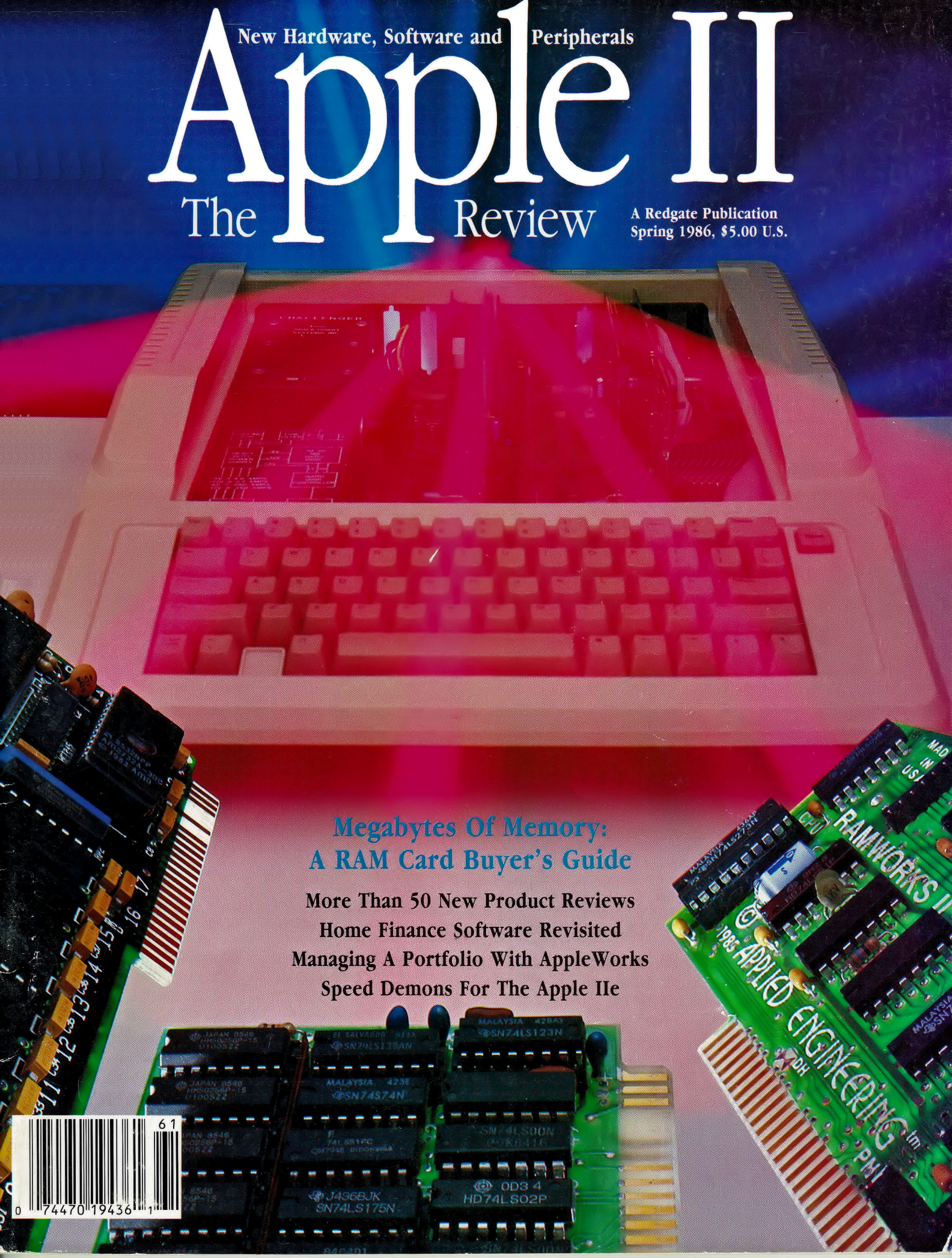

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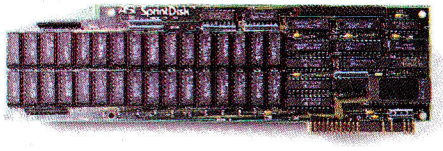

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- No application software modifications necessary
- Fits any I/O slot except #3 in II, II+ or IIe
- Fully socketed and user-upgradeable

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The Apple II Review

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Back To Tomorrow

The reverberations from the Challenger disaster were felt around the world. But here on the east coast of Florida, the tragedy seems amplified by location. Redgate Communications Corp. is located about 80 miles south of the Kennedy Space Center. Shuttle watching is best done from the beach, where palm trees, condominiums and hotels can't obstruct the uncluttered ocean view to the north. From this distance, we can't hear the awesome thunder from the shuttle's engines, but the view is still impressive.

As the world knows by now, it was a cold, bright January morning when Challenger came to its end. It had been cold the previous morning, when a group of us gathered outside to watch a launch ultimately scrubbed due to overcast skies and high winds.

Launch delays are nothing new to the shuttle program, so we took it all in stride and went back to work. The next day—January 28—the clouds were gone but the cold air seemed even colder and more unforgiving.

It was too chilly to consider standing on the beach, where the wind felt particularly harsh to those of us used to shirtsleeve weather. We stayed in the office because launch time remained uncertain. The shuttle could have flown at any time that morning and we didn't have time to wait. Besides, if you miss one launch, there's always another just a month away. Or so we thought.

What happened next was a national nightmare. The close-up television shots of Challenger being ripped apart will remain imprinted in memory, along with recollections of President Kennedy's assassination and the pictures of blindfolded hostages in Iran. When I heard the news that Challenger had exploded, I ran to the window and looked up. There, high above the sea, was a solid jet trail ending in an eerie white cloud with several smaller trails spiraling outward in a lost, random pattern.

Somebody turned on a radio. A few of us hoped that the orbiter would suddenly appear and glide down toward its runway, or at least be found intact, floating on the water. Perhaps the astronauts somehow survived. It soon became obvious, however, that the white cloud was all-consuming. Barely 20 minutes after the explosion, eulogies were read for McNair, Onizuka, Resnik, Scobee, Smith, Jarvis and McAuliffe.

It's now more than two months after the Challenger disaster. We already know much of what went wrong with the shuttle, both from a technical and administrative standpoint. It's now time to do the right thing. Let's begin building another, safer shuttle, start work on a new generation of expendable rockets and further explore the air-breathing space-plane concept. My guess is that the fallen astronauts wouldn't have it any other way.

ProDOS Progression

On a more Apple II note, I've begun to better appreciate the smooth evolution of the Apple II family over the years, especially how the ProDOS operating system has kept the Apple II technologically current.

This thinking was spurred on by the recent addition of a UniDisk 3.5 high-capacity disk drive to my trusty Apple IIc. The UniDisk 3.5 is a major improvement over the standard 5¼-inch floppy drive, and its disks store about six times as much information. It's also wonderfully ProDOS compatible. Using ProDOS filer utilities, its simple to move programs from one environment to another with nary a hitch.

In many ways, ProDOS is nearly the equal of Microsoft's MS-DOS in the IBM 16-bit universe and has carried the torch in keeping the Apple II at the forefront of eight-bit computing. If CP/M had received the same amount of attention as the Apple II and ProDOS, it may still be battling in the commercial market. Who knows?

Granted, mastering the finer points of ProDOS takes a reasonable amount of study. ProDOS procedures seem a little tricky at first. Even the most insignificant typo can leave you puzzled. That's why it's worthwhile spending an evening with the manual or some of the better ProDOS books now appearing. You and your Apple will be better for it.

—Paul Pinella, Managing Editor

Let's compare Apples™ to Apples™.

An Apple IIc

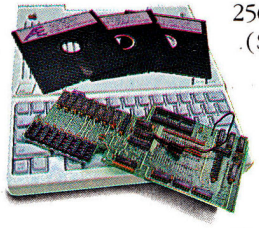
An Apple IIc with Z-RAM

The Apple IIc on the right works exactly the same as the Apple IIc on the left. Almost. The Apple on the right has a powerful memory expansion coprocessing card called Z-RAM. From Applied Engineering. Which means the Apple on the right can completely load AppleWorks into RAM—and then run it up to thirty times faster than the Apple on the left.

Z-RAM also acts as a solid-state disk drive. Which means the Apple on the right will load and store programs up to 30 times faster. And, our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

Turbo Charged AppleWorks.

Even a 256K Z-RAM can completely load AppleWorks into RAM. With Z-RAM, the moment your fingers touch the keyboard AppleWorks responds. A 256K Z-RAM lets your IIc run AppleWorks up to 30 times faster, increases available desktop to 235K and maximum number of records from 1,350 to over 15,000, quadruples the number of lines allowed in the word processor, provides a print spooler, and auto-segments large files so they can be saved on two or more disks. A 512K Z-RAM boosts AppleWorks desktop to an incredible 425K.



Take a closer look.

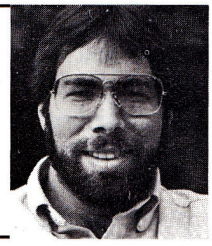
There's more. Z-RAM has a built-in high speed Z-80B microprocessor that allows you to run CP/M programs. Which means you now have access to the single largest body of software in existence, including popular packages like WordStar, dBase II, Turbo PASCAL and Microsoft BASIC. A 16 bit option is also available.

And still more. Z-RAM is compatible with all IIc software and hardware, installs easily in just ten minutes with a screwdriver (slightly longer without), is available with 256K or 512K of additional memory (a 256K Z-RAM can be upgraded to 512K at any time). Z-RAM is easily handled by the IIc power supply with our patent pending power saving design.

The only thing better than that would be a recommendation from Steve Wozniak.

"I recommend Applied Engineering products whole-heartedly." (Of course, Steve's IIc has a Z-RAM installed.)

Steve Wozniak, the creator of Apple Computer



For fast response.

Z-RAM comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual. And a five year "hassle free" warranty. Make a good Apple great. With 256K Z-RAM "384K total" ($329); with 512K "640K total" ($389); 16 bit option may be added later ($89).

If you want to run CP/M software, but don't need more memory, we suggest our Z-80c card. The Z-80c has no memory expansion ports and is priced at only $159.

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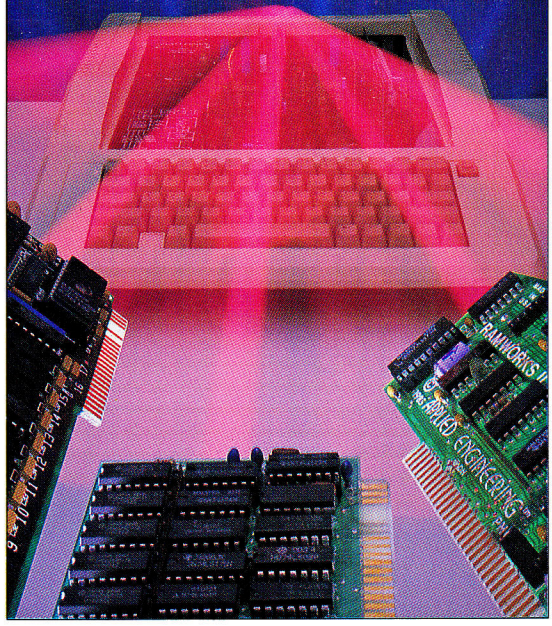


Remember when a megabyte of RAM was something that only a mainframe could muster? Times have changed—for the better. RAM is now inexpensive, but what can you do with a megabyte or more on an Apple II? More than you might imagine.

Going Down Memory Lane

By Philip Chien

Right now, my Apple IIe has over 3 million bytes (3MB) of RAM installed. Besides the standard 64K of RAM on the motherboard and a small amount of memory reserved for input and output functions (I/O), I have three separate 1MB RAM cards, each with its own advantages and disadvantages. About the only thing they have in common is that each board uses 256K RAM chips and all of them plug into an Apple II.

Few users would ever want this much RAM, and fewer still would want to deal with three incompatible cards from three separate manufacturers. But the question is which card should you choose and how can all of that memory be used? Before you choose, read on. You'll be better prepared to take your own trip down memory lane.

The Three-Meg Apple

The AUX slot of my IIe (the one normally equipped with Apple's extended memory card and 64K of RAM) has Ramworks II installed from Applied Engineering. Slot 4 of my Apple IIe has the new Apple II Memory Expansion Card from Apple Computer. And slot 5 has the Legend S' card installed from Legend Industries, Ltd.

Apple II Memory Expansion Card

Of the various cards I tested, the Apple II Memory Expansion Card is the newest memory expansion board and has just been released by Apple Computer. Since it has the Apple name attached, it should be well supported by future programs. The card currently is compatible with the *Catalyst 3.0* desktop environment (see "How To Make An Apple II Look Like A Macintosh" in the Winter '85 issue of *The Apple II Review*), ProDOS, DOS 3.3, *Pascal 1.3* and *Appleworks* version 1.3.

Since the Apple II Memory Expansion Card is RAM based, it runs much faster than a normal mechanical drive. The card plugs into any empty slot on the Apple II, II+ or IIe. When using ProDOS, the card "looks" like a hard disk drive to the Apple IIe and acts just like one.

The name of the drive is /RAM4. If the card is not plugged into slot 4, the "4" will be replaced by the appropriate slot number. If you use the ProDOS *Filer* program to copy a program from diskette to the card, you can even boot from the card by typing PR#4.

The Apple card comes with utilities already installed in ROM chips, so there's no need for extra diskette-based software. One of these ROM programs includes an attach routine for DOS 3.3, thereby enabling you to load and run DOS 3.3 programs. After you boot DOS 3.3, all you have to do is type IN#4 to activate the RAM drive patch.

The DOS 3.3 attach routine is a nice feature, but not as powerful as it could be. You can create only one RAM drive for DOS 3.3 and the drive's capacity cannot exceed 400K. This means that any memory beyond 400K on the card will be ignored by DOS 3.3. Still, a 400K RAM disk will hold a lot more data and programs than a standard 5¼-inch diskette, which holds 143K.

Here's something else to keep in mind: the DOS routine only works with standard 48K DOS 3.3. Any program that has to move DOS 3.3 up into the language card (and there are not that many) will not work.

Pascal 1.3 (Apple's latest version of Pascal, reviewed separately in this issue) automatically supports the Apple II Memory Expansion Card as an extra block device. This means you can format it, transfer files to it and use the card like any other disk drive while in Pascal.

Besides the RAM drive routines, the card's ROM also includes a diagnostic routine that verifies whether each of the RAM chips is working properly.

Having ROM utilities on the card is convenient. You can use the card without worrying about booting up special software to take advantage of its features. But ROM drivers are generic routines designed to please everybody. They're also "frozen" in firmware; unlike diskette-based software, ROMs are forever (unless you physically remove the chips at a later date and replace them). Consequently, ROM routines cannot be optimized for every application.

Some newer programs bypass the ROM routines in order to directly access the Apple II Memory Expansion Card. *Catalyst 3.0,* for example, can automatically load and use programs from the Apple card. The latest release of *Appleworks,* version 1.3, uses the card to expand the *Appleworks* desktop up to 1,012K.

Unfortunately, *Appleworks* has not been updated to take advantage of all the extra memory. The word processor is still limited to 2,250 lines and the data base is limited to 1,350 records. While you can put more files on your desktop, those files cannot be much larger than those on a standard Apple II without the Apple II Memory Expansion Card.

Legend S' Card

The Legend S' card is the granddaddy of Apple memory cards and is based on the oldest memory-mapping technique. It was designed originally for the Apple II and II+ computers, but also works in the Apple IIe. It will work in any standard slot of either machine, including slot 0 of an Apple II or slot 3 of an Apple IIe. In slot 0 of an Apple II, the Legend S' card will look like a 16K language card. It will even work in slot 3 of a IIe without interfering with any card in the Apple IIe's AUX slot.

Since the Legend S' card was designed to work with earlier Apples, it looks to the computer like several 16K RAM cards strung together. Included with the Legend S' card are several DOS 3.3 utilities, including software for creating a RAM disk. Software for ProDOS, Pascal and CP/M RAM disks is available as an option.

Die-hard Apple III fans will be pleased to know that the Legend S' card works well in that machine. An optional SOS driver is available that lets you use the card as a RAM disk in the Apple III's native mode.

The Legend S' card also comes with an *Appleworks* expander utility that enlarges the *Appleworks* desktop to 1,016K and allows *Appleworks* to run on an Apple II+.

Since the Legend S' card is based on the memory-mapping techniques of early Apples, the manufacturer came out with the Legend E' card for the Apple IIe. This card replaces Apple's extended memory card, allowing an Apple IIe to be expanded up to 1MB of memory. The Legend E' card emulates Apple's standard extended memory card, but instead of one 64K bank of memory, the card has up to 16 banks of 64K each.

In addition to a standard 80 columns of text, the Legend E' card comes with 16 color RGB video capabilities and a special black-and-white video port. The card is supplied with an adapter cable, sporting the same DB-15 connector used by Apple Computer's own RGB monitor. It does not come with the cable that attaches to the monitor, so the cable has to be purchased separately. The RGB video is crisp and clear.

The black-and-white video port is a little more unusual and even more interesting. It produces an image with 16 levels of gray. Instead of a fuzzy black-and-white display with color dots mixed together (the kind of display you'll see when running a color program on a black-and-white composite monitor), the gray port on the Legend S' card delivers a crisp picture almost as sharp as a black-and-white photograph.

The gray video is supported by a special version of the Computereyes capture program (see the review of Computereyes elsewhere in this issue for more information on video digitizing) but, right now, no other software that we know of supports the Legend E' card's gray video. It's a unique feature and hopefully other software developers will start to use it.

The Legend E' card comes with an *Appleworks* expander that can expand the desktop up to 1MB of free space and DOS 3.3 disk emulators. ProDOS, Pascal and CP/M disk emulators are available separately.

Ramworks II

Similar to the Legend E' card in design, but more expandable and powerful, is Applied Engineering's Ramworks II. With Ramworks II, you can start off with as little as 64K of RAM and expand to as much as 3MB, using only one slot in your Apple IIe. The standard Ramworks II card will accept four rows of either 64K or 256K RAM chips, for up to 1MB of RAM on the card itself. A "piggyback" board will hold two more banks of memory for an extra 512K of RAM.

A very special (and rather expensive) 2MB piggyback board is also available. With this piggyback board installed, Ramworks II can grow to 3MB of RAM arranged in 48 64K banks.

There is one limitation that you should know about, if you intend to expand Ramworks II beyond 1MB. Due to the physical size of the piggyback expansion board, any board occupying slot 1 will have to be on the short side. If your board in slot 1 is longer than 13cm. (about 5"), it will physically interfere with the piggyback. Most printer interfaces are small, so there shouldn't be any problems.

As a rule, if you are using a printer interface that is the same size or smaller than the disk controller card in slot 1,

everything should fit fine. If your card is longer and you require more than 1MB of RAM, you will have to put your printer into another slot and reconfigure your software or purchase a smaller printer interface. If you have a parallel printer, the Videx Uniprint card will work quite well. If you have a serial printer, the Practical Peripherals Seriall will work. (Many other products will work, too.)

Most users will never need more than 1MB of RAM. Those who do can easily purchase a replacement printer interface, if required.

Besides memory expansion, Ramworks II also has other features. An RGB adapter plugs into the back of the card. This card provides RGB video and, as a bonus, color text. Two switches on the RGB card let you select what color text you want on your RGB monitor. Available colors include white, green, amber and blue.

You can even select the color of the text and background for each letter in 40-column screen mode. While most programs don't use this feature, the few that do can highlight warning messages in color and make displays more interesting and easier to read.

Ramworks II can also expand your Apple's computing power. A coprocessor port is provided for expansion. In the near future a board will be available that will let your Apple run 16-bit software.

Ramworks II comes with RAM drive software for ProDOS and DOS 3.3. Pascal and CP/M RAM drives are available separately. I especially like Applied Engineering's DOS 3.3 RAM drive software. It comes with a utility that speeds up DOS 3.3, which allows you to partition the memory into several large drives and gives you an audiovisual indicator when it's in use.

Whenever your computer reads from the RAM drive, the letter "R" will flash on the lower right hand corner of the screen. When it writes information to the drive, a "W" will appear. In addition, the Apple's speaker will click. Both indicators can be turned off easily if you don't want to use them.

The *Appleworks* expand software that comes with Ramworks II is the most powerful and flexible software of its kind. It will work with any version of *Appleworks* and adds several additional features besides expanding the desktop. With Applied Engineering's *Super Appleworks Expand* software in effect, the *Appleworks* desktop is raised to as much as 2,277K (that's 2.2MB) free with a 3MB Ramworks II card.

Besides enlarging the desktop, *Super Appleworks Expand* also expands the maximum records in the data base up to 16,300 and the maximum number of lines in the word processor up to 16,300. That's enough space for a massive mailing list *and* a small novel in memory at the same time. If you have a ProDOS-compatible clock, *Appleworks* will also display the time at the bottom of the screen.

What's more, if you have a compatible printer interface, *Appleworks* will automatically use part of the Ramworks II memory as a printer buffer. If you want, *Appleworks* will even load itself into Ramworks II to increase speed when switching between different *Appleworks* modules.

Apple Versus IBM

An Apple IIe equipped with a RAM card and Ramworks-modified *Appleworks* software raises the Apple II to at least the same level as the IBM PC. Applied Engineering recently ran a test between an Apple IIe and an IBM PC to prove this point. Both machines had 640K of RAM. The Apple IIe had a Ramworks II installed and used the expanded version of *Appleworks*. The IBM was equipped with *Symphony*, a popular and powerful integrated business package from Lotus Development Corp.

Using the Apple was the author of a book about *Appleworks*. Using the IBM PC was one of the authors of *Symphony*. Both users were given a business plan to produce that included word processing, spreadsheet and data base functions. Each competitor was given three hours to complete the assignment. Guess what happened? While the Apple user finished everything on time, the IBM user couldn't get everything done.

Three Million Bytes—Who Needs It?

Apple IIe and IBM PC clashes aside, the new crop of RAM cards brings up a major question. Why would anybody want RAM running into the megabyte range? When I first purchased my Apple more than eight years ago, I got my machine with an incredible 16K of RAM—and that was twice as much memory as my old DEC PDP-8 minicomputer!

For now anyway, 3MB of RAM is impractical for most users. In fact, most people may never need more than 256K in their computer. Many (but not all) microcomputer programs that require more than 256K are filled with help screens, are inefficiently written or both.

But there are ways to use the extra memory. With *Super Appleworks Expand*, for example, you can set aside a portion of that memory as a buffer and load *Appleworks* into part of the memory. It's also quite easy to set up large memory cards as RAM drives and then load entire programs into the space.

For the most part, though, any memory beyond 64K in an Apple is fairly difficult to access. The reason is that the Apple II's microprocessor can only address up to 64K of memory at any given moment. The key phrase is *any given moment.* Memory can be chopped up into 64K banks and each bank can be selected and accessed, one at a time, by the 65C02 microprocessor.

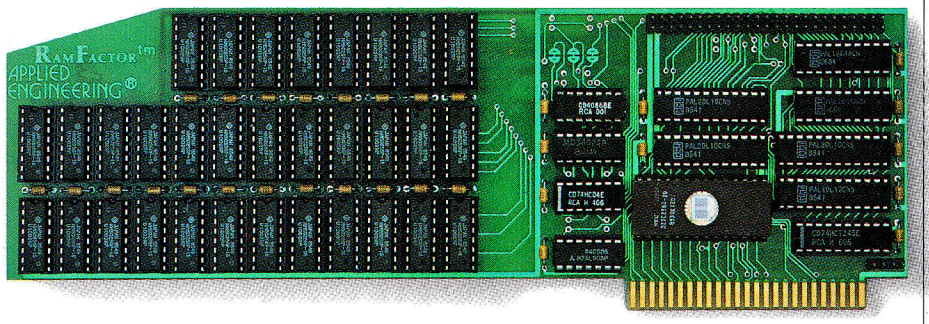
Many of the newer, more powerful programs take advantage of this banking technique. That's why they require 128K of RAM, even though the microprocessor can only work with half of that space at a time.

RamFactor™

All the Performance, Speed, and Software Compatibility of RamWorks™ in a Slot 1 through 7 Card.

That's right! Now Applied Engineering offers you a choice. While RamWorks is the clear winner for the auxiliary slot in a IIe, RamFactor is the standard for slots 1 through 7. Now anyone with an Apple II+, Franklin, or Apple IIe preferring to use slots 1 through 7 can now enjoy the speed and performance that until now was only available with RamWorks.

With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 meg on the main board and up to 16 meg with additional piggyback card. And since virtually all software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger data bases, and expanded spreadsheets.



Very Compatible

All the leading software is already compatible with RamFactor. Programs like AppleWorks, Pinpoint, BPI, Managing Your Money, Dollars and Sense, SuperCalc 3A, PFS, MouseWrite, MouseDesk, MouseCalc, Sensible Speller, Applewriter IIe, Business Works, ReportWorks, Catalyst 3.0 and more. And RamFactor is fully ProDos, DOS 3.3, Pascal 1.3 and CP/M compatible. In fact, no other memory card (RamWorks excepted) is more compatible with commercial software.

AppleWorks Power

There are other slot 1-7 cards that give AppleWorks a larger desktop, but that's the end of their story. But RamFactor is the only slot 1-7 card that increases AppleWorks internal memory limits, increasing the maximum number of lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 5¼", 3½", and hard disks. All this performance is available to anyone with an Apple IIe *or* II+ with an 80 column card. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

True 65C816 16 Bit Power

RamFactor has a built-in 65C816 CPU port for direct connection to our IIe 65C816 card for linearly addressing up to 16 meg for the most powerful 16 bit applications. (II+ 65C816 card under development.)

Powerful Program Switcher

With RamFactor, you can organize memory into multiple work areas and switch between them. Each work area can contain different programs and even different operating systems. Now you can switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/M to Pascal to ProDos in under a second. And with our Battery back-up option, you can have permanent storage for up to 20 years.

Quality and Support of the Industry Leader

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

Features:

- Up to 16 meg total memory, 256K to 1 meg on main board. Up to 16 meg with additional memory on piggyback card.
- Fully Apple II Memory Expansion compatible
- Compatible with Apple IIe, II+ and Franklin
- Battery back-up option allows you to turn on your Apple and run your favorite programs in less than 1 second!
- Automatically recognized by ProDos, DOS 3.3, Pascal and CP/M
- Built-in RamDrive™ software (a true RAM disk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Built-in linear addressing 16 bit co-processor port
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or later
- Allows Apple II+ and IIe to run your AppleWorks without buying additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDos clock
- Fits any I/O slot except slot 3
- Fully socketed and user upgradeable
- Much, much more

RamFactor with 256K	**$239**
RamFactor with 512K	**$289**
RamFactor with 1 MEG	**$389**
RamFactor with 2-16 MEG	**CALL**
Battery Back-up Option	**$179**
65C816 16 Bit Card	**$159**

Order RamFactor today . . . with 15 day money back guarantee and our "no hassle" five year warranty. *Call* 9 a.m. to 11 p.m., 7 days, *or send* check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5⅛% sales tax. Add $10.00 if outside U.S.A.

Applied Engineering

The Apple enhancement experts.

(214) 241-6060

P.O. Box 798, Carrollton, TX 75006

Right now, there are only a handful of software packages around that support most memory expansion cards. These include *Appleworks* and *Pinpoint,* a desktop utility reviewed separately in this issue. If you use one of these packages, then the extra memory will be very convenient.

The rest of the memory can and will be used in the foreseeable future to work with a new generation microprocessor. The most likely candidate for the Apple II series is the WDC 65C816 from Western Data Corp. This chip can operate in two separate modes. In the standard 65C02 emulation mode, the chip will emulate the eight-bit 65C02 microprocessor built into the Apple. Programs will run perfectly, and the user will not notice any differences.

Once a special instruction is called, however, the 65C816 changes into its native 16-bit mode. In this mode, the microprocessor runs much faster and can address up to 16MB of RAM at once.

Ramworks II can be upgraded to use the 65C816 by attaching a special board to its coprocessor port. This board has just been released and will be reviewed in a future issue of *The Apple II Review.* In the 16-bit mode, the 65C816 can address all of the Ramworks II as one continuous bank, rather than several 64K banks strung together. Other manufacturers are also entering the race to develop 65C816 options for the Apple II.

So far, there is very little software available that supports the 65C816 chip. A number of nice assemblers are available, an operating system is on the horizon and an interesting integrated business program is scheduled to be released. Key questions that many are asking include why isn't there more support and how come there aren't more programs available?

The answer is really simple. Most companies are waiting to see what Apple Computer does. If and when Apple decides to announce a 16-bit version of the Apple II, a new market is bound to open up for third-party software and hardware suppliers. These vendors will want their products to be compatible with Apple's own offerings. It's not likely that many vendors will commit time and resources to 16-bit Apple II software until Apple lays down the standard.

Is there a new Apple II in the making? Contrary to the old adage, the rumors are too good to be false! With the right 16-bit engine running the show, the Apple II will become one of the most powerful personal computers available—again!■

Philip Chien's Apple II, named Chrystal, just celebrated her eighth birthday. He is a free lance writer who has had more than 60 articles published. Phil is vice president of Earth News, a computer consulting firm in Brooklyn, N.Y., and the co-sysop of the Earth News Central BBS (718-934-0774). In his spare time, he programs computers for NASA at the Kennedy Space Center.

Product: Apple II Memory Expansion Card
Price: $299
$69 (256K Expansion Kit)
Company: Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
Requirements: Apple II, II+, IIe
Supports: RAM disk for ProDOS, *Pascal 1.3* and DOS 3.3; *Appleworks* 1.3
Warranty: 90 days

Product: Ramworks II
Price: $179 (64K)
$1,699 (3MB)
$129 (RGB color video)
$89 (16-bit 65C802 option)
Company: Applied Engineering, PO Box 798, Carrollton, Texas 75006, 214-241-6060
Requirements: Apple IIe. RGB option requires compatible monitor and connecting cable
Supports: *Appleworks* expansion; RAM drives for ProDOS, DOS 3.3, Pascal, CP/M
Warranty: 5 years

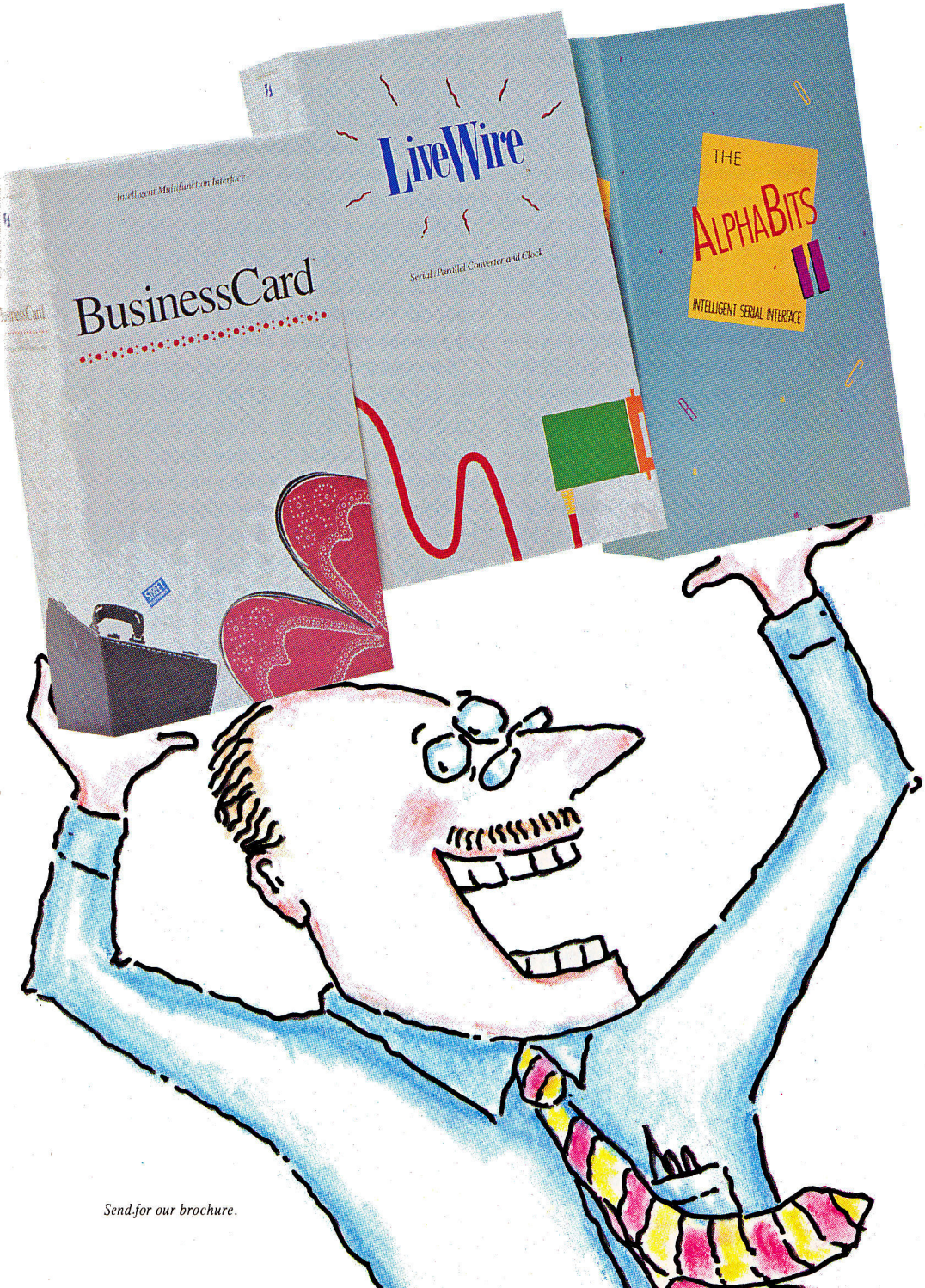
At A Glance

	Apple II Memory Expansion Card	Ramworks II	Legend E'	Legend S'
Price 64K	N/A	$ 179	N/A	N/A
256K	$299	$ 256	$199	$249
1MB	$506	$ 379	$499	$549
1.5MB	N/A	$ 549	N/A	N/A
3MB	N/A	$1,699	N/A	N/A
Hardware Required	Slot 1-7	Apple IIe AUX slot	Apple IIe AUX slot	Slot 0-7
RGB	N/A	$129	yes	N/A
DOS 3.3	up to 400K	yes	yes	yes
ProDOS	built in	yes	$30	$30
CP/M	no	$29	$30	$30
Pascal	Pascal 1.3	$29	$30	$30
Appleworks	1.3 only	1.0—1.3	1.0—1.2	1.0—1.2
Catalyst 3.0	yes	no	no	no
Warranty	90 days	5 years	2 years	2 years

N/A—Not available, option does not exist.
All data is based on information obtained from the manufacturer.

Street Smarts

Now using your Apple® IIe and IIc with printers and modems is easier than ever before. With Street Electronics' new smart Apple interfaces, "Macintosh™ -like" pull-down menus are used to activate an assortment of over 60 commands. These include double hi-res screen dump, image magnification and windowing, and selecting text style and size. The BusinessCard and AlphaBits are fully compatible with Apple's new color ImageWriter™ II and Apple Personal Modem.



BusinessCard™

Apple IIe multifunction card

- Printer port
- Modem port
- Clock/calendar with battery back-up
- 64K buffer option
- Built-in color graphics/text printing commands
- Suggested retail $219.95

LiveWire™

Apple IIc interface with clock

- Connects a parallel printer to the Apple IIc
- Built in clock calendar with battery back-up
- Includes color graphics/text printing software
- No power supply needed
- Suggested retail $99.95

AlphaBits II™

Intelligent Apple IIe interface

- Over 60 built-in hi-res color graphics and text commands
- Compatible with all popular printers and modems
- 64K print buffer option
- Works with Apple software
- Suggested retail $119.95

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Carpinteria, CA 93013
(805) 684-4593

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ImageWriter is a trademark of Apple Computer, Inc.

Product: Legend S' card
Price: $249 (256K)
$549 (1MB)
Company: Legend Industries, 2220 Scott Lake Rd., Pontiac, Mich. 48054, 313-674-0953
Requirements: Apple II, II+, IIe
Supports: RAM drives for DOS 3.3, ProDOS, CP/M; memory expansion for DOS 3.3, *Appleworks*
Warranty: 2 years
Product: Legend E' card
Price: $199 (256K)
$499 (1MB)
Company: Legend Industries, 2220 Scott Lake Rd., Pontiac, Mich. 48054, 313-674-0953
Requirements: Apple IIe
Supports: RAM drives for DOS, ProDOS, CP/M; memory expansion for DOS 3.3, *Appleworks;* RGB video, 16 level gray video; extra cables required for special video ports
Warranty: 2 years

Accelerator Cards

Review

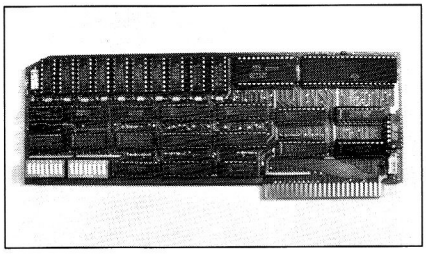
Transwarp

Hyperspace For The Apple II

Let's face it. The Apple II's 1MHz (one million cycles per second) CPU clock just isn't fast enough to keep up with other computers. While other, relatively slow computers can be speeded up simply by installing faster chips and a faster clock, quickening the Apple II isn't so simple. The reason: timing for the disk drive, video screen and many other accessories is tied in with the CPU's clock.

If you were to double the CPU clock on the Apple II, a disk drive would try to read and write data twice as fast, ending up reading every other nibble and confusing the screen display. If your modem tried to dial a phone number faster, it would confuse the telephone company.

If you want to speed up the Apple II,



Transwarp

you must speed up the CPU for all calculations. You must also slow down the CPU for screen displays and for any speed-dependent input and output (I/O) functions.

There are several popular accelerator cards available for the Apple II that can juggle these problems. We reviewed Accelerator IIe (Titan Technologies, Ann Arbor, Mich.) in the last issue of *The Apple II Review.* Now, there's another new accelerator card worthy of your attention.

Applied Engineering recently released the Transwarp. We received one of the first manufactured boards for review, and, by the time you read this, dealers should have them.

A total of 16 switches on the card define how your Apple is set up. Setting up the switches is explained clearly in the short but concise eight-page manual and is simple to do. After five minutes, we were ready to go.

Seven of the switches tell the Transwarp what kinds of cards are installed. Certain cards, such as 80-column cards and parallel printer cards, are not timing dependent. They can be used at full speed. Other cards, including modems and disk drive controllers, are dependent on the Apple II's 1MHz clock. The switches allow Transwarp to work with each one.

Another seven switches tell the Transwarp what kind of memory expansion board you have, if any. Certain memory boards must be accessed with special bank-switching techniques. As before, switches tell the Transwarp where these cards are located.

The remaining two switches define what speed you want to use.

We did find one typo in the preliminary manual. It says that the speed-up byte is "$C073." In actuality, it is "$C074." This won't make any difference to you unless you're a programmer.

The Transwarp board plugs into any standard slot in an Apple II or Apple IIe. Applied Engineering recommends that if you have an Apple IIe, you use slot 3. Apple II owners are encouraged to use slot 0. Normally, slot 3 is not used on the Apple IIe, so a Transwarp located there shouldn't force anything out. Of course, there are exceptions. The SwyftCard, Information Appliance's new ROM-based word processor (reviewed separately in this issue), also occupies slot 3.

On the Apple II, a Transwarp board simulates the Language card. This means that the Language card can be replaced with the Transwarp board, and it won't take up any extra slots.

After powering up an Apple II, the Transwarp logo appears on the screen for about two seconds before the computer begins its normal boot process. Once your Apple II boots, you don't notice any difference with the Transwarp in place—except everything will run about three and a half times faster! You may still see "Please wait" prompts in programs, but your waiting will be minimal.

Three speeds are available with the Transwarp: the standard 1.027MHz speed of the Apple II (slow); a 3.58MHz high-speed mode; and an intermediate 1.7MHz mode. Why the choice of speeds? Because there will be times when you won't want to speed up your Apple.

When you are using a program that has very sensitive timing—for example, an arcade game that is already fast enough—you may not appreciate the extra speed. Still, you can use the high-speed mode for most productivity work performed on the Apple IIe. We use the slow speed (normal Apple speed) mostly with programs that won't work otherwise. The middle speed gets the least use, although for some games it is nice to make them faster and more challenging, but not so fast as to be impossible.

It's easy to disable the Transwarp if you want to run at the standard 1MHz speed. Just hit the Escape key while the Transwarp logo is on the screen and the card shuts itself off. This is much simpler than other accelerator boards, where a preboot diskette may be required. If you need to set the speed from a BASIC program, just insert a POKE command.

Unlike other high-speed cards for the Apple IIe, the Transwarp speeds up memory located in the AUX memory slot (where the extended 80-column card normally resides). It does this by utilizing 256K of high-speed RAM: 16K of the RAM is used to speed up the ROM chips on the Apple's motherboard; 64K is used to replace and speed up the motherboard's RAM; and the rest of the memory is used to speed up the AUX memory RAM.

With many other accelerator boards, programs that use the AUX memory will be speeded up, but only when calculations occur in the Apple II's main memory. The AUX memory is accessed at the normal 1MHz speed. With the Transwarp board installed, all of the memory—both main and AUX—is speeded up.

Transwarp and *Appleworks* make an excellent combination. Since *Appleworks* is memory resident (whenever you work on a file, it is contained totally on the desktop) and uses the AUX memory on the Apple IIe, the two go together really well. When running *Appleworks* together with *Pinpoint,* the desktop accessory from Pinpoint Publishing (reviewed separately in this issue), then Transwarp really shines. The communications function of *Pinpoint,* for example, is noticeably faster.

Besides the AUX memory advantage, Transwarp is slightly faster than similar cards. Other cards use a 65C02 with a 3MHz clock rate—three times faster than the standard Apple II's 1.023MHz clock. The Transwarp uses a 3.58MHz clock—.58MHz faster than the others.

As a simple test, we wrote a two-line BASIC program that counts to 10,000. A standard Apple IIe takes 14 seconds for the program to run. Using other accelerator cards, the program runs in about six seconds. Transwarp clocked in at four seconds. For comparison, the same program takes eight seconds to run in IBM BASICA on an IBM PC. Overall, the Transwarp is as much as three and a half times faster than a normal Apple IIe for most programs and twice as fast as other accelerator boards.

All memory-resident programs that use the 6502 microprocessor will be speeded up. Programs that are heavily dependent upon input and output (for example, data base managers that use a lot of disk access, communications programs and so on) or programs that call upon the user to frequently enter information will not show as much improvement as memory-resident programs.

As an expansion option, a 65C802 upgrade is being offered that works with or without the company's Ramworks II board installed. This option includes a new 16-bit microprocessor that opens up many new possibilities. (For more information on Ramworks II and 16-bit expansion, see the "Going Down Memory Lane" feature article in this issue).

Even with the extra features and capabilities, the Transwarp is relatively inexpensive and carries a long warranty.

Product: Transwarp
Price: $279
$89 (16-bit option)
Company: Applied Engineering, PO Box 798, Carrollton, Texas 75006, 214-241-6060
Requirements: Apple II, II+, IIe
Supports: All accessories and operating systems. Will not speed up programs using CP/M or other alternate processors
Warranty: 5 years

Apple IIc Additions

Review

C-VUE

A Flat Panel Display

Many people buy an Apple IIc because of the small size and portability. But you can't just pack up an Apple IIc by itself and expect to get much work done over the weekend. The Apple IIc requires an external power supply, performs better with an extra disk drive and needs cables to hook everything together. Planning to travel with your Apple IIc? Then remember to pack a monitor as well, unless one is available at your destination.

C-VUE

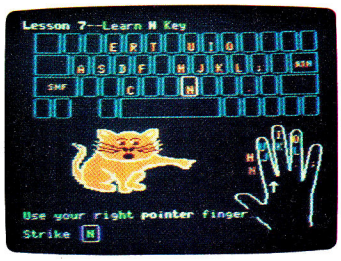
C-VUE is a new LCD display for the Apple IIc that eliminates the need for a monitor and stand. It mounts on the rear of the Apple IIc and swivels up for viewing, down for travel. Both the C-VUE display and an Apple IIc will fit inside the standard Apple IIc carrying case.

While it won't make the Apple IIc as self-contained as a laptop computer, C-VUE does make bringing the computer home a lot more practicable. The product weighs two pounds, four ounces.

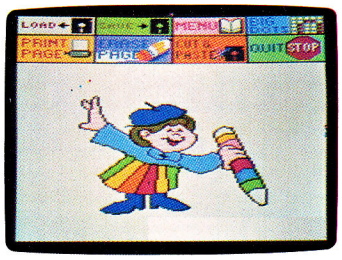
C-VUE attaches to a plastic bracket that mounts right above the computer's carrying handle. The bracket has two small plastic connectors that plug into the Apple IIc's rear cooling vents. Further stability is gained from an adhesive strip that glues the bracket to the computer's case. Installing the bracket took us about 15 minutes, and 10 of those minutes were spent waiting for the adhesive to dry.

Once the bracket is in place, mounting the display is easy. It simply slides onto the bracket and snaps into position. A short ribbon cable behind C-VUE plugs

Capture a butterfly.

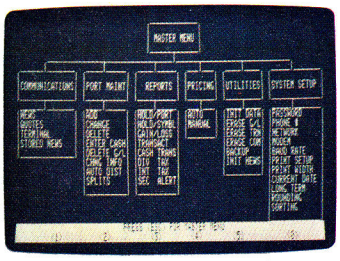


Learn to type.

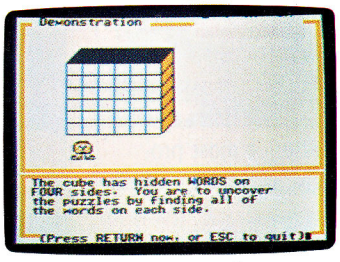


Draw in living color.

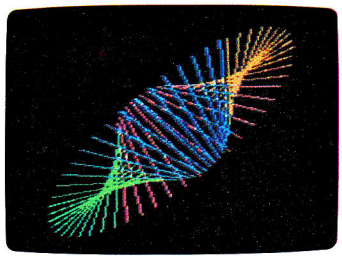
Go around the world.



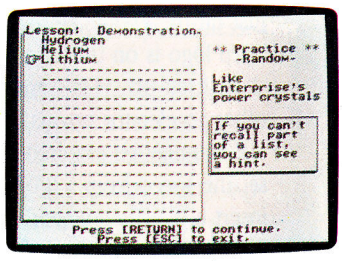
Keep up with the Dow Jones.



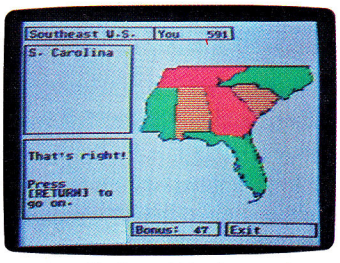
Discover new words.



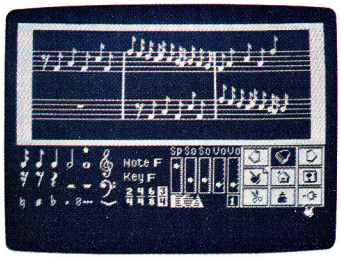
Make one of these.



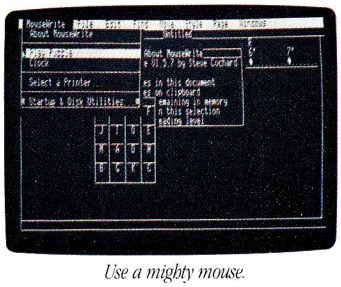
Memorize your lines.



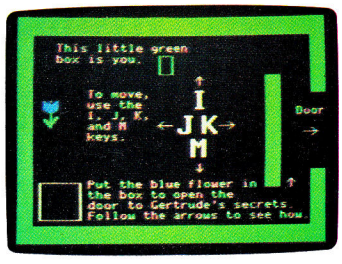
Teach your kids a lesson.



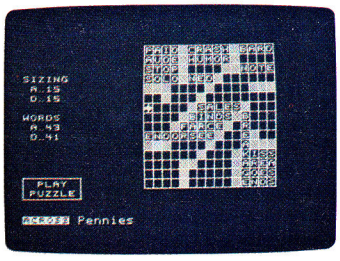
Name that tune.



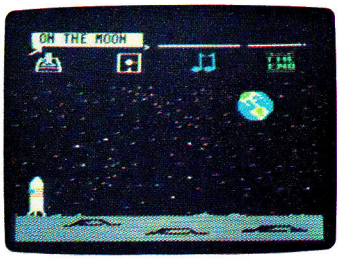
Use a mighty mouse.



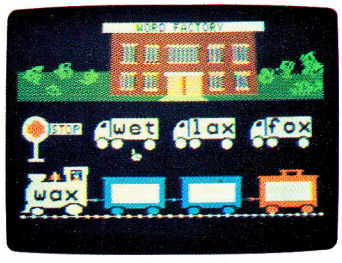
You've got a secret.



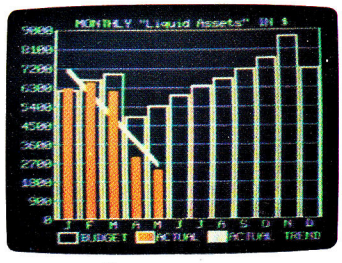
Say the secret word.



To the moon, Alice.



Read to your kids.



Manage your money.

We have more good family programs than ABC, NBC and CBS combined.

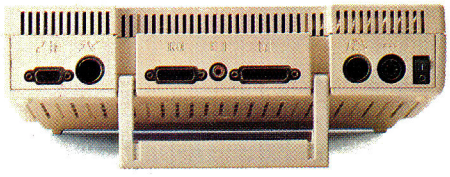
You've taped every episode of the Bill Cosby Show. Twice.

You've flipped through the channels so often that it's worn the decals off your remote control.

And your eight-year-old just came downstairs wearing 12 of your best gold necklaces and asked you to give him a Mohawk haircut, *fool!*

If those are recurring plot themes around your house, maybe it's time you looked into an Apple® IIc Personal Computer.

It can run over 10,000 different

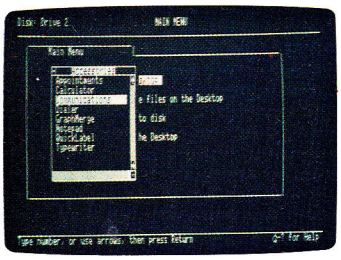


If you can plug in a TV, you can hook up a IIc.

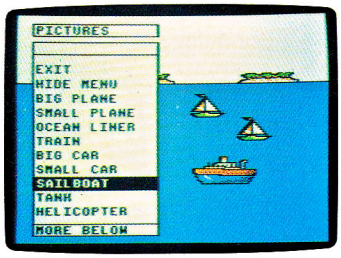
programs, the world's largest library of personal computer software. So no matter what anyone in the family wants to do, an Apple IIc can help them do it.

You can manage your personal finances with programs like Dollars and Sense and Tax Preparer.

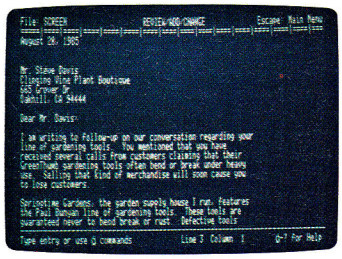
Pop a program like AppleWorks™ into its disk drive, and you've got an



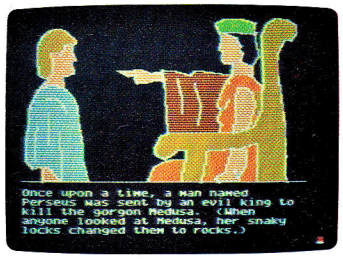
Organize your life.



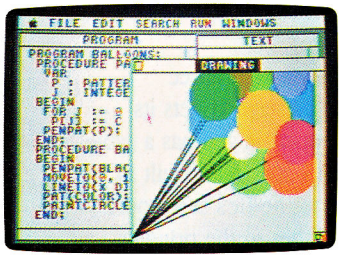
Boot a boat.



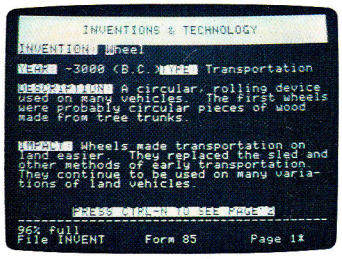
Write a wrong.



Compute a bedtime story.

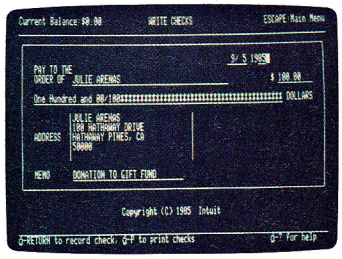


Draw on our resources.

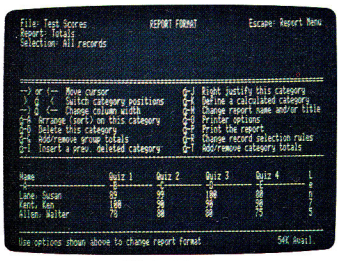


File useful information.

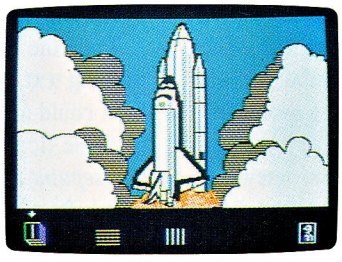
Learn to fly.



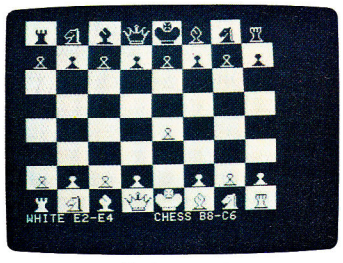
Check your finances.



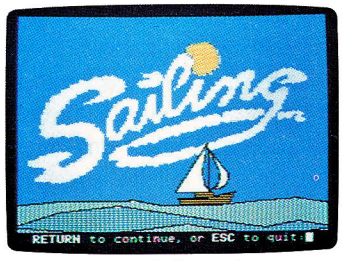
Work at home.



Solve mysteries.



Check your mate.



See what's on sail.

integrated spreadsheet, word processor and data base to help you catch up with your work at home.

Or you can select from thousands of specialized programs for doctors, lawyers, contractors, farmers, brokers, screenwriters or just about any other legitimate business.

And the Apple IIc is a compact version of the computer that's used in schools more than all other computers combined—the Apple IIe.

So, unlike TV, it can teach kids more valuable lessons than how to drive a car through the side of a building without getting a scratch.

Of course, the Apple IIc isn't all work and no play. In fact, it can provide greater fun, adventure and excitement than the networks during the new season premieres.

There are programs that let you travel space, solve mysteries, explore jungles, become an instant millionaire, get elected president and save the world.

And an Apple IIc is easier to set up than the average VCR. Just take it out of the box, plug in two cords and you're ready to compute.

Plus you can just as easily add things like our new ImageWriter™ II printer, ColorMonitor II, Apple Personal Modem, mouse and external disk drive.

To see everything an Apple IIc can do live and in person, visit any authorized Apple dealer.

While they may not have all 10,000 software packages on hand, you'll find plenty of programs the whole family will want to run.

And rerun.

An Apple IIc has more accessories than a Veg-O-Matic. Including our ImageWriter™ II printer, Apple Personal Modem and UniDisk™ 3.5 disk drive.

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Apple IIc Additions

into the Apple IIc's external monitor port using a standard 15 pin connector. This cable provides both 12 volt power and serial data output, so no batteries are required.

C-VUE is an attractive, well made unit that looks right at home on the Apple IIc, so we were hoping for the best when we switched on the computer and booted up *Appleworks*. Somehow, we hoped that Seiko, the manufacturer, had overcome earlier problems with LCD displays that make them difficult to read except under ideal lighting conditions.

Unfortunately, this was not the case. C-VUE's screen was difficult to read until we positioned a pharmacy lamp directly overhead. Once we found a workable position using the lamp and the contrast adjustment control, we felt comfortable with C-VUE.

If it weren't for the lighting problem, C-VUE would be a great product. Individual characters are fully displayed 80 columns across and 24 rows down, and the screen can display Apple graphics. All software we tried was compatible. Also, the screen seemed to refresh itself just as fast on C-VUE as on a standard monitor. The problem with earlier LCDs that scrolled with a wavelike rhythm is gone.

Flat screen technology is now in flux. Some computer companies are bringing out back-lit LCD screens to make them easier to read. Others are turning to electroluminescent displays—easier on the eyes, but a lot more expensive. C-VUE seems to be about as good as any standard LCD screen on the market. Whether its benefits outweigh a fundamental readability problem except under the best lighting conditions is for the buyer to decide.

Product: C-VUE
Price: $360
Company: Precision International, Inc., 3030 Business Park Dr., Ste. E, Atlanta, Ga. 30071, 800-334-0275 or 404-449-8025
Requirements: Apple IIc
Supports: N/A
Warranty: 90 days

Review

Hotlink And Grappler C

Eliminates The Serial Blues

The Apple IIc's printer port is hardly a standard in the world of personal computers. While it is a serial port (and serial ports are common enough), it uses a DIN 5 connector instead of the more common DB-25 connector. Apple Computer decided to use serial connectors to avoid RFI interference and DIN 5 connectors because they're easier to use; no screwdrivers are needed to attach cables. For the most part, Apple's objectives have been met and most people are happy. But if you have a parallel printer, then you can't attach it directly to your Apple IIc.

It is possible to use a serial-to-parallel converter with the Apple IIc. Normally, you'll need three items: an Apple IIc to DB-25 serial cable; a serial-to-parallel converter; and a power source for the converter.

The Hotlink combines all three products into one package. It gets its power from the Apple IIc and has a cable with the IIc's DIN 5 connector built in. One end attaches to the IIc's serial port. The other end attaches to the printer's parallel port. As a result, the Hotlink allows any standard parallel printer to connect to the Apple IIc.

While the Hotlink is quite suitable for printing text, some incompatibility problems could arise with graphics. Many newer Apple IIc programs, including *Mousepaint* and the print screen commands from *Catalyst 3.0,* are designed specifically to work with the Apple Imagewriter or a compatible printer such as the Apple Scribe. Most non-Apple printers, such as Okidata and Epson, use their own command codes, which are not compatible with the Imagewriter.

Hotlink And Grappler C

The Grappler C is a serial-to-parallel converter designed to circumvent this problem. It acts as a translator, taking whatever Imagewriter codes are sent to it and translating them into codes needed for whatever parallel printer is attached. In this regard, it goes a step beyond the Hotlink.

For example, the Imagewriter command to start underlining is Escape X. But the Okidata series uses Escape C and Epsons use Escape-Ctrl-A. The Grappler C receives the Escape X and "knows" that the user wants the printer to start underlining. It will then send an Escape C or Escape-Ctrl-A, depending on what kind of printer is attached.

The Grappler C has four switches for selecting what kind of printer the user wants. Switches also activate the graphics and text modes. The additional circuitry on the Grappler C uses more current than the Hotlink, so the Grappler C comes with an AC adapter that must be plugged into a power outlet.

There are limitations to the emulation mode. Since the Imagewriter uses smaller pins in its print head than many printers, a true Imagewriter will print smaller, denser and finer pictures than similar pictures printed on, say, an Epson in emulation mode. In addition, each printer has its own special quirks and features that are occasionally used by exotic programs. For example, a printer may not have all of the foreign character sets built into an Imagewriter.

For the most part, the Grappler C does a good job of translating codes. Hi-res pictures dumped to our Okidata looked slightly different than similar dumps to an Imagewriter. But if you were handed both pictures, without being told which one was which, it would be difficult to guess what machine they were printed on.

We have a couple of complaints with the Grappler C. The manual recommends that you unplug it when the printer is not in use, and we found that rather inconvenient. In addition, the small switches used to configure the text/graphics mode are slightly difficult to reach when the units are mounted on the back of the printers.

Product: Hotlink and Grappler C
Price: $69 (Hotlink)
$119 (Grappler C)
Company: Orange Micro, 1400 N. Lakeview Ave., Anaheim, Calif. 92807, 714-779-2772
Requirements: Apple IIc; parallel printer
Supports: Grappler C emulation modes support Okidata, Epson, C Itoh and Gemini printers
Warranty: 1 year

LiveWire

LiveWire

For Parallel Printers

An intelligent converter cable with a built-in clock, LiveWire connects the Apple IIc with a parallel printer. According to its vendor, LiveWire eliminates the need for a serial printer (such as the Imagewriter) to connect to the serial port on the Apple IIc. Parallel printers from Epson, Okidata and many other vendors may be used.

LiveWire also includes a clock/calendar with battery backup. Built into the LiveWire's connector, the clock allows time and date stamping of ProDOS files.

The manufacturer adds that LiveWire incorporates a low-powered microprocessor that uses power from the host computer. As a result, no additional power supplies are required.

In addition, LiveWire comes with software for printing text and graphics to parallel printers. The software utilizes "Macintosh-like" pull-down menus.

Product: LiveWire
Price: $99.95
Company: Street Electronics Corp., 1140 Mark Ave., Carpinteria, Calif. 93013, 805-684-4593
Requirements: Apple IIc; printer
Supports: ProDOS; parallel printers; mouse
Warranty: 1 year

Computer Vision

Review

Computereyes

Digital Pictures

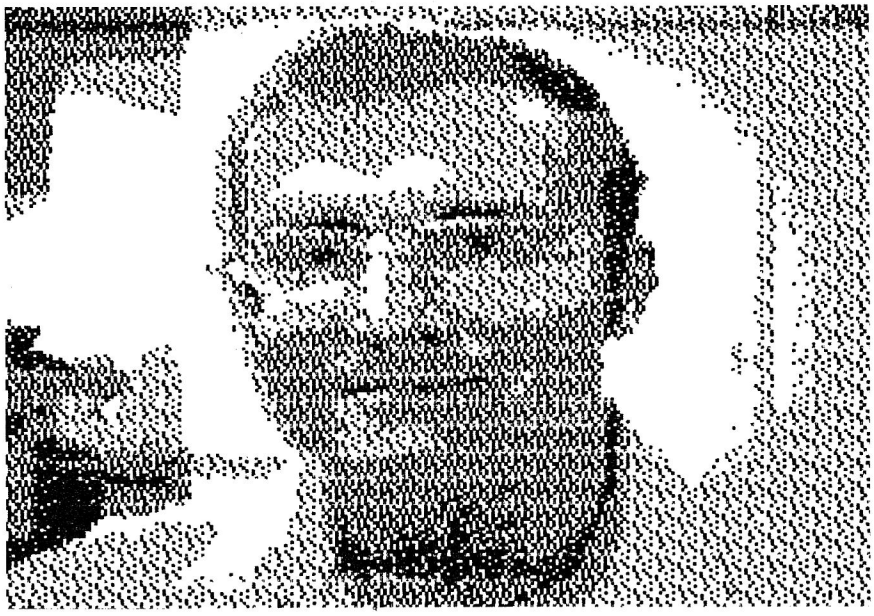
Smile! Have you ever wanted to put your picture on an Apple II hi-res screen? With Computereyes you can. Computereyes is a video interface that attaches a video camera to your Apple's 16 pin game port. Essentially, it's a video-to-digital converter that converts a standard composite video signal into an Apple hi-res screen. Obvious applications include robotic control, handicapped aids and security recognition circuits. We like it even more because it's fun.

Most similar devices cost between $300 and $3,000, but Computereyes retails for only $129. One reason for the low cost is that it attaches to the Apple's game port. Since the game port has all the interface circuitry Computereyes needs, the user doesn't have to pay for a separate interface card.

The tradeoff is speed. Limited by the speed of the Apple's TTL circuits, a typical screen scan takes about eight seconds.

The software with Computereyes uses three levels of contrast resolution: a single

Computer Vision



Computereyes output (top) and packaging

pass mode, a four pass mode and an eight pass mode. The single pass mode is best for line drawings and recognition circuits, and we found the four pass mode quite adequate for taking pictures of real life objects. The eight pass mode gives enhanced resolution, but it takes almost a minute to scan the screen. We found it useful only for still objects and pictures. After a picture is captured, it can be saved as a hi-res file and used with any hi-res program.

Computereyes can be used with any video device that has a standard composite video output. This includes video cameras, television tuners, video tape recorders, video CD players, satellite receivers and almost any video device that produces a still composite video picture. If you want to use a VCR, then we highly recommend a unit with high quality, freeze frame capabilities (e.g., four or five heads).

The software and hardware are easy to operate and well documented. The program is written in Applesoft BASIC with machine language capture routines and includes a help command and demo. The manual documents how to use each of the routines from within your own program. We found it easy to add a dump picture command for our printer by adding a couple of extra lines to the program.

Besides a capture and save program, there are several optional utilities available. This includes a double hi-res graphics conversion program that converts captured images into *Printshop* or *Newsroom* form. The source code is also available for machine language programmers.

A special version of Computereyes software is available for use with the Legend E' card (see "Going Down Memory Lane," a feature article in this issue). If you attach a monitor to the E' card's monochrome gray level port, the result is a high quality picture with very clearly defined borders. You can also get interesting "false-color" pictures by attaching a color monitor to the standard Apple video jack.

A special version of Computereyes is available for the Apple IIc that attaches to the IIc's serial port.

Computereyes is available by itself, or with an inexpensive video camera similar to a security camera you might see in a department store.

Computereyes is fun and inexpensive. If you enjoy using video cameras, or making pictures on your Apple, then you'll like Computereyes.

Product: Computereyes
Price: $129 (specify standard or IIc version)
$399 (with video camera)
$15 (double hi-res software)
Company: Digital Vision, Inc., 14 Oak St., Ste. 2, Needham, Mass. 02192, 617-444-9040
Requirements: Apple II, II+, IIe; special version for IIc; disk drive
Supports: ProDOS and DOS 3.3; extra utilities available; any standard composite video input
Warranty: 1 year on Computereyes; 90 days on camera

Maintenance

Review

Applesurance

Health Care For Apples

Applesurance is a disk controller card with a twist for Apple II computers. It was designed a couple of years ago by Prometheus Products, Inc. and is now distributed by Jameco Electronics.

Besides operating as a standard disk interface card, Applesurance includes automatic diagnostic routines. When your Apple is turned on, the card checks the Apple's ROM and RAM chips for memory errors. If it finds trouble, then the card will tell you with on-screen messages. After the diagnostics are finished, the diskette boots normally and the Apple operates as always. The diagnostic check takes about five seconds to run. If you are in a hurry to run a program, you can by-

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Just fill out and mail the coupon below. Or for faster delivery, call toll-free **1-800-346-6639** in CA, NV, AZ, ID, OR, WA, and UT. All other states, please call Intuit, Inc. direct at **415-322-0573.**

Routine financial chores are made simple and easy. Guaranteed.

Add Quicken™ to your Apple® IIe or IIc* and you may never write another check by hand again. It's the perfect combination for individuals or small businesses who write 10 or more checks a month.

Quicken is the only personal finance software that conforms to Apple's own ease-of-use standards and links-up with **AppleWorks.™**

With a few simple key strokes, Quicken eliminates the drudgery of monthly check writing automatically.

It writes and prints all your checks. Maintains your checkbook register. Reconciles your bank statement. Categorizes your expenses and keeps track of them for budgeting, taxes and business bookkeeping purposes.

And you can forget about wasting time hunting for checks written in the past. Quicken's unique "Search & List" feature allows you to simply enter a few letters to locate, list and total checks by date, payee or category.

As sophisticated as Quicken is, it's still extremely simple to use. Or as Ellis J. Teel of Newark, California puts it:

"Anybody who knows how to turn on a computer can operate Quicken. It's the simplest program I've ever used...Quicken provides instant value."

Quicken is brought to you by Wells Fargo – the folks who've been making personal finances easier to manage for years.

That's why it pays to order Quicken now.

*Apple IIe requires extended 80 column card. Also available for IBM® PC, XT, AT, PCjr and equivalent computers at $99. © 1985, Wells Fargo Bank, N.A.

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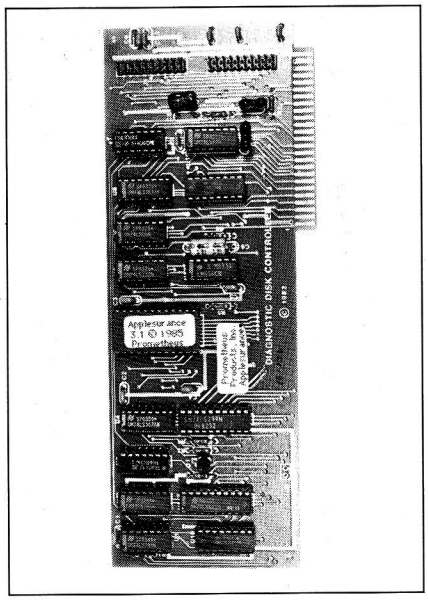
WELLS FARGO BANK

Maintenance



Applesurance

pass the diagnostics by hitting a key.

Since the diagnostic program is included on a 4K ROM chip and includes a standard disk drive boot program, it is not as powerful as diskette-based diagnostic programs. Unlike some stand-alone diagnostic programs we've seen, Applesurance provides only a checksum of each ROM; each byte in the ROM is not checked individually. In most cases, this check will be adequate. We have seen cases, however, where a checksum was correct and there was still a problem in the ROM.

The moral is to use the diagnostic results as a guide, not as law. If your results tell you that your system is okay or bad, realize that is what the diagnostic program *thinks* is happening. It could be wrong.

The card has a questionable design feature—the connectors are vertical to the card, unlike the Apple disk controller card, where the connectors are parallel. If your drive's cables have fairly large connectors, you may not be able to plug a card into the next higher slot on your Apple.

Another "feature" of the card is that it runs diagnostics only if it is the first disk drive to boot. While this prevents the diagnostics from running every time you boot another diskette, it can be annoying if you have high-density drives (e.g., a hard drive or UniDisk 3.5) as part of your system. Most of these drives have controllers occupying slot 7, which boot first when the Apple is powered up. If your Apple is so equipped, the Applesurance diagnostic routines will never run automatically, although they can still be run manually.

The card uses the same 20-pin dual-inline connectors that were used on the older Apple Disk II computers. Apple Computer changed all drive connectors to DB-19 connectors in 1984. Today, all DuoDisk and UniDisk drives use the DB-19 connector. None of these drives can be used with Applesurance.

The card is somewhat redundant. The Apple IIe has built-in diagnostics that are activated by pressing the Ctrl-Closed Apple-Reset sequence. The only additional diagnostic offered by Applesurance is a disk-speed test.

If you run across some older disk drives still using the dual inline connector, then Applesurance may make a good insurance policy. Otherwise, it may not be what the doctor ordered.

Product: Applesurance
Price: $69.95
Company: Jameco Electronics, 1355 Shoreway Rd., Belmont, Calif. 94002, 415-592-8097
Requirements: Apple II, II+, IIe; disk drive with 20-pin connector
Supports: N/A
Warranty: 1 year

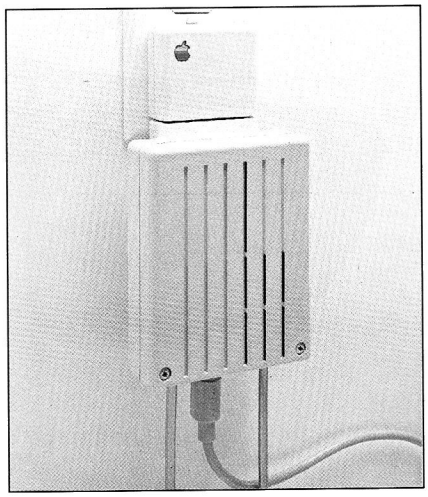
Modems

Review

Apple Personal Modem

Designer Communications

The Apple Personal Modem is not the first modem to bear the Apple Computer, Inc. logo. But it is the smallest modem sold by Apple to date and, more importantly, the first to adhere to the command set originated by Hayes Microcomputer Products, Inc., Atlanta, Ga.



Apple Personal Modem

Why is this important? Hayes pioneered the "smartmodem" concept a few users ago with its own modem line. Commands associated with these modems have since become a de facto industry standard. As a result, most communications software packages use these commands and work with any Hayes or Hayes-compatible modem.

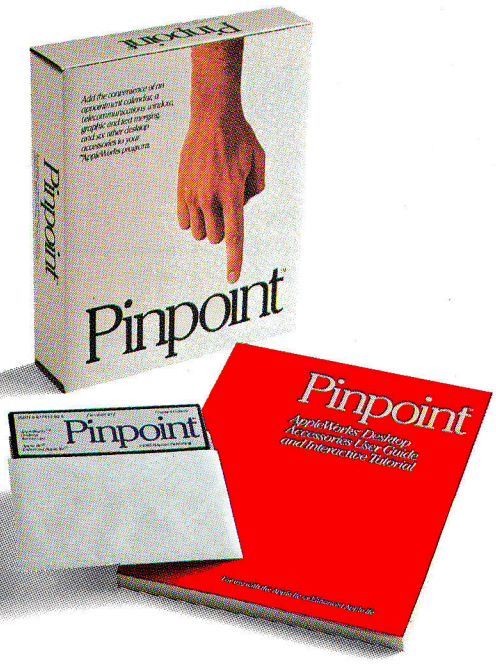
The Apple Personal Modem is a "smart" or "intelligent" modem that comes in two parts. The main plastic body is not much larger than a cigarette package and has lines and coloring similar to the Apple IIc. The smaller part is a three-prong power connector that plugs into the body at one end and into an electrical power outlet at the other. With this arrangement, everything is self-contained. There's no separate power supply to contend with (as there is with the Hayes Smartmodem line) and no desktop space to give up.

This modular concept applies to the telephone and computer hookups as well. The Apple Personal Modem has two modular phone connectors on the bottom. One line plugs into a modular phone jack (just like a regular telephone), and

"Pinpoint™ makes AppleWorks™ better than my Macintosh."

It gives me the flexibility of Mac-like desk accessories and the ability to add the features AppleWorks 'forgot.'"

Michael Fischer, Columnist, Bay Area Computer Currents.
Author, 65816 Assembly Language Programming, 1986, Osborne McGraw-Hill.



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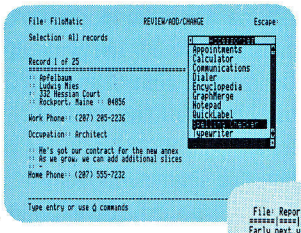

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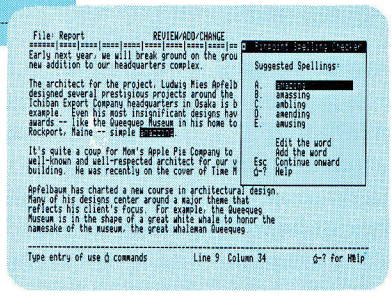

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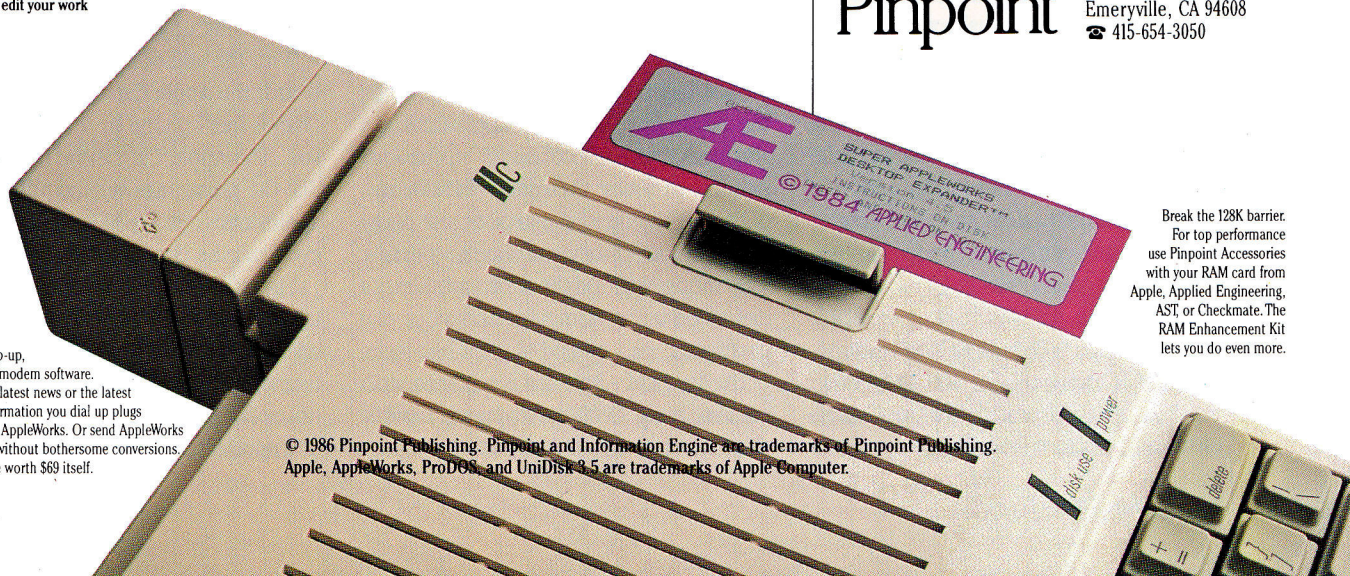

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Modems

the other may be used to plug into a standard telephone. When a telephone is connected, it can be used normally when the modem is not in use.

The only other connection required is to the computer. The Apple Personal Modem uses an eight-pin data cable. Apple supplies modem cables that work with its various computers, including separate cables for the Apple IIe using a Super Serial Card, the Apple IIc and Macintosh. While the modem uses the standard RS-232C serial port protocol specification, the eight-pin arrangement is unique to Apple, so most users will probably purchase the data cable from Apple.

We evaluated the Apple Personal Modem using an Apple IIc and Apple's *Access II* communications software. After plugging the data cable into the Apple IIc's port 2 (the one with the phone symbol above it), we inserted the modem into the wall socket. The modem gives off a beep when it is initially plugged in. This indicates that the circuitry is properly working and that the unit is receiving power. The modem uses about three watts when working and about one watt when not in use.

Since there are no switches, all features are accessed through software command or commands typed in at the keyboard. The only visual indication that communications are taking place is a small LED on top of the modem that flashes when on-line.

Like similar intelligent modems, the Apple Personal Modem has a built-in speaker for listening to busy signals, wrong-number recordings and so on. The speaker's volume is controlled by a small dial adjacent to the telephone connectors. We found it best to keep the volume near the highest setting, since our modem was positioned under a desk and three feet away from the computer. The speaker is small, so the sound quality is marginal.

In actual use, it's hard to fault the Apple Personal Modem. It worked fine with the *Access II* software at both 300 and 1,200 baud and also performed well on a Macintosh using *Macterminal*. This was not surprising. The Hayes standard has long since been perfected, and many compatible modems have come to market.

The Apple Personal Modem is a good-looking accessory, carries the Apple name and is compatible with just about everything (including the IBM PC). For potential users not concerned with the relatively high price, it's all the modem they'll need.

Product: Apple Personal Modem
Price: $399
$29.95 (Apple IIc, IIe data cable)
Company: Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
Requirements: Apple II, II+, IIc, IIe; data cable
Supports: Most Apple and third-party communications software packages

Review

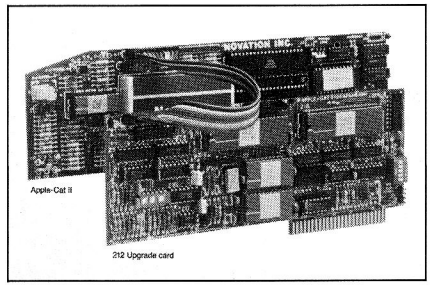
Apple Cat

Exotic Feline

The Apple Cat modem may be the most powerful modem available for any personal computer. That's a pretty strong statement, but how many modems do you know that can act like a telephone answering machine, alarm clock, message service, automatic phone dialer, extension phone and home control system?

As a modem, the Apple Cat is powerful. If you dial long-distance computers with your modem, for example, or need to access a system through a PBX, then the Apple Cat can be programmed to wait for secondary dial tones. The Apple Cat can also be instructed to dial a "7" for an outside line in rotary dial mode, wait for an outside dial tone, dial a local access number for a long-distance service in touch-tone mode, wait for the tone and then dial an on-line system and send a password.

The standard Apple Cat is a 300-baud modem, but a 1,200-baud upgrade is available. The upgrade card can either plug into



Apple Cat

a separate slot or attach to the standard Apple Cat board via a data cable. This way, it only takes up one slot in the Apple.

A variety of exotic accessories are available. A handset lets you use the Apple Cat as an extension phone or a line monitor. Optional firmware also lets you access the Apple Cat directly, without a program. The expansion module provides a LED indicator that shows when the modem is on line and expansion jacks for use with an audio recorder, remote control and BSR-X10 control module. The module even provides an extra RS-232 port for attaching a printer or alternate modem.

The most exotic (and expensive) option available is a touch-tone decoder chip. This lets the Apple Cat listen to incoming touch tones. A variety of remote control options are possible with the touch-tone chip and BSR options.

With the addition of a voice generator, the Apple Cat can be programmed to call parents and report on children missing from school. If the parent doesn't answer or the phone is busy, the program could keep dialing until it gets through.

With the addition of a speech input board, the Apple Cat can be used as a "hands-free" phone by a handicapped person. The Apple Cat can be instructed to dial the phone, answer the phone, control appliances with the BSR controller and even call the doctor in an emergency.

The Apple Cat can operate as an exotic telephone answering machine. It can pick up the phone, provide voice messages and turn on a voice recorder that operates until the caller hangs up. If the caller types in a special touch tone, he can receive any

personal messages left for him by an Apple Cat user.

Exotic Apple Cat applications are only limited by the programmer's imagination. Nothing comparable exists for any personal computer.

There is one major disadvantage to the Apple Cat. Since it is so sophisticated, special software is required. Some packages, designed to work with an external modem attached to a serial card or work with a Hayes Micromodem, may not work without modifications. Most better modem programs support the Apple Cat, but there are communications programs that won't. Apple Cat users should check this out before buying modem software.

We like the Apple Cat very much. Our only complaint is that no 2,400-baud expansion option is currently available.

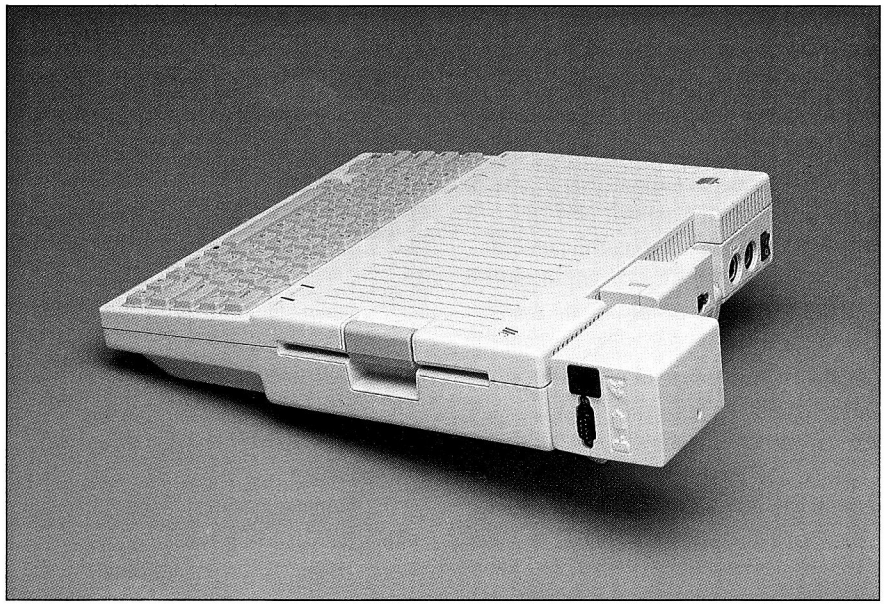
Product: Apple Cat
Price: $319 (300 baud)
$595 (1,200 baud)
$49.95 (expansion module)
$99.95 (touch-tone decoder)
Company: Novation, Inc., 20409 Prairie St., Chatsworth, Calif. 91311, 818-996-5060
Requirements: Apple II+, IIe
Supports: BSR X-10 controller, touch tone decoder, most modem programs
Warranty: 1 year

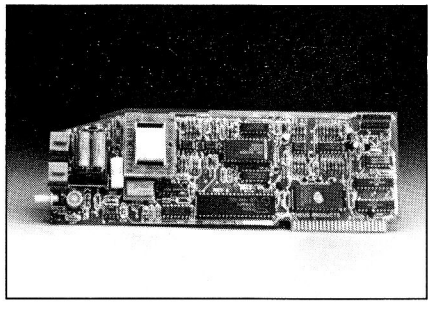
Review

Promodem 1200A And 300C

Beyond The Standard

In 1980, Hayes Microcomputer Products, Inc. introduced the Smartmodem 300, which quickly went on to become an industry standard for intelligent modems. Its sophisticated command set made this modem more powerful than existing ones, and it could attach to any computer's RS-232 interface, regardless of make. Today, most intelligent modems (including those sold by Apple Computer, Inc.) are compatible with the Hayes "AT" command set.





Promodem 300C (top) and 1200A

Prometheus makes modems that are Hayes compatible, but they have extra functions beyond the Hayes standard. The Promodem 1200A is an internal 300/1,200-baud modem for the Apple II+ and Apple IIe, and the Promodem 300C is a portable modem that plugs into the back of the Apple IIc. Both modems can automatically determine whether to use touch-tone or pulse dialing, can redial when the line is busy, wait for second dial tones (very handy with long-distance services such as Telecom, Sprint or PBX systems) and include built-in help and diagnostic programs.

The Promodem 1200A is the electrical equivalent of an Apple Super Serial card attached to a 1,200-baud modem. It plugs into two of the Apple's slots. This modem includes dual phone jacks and a built-in speaker with a volume control.

The Promodem 1200A operates in two modes. In the standard mode, a built-in miniterminal program is available. This mode allows you to access other computers and transfer files back and forth in DOS 3.3.

It also lets you print the files you receive on a parallel printer and shows the time on screen, if you have a compatible clock in your Apple. But it will not use 80-column cards, work with ProDOS or work with serial printers. The built-in terminal is convenient, but we found it only useful for quick-and-dirty sessions.

In the alternate firmware mode, the Promodem 1200A emulates an Apple Super Serial card. In this mode, the modem operates with software designed to work with a Super Serial Card and an external modem. Surprisingly, even with all of these extra features, the Promodem 1200A is slightly less expensive than a Super Serial Card and an external 1,200-baud modem.

The Promodem 300C is specifically designed for the Apple IIc. The modem operates off the IIc's power supply and takes very little current, so it's perfect for a IIc in portable operation. It's almost as

Modems

small as an Apple mouse and stays attached to the back of the IIc's case.

The Promodem 300C occupies the second serial port and covers the mouse/joystick port. However, the modem has a jack on the side that allows you to attach a mouse or joystick, so that port isn't lost.

A speaker is included on the modem's case, but there is no way to adjust the volume—it's either on or off. We didn't find this much of a limitation, though, since the speaker is loud enough to hear under normal circumstances and not so loud as to be distracting.

Unlike the Promodem 1200A, the Promodem 300C has just one phone jack. You must unplug your telephone in order to plug in the Promodem 300C. An obvious solution to this problem is to purchase a "Y" jack that lets you plug two phones into the same jack.

The Promodem 300C does have one major disadvantage. It will not operate at 1,200 baud. Hopefully, the manufacturer will eventually come out with a 1,200-baud version.

Both modems come with a decent terminal program called *ProCom,* which is "folder driven" (similar to *Appleworks*) and include a terminal program and mini word processor. It will operate in either 40 or 80 columns. The program supports file transfers and comes on a copyable ProDOS diskette. Although not as powerful as other terminal programs, *ProCom* is quite adequate for beginners and those who want to keep communications simple.

Product: Promodem 1200A and 300C
Price: $449 (Promodem 1200A)
$199 (Promodem 300C)
Company: Prometheus Products, Inc., 4545 Cushing Pkwy., Fremont, Calif. 94538, 415-490-2370
Requirements: Apple II+, IIe (Promodem 1200A); Apple IIc (Promodem 300C); disk drive
Supports: ProDOS; *Procom* communications software (supplied with product); printer; most modem programs
Warranty: 1 year

Monitors

Review

ColorMonitor IIe

The Case For Color

Apple's new color monitors have been selling well since their release late last year. We received a ColorMonitor IIe for review and were quickly impressed with its capabilities.

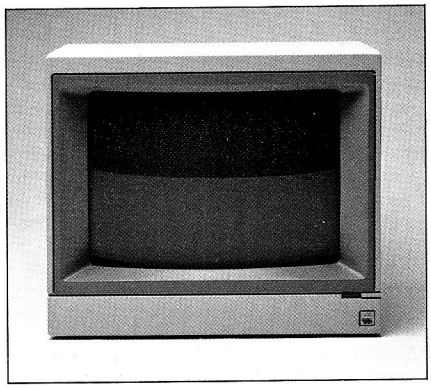
The monitor attaches to any Apple II with a standard RCA cable. No adapter boards or special cables are required, so it's as easy to set up as any monochrome monitor. Unlike monochrome monitors, however, the 13-inch screen provides vivid, full color graphics. It also delivers crisp black and white text, even in 80-column mode.

There are two different versions of Apple's latest monitor, one for the IIe and another for the IIc. Internally they are identical—the only difference is the color and style of the cases.

The ColorMonitor IIe is actually two monitors in one. Normally, an expensive RGB (Red-Green-Blue) monitor and special interface are required for displaying both color graphics and text.

Technically, the ColorMonitor IIe *is* an RGB monitor on the inside. So where's the interface that most RGB monitors require? Apple came up with a clever way to eliminate the interface card that is normally needed. A standard composite video jack "looks" at the computer's video signal. If the 3.58MHz color burst frequency is present, the signal is split from composite video into its components (red, green, blue and sync signals). Those RGB signals are then passed to the display, and the user sees color graphics on the screen.

If there is no color burst signal, then the monitor "knows" that it should be in text-only mode, and properly displays the 40- or 80-column screen. For those who prefer green text, a "green only" switch lets you change the display from black and white to a black and green display.



ColorMonitor IIe

There are a couple of minor limitations. If you have a very early (eight year old) Apple, or if you turn up the video level too high, you may fool the monitor into thinking that everything is in the color mode. Fortunately, a switch on the front of the monitor lets you force the monitor into text mode with no colors.

Another problem may crop up with certain programs. Since the monitor can be in only one mode at a time, it cannot display color graphics and 80-column text at the same time. If your program attempts graphics or 80-column text, the text will be blurry. This is a minor problem, since few programs use 80-column text and color graphics simultaneously.

Expect to pay more for the ColorMonitor IIe than you would for a monochrome or composite color monitor. But keep in mind that the ColorMonitor IIe will be less expensive overall than purchasing an RGB monitor and interface card. We feel that it's definitely worth the price.

Product: ColorMonitor IIe
Price: $399
$25 (optional stand for ColorMonitor IIc)
Company: Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
Requirements: Apple II+, IIc, IIe
Supports: Any computer with a standard video output
Warranty: 90 days

Printer Cards

Review

Uniprint

Inexpensive Graphics

When the Apple first came out, there was no way to dump a graphics screen to a printer. In fact, there was no way to print anything, since there were very few printers with graphics capabilities and no printer interface for the Apple. When Apple released the parallel interface card in 1978, it came with text capabilities, but it still could not print graphics. To this day, there is no printer graphics standard for the Apple II.

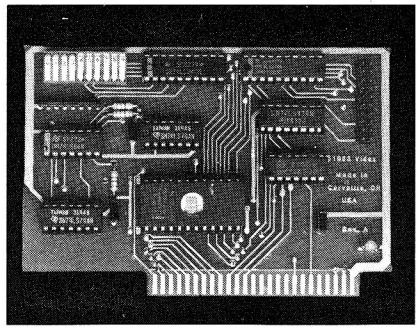
Several third party manufacturers, starting with Interactive Structures, made their own interface cards and customized them for various printers. If you had an Anadex printer with graphics, you would buy a special card customized for that printer; if you got an Okidata, you'd need a different card and so on.

On newer, more advanced graphics interface cards (usually referred to as "smart" interfaces), a set of switches determines which printer you are using. The Videx Uniprint is such a card. It's an inexpensive smart parallel interface card with built-in graphics commands.

To dump hi-res graphics on the Uniprint from a BASIC program, you simply send a Control-I G to the interface card and the picture will be dumped. Double, triple size, inverse, upside down and other modes can be selected easily. For example, putting the following command into an Applesoft BASIC program will tell the Uniprint to dump a triple size, inverse picture in the double hi-res graphics mode, on its side:

```
PRINT CHR$(9);"GTIXR"
```

The CHR$(9) is a Control-I that tells the Uniprint that a command is coming. The "G" indicates that the user wants a graphics dump. "T" indicates triple size, "I" indicates inverse (white dots on the screen will show up as white dots on the page), "X" indicates extended (double) hi-res graphics mode, and "R" tells the Uniprint to rotate the picture 90 degrees. The printout will appear as a double hi-res screen sideways, and will fill an 8½ by 11-inch page.



Uniprint

The Uniprint is an excellent, low cost parallel graphics interface card. It is inexpensive, but not a cheap card. It comes with an excellent manual and full support from Videx. Many different printers are supported and the card even supports color graphics on the color Epson and Dataproducts printers.

Although Videx's official warranty period is 90 days, the company has always had excellent in and out of warranty support. Out of warranty upgrades are usually handled for a nominal charge and repairs are generally free, as long as the customer hasn't abused the unit.

If you want a printer interface for a parallel printer that can dump graphics with ease, then check out Uniprint.

Product: Uniprint
Price: $89
Company: Videx, Inc., 897 N.W. Grant Ave., Corvallis, Oreg. 97330, 503-758-0521
Requirements: Apple II, II+, IIe
Supports: Many printers, including Epson, Gemini, Okidata, Dataproducts, Apple DMP, Anadex, Gorilla, Centronics and similar graphics printers. Epson JX-80 and Dataproducts Prism are also supported in color modes. Special cable required for Dataproducts printers.
Warranty: 90 days

Printers

Epson AP-80

An Imagewriter Alternative

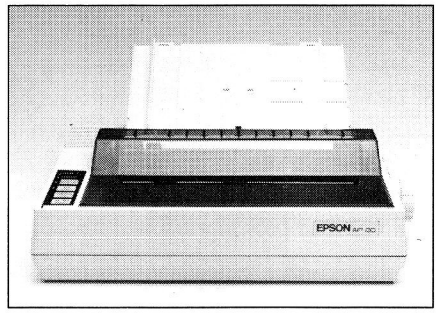
The Epson AP-80 is an 80-column dot matrix printer that features hardware and software compatibility with the original Apple Imagewriter. According to the manufacturer, it provides Apple IIc and IIe users with high-resolution graphics as well as draft-quality and near-letter-quality output.

The Epson AP-80 weighs almost 10 pounds less than the Imagewriter, is smaller and offers the following features: selectable near-letter-quality (NLQ) printing capability and software-selectable italics, boldface, double-width printing, proportional spacing, superscripts and subscripts. All of these features can be set from the printer's front panel.

The AP-80 prints draft documents at 75 characters per second (CPS). In NLQ mode, it prints business letters at 15 CPS. It also prints bidirectionally and unidirectionally, under software control.

The manufacturer states that the AP-80 printer is equipped with both friction and adjustable tractor feeds. A built-in, single-sheet loading feature facilitates the handling of single-sheet paper without requiring the user to line up the paper once it is inserted.

Product: Epson AP-80
Price: $379
Company: Epson America, Computer Products Division, 2780 Lomita Blvd., Tor-



Epson AP-80

Printers

rance, Calif. 90505, 800-421-5426 or 213-539-9140
Requirements: Apple IIc, IIe
Supports: Apple IIc and IIe hardware and software
Warranty: 1 year

Printer Buffers

Review

Microbuffer II+

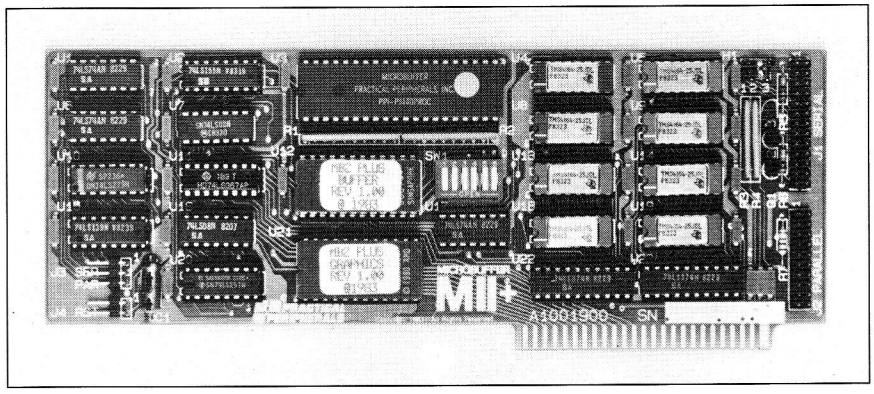
Print Buffer And More

Microbuffer+ is a multifunction card combining a print buffer with serial and parallel ports. Contrary to what the name implies, the Microbuffer II+ operates on all Apple II computers, except for the slotless Apple IIc.

Print buffers are quite handy in most cases. As a rule, your computer can send text much faster than your printer can print it. A buffer acts like a holding area to store data. It can receive characters from your computer as fast as your computer can send them, but it will send characters to your printer only when your printer is ready to receive. Microbuffer+ has a special advantage over external buffers and buffers that fit inside printers. Since it is inside your computer, it can be *controlled* by your computer.

The Microbuffer II+ can dump graphics and text to most printers. What's more, it's expandable. If you purchase the Microbuffer+ with 16K of RAM, then you can easily expand the buffer up to the 64K maximum by plugging in more RAM chips.

A switch on the Microbuffer II+ tells it to clear the buffer when you hit Reset on your Apple, or you may opt to leave the buffer alone. In either case, a Control-Z sent to the card will clear the buffer. An optional clear buffer switch is available that mounts on the outside of the Apple's case. It's useful for resetting the buffer manually.



Microbuffer II+

If you dump fairly large files, we recommend that you get the external clear buffer switch. Certain programs, notably *Appleworks,* do not let you press Reset from within the program. If you start printing a large file and find out it's the wrong one—or if the paper slips—then it's easy to clear the buffer with the external switch.

One printer can be attached to the card's parallel port and another to the serial port. The two printers can be selected through switches on the board, through software or through an optional external switch. It's even possible to print the same text to both printers at the same time. This review, for example, is being printed on a serial letter quality printer and a parallel dot matrix printer. The capability can also be used to print mailing labels on one printer and letterhead stationery on another.

Although the Microbuffer II+ is an excellent interface, the serial port has some limitations. Since it's an output port only, you cannot attach it to a modem. In addition, the port will operate only at 300 or 1,200 baud. That's faster than most letter quality printers can print, but it is slower than fast dot matrix printers.
Product: Microbuffer II+
Price: $199 (16K version)
$259 (64K version)
$24.95 (switches to reset buffer and select ports)
Company: Practical Peripherals, 31245 La Baya Dr., Westlake Village, Calif. 91362, 818-991-8200
Requirements: Apple II, II+, IIe
Supports: Most parallel and serial printers. Graphics supported on Epson, Anadex, Dataproducts, Okidata, NEC 8023, C. Itoh, Apple DMP
Warranty: 5 years

Storage

Review

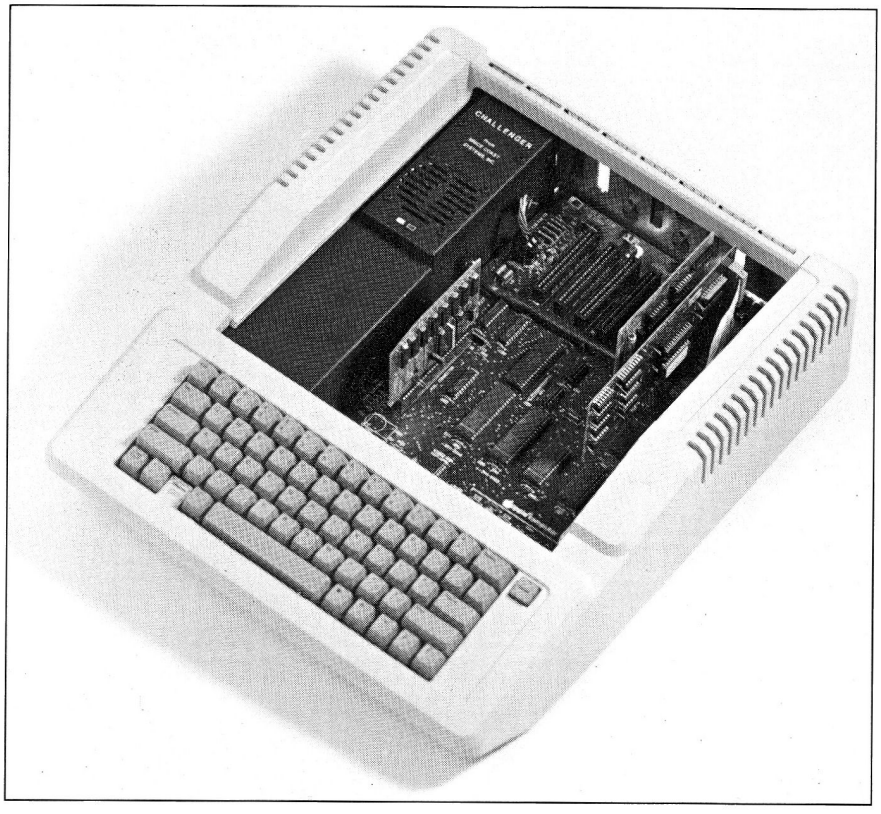
Challenger

The Inside Story

In the last issue of *Apple II Review* we described briefly an internal hard disk drive for the Apple II called Challenger. Unfortunately, the drive itself arrived too late for a full review, but it was well worth the wait.

The Challenger installs *inside* the Apple's case, so there are no bulky boxes or cables to deal with. There isn't much room inside the Apple's case, certainly not enough for a standard hard drive to be added. So the Challenger box makes an end run around this restriction by replacing the power supply with a box not much larger than the Apple's original power supply.

Engineers at Spacecoast Systems have squeezed into this box a full 20MB, 3½-inch hard drive, a controller card, fan and power supply. The power supply sup-



Challenger

plies juice for the hard drive and controller. What's more, it has more power left over for the Apple than Apple's standard power supply.

Installing a Challenger is simple. All you have to do is open up the Apple's case (nine screws), remove the power supply (four screws), put in the Challenger and screw the case back together. Challenger makes two connections to the Apple: a power supply cord, which plugs into the Apple's motherboard, and an interface cable. The cable plugs into a host adapter, which in turn plugs into the Apple. It should take less than 15 minutes to install Challenger, but if you purchase it from a dealer, the dealer will put it together for you.

The drive comes ready to use with ProDOS out of the box. The drive will boot directly into ProDOS and will also work with *Catalyst 3.0* (see "How to Make an Apple II Look Like a Macintosh," Winter 1985 issue). If you want to use DOS 3.3, Pascal or CP/M, those operating systems are also available.

A system utility called *Housekeeper* lets you set up whatever operating systems are needed. The program is menu driven and fairly easy to use. In order to add a new operating system, copy the system master for each operating system onto Challenger, then set up a user for that operating system. After the user is set up, you can assign a password and specify which volumes the user can access and which volumes are write protected. Besides *Housekeeper* and other utilities, Challenger comes with a backup/restore program that will back up the drive onto diskettes or to an optional tape streamer cartridge.

If all of these passwords and accounts make the Challenger sound like a multi-user system, it's for a good reason. Challenger *is* a multi-user system. A multiplexer and tape drive are available, and up to 64 Apples and other computers can be attached. Schools may want to use Challenger in multi-user setups, since teachers can thereby keep full control of the system.

Business and home users will find Challenger quieter and easier to use than other hard drives. Since it doesn't take up any desk space, it will fit comfortably wherever there's an Apple IIe.

There is still another advantage where Challenger will make its mark. Portability. The Apple IIc is easy to carry around, but when you add an external drive, and several boxes of diskettes, it becomes somewhat cumbersome. A traveling businessman can carry a Challenger equipped Apple IIe without any diskettes or disk drives. All of the data can be saved on the hard drive and used as necessary for demonstrations, memos, data storage and so on.

Granted, an Apple IIe, even without any disk drives, is still much larger than a IIc with an external drive and carrying case. But it is also much more powerful.

The drive adds about seven pounds to the weight of an Apple IIe, enough to be noticeable, but not enough to be an annoyance. The drive mechanism is shock resistant and designed for portable computer use, but of course, we wouldn't want to drop a Challenger equipped Apple down a flight of stairs.

We found Challenger easy to use. On our drive we placed *Appleworks, ASCII Express,* a variety of ProDOS utilities and even a couple of games. We also added several user names and passwords.

Passwords restrict privileges to users who need access to portions of the drive. We set up our disk so that certain users could read *Appleworks* data but not write to those volumes. Other passwords were set up so that some users could access just games, or just *Appleworks* and *ASCII Express.* This kind of protection insures data integrity and makes sure that limited access users won't change or destroy important information.

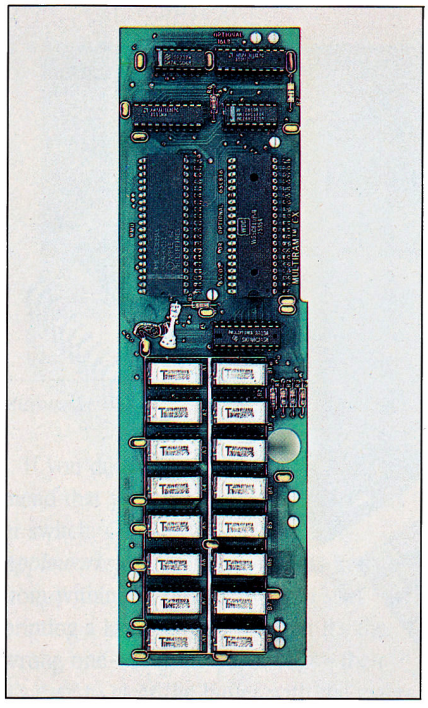
Unlike other products that are sold only by mail order, Challenger is supported by

Storage

a nationwide dealer network. The dealer will plug in, install and configure the drive with whatever features you need. Only those who can provide the extra level of support are allowed to become Challenger dealers.
Product: Challenger
Price: $1,195 (10MB)
$1,595 (20MB)
$1,595 (Backup tape streamer)
Company: Space Coast Systems, 301 S. Washington Ave., PO Drawer 2767, Titusville, Fla. 32781, 305-268-0872
Requirements: Apple II, II+, IIe
Supports: ProDOS; Pascal; CP/M; DOS 3.3; *Catalyst 3.0*
Warranty: 1 year

Significant Others

BusinessCard—Adds two serial ports (compatible with the modem and printer ports on the Apple IIc) and ProDOS clock to the Apple IIe. Includes graphic printout capability from built-in, pull-down menus. Great value. Reviewed, *The Apple II Review,* Winter '85. $219.95. Street Electronics Corp., 1140 Mark Ave., Carpinteria, Calif. 93013, 805-684-4593
Imagewriter II—Faster and with more printing modes than the Imagewriter, the Imagewriter II is among the best printer deals going. Color capability allows up to 50 pages to be printed before changing ribbons—a big advantage over the Scribe. $595 (Imagewriter II), $225 (Sheetfeeder), $99 (32K Memory Option). Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
MultiRam CX—Adds either 256K or 512K of RAM to the Apple IIc. Board includes the 16-bit 65C816 microprocessor. So far, product has limited software support in its 16-bit mode, but programmer tools are available. Reviewed, *The Apple II Review,* Winter '85. $329.95 (256K). Checkmate



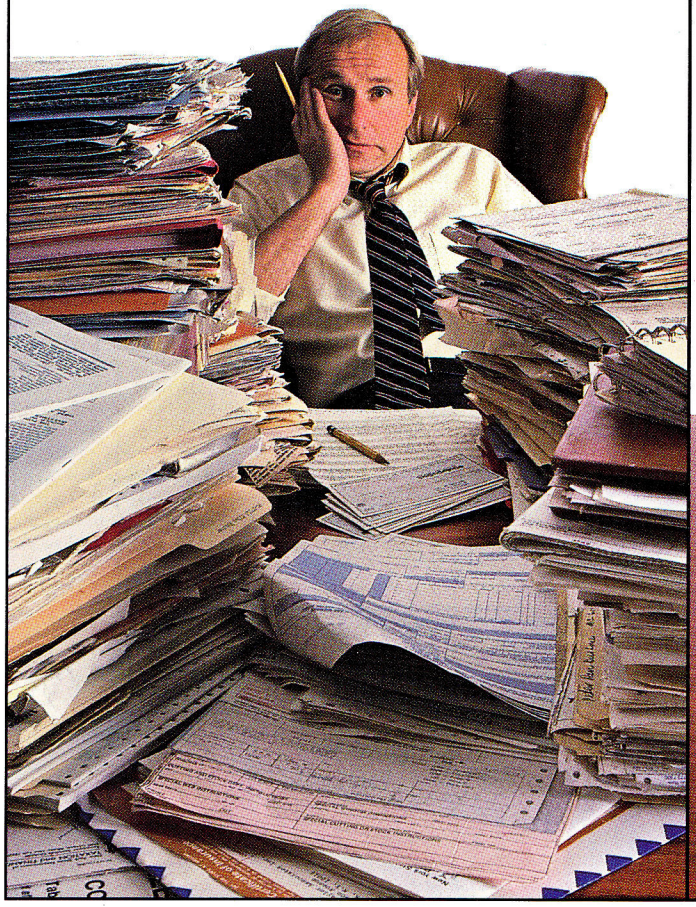
MultiRam CX

Technology, 509 S. Rockford Dr., Tempe, Ariz. 85281, 602-966-5802.
Print-It!—Intelligent printer interface that sends any screen image (including color graphics) to disk at the push of a button. Great for hassle-free printouts. $199. Texprint, Inc., 220 Reservoir St., Needham Heights, Mass. 02194, 800-255-1510
Serial Grappler—Latest revision of this pioneering intelligent interface card prints in color, using double hi-res graphics on the Imagewriter II and Scribe. Widely supported by many software programs. Reviewed, *The Apple II Review,* Fall '85. $119. Orange Micro, Inc., 1400 N. Lakeview Ave., Anaheim, Calif. 92807, 714-779-2772
Slot Buster—Board combines serial and parallel ports with speech capabilities. New *Speechworks* software works with Slot Buster to give many software packages the power of speech, including *Appleworks.* Reviewed, *The Apple II Review,* Winter '85. $229.95 (Slot Buster with speech firmware). RC Systems, Inc., 121 W. Winesap Rd., Bothell, Wash. 98012, 206-672-6909

SwitchPort IIc

SwitchPort IIc—Runs parallel printers from the serial port on an Apple IIc. No external power supply required. Reviewed, *The Apple II Review,* Winter '85. $109. Practical Peripherals, 31245 La Baya Dr., Westlake Village, Calif. 01362, 818-991-8200
The Sider—The original, low-cost hard disk drive for the Apple IIe. $695. A 20MB model is available for $995. New B-Sider tape backup device is $695. Through April 30, purchase of any of these products entitles a buyer to a free copy of *Wordperfect* 1.0 from SSI or *DB Master* from Stoneware. Reviewed, *The Apple II Review,* Fall '85. First Class Peripherals, 3579 Hwy. 50 E, Carson City, Nev. 89701, 800-538-1307
UniDisk 3.5—New Apple II disk drive uses double-sided, 3½-inch microfloppies to store 800K. Great ProDOS device for storing several programs on one diskette with or without a desktop environment such as *Catalyst* or *Mouse Desk.* Reviewed, *The Apple II Review,* Winter '85. $499 (UniDisk 3.5), $69 (Controller Card). Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
Z-RAM—Apple IIc board that adds up to 256K or 512K of RAM plus a Z-80 chip for CP/M. Plenty of software is supplied, including CP/M. Reviewed, *The Apple II Review,* Winter '85. $449. Applied Engineering, PO Box 798, Carrollton, Texas 75006, 214-241-6060

MANAGING YOUR CHECKBOOK?
MANAGING YOUR BUDGET?
MANAGING YOUR BILLS?
MANAGING YOUR CASH FLOW?
MANAGING YOUR TAXES?
MANAGING YOUR INSURANCE?
MANAGING YOUR STOCKS?
MANAGING YOUR BONDS?
MANAGING YOUR REAL ESTATE?
MANAGING YOUR TAX SHELTERS?
MANAGING YOUR SAVINGS?
MANAGING YOUR MORTGAGE?
MANAGING YOUR AUTO LOAN?
MANAGING YOUR RETIREMENT?
MANAGING YOUR CALENDAR?
MANAGING YOUR CHARGE ACCOUNTS?
MANAGING YOUR CAPITAL GAINS?
MANAGING YOUR ANNUITIES?
MANAGING YOUR APPOINTMENTS?
MANAGING YOUR DIVIDENDS?
MANAGING YOUR INTEREST?
MANAGING YOUR RECORDS?
MANAGING YOUR VALUABLES?
MANAGING YOUR KEOGH'S?
MANAGING YOUR IRA'S?



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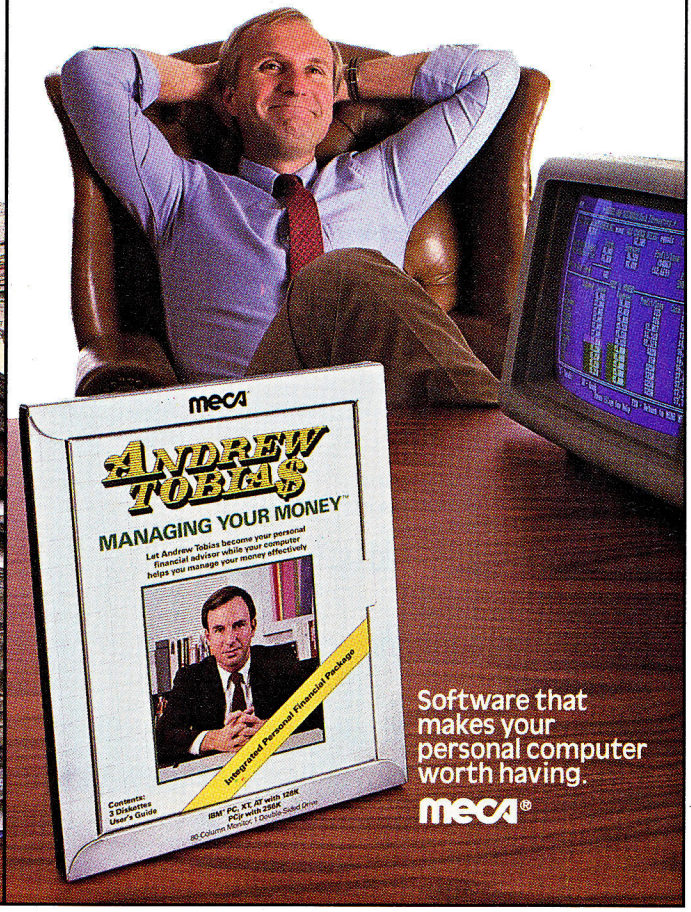

Software that
makes your
personal computer
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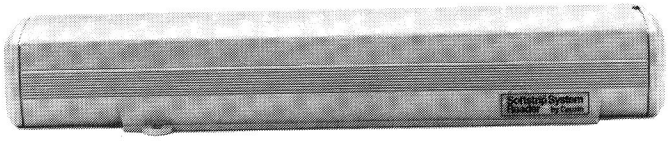
It's amazing what you can reveal when you strip.

Introducing a shape that's about to turn on an entire industry.

The Softstrip™ data strip. From Cauzin.

This new technology allows text, graphics, and data to be encoded on a strip of paper, then easily entered into your computer using a scanning device called the Cauzin Softstrip™ System Reader.



The Cauzin Softstrip System Reader replaces tedious typing by scanning the strip and reading it into your computer.

Creating a simple, reliable and cost efficient way to distribute and retrieve information.

Softstrip data strips, like those you see here, can contain anything that can be put on magnetic disks.

Facts. Figures. Software programs.

Video games. Product demonstrations. Sheet music.

The Cauzin Softstrip System Reader is now compatible with the IBM PC, Apple iI and Macintosh.

A single strip can hold up to 5500 bytes of encoded data.

It can stand up to wrinkles, scratches, ink marks, even coffee stains.

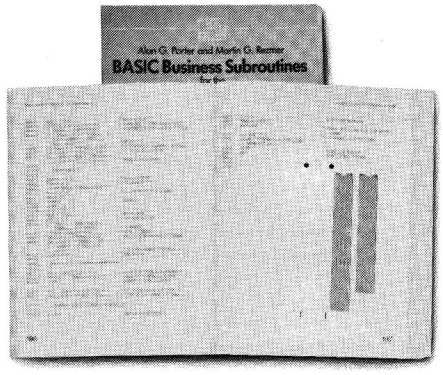
And it can be entered into your computer with a higher degree of reliability than most magnetic media.

Simply by plugging the Cauzin Reader into your serial or cassette port and placing it over the strip.

The reader scans the strip, converts it to computer code, and feeds it into any standard communication interface.

Because strips are so easy to generate, most of your favorite magazines and books will soon be using them in addition to long lists of program code.

And you'll be able to enter programs without typing a single line.



Soon everyone will be stripping as data strips appear in popular magazines, computer books and text books.

There is also software for you to generate your own strips. Letting you send everything from correspondence to business information using our new technology.

Find out how much you can reveal by stripping. Just take this ad to your computer dealer for a demonstration of the Cauzin Softstrip System Reader.

Or for more information and the name of the dealer nearest you, call Cauzin at 1-800-533-7323. In Connecticut, call 573-0150.

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AH! THOSE MARVELOUS GAME SOUNDS

Have you ever wondered where those marvelous sounds came from on your favorite video game?

The two data strips on the near right contain a portion of the program SOUND TESTER by Ed Sachs, which appeared in the March 1986 issue. This machine language program helps you generate both tones and background effects to enhance your own programs.

Read in the strips and run the program. Exit early by pressing CONTROL-RESET.

PICTURE PACKING PROGRAM

One of the most useful utilities available to Apple II users is high resolution picture packers (say that 10 times fast.) They are commonly used to store more pictures on a disk than is normally possible. For instance, an entire slide show can be stored within RAM.

DEMO is a short BASIC program that simply packs and unpacks pictures on a disk. It will give you a flavor of the more extensive program Hi-res Packer by Michael Ackerman, which appeared in the October 1985 issue.

Read in the data strip on the far right and run the program. To exit early press CONTROL-RESET.

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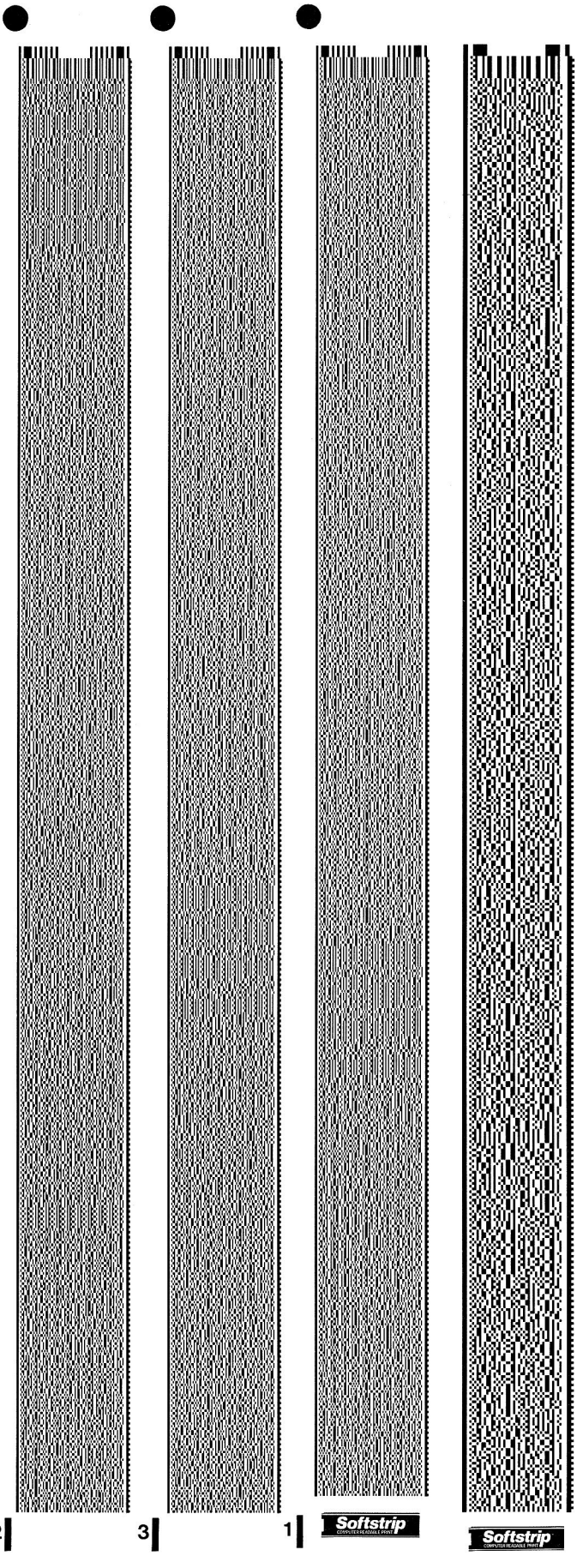
StripWare Library Nos. 185-186



Adventure

Review

Adventure Construction Set

Write Your Own Game

Are you bored with adventure programs? Do you look at a program and say: "I could write a better adventure puzzle than that, if I could only do the programming!" Then *Adventure Construction Set* may be just the ticket. It's a menu driven programming language for any would-be adventure game author.

The phrase "programming language" is sometimes scary, but *Adventure Construction Set* will dispel your fears. The menus will accept input from a joystick, mouse or keyboard. You select menus using the cursor and then choose commands. Several paths and choices are shown on the screen, and the only typing necessary is entering names and descriptions.

So what else do you need to use *Adventure Construction Set*? Creativity and the ability to decide how you want your world arranged.

The game comes on two double-sided diskettes. The boot side is copy protected, but the other three sides are copyable. We recommend that you make backup copies and have several blank diskettes around to use as data diskettes.

The first step to decide is what kind of adventure you want. You are given the choice of a science fiction background, a mystery/spy story or a fantasy adventure. These options are general guidelines, and you may go on to choose characters, music themes and magic items. Each item can be edited to suit your needs. You can rename a character, change the parameters and skill levels and even redesign what your character looks like.

Adventure Construction Set uses sound well, and you can select from dozens of music phrases and play them whenever you want. The Mockingboard and Cricket sound synthesizers are both supported but not required.

Adventure Construction Set

At any point while designing an adventure you can ask the program to finish it for you. It may take over an hour to finish, but it will make sure that each room has an entrance and exit, and that there is at least one solution.

Adventures can be big and involved. For example, a single game can have as many as 500 different creatures, 15 map regions, hundreds of props per region and up to 335 different text messages and descriptions.

The games produce plenty of action, but they have limits. You cannot program, for example, the original *Colossal Cave* adventure. Similarly, *Adventure Construction Set* is not designed for word problem adventures; the focus here is action. If you want to design your own action adventure, the challenge should be more fun than attempting to solve pre-made adventures.

To get you started, the program comes with a sample adventure, "Land of Adventuria." Adventuria includes seven separate sections, covering spy/mystery, fantasy and science fiction adventures. Another sample adventure, "Rivers of Light," is a full-size adventure program based on mythology. It is an excellent program in itself.

We have just one complaint. Although you can create an unlimited number of copies of your adventures, these copies will not run without first loading the original program diskette. If you give a copy of your adventure to a friend, that friend also has to have *Adventure Construction Set* to play your game. We hope the manufacturer will come out with a runtime module that will let users create stand-alone adventures.

Product: *Adventure Construction Set*
Price: $49.95
Company: Electronic Arts, 2755 Campus Dr., San Mateo, Calif. 94403, 415-571-7171
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor; joystick; mouse; Mockingboard; Cricket

Review

Star Trek: The Kobayashi Alternative

Kirk For A Day

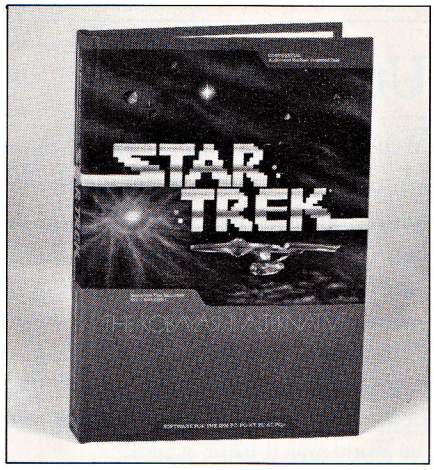
Space—the final frontier. Have you ever wanted to play an adventure game where you actually get to talk with the "Star Trek" characters? Have you ever wanted to be Captain Kirk?

Star Trek: The Kobayashi Alternative puts you in the captain's chair. You are Captain Kirk and you give commands to the crew intended to solve your mission.

The game is based on the command test from the movie "Star Trek II: The Wrath of Khan." In that test, a cadet is given an unsolvable problem (the rescue of a stranded ship) and is tested and observed for his reactions. Star Fleet, deciding that this test is not good enough for you, has replaced it with another command problem.

As Captain Kirk, you must use your command abilities to find out what happened to the U.S.S. Robert A. Heinlein, commanded by Captain Hikaru Sulu. The Heinlein has disappeared in the 145 Trianguli area. You must go to the region and explore its 10 planets.

When characters respond in this game, their response is delivered in the same manner as the real "Star Trek" characters. Both Spock and Scotty tell you that you can't use the transporters if you are sitting on the bridge, however, only Scotty can say, "I canna do that now, Cap'n."



Star Trek: The Kobayashi Alternative packaging (top) and screen shot

The game, supplied on a double-sided diskette, includes a 30-page manual and a reference chart. The manual includes background information on the Enterprise and crew, your orders and descriptions of the various planets in the 145 Trianguli area. Data for the planet NIAU/I 139 Circini reads: "An Earth-like planet populated by an intelligent feline species in the early stages of its space program."

Descriptions of the crew are also colorful and include many details not revealed in the television series. Scotty's description reads: "Commander Montgomery Scott. Renowned throughout Star Fleet as the man who can make anything work; chief engineer of Enterprise for almost his entire period of commission; born Aberdeen, Scotland, 31 August 2121," and so on.

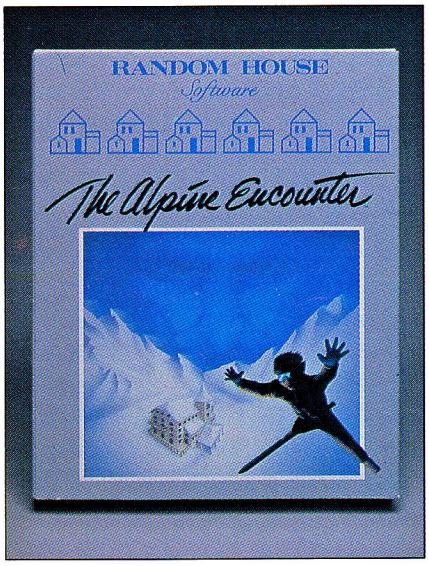
The game designers hired "Star Trek" author Diane Duane ("The Wounded Sky," "My Enemy, My Ally") to write the text for the game. The program also includes a new character, Helmsman Lt. Avoca.

Some diehard "Star Trek" fans may complain that Spock can't be around after getting his brains scrambled in "Star Trek III." Others may remember that the Enterprise was destroyed in that film. Rest assured that the game's producers received permission from Paramount Pictures to go ahead with this story line.

For more details, watch for "Star Trek IV," coming later this year to a theater near you.

Product: *Star Trek: The Kobayashi Alternative*
Price: $39.95
Company: Simon & Schuster, Inc., Gulf & Western Building, One Gulf & Western Plaza, New York, N.Y. 10023, 212-333-5800
Requirements: Apple II+, IIc, IIe; disk drive
Supports: N/A

Adventure



The Alpine Encounter

The Alpine Encounter

Intrigue In The Alps

The Alpine Encounter puts you in the role of an international agent able to save the world from military destruction by thwarting an evil madman.

The manufacturer promises that along the way you'll get the chance to speed down steep ski slopes, question witnesses and search a posh Alpine resort. You have just 12 hours—and the clock keeps ticking—to find Vodac, the madman who has the blueprints for the missile that could end the world.

Lest all the responsibility weigh too heavily on your shoulders, have fun with the colorful graphics—you'll see up to 93 locales unless you blunder and the game ends. *The Alpine Encounter* has plenty of spy jargon and cliff-hangers to keep things interesting for children 10 and older, says the manufacturer.

If these thrills don't catch your fancy, maybe following the instructions will. One section advises players to "express natural impulses—to dance, hit, kiss." One way or another, the manufacturers promise, you'll have an *Alpine Encounter.*

Product: *The Alpine Encounter*
Price: $39.95
Company: Random House, Inc., 201 E. 50th St., N.Y., N.Y., 10022, 212-751-2600
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor; paddles; joystick

Construction

Under Fire!

World War II Maneuvers

If you love complex military games filled with intrigue, intricate tactics and lots of jargon, the makers of *Under Fire!* have a game designed for you.

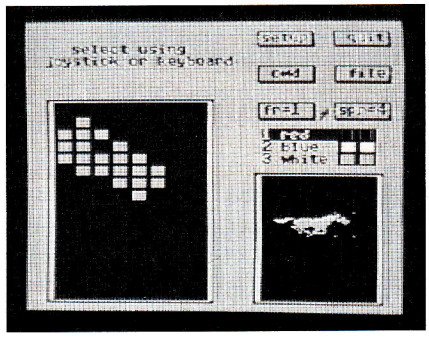
Under Fire!, with its three disks, 19-page instruction book and additional pages of color maps, could provide hours of adventure for those who long to recreate World War II battle scenes.

The manufacturer promises that it's easy to design maps and military scenarios with *Under Fire!*. Using the game's map making disk, players can assemble French, German and Russian battle locales, complete with armored troops. You also choose what type of weather troops will face, victory conditions and other details as you advance in the game.

One or two players can participate, according to the makers of *Under Fire!*. Using keyboard or joystick, you can set the battles into motion and watch your side advance—or retreat. Nine different scenarios are available, ranging from open-field firefights to house-to-house conflict.

Product: *Under Fire!*
Price: $59.95
Company: Microcomputer Games, a division of the Avalon Hill Game Co., 4517 Harford Rd., Baltimore, Md. 21214, 301-254-9200
Requirements: Apple II+, IIc, IIe; disk drive; joystick required for Apple II+
Supports: Printer; Mockingboard

Under Fire!



GameMaker

GameMaker

Do-It-Yourself Games

You once had to be a programmer if you wanted to write computer games. *Gamemaker* is a computer-game design kit by skilled programmer Gary Kitchen, that allows anyone to enter the game-making fray. According to the company, *Gamemaker* is many design tools in one and is more powerful than many programming languages.

Among the tools available are SceneMaker and SpriteMaker modes for drawing backgrounds and creating characters, several commands for creating animation and an image library of predesigned

scenes. The company states that music and sound effects are also possible using the SoundMaker and MusicMaker modes.

Gamemaker uses pull-down menus for quick and easy game building and modification. When games are complete, a "make a disk" feature allows you to share them with friends.

Product: *Gamemaker*
Price: $49.95
Company: Activision, Inc., PO Box 7287, Mountain View, Calif. 94039, 415-960-0410
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Mouse; joystick

Creative

Review

The Great International Paper Airplane Construction Kit

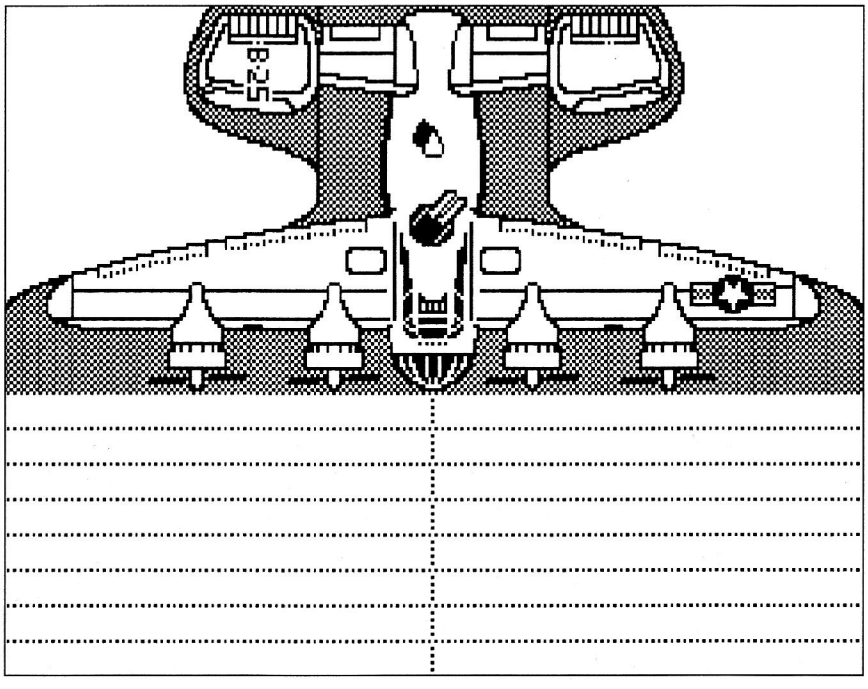
Flights Of Fancy

Concocting paper airplanes that soar and dip just like real aircraft can be a tedious chore for even the most enthusiastic hobbyist. But a new construction kit for the Apple II makes whipping up whole squadrons of flight-ready models a snap.

The Great International Paper Airplane Construction Kit was a hit last summer when it was introduced for the Macintosh. Now the same 13 designs—including the Space Shuttle and an old-fashioned biplane—are available for use on the Apple II+, IIc and IIe.

The designs are ready to print, with step-by-step instructions that are easy to follow. But you'll miss half the fun if you just choose a model, hit the print button, and then fold and fly your model.

The disk includes dozens of graphics,



The Great International Paper Airplane Construction Kit

letters and realistic looking aviation parts to decorate your model. Use them to create a flying machine that's a replica of a real plane or a one-of-a-kind custom aircraft.

The first step in designing your dream machine is choosing a model. The twin-engine, twin-cockpit jet we made had lots of room for snazzy decorations. (Other choices include vintage airplanes, a space-age flying wing and a plane that spins vertically like a helicopter.)

Our only criticism of *The Great International Paper Airplane Construction Kit* is that no paint features are provided within the program itself. This means that you'll need a paint program (such as *Mousepaint*) to fully customize the airplane designs.

After you load a design into the work screen area of your favorite paint program, you can select from the graphics and letters provided. You can also use the paint program to craft your own artwork.

Several decorated planes are provided on disk, to help inspire you. We suggest first printing a blank version of your chosen model to doodle on as you select your options for decoration.

You can use a paint program to help create new designs, or cut and paste the designs provided in the program. Any ProDOS-based paint program should work. The manufacturer suggests frequently saving the image when working with original designs.

Simon & Schuster, the program's manufacturer, provides several models that would be appropriate for creation of a jet squadron. Plane B, for instance, is similar in style to an Air Force F-111 and is simple to fold. Providing a fighter jet enthusiast with several of these sleek, swept-wing models would give him an impressive arsenal.

Be warned. These model planes fly like birds with just a few folds and a piece of tape—no paper clips required. With a flick of the wrist, our test plane floated so gracefully and landed so smoothly that we had trouble putting it down.

The aircraft designs are winners on their own. Most took prizes at a competition sponsored by *Scientific American* in the mid-1960s. *The Great International Paper Airplane Construction Kit* should

Creative

help you and your Apple II bring those flights of fancy down to earth, over and over again.

The Great International Paper Airplane Construction Kit requires an Apple II with one or two disk drives, a paint program and a compatible dot-matrix printer. The program accepts about 10 popular printers, including those from Apple, Epson and Okidata. Most popular printer interfaces are also supported, including Apple's Super Serial Card, the Grappler, and the Apple IIc printer port.

Product: *The Great International Paper Airplane Construction Kit*
Price: $34.95
Company: Simon & Schuster, Inc., Gulf + Western Building, One Gulf + Western Plaza, New York, N.Y., 10023, 212-333-5800
Requirements: Apple II+, IIc, IIe; disk drive; printer
Supports: ProDOS; second disk drive

Review

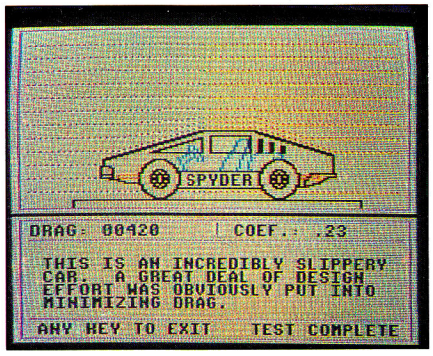
Car Builder

Make Your Own Car

If you've ever wanted to design your own automobile, then *Car Builder* will appeal to you. *Car Builder* is a scientific simulation program that allows you to "design, modify and test" a variety of autos, including vans, station wagons, sports cars and sedans.

From the main menu of *Car Builder* you select one of several options. They include: designing the mechanical parts (chassis, suspension, tires, etc.); creating a body shape, testing a design and viewing cars already saved on disk.

The accompanying "Car Builder User's Guide" is easy to follow and suggests that beginners start by designing the mechanical parts. This is to assure that all parts eventually fit together well. Once you begin making decisions, you may choose the V (View So Far) option to look at your car with the parts you have selected. As you would expect, you can modify or delete parts.



Car Builder

After designing the mechanical components, you are ready to create a body shape from the Body Design menu. Here's where you design the front, roof and rear sections of the car. As you create the body, section by section, *Car Builder* keeps you informed of the weight and size of the panel you are working on. It also calculates the vehicle's cumulative weight and overall length. When the shape of the car looks right, you add windows and decals, and then perform last minute modifications before going on a test drive.

The Car Testing section allows you to put your vehicle through a mock wind tunnel and road handling scenario that tests the aerodynamics and handling characteristics of the design. The wind tunnel, for instance, calculates the drag coefficient of the design and the road test evaluates overall handling as the vehicle travels over roads and curves, straightaways and hills.

While the car undergoes tests, *Car Builder* presents technical data on the monitor. Because the test simulates actual conditions, the results are accurate for the car you created. The test results, a line drawing and a list of the technical data can be printed out.

We found *Car Builder* to be educational as well as fun to use. If you have ever wondered what factors are considered by automobile manufacturers when they create new models, then *Car Builder* should be on your family software shelf.

Product: *Car Builder*
Price: $39.95
Company: Weekly Reader Family Software, 245 Long Hill Rd., Middletown, Conn. 06457, 203-638-2400
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Most printers, including Apple Dot Matrix, Imagewriter, Scribe, C. Itoh Prowriter, Epson FX and LX, and Okidata; color monitor

Magazine

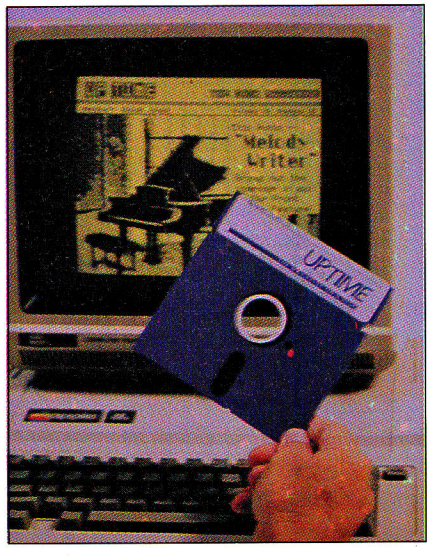
Review

Uptime Magazine

Monthly On-Screen Digest

Relaxing with your favorite monthly magazine might mean switching on your Apple II if you subscribe to *Uptime*, the magazine on a disk.

Monthly issues of *Uptime* contain 10 programs, with a range of subjects from puzzles and games to editorials and spreadsheets. At least half of the issue we booted contained material that would appeal to children and teenagers as well as



Uptime Magazine

adults, qualifying *Uptime* as a family magazine.

Uptime's creators try to create a magazine—minus the paper—that offers enough material for up to 12 hours of use per month. Scan the illustrated cover, table of contents and list of editor's names before digging in to the articles.

We ran the special games and graphics issue, which contained a wealth of word jumbles, puzzles and special art effects. *Hopper* turned out to be a game similar to *Frogger,* but a bit slower. We found it to be cleverly designed and fun to play, and easy enough for a child to enjoy.

Atomic Survival, another game, also caught our fancy. Despite its doomsday theme—nuclear blasts have destroyed part of the world and the player must find fellow humans to survive—we enjoyed the program. We thought the program was imaginative but admit that it's a little whacky and some may object to it.

Less traumatic, but no less intriguing, was *Mastermind II.* The game was a test of wits with numeric codes and tapped logic and reasoning skills. Devotees of crossword puzzles and word jumbles will love the game. We got stumped several times.

While *Uptime* is similar in format to general interest magazines, most issues include plenty of information about computer topics in the News and Views and Editorial sections. We found those two sections fairly informative but too brief and generalized to be of specific use.

Special theme issues (like the games issue and a recent magazine devoted to Halley's Comet) include extra information about their subjects as well as computer talk. We thought that it was a nice feature that kept the subject matter lively and varied.

The *Uptime* catalog lists back issues that include programs on dozens of subjects, including music, military strategy games, budgeting and artificial intelligence.

We rate *Uptime*'s games, graphics and entertainment sections excellent and hope they'll beef up the information articles a bit in future issues—although if they don't we can always write a letter to the editor.

Product: *Uptime*
Price: $66 (per year)
$11.95 (trial issue)
$15.95 (for a single issue)
Company: Viking Technologies Inc., PO Box 299, Newport, R.I. 02840, 800-437-0033, 401-849-4925
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Varies with issue

Simulations

Review

Hacker

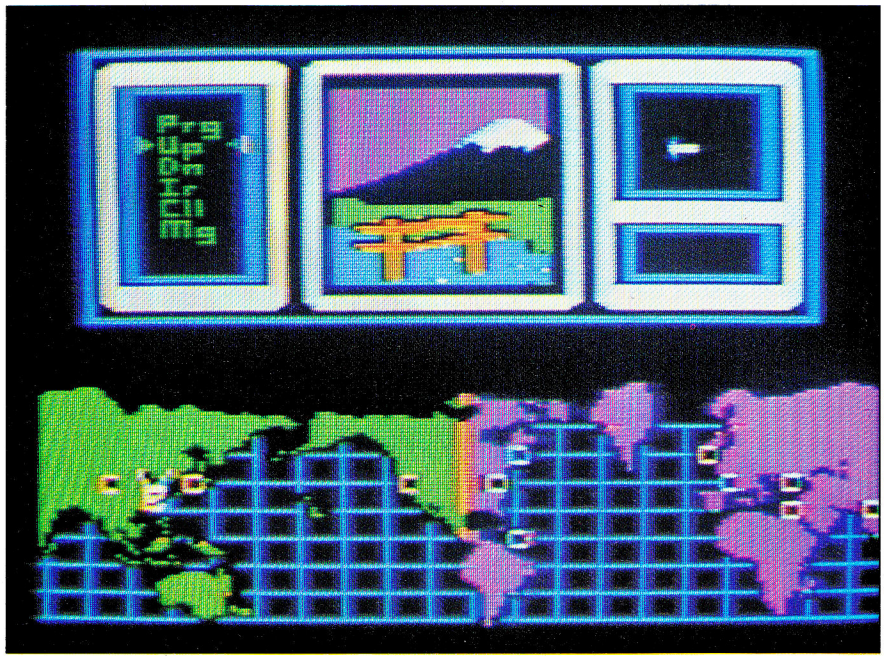
It's All Legal

In the early days of microcomputers, being called hacker was a compliment. Hackers were those who pushed their machines beyond what computers were designed to do. They were mysterious, grubby looking people in the back rooms who knew how to solve the problems nobody else could, the ones who could always fix things when Murphy's law struck.

Now a hacker is an electronic intruder, an anarchist who tries to enter or destroy another person's computer. An entirely different person? Yes. The hacker of five years ago is now considered an experimenter, or a tech. Today's hacker is a thief. The person hasn't changed, but the job definition has.

Computer programs are out that simulate flying airplanes, the space shuttle and fighting dragons. Now there's *Hacker,* a game that simulates breaking into a computer. Everything happens on your own screen, though, and you don't need a telephone and modem.

The instructions that come with the game tell you how to load the disk, and that's it. Afterwards, the screen says "LOGON PLEASE:" and you're on your own. Well, sorta. After a couple of wrong tries, the computer says "Type H for Help." Help tells you how to select the joystick or keyboard, enable key clicks, and restart the program. It also tells you that the password has been changed and is now the location of the test site. Now



Hacker

Simulations

you really are on your own.

You can hope that the mainframe in which you are connected suffers a power glitch to enable you to gain entry, or you can be real sneaky—just like a real life hacker. We found out how to get in by using a "back door" (breaking into the monitor and dumping out the memory). Here's a clue: If you are stuck, think of the land down under. If that's not enough help, or if you need more help later, hints are available from Activision.

Once you get in, *Hacker* looks more like an interactive adventure game than a terminal accessing a mainframe. Magma Ltd., a company as big and as nasty as EXXON, SPECTRE, THRUSH, KAOS and the National Security Agency put together, is setting up geothermal tests in the Earth's crust. A secret document has been stolen and cut up into little pieces that various spies have stolen. You must negotiate with the spies for the pieces before the federal government gets them.

On your quest, you'll encounter friendly and unfriendly agents to help and delay you. Occasionally the computer will give you a message with instructions showing you what to do, but for the most part you work alone.

To move around, you can use either a joystick or the cursor arrows on your keyboard. It isn't stated anywhere, but Apple II+ owners who want to use the keyboard should use Ctrl-K for up, and Ctrl-J for down, owing to the lack of those keys on the original Apple keyboards.

No one will learn how to break into a computer by playing *Hacker* and Activision is not trying to raise a generation of computer thieves. The game is about as realistic as *Zork*.The documentation clearly states: "This program simulates the experience of being a computer hacker and is intended solely for entertainment purposes. But *Hacker* is a good way for a would-be hacker to get out frustrations without actually breaking the law by tapping into a big computer. It's also a lot of fun.

Now where did we leave that spy manual?

Product: *Hacker*
Price: $39.95 (*Hacker*)
$1 (hints sheets)
Company: Activision, Inc., Box 7287, Mountain View, Calif. 94039, 415-940-0410
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Most printers; color monitor recommended; joystick recommended

Review

Summer Games II

On-Screen Olympiad

Olympic sports fans don't have to wait until 1988 and trek around the world to enjoy international athletic competition. At least not if they've got an Apple II and *Summer Games II*.

Summer Games II takes up where *Summer Games* left off. The updated version offers rowing, triple jump, javelin, high jump, fencing, cycling, kayaking and equestrian events.

We played *Summer Games II* alone, but up to eight players can participate in each event. That feature makes it popular at parties and with teens as well as adults, according to the manufacturer.

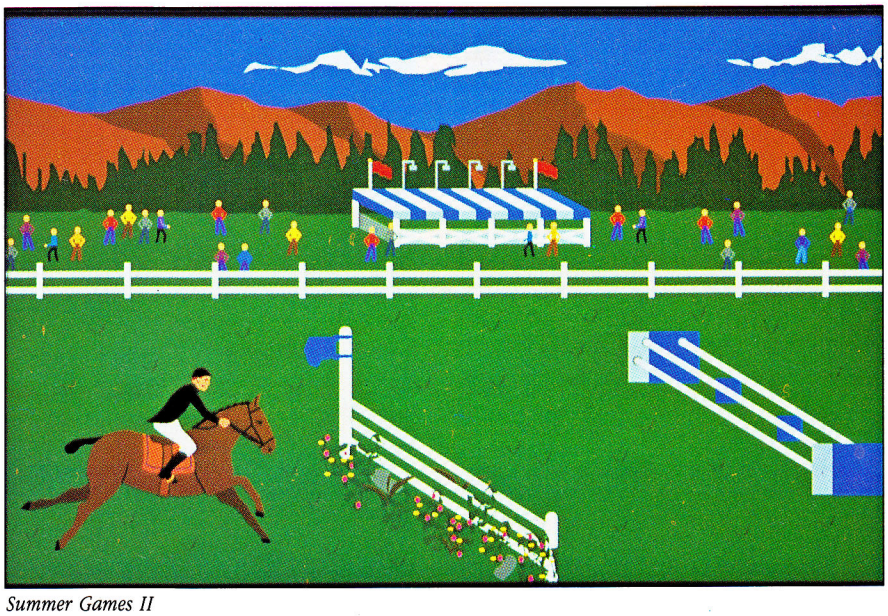
Because the player's skills dictate the speed with which the games are played, *Summer Games II* can be fun for children and teens as well as adults. The horse and rider, for instance, can canter along slowly and take jumps at a leisurely pace, or gallop along to the sounds of thundering hooves.

The events are marked according to degree of difficulty in action, strategy and learning, adding to the game's educational value.

Summer Games II can be played on a regular screen or color monitor. The color graphics that serve as backdrop to the events—the field where the high jumping takes place, for instance—are imaginatively designed and richly illustrated.

We found the games interesting and almost always challenging. Less appealing were the corny opening and closing ceremonies. The program's manufacturer—EPYX Computer Software—was advertised on flashing messages on a blimp that floated over the stadium. It seemed like overkill and not especially sporting, we thought.

The games can be be played with a joystick or keyboard. Some, like the fairly complex fencing matches, test a player's



Summer Games II

dexterity as they require several almost simultaneous motions at a time.

Although the games range in difficulty from moderately simple to complicated, none were so easy they were boring. We though the bicycle events were perhaps the most straightforward and easy to understand; fencing and high jump were among the more difficult.

Product: *Summer Games II*
Price: $39.95
Company: Epyx Computer Software, 1043 Kiel Court, Sunnyvale, Calif., 94089, 408-745-0700
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor; joystick

Review

The Other Side

A Peace Program

In today's volatile world, crossing territorial boundaries often leads to open hostility and war. Yet when communication barriers are broken down the results are often peace and well-being for both sides. Helping users develop negotiation skills and learn how to short circuit conflicts are two objectives behind *The Other Side,* a computer/board game that simulates the fragile balance between nations.

The Other Side creates a tense world in which two nations, each with a limited amount of natural resources, strive to maintain economic stability while working with each other toward a common goal. That goal is the construction of a unifying bridge made of bricks that will connect the two nations. The two nations, comprising student groups, must resolve the inevitable conflicts that arise from such a cooperative effort.

The teams must develop strategies to complete the bridge. They communicate with each other only through the computer. Communications are limited to the use of a hotline in which misunderstandings sometimes arise.

The Other Side

To complicate matters even more, each side must contend with aggressive Computer Assisted Defense (CAD) systems that are not concerned with seeing the two nations succeed in bridge building. In fact, when CAD systems take control, they act quickly, dramatically and often unexpectedly. You regain control of your country by issuing secret codes that put your CAD on hold. Unfortunately, stopping the CAD can be a costly proposition.

The Other Side has two modes of play and the goal is different in each one. When playing the Collaborative mode, the goal is to complete the bridge in as few years as possible. In the Competitive mode, the side that adds the last brick wins.

Both teams begin with a number of possessions (drillers, bombs and patrols) that can be assembled and used around the world. Each nation also has it's own rare fuel type (orange or green) that can be found only on its side of the world. Fuels can be mixed to make them more valuable.

Foreign trade is encouraged to maximize the benefits from mixing fuels. But aggressive tactics can also be used to acquire fuel (sound familiar?). Since the bricks required to build the bridge cost money, each nation must develop a strategy that will help them raise the necessary funds to purchase the bricks. Should your team be aggressive and *take* what it needs? Or should tactful diplomacy be used? When you play *The Other Side,* those questions and others will have to be answered.

The Other Side includes program disks, game boards, reference cards and manuals. It can be played in a classroom setting (three or four persons per team), on one computer by two or more people or by teams communicating over the telephone lines via modem. An instruction booklet is provided that explains how to use a built-in communications program.

Product: *The Other Side*
Price: $69.95
$15 (for 30 foot cable connecting two computers)
Company: Tom Snyder Productions, Inc., 123 Mt. Auburn St., Cambridge, Mass. 02138, 617-876-4433
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Hayes modems and compatibles; Apple modem

Crusade In Europe

Crusade In Europe

World War II Returns

Crusade in Europe puts players in the role of commander on some of World War II's most important battlefields.

The creator of the game promises a stimulating encounter in a game that's easy to use—even for first time strategic

Simulations

game players. The manufacturer points out that many features of *Crusade in Europe* are innovative, including multiple map scales, a flashback mode and an advanced artificial intelligence capability.

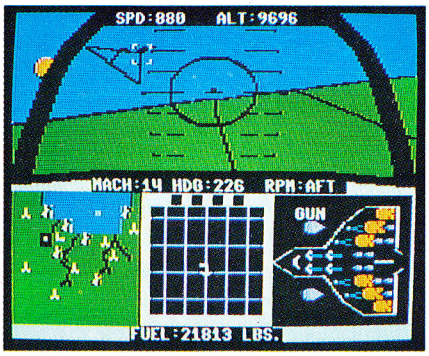
The game includes five different scenarios that the creators say are exciting to play and historically accurate. The color graphics, sound effects and command system will hold the interest of both beginning and advanced players, the manufacturer says.

Scenarios include the battle for Normandy, the race for the Rhine and the Battle of the Bulge. Detailed maps, weather information, a variety of weapons and transportation systems help simulate the wartime conditions that actual commanders faced.

Product: *Crusade in Europe*
Price: $39.95
Company: MicroProse Software, 120 Lakefront Dr., Hunt Valley, Md., 21030, 301-667-1151
Requirements: Apple+, IIc, IIe; disk drive
Supports: Color monitor (recommended)

Significant Others

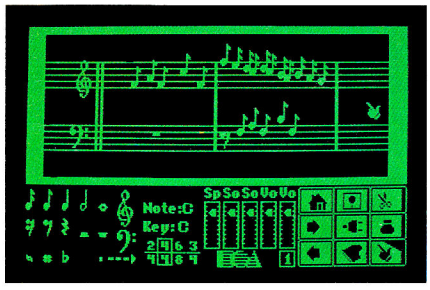
Choplifter—Your job is to rescue 64 hostages held captive in an Iran-like situation. Watch out for tanks on the ground and air-to-air missiles. $34.95. Broderbund Software, 17 Paul Dr., San Rafael, Calif. 94903, 415-479-1700



F-15 Strike Eagle

F-15 Strike Eagle—Modern jet-fighter simulation with seven different combat missions. Airborne radar and computer-assisted targeting help you see if you've got the right stuff. A colorful classic. $34.95. MicroProse Software, 120 Lakefront Dr., Hunt Valley, Md. 21030, 301-667-1151

Flight Simulator II—Updated version of original World War I aerial battle. Includes training over friendly territory in a Piper 181 Cherokee Archer and night-time mode. $49.95. SubLogic, 713 Edgebrook Dr., Champaign, Ill. 61820, 217-359-8482



Music Construction Set

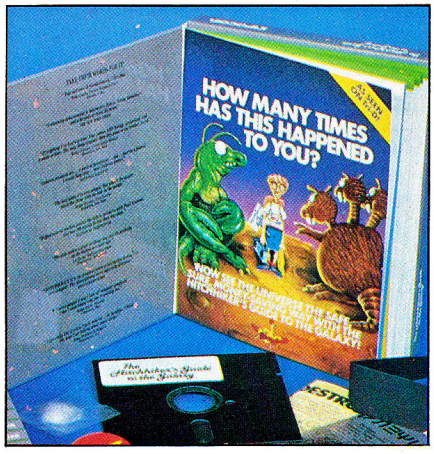
Music Construction Set—A kind of word processing program for musicians or would-be musicians. Arrange musical notes on the screen, then play music through the speaker. Reviewed, *The Apple II Review,* Winter '85. $39.95. Electronic Arts, 2755 Campus Dr., San Mateo, Calif. 94403, 415-571-7171

One-On-One—Basketball greats Larry Bird and Dr. J play one-on-one, and one or two players can join in the fun. Realistic graphics portray the moves of real B-ball. $39.95. Electronic Arts, 2755 Campus Dr., San Mateo, Calif. 94493, 415-571-7171

Pinball Construction Set—The never-ending pinball game. When you get tired of playing the same flippers, bumpers and bells, just move them around for a new experience. The original construction game. $35.95. Electronic Arts, 2755 Campus Dr., San Mateo, Calif. 94493, 415-571-7171

Sargon III—An opening library of over 68,000 moves and nine levels of play make this one of the most awesome chess challenges ever. Takes back moves and has great graphics. $49.95. Hayden Software Co., Inc., 600 Suffolk St., Lowell, Mass 01854, 617-937-0200

Space Shuttle: A Journey Into Space—Proven space flight simulator designed with consultation from NASA. Duplicates stages of an actual flight. $39.95. Activision, Inc., 2350 Bayshore Frontage Rd., Mountain View, Calif. 94043, 415-960-0410



The Hitchhiker's Guide to the Galaxy

The Hitchhiker's Guide to the Galaxy—Challenging outer-space adventure based on the novel. Includes a "Don't Panic!" button and peril-sensitive sunglasses. Reviewed, *The Apple II Review,* Fall '85. $39.95. Infocom, Inc., 125 CambridgePark Dr., Cambridge, Mass. 02140, 616-492-6000

Wizardry—One of the first, and some say best, fantasy games for the Apple. Maze features 10 levels and hi-res graphics. Generates up to 20 characters. $49.95. Sir-Tech Software, Inc., 6 Main St., Ogdensburg, N.Y. 13669, 315-393-6633

Zork I, II, III—A large built-in vocabulary, the ability to understand complete sentences and great plots make these classic adventure games among the best of their breed. $39.95, $44.95, $44.95. Infocom, 125 CambridgePark Dr., Cambridge, Mass. 02140, 617-492-6000

APPLEWORKS ENHANCEMENTS

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- Applied Engineering was first to eliminate disk access on Drive 1 in Appleworks, thereby dramatically speeding up the program and reducing disk drive wear.
- Applied Engineering was first to expand AppleWorks to 1 megabyte of memory.
- Applied Engineering was first to expand AppleWorks to 3 megabytes.
- Applied Engineering was first to provide auto segmenting on large files so any size file can be saved on regular floppies.
- Applied Engineering was first to increase the maximum number of records in the data base from 1350 to 16,300.
- Applied Engineering was first to increase the number of lines in the AppleWorks word processor from 2250 to 16,300.
- Applied Engineering was first to display the time and date on the AppleWorks screen.
- Applied Engineering was first to provide auto dating as part of the data base field.
- Applied Engineering was first to provide auto time stamping as part of the data base field.
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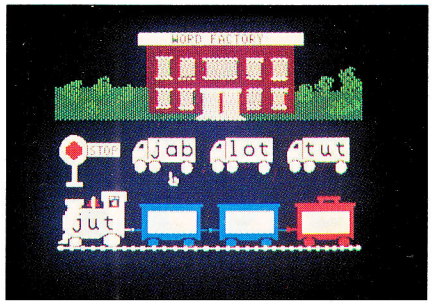
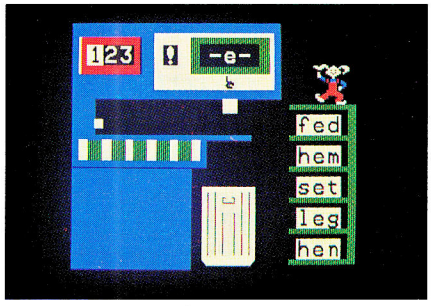




Parents and teachers need to know the difference between software targeted for the home and school. As it turns out, there may be considerable overlap. The biggest difference may be in the teaching approach—not the programs themselves.

Educational Software

In The Home And School

By Leslie Grimm, Ph.D. and Teri Perl, Ph.D.

Educational software can help spark children's interest in the world around them—from math to languages to art history. Interesting graphics and the high-tech fun of games lure children to spend hours at home keyboards. Children also log computer time at school, but often just an hour or less per week. Can software bridge the gap between games and instruction?

School officials and parents foot the bill for educational software, frequently $30 to $50 per program. Finding software to meet the needs of both home and school is the biggest challenge they face. Software designed for use in school will often be inappropriate in the home and vice versa.

School Versus Home

Lack of computer time is one of the biggest considerations in any product for schools. Even schools equipped with computers have an average of just 14 for the whole student body.

On average, school children spend only 40 minutes a week at the keyboard, typically in 10- to 20-minute sessions. The program must be quick to load, include activities that can be completed in a few minutes and emphasize learning. The commands must be easy to understand and remember from session to session.

The situation is quite different in the home. Children working on a home computer often will use a single program for an hour or more. Because children at home can be distracted by television, toys and electronic games, the program must have strong entertainment elements to hold their attention.

That's not usually a problem in schools, where the alternative to computer work might be rote drills with paper and pencil. There, even a relatively boring computer program can seem like fun.

Software for the home must have longer-lasting play value than that used in school. In the school, the teacher can amortize the cost of a program that stresses one narrow skill by using it over and over.

In the home, the cost of a program must pay for itself in learning value for one to two children. If possible, the program should have a wide range of difficulty levels and be interesting enough to motivate the child for months or years.

Teachers need software that meshes with the curriculum. Ideally, programs are directly related to the textbook the children are using. Home users may be using a variety of textbooks, depending on what their school district buys.

Record keeping is a special need of teachers that most home users won't share. Many teachers want to have a printed record of each child's performance. In the home environment, where typically only one or two children use a program, keeping extensive records isn't necessary.

The problem with elaborate record keeping is that it requires extra computer memory, for which something else must be sacrificed. That something else is most often the entertainment value of the program.

Bridges Between Home And School

Well-designed programs can meet the needs of both home and school software users, despite their sometimes contradictory needs. A program with the sound educational theory required in the class-

room will be equally valued in the home.

If the product used in the school can be as entertaining as those usually used at home, so much the better. It takes extra effort and creativity on the part of the developer to make a product that meets the needs of both groups.

Record keeping functions must be incorporated so they are easily accessible, but home users don't have to bother with them. The program must contain a lot of colorful animation or other motivating features, without allowing these features to become distractions. The overall program should also be variable and challenging enough to last for months or years.

The Roots Of Rocky's Boots

At The Learning Company, we deal with these issues with virtually every program. In this article, we'll discuss the development of one of our most popular programs, *Rocky's Boots,* and the thinking that was put into it.

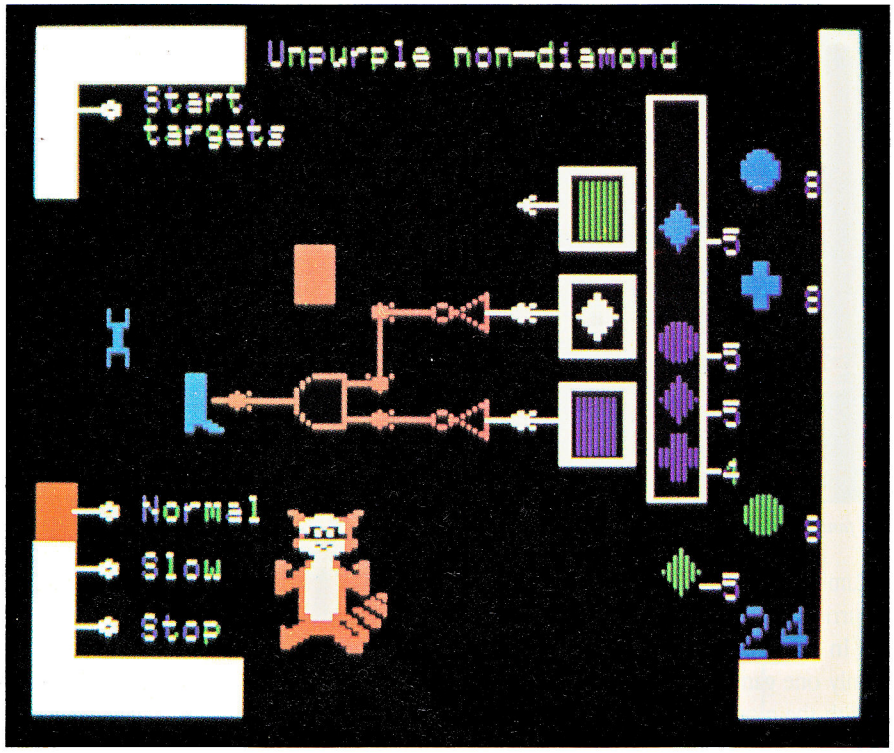
Rocky's Boots was designed specifically for an ideal *educational environment,* not necessarily for just the home or school. It was the product of a federal grant to develop computer software in logic and geometry for young children.

Warren Robinett, the programmer on the project, brought with him the design, which was unique at the time it was developed. Robinett's idea was to create a simulation where logic elements would be used to build "machines" that worked.

As the program was developed, the role of the educators was to make sure that all stages worked with children, and that the concepts were clear and the interface friendly.

Does It Fit In Schools?

On its own, *Rocky's Boots* is an ideal educational program for the home. Yet its open endedness makes it more difficult to manage in school. With the aid of suggestions from a teacher's guide and some student activity sheets that can be used away from the computer, however, the program fits in well.



Logical machines designed with Rocky's Boots *(above) are a learning experience in and out of school. Similarly,* Reader Rabbit *(opposite page) can be used in many environments.*

At first glance, the content of *Rocky's Boots*—electricity and logic elements—is difficult to relate to the standard school curriculum. However, the real value of the program is not in teaching content, but in the exercise of higher-level thinking skills needed to build machines. Like Logo, *Rocky's Boots* can be a valuable school resource, having application across a wide range of grades and subjects.

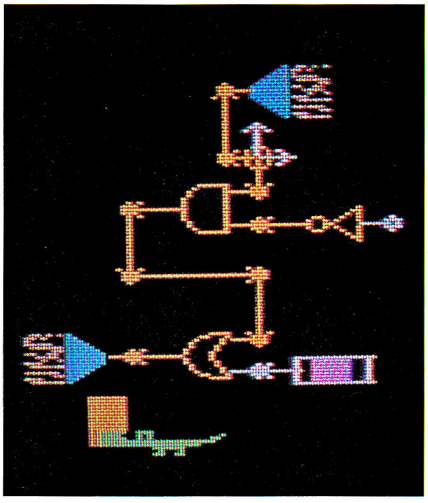
According to Ludwig Braun in the October 1985 issue of *Computing Teacher,* "The construction set is a special-purpose language which permits the user to create complex effects without having to learn to program..."

To help teachers use this software in the classroom and to suggest ways it may be used, teachers need support documentation. Many educational software companies, including The Learning Company, provide information on how the software may be utilized.

Materials provided with *Rocky's Boots,* for example, urge teachers to save valuable computer time by introducing the tutorials as a class presentation. This makes best use of each student's limited time at the computer, since much of the preliminary content is covered before they get to the computer. Handouts are included to help students focus on the material being presented and students are encouraged to design their machines off-line.

Teachers need to know how computer programs relate to the established curriculum. They need to know which subject they are supporting when they use *Rocky's Boots.* In general, *Rocky's Boots* can be used in any course to teach problem solving. Science and math are usual courses. But some aspects also have more specific applications.

When students are asked, for example, to build a machine that will score "0" or "negative 24" (instead of the usual plus 24), they will be getting a lot of math practice in the addition of signed numbers. Incidentally, the addition of signed



A fantasy machine designed with Rocky's Boots.

numbers is part of the sixth grade math curriculum.

In earlier versions of *Rocky's Boots,* only one game could be saved to disk. With the most recent release, users may save an unlimited number of games for replay at a later time. This is important news for teachers, since they can now build libraries of tailor-made games for their classes or collect and save the best machines produced for other students.

With proper support, a model educational computer program—one designed for the ideal educational environment, where students enjoy exclusive access and unlimited time—can be tailored to the realities of today's classroom. And if such a program is really interesting and motivating, it will pass the more demanding test of being selected by young people and parents for use in the home.■

Leslie Grimm has designed several award-winning learning games, including Bumble Games, Gertrude's Secrets, *and the current best-selling* Reader Rabbit. *Prior to programming for The Learning Company, Menlo Park, Calif., Dr. Grimm earned degrees from Stanford University and the University of Washington.*

Teri Perl, designer and author of The Learning Company's educational support materials, earned her Doctoral degree in mathematics education from Stanford University.

Characteristics Of Quality Educational Software

Home And School

- Sound educational content
- Friendly interface
- Attractive, clear screens
- Technically sound . . . bug free

Home

Few Time Constraints

- Open-ended
- Highly motivating
- Long-lasting
- Technically state-of-the-art

School

Serious Time Constraints

- High teaching/entertainment ratio
- Grade specific
- Related to curriculum (and text if possible)
- Record-keeping capability

Biology

Review

Anatomy Challenge

Reviewing Anatomy Terms

Anatomy Challenge is a relatively simple game that asks some not-so-simple questions about various aspects of human anatomy. The game consists of questions from 10 anatomical categories, including circulation, digestion, respiration, reproduction and muscles.

Two players participate. For each round, the program chooses five categories from which questions will be drawn. These categories are displayed in windows resembling a slot machine. The computer selects a maximum of three categories from which the player can choose to answer a question. The number of points a question is worth is determined by the number of windows the category appears in on screen. The actual question is revealed only after the player selects the category.

As play begins, the computer determines which player goes first and keeps track of whose turn it is. The first player to score 500 points wins.

The questions are usually sentence completions that require a specific anatomical term. We tried several times to squeak by with equivalent lay terminology, but these answers were never accepted. We think that is appropriate.

Still, we would prefer a little more sophistication in the kinds of answers ac-

cepted. As it stands, *Anatomy Challenge* does not allow any variation at all. Either the expected response is given or points are lost. We found this a little frustrating.

In the excitement of the game, we kept forgetting that we were supposed to type out all numbers under 100. We would, for example, type "7" instead of "seven" and lose points every time. In another case, we lost points by giving the plural form of the correct word instead of the singular, even though the wording of the question should have allowed either.

Despite these annoyances, we found *Anatomy Challenge* to be a good review of human anatomy terms. According to the documentation, the disk contains 200 questions. While we made no attempt to verify the number, we did play several rounds and rarely came across questions we had seen before.

This is by no means a flashy program. One might even call it primitive. The graphics are simple and limited to a slot machine facsimile. The text appears in plain, 40-column capital letters. Even so, we think *Anatomy Challenge* would make a dandy review for the final exam in a high school or college anatomy class.

Product: *Anatomy Challenge*
Price: $29.95
Company: Island Software, PO Box 300, Lake Grove, N.Y. 11755, 516-585-3755
Requirements: Apple II+, IIc, IIe; disk drive
Supports: N/A

Creative

Review

Creative Contraptions

Rube Goldberg Returns

What do rabbits on treadmills, caged birds and sleeping turtles have in common with pulleys, levers and pendulums?

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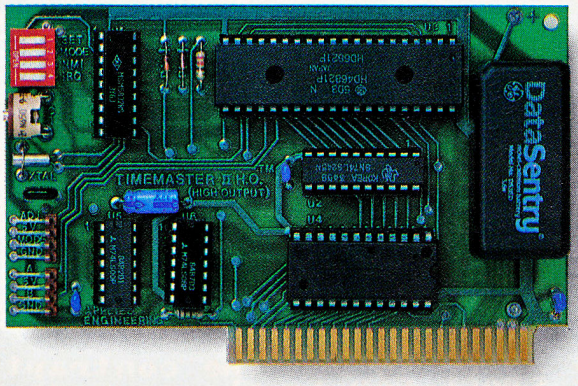

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Creative

Creative Contraptions

That's not a trick question. They are among the mechanisms and zany devices in *Creative Contraptions,* an imaginative learning game for children age seven and older.

In this game, the child makes silly, Rube Goldberg contraptions work to do everyday tasks, such as waking a sleeping person, combing one's hair, eating and turning off a light. These contraptions are based on simple mechanical devices, including wedges, magnets and springs, and are made humorous by an astonishing collection of other fictitious devices. The contraption "works" if a ball dropped from the top left of the screen can go without stopping through all the gadgets and gizmos to the last one. This device pours water on the sleeper, moves the comb, pops food into an open mouth or turns off the light.

The program begins with a menu offering four options. Review Mechanisms is the first, and it illustrates, defines and gives examples of each of nine devices. We found the definitions to be accurate and easy to understand, and we liked the fact that the examples include items most children will recognize.

The program provides three games, each of which can be played at two levels: Apprentice and Master Builder. In the first game, Fill in Mechanisms, the object is to complete a contraption with three or four missing parts. The player uses the arrow keys to choose from among three or four devices shown at the bottom of the screen.

When the space bar is hit, a ball is released from the top of the screen and makes its way from one device to another until it comes to one that doesn't work—or until it reaches the goal. If the contraption works, the player can watch it operate as many times as desired. If it doesn't work, the problem spot is identified and another try is offered. At the Master Builder level, the player must choose among all of the devices, including several versions of pulleys, inclined planes and pendulums. Some real thinking goes into making those choices!

The second game, Fill in Zany Objects, is substantially the same, except this time the player chooses among objects instead of mechanisms. This is where the rabbit on the treadmill appears, along with tubes, chutes, football players and dozens of other things. Again, the player fills in missing items to make the contraption run, and can see each one in place to visualize how it will work before selecting it. At the Master Builder level, there are more correct and incorrect choices.

The third game, Contraption Mixup, is timed and scored. In this game, the player must fill in all of the contraption's mechanisms and zany devices. A red bar shows remaining time as the score is tallied. The Apprentice level allows more time and unlimited trials. The Master Builder level provides more incorrect parts, less time and only six trials.

The package contains one double-sided disk, complete instructions, a command reference card and a wall poster. We found the instructions on the screen clear enough so that we didn't need to look at the documentation.

This program is great fun. The contraptions and situations are colorful, clever and humorous. We had to think hard about some of our choices, though. By working with the program, children should learn a little about the laws of physics and about simple mechanical devices. They'll be practicing some important thinking skills at the same time. We think *Creative Contraptions* is an example of educational software at its finest.

Product: *Creative Contraptions*
Price: $39.95
Company: Bantam Electronic Publishing, 666 Fifth Ave., New York, N.Y. 10103, 212-765-6500
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor

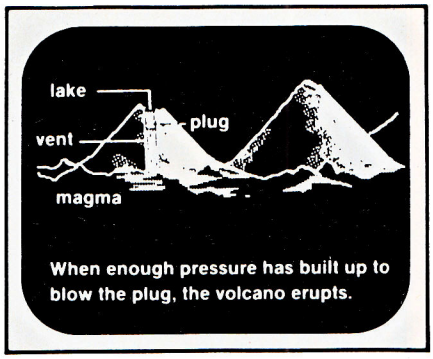
Geology

Review

Earth: The Inside Story

Finding Faults

Earth: The Inside Story is a classroom oriented tutorial in beginning geology.



Earth: The Inside Story

The program is intended for use in Earth Science or general science classes in grades four through nine.

The software consists of five lessons on a single disk. Content includes a description of the earth's interior and an introduction to the Continental Drift and Plate Tectonics theories about the movement of the earth's surface. Geological faults, earthquakes and volcanoes are explained as are specific types of mountains and volcanoes, types of rock and surface layering.

Text, graphics and student activities are used to present the material. What would otherwise be an excess of text is relieved by graphic illustrations (some animated) and numerous multiple choice review questions.

In several activities, students must manipulate an object on the screen. For example, the student is asked to guide an "earth explorer" to a specific place on a map. We found the program to be inordinately fussy about just where this explorer is placed. In one instance, when asked to place it on the South American coastline, we were frustrated by the number of tries it took to find the location that the program would accept. Students may share our annoyance at having proper answers rejected.

The program offers many opportunities to review what has been presented. Correct answers are rewarded with "punny" phrases such as "LAVAly, simply LAVAly." Incorrect answers are

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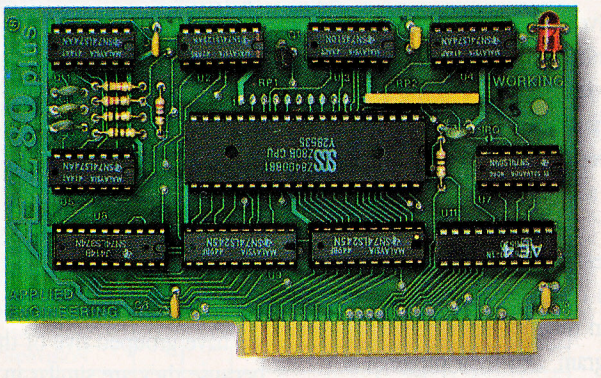

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Geology

corrected in a matter of fact manner, and the frame providing the misunderstood information is repeated. Sound effects, which can be turned off, accompany only correct answers.

A set of five questions assess the student's understanding of material at the end of each lesson. These questions are selected at random from a larger set, so those who repeat a lesson should not encounter the same ones the second time through.

One interesting feature is the management system contained on the disk. Students type in their names whenever they use the program, and their progress is recorded according to quiz scores. This ensures that students work on the lessons in sequence. Each time they sign on, the program automatically goes to the next appropriate lesson.

The teacher can set minimum satisfactory scores and students not reaching them are sent back to redo a lesson. The teacher can also view or print out students' scores, purge the disk of names (the program can handle up to 75) or look at the lessons in any sequence.

We particularly liked the teaching materials provided with the software. The package includes a hardcover ring binder, detailed lesson descriptions and at least one activity master for each lesson. The master can be duplicated on paper or on an overhead transparency.

Overall, we think *Earth: The Inside Story* can be a useful addition to an Earth Science program in the intermediate grades.

Product: *Earth: The Inside Story*
Price: $59.95
Company: Educational Activities, Inc., PO Box 392, Freeport, N.Y. 11520, 800-645-3739
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Most printers; color monitor

Gifted

Review

Mindstretcher Series

Games For The Gifted

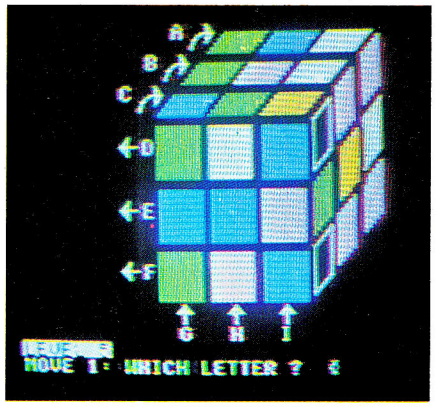
Mindstretcher Series is a group of nine programs on five disks that are designed for gifted and talented students in grades three through nine. Although these programs are priced and marketed separately, we have grouped five of them together because they are similar in nature and intent. The series is designed to offer gifted children the kinds of challenges they need to build analytical thinking skills.

Jigsaw is the only one of the nine programs that comes by itself on a disk. In this program, the user assembles a jigsaw puzzle on the screen in an unusual way: The player is first shown a picture to study. When he thinks he knows it well enough, he presses the space bar and the picture is replaced by 24 numbered squares.

One by one, segments of the picture are displayed in a box off to the side, and the player types in the number of the square he thinks it belongs in. The object is to reassemble the picture in as few moves as possible. When we tried the program, we realized almost immediately that we had not spent nearly enough time studying the picture. A color monitor proved to be a big help in figuring out what square to put where.

Cube and *Candles* are supplied on another diskette. *Cube,* an electronic version of the familiar Rubik's Cube, can be played at difficulty levels ranging from one through 10. Remembering our frustrations with *Jigsaw,* we were reluctant to try anything more difficult than level one. Working a two-dimensional version of the puzzle presents an interesting difference in challenge from the three-dimensional cube.

We found that a color monitor was



Mindstretcher Series

needed to play *Cube.* There isn't enough color differentiation in monochrome.

Candles is one of several games where a player can compete against either a human opponent or the Apple. In this game, two birthday cakes appear on the screen and players take turns blowing out the candles. The initial number of candles is determined at random by the computer. In each turn, a player can blow out any number of candles on one cake or an equal number of candles on both of the cakes.

The object of the game is to blow out the last candle. When playing against the computer, the player can decide at what level he wants the computer to play—from level one, where the computer makes some mistakes, to level four, where the computer always wins.

Kayles and *Black* are two programs on a third disk in the series. *Kayles* is similar to *Candles.* Two players, one of whom can be the computer, take turns knocking down bottles with a ball. The object is to be the one to take down the last bottle. In *Kayles,* only two bottles can be knocked down at once. The value in both *Kayles* and *Candles* lies largely in the analytical thinking involved in developing a winning strategy.

Black was our favorite game in the series, although we were never able to beat it. In this game, which is played on a board marked into squares, the player advances around the board by choosing

among tiles showing three possible paths. After each move, a little heart starts at the beginning and follows the path created. In order to stay in the game, each tile added must connect with the previous one.

The game is more difficult than it sounds. Even though we told the Apple not to play its best, we were never able to keep the heart on the board for more than a few squares.

We think these programs provide the kind of open-ended challenges that gifted students need. Too frequently, when such children finish their work ahead of the class, they are simply assigned extra problems to do. We would much rather see these students be given an opportunity to work with programs such as these.

We were particularly impressed with the teaching materials that are included with the Mindstretcher programs. These guides provide short descriptions of the games, along with suggestions for introductory or follow-up activities. Despite the plain packaging—the disks come in plastic bags and the teaching guides are simply printed on sheets of paper—each program offers challenging practice in analytical thinking.

Product: Mindstretcher Series
Price: $25 (per disk)
Company: Island Software, Inc., PO Box 300, Lake Grove, N.Y. 11755, 516-585-3755
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor (recommended)

History

The Oregon Trail

The Wild West Lives

The original Oregon Trail hasn't seen much covered-wagon traffic since pre-Civil War days, but the history lives on in *The Oregon Trail* computer simulation. According to its vendor, *The Oregon Trail* is

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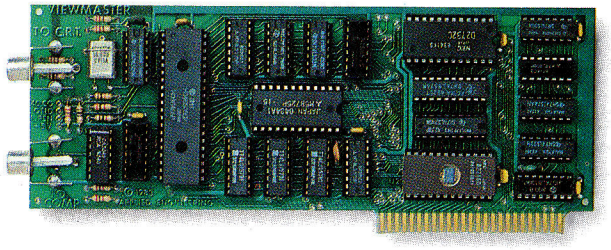

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History

The Oregon Trail

based on a classic computer simulation first introduced in 1975 on an instructional time-share system. New diaries, interpretations of data and artifacts and historical land use findings have come to light and been incorporated into the program.

The Oregon Trail uses color graphics to depict landmarks, forts and rivers along the trail. Travelers can stop to talk along the way and buy supplies. Hazardous river crossings add to the excitement. To do well, users of all ages must change survival strategies and adjust to changing food supplies and weather conditions.

The vendor adds that the program can play up to 18 authentic tunes from the 1840s.

Product: *The Oregon Trail*
Price: $29.95
Company: Minnesota Educational Computing Company (MECC), 3490 Lexington Avenue N., St. Paul, Minn. 55126, 612-481-3500
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor

Languages

Review

Batalla de Palabras

Learning Spanish Words

One of the most intimidating things about studying a second language is the number of new words that must be learned. After all, memorizing words and meanings is not much fun. *Batalla de Palabras* is a Spanish vocabulary-building program that makes the task much more interesting. In fact, it does more than that. The program provides an educationally sound agenda for learning new words.

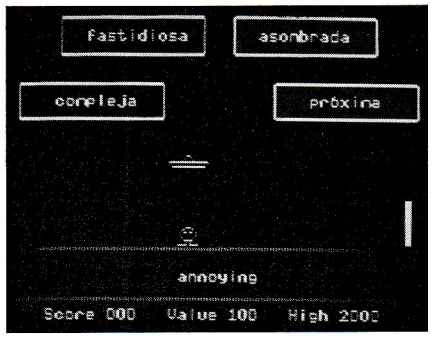
Once booted, *Batalla de Palabras* offers an optional introduction that provides a clear overview of all program activities. The user is asked whether sound effects are desired and whether a joystick or color monitor will be used.

The next step is selecting the word list. The program disk must be removed and replaced with the the data disk. This disk contains about 450 words grouped under six topics: At the Table, Sports and Recreation, Travel and Transportation, At School, Professions and Occupations and Daily Life. These words are divided into three further categories: nouns, verbs and adjectives. We decided to learn nouns from the At the Table category.

Following the manual's suggestions, we began with Word Display. Here, the Spanish word is displayed along with its English equivalent and its use in a Spanish sentence.

After seeing all 25 words, we returned to the activity menu and chose the Multiple Choice option. The choice of English to Spanish or Spanish to English is offered. We decided to match an English word to a group of Spanish words. This activity is timed, and each right answer is rewarded by a short rendition of a familiar Spanish song and a congratulatory message in Spanish. At the end of the activity, we were given our elapsed time and our scores. We also had the chance to redo we missed.

We then felt ready to tackle the sentence completion activity. This is much more difficult because memorization of both words and their spellings is required. Pressing the letter "H" brings to the top of the screen a group of four Spanish words, one of which is the correct answer. Right answers are rewarded with a congratulatory message on screen. After two mistakes, the answer is given. We think this activity is a good test of how well words have been learned, providing the help option is not used.



Batalla de Palabras

Finally, we tried the game, starting with the slowest of the three speeds offered. In this game, the words remain stationary, and an animated character with a sombrero is moved with the arrow keys or the joystick. Either the Z or the joystick button is pressed to launch the sombrero like a missile to detonate the Spanish equivalent of the English word. A thermometer-like diagram at the side of the screen shows time slipping away.

A "bonus bug" appears occasionally. It must be zapped before the word can be blown up. Hitting the bug adds to the score.

We soon graduated to the fastest speed with no trouble. Although this game is tame by arcade standards, we thought it provided an interesting way of practicing the words we had learned.

Batalla de Palabras includes an editing program that can be used to add words on a separate data disk. We tried using the editor to enter a set of five words and found the process to be fairly complicated. While we were able to make it work by using the directions in the manual, entering new words is time-consuming and requires careful planning. We doubt that an individual who just wants to practice some new words will find it worth the trouble.

We liked a number of things about this program. The logic behind its sequence of activities is excellent. The learner is introduced to new words, is then asked to recognize them and, finally, must produce them from memory. And we liked being able to practice remembering the words with a number of different activities. We also liked the rewards given for correct answers and the polite way wrong answers were treated. We do, however, wish the program allowed the use of a second disk drive, rather than requiring a switch from the program disk to the data disk for each use.

Overall, *Batalla de Palabras* offers an interesting alternative to the rote memorizing of Spanish vocabulary words. French and German versions are available, too.

Product: *Batalla de Palabras*
Price: $49.95
Company: Gessler Educational Software, 900 Broadway, New York, N.Y. 10003, 212-673-3113
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor; joystick

Review

Correct Behavior The French Way

On Time Is Early In Paris

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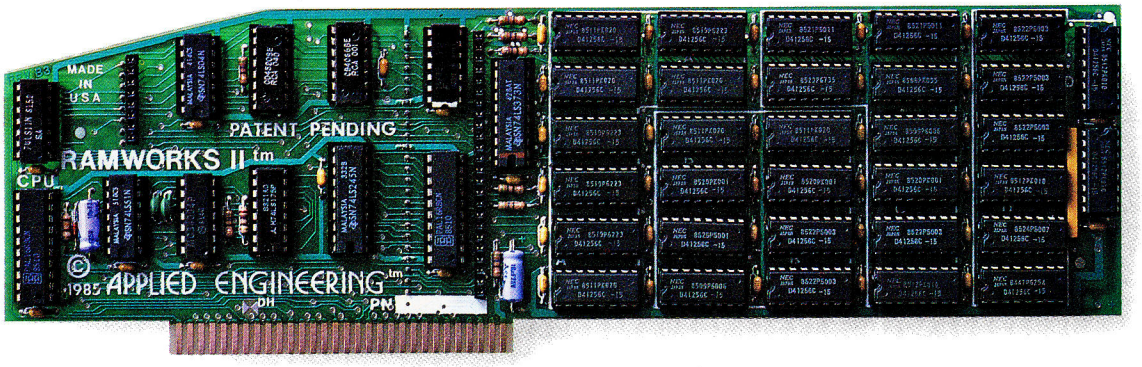

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Using RamWorks II couldn't be easier because it's compatible with more off-the-shelf software than any other RAM card. Popular programs like AppleWorks, Pinpoint, Catalyst, MouseDesk, Howard-Soft, FlashCalc, The Spread Sheet, Managing Your Money, SuperCalc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

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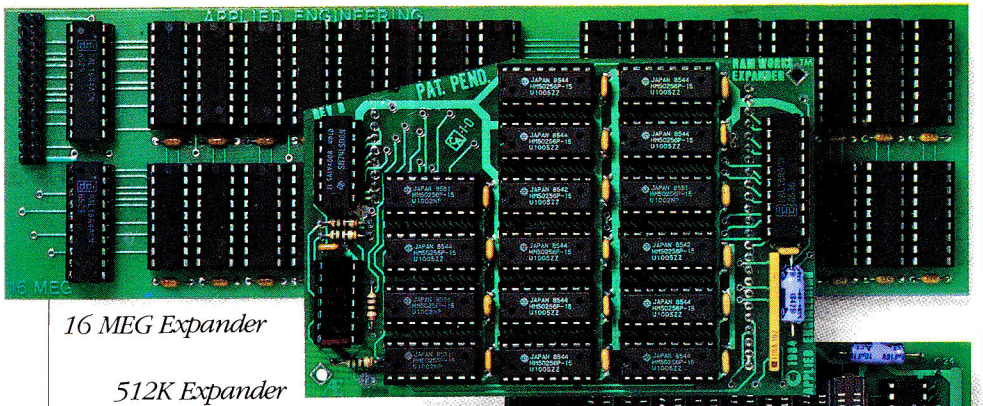
Applied Engineering has always offered the largest memory for the IIe and RamWorks II continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 meg is about 500 pages of text)...but if you do ever need more, RamWorks II has the widest selection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

It Even Corrects Mistakes.

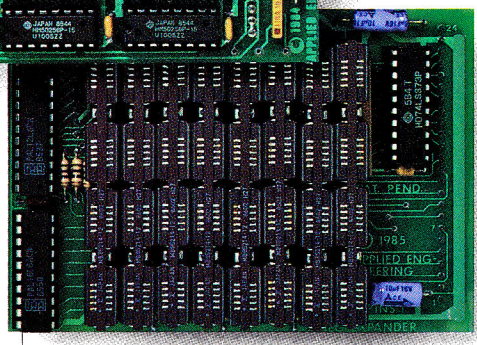
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks II, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks II to recapture most of your investment!

The Ultimate in RGB Color.

RGB color is an option on RamWorks II and with good reason. Some others combine RGB output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks II RGB option offers better color graphics plus a more readable 80 column text (that blows away any composite color monitor). For only $129 it can be added to RamWorks II, giving you a razor sharp, vivid brilliance that most claim is the best they have ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks II RGB option is more than just the ultimate in color output because unlike others, it's fully



16 MEG Expander



512K Expander

2 Meg Expander

compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the new RamWorks II RGB option provides both Apple standard and IBM standard RGB outputs (cables included). The RGB option plugs into the back of RamWorks II with no slot 1 interference (works on the original RamWorks, too) and remember you can order the RGB option with your RamWorks II or add it on at a later date.

True 65C816 16 Bit Power.

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

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Steve Wozniak, creator of the Apple Computer said "I wanted a memory card for my Apple that was fast, easy to use, and very compatible; so I bought RamWorks." A+ magazine said "Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks...I like the product so much that I am buying one for my own system." inCider magazine said "RamWorks II is the most powerful auxiliary slot memory card available for your IIe, and I rate it four stars...For my money, Applied Engineering's RamWorks II is king of the hill."

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- The only large RAM card that's 100% compatible with all IIe software

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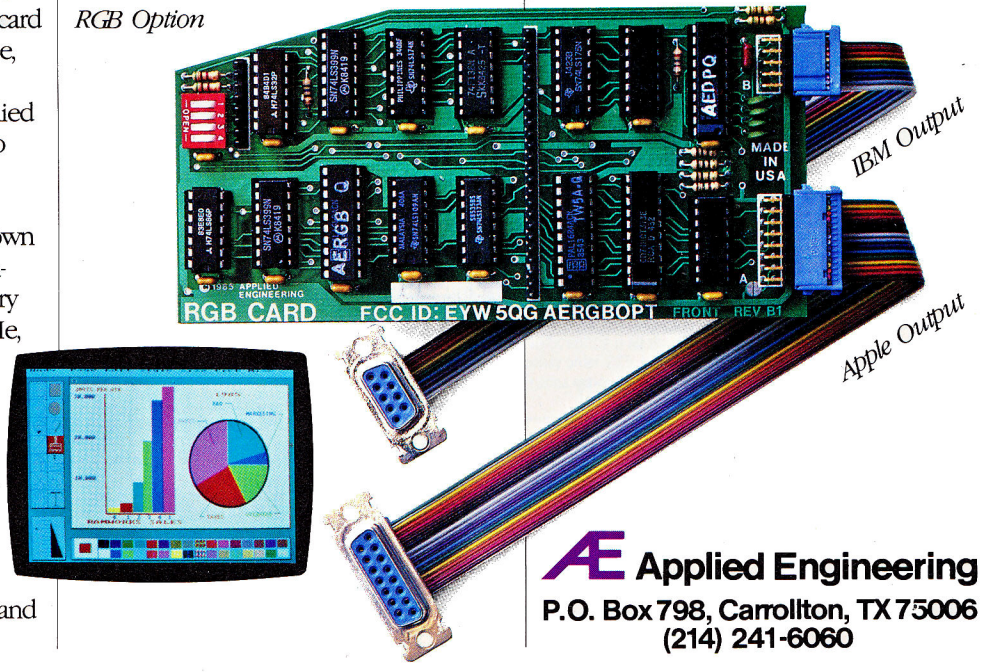

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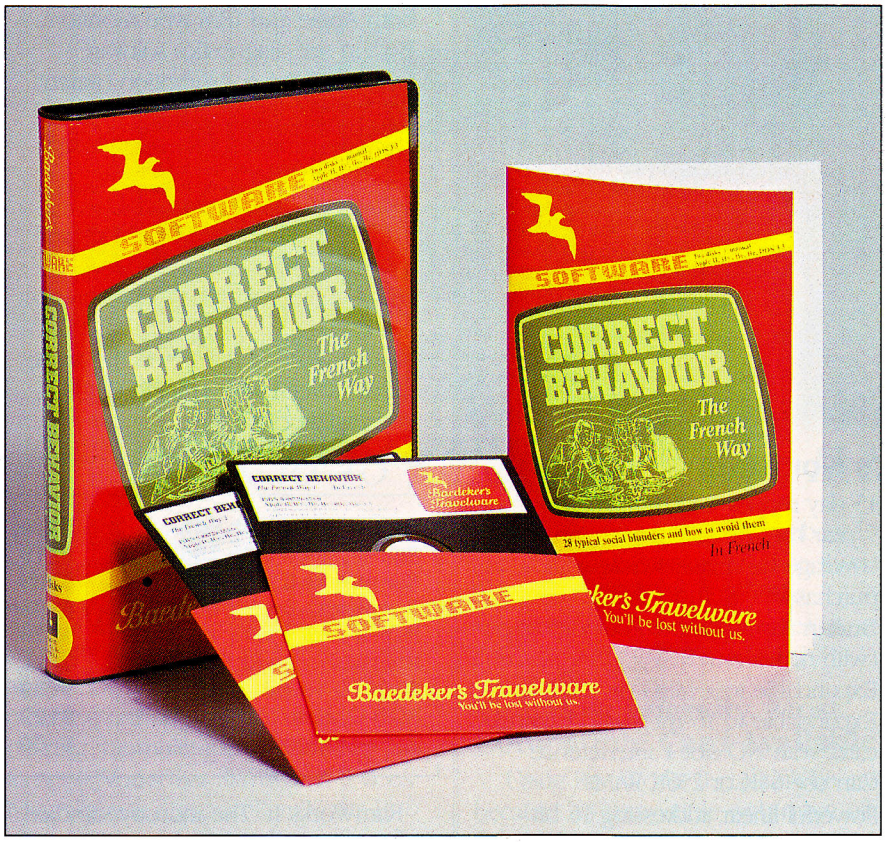


Correct Behavior The French Way

help avoid such embarrassing misunderstandings. The program consists of two disks containing 28 situations. Each situation illustrates cultural differences between the French and American lifestyles. The second disk also contains several French folk songs that the computer can play while lyrics appear on the screen.

The program is very easy to run. After the title screen, a short paragraph of instructions appears, followed by a menu showing the various situations. Each situation is presented in four or five lines of text, followed by possible explanations. The user's task is to choose the correct explanation.

With the exception of a few obviously absurd choices, all of the explanations are plausible. If the correct answer is chosen, a few notes from the French national anthem sound and a colorful graphics display appears on the screen. A wrong choice is greeted by a buzz and an occasional error message. All answers are followed by a short explanation providing additional information.

We liked this program, but it has certain annnoyances. Possible answers appear on the screen one at a time, and it's hard to remember all of them until a choice can be made. We would prefer having all of the choices displayed at once. We would also prefer that errors be acknowledged with something more tactful than a rude buzzer. The program was clearly designed to make even a wrong answer into a learning experience. Why spoil it? At least, the option of turning off the sound should be offered.

In addition, we encountered a couple of text errors that should have been edited out. This includes a reversed accent mark that appeared throughout the folk song lyrics.

Overall, we feel that *Correct Behavior the French Way* is a worthwhile investment for anyone studying French or contemplating a trip to France. At the very least, it provides a fascinating glimpse into the French culture. At most, it may help avoid a social blunder which could compromise a business deal or spoil a new friendship.

Correct Behavior the French Way is one of a series of titles that include *Correct Behavior the German Way, Correct Behavior the Japanese Way* and *Correct Behavior the Mexican Way.* For serious language students, all except the Japanese title are also available in the language of the country. We took a look at the French version and found it to be identical to the English version—except, of course, that it was in French.

Product: *Correct Behavior the French Way*
Price: $49.95
Company: Langenscheidt Publishers, Inc., 46-35 54th Rd., Maspeth, N.Y. 11378, 718-784-0055
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor

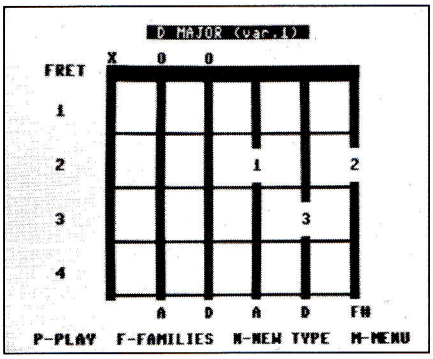
Music

Guitar Master

Learning To Play

Teaching yourself to play guitar may not seem like something you need an Apple II to do—unless you have *Guitar Master* and a Mockingboard sound synthesizer.

According to the manufacturer, the program is designed to help beginners, amateurs and professionals who want to learn to play or brush up on their skills. *Guitar Master* uses modules that include tuning, guitar chords, progressions, chord analyzer, transposing, pick and strum, scales and fret notes. These add up to enough self instruction to keep you playing for hours, say the producers of *Guitar Master.*



Guitar Master

There are 64 detailed lesson plans that start with the basics and go on to more advanced lessons. A 27-page manual in a three-ring binder helps the process along. Seven levels of lessons are included, from elementary to complex chords and picking and strumming.

The manufacturer points out that *Guitar Master* is not just for beginners and intermediate players. Even professionals will find new challenges.

Product: *Guitar Master*
Price: $49.95 (one program)
$85 (educational pack of three manuals and three disks)
Company: MasterSoft, PO Box 1027, Bend, Ore., 97709, 503-388-7654
Requirements: Apple II, II+, IIe; Mockingboard; guitar
Supports: Printer

Numbers

Review

Math Assistant I

Automatic Error Analysis

As children learn basic arithmetic operations, they often develop misconceptions about how those operations are carried out. In doing addition, for instance, they sometimes add across each line of a problem instead of up and down the ones, tens and thousands columns. It is important to identify the nature of these misunderstandings and provide corrective instruction as early as possible. Doing so, however, can be very time consuming. For the teacher faced with 36 test papers, analyzing each student's errors may be impossible.

Math Assistant I can help. Intended for use in grades one through four, this is a powerful program that can identify 20 types of addition errors and 20 types of subtraction errors. It can also provide printouts showing what kinds of errors each student made on a test.

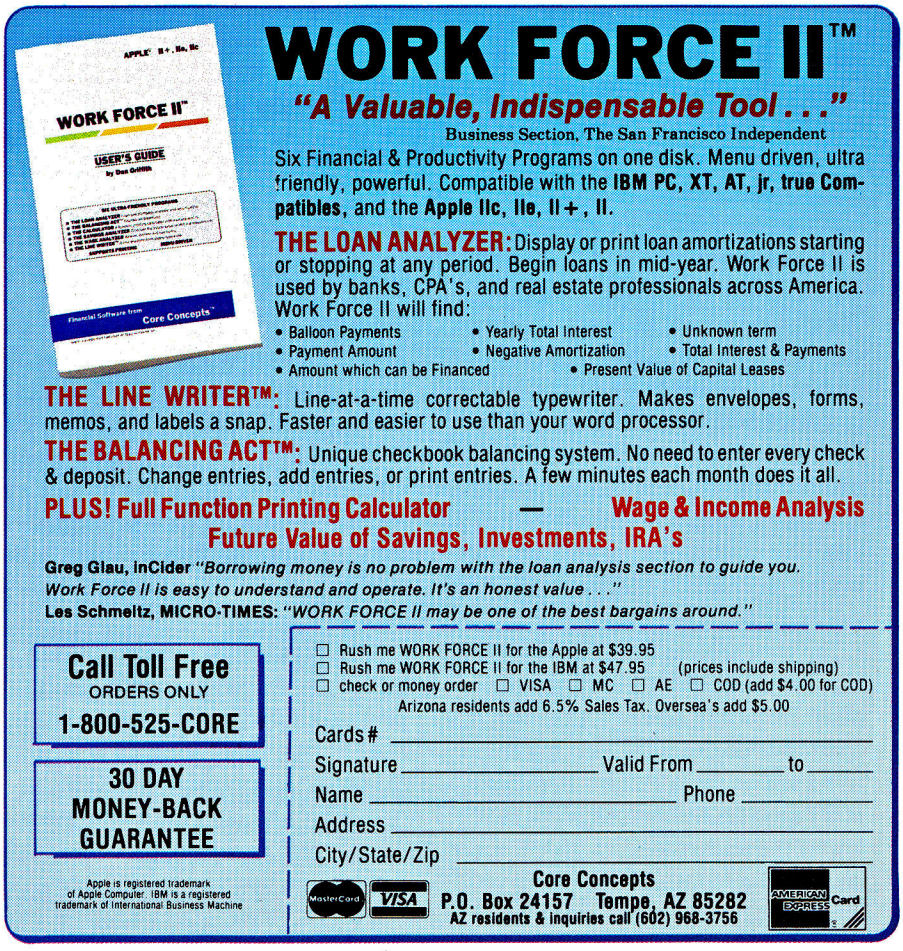
Math Assistant I comes in a hardcover binder containing four disks: a program disk, a data disk and backup copies of each. Thorough documentation is provided.

While the program is easy to use, its many features take time to learn. We found the tutorials included in the documentation to be very helpful. Both the addition and subtraction tutorials are clearly written, easy to follow and provide a complete overview of what the program will do.

The student can use *Math Assistant I* to practice problems or take tests at the computer. And the teacher can use the program's utilities to generate tests, track student progress, analyze student errors or provide practice help for the student.

When the program boots, the test taking menu appears. The student chooses either addition or subtraction and then selects the specific test from the next menu. Depending on what the teacher previously has instructed the disk to provide, the student either practices problems or takes a test.

If the teacher wishes, the student can be given corrective feedback during prac-



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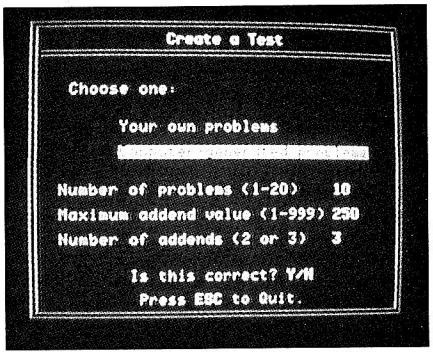


Math Assistant I

tice. One problem is shown at a time. If the student answers correctly, a message such as "very good" appears on the screen and the next problem is presented. If the student answers incorrectly, the message on the screen points out the specific type of error: "Did you add across instead of down?" "Don't forget to carry to the next place." The student is then given a second chance to work the problem.

In the test mode, the student has one opportunity to do each problem. No feedback is given and the computer records the results on the data disk for later reference by the teacher.

Utilities are available for teachers that offer a great deal of flexibility. The teacher begins by entering tests on the data disk. These can consist of problems devised by the teacher, problems from a textbook or problems generated by the computer within a range of numbers set by the teacher. Once entered, these tests are stored on the data disk and can be printed out and given as written tests or administered by the computer either as tests or as practice activities. An unlimited number of data disks can be created and used.

The error analysis feature can be used only for test results stored by the computer. Frequently, however, classroom time constraints do not allow each student to take a test on the computer. *Math Assistant I* provides for this possibility by allowing the teacher to enter student paper and pencil responses to tests stored on the disk. While this takes some time, we found it quick and easy to do. Entering scores will take less time and concentration than poring over students' answers to figure out the source of their errors.

Overall, we think *Math Assistant I* can be a valuable aid in teaching addition and subtraction. One option we would like to see is the ability to mix addition and subtraction problems. As it stands, there is no way to offer both types of problems in a single test or practice session.

Math Assistant I is the first of a series of two programs. The second program in the series, *Math Assistant II,* addresses multiplication and division.

Product: *Math Assistant I*
Price: $99.95
Company: Scholastic, Inc., 730 Broadway, New York, N.Y. 10003, 212-505-3000
Requirements: Apple II+, IIc, IIe; disk drive; printer
Supports: Second disk drive (recommended); color monitor

Review

Algebra Word Problems

Decoding Story Questions

Ask any math student what the hardest kind of problem is and the answer is often story problems. While algebra story problems can be real headscratchers, we think the *Algebra Word Problems* series can offer help to baffled algebra students. We looked at two of the four programs in the series: *Algebra Word Problems I: Motion* and *Algebra Word Problems II: Area, Perimeter, and Lever.*

In both programs, we were patiently guided through all the steps in first a sample problem and then a number of other story problems. The initial menu offers the option of selecting a sample problem or moving straight to the various types of practice problems. More than one sample problem can be requested and a new one is given each time. Thus the sample problems can also serve as mini-lessons.

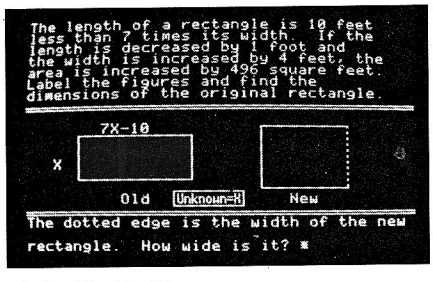
Both the sample and the practice problems guide students step by step. The program first shows how to understand each problem and classify the pertinent information into a table or diagram on the screen. It then demonstrates how to transform the information into an algebraic equation and, finally, how to solve the equation. Following each practice problem, a comprehensive error analysis is given.

While this information may be of limited use to students, it could be valuable to teachers in pinpointing problem areas. Unfortunately, the program does not provide for printing the error table. We think it would be worth the student's time to write down the information and show it to the teacher.

Algebra Word Problems I: Motion deals strictly with two kinds of motion problems: time and distance of objects traveling in opposite directions, and time and distance of objects overtaking one another or making round trips. We tried several of both kinds and found each problem to be carefully and patiently explained.

In *Algebra Word Problems II: Area, Perimeter, and Lever,* we found the same kind of step-by-step tutoring. We looked at the area problems, which deal with how area changes when the length and width of a rectangle are altered. This program uses the same steps as *Word Problems I,* with the addition of using the value of X to determine actual area.

In general, we think these programs do a good job of encouraging the student with positive messages. Students who have trouble understanding may feel help-



Algebra Word Problems

less, so messages such as "Fantastic, Bob!" are encouraging when the right answer is given on a first try. Unfortunately, the *Word Problems* programs also give the same glowing praise on a second or third try. In those cases, we would prefer to see a message like "Now you've got it."

We think these programs will be useful for anyone bewildered by these types of algebra problems. Their step-by-step approach and patient encouragement effectively help to clarify difficult procedures.

Product: *Algebra Word Problems I: Motion*
Algebra Word Problems II: Area, Perimeter, and Lever
Price: $39.95 (each title)
$150 (set of four)
Company: Microcomputer Workshops Courseware, 225 Westchester Ave., Port Chester, N.Y. 10573, 914-937-5440. Distribution by CBS Interactive Learning, 1 Fawcett Place, Greenwich, Conn. 06836
Requirements: Apple II+, IIc, IIe; disk drive
Supports: N/A

Review

Philo-Math Arithmetic Sequence

Junior High School Math

The Philo-Math Arithmetic Sequence is a group of instructional packages for late elementary or junior high school math classes. We looked at two of the four titles, *Decimals* and *Proportions and Per Cents,* and think they merit careful consideration.

Decimals consists of eight lessons on four double-sided disks. *Proportions and Per Cents* consists of 12 lessons on six double-sided disks. Both packages offer comprehensive treatment of their topics.

Decimals covers such information as shifting the decimal point; adding, subtracting, multiplying and dividing with decimals; and estimating with decimals. Material covered in *Proportions and Per Cents* includes a graphic demonstration of the concept of proportion, finding a missing quantity in a proportion, changing decimals and fractions to percents, percents over 100 and under one and finding the percent of a given number. Although their content is different, the two packages use identical formats and can be discussed together.

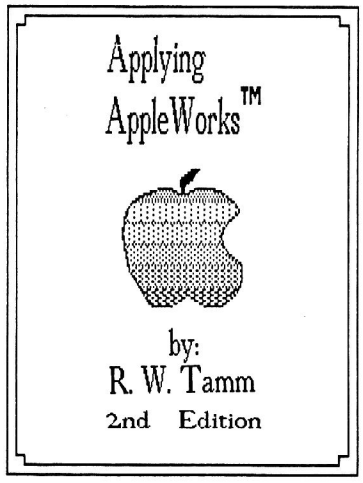
Each sequence opens with the question: "Have you ever run a computer before?" If the answer is no, a short explanation of how to enter and correct answers is given. Each disk also offers the opportunity for the student to see how the lessons are organized.

Each lesson consists of two parts: A and B. Part A presents the lesson material itself and gives practice problems. Part B offers a game or other enrichment activity that uses or extends the concepts presented in the A lesson. Part B also tests the student's understanding of the entire set of lessons.

We particularly like this organization. The A lessons are clear and logically presented. The B lessons give interesting and challenging applications of the concepts. In one B lesson, for example, we learned a method of multiplication used long ago by Russian peasants.

These programs make exceptionally good use of the computer as an instructional medium. Computers have certain capabilities that do not exist in any other form of instruction, and one of the things we look for in educational software is good use of those unique capabilities. Each lesson in these packages offers the student the opportunity to give the computer problems to solve.

Examples help students learn, yet particularly in math, the number of examples a teacher can give is often limited by the time it takes to perform the calculations. The computer can do the mathematical operations fast enough to allow many more examples. Furthermore, we think the



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Numbers

student may be more interested in the results of problems he has designed himself.

Another feature we like is that the lessons make very clear what is expected of the student. The student is plainly told how many problems must be correctly completed in order to continue. We achieved 70 percent on one of the activities and were told that we should practice more before going on. In fact, the program wouldn't allow us to progress without more practice.

In general, we were impressed with the *Decimals* and *Proportions and Per Cents* packages, but we found a couple of things inconvenient. In working the practice problems, the student frequently needs to do calculations with paper and pencil. For several reasons, we wish there were some means of using the computer for making such calculations.

First, there is rarely room at a computer table for the student to have a place to write. Next, it is possible that residue from erasures, broken pencil leads and such will get into the keyboard and gum up the works. Also, we think it's better practice to do computer work at the computer and paper and pencil work at a desk.

The *Decimals* program also asks that the student use a "hundreds board," a grid of 100 squares on which pieces of paper of various sizes are placed to represent graphically the tens, hundredths and thousandths of decimals. This is an excellent activity and well worth doing. Given the space restraints of most school computer tables, however, students may be frustrated by having to manage all that paper on their laps and having most of it end up on the floor.

The other two titles in the series are *Factoring Whole Numbers* and *Fractions.*

Product: *Decimals, Proportions and Per Cents*

Price: $120 (*Decimals*)
$199 (*Proportions and Per Cents*)

Company: Quality Educational Designs, PO Box 12486, Portland, Oreg. 97212, 503-287-8137

Requirements: Apple II+, IIc, IIe; disk drive

Supports: N/A

Pre-School

Review

Shutterbug's Patterns, Math In A Nutshell, Pipeline

Making Learning Fun

Convincing children that math and problem solving techniques can be fun to learn is easier with three lively new educational programs for the Apple II.

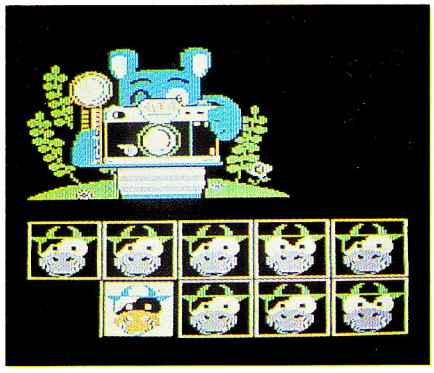
Shutterbug's Patterns, Math in a Nutshell and *Pipeline* are well-illustrated programs targeted at preschool and elementary age children. Two of the programs focus on problem solving and pattern identification skills, while the math program stresses basic arithmetic.

All three disguise the lessons in colorful, animated games that might even tempt kids who hate computers. The programs are packaged with clear, easy-to-read directions. Also included are learning kits, including lesson plans for teachers, posters, work sheets and other classroom aids.

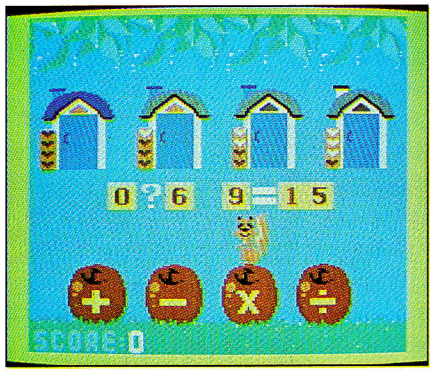
We think the learning kits will be valuable in helping teachers incorporate the programs into their curriculums. But these programs will be just as effective at home, especially for children who don't relish arithmetic drills for homework.

Shutterbug's Patterns is the simplest of the three programs. It's designed for children ages four through eight.

The Shutterbug character may be a familiar face to children who worked with *Shutterbug's Pictures*, an earlier program from the same manufacturer. He's a friendly blue bear who snaps photographs that fill the bottom half of the screen.



Shutterbug's Patterns



Math In A Nutshell

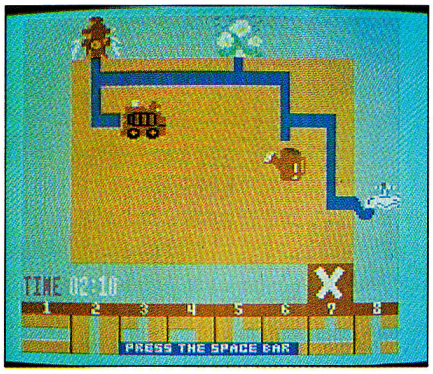
A pattern is established in the first eight shots, and the child is confronted with choosing two more images that will continue the pattern. Shutterbug smiles at correct answers and frowns at wrong ones.

The software helps young users develop visual discrimination, sequencing and pattern recognition skills, according to the manufacturer. And according to our experience with the program, users will be having fun while they learn.

Math in a Nutshell leads students through mathematical equations at three levels of difficulty. A chipper squirrel hops back and forth at the child's direction, executing addition, subtraction, multiplication and division commands.

The program's easiest level offers three numbers that must be added, divided and so on to solve an equation. The next level asks students to work with four numbers; equations with five numbers comprise the hardest section.

We liked the bright color graphics and



Pipeline

cheery tunes that sounded when we gave the correct answer. We also liked having a second chance to answer questions we flubbed. Some of the tougher equations are suitable for junior high school students, according to the manufacturer.

Pipeline is a bright and imaginative program that asks children to move pieces of pipe around the screen to link a series of objects. There are three levels of play with varying numbers of objects for each one. An optional time limit can also increase the program's difficulty.

Pipeline is designed to enhance problem solving skills and teach children how to use rules and models and recognize part-whole relationships. But first the child has to understand how to work the program.

Pressing numbers that match the different pipe sections moves the numbers around the screen. We thought the directions were a bit confusing on that point. But once we figured out how things worked, we enjoyed it.

Pipeline wasn't easy and we questioned the manufacturer's age recommendation for the program—children eight and older. No doubt, some eight-year-olds could handle *Pipeline* and learn a lot from it. But we think older children would benefit most.

Products: *Shutterbug's Patterns, Math in a Nutshell, Pipeline*
Price: $19.95 each
Company: Learning Technologies, Inc., 4255 L.B.J. Freeway, Ste. 131, Dallas, Texas 75244, 214-991-4958

Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor

Pre-Writing

Review

Proteus

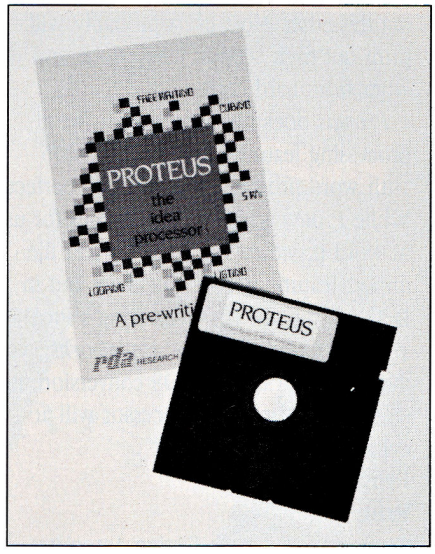
No More Writer's Block

Anyone who writes has known the feeling. An empty sheet of paper or a blank word processing screen, and a growing sense of panic and doom. What do I write? How should I write it? Where should I begin? When the feeling strikes an experienced writer, it's all chalked up as part of the job. But when writer's block affects students still new to writing, the experience can be devastating. Many beginners eventually associate writing with drudgery and never develop their skills.

Proteus is a pre-writing tool designed to unlock the flow of words. It consists of five sections, each of which provides a different way for writers to organize a writing assignment. None of the sections are difficult to grasp, and all use tools and techniques already familiar to teachers and students.

There is no order that has to be followed when using the sections—in fact, users may opt to skip one or more of them—but the Freewriting section is a good place to start. With Freewriting, students are urged to write as quickly as possible about a topic. Never mind typos and misplaced punctuation; it's impossible to backspace, and all text is entered as capital letters. We found Freewriting to be a good way to break the ice and *start writing*.

The Looping section encourages you to expand upon something that may have been mentioned in Freewriting mode. When you enter Looping, the screen clears and you begin writing again. As before, *Proteus* encourages you to keep writing without worrying about mistakes. If you stop typing for more than 10 seconds, a keep writing signal will flash. You can create several loops if desired, and then print them out.



Proteus

The Listing section is similar to the outlining we all learned in grade school, but less structured. After entering the Listing mode, the screen clears and the number one appears. You then write a word or sentence, press Return, and the number two appears. This continues for up to 15 lines. Like the other sections, a Listing can be printed out.

The 5 W's section presents students with who, what, where, when and why questions. After answering who? the student hits Return and is presented with what? and so on. Some teachers and students may opt to start with this section rather than Freewriting.

The Cubing section takes another approach by prodding students to analyze, compare, contrast and define their concept.

We found *Proteus* to be a solid approach to a difficult-to-teach topic—writing. We would like to see better integration between the sections. As it stands, there's no way to quickly go back and forth from, say, Freewriting to Looping without exiting one mode and enter-

Pre-Writing

ing the other. Most users probably will print out each section when done and work from hard copy.

Proteus does not have built-in word processing features and its integration with word processors is less than perfect. While *Proteus* can export text files for use in word processors that have a text file import feature, it does so slowly and in DOS 3.3 format. If you're using a ProDOS word processor (such as *Appleworks*), you must first run the ProDOS conversion utility before your word processor will accept the files.

Product: *Proteus*
Price: $79.95
Company: Research Design Associates, Inc., PO Box 848, Stony Brook, N.Y. 11790, 516-928-5700
Requirements: Apple IIc, IIe; disk drive
Supports: Second disk drive; printer

Programming

Review

Pascal 1.3

Apple's Latest Pascal

The original version of *Apple Pascal* was released in 1979 and it became very popular. Much of the popularity was spread by teachers, who grasped how well Pascal could teach good programming principles. Many schools now teach it as a first programming course.

Pascal is much more flexible and structured than BASIC and other programming languages. Consequently, Pascal source code is relatively easy to read and debug, making it popular for business programming as well as teaching. On the average, Pascal is about three times faster than an equivalent BASIC program.

Still, many Apple II users program in Applesoft BASIC. After all, it comes free with the computer and is very easy to learn. But it does have drawbacks. Consider that Applesoft BASIC is burned into ROM—it can't be updated like software supplied on diskettes can be. It's also rather inflexible. What's more, the current version of Applesoft BASIC is based on Microsoft's 1977 version of BASIC. It's virtually unchanged from its original release on ROM in 1978.

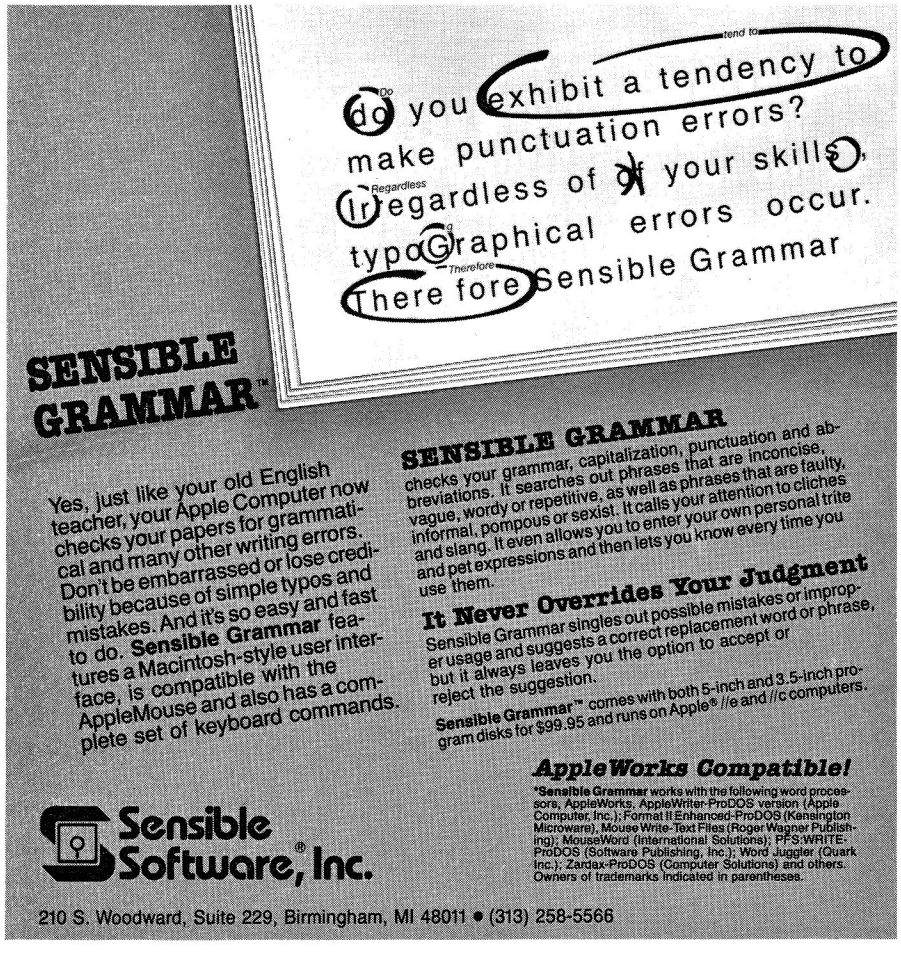
Since *Pascal 1.3* comes on disk and loads into RAM, it is much more flexible and up to date. *Pascal 1.0's* original manuals were replaced by two excellent reference manuals in version 1.1. When *Pascal 1.2* came along, it supported the up and down arrows and extra memory of the Apple IIe. With each version extra functions were added, bugs were removed and support for additional devices was added.

The latest version, *Pascal 1.3*, continues the trend. *Pascal 1.3* is about 98 percent compatible with earlier versions of Pascal. Several extra units and data types have been added. You can now call the Filer from a program using the SETCHAIN function, and the AUX memory on an Apple IIe or IIc is used more efficiently.

Three functions now operate differently. IDSEARCH and TREESEARCH can't be called from a program any more, and the REMSTATUS procedure has been removed from APPLESTUFF. Programs that use those functions must be modified.

The documentation for *Pascal 1.3* comes with a 950-page manual in Apple's "Workbench" binder. The software is supplied in both 5¼- and 3½-inch formats. The 5¼-inch format still requires four diskettes, but the 3½-inch UniDisk version puts all of the files on one 800K diskette.

Contrary to earlier rumors *Pascal 1.3*



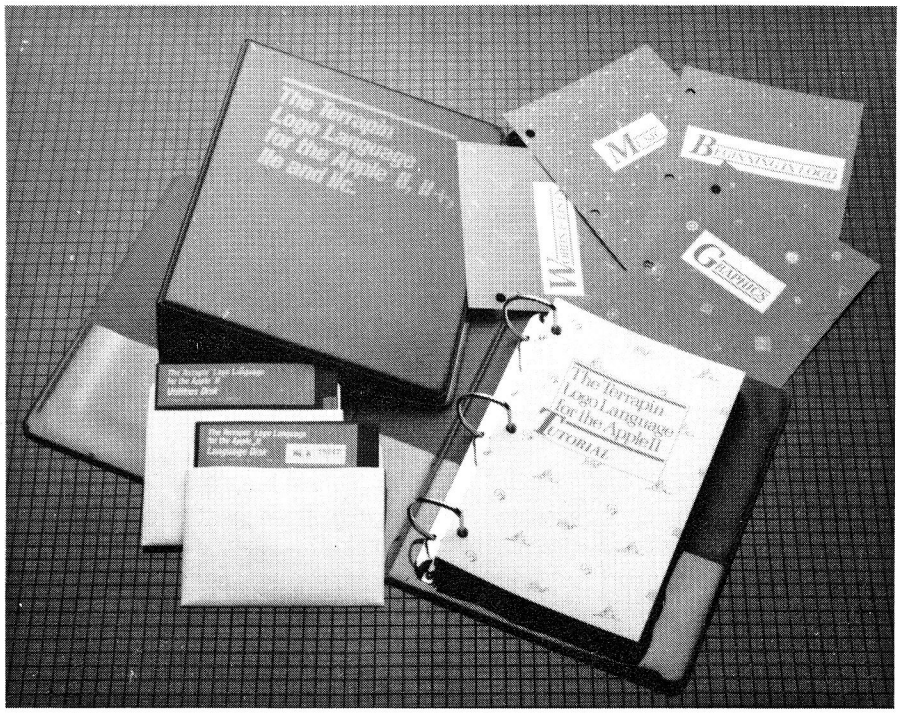
does not operate under the ProDOS operating system, but it does support many devices that were once for ProDOS only. The UniDisk 3.5, Apple II Memory Expansion Card and Profile hard disk drive are all supported directly by *Pascal 1.3*. If you need to access ProDOS files and devices from *Pascal 1.3*, a ProDOS access unit can be licensed from Apple Computer.

There is one major feature of *Pascal 1.3* that may limit its use with high-capacity storage devices. *Pascal 1.3*'s directory is limited to 77 entries. Normally, this isn't much of a problem (would you want to read a directory with more than 77 entries?). If you have many small files on your hard drive, however, you may get an out-of-space error, even when there is plenty of free space in the volume. A Volume Manager Unit can be licensed from Apple. Like the ProDOS access unit, it is designed for developers of Apple software.

If you have an earlier version of *Apple Pascal,* you can upgrade your copy by sending the original diskette and a $125 check to: Apple Computer Pascal 1.3 Upgrade, PO Box 306, Half Moon Bay, Calif. 94019. Apple will send you the new manual and a set of diskettes in both 5¼- and 3½-inch formats. The upgrade offer expires May 31.

If you are just starting to program and want to learn Pascal, we recommend you get *Instant Pascal.* It's much friendlier and easier for beginners to use. If you are a serious programmer, *Pascal 1.3* is the best language for you.

Product: *Pascal 1.3*
Price: $250
Company: Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010
Requirements: Apple II, II+, IIc, IIe; disk drive; 128K, high-capacity disk drive recommended
Supports: Second disk drive; UniDisk 3.5; Profile hard disk drive; Apple II Memory Expansion Card; most I/O devices; extra utilities available for software developers



Logo 3.0

Review

Logo 3.0

A Better Logo

The original Logo programming language was developed at MIT for use in artificial intelligence. Its developers had in mind an intuitive, easy to learn programming language that would be practical for those without any computer experience. This intuitive, graphics oriented language has since become very popular in beginning computer classes. Since Logo is so easy, many children are learning it at the same time they master reading and writing.

When you program in Logo, you build up subroutines from "primitives." Each primitive is a separate program segment. When put together, primitives create routines and entire programs. For example, you can design one primitive to play musical notes. It can be used by itself or with another primitive that plots notes on a hi-res screen.

Making pictures with Logo is usually done with a cursor called the "turtle." As the turtle "walks," it can raise and lower a pen attached to its tail. The turtle can turn left, right or be programmed to walk straight ahead. The turtle in *Logo 3.0* supports standard Apple hi-res graphics, but does not support double hi-res graphics.

Once a graphics is drawn on the screen, you may want to print it on your printer. If you have a smart interface card (e.g., Uniprint, Microbuffer+, etc.), then you can tell *Logo 3.0* to send the command to your card to print the screen. If you have an Imagewriter or Scribe, there is a program on *Logo 3.0*'s utility diskette that will dump the screen for you.

Several different versions of Logo are available for the Apple II (including one distributed by Apple Computer) but we found *Logo 3.0* to be the best supported and most powerful version available. It is based on, and licensed from, the original MIT Logo. With this latest release, *Logo 3.0* can use the AUX bank of memory on

Programming

128K Apple IIe and IIc computers for extra workspace.

Logo 3.0 comes with a large manual, reference chart and an 87-page technical appendix describing interfaces to the DOS 3.3 operating system. The manual includes a small tutorial on how to get started in Logo, but it doesn't go much further. If you want to program in Logo, we recommend that you purchase a separate tutorial book. Terrapin offers eight separate books on Logo, ranging from tutorials to sophisticated use of turtle graphics.

Logo 3.0 comes with a copy protected language diskette and a copyable utility diskette. A backup of the language diskette can be ordered for an extra $15. Schools needing extra copies of the language diskette can order a set of 10 disks for $299.95. A special $399 version is also available for use with hard drives, and a second utility diskette is available separately for $19.95.

Product: *Logo 3.0*
Price: $99
Company: Terrapin, Inc., 222 Third St., Cambridge, Mass. 02142, 617-492-8816
Requirements: 64K Apple II+, IIc, IIe; 128K and color monitor recommended
Supports: Second disk drive; several printers

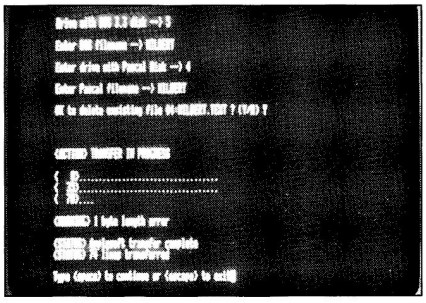
P-tral

BASIC To Pascal Converter

P-tral is a language translator that enables programmers to convert Applesoft BASIC programs to Apple Pascal. According to its vendor, *P-tral* reads BASIC source code from disk and generates the equivalent Apple Pascal source code.

P-tral makes it easier for programmers to move to another language by eliminating time-consuming recoding. The vendor states that business, scientific, graphics and games programs may all be converted. Programmers familiar with the BASIC code can use *P-tral* as a Pascal learning aid.

P-tral includes a utility that transfers data files for use with translated programs.



P-tral

Product: *P-tral*
Price: $125 (version 1)
Company: Woodchuck Industries, Inc., 340 W. 17th St., #2B, New York, NY 10011, 212-924-0576 or 212-206-6490
Requirements: Apple II, II+, IIc, IIe; two disk drives
Supports: Hard disk drive (recommended); printer

Teacher

Review

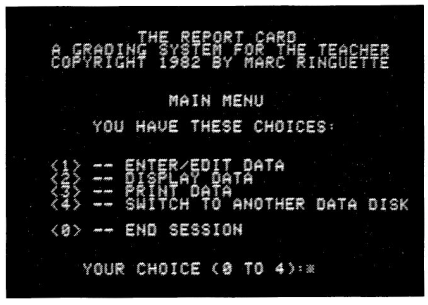
Report Card

Figuring Grades The Easy Way

As any teacher can testify, keeping track of student progress and managing the records needed to calculate grades is a big chore. What's more, learning to use a computerized grade book can take more time than figuring grades the old-fashioned way. That's not the case with *Report Card,* a grade book program that's quick to learn and easy to use.

The *Report Card* package comes with the program disk, a back-up disk and thorough documentation in a ring binder. Thanks to its ingenious system of nested menus, we found little need to refer to the documentation. Each menu leads to a more specific menu until the precise operation desired is reached. There is no need to remember commands.

Once the program disk is booted, the user is asked to put a data disk in the drive. Any blank disk will do and the program takes it from there.



Report Card

The first task is to set up the classes and class rosters on the disk. This option automatically comes to the screen when the data disk is checked and no classes are found. The program formats the disk and the user is prompted to enter the names of all of the classes that will be stored. *Report Card* will handle up to 12 classes of 40 students each, with a maximum of 300 students per disk. An unlimited number of data disks can be used.

The main menu offers five choices: Enter/Edit Data, Display Data, Print Data, Switch to Another Data Disk and End Session. Everything that needs to be done fits into one of these categories.

After classes are defined, the next step is to enter the roster for each class. Names may be entered in any order, with either first or last names first. The program will sort them either way. An ID number can also be entered for each student.

A nice feature is the ability to use the roster from one class as the roster for another. This saves retyping all the names whenever different sets of grades must be kept for the same group of students, as is often the case in an elementary class or when starting a new marking period.

Once all the rosters are set up, grades may be entered. The program accepts only numerical scores, not letter grades. The program prompts the user to select the class, enter the name of the assignment, enter the total number of possible points and set the weight of the assignment. Once this information is entered,

the class roster appears student by student and the scores are typed in. A helpful command menu appears at the top of the screen throughout the process.

Many displays and printouts are possible. Through the Display Data menu, the averages or grades of individual students can be listed on the screen, as can the activities of a class, the results of a specific assignment and the class roster. With the Print Data menu, even more options are offered. Averages of all the students in a class can be printed, as can individual student grade sheets, lists of activities, results of a single activity, class rosters and a table of the 10 most recent grades of a class. We think the number of options is impressive.

Report Card offers some excellent features. By varying the weight of a score, the teacher can reevaluate the score's importance in a student's grade. It is possible, for example, to make a 20-item quiz worth only as much as a 15-item quiz by simply assigning it a weight of 15. It is also possible to omit an assignment from consideration in a student's grade by giving it an "N" for no grade. This is especially useful for transfer students who cannot be expected to make up all prior work in a term. Changes in records can be made easily when students are added to or leave a class or when missed work is made up.

One of the real advantages of using *Report Card* is the ability to print individual grade reports. In using this program with actual classes, we have found that students respond very well to receiving printouts of their scores on a regular basis. For many students, seeing their grades in print provides motivation to work a little harder. Furthermore, students and parents can be kept informed of progress, thereby avoiding unpleasant surprises at the end of a term. We would, however, like to have the option of including letter grades on these individual reports. Right now, letter grades have to be hand written.

Overall, we are impressed with this program. It can be a real timesaver for teachers. Yet we found a couple of things to question. Although the documentation says the system works with "one or more disk drives," in fact only one is required, because the entire program loads into RAM memory after it's booted. The user then pulls out the program disk and inserts a data disk. This causes a slight problem when you back up files through the program. A lot of disk swapping is required to save data on the one drive. We found it easier to make file back-ups by copying the entire disk with two drives after exiting the program.

Also, we'd like to be able to enter several sets of scores for a class without having to return to the menu after each set. These may sound like little things, but for the teacher who is hurrying to enter grades between classes every second counts.

Product: *Report Card*
Price: $59.95
Company: Sensible Software, Inc., 210 S. Woodward, Ste. 229, Birmingham, Mich. 48011, 313-258-5566
Requirements: Apple II+, IIc, IIe,; disk drive; printer recommended (most printers are supported)
Supports: N/A

Review

Da Poma GB

An Electronic Grade Book

Da Poma GB is an electronic alternative to the record books where teachers keep track of student grades. Although many programs have been designed to calculate grades, few serve the purpose of teacher handwritten records sufficiently to replace the old-fashioned grade book. Using condensed print and a design that allows records to be printed in the familiar rows and columns, *Da Poma GB* may actually retire the old record book once and for all.

Getting started is easy, since entry of

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FREE DEMO

Teacher

class rosters takes a minimum of time. We liked being able to enter the name and the ID number in one operation rather than having to go through the list twice. However, we had trouble fitting some students' names into the 16 character limit. The software version we looked at allowed up to 75 students per class, which we think would be helpful to teachers of band, choir and other classes with large enrollments.

We could put only four classes on a data disk, and had to start a second disk for our remaining two classes. We would have preferred to store all classes on one disk. An unlimited number of data disks is allowed by the program, however, and switching from one to another is simple enough.

Recording scores is quick and easy. We liked being able to label grades with the dates they were earned. We found it difficult to squeeze meaningful assignment names into the six-character limit imposed by the program. Still, we realize that both this limit and the limit on the length of names were probably necessary in order to print grade book-style pages.

Perhaps the most important features of a grade book program are how it calculates grades and the kinds of information it can print out. Here *Da Poma GB* offers some powerful options. Scores can be entered in three categories—tests, quizzes and homework—and those categories can be assigned different weights in figuring grades.

The option of dropping the lowest score in each category is also available and grades can be calculated without regard to category. Fourteen scores per category can be shown on a single grade book page. If more than 14 are entered, the earliest two are added together to make room for the new one, in effect lifting the limit of 14.

Another advantage of *Da Poma GB* is that the same disks used for class lists can also be used for eight marking periods. The teacher doesn't have to reenter names and ID numbers at the beginning

Category ONE scores for [Test_Class]
Printed on Da Poma GB date [5-Feb-1986]

	Score #	# 1	2	3	4	5	6	7	8	9
	Type of Score	Cum--1	Essay1	HW 1	Exam 1	X-cred	W'ever	TEST 2	Quiz 2	Test 3
	Grade Period	1	1	2	2	2	2	3	3	3
	Date of Entry	31 Dec 1984	6 Jan 1985	6 Jan 1985	7 Jan 1985	7 Jan 1985	7 Jan 1985	7 Jan 1985	7 Jan 1985	7 Jan 1985
#	NAME									
0	MAXSCORE	250.0	60.0	30.0	100.0	50.0	200.0	100.0	100.0	100.0
1	Aiea High	240.0	0.0	0.0	0.0	..E..	0.0	0.0	0.0	0.0
2	Aliiolani School	220.0	45.0	29.0	100.0	49.0	189.0	0.0	0.0	0.0
3	Campbell High	230.0	56.0	28.0	78.0	48.0	188.0	0.0	0.0	0.0
4	Castle High	240.0	57.0	27.0	79.0	47.0	198.0	0.0	0.0	0.0
5	Da Poma Kula	250.0	110.0	26.0	100.0	46.0	191.0	0.0	0.0	0.0
6	Damien Memorial	210.0	60.0	25.0	99.0	45.0	199.0	0.0	0.0	0.0
7	Farrington High	220.0	65.0	24.0	98.0	43.0	199.0	0.0	0.0	0.0
8	Hawaii Baptist A	230.0	67.0	23.0	96.0	44.0	197.0	0.0	0.0	0.0
9	Hawaii Mission A	240.0	69.0	22.0	68.0	47.0	189.0	0.0	0.0	0.0
10	Hawaii Prep	240.0	45.0	21.0	79.0	48.0	189.0	0.0	0.0	0.0
11	Holy Nativity	245.0	34.0	20.0	79.0	49.0	193.0	0.0	0.0	0.0
12	Holy Trinity	250.0	45.0	21.0	89.0	46.0	192.0	0.0	0.0	0.0

Da Poma GB

of each marking period, and may well be able to use the same files for an entire school year. What's more, data from several marking periods are available for calculating cumulative semester grades. Any extra marking periods should be useful for figuring final exams into semester grades.

For a teacher who grades on a curve, the program calculates and displays three distributions for the teacher's selection. For those who use straight percentage grades, two possibilities are offered: the traditional 90-80-70-60 scale and one the teacher can define called "Kustom Cutoffs."

We think the flexibility offered here is impressive. Still, we were disappointed that only the levels for A, B, C and D grades could be set with Kustom Cutoffs—not the percentage at which, for example, a B becomes a B+. We would prefer that the teacher determine the cutoffs for plus and minus grades.

Da Poma GB provides several printout options. The raw scores for a class can be printed in a form similar to a traditional grade book page. A table showing individual letter grades and percentage scores for a class can also be printed, either with names or ID numbers to allow public posting.

A low score report showing the names of students with grades below C- can also be generated. According to the manual, this report includes a list of students whose percentages have declined since the previous report. Our copy of the program printed the heading for this list but didn't print names, even though some students' scores had gone down.

Individual score reports showing a student's percentage, raw point total, class rank and letter grade can be printed for students. These reports contain one of three comments, depending on how the grade has changed since the previous calculation. If the percentage has gone up, the message "Good job you are getting better!" appears. If the percentage has gone down, the message is "Your grade is slipping. Please try harder." We were dismayed to see the report for a student whose percentage had gone from 24.5 to 24.7 read "Good Job." We would feel uncomfortable giving a failing grade with a congratulatory message.

Clearly, the *Da Poma GB* offers some

attractive capabilities along with some drawbacks. Those who can work around them may find that its flexibility and extensive list of features make it worth considering.

Da Poma GB is available in several Apple II versions with differing class size and memory requirements. A mouse version is also available for the Apple IIe and IIc. We tested the standard 128K Apple version.

Product: *Da Poma GB*
Price: $49 (64K Apple II version)
$59 (128K Apple IIc, IIe version—reviewed here)
$69 (mouse edition, Apple IIc, IIe)
$75 (Macintosh version)
Company: Da Poma, Inc., PO Drawer H, Hondo, Texas 78861, 512-426-5932
Requirements: Apple II+, IIc, IIe; disk drive; printer recommended
Supports: Second disk drive (recommended)

Words

Review

First Steps To Reading: Phonics I And II

Learning Letter Sounds

First Steps To Reading: Phonics I and II provides practice for beginning readers in identifying the first letters of words. Intended for children ages four to seven, the program contains six colorful activities where children match letters with pictures of objects that begin with those letters. The program can be run with or without sound and can use either the keyboard or a joystick.

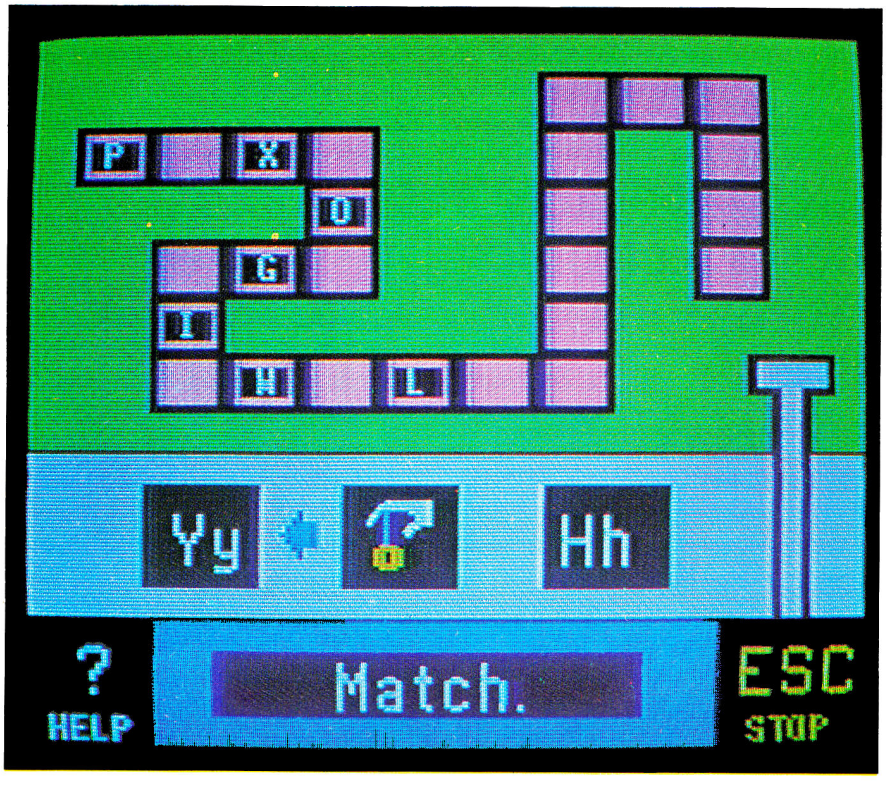
Phonics I occupies side one of the program disk. In the first activity, an "alphabet path" appears on top of screen and three boxes appear at the bottom. In the center box is a picture of an object. On either side is a box containing a letter. The child's task is to choose the box that shows the first letter of the word pictured. This can be done with a joystick, the arrow keys or by typing the letter itself. If the child is familiar enough with the keyboard, we think typing the right letter provides the best practice.

The second game is similar to the first, but this time one letter is displayed between two pictures and the child selects the picture whose first letter is shown. In both games, a correct answer makes a "martian" move across the screen and adds the letter to the alphabet path. When the game is completed after 13 letters, the martian flies away in a spaceship.

Because the computer selects letters and pictures at random, the games can be played many times without becoming repetitive. This random selection occasionally creates confusing situations, though. For example, a picture of a dog appeared between a "p" and a "d" in one game. While "puppy" is just as correct a name for that picture as "dog," the program accepted only the "d" as the correct answer.

The third game on *Phonics I* is, we think, the best activity on the disk. Here, the child manipulates a crane to pick up items that begin with a certain letter and deposits them on a truck that hauls them away. While the keyboard works fine, we think this activity is more fun with the joystick. We also think kids will like the chugging sound the crane makes and the way the truck roars off.

The three games on the *Phonics II* side of the disk are slightly more advanced and ask the child to find or type the correct letter. In the first game, the child types the first letters of words to advance a monkey through a maze toward a banana. In the second, typing the correct first letter moves a car along a racetrack. In the third game, the final letter of the word must be typed and a racehorse



First Steps To Reading: Phonics I And II

Words

moves along a track.

Throughout the program, correct answers are rewarded with a little tune and a "good work" type of message on the screen. Incorrect answers are given two musical tones and a second try. Upon completion of each game, a screen appears congratulating the child by name for finishing the game and telling how many times he corrected himself. We like the emphasis on completion and self correction rather than on right and wrong answers.

The documentation provides suggestions for additional activities to help children practice these skills. We think children will have fun with them and encourage parents and teachers to take advantage of the suggestions.

Product: *First Steps to Reading: Phonics I and II*
Price: $29.95
Company: Grolier Electronic Publishing, Inc., Sherman Tpke., Danbury, Conn. 06816, 800-858-8858
Requirements: Apple II, II+, IIc, IIe; disk drive
Supports: Color monitor (recommended)

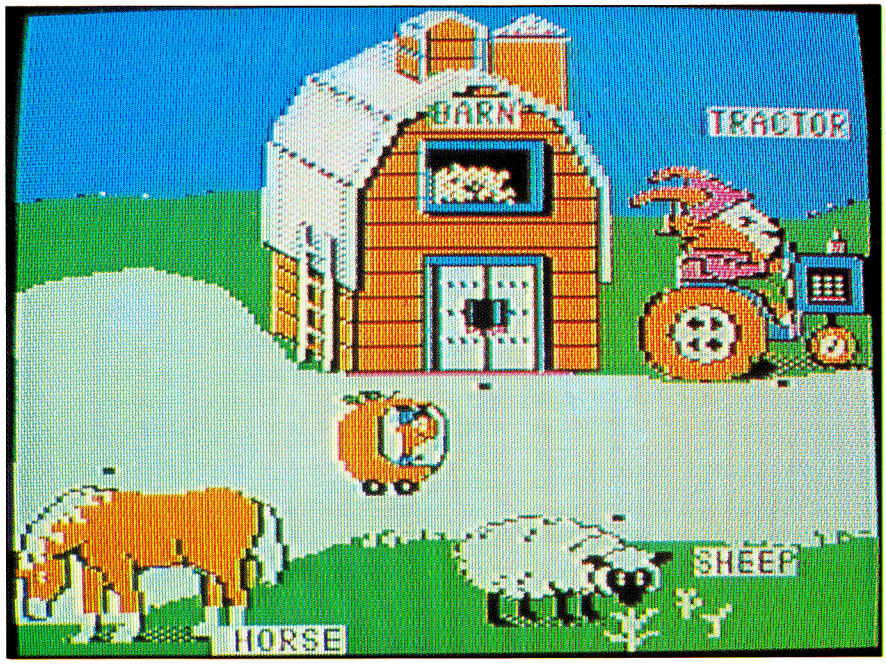
Review

Richard Scarry's Best Electronic Word Book Ever!

An Animated Picture Book

Richard Scarry's Best Electronic Word Book Ever! is an on-screen picture book whose characters come to life. The drawings are as clever as you would expect from Richard Scarry, who has written and illustrated many well-loved children's books.

In this imaginative program, designed for children five and older, the child guides Lowly Worm in his Apple Car through scenes in six environments: Park Harbor, Town, Construction Site, Railroad and Farm. The package includes two disks, each of which contains three environments. An instruction manual is also included.



Richard Scarry's Best Electronic Word Book Ever!

The documentation is written for parents. Although the program is very easy to run, the directions needed are in the manual rather than on the screen. Parents should plan to spend a few minutes showing children how to work the program.

The opening menu offers four skill levels that can be changed easily at any time. After the skill level menu, a pictorial environment menu comes up. Each environment has four scenes that change quickly and automatically as Lowly Worm's Apple Car moves to the edge of the screen.

In the first skill level, Stop Look and Listen, the child stops the Apple Car using black squares. The name for the object appears, the object is animated and a short tune is played.

At the second skill level, Get the Picture, the child manipulates the Apple Car to match pictures of objects appearing framed in the corner of the screen. In the Park environment, for instance, a slide might be shown in the frame. The child guides Lowly Worm through the various scenes until the slide appears and then presses the space bar. As before, the picture animates, the word appears and a little tune is played. If the wrong picture is chosen, just a few notes sound to suggest another try.

In Skill Level Three, Word Patrol, the child again sends Lowly Worm looking for an object. This time, the word appears in the corner of the screen and the child must match it with the right picture. Clearly, this requires more reading ability than matching two pictures, but we think the skill progression is logical.

In skill Level Four, Scavenger Hunt, the child moves between environments. Here, the child is given a list of words from all three environments and searches through them for pictures matching the words. We think this activity is good memory practice, because the words disappear from the screen when the child enters an environment. They can, however, be retrieved easily enough with a couple of keystrokes.

This program addresses important reading readiness skills such as word/object orientation, word recognition and vocabu-

lary building. We think children will learn from these activities, will like using the program and will enjoy seeing its characters come to life.

We see problems with the selection of some words, however. Particularly at Skill Level One, some children may be confused and associate words with pictures in a surprising way. In the Harbor Environment, for example, the word for a character in a blue captain's suit is captain. Yet the word for a character in a fireman's suit is hose—not fireman, as the child might expect. We found other similar inconsistencies. Some children may need adult help to make sure words are identified with the right objects.

Product: *Richard Scarry's Best Electronic Word Book Ever!*
Price: $19.95
Company: CBS Software, One Fawcett Pl., Greenwich, Conn. 06836, 203-622-2500
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Color monitor; joystick

Word Processing

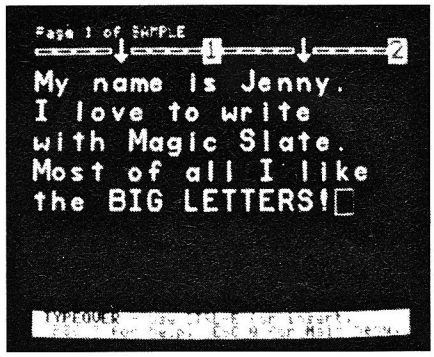
Review

Magic Slate

A Family Word Processor

Classrooms across the country have demonstrated that word processing can increase the quantity and quality of children's writing. Don't be surprised. After all, use of a word processor removes the agony of having to recopy a whole composition just to correct a couple of errors. With that stumbling block removed, many children find that writing is fun.

The problem has been finding an appropriate word processing program for children. There have been several designed, but parents and teachers had to learn these programs before they could teach youngsters how to use them. Children's word processors are not very useful in the adult world where more sophisticated features are required, so parents and teachers have also had to learn another program for their own use. *Magic Slate* makes it possible to learn only one set of commands for, in effect, three different word processors.



Magic Slate

The *Magic Slate* package consists of two disks and an extensive manual. On the first disk are two versions of the word processor: a 20-column version for children in the primary grades and a 40-column version for older children. The 20-column version features large letters that young children are accustomed to seeing. This version is easily changed back to the 40-column version when it is outgrown or when an older child needs to use the program.

The two versions use identical icon menus from which choices can be made either with the arrow keys or by typing the first letter of the word. Surprisingly, the 20-column version uses most of the word processing functions offered by the 40-column version, including search and replace and deletion of characters, words and sentences. We think young children will have fun writing with the 20-column version of *Magic Slate.*

The 40-column version offers some features that the 20-column one doesn't. For example, four justification options are offered: left, right, both sides and centered. Variable vertical spacing is also allowed, offering options from single spacing to two-and-a-half spaces between lines.

This version also offers several typestyles. Boldface, underlining, italics, superscript, subscript and outlined print may be selected and will appear both on the screen and in print. What's more, the program offers the ability to move and copy blocks of text and to format the text as desired for printing.

The second disk in the package contains the 80-column "adult" version of the program. This is a sophisticated word processor that we think compares favorably with other word processors a parent might choose for personal use. The key advantage is that with *Magic Slate,* the parent can apply everything learned from the children's versions to his own use. The icon-based menu of the 40-column version is replaced by a word-based menu with more options, but all of the familiar commands from the other versions work in exactly the same way.

The 80-column version of *Magic Slate* offers some very useful additional features. Two files can be stored in memory at once. Changing from the active file to the secondary file is as simple as choosing a letter from the main menu. Up to 10 cursor flags, which allow an instant return to the marked spot in a text, can be placed in a file.

The program also offers the ability to define any of the alphabet or symbol keys as function keys in order to shorten the number of keystrokes required for frequently used operations, such as changing typestyles. These functions are saved along with a file and are available whenever the file is open.

One of the best features of *Magic Slate* is the documentation. The reference manual provides a clear, easy to understand tutorial for the 40-column version and well written directions for the extra features of the 80-column program. Many excellent ideas for things children and adults can do with *Magic Slate* are also included.

We had one problem with the program. When we went to print out a text we had

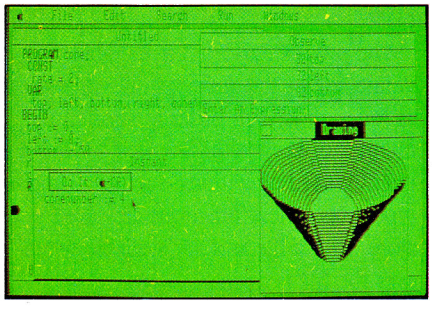
Word Processing

typed in the 80-column version, we found that if we altered the margin settings, the first letter of a line was often omitted. We contacted the company and were assured that they had corrected the defect and would replace our disk. In all probability, dealers will have the corrected version of the software by the time this appears in print.

We think both children and parents will like *Magic Slate.* Children will appreciate using the same "grownup" program that mom and dad use, and mom and dad will enjoy learning their own program at the same time as they learn the one they teach the kids.

Product: *Magic Slate*
Price: $99.95
Company: Sunburst Communications, Inc., 39 Washington Ave., Pleasantville, N.Y. 10570, 914-769-5030
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Second disk drive; printer

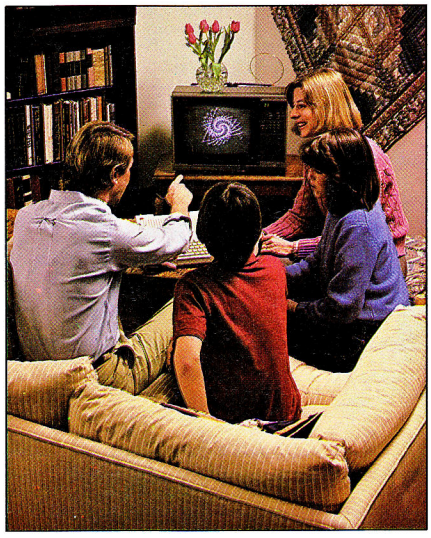
Significant Others



Apple II Instant Pascal

Apple II Instant Pascal—Macintosh-like windowing environment for learning Pascal. Programs can be tested in windows while code is viewed on the screen. Reviewed, *The Apple II Review,* Winter '85. $140. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010

Apple Logo II—A popular computer-literacy program in schools, *Apple Logo II* includes superior manual and training diskette. Reviewed, *The Apple II Review,* Winter' 85. $100. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010



Apple Logo II

Bank St. Storybook—One step beyond regular storybook programs, this one allows children to animate their character creations. Reviewed, *The Apple II Review,* Fall '85. $39.95. Mindscape, Inc., 3444 Dundee Rd., Northbrook, Ill. 60062, 312-480-7667

Build a Book—A popular storybook program that helps children write and illustrate personalized stories. $24.95. Scarborough Systems, Inc., 55 S. Broadway, Tarrytown, N.Y. 10591, 914-332-4545

Kidwriter—Kids choose from a wide variety of characters and objects in order to illustrate stories created with an elementary word processor. Completed storybooks may be printed out. Reviewed, *The Apple II Review,* Fall '85. $29.95. Spinnaker Software, One Kendall Sq., Cambridge, Mass. 02139, 617-494-1200

Lovejoy's Preparation For The SAT—Contains two SAT-like exams and plenty of on-line learning material. Reviewed, *The Apple II Review,* Winter '85. $69.95. Simon & Schuster, Inc., Gulf + Western Bldg., One Gulf + Western Plaza, New York, N.Y. 10023, 212-333-5800

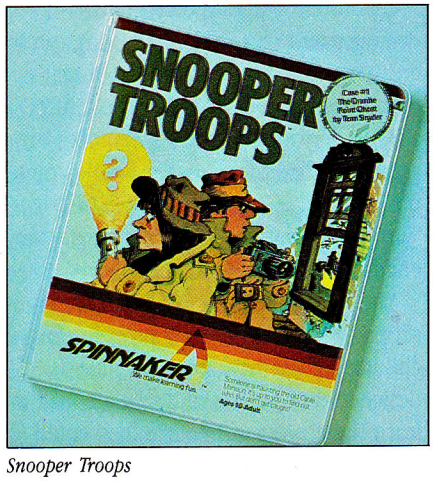
Magic Spells—Spelling adventure set in a magic kingdom where children from kindergarten on up unscramble over 500 words. Includes editor for making your own word lists. Latest revision supports UniDisk 3.5. Reviewed, *The Apple II Review,* Fall '85. $40. The Learning Company, 545 Middlefield Rd., Ste. 170, Menlo Park, Calif. 94025, 415-328-5410

Mastertype—The original shoot'em-up, learn-to-type program. Hundreds of dead aliens can't be wrong. Recently updated. Reviewed, *The Apple II Review,* Winter '85. $39.95. Scarborough Systems, Inc., 55 S. Broadway, Tarrytown, N.Y. 10591, 914-332-4545

Math Blaster—Standard flash-card system gives way to a lively educational arcade game when the user needs a change of pace. Reviewed, *The Apple II Review,* Fall '85. $49.95. Davidson & Associates, 3135 Kashiwa St., Torrance, Calif. 90505, 213-534-4070

Remember!—A learning tool for studying and remembering facts. Good value in and out of school. Reviewed, *The Apple II Review,* Winter '85. $79.95. Designware, Inc., 185 Berry St., San Francisco, Calif. 94107, 415-546-1866

Rocky's Boots—Logical thinking game that uses a raccoon character to help children construct machines. The original electronic erector set where operations can get complex. $49.95. The Learning Company, 545 Middlefield Rd., Ste. 170, Menlo Park, Calif. 94025, 415-328-5410



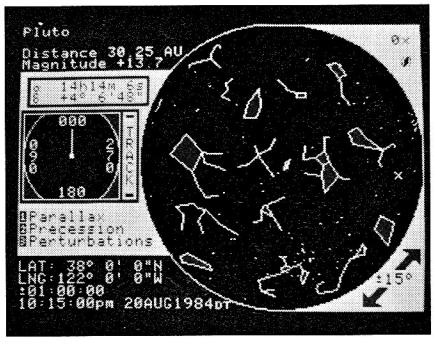
Snooper Troops

Snooper Troops—"Case #1: The Granite Ghost" is a family oriented mystery for ages nine to adult. Users learn to take notes, draw maps and classify information. Reviewed, *The Apple II Review,* Winter '85. $32.95. Spinnaker Software, One Kendall Sq., Cambridge, Mass. 02138, 617-494-1200.

Stickybear Series—The Stickybear character has enlivened a number of educational programs, from games that teach the ABCs to shape recognition. Programs in this series include lots of sound, graphics and printed material. $39.95. Weekly Reader Family Software, 245 Long Hill Rd., Middletown, Conn. 06457, 203-638-2400

The Apple Education Classics—Time-tested, entertaining programs on a double-sided diskette. Helps children and adults improve spelling, math and word recognition. Written in BASIC. $20. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010

The Incredible Laboratory—Teaches cause-and-effect reasoning in a lab setting where children mix strange chemicals to form various monsters. Fun graphics and sound effects galore. Reviewed, *The Apple II Review,* Fall '85. $55. Sunburst Communications, Inc., 39 Washington Ave., Pleasantville, N.Y. 10570, 800-431-1934



The Observatory

The Observatory—Automated star chart that turns the Apple II into a powerful locator of celestial objects. Delightful. Great for demonstrating what an Apple II can do. Reviewed, *The Apple II Review,* Winter '85. $49.95. Lightspeed Software, 2124 Kittredge St., Ste. 185, Berkeley, Calif. 94704, 415-486-1165

Typing Tutor III—Popular typing program that monitors your speed on every key. Includes progress reports and evaluations. $49.95. Simon & Schuster, Inc., Gulf + Western Bldg., One Gulf + Western Plaza, New York, NY 10023, 212-333-5800

Word Attack—Vocabulary-building program helps students master 675 new words, including those commonly used on the SAT exam. Uses arcade-style format. $49.95. Davidson & Associates, Inc., 3135 Kashiwa St., Torrance, Calif. 90505, 213-534-4070

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Animation

Review

Fantavision

Fantastic Graphics

Broderbund has a good reputation for great graphics software and *Fantavision* will reinforce that reputation. Scott Anderson's newest program is simply amazing.

One side of the program disk includes a five-minute demo that shows off the program's capabilities. Objects spin, fly, dive and move all over the screen. A character jumps off a diving board and performs a perfect swan dive. A fish changes into a snake and then into a bird. A skull goes through millions of years of evolution in two seconds, evolving from an ape-like creature into a modern man. A stick figure jumps across a realistic river, grabs a tree branch and swings back and forth before dropping to the ground—with the figure's shadow following perfectly behind.

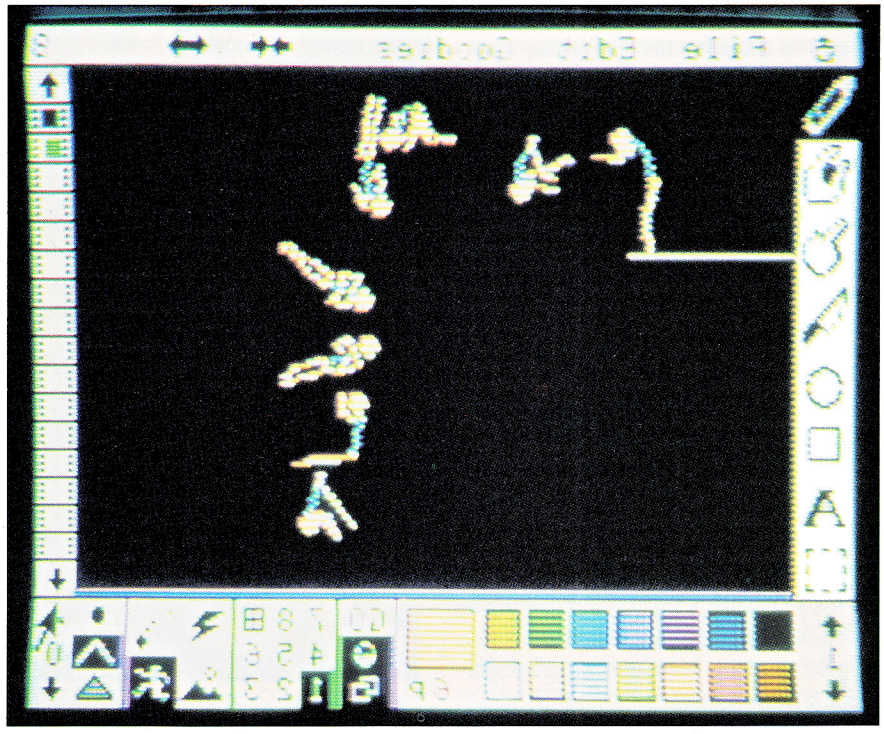
Wow! Realize that this Apple II is essentially the same machine where we played *Pong* seven years ago—marveling at the graphics.

The main side of the diskette is the *Fantavision* desktop. Here you choose from various accessories and functions. If you have used *Mousepaint* on an Apple II, or similar Macintosh painting programs, you'll find yourself at home on this desktop.

Fantavision uses a joystick, mouse, Koala Pad or graphics tablet for input. It will not work with just the keyboard. The complicated graphics images made possible by *Fantavision* simply wouldn't be practical using computer keys.

Fantavision is a movie making program, but unlike others we've seen, it does not force you to plot every frame. If you choose two frames, *Fantavision* can interpolate between them. Broderbund calls this process "Tweening" for in between.

Tweening instructs *Fantavision* to make smooth transitions between the pictures you plot. If you create a slide with a ball falling off a building, and then create another slide with a ball smashing flat on the ground, the program can figure out where the ball must be for every frame in between.



Fantavision

The program can be instructed to draw shadows as needed. All you have to do is specify where the "light source" is coming from.

Fantavision uses only single hi-res graphics, not double hi-res. Animation is not practical with double hi-res because of a built in limitation of the Apple II's hardware. Since the Apple has two single-res screens and only one double hi-res screen, *Fantavision* draws on one single hi-res screen while you are looking at the other.

The alternating screens produce smooth animated graphics. Depending on how complicated the figures are, *Fantavision* can plot up to several frames a second. When a show is running, you can speed it up, slow it down or even reverse the action.

Fantavision is ProDOS program. If you want, you can plot a movie on top of any standard hi-res picture created with any other ProDOS package. Once you make a movie, you can generate a copyable runtime version. This movie can then be copied and used for teaching, demonstration purposes or even as an electronic greeting card.

By itself, a *Fantavision* slide show cannot be attached to another program. This means that you can't write a program in BASIC (or any other language) and then use *Fantavision* to animate portions of your program. While this limits the possible applications, *Fantavision* graphics are still extremely useful. Pictures are great attention getters, and can be used by advertising agencies and other businesses to make attractive presentations.

Like many good graphics programs, *Fantavision* is easy to learn but difficult to master. If you're ready to test your talents as a movie designer, then *Fantavision* is a great way to start.

Product: *Fantavision*
Price: $49.95
Company: Broderbund, 17 Paul Dr., San

Rafael, Calif. 94903, 415-479-1700
Requirements: Apple II, II+, IIc, IIe; disk drive; graphics tablet; mouse; Koala Pad; joystick
Supports: Color monitor (recommended)

Graphics

Review

Beagle Graphics

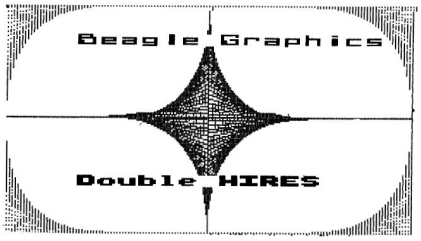
Double Hi-Res Graphics

When the Apple IIe came out, Apple Computer, Inc. upgraded the hi-res graphics hardware from 280 by 192 pixels (single-res graphics) to 560 by 192 pixels (double hi-res graphics). Unfortunately, Apple made one omission. While the *hardware* for double hi-res graphics is included in the Apple IIe and IIc, no *software* to access the graphics comes with the Apple. The "other half" of the graphics screen is stored in the Apple IIe AUX bank of memory and is fairly difficult to access from a simple BASIC program. Applesoft still supports only standard single hi-res graphics, even after the enhanced IIe upgrade.

Beagle Bros. corrects this situation with *Beagle Graphics,* a set of programming utilities that attaches to Applesoft BASIC, making double hi-res programming a snap. How easy is it? We converted a hi-res screen and program into double hi-res mode in less than 15 minutes.

A utility attaches to Applesoft through the ampersand (&) function. The command "& HGR" sets up the double hi-res screen, while similar commands control the other double hi-res functions. In addition, extra commands for drawing circles, boxes and filling areas in color are included.

Standard Applesoft shapes can be used, although there is little documentation on how to use or manipulate shapes either in



Beagle Graphics

Beagle Graphics or in the Applesoft manuals. Two other Beagle Bros. programs—*Shape Mechanic* and *Apple Mechanic*—are excellent programs for creating and manipulating Applesoft shapes. Shapes created with those programs are compatible with *Beagle Graphics.*

Besides graphics, the utilities can also manipulate text. Commands are included to draw color text on the hi-res screen in standard and double-width sizes. Any *DOS Tool Kit*-compatible font can be used. A font editor and several fonts are included.

Double-plot is a double hi-res drawing utility included with the program. You can use a mouse, graphics tablet, joystick, or the keyboard to draw double hi-res pictures. It's fairly simple and easy to use.

Other utilities include double lo-res (80 by 48 pixels) graphics, utilities for editing the double hi-res screen (cut and paste), programs to compress the double hi-res screen to save disk space and two utilities that convert hi-res screens from standard hi-res graphics to double hi-res.

One convert utility will put a standard hi-res screen on the left side of a double hi-res screen. Another will expand the hi-res screen from 280 by 192 pixels to 560 by 192 pixels by doubling each pixel. All of the utilities are well documented and easy to use.

It takes only three steps to expand a standard graphics file into a double hi-res picture. First, set the double hi-res mode with the command "& HGR." Then load the hi-res file you want to change with the command "BLOAD FILE,A$2000." Last, run the converter with the command "BRUN CONVERT.HI-RES.2." Each pixel in the file will be doubled and the file will appear as a double hi-res picture on the screen. It can be saved or used within a program.

To convert an Applesoft program from standard hi-res graphics into double hi-res, usually all you have to do is add an ampersand before each graphics command (a utility is provided that even does this!), reset any maximum X value from 280 to 560 and convert any pictures that are loaded into memory. That's it! If only every utility were this easy to use life would be a lot simpler.

Beagle Graphics comes on a copyable double-sided diskette, one side in ProDOS, the other in DOS 3.3. The package also includes a color chart and the famous Beagle Bros. "Peeks and Pokes" chart (actually a pretty good reference source). You will need to know how to program in Applesoft BASIC in order to use *Beagle Graphics.*

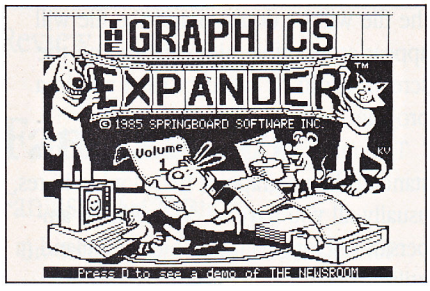
If you have programmed hi-res graphics programs in BASIC and want to move up to double hi-res, then *Beagle Graphics* will make things much easier for you.
Product: *Beagle Graphics*
Price: $59.95
Company: Beagle Bros., Inc., 3990 Old Town Ave., Ste. 102C, San Diego, Calif. 92110, 619-296-6400
Requirements: Apple IIc, IIe; disk drive
Supports: ProDOS; DOS 3.3; joystick; mouse; graphics tablet; color monitor highly recommended

Graphics Expander

The Print Shop Accessory

Graphics Expander is an accessory program that adds graphics tools and ready-to-use illustrations to *The Print Shop*, a popular program from Broderbund Software, San Rafael, Calif. (*The Print Shop* is used for creating everything from greeting cards to banners and stationery.) According to the manufacturer,

Graphics



Graphics Expander

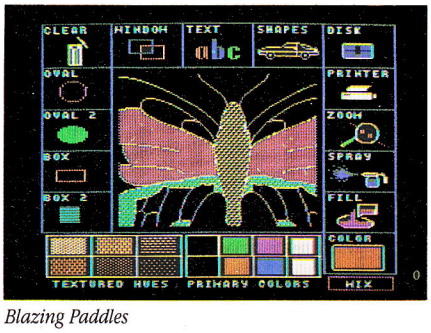
Graphics Expander's illustrations and tools are similar to the company's *The Newsroom* desktop publishing product.

Graphics Expander adds over 300 new graphics suitable for many occasions. With the drawing and editing tools, you can work, flip, modify and magnify hi-res pictures into graphics for *The Print Shop*.

With *Graphics Expander*, you can also combine graphics from other sources (such as the Koala Pad or a digitizer), add text and modify graphics created with *The Print Shop* or *The Print Shop Graphics Library*. The manufacturer adds that graphics are saved automatically and put into *The Print Shop* quickly and easily.

Product: *Graphics Expander*
Price: $39.95
Company: Springboard Software, Inc., 7808 Creekridge Cir., Minneapolis, Minn. 55434, 612-944-3912
Requirements: Apple II+, IIc, IIe; disk drive; *The Print Shop*
Supports: Joystick; Koala Pad; mouse

Significant Others



Blazing Paddles

Blazing Paddles—Full screen painting program with drawing icons and tools. Comes with 12 predrawn images for customizing your own drawings. Supports color printing. Reviewed, *The Apple II Review,* Fall '85. $49.95. Baudville, 1001 Medical Park Dr. SE, Grand Rapids, Mich. 49506, 616-957-3036

Dazzle Draw—Complete illustration package that's a safe bet for *Macpaint* on the Macintosh, only works in 16 colors and 30 patterns. Plenty of tools for detail work, including area fill, pixel editing and shading. Supports Imagewriter II in color. Reviewed, *The Apple II Review,* Fall '85. $59.95. Broderbund Software, 17 Paul Dr., San Rafael, Calif. 94903, 415-479-1170

Fontrix—Premiere font-making package with printouts that rival those made by real typesetters. Also includes painting features, but a mouse is not required. Reviewed, *The Apple II Review,* Fall '85. $95. Data Transforms, Inc., 616 Washington St., Denver, Colo. 80203, 303-832-1501

Prince—Allows color printouts to be made by a variety of popular black-and-white printers, including the original Imagewriter. Works with many graphics programs. Package includes transfer ribbons and accessories. $69.95. Baudville, 1001 Medical Park Dr. SE, Grand Rapids, Mich. 49506, 616-957-3036

Stickybear Printer—Versatile graphic-design program for creating custom greeting cards, wrapping paper, stationery and banners. Also includes a screen-dump program. $39.95. Weekly Reader Family Software, 245 Long Hill Rd., Middletown, Conn. 06457, 203-638-2400

Take 1—Collection of integrated programs for creating animated cartoons. Reviewed, *The Apple II Review,* Winter '85. $59.95. Baudville, 1001 Medical Park Dr. SE, Grand Rapids, Mich. 49506, 616-957-3036

The Graphics Magician—Sophisticated graphics tool for creating hi-res and double hi-res color graphics. Pictures and animated graphics may be added to your own programs. $59.95. Penguin Software, 830 Fourth Ave., PO Box 311, Geneva, Ill. 60134, 312-232-1984

The Electric Crayon—Easy-to-use coloring book program for children. Two versions available: one uses farm animals, the other uses the alphabet. Supports Apple color printers. $19.95. Education Publishing Concepts, Inc., PO Box 715, St. Charles, Ill. 60174, 800-323-9459

The Newsroom—Easy-to-use layout program that combines word processing and graphics. Used by schools, homes and businesses for making newspapers, brochures and so on. A consistent best-seller. $59.95. Springboard Software, Inc., 7807 Creekridge Cir., Minneapolis, Minn. 55435, 612-944-3912

The Printographer—Graphics utility that prints pictures from most screen images without a special printer card. Includes four crop functions and inverse printing. $39.95. Roger Wagner Publishing, Inc., 10761 Woodside Ave., Ste. E, PO Box 582, Santee, Calif. 92071, 619-562-3670

The Print Shop—Design your own greeting cards, stationery, signs and letterhead. The original, best-selling creativity package, now supported by three optional library disks containing extra symbols and pictures for your graphic creations. Reviewed, *The Apple II Review,* Fall '85. $49.95. Broderbund Software, 17 Paul Dr., San Rafael, Calif. 94903, 415-479-1700

Triple-Dump

Triple-Dump—Prints any ProDOS or DOS 3.3 graphics file without requiring a special printer interface card. Many printers are supported. Reviewed, *The Apple II Review,* Fall '85. $39.95. Beagle Bros. Micro Software, Inc., 3990 Old Town Ave., San Diego, Calif. 92110, 619-296-6400

Some More Facts About RAM Cards!

You could put a FLIPSTER or Apple™ 1 meg memory expansion card in slot 4 and add another FLIPSTER or Apple 1 meg memory expansion card in slot 5 (The FLIPSTER and Apple's card only expand to 1 meg). You'll need a separate 80 column card for the auxiliary slot. Oh, and put a printer buffer card in slot 2. If you want RGB color, you'll need an RGB board in slot 7 then buy a hard disk (if you have any slots left).

You'll have a bigger AppleWorks desktop, but you'll still be limited to a maximum of 1350 records in the data base. And you're stuck at 2250 lines in the word processor. And AppleWorks won't automatically load itself into memory, and make sure you don't create a file bigger than your disks can hold because neither FLIPSTER nor Apple's memory card will segment a file onto multiple disks.

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You'll also have up to 15,300 records (not 1350) in the data base and up to 15,300 lines in the word processor (not 2250). AppleWorks will now automatically load into RAM. And if you create a file greater than your disk capacity, no problem. RamWorks II will automatically save it on multiple disks. And because of our built-in printer buffer, you can continue to use AppleWorks while your printer is printing. Nice. RamWorks II has an RGB option, 16 bit option and is expandable to 5 megabytes. And don't forget, RamWorks II is the software industry standard for memory expansion in the IIe. RamWorks II is automatically recognized by virtually all memory intensive programs (and many more are on the way) and is 100% compatible with all IIe software. Clearly the new RamWorks II has more features, more capabilities, and most importantly, is recognized by more commercially prepared programs than any RAM card. RamWorks II is fully compatible with DOS 3.3, ProDos, Pascal 1.1, 1.2, 1.3 and all CP/M versions 2.2 through 4.0. No other memory card enhances software better. And RamWorks II is the acknowledged standard with all serious AppleWorks users.

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Maximum Desktop	2277K	1012K
Maximum Number of Records in Database	15,300	1350
Maximum Number of Lines in Word Processor	15,300	2250
Autoloads AppleWorks	YES	NO
Auto Segments Files	YES	NO
Built-in Printer Buffer	YES	NO
Compatible With All Versions of AppleWorks	YES	NO
Displays Time & Date on AppleWorks Screen with Clock	YES	NO
Saves Slots	YES	NO
RGB Option	YES	NO
16 Bit Co-Processor Port	YES	NO
Memory Expansion Ports	YES	NO
Patent Pending Power-Saving Circuit	YES	NO
80 Columns Built-in	YES	NO
Maximum Memory per Slot	5120K	1024K
Compatible with Franklin 2000 Software	YES	NO
Compatible with Auxiliary Slot	YES	NO
Software Standard	YES	YES
Manufactured in	USA	England/ Singapore
Warranty	5 Yrs.	1 Yr./ 90 Days
Price	LESS	MORE

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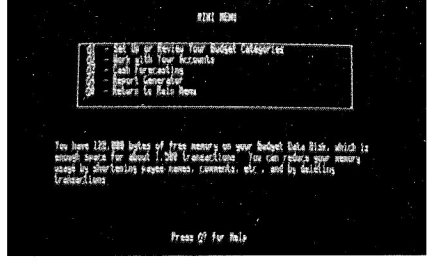
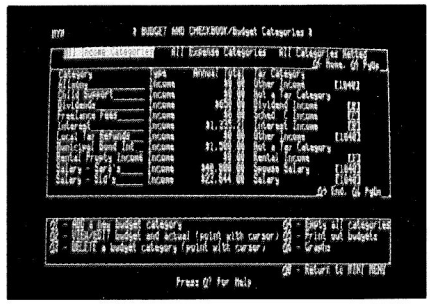




Is it possible to combine the best of budgeting with the sophistication of financial planning in a single program? Andrew Tobias thinks so. Maybe you should, too.

Time To Manage Your Money

By Ken Landis

The first family of personal finance undoubtedly consists of Sylvia Porter (columnist and author), Dan Dorfman (the same), Ian Hunter (of the *Wall Street Journal)* and Andrew Tobias, best-selling author of "The Only Investment Guide You'll Ever Need" and "Money Angles." The family member we are most interested in here is Andrew Tobias. While his investment guide may be the only paperback of its kind you'll ever need, Tobias is betting that many computer users will want his software, too.

Tobias' software creation is *Managing Your Money,* a personal financial program from the Micro Education Corp. of America. Originally released on the IBM PC, it's now available for the Apple II.

Can a new Tobias program compete in a field already dripping with software? Before we answer that question, let's look at the personal finance software market in general—what's good and bad about it.

The White Lie

Statistically speaking, there is a high probability that three out of every 10 of you justified a computer purchase to yourself (or more likely your spouse) under the premise that "it can help budget and manage our money." If you pride yourself on having never told a lie, you blew it that day.

Budgeting and managing your money are two very different things. Budgeting involves the control of expenditures—housing, entertainment, automobiles and so on. Managing your money involves the control of investments and taxes—what should I do with my money to make more? While the two are not unrelated (for example, a house payment can be both an expenditure and an investment), they are on different time cycles and concerned with different aspects of your total financial picture.

Budgeting, a time-honored art in many households, has been a real disappointment on personal computers. This is not to say that this genre of software has not sold well. To the contrary, these software packages are typically in the top 10. But after a few months go by, you can usually find them on the top shelf.

The time needed to input all the information required to run a budget on a computer is massive. Why? Because the average budgeting system on an Apple II is really a general ledger. Running a general ledger is not child's play, fun or easy.

The one exception to this overall lack of success has been with fastidious people. For these folks, budgeting systems have helped them reach nirvana. They are now not only organized, but *computerized.* For the rest of the world, a shoe box to hold receipts, cancelled checks and so on is more than enough. Most people budget using their checkbook, not their Apple.

Many companies, including banks and financial service firms, have marketed budgeting software that ties into their computers to help customers retrieve information, pay bills and so forth. But as one bank chairman recently put it, "You have to be very dedicated to use these systems." That's a nice way of saying that they can be more trouble than they are worth.

The Budget Trap

The unfortunate part of this whole predicament is that budgeting systems trap and record much, if not all, of the detailed information you need to help

manage your money. Without the right detail, you can't plan your taxes, choose your investments or plot strategies.

This Hobson's choice can only be remedied by somehow bringing yourself to use a budgeting system, a part of it or a hybrid system that combines the "best of budgeting" with the "best of financial planning." Enter *Managing Your Money.*

Managing Your Money is a hybrid system. It has just enough budgeting built in (cleverly disguised as a check writing and recording program) to gather information that is used by the investment and tax portions of the program. As Andrew Tobias is an author turned software publisher, his software is organized like a book—into chapters. Each chapter has a different story to tell about you, or for you to tell it.

Managing Your Money

What's Inside

The chapters, or program modules, include: an introduction to new users (you learn how to use *Managing Your Money* on line and the documentation just fills in a few holes); a reminder pad; a budget and checkbook; a tax estimator; an insurance program; a financial calculator; a portfolio manager; a net worth calculator; and finally, at the end of the book, housekeeping.

The "Hello, New User" chapter teaches you how to work with the keyboard and basic navigation around the program. The first time you use the system, *Managing Your Money* takes you to this chapter automatically.

The reminder pad is an automated tickler file that you can use to remind yourself of a payment that is due soon, a birthday or an important tax date. Its operation is simple and straightforward.

The "Budget and Checkbook" chapter records all of your disbursements and what budget accounts you want them to be posted against. This section of the program is very similar to *Quicken* by Intuit, Palo Alto, Calif. You write your check (either on line and have it printed) or record checks that have been written manually. The payment amount is used by the program to post against a specified budget account, update the cash flow projector (which tells you how much cash you have and when) and update schedule A of your taxes (your itemized deductions). Each check written also affects your net worth statement.

The power of using *Managing Your Money* begins here. You still are chained to the computer, as with any other personal finance program, but the program does all the repetitive work for you, plus some analysis you may not have had the time or the aptitude to do on your own.

But the chains are still heavy, since you must enter your financial information into the computer on a regular basis. Otherwise, the system is useless. You must make a choice—easy work, automation and easy information or hard work and hard-to-get information.

Chapter four is your personal tax estimator. This chapter handles schedules A, B, C, D, E, G, W and the alternative minimum tax. Not every schedule or form is included, but what's here is more than enough for the average taxpayer. When you want to see what your taxable position is, simply press the letter associated with the schedule at any time. To paraphrase the documentation, "Presto—it's there."

For those of you with tax program experience, you know that potentially even more important than the program itself is the publisher's support for it year to year as the tax laws change. With today's administration, three things are inevitable—death, taxes and tax change. With *Managing Your Money,* you can update the software itself for a fee and/or subscribe to a yearly newsletter for $40. The newsletter provides new tax tables as well as thought-provoking applications for *Managing Your Money.*

Insurance Advice

In the "Insurance" chapter, *Managing Your Money* gleefully predicts your life expectancy given your background and habits (it does not account for vindictive relatives or bookies), helps you calculate the amount of life insurance you should have and what it should cost. A side benefit is an insurance record keeping function. We were disappointed that *Managing Your Money* did not do more to stress the differences, advantages and

disadvantages of various forms of life insurance, especially term and universal life.

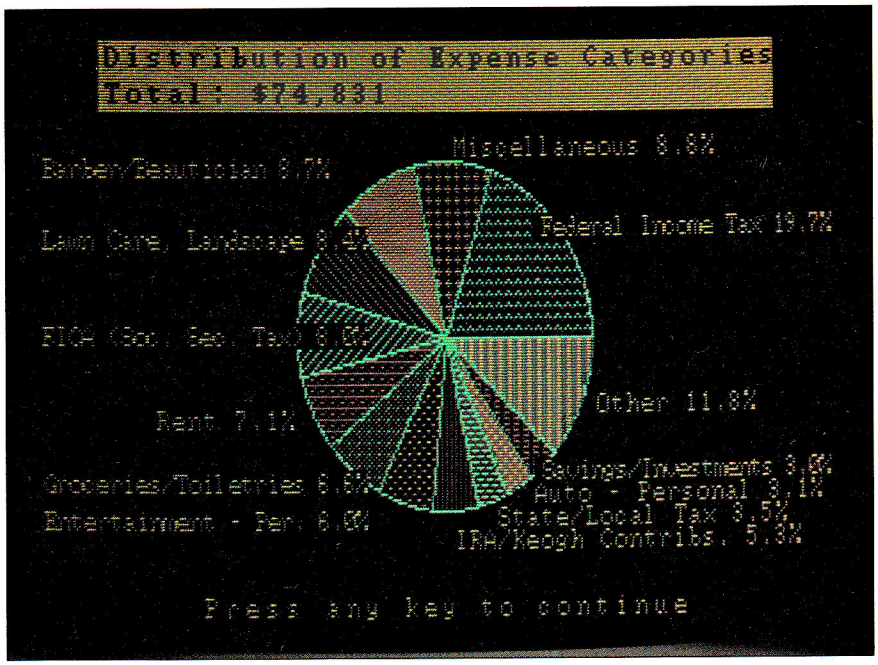
The financial calculator is just what the name implies. It is very similar to the *Financial Cookbook* from Electronic Arts of San Mateo, Calif. The calculator simplifies financial calculations that we face every day, but nobody ever taught us how to calculate. Examples are such things as loan payments, amortization, bond yields, as well as calculations that will help you plan retirement, real estate and tax strategies.

Managing Your Money's portfolio manager helps you keep your stock market investments in order. It is very powerful and incorporates many features and functions found in more expensive portfolio management programs, including *Winning on Wall Street* by Summa Technologies, Inc. of Beaverton, Oreg., and *Stock Portfolio System* from Smith Micro Software of Huntington Beach, Calif. Not only can the portfolio manager handle stocks, bonds, options and futures, but with a little bit of coaxing you can include other assets, such as art, stamps, coins or whatever. You can also trade "on paper" via hypothetical portfolios to hone your skills or test the waters.

Chapter eight gives you the bottom line—your net worth. Anything that you owe can be added to the program's data base by using this chapter. When this information combines with information from the rest of the program, the result is a statement of net worth. In most cases, you'll be surprised at your net worth. It seems that people who think their net worth is high (relatively) are always surprised at how low it is and vice versa.

Favorable Reports

The bottom line of any financial program is its reports. You can put great entry screens, graphics and clever designs aside, if the reports themselves don't hit the target. In the case of *Managing Your Money,* bull's-eye!



Where did the money go? Managing Your Money *uses pie charts to help you visualize expenses.*

Managing Your Money's well-formatted reports remind you of your annual budget, quarterly budget and cash flow. They also list unreconciled checks, variable cash flows, rental property cash flows (if you're a member of the gentry) and all of your assets. If that's not enough, the reports also pinpoint outstanding short positions in the market, good till cancelled orders with your broker, gains and losses (Schedule D) and asset listing. A personal balance sheet is included as well.

Reports are what a program gives you for your work. In the case of *Managing Your Money,* these reports are a good deal. The latest release of the program reportedly has faster report generation and a visual indication of how long reports take to print. But the question still remains, is *Managing Your Money* better than, equal to or worse than its competitors?

The answer is "yes." Yes, it's better than many of its competitors, but not as good as programs dedicated to doing parts of what it does. For example, HowardSoft's (La Jolla, Calif.) *Tax Preparer* is better with taxes than *Managing Your Money,* but then *Tax Preparer* can't help you manage your portfolio.

Yes, *Managing Your Money* is better than most, if not all, of its competitors in terms of program design and number of functions, but it's still a home budgeting/money management hybrid. It has not, and quite frankly cannot, overcome the requirement that you and your Apple II become partners in finance—equal partners—the same problem that has plagued all other similar software. It takes time to make *Managing Your Money* work, a lot more time than it takes for Murray, your accountant, to do the same thing. Unfortunately, Murray costs more.

The final "audit" opinion on *Managing Your Money* is good. It brings new energy to a market that heretofore has been dominated by software that looked like, acted like and responded like an Internal Revenue Service examiner. The program can even be considered fun to use, which may be the oomph required to get people to use it.

But, for the home budgeting/money

management market in general, the outlook is still the same. If you don't have the time (assume twice as much as you spend now), the inclination or more than a passing desire to be better organized, continue to depend on Murray or a financial advisor. The software on the market today is just not for you.■

Ken Landis is a full-time financial analyst and part-time free lance writer based in Missouri.

Product: *Managing Your Money*
Price: $199.95 (latest update free to registered owners)
Company: Micro Education Corp. of America (MECA), 285 Riverside Ave., Westport, Conn. 06880, 800-631-6322
Requirements: Apple IIc, IIe; two disk drives (supplied in both 5¼- and 3½-inch disk formats)
Supports: ProDOS; UniDisk 3.5; Apple II Memory Expansion Card; Applied Engineering's RamWorks card; printer; color monitor; mouse

Home Budget

Review

The Works!

A Home Software Library

If you're looking for an inexpensive program that performs a variety of useful tasks and offers a handful of games as well, then *The Works!* may be for you. *The Works!* is a combination of 13 programs that fall under four main categories: Tools, Learning, Arts and Organizers.

The Tools section contains programs that are useful in various ways. For instance, *Letter Writer* is a typewriter-style word processor, and *Loans and Investments* is a money module that helps you analyze borrowing and investment decisions. Three handy math programs include *Calculator,* which emulates your typical hand held calculator; *Weights and Measures,* a program that lets you effortlessly perform a number of conversions; and *Math Formulas,* a program that helps you solve complex equations.

The second major category is the Arts section. Here you find *Graphics Painter* and *Music Composer.* With *Graphics Painter,* your monitor becomes an easel as you create one-of-a-kind shapes and patterns. You can save and catalog all of the creations for use at a later time. *Music Composer* enables you to write your own music, arrange the notes of the scale on a musical staff and play back your compositions. When you are done composing, the musical tunes can be saved and cataloged on a disk.

The Learning portion of *The Works!* contains *Typing Teacher* and *Math Races. Typing Teacher* is a typing instruction program designed for beginners as well as typists who want to enhance their keyboard skills. The program allows you to set your own speed goals and reports your errors. After you discover your weak points, you can concentrate on them until you become proficient.

Math Races helps you master skills in adding, subtracting, multiplying or dividing whole numbers and decimals. The Level portion of the program lets you establish the difficulty and types of problems to work on. After this is done, you race against the computer or an opponent as you calculate the answers to problems.

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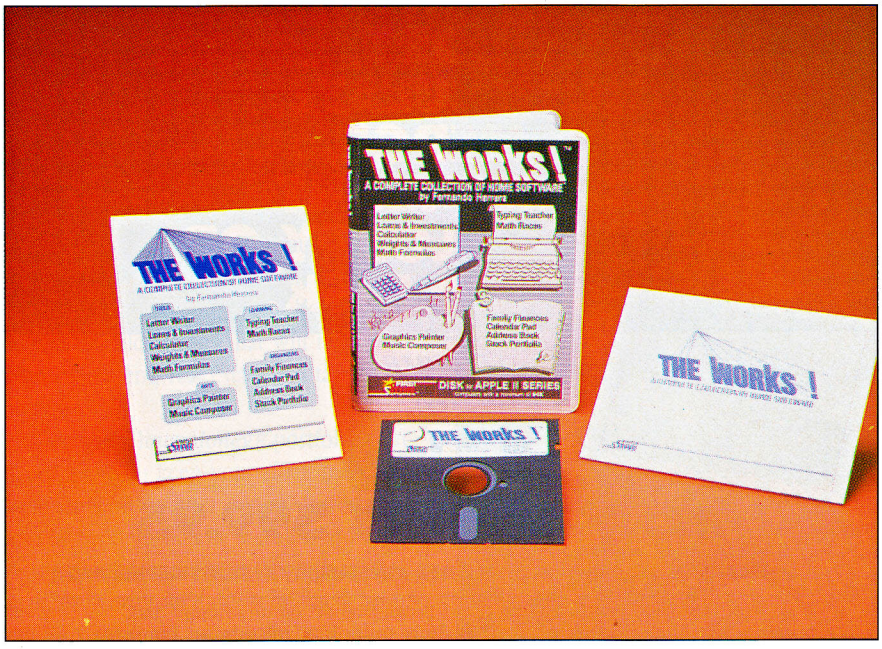
Home Budget



The Works!

Players are clocked and points accumulate as you race. The speed of the race is adjustable.

The last category of *The Works!* contains the Organizers. This area includes *Family Finances, Calendar Pad, Address Book* and *Stock Portfolio.*

Family Finances lets you review your income and expenses by category and date. It gives you an overview of what you are earning and what's tax deductible. You can produce simple reports and summaries with your printer and analyze your financial position whenever you want to.

Calendar Pad acts like a computerized Rolodex and uses index cards to help you keep track of important information. With *Calendar Pad,* you can organize your appointments, keep a diary and maintain a log of important dates. Data can be directed to the printer for a hard copy.

Address Book lets you computerize a personal and business address book and print mailing labels from all or part of your mini data base. You can add and delete information from the book as necessary and scan records to search for a particular name or address. The List option produces a traditional telephone and address book.

The last program under the Organizers umbrella is *Stock Portfolio.* Here's where you keep track of your security investments. By filling in blank forms, you can enter buy and sell transactions, keep track of daily closing quotes and produce reports on your current or past holdings. *Stock Portfolio* automatically updates figures for totals, calculates the percentages for profits or losses and provides annual yields for comparison with other investments. Portfolio reports can be produced with your computer.

The Works! appears to be a comprehensive all-in-one software package worth considering. Because it offers so much for so little ($49.95), *The Works!* may prove to be one of the real software bargains on the market today.

Product: *The Works!*
Price: $49.95
Company: First Star Software, Inc., 18 East 41st St., New York, N.Y. 10017, 212-532-4666
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Printer; color monitor

Review

Wills

Writing Your Own

One important task that many of us put off doing is writing our last will and testament. Mastering the legal jargon necessary to prepare a will and composing the typically long legal document has historically been left to the family attorney. But not any more!

Wills is a software package that walks you step by step through the will creation process. With *Wills* you use your word processor to draft a legal, simple will that meets the requirements of most states.

The program presents 14 different wills that can be customized to meet your personal circumstances. There are basic designs for single men and women, married couples and people with children. You select the basic format and modify the standard text to meet your needs.

Wills also lets you choose from a variety of options and special forms that can be integrated into your document. For instance, you can update an existing will, add a signature block for a notary public, and address important subjects such as establishing trust funds and making special bequests.

We found *Wills* easy to use. You simply boot your word processing program (we used *Appleworks)* and load the desired file. You then insert needed language or modify or delete terminology that doesn't apply to your situation.

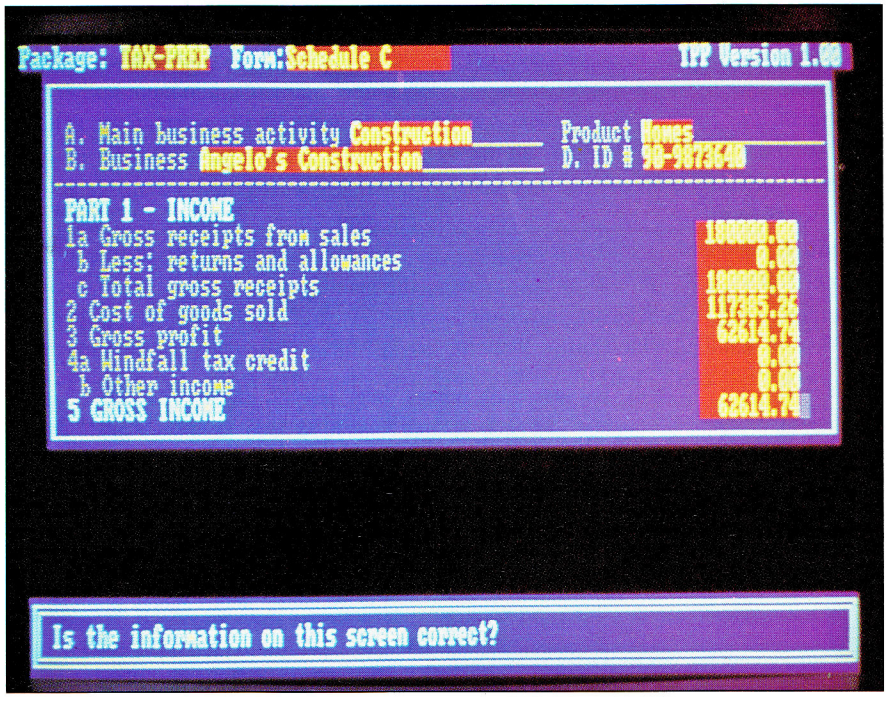
The documentation provided with *Wills* was written by Emily J. Young, Attorney at Law. The 57-page guide is well written and logically organized. The author explains clearly why you should have a will, what goes into a will and how to prepare one with your new program. Extremely helpful is the chapter entitled "Your Will—Step By Step." It explains how to structure your document and describes the purpose of each canned paragraph in

the basic will.

A useful bibliography of legal terms and a checklist for executing your will is also included.

Although *Wills* appears to do exactly what it purports to, there are a few caveats. The author suggests that if your personal estate is large (i.e., $500,000 range and up), you should seek advice from a professional before executing your will. It also advises that you consult a lawyer if questions arise about particular laws in your state. Technical support is available from the manufacturer.

Product: *Wills*
Price: $49.95
Company: Haba/Arrays, Inc., 6711 Valjean Ave., Van Nuys, Calif. 91406, 818-901-8828
Requirements: Apple IIc, IIe; disk drive
Supports: Most word processing programs capable of reading ASCII text files



J.K. Lasser's Your Income Tax

Tax Planning

Review

J.K. Lasser's Your Income Tax

April Made Easy

If you think the Internal Revenue Service takes all the fun out of April, turn to *J.K. Lasser's Your Income Tax* and your Apple II.

The program won't accompany you to audits or write out your check to Uncle Sam. But with 28 forms and schedules, an on-screen calculator and a work sheet that eliminates the need for paper and pencils, *J.K. Lasser's Your Income Tax* does just about everything else.

The myriad of tax laws and regulations—some of which change every year—can easily confound those who aren't tax lawyers or accountants. We don't even want to try to understand all the rules laid out in the 360-page manual that comes with the software.

And that's where the program really shines. It doesn't give you more than you need, and that helps avoid a lot of confusion.

The program first asks the user a series of questions about how they earn income and how many people the income supports. It then stores the appropriate forms and schedules and disregards others. For instance, those who indicate they receive permanent disability payments are assigned the appropriate tax schedule.

Since that didn't apply to us, we just moved on to the next question. We did buy a car, move to a new location for a job opportunity, and receive some interest income in 1986. We plugged that information in where asked, and received a list of the schedules we'd need.

This type of personalized tax work would be expensive and time consuming at a tax preparer's office. We thought it was easier to run the program at our own convenience, without running up bills beyond the purchase price of the program.

Those who already know exactly what forms and schedules they need can feed that information in and skip the questions. There's a worksheet to use as an on-screen scratchpad to make calculations or notes. Also included is a four-function calculator so you never have to turn away from the screen.

Once the proper forms are selected and filled out, the program calculates the tax owed or refund due. It can also print blank forms or completed ones, ready to mail to the IRS.

We sat down with *J.K Lasser's Your Income Tax* and got a pretty clear idea of our tax picture in several hours. That was starting from scratch, and with plenty of extra detours to satisfy our curiosity about various menus and functions.

Users who plug pertinent tax data into the program all year long can expect to do the job much faster. If it is used as a financial and tax record keeper, the program could make tax return time a breeze.

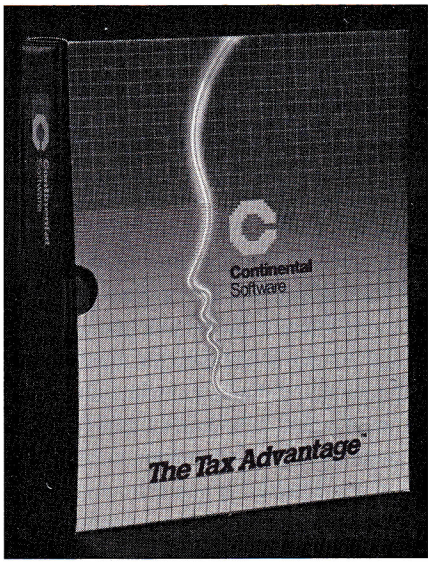
We found the program a bit slow at times. You have to first make copies of the two-sided master diskette using DOS

Tax Planning

3.3. Once this is done, quite a bit of disk swapping is necessary to get through the program.

Overall, *J.K. Lasser's Your Income Tax* is easy to use and seems to cover all the bases in saving us from paying more taxes than we have to.

Product: *J.K. Lasser's Your Income Tax*
Price: $69.95
Company: Simon & Schuster, Inc., Gulf + Western Building, One Gulf + Western Plaza,, New York, N.Y. 10023, 212-333-5800
Requirements: Apple II+, IIc, IIe with 80-column card; disk drive
Supports: Second disk drive; printer



Tax Advantage

Tax Advantage

An Annual Tradition

One of the first tax programs available for the Apple II, *Tax Advantage* is updated annually. The latest version automates the preparation of a number of tax forms, including 1040, 6251, 2106, 2441 and 4562. Schedules include A, B, C, D, E, G, SE and W. According to the manufacturer, users can print all information directly onto IRS forms and schedules.

Other operations performed by *Tax Advantage* include: income averaging in response to a few simple commands; line itemizing on the form, including wage, deductions and assets; and calculation of the new alternative minimum tax.

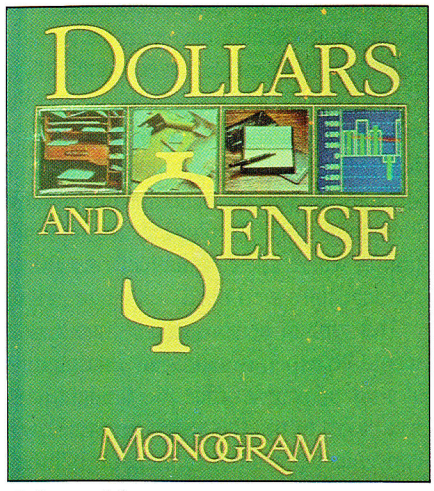
Supplied with the program are guides for helping users through tax forms and schedules. A Help key is available at any time.

Another *Tax Advantage* feature, explains the manufacturer, is that it interfaces with the company's *The Home Accountant* personal finance program. Tax files may be taken from *The Home Accountant* and automatically transferred to appropriate sections of *Tax Advantage.*

Product: *Tax Advantage*
Price: $69.95
$10 (warranty fee, allows updates to be purchased at discount)
Company: Arrays, Inc., 6711 Valijean Ave., Van Nuys, Calif. 91406, 818-994-1899
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Printer

Significant Others

Dollars and Sense—Popular home financial package that accommodates up to 120 record keeping categories. Latest version supports the mouse, on-line help screens and the UniDisk 3.5. Reviewed, *The Apple II Review,* Fall '85. $119.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, Calif. 90301, 213-215-0529



Dollars and Sense

Quicken

Quicken—Check writing and finance package based on the *Appleworks* interface. Best of the breed. Reviewed, *The Apple II Review,* Winter '85. $79. Intuit, 540 University Ave., Palo Alto, Calif. 94301, 415-322-0573

Tax Preparer—Integrated tax program that helps automate preparation of over 21 tax forms and schedules. Calculations are instantly transferred to Form 1040. Reviewed, *The Apple II Review,* Fall '85. $250. HowardSoft, 8008 Girard Ave., Ste. 310, La Jolla, Calif. 92037, 619-454-0121

The Home Accountant Expanded—Latest ProDOS version of the forerunner of all personal finance packages. Prints net worth, handles multiple credit cards and checking accounts and interfaces with *The Tax Advantage* program from the same vendor. $74.95. Arrays, Inc., 6711 Valjean Ave., Van Nuys, Calif. 91406, 818-994-1899

Your Personal Net Worth—Home money manager that helps users set up budgets and compare income and expenses. $79.95. Scarborough Systems, Inc., 55 S. Broadway, Tarrytown, N.Y. 10591, 914-332-4545

MILLIONAIRE AND OTHER VICES

The word is that so many hackers at the Benton Harbor facility of Heath Company were playing Millionaire that the supervisors had to put severe restrictions on when the game could be played. I believe it. Millionaire is addictive.

Millionaire is ...ck-market simulation, and it's ... just to learn about mar... sus... as ... Blue ... Tycoo... and ... they ... sins ... 101, ... opinio... In a ... learn ... Try i...

"One reason for their popularity: The games can be as logical, yet as arbitrary, as markets themselves. They are certainly not child's play."
—Forbes

The Ultimate Game

market history, ... enough for Lyle Solverson, a profes... Illinois University, to in... dents to the com... session of Tyco... es a lot of the ... to cover in ... Blue C...

Games for fun and profit

PRACTICE BEING RICH

Before you risk any more of your savings on stocks, commodities, real estate and other big-stake investments, you might want to polish up your strategic skills with a computerized simulation game called Squire.

The program starts you at age 35 with $70,500 to invest and a goal of retiring at age 55. If you prefer, you can enter your real age, assets and goals. Squire provides you with financial news and graphs, presented as if you were ... them on a monthly basis. After ... rmation, you buy and ... money funds, col... ...hips, an IRA ... ed on your ... you pro...

In a re...

Congratulations!

MILLIONAIRE has just been named BEST SOFTWARE PRODUCT OF THE YEAR in its category by the readers of A+, the largest independent Apple computing magazine in the

Games investors play

Computer games can fatten your portfo...

Before you speculate in stocks, gamble on commodities, plunge into real estate, or splurge on classic art, invest in Blue Chip Software.

The Blue Chip Portfolio. Four of the most exciting computer simulations you'll ever use. Because they'll teach you the ins and outs of high finance. Give you practical, hands-on experience. And help you make money in the real world.

In short, they're the kind of assets that are as good as gold.

Millionaire: The Stock Market Simulation™
Tycoon: The Commodity Market Simulation™
Baron: The Real Estate Simulation™
Squire: The Financial Planning Simulation™
Available for most popular computers

BLUE CHIP SOFTWARE
The action is simulated. The excitement is real.
6744 ETON AVENUE, CANOGA PARK, CALIFORNIA 91303 (818) 346-0730

T... have ... —exc... hat wa... game, de... anguage. ...oints out w... ...ere BAR... ...ion ... ...ificantly from reality. It takes plenty of brains and ...ck to ride this roller-coaster — and you don't have ... be a licensed real estate broker to appreciate ...ither. Sounds like the Right Stuff to me."
—Computer Buyer's Guide and Handbook

These are excellent games. They're educationc... and they're fun."
—List

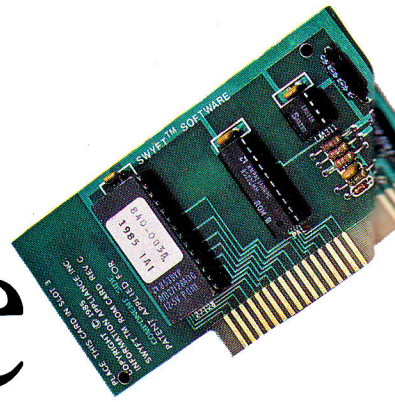
Meanwhile, *Squire* ... troduction to financi... cepts and to some fairly sop... investment strategies. For $59.95 ... can buy *Squire* to run on most A... machines. You'll pay $69.95 for a ... sion that works with Apple's Macintosh and IBM or IBM compatibles.
—Clint Willis

Computer games simulate world of high finance

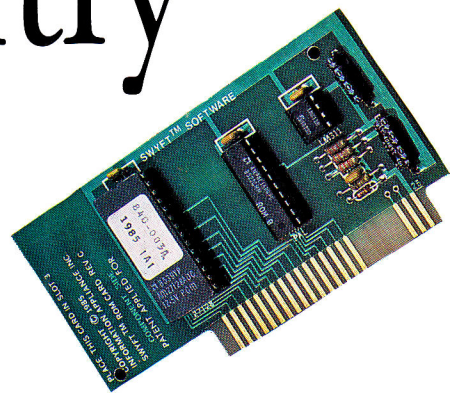
Section A/Page 8
Los Angeles Herald Examiner
Wednesday
April 25, 1984

TYCOON is a successful simulation of trading ...at should satisfy all but the most ...ing purists."
—Futures

But the best of the new business ...ames are three fast-paced simulation ...rograms that re-create the stock, real es...ate and commodities markets: Blue Chip ...oftware's Millionaire, Baron and Tycoon. For $60 each, these startlingly real...ic games let players dip their feet into ... volatile market for stock options or pork-belly futures—without having to take a bath. TIME, MARCH 18, 1985



This Apple IIe Moves "Swyftly"



The SwyftCard equips the Apple IIe with many of the functions most people use every day—and it does so without software. It's tiny, fast, cheap and the closest thing yet to the computer appliance.

By Paul Pinella

I've been writing letters, filing information and calculating various figures all day on my Apple IIe. And guess what? I haven't loaded a single program diskette into the computer. It may sound impossible, but it's not. I've been using SwyftCard, a tiny three-chip board from Information Appliance, Inc., that plugs into the often neglected slot 3 on the motherboard.

With SwyftCard installed, you can power up the Apple IIe and begin typing right away. You don't need a program diskette or a second disk drive to get going. Everything that SwyftCard can do, including word processing, information retrieval, simple calculations and communications, is programmed in firmware. That makes SwyftCard very swift indeed, especially since it stores everything in RAM. Documents can grow up to 40K in length (about 20 pages of single-spaced text) and can be composed of words and calculations mixed together.

A New Direction

SwyftCard is more than just extremely fast word processing. It's really a new computing philosophy made possible by Jef Raskin, one of the original Macintosh designers who decided to form his own company in order to redirect personal computing. Raskin didn't like the rash of commands, layers of menus or cursor-control keys and mouse that most programs force people to use. So he replaced them with just five command keys and a few simple keystrokes.

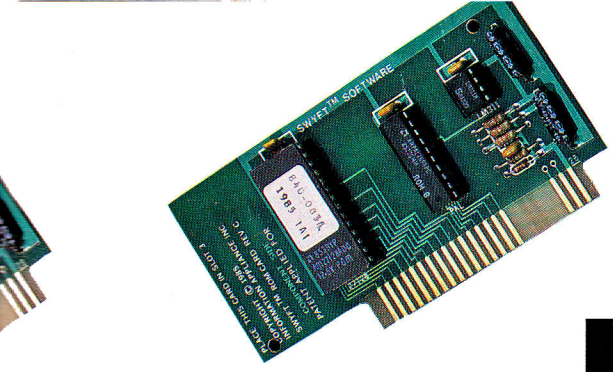
SwyftCard is not meant to obsolete your favorite programs, although you may find yourself using them less frequently. To use SwyftCard, simply turn on your computer and leave the disk drive open, or have a SwyftCard data diskette in drive one when the computer boots. Either way, SwyftCard comes to life quickly with either a blank screen or information stored on diskette from a previous session. A large, 40K document loads in about six seconds.

Let's assume we just loaded a 15-page document (Information Appliance prefers to call it a "universe") full of business letters created from the day before. The problem is to find each letter addressed to a Mr. Patterson. Most word processing packages have a "search" function that could be used to find every occurrence of "Patterson" in the text. But this usually involves selecting from a list of commands in a menu or following through on a number of keystrokes.

With SwyftCard, you quickly leap to your destination using the Closed Apple and Open Apple keys. Pressing the Closed Apple key, for example, together with each letter spelling out "Mr. Patterson" moves the cursor to the right words almost instantaneously, even when the target is 15 pages away. If there are other letters addressed to other "Mr.'s" in the document—for example, "Mr. Jeckyl" or "Mr. Johnson"—the cursor will jump to those names first, since all three names have "Mr." in common.

But the "P" in Patterson further qualifies the search. If there is no other "Mr." beginning with "P" in the document, just typing the "P" in "Mr. P" will take you right to Patterson's letter.

It doesn't take long to adjust to Swyft-



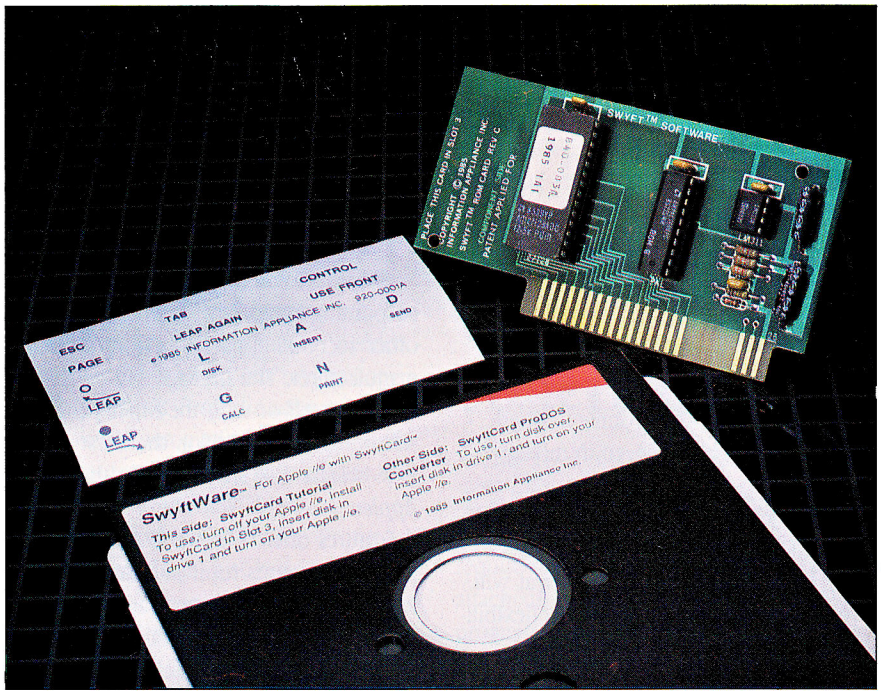
Card's world. You can leap to page markers, paragraph endings and special characters just as easily as individual words. Moreover, you can leap backwards as well as forwards from anywhere in a document. If you want to scroll through a document, you can leap from period to period (which is the same as sentence to sentence) or leap between paragraph markers and move in paragraph chunks.

A Leap Forward

Leaping does more than move the cursor from one place to another. It also defines blocks of text for additional operations, including cutting and pasting within documents, moving text to other documents and printing. Take deleting a paragraph. First, leap from the beginning letter to the final period in the paragraph. Next, press the Open Apple and Closed Apple keys simultaneously. This highlights the paragraph. Finally, hit the Delete key and the paragraph disappears. Want it back? Don't worry, it's in the buffer. Pressing Control A quickly retrieves it.

Printing is just as automatic. SwyftCard has no printer menu to access and uses no imbedded printer commands. Consequently, you won't find the fancy formatting options available on many stand-alone word processors. On the other hand, you can quickly print any portion of a document or an entire document using your choice of column width (the default is 80 columns) and margins. You can even print single- or double-space and underline.

Printing what you see on the screen using the default settings is easiest of all. Just highlight the text and press Control N; most printers will automatically start working. I used an Apple Scribe printer and everything worked without a fuss. Other printers may require special command sequences to perform. These are explained in the manual. These printer



SwyftCard

commands may be saved on disk and used over and over.

Calculating With SwyftCard

Word processing is SwyftCard's forte, but it does have other capabilities. One of these is four-function math. While typing away in word processing, you can suddenly query SwyftCard's built-in calculator by entering a question mark, followed by a simple formula (such as ?45+47). After highlighting the formula, you use the Calc command (Control G) and the answer appears following the formula. The formula can then be deleted, leaving only the answer.

If this sounds a bit like BASIC programming, you're right. SwyftCard is closely allied with Applesoft, the Apple II's built-in BASIC language, and the question mark preceding a calculation is processed as a BASIC "PRINT" statement. You can even use SwyftCard as a powerful program text editor, but not for developing large applications. Programs are limited to 900 bytes.

If you've got a modem attached to a Super Serial Card or clone, you can also use SwyftCard to communicate with other computers over the phone. There are certain advantages to using SwyftCard this way: text can be quickly highlighted then sent over the modem using a ControL D, and received text can be easily edited. However, many users may wonder if these advantages are worth giving up the benefits of a good communications software package.

SwyftCard is not a terribly intuitive communications device. There are no on-screen prompts and no help screens to guide you. Those who may have been spared learning the command language of their modems may have to get out their manuals. To dial out on a Hayes-compatible modem, for example, you have to first wake up the modem with the "AT" command, followed by "D" for dial, "T" for touch tone and, finally, the number. Add even more obscure commands if you want to switch to 1200 baud or change parity. Most good communications programs have long since insulated the user from this process.

Before this issue went to press, we

received word that additional modem support has been added to SwyftCard. As yet, we have not evaluated this feature.

Tomorrow's Appliance?

While computers may never become appliances in the same sense as can openers and television sets, Information Appliance's SwyftCard does transform the Apple IIe into a self-contained device that need only be switched on to become productive. In this environment where everything can be retrieved in milliseconds, there's no need to treat data base problems any different than word processing—just type information into your universe and retrieve it later at will.

Yet despite all it offers—speed, flexibility and a common command set—SwyftCard does ask users to make mental adjustments that may seem uncomfortable at first. The arrow keys don't work in SwyftCard, the mouse has been exiled and there are no overlapping file card menus or graphics to be found. Many users may miss these conveniences. The SwyftCard universe is simply *different* from other programs.

On the other hand, at $89.95, SwyftCard's hardware is cheaper than most software products that perform only one job. It also starts working even when there aren't any diskettes around and occupies that lonely slot three in my Apple IIe. What's more, nothing can approach its speed. Until something better comes along, the SwyftCard stays put.■

Paul Pinella is managing editor of The Apple II Review.

Product: SwyftCard
Price: $89.95
$89.95 (*Swyftdisk*—New software version of SwyftCard for the Apple IIc and IIe equipped with an extended 80-column card)
Company: Information Appliance Inc., 530 University Ave., Palo Alto, Calif. 94301, 800-982-5600
Requirements: Apple IIe; disk drive
Supports: ProDOS (data conversion software supplied); printer

Accounting

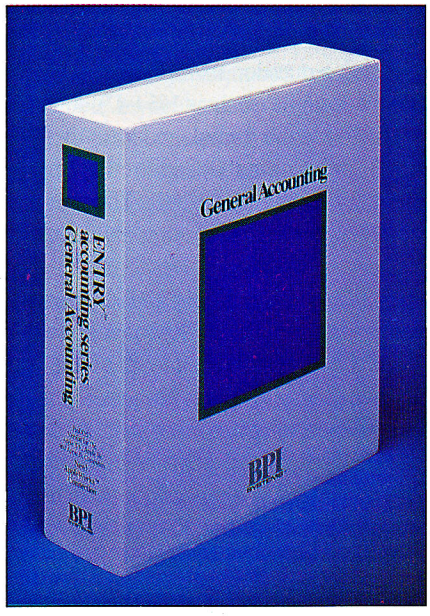
General Accounting

New AppleWorks Interface

General Accounting is a comprehensive accounting system that interfaces with six other accounting packages from the same manufacturer. The package can either be used by itself or with the other packages. According to the vendor, the latest ProDOS release also shares data with *Appleworks.*

Features offered by *General Accounting* include: accounts receivable and payable ledgers; monthly, quarterly and year-to-date payroll ledgers; general ledger; trial balance; balance sheet; departmental and consolidated income statements; and six data entry journals. These journals include automatic check printing, standard monthly entries and entries from external files.

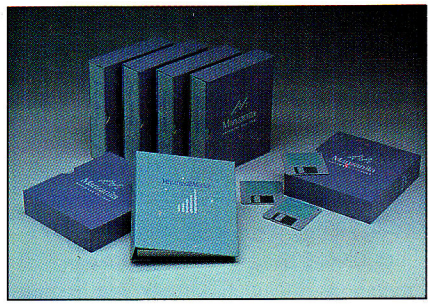
Other features mentioned by the vendor include automatic posting of ledgers from data entered at the keyboard, double-entry accounting, automatic check writing and a demonstration diskette. An assortment of statements and reports are also included.



General Accounting

Among them are a balance sheet, income statements, trial balance and a cash register journal.

Product: *General Accounting*
Price: $425
Company: BPI Systems, 3001 Bee Cave Rd., Austin, Texas 78746, 512-328-5400
Requirements: Apple II+, IIc, IIe; disk drive
Supports: ProDOS; second disk drive; hard disk drive; printer



BusinessWorks

BusinessWorks

The UniDisk Partner

Businessworks is a complete double-entry accounting program designed for an Apple IIe or IIc computer equipped with the new UniDisk 3.5 drives. It includes a system manager module as well as modules for general ledger, accounts payable, accounts receivable and inventory. Modules can be used separately or together to form a complete accounting system. The only module required is the system manager, which includes a mailing label program.

Much like *Appleworks, Businessworks* uses overlapping file cards and includes Help messages for explaining each system prompt. It can also send financial information to *Appleworks* spreadsheet and data base files. Data is entered in response to prompts as they appear on the bottom of the screen, and windows containing customer information are available at any time.

Other *Businessworks* features include a password security system and the capability to be installed on a ProDOS-compatible

hard disk.

A review of *Businessworks* appeared in the Fall '85 issue of *The Apple II Review.*

Product: *Businessworks*
Price: $95 (system manager)
$395 (for other modules, priced separately)
Company: Manzanita Software Systems, One SierraGate Plaza, Ste. 200-A, Roseville, Calif. 95678, 916-781-3880
Requirements: Apple IIe, IIc; hard disk drive or two UniDisk 3.5 drives. One UniDisk 3.5 drive and a RAM card with 512K also will work
Supports: ProDOS; *Appleworks* interface; UniDisk 3.5; hard disk drive; Apple II Memory Expansion Card; Applied Engineering's RamWorks; AST's MegaRamPlus or SprintDisk; printer; *Pinpoint*

Communications

Review

ASCII Express Professional

For Serious Modem Users

One of the most powerful, general purpose communications programs available for the Apple II is *ASCII Express Professional.* The program supports practically every modem available for the Apple at speeds of up to 9,600 baud.

ASCII Express Professional includes all of the standard terminal program features and then some. It supports automatic redialing of busy numbers, buffers data to make sure nothing is lost, saves commonly used phone numbers and has built-in help modes.

ASCII Express Professional can transfer and download just about any file that the Apple II creates. BASIC programs, binary files and word processing files can all be transferred easily. In order to make sure that phone line glitches will not accidentally destroy data, several error checking protocols are available, including the popular XMODEM.

A built-in line-oriented editor is included to quickly edit files before or after transmission. It uses keystrokes similar to *Wordstar,* but if you don't like those control characters, you can choose your own.

ASCII Express Professional also has built-in macros. A macro is a set of commonly used keystrokes or commands that can be saved and used whenever needed. For example, we set up our review copy of *ASCII Express Professional* so that a macro would automatically log us off of the computer and save whatever data was in the buffer to the disk drive.

The macros in ASCII Express Professional are more than just keystroke replacements. These macros can take command of the program and automatically type in commands for you. For example, a macro can be set up to call a system, read your mail, read all of the new messages, upload a message file and then log off of the system, saving the data to disk in the process. Once such a macro is written, all you have to do is put your diskette into the drive and turn on the computer. The software will do everything else unattended.

To a limited degree *ASCII Express Professional* can emulate dumb and smart terminals. Characters can be filtered out and changed as necessary. While it will not emulate other terminals perfectly or as well as programs designed specifically for terminal emulation, the emulation is good enough for many applications.

A major failing of *ASCII Express Professional* is the manual. It seems geared for technical users who already know how modems work. Still, we would not hesitate to recommend this program to any serious modem user. Beginners may opt for a simpler and easier to use communications program. But if you need a powerful terminal program, *ASCII Express Professional* is the only way to go.

Product: *ASCII Express Professional*
Price: $129 (free demo disk available)
Company: United Software Industries, 8399 Topanga Canyon Blvd., Canoga Park, Calif. 91304, 818-887-5800
Requirements: Apple II+, IIc, IIe; disk drive
Supports: ProDOS and DOS 3.3 versions available; most serial cards and modems; second disk drive; hard disk drive; printer

Review

Softerm 2

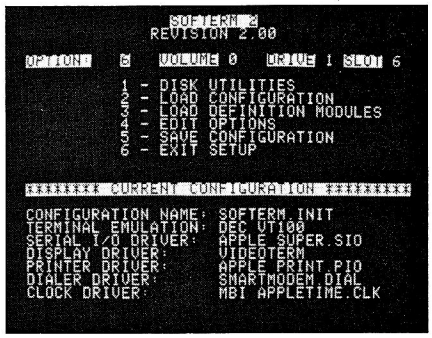
Talks To Your Mainframe

Do you access mainframe computers with your Apple? Does your mainframe require that a special brand of terminal be attached? *Softerm 2* is a smart terminal program that emulates many ASCII terminals, including the popular DEC VT-100 terminal.

Softerm 2 will emulate a VT-100 as closely as possible with standard Apple hardware. The Apple II cannot duplicate the VT-100's smooth scroll, double width, and other exotic character modes, but a mainframe will still think that it's attached to a VT-100 at the other end of the telephone line.

The VT-100 has more than 100 keys, many more than the standard Apple II, so this presents a serious emulation problem. Fortunately, *Softerm 2* has an excellent solution to this limitation: it comes with three buttons to provide the extra functions. A hardware card plugs into the Apple to provide the three extra keys.

Hitting one of the keypad buttons along



Softerm 2

Communications

with a normal Apple key tells *Softerm 2* what you want to do. For example, in the VT-100 mode, hitting the S3 switch on the keypad and the "1" key on the Apple's keyboard simulates the "F1" key on the VT-100. After a short learning period, this technique becomes second nature.

There are several advantages to using an Apple II with *Softerm 2* over using a stand-alone terminal. Besides obvious cost advantages, *Softerm 2* can also take advantage of other Apple capabilities. Automatic dialing, file printing and other functions are all easily done with *Softerm 2*.

Source code for a special "Softrans" protocol is provided in Fortran 77. Using Softrans, you can transfer files between your Apple and mainframe quickly and without errors. You can also use the standard XMODEM protocol for transfers. XMODEM is supported on many electronic bulletin boards and by many other programs.

Softerm 2 can emulate many other ASCII terminals besides the VT-100. These include terminals made by Televideo, Hazeltine, ADM, Data General and IBM.

The current version of *Softerm 2* is based in DOS 3.3 and will transfer programs in DOS, Pascal and CP/M. A ProDOS version is under development. *Softerm 2* users can obtain updates by using their copies of *Softerm 2* to call the manufacturer and download updates as needed. Now that's fast!

There are other terminal programs that are easier to use, more powerful and more sophisticated than *Softerm 2*. But *Softerm 2* does a better job of terminal emulation than any other program we've seen. If you use your Apple to call mainframes and want sophisticated terminal functions, then you'll want to use *Softerm 2*.

Product: *Softerm 2*
Price: $195
Company: Softronics, 7730 N. Union Blvd., Ste. 203, Colorado Springs, Colo. 80918, 303-593-9540
Requirements: Apple IIc, IIe; disk drive; separate version available for Apple II series with 64K RAM
Supports: DOS 3.3, Pascal, CP/M; second disk drive; hard disk drive; modem; printer

Review

Let's Talk

Information On-Line

While this may be the age of information, the flow of information has always favored an elite core of providers. Even the newest electronic providers, including The Source, CompuServe and Delphi, dish out far more information than they take in from the scores of personal computers tuned in to their services. At the local level, electronic bulletin boards seem more personable. But to this day, most bulletin board systems are put on-line mostly by hobbyists for other hobbyists.

Nonhackers and small businesses have been largely left out of the on-line revolution. Part of the problem was (and still is) software. Most electronic bulletin board packages are unpolished, unfinished code open to customization, but closed to those who simply want to go on-line to share information, make money and, at the same time, not be enslaved by their own creations.

Let's Talk is one of the first attempts at bringing the benefits of electronic communication to everyone, including ordinary business people. It transforms an unattended Apple IIc or IIe into a high-tech answering machine and information server that can be easily customized by following simple menu prompts. With *Let's Talk*, you can advertise products and services, accept orders and provide electronic mail around the clock.

An intelligent modem (such as a Hayes Smartmodem), two disk drives and an Apple IIc or IIe is all it takes to set up a *Let's Talk* network. Most users will also want a ProDOS-compatible clock, so that the program can time and date stamp calls and track how long users are on-line. With the clock, *Let's Talk* can be configured to log users off after being on-line for one to 55 minutes.

The software is supplied on two copyable diskettes: one diskette contains the actual program code and operator utilities, such as an editor for creating menus and

Let's Talk

text; the other contains the screens and information users will see when they dial into the system. Both diskettes occupy drives in a two-drive system. An Apple IIe equipped with a hard disk or any combination of four disk drives can also be used with appropriate ProDOS volumes.

We were impressed with how easy it is to set up a network. From the *Let's Talk* main menu, the operator can edit or create text files, print out files left by callers, transfer files and otherwise configure the system. Each choice is menu driven and practically self-explanatory.

The configuration menu, for example asks the operator to make simple yes/no choices. Should system level passwords be required? Can callers page an operator for a chat? How many minutes should callers be restricted on-line?

The presentation disk needs to be customized by each operator, and tools for doing so are provided. If you can't wait until your Apple is answering the phone, sample presentation files are provided that can put *Let's Talk* on-line in a matter of minutes.

A better way to see how an on-line session will look to users before going "live" is to choose the "Test" option from the main menu. With Test, you can sample menus, read messages and check for password prompts and such before actually going on-line with your network. If a screen or file doesn't look right or needs work, you can change it by editing the presentation disk.

Information systems created with *Let's Talk* all follow a similar format, consisting of public and private branches. Each branch represents a separate network in itself with resulting menus, submenus and messages. With this approach, you can set up the public branch to be accessible to all callers. The private branch could be set aside for a select group of users, such as employees using the network to share sales order information. When the private branch is chosen from the on-line main menu, a password prompt appears.

Let's Talk networks are menu-driven and among the easiest to use we've seen. Callers are presented with menus every step of the way. Each menu has a "help" and "expand" feature available, which we found extremely convenient. The expand feature results in any menu appearing again on the caller's screen with elaboration as to what each choice means. These additional prompts are written by the operator before the network goes on-line.

With all this assistance available, it's almost impossible for even first-time callers to get lost. Compared to CompuServe or The Source, *Let's Talk* will be a cinch for most users.

While *Let's Talk* takes the pain and programming away from running an on-line network, careful planning is still required for organizing a logical network. The documentation recommends that operators first organize their networks on paper, making sure that each menu and submenu contains the right amount of information. The program uses ProDOS subdirectories to store the progression of menus. Each menu can have up to 10 menu items displayed on the screen at one time.

Housekeeping functions, such as responding to messages, deleting old files and processing orders, are greatly simplified, but they haven't gone away. *Let's Talk* users should be prepared to dedicate a certain amount of time to network maintenance each week. Less time will be required for networks that don't request much information from callers.

Like cheap steel, the Winchester rifle and passenger jets, *Let's Talk* is helping to open up a new frontier. How that frontier is settled is left for us to decide.

Product: *Let's Talk*
Price: $215
Company: Russ Systems, 320 Dufour St., Santa Cruz, Calif. 95060, 408-458-5080 (voice), 408-427-0310 (data)
Requirements: Apple IIc, IIe; two disk drives; intelligent modem; special cable required to work with the Apple Personal Modem
Supports: ProDOS; hard disk drive; printer

Desktop

Catalyst 3.0

Close To A Macintosh

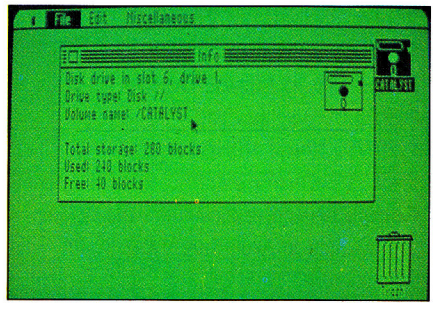
Catalyst 3.0 is a desktop environment designed to help users easily select programs off a mass storage device. Once ProDOS programs have been transferred to a UniDisk 3.5 or hard disk, *Catalyst 3.0* allows the programs to be selected and run using icons, pull-down menus and a mouse. Even copy protected programs can be transferred to a mass storage device using *Catalyst 3.0*.

The desktop includes many features found on a Macintosh. These include a calculator, puzzle and commands for changing the background pattern. Screen displays may be printed out on Imagewriter and compatible printers.

Catalyst 3.0 supports but does not require the Apple II Memory Expansion Card. With this accessory, *Catalyst 3.0* can load entire programs into RAM and then run them when selected from the desktop.

A full review of *Catalyst 3.0* appeared in the Winter '85 issue of *The Apple II Review.*

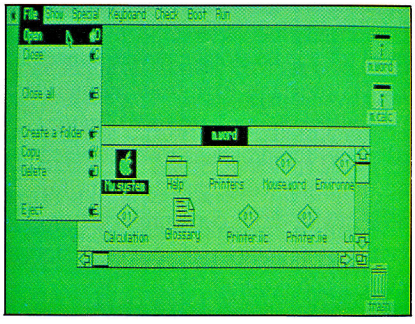
Product: *Catalyst 3.0*
Price: $99 (for 5¼- or 3½-inch format) $34.95 (when purchased with UniDisk 3.5)
Company: Quark, Inc., 2525 W. Evans, Ste. 220, Denver, Colo. 80219, 303-934-2211



Catalyst 3.0

Desktop

Requirements: Apple IIc, IIe; two disk drives (including one ProDOS-compatible mass storage device)
Supports: ProDOS; UniDisk 3.5; hard disk drive; Apple II Memory Expansion Card; Imagewriter or compatible printer; mouse



Mouse Desk

Mouse Desk

Point And Click

Mouse Desk is a desktop organizer and program selector that uses the mouse and pull-down menus. According to its vendor, *Mouse Desk* creates an environment similar to Macintosh that lets you point and click the mouse to easily move, copy and delete files on the disk. You can also switch back and forth between programs without rebooting.

Mouse Desk is compatible with a number of other mouse-based programs from the same vendor, including *Mouse Word*, *Mouse Budget* and *Mouse Calc*.

Mouse Desk, Version 2.0, and *Mouse File* are scheduled for release in April. Reviews of *Mouse Calc* and *Mouse Word* appeared, respectively, in the Fall and Winter '85 issues of *The Apple II Review*.
Product: *Mouse Desk*
Price: $39.95 (*Mouse Desk*)
$69.95 (*Mouse Budget*)
$129.95 (*Mouse Word*)
$149.95 (*Mouse Calc*)
Company: International Solutions, Inc., 910 W. Maude Ave., Sunnyvale, Calif. 94086, 408-773-0443
Requirements: Apple IIc, IIe; disk drive; mouse
Supports: ProDOS; second disk drive; UniDisk 3.5; Apple II Memory Expansion Card; hard disk drive

Filing

ProFILER 2.1

New Link To AppleWorks

Profiler 2.1 is an easy-to-use data base manager that incorporates a number of useful features at a reasonable price. This latest release integrates a utility program that allows transfer of data with *Appleworks*, allowing direct reading and writing of *Appleworks* data base files. The program also interfaces with many ProDOS-based word processors.

Forms are easy to design and multiple forms can be stored on a diskette or ProDOS-compatible hard disk. Up to 250 fields are allowed per form, and up to 1,500 records can be stored on a single diskette. On a hard disk, the capacity increases to 65,000 records. Records containing up to 16 screens of information can be created.

Profiler 2.1's report generator allows free-form and columnar reports. A wide range of mathematical operations may be used to determine totals, averages and so on.

Profiler 2.0 was reviewed in the Fall '85 issue of *The Apple II Review*.
Product: *Profiler* 2.1
Price: $99.95
$39.95 (data conversion program for PFS: series)
$29.95 (label utility program)
Company: PM Software, PO Box 1788, Huntington Beach, Calif. 92647, 714-963-2221
Requirements: Apple II+, IIc, IIe; disk drive
Supports: ProDOS; second disk drive recommended; UniDisk 3.5; hard disk drive; printer; 80-column Videx card

ProFILER 2.1

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Many companies have free product/service information available by mail. To receive further information, circle the numbers on the card that correspond to the numbers at the bottom of the advertisements for which you want more information. Then print or type your name and address on the attached card, detach, and mail. We will forward your requests to the appropriate companies.

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Summer 1986

The Apple II Review

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Miscellaneous

Apple Starter Kit

Four Programs In One

The *Apple Starter Kit* offers Apple II users a number of productivity and entertainment programs packaged together, along with two blank disks.

The *Apple Starter Kit* was introduced last year as a competitor to the more expensive *Appleworks*, according to the manufacturer. Packaged as one unit, the kit sells for $199. The manufacturer says that the programs would cost a total of $360, if bought separately.

Included in the package are programs for word processing, a spreadsheet, personal data base management and games. Each program is based on DOS 3.3.

Like other electronic spreadsheets, *Acecalc* promises to replace a calculator, paper and pencils for mathematical calculations. Features include variable column widths, 28 arithmetic or logic functions and hidden and protected cells.

Acewriter II, the package's word processing program, offers basic writing and editing functions. Special features include on-screen centering and page breaks, tab setting, search and replace and title lines.

Magic Memory, the kit's electronic address book, provides the means to file, check and cross-check hundreds of pieces of information. Addresses and other information can be line sorted or cross-referenced.

Reversi and *Apple 21* are included on the games disk.

Product: *Apple Starter Kit*
Price: $199
Company: Artsci Inc., 5547 Satsuma Ave., North Hollywood, Calif., 91601-2880, 818-985-2922.
Requirements: Apple II, II+, IIc, IIe; disk drive
Supports: Second disk drive; printer

Apple Starter Kit

Public Domain

Public Domain Software On File

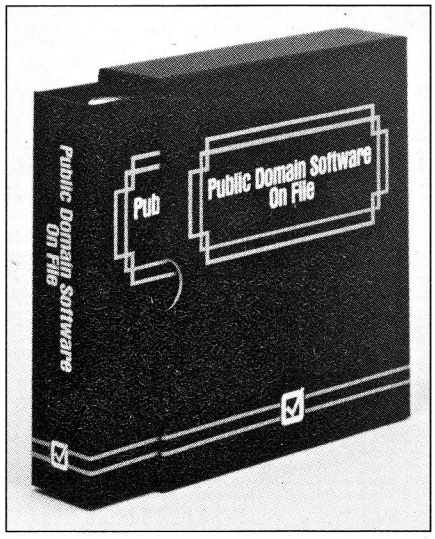
Make Unlimited Copies

There are thousands of Apple II programs that circulate in the public domain. Public Domain Software On File is a collection of over 250 of these programs. Supplied on 20 copyable diskettes, each program has been tested, debugged and categorized. According to the vendor, users can copy and modify the programs for personal use, free and legally.

The programs represent some of the best packages that circulate in the public domain. They are ideal for libraries, user groups or others that want to build collections quickly. Among the programs listed are an address book, adult education, a checkbook balancer, chess, a data base manager, flight simulator, spreadsheet, word processor and a vocabulary builder.

Each program is menu driven and accompanied by a user's guide for libraries and patrons. Also included is a condensed user's guide recorded on each diskette.

Product: Public Domain Software On File
Price: $195
Company: Facts On File, Inc., 460 Park Avenue South, New York, N.Y. 10016, 212-683-2244 or 800-322-8755
Requirements: Apple II+, IIc, IIe with 64K; disk drive
Supports: Color monitor



Public Domain Software On File

Real Estate

Review

Real Estate Analyzer

Landing The Right Investments

Real Estate Analyzer is a complete investment analysis program that lets you perform what-if comparisons on existing or proposed commercial and residential real estate investments. The program provides you with an objective means of projecting the consequences of your capital improvements, rent increases and buy/sell decisions.

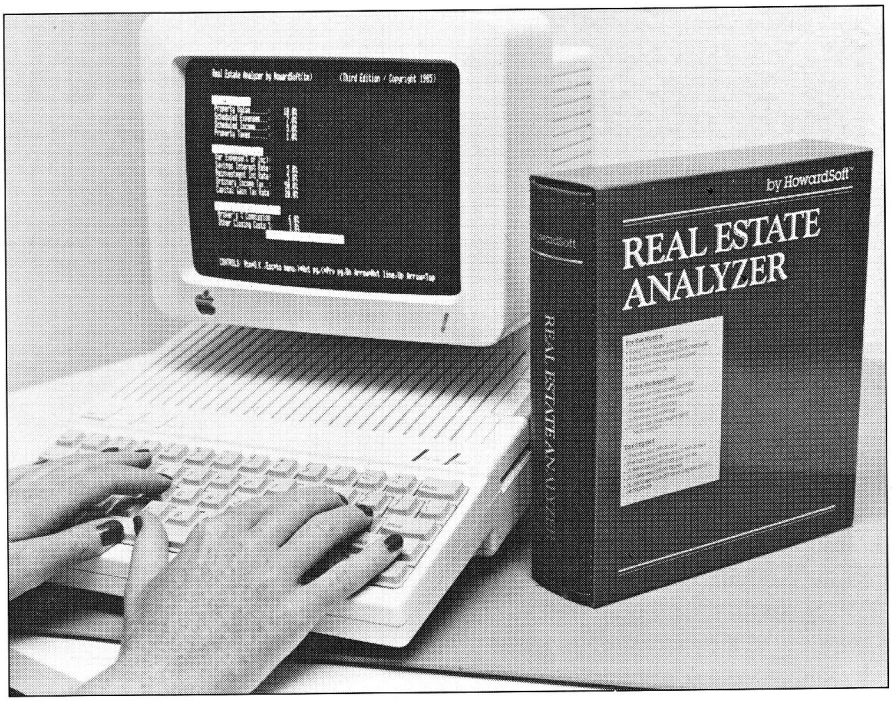
Real Estate Analyzer uses the latest techniques in investment analysis. When you key in an investment scenario, for example, *Real Estate Analyzer* considers a variety of factors, including: variable loan conditions, current depreciation schedules, current tax laws and realistic inflation modeling. The program also generates projections of cash flow and profit up to 30 years at a time and allows the user to withdraw or infuse capital at any time during ownership.

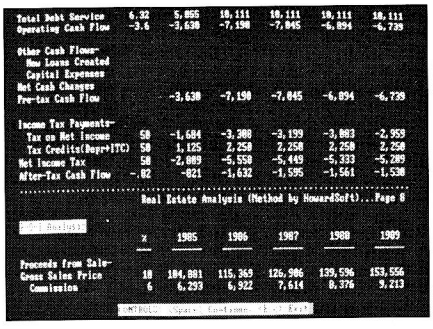
Although *Real Estate Analyzer* uses complex financial ratios and techniques to analyze investment decisions, it is not difficult to master. In fact, we felt comfortable using *Real Estate Analyzer* during our first session at the computer.

The program is fully menu driven, offers helpful prompts and has an on-disk tutorial designed with the novice in mind. This third edition of *Real Estate Analyzer* has been revamped further to make it easier for novices to track and analyze cash flow (pre-tax and after-tax) and the return on investment (ROI).

Additional features that sophisticated investors look for in a real estate analysis package are also here. They include measurements for determining internal rate of return, financial management rate of return and net present value.

Real Estate Analyzer has built-in safeguards that recognize the input of illogical data that can cause misleading reports. Pre-designed report formats that can be tailored to your needs and printed out are also included.





Total Debt Service	6.32	5,855	10,111	10,111	10,111	10,111
Operating Cash Flow	-3.4	-3,630	-7,190	-7,845	-6,894	-6,739
Other Cash Flows-						
New Loans Created						
Capital Expenses						
Net Cash Changes						
Pre-tax Cash Flow		-3,630	-7,190	-7,845	-6,894	-6,739
Income Tax Payments-						
Tax on Net Income	50	-1,684	-3,308	-3,199	-3,083	-2,959
Tax Credits(Depr+ITC)	50	1,125	2,250	2,250	2,250	2,250
Net Income Tax	50	-2,809	-5,558	-5,449	-5,333	-5,209
After-Tax Cash Flow	-.82	-821	-1,632	-1,595	-1,561	-1,530

Real Estate Analysis (Method by HowardSoft)...Page 8

	%	1985	1986	1987	1988	1989
Proceeds from Sale-						
Gross Sales Price	10	104,881	115,365	126,906	139,596	153,556
Commission	6	6,293	6,922	7,614	8,376	9,213

Real Estate Analyzer packaging (top) and screen shot

The documentation is well written, well organized and easy to use. Investment terms and concepts are all carefully explained. The Tutorial Guide leads you through an exercise involving data entry and income and expense itemizing. An analysis on a sample piece of property is also included.

We found *Real Estate Analyzer* to be a sophisticated investment analysis program containing useful features for the occasional investor as well as the professional. Tax advisors, real estate agents, attorneys and others involved with property transactions should find *Real Estate Analyzer* a worthwhile addition to their software library.

Real Estate Analyzer is updated as tax laws change. Registered owners may purchase the newest version (including manual updates and a program disk) at reduced rates.

Product: *Real Estate Analyzer*
Price: $295
Company: HowardSoft, 1244 Prospect, Ste. 150, La Jolla, Calif. 92037, 619-454-0121
Requirements: Apple II+, IIc, IIe; disk drive
Supports: Second disk drive; printer

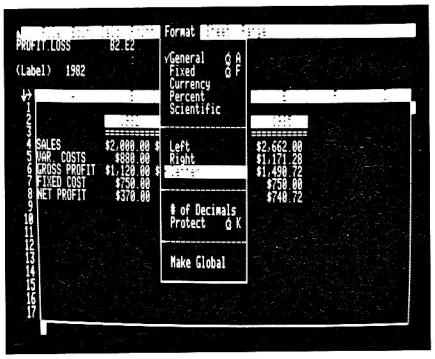
Spreadsheet

Review

Habacalc

Mouse-Driven Spreadsheet

The electronic spreadsheet concept was practically invented on the Apple II



Habacalc

and many spreadsheet programs have been developed for it. One of the latest is *Habacalc*, a medium-powered spreadsheet that takes full advantage of the mouse (if you have one), Macintosh-like pull-down menus and dialog boxes. If you don't have a mouse, all functions are equally accessible from the keyboard.

Habacalc uses ProDOS and is not copy protected, so a logical first step is to follow the manual and make a back-up copy. After making our back-up, we also formatted a number of data disks using ProDOS. *Habacalc* cannot format a data disk from within the program. Therefore, it's a good idea to have at least one data disk handy.

After booting the program, you are presented with a fairly typical matrix of empty columns and rows. On the top of the screen is an inverse line with *Habacalc*'s various features listed: File, Edit, Calc, Print, Format, Sheet and Range. Using the mouse, you can point the cursor on each of these labels and access a pull-down menu with additional options. The File feature, for example, delivers options for printing individual cells, printing an entire screen and setting up the program to work with various printers.

In terms of size, *Habacalc* is competitive with similar programs. Its maximum spreadsheet size is 255 rows long by 64 columns wide. Most users, however, will probably run out of memory before every cell is filled. The program apparently does not recognize the various RAM cards that are available. Our test computer, an Apple IIc, was equipped with an extra 256K Z-RAM board from Applied Engineering, but *Habacalc* recognized only 46K of available RAM.

Habacalc does have a number of nice features. A window can be divided easily horizontally or vertically, and you can recalculate by rows or columns. You can also use the Show Formulas feature to replace calculated cells with their respective formulas.

These features are fairly common now, but we were impressed with *Habacalc*'s unique way of adjusting column width. Simply point the cursor at the column you want to change, click the mouse and move the mouse left or right to shrink or expand the column.

Habacalc has the usual mathematical functions for formulas: sum, average, count, integer and square root. It also has a choose function, handles lookups from a table and figures minimums and maximums. What you can't do, unfortunately, is point the cursor at various cells and then have those cells automatically named in a formula. Without this capability, you are forced to visually intersect the rows and columns yourself in order to figure out the address for a particular cell.

One of *Habacalc*'s best features is making graphs. You can easily make line, bar and pie charts by highlighting a range or group of ranges from the spreadsheet. Up to four ranges can be graphed at one time. Each graph appears with optional labels, a main title and titles for the X and Y axes.

It's easy to switch quickly from one graph type to another to see which works best. Charts may then be printed in either a full or half size format.

Is *Habacalc* worth having? If overall ease of use, spreadsheet graphs and Macintosh-like mouse manipulations are important to you, then *Habacalc* makes good sense. Otherwise, you may wish for more power after you outgrow its capabilities.

Product: *Habacalc*
Price: $59.95
Company: Haba/Arrays, Inc., 6711 Valjean Ave., Van Nuys, Calif. 91406, 818-901-8828
Requirements: Apple IIc, IIe (enhanced); disk drive; mouse recommended
Supports: ProDOS; second disk drive; most printers (Imagewriter is supported without extra configuration)

Stock Market

Radio Exchange

Tune In

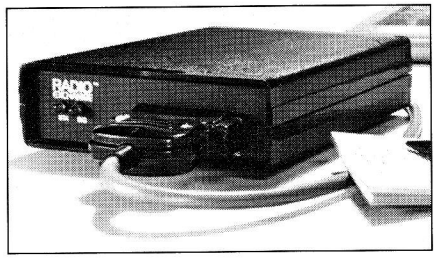
Your Apple II can link you to the ups and downs of Wall Street via FM radio frequencies and Radio Exchange, a new hardware/software combination.

Radio Exchange includes a high-speed, receive-only modem, software and the cable used to link the receiver and the Apple II. At press time, the manufacturer was planning a mid-March release for the Apple software. Radio Exchange offers users stock quotes and financial and business news.

Because Radio Exchange relies on radio frequencies and not telephone lines for transmitting current stock and finance data, it is operable only in a 50-mile radius of 20 major cities.

The manufacturer said that the network of cities is currently being expanded. According to a manufacturer's spokeswoman, the following cities either receive the signal or will by September: New York, Baltimore, Washington, D.C., Boston, Cleveland, Detroit, Chicago, Minneapolis and Atlanta. Also Tampa, Miami, Houston, Dallas, Denver, San Diego, Los Angeles, San Francisco and Seattle.

Product: Radio Exchange



Radio Exchange

Stock Market

Price: $394; (An additional $25 to $45 per month is required for stock, options and futures listings)
Company: Telemet America, Inc., 515 Wythe St., Alexandria, Va., 22314, 800-368-2078
Requirements: Apple IIc, IIe; two disk drives
Supports: N/A

Utility

Review

Profix

DOS On The UniDisk

Profix

In the Winter '85 issue of *The Apple II Review,* our review of the Apple UniDisk 3.5 stated: "Apple Computer will not be supporting DOS 3.3 with the UniDisk 3.5. Eventually somebody else will probably come out with a DOS 3.3 driver." Well, somebody else has. *Profix* is a driver program for ProDOS drives that makes the drive compatible with DOS 3.3.

Once *Profix* is run, the user is placed into a patched version of the DOS 3.3 operating system. Files can then be saved or loaded from the ProDOS drive. As far as your ProDOS drive is concerned, you are writing and loading ProDOS blocks from the drive. But from the end user point of view, they are DOS 3.3 files.

The user can set up various volume sizes for DOS on the ProDOS device. 143K volumes (the same size as floppy drives), 280K, 392K and 400K volumes are available. A special copy utility is used to back up expanded volumes onto floppies.

Profix uses 8K on the UniDisk for overhead, so this space is unavailable for use, but you can fit a 392K and 400K volume on one UniDisk diskette. On the Profile and other ProDOS hard drives, you can set up as many volumes as you need. Each DOS volume can be write protected with the *Profix* utility program.

The utility program is menu driven and simple to operate. A "turnkey" system can be set up whereby the *Profix* program is run when the diskette is booted. *Profix* will then run the DOS 3.3 application.

DOS 3.3 has been around since 1980 and there are thousands of excellent applications written for it. But DOS 3.3 is designed for use on 143K 5¼-inch floppies. Any device that stores a different amount of memory (high density floppies, hard drives, RAM drives and so on) requires special programming wizardry in order to make it work. ProDOS, besides its other capabilities, is designed for use with any size storage device that has the proper software drivers.

You'd think that everybody would want to get rid of DOS 3.3 and convert everything to ProDOS immediately, but there are a couple of technical advantages to DOS for certain applications. Primarily, though, *Profix* is perfect for users with many DOS programs that cannot be converted for various reasons. These include marketing reasons (the company hasn't come out with a ProDOS upgrade yet), support issues (the company is no longer supporting the product) and compatibility concerns (the company's ProDOS version will not work with a particular hardware combination).

Profix is fairly expensive for a driver utility, but may be worth it if you need its capabilities. ProDOS hard drives and the UniDisk are excellent devices, but they become better and more versatile with the addition of *Profix*.

As a general rule, if a ProDOS version of your program is available, then use it. If you have a ProDOS drive, but your program is in DOS 3.3, then *Profix* it.
Product: *Profix*
Price: $69
Company: Nordic Software, 4910 Dudley St., Lincoln, Neb. 68504, 402-466-6502
Requirements: Apple II+, IIc, IIe; ProDOS compatible drive
Supports: ProDOS; DOS 3.3; UniDisk 3.5; hard disk drive

Word Processing

Review

HomeWord Plus

A Better Best-Seller

The original *Homeword* is a tough act to follow. The award winning word pro-

cessing program sold more than 100,000 copies and was touted as simplicity itself for computer buffs and novices alike.

But the creators of the sequel, *Homeword Plus*, think they've loaded the program with enough new features to impress new buyers while luring *Homeword* owners to upgrade.

Homeword Plus offers some significant new features that old *Homeword* users may find they can't live without. First, the new version is a ProDOS program, thereby giving it the ability to share data with certain other ProDOS programs and an automatic speed advantage over the slower DOS 3.3. Also, there's a 30,000 word spelling checker and the option to display a full screen of text without the icon menu stripped along the bottom.

And, like its predecessor, *Homeword Plus* presents users with an easy to read icon menu and clear prompts.

But that icon menu was bulky—it consumed the bottom third of the display screen. The program's creator must have felt the same way, since *Homeword Plus* now offers the option of working on an 80-column by 24-line screen display without the icons.

Another improvement we like is the move away from copy protection. This should be of special value to anyone who likes the the idea of making duplicate disks for safekeeping.

Optional mouse support, support of the new Apple II Memory Expansion Card and the Apple UniDisk 3.5 drive are also new and welcome modifications to *Homeword Plus.*. Anyone having an Apple II Memory Expansion Card with at least 256K RAM, or another expansion card that follow's Apple's protocol, can load *Homeword Plus* and the spelling checker into memory and utilize the program at memory speeds. ProDOS-based hard disk drives are also supported.

The two programs share many features. Both include bread and butter word processing functions, like writing, editing, layout and filing. The built-in word checker is expandable, and can be alphabetized.

We especially liked *HomeWord Plus*'s ability to justify text three ways—from the left, right or both sides. The 32K document buffer, on-screen picture of an entire formatted page and two modes of text entry are also welcome features.

As a consistent best-seller, *Homeword* already had a healthy chunk of the "simplicity first" word processing market. Several hours with *Homeword Plus* may convince you that a good thing just got better.

Product: *Homeword Plus*
Price: $69.95. *Homeword* owners can upgrade for $35 by writing the company
Company: Sierra On-Line Inc., Coarsegold, Calif., 93614, 209-683-6858.
Requirements: Apple IIc, IIe; disk drive
Supports: ProDOS; second disk drive: UniDisk 3.5; hard disk drive; Apple II Memory Expansion Card; printer; mouse; color monitor

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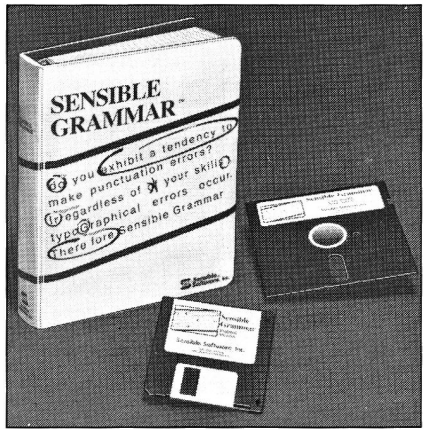
Review

Sensible Grammar

Edit With Finesse

If you are an experienced editor, you probably don't need help spotting the grammatical errors, cliches and confusing "legalese" that can ruin good writing. But



Sensible Grammar

if you're not a pro, you can edit your own writing—or someone else's—with ease using *Sensible Grammar* and your Apple II.

Devotees of *Sensible Speller*, a spell checker from the same manufacturer, don't need to be told how convenient it is to boot a program that helps tidy up a letter or report. We think that a good thing has gotten better. *Sensible Grammar* takes the editing process a step beyond mere spelling to good grammar.

The program "reads" material stored on disk and targets a variety of grammar and punctuation errors. Wordy, vague, sexist, pompous and redundant phrases are flagged, and at least one alternate suggestion is provided for each blooper. In all, *Sensible Grammar's* library consists of 1,000 commonly misused English phrases.

Sensible Grammar also spots contractions, hard-to-understand legal phrases and other troublesome terms that can muddle your writing. But be prepared—you won't always agree with *Sensible Grammar.*

We took issue with several of *Sensible Grammar*'s complaints. We like an occasional contraction, for instance, and the program questioned each one we used.

However, *Sensible Grammar* was one step ahead of us. It allowed us to stick to our guns and leave potential errors alone, if we liked them. The program will just move on to the next problem spot.

At worst it forces you to carefully consider your choice of words and punctuation—and that can only result in clearer writing.

With a few exceptions, we liked the changes the program suggested and found our writing clearer and more straightforward after 15 minutes of editing. It was just as easy to edit our own work as someone else's—which isn't always the case without an objective aid like *Sensible Grammar.*

Don't boot *Sensible Grammar* if you like flowery writing with lots of extra words and padded sentences. We thought *Sensible Grammar*'s strongest point was its ability to help produce spare language that got the point across without in-

Word Processing

timidating or confusing the reader.

The program comes with a 5¼-inch floppy disk and a 3½-inch disk for Apple's new UniDisk drive. It supports most ProDOS word processors, including *Appleworks, Apple Writer, Mouseword, Mousewrite, PFS:Write, Word Juggler* and *Zardax.* Programs not supported include *Magic Slate, Mastertype's Writer* and *Wordperfect.*

We found *Sensible Grammar* simple to use, partly because of its up-to-date user interface. Features include windows, pull-down menus and optional mouse control.

Product: *Sensible Grammar*
Price: $99.95
Company: Sensible Software, Inc., 210 S. Woodward, Ste. 229, Birmingham, Mich., 48011, 313-258-5566
Requirements: Apple IIc, IIe; disk drive
Supports: ProDOS; second disk drive; UniDisk 3.5; hard disk drive; Apple II Memory Expansion Card; printer; mouse

Significant Others

Apple Access II—Intelligent terminal package with an *Appleworks*-style interface. Emulates three terminals and supports XMODEM error-free transmissions. Reviewed, *The Apple II Review,* Fall '85. $75. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010

Apple Writer II—Apple's sophisticated word processing program, now in ProDOS version 2.0. Includes built-in communications program and language for automating form letters and calculations. Reviewed, *The Apple II Review,* Fall '85. $149. Apple Computer, Inc., 20525 Mariani Ave., Cupertino, Calif. 95014, 408-996-1010

Back to Basics—Solid accounting program that includes general ledger, accounts receivable and accounts payable. Latest version without copy protection. Reviewed, *The Apple II Review,* Winter '85. $195. Peachtree Software, 3445 Peachtree Rd. NE, Atlanta, Ga. 30326, 404-239-3000

Bank St. Writer—First in a series of easy-to-use programs, this word processor was originally developed by The Bank Street College of Education in New York City. Recently enhanced with a spell checker and mailing program, both separately available. $69.95. Broderbund Software, 17 Paul Dr., San Rafael, Calif. 94903, 415-479-1700

DB Master—Powerful data base manager that files and retrieves data in most formats. Has three levels of security protection; works well on a hard disk. $295. Stoneware, Inc., 50 Belvedere St., San Rafael, Calif. 94901, 415-454-6500

Firefighter Basic Accounting—Single-entry, financial management program that tracks unlimited checkbooks, charge cards and cash accounts. Recently discounted to $19.95. Practical Peripherals, 31245 La Baya Dr., Westlake Village, Calif. 91362, 818-991-8200

Global Program Line Editor—Adds word-processing-like functions to Applesoft programming, including search and replace. A must for those who program a lot. $49.95. Beagle Brothers Micro Software, 3990 Old Town Ave., San Diego, Calif. 92110, 619-296-6400

Mastertype's Writer—Family word processing program with a variety of on-screen typefaces, including large, small and script. Color highlighting function supports color printing. Reviewed, *The Apple II Review,* Fall '85. $79.95. Scarborough Systems, Inc., 55 S. Broadway, Tarrytown, N.Y. 10591, 914-332-4545

Mouse Calc—Powerful spreadsheet program with a Macintosh-like interface. Includes pull-down menus and windows with integrated color graphics that appear at the point and click of the mouse. Charts can be printed on Apple color printers. Reviewed, *The Apple II Review,* Fall '85. $150. International Solutions, Inc., 910 W. Maude Ave., Sunnyvale, Calif. 94086, 408-773-0443

Mouse Word—Mouse-oriented word processor with communications function, mail merge and built-in calculator. Works well with *Mouse Desk* desktop environment from the same manufacturer. Reviewed, *The Apple II Review,* Winter '85. $129.95. International Solutions, Inc., 910 W. Maude Ave., Sunnyvale, Calif. 94086, 408-773-0443

Mousewrite—Mouse-based word processing system that can divide the screen into two windows. Great for editing one draft while scanning original copy. Includes on-screen clock and a puzzle. Supports UniDisk 3.5, Apple II Memory Expansion Card and Imagewriter II color printing. Reviewed, *The Apple II Review,* Fall '85. $124.95. Roger Wagner Publishing, Inc., 10761 Woodside Ave., Ste. E, Santee, Calif. 92071, 619-562-3670

Multiplan—One of the first spreadsheets to use 80 columns and the full 128K RAM memory of the Apple IIc and IIe, *Multiplan* is also available on many other computers. Program can link several spreadsheets for consolidating reports. $125. Microsoft Corp., 16011 NE 36th Way, PO Box 97017, Redmond, Wash. 98073, 206-828-8080

PFS:File—Popular filing program that uses freestyle electronic forms for storing up to 31 pages of information per record. New ProDOS version supports UniDisk 3.5 and the Apple II Memory Expansion Card. $125. Software Publishing, 1901 Landings Dr., Mountain View, Calif. 94043, 415-962-8910

PFS:Write—Easy-to-use word processor that works well with other PFS programs. New ProDOS version supports UniDisk 3.5 and the Apple II Memory Expansion Card. $125. Software Publishing, 1901 Landings Dr., Mountain View, Calif. 94043, 415-962-8910

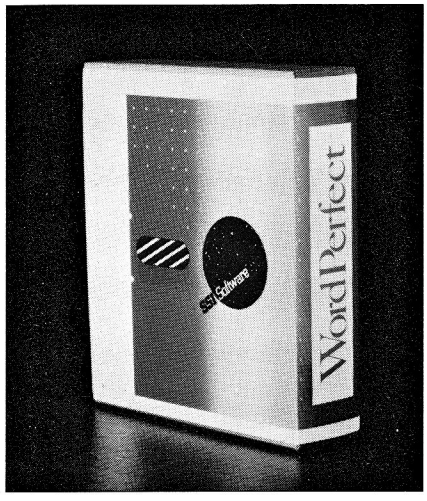
Project Planner—Surprisingly full-featured project management software for the Apple II. Flowchart may be viewed in multiple ways. Reviewed, *The Apple II Review,* Winter '85. $195. Applitech Software, Inc., 381 Harvard St., Cambridge, Mass. 02138, 617-497-8268

Sensible Speller—Proven spelling check-

er that supports a wide variety of word processors, including *Appleworks, Word Juggler* and *Apple Writer.* Latest version works with the UniDisk 3.5 and stores over 80,000 words on one disk. Reviewed, *The Apple II Review,* Fall '85. $125. Sensible Software, Inc., 210 S. Woodward, Ste. 229, Birmingham, Mich. 48011, 313-258-5566

Supercalc3a—One of the most powerful, full-featured spreadsheet programs available for the Apple II—or any computer. Has integrated graphics and can print spreadsheets sideways. Reviewed, *The Apple II Review,* Winter '85. $195. Computer Associates Micro Products Division, 2195 Fortune Dr., San Jose, Calif. 95131, 408-942-1727

Word Juggler IIe—Full-featured ProDOS word processor includes on-screen view of printouts prior to printing, quick envelope addressing and 50,000-word dictionary. $99. Quark, 2525 West Evans Ave., Ste. 220, Denver, Colo. 80219, 303-934-2211



Word Perfect

Word Perfect—Apple II version includes many advanced features, including no limits on file size, print spooling and disk formatting from within the program. Also includes mail merge facility. Reviewed, *The Apple II Review,* Winter '85. $179.95. SSI Software, 288 W. Center St., Orem, Utah 84057, 801-224-4000

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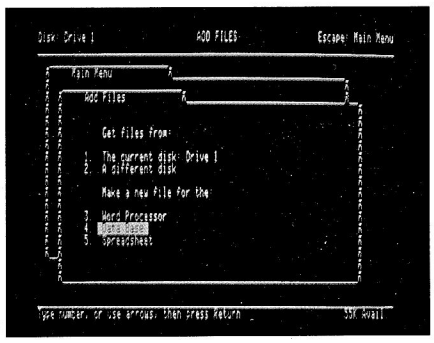

Let AppleWorks Manage Your Portfolio

Keeping the books in order is hard enough on the job. So who has time to manage the family portfolio? If you're armed with AppleWorks and a few fundamentals, maybe you'll find the time after all.

By Ken Landis

Investing in stocks, bonds, options, futures and the like is a lot like playing a game, a very serious game. If you're going to play, you need a few things—money, luck, skill and any combination thereof, as well as accoutrements such as the *Wall Street Journal,* investment reports, newsletters and so on.

In this game, how do you know who wins? By keeping score, of course. Points are dollars. And the best scorekeeper around is your Apple II equipped with portfolio management software.

The term "portfolio management" is really a misnomer—the software doesn't "manage" your portfolio or tell you when or what to buy and sell. Other types of software do that. Portfolio management software helps you keep or manage your records—in other words, update the score on your profits and losses, keep statistics for tax purposes and help reconcile statements from your broker.

There are a number of excellent portfolio management packages for the Apple II. They normally range in price from $200 to well over $600. The price often reflects how much they can do, as well as how well they work with other types of investment software or external quotation services such as Dow Jones News/Retrieval.

The portfolio management software market is similar to the automobile market. You can buy anything from a Yugo to a Rolls Royce. Both will get you where you're going; the difference is style.

The same holds true in portfolio management. At the top end of the market, most packages are menu driven, sport documentation resembling textbooks (teaching you as you go) and have slick screens, help functions and so on. At the low end, the functions are more basic, sometimes offering little more than a thinly disguised electronic calculator and set of index cards.

The AppleWorks Alternative

You do have an alternative. Just about anything that you need to do to manage your portfolio can be done using *Appleworks.* The formulas are simple and so is the process. All you need is a framework to get started.

Before we go any further, let's discuss the downside of using *Appleworks.* Unfortunately, because of the way Uncle Sam looks at investments and the characteristics of many investments themselves (especially options), dates are important. *Appleworks* cannot do date arithmetic, thus we have to trick it into thinking it has this capability. The technique we'll be describing works fine for short- and long-term gains and losses, but isn't much help for creating an expiration calendar for options.

So what's the bottom line? Unless you have a very keen eye, you won't want to try options on this spreadsheet. Furthermore, because of the date arithmetic limitation, there are some other things that *Appleworks* users can't do easily, such as figuring out the carrying cost of an investment and the interest you pay on money borrowed to buy a stock (called margin). Instead, we have to estimate these numbers. If this limitation becomes a showstopper to you, consider using *Supercalc3a,* from Computer Associates International, Inc. of San Jose, Calif., instead of *Appleworks.*

Birth Of A Spreadsheet

In our portfolio management system, we have divided the spreadsheet into two areas—an input work area, which also has

some calculations in it, and a report area. Keeping the two separate makes it easy to quickly see how you are doing, and you can enter data without disturbing your reports.

Since we have divided our *Applework*'s portfolio manager into two areas, let's address them one at a time. First, the input section.

Capturing too little information will leave you short on your analysis, while capturing too much will just waste your time. The objective is to capture only what you need, and that varies based on what instruments you invest in. In this spreadsheet, we are going to account only for stocks (called equities).

In the equities game, we can either buy (and then later sell them) or "sell them short" and then "cover." Once you understand the dynamics of these two sets of trades, you will begin to see ways to modify the spreadsheet to accommodate many other types of transactions.

Long And Short Of It

As we just discovered, you can be either "long" or "short." When you are long on a stock, that means you have bought it. For example, if you called your broker and told him or her to buy 20 shares of Apple Computer, Inc. at $15.50 per share, the broker would go into the market for you and buy the shares. Once the trade is completed, you are said to be long 20 shares of Apple.

When you're short shares of stock, you have done something that in any other business is illegal. You sold something you didn't own. (Well, almost.) What you really did was borrow some stock and promise to give it back later. Why do this? Because if the market goes down, you make money! If you were long and the market went down, you would lose money because the value of your stock would fall.

How can this be? The trick is that you commit to replacing the shares. Instead of using the shares you "borrowed," which you sell immediately when you borrow them, you go into the market later, when the price has fallen (you hope), and buy them for less.

For example, let's say Apple is at $15 and you go short. When you sell the stock, you get $15 (less commissions). If the market goes down to $12, you can buy the shares at $12 and replace the ones you borrowed. You then have a profit of $3. Not bad.

With either trade, you either make or lose money. To make money, one of two things has to happen. If you are long on the stock, its price has to go up to make money. If you're short, the price has to go down.

In addition to changes in the price of the stock you bought, you have to account for the costs you incur for investing. These costs include broker commissions, the cost of borrowing (if you do borrow) as well as how much of the profits you're going to be able to keep (never forget taxes).

In Figure 1, you can see the layout of our input section. We have divided the in-

```
A/1:  B          C          D        E    F        G          H          I          J          K
 2: PORTFOLIO PROFIT
 3: ================
 4:
 5: UNREALIZED PROFIT
 6: -----------------
 7:
 8: SHORT TERM   LONG  TERM        TOTAL EST. YRLY. DIVS.          29
 9:  56.5        121.4
10:                                TOTAL INVEST                  3102
11: REALIZED PROFIT
12: ---------------                TOTAL MARGIN COST               38
13:
14: SHORT TERM  LONG   TERM        EST YRLY RETURN ON DIVS.      0.78%
15:  9.75        101.6
16:                                EST YRLY RETURN ON PROFIT     9.32%
17: TOTAL PROFIT
18: ---------------                EST YRLY RETURN ON PORTFO     9.03%
19:
20: SHORT TERM  LONG   TERM
21: 66.25         223
22:
23: ************************************************************************
24:
25: INPUT
26: ======
27:
28: BOUGHT-LONG
29: ----------
30:                                                                EST. QTRLY.  UNRL. SHORT  UNRL. LONG
31: STOCK TODAY'S PRICE    DATE      L/S  SHARES PURCHASE    MARGIN COST DIVIDENDS   TERM G/ (L)  TERM G/ (L)
32: IBM        $146.00 APRIL 4,1984   -1    10    $1,400.00          18          3.5        45.5           0
33: ATT             48 MAY 7, 1985     1    20      $900.00           0          1.4           0        61.4
34:                                                                                           0           0
35:                                                  ---------  ----------- -------------  --------    --------
36:                                                       2300          18          4.9        45.5        61.4
37:
38: SOLD-SHORT
39: -------------
40:                                                                                   UNRL. SHORT  REAL. LONG
41: STOCK TODAY'S PRICE    DATE      L/S  SHARES PURCHASE    MARGIN COST              TERM G/ (L)  TERM G/ (L)
42: TANDY            8 APRIL 4,1984   -1    10      $101.00          10                        11           0
43: CBS             12 MAY 7, 1985     1    20      $300.00                                    0          60
44:                                                                                           0           0
45:                                                  ---------  -----------                --------    --------
46:                                                        401          10                        11          60
47:
48: SOLD-LONG
49: -----------                                                                       REAL. SHORT  REAL. SHORT
50:
51: STOCK SELLING PRICE    DATE      L/S  SHARES PURCHASE    MARGIN COST DIVDENDS    TERM G/ (L)  TERM G/ (L)
52: IBM             12 APRIL 4,1984   -1    10      $101.00          10         0.75        9.75           0
53: ATT             20 MAY 7, 1985     1    20      $300.00                      1.6           0       101.6
54:                                                                                           0           0
55:                                                  ---------  ----------- -------------  --------    --------
56:                                                        401          10         2.35        9.75       101.6
```

Figure 1—The completed portfolio management spreadsheet.

put area into four sections. One for buying the stock (going long) and one for selling the stock short. The other two sections are for liquidating or closing out the trade. In a long trade, to close it out you would sell the stock. So if our logic is true, in a short trade you would buy the stock to close out the trade.

Notice that the column headings on the right side of the input section are slightly different. In the first two sections, the label reads UNRL. SHORT TERM G/(L). This stands for Unrealized Short Term Gain or (L)oss. Why unrealized? When you haven't closed out the trade, your profit is only on paper—it's unrealized. That's why, in the last two sections, we record the closing of a trade with the label REAL (Realized).

Recording Transactions

Each transaction is entered in its own row, and its specifics are entered across that row column by column. In column A, we have the stock's symbol. The next column is where you record today's stock price. You can get these prices from your broker, the business section of your daily paper or from the *Wall Street Journal.*

A very important piece of information is the date you execute a transaction. The date helps calculate what gains or losses are eligible for long-term capital gains treatment. For a trade to be treated as a long-term capital gain, which has a lower tax rate, you need to hold it for at least six months. If you close out the trade before then, you will end up paying taxes on your full profit. As you can see, you want to hold profitable investments so they "go long term" and sell unprofitable investments before they go long term, so you can take advantage of the full loss.

Because of the date arithmetic problem described earlier, you have to keep an eye on the calendar. If the date you bought the stock is less than six months ago, put a -6 (for less than six months) in the column labeled L/S, which stands for Long or Short term. If you made the trade more than six months ago, put a 6. We will use these numbers later for some fancy calculations.

Next enter the number of shares purchased, followed by the total price paid for the stock plus commission costs. Notice that short trades don't collect dividends. Why? Because you don't own them.

If you borrow money from your broker, a friend, the bank or whatever, you should put the amount of interest you have paid in the column labeled MARGIN COST. You can find this number on your broker's statement or your bank statement. Keeping this number up-to-date is important to get a realistic picture of your performance. To "guesstimate" it, figure out what you pay per day in interest from your statement and then add that much per day. It won't be exactly right because of the way interest is calculated, but it will give you a good idea.

The more money you have borrowed the more important this number is, because your margin cost will be proportionately larger in relation to your profits. If you have a good financial calculator, you can easily calculate this number in a few seconds.

The last input is for dividends. If you have bought a stock that collects dividends, you should record the estimated quarterly dividend for the stock. This can be either the last dividend payment made or an estimate received from your broker.

Formulas Used In The Portfolio Spreadsheet

Unrealized Profit
B9- J36+J46
C9- K36+K46

Realized Profit
B15- J56+J66
C15- K56+K66

Total Profit
B21- J36+J46+J56+J66
C21- K36+K46+K56+K66

Total Estimated Yearly Dividends
H8- (I36 * 4) + (I56 * 4)

Total Investment
H10- G36+G46+G56+G66

Total Margin Cost
H12- H36+H46+H56+H66

Estimated Yearly Return On Dividends
H14- (H8-I36)/H10

Estimated Yearly Return On Profit
H16- (B21+C21)/H10

Estimated Yearly Return On Portfolio
H18- (H8-H12+B21+C21)/H10

Short-term unrealized gain/loss for bought-long starts in J33 and is copied into J52 for sold-long (copied using relative copy)*
* Assumes one dividend payment
@IF(E33=-6,
(C33*F33+I33)-G33-H33,L33)

Long-term realized gain/loss for K33 for bought-long starts in J33 and is copied into J52 for sold-long (copied using relative copy)*
* Assumes one dividend payment
@IF(E33=6,
(C33*F33+I33)-G33-H33,L33)

Short-term unrealized gain/loss for sold-short starts in J42 and is copied into J62 for bought-short (copied using relative copy)
@IF(E42=-6, G42-(C42*F42)-H42,L32)

Long-term unrealized gain/loss for sold-short starts in K42 and is copied into K62 for bought-short (copied using relative copy)
@IF(E42=6, G42-(C42*F42)-H42,L32)

Summations at the bottom of purchase, margin cost, dividends and unrealized and realized columns in each input use the @SUM function.For example, G36 is @SUM(G32...G34).

That's it for the input section of the spreadsheet. The remaining two columns in this section are the profit and short-term/long-term calculations. To calculate the gain or loss on a long trade, we multiply today's price by the number of shares owned, add dividends and subtract the margin costs and purchase price.

For short trades, the accounting is a little different. We take the purchase price and subtract the result of today's price times the number of shares short. Then the margin cost is deducted. Remember, if the price of the stock has gone down, you made money.

Calculating What @IF

To decide if the number in the column is a a short- or long-term gain, we use the @IF function in *Appleworks.* @IF tests the number and, if it is true, calculates the first set of equations. If false, it does the second set. The function takes the form @IF (First set of equations, Second set).

For example, the @IF function in J33 reads @IF($E33=-6, ($C33*$F33+$I33) -$G33 -$H33,L33). If you were to read this function aloud, it would read, "If the value in cell E33 is -6, then multiply C33 times F33, then add I33." Once this series of operations is complete, subtract G33 and H33 from the result and display it in J33. If the value you have is anything other than a -6, take the value in L33 (a zero in this case) and put it into J33.

The difference in the @IF function between the short- and long-term columns is that the short-term @IF looks for a -6 and the long-term @IF looks for a 6.

When you're inputting today's price, you can split the screen vertically, move the gain and loss calculations over to the split and watch the change in your profit or loss on each trade as soon as you enter the number. This information is then summarized in the reportsection at the top of the spreadsheet.

To close out a trade, i.e, to sell a long trade or buy stock for a short trade, you simply use the copy command and move the inputted fields (columns A-I) into one of the last two sections (depending on what kind of trade it was) and add the commission costs to your purchase price.

When building the spreadsheet, be careful to leave enough room in each section. If you think that you are going to have 15 trades over the course of a year, then leave at least that much room, if not more. It's a lot easier to build a spreadsheet that is bigger than you need than it is to make an existing one larger.

At the end of each year, you need to transfer the open trades to a new spreadsheet for tax purposes. Closed trades will

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remain on the old spreadsheet.

We have not discussed stock splits, where one share of a stock is "split" into a number of shares. This is normally done by a corporation when its stock price has risen to a high point. (The purpose is to make the share "affordable" again.) If the stock splits, say three for one, in which case you get three shares of stock for each one you had before, all you have to do is multiply the number of shares you own by three and enter the new price. Nothing else changes. So you know that you did have a split, you can add a short memo field at the end of the row to remember it.

A construction note—any formula used in the input section should be copied throughout the spreadsheet using the relative copy function. If you don't use relative copy, the formulas will calculate everything but the right number.

Instant Reports

The reports area of the spreadsheet lets you see at a glance how good or bad you're doing. The unrealized and realized profit sections are simply a summation of the totals of those columns in the input section. The total profit is the unrealized and realized profit sections added together. The same holds true for the total dividends calculation, as well as total investment, which is all the purchase prices added together.

The estimated yearly return on dividends is the summation of all estimated dividend payments multiplied by four (four quarters in a year), less the margin cost of bought-long stock (the cost of getting the dividend), divided by the total investment. All the estimated yearly return cells are formatted for percentages.

The estimated yearly return on profit is the sum of short- and long-term capital gains, less total margin, divided by the total investment. And the estimated yearly return on the portfolio is the sum of all dividends, short- and long-term profits, less margin, divided by the total investment.

Using *Applework*'s data base function, you can pass your spreadsheet into the data base and do all kinds of reporting, including sorting your holdings by date, looking at your dividends and determining which stocks had the highest total profit. If you calculate the original price per share, you can also tell which stock had gained the most by percent as well as in dollars. The data base allows you to "dice" and "slice" the data in a number of interesting ways. It's a handy, but not necessary, feature.

There really is no limit to the ways that you can calculate and display your holdings. The only major restrictions we found are the missing date functions and limited financial functions within *Appleworks.* But, with a little dedication and some add-on products such as Megahaus's *Reportworks* and PBI Software's *Graphworks,* you can do a whole lot more, if not just about anything.■

Ken Landis is a full-time financial analyst and part-time free lance writer based in Missouri.

Review

Pinpoint

At Your Fingers

Pinpoint was one of the more interesting programs to debut after Apple announced the UniDisk 3.5 disk drive and Apple II Memory Expansion Card. Unlike most applications that perform one or more tasks by themselves, *Pinpoint* is a desktop accessory designed to work in the background or in conjunction with another program. Right now, *Pinpoint* supports *Appleworks* and a growing number of ProDOS programs.

Desktop accessories are new to the Apple II world, although Macintosh users have had them ever since the Macintosh was announced. If you've ever seen the Calculator or Notepad on the Macintosh, you've witnessed a desktop accessory in action.

Desktop accessories normally need extra RAM memory space or additional disk drive capacity to work well, so *Pinpoint*'s arrival with Apple's high-capacity disk and new RAM board was timely. *Pinpoint* can be set up to work from a RAM disk or from a ProDOS subdirectory to enhance *Appleworks* with eight new features. These include a calculator that overlays any *Appleworks* function, an appointment calendar, a communications feature that can dial the telephone automatically for voice or computer communications, a feature that merges *Appleworks* text files with hi-res pictures, a notepad, a feature that can be used to quickly address an envelope and a typewriter mode.

Once *Pinpoint* is installed to work with *Appleworks*, using it is simple. Just press the Closed Apple key together with the letter "P" and an overlapping menu appears with a list of *Pinpoint* features. The arrow keys are used to highlight the feature you want, and pressing Return brings up that feature in another window.

The calculator, for example, appears in a window on the right of the screen. If you are working in the data base portion of *Appleworks* and need *Pinpoint*'s calculator, it will appear over your data base screen. Pressing Escape causes the calculator to disappear, returning you to the data base.

We found some of *Pinpoint*'s features to be more useful than others, although personal needs are bound to be different. The notepad feature may be nice for jotting down quick notes while you're working, say, in an *Appleworks* data base, but its features are limited—you can't do block deletes or cut and paste.

The typewriter has similar limitations, since it's not a word processor at all. Instead, the typewriter makes your printer function just like an electric typewriter, with a few twists. You can easily set up your printer to print bold, expanded or condensed type without the bother of issuing special commands through a word processor. You can also quickly print mailing labels and envelopes.

We especially liked *Pinpoint*'s appointment calendar. At a glance, you can see every day in the month and whether you've recorded any appointments for that day. The current month appears as a miniature wall calendar, with little boxes representing each day. You can also see at a glance whether any appointments are scheduled at any time over the next two months. Days with appointments have asterisks next to them.

To view the appointments, move the cursor to the appropriate box and hit Return. Another window then appears with the appointments set up on an hourly basis. A move features allows one day's appointments to be rescheduled for any other day. You can even print out your appointments for travel. All in all, we found *Pinpoint*'s appointment calendar to be more useful than the calendar in *Sidekick* (a popular desktop accessory for the IBM PC) or its many competitors.

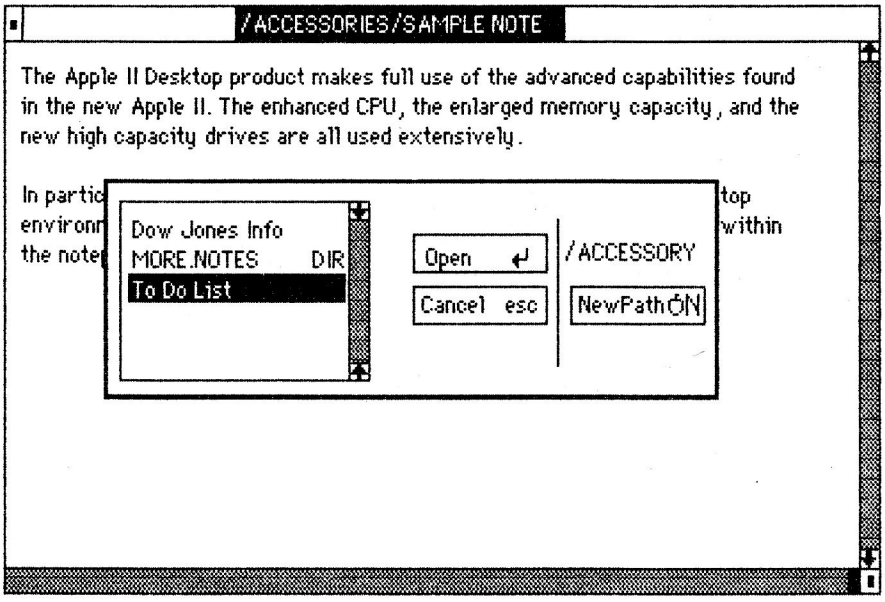
On the communications side, *Pinpoint* can recognize telephone numbers on the screen and then dial them automatically. It first locates the number on the screen (such as 555-231-1212), highlights it and uses a modem for dialing. You can then pick up the telephone and complete the call.

Pinpoint can also communicate with other computers, such as electronic bulletin boards and on-line data bases. You can adjust the baud rate, communications mode, data bits and parity, just like a full-featured communications program, and send text files over the phone created with *Appleworks* or other word processors.

Pinpoint's GraphMerge feature can be used to spruce up word processing files by adding pictures. You'll need a ProDOS-compatible graphics or paint program to create the pictures first. Once done, you can enter *Appleworks*, go into word processing and determine where you would like a picture to appear when the document is printed. Using *Pinpoint*, you can call up the picture and use a Macintosh-like rectangle to crop the image. You can then print the document, and the picture will appear where specified.

Perhaps the most thought in using *Pinpoint* goes into installing the program. *Pinpoint* is modular, so you'll have to determine in advance which features you want and where you want to store them.

The best way to use *Pinpoint* is to store the entire program on a RAM disk. Right now, *Pinpoint* supports the Apple II Ex-



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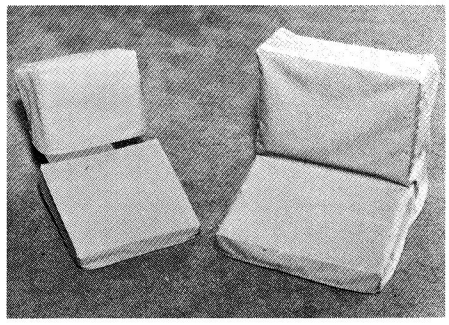

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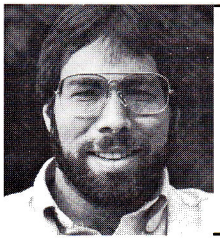

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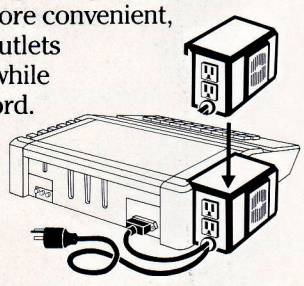

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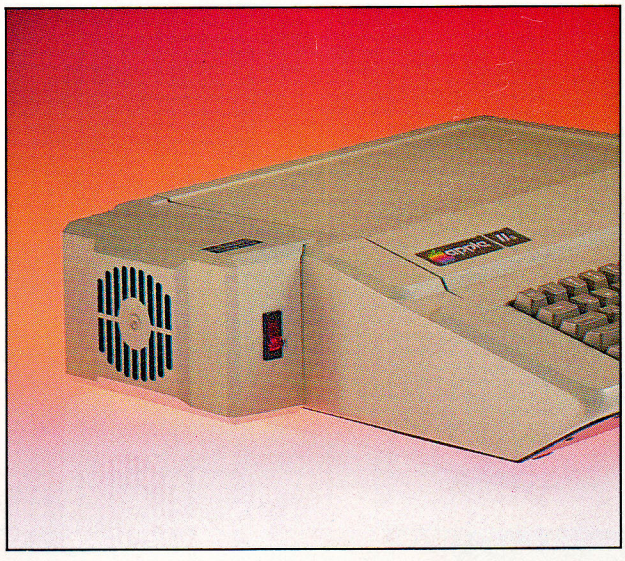

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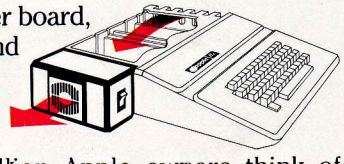

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