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The New Laser 128EX/2
The First Look
p. 17

THE APPLE II MAGAZINE

inCider

AN IDG COMMUNICATIONS PUBLICATION

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Tie in to the On-line World

Networking

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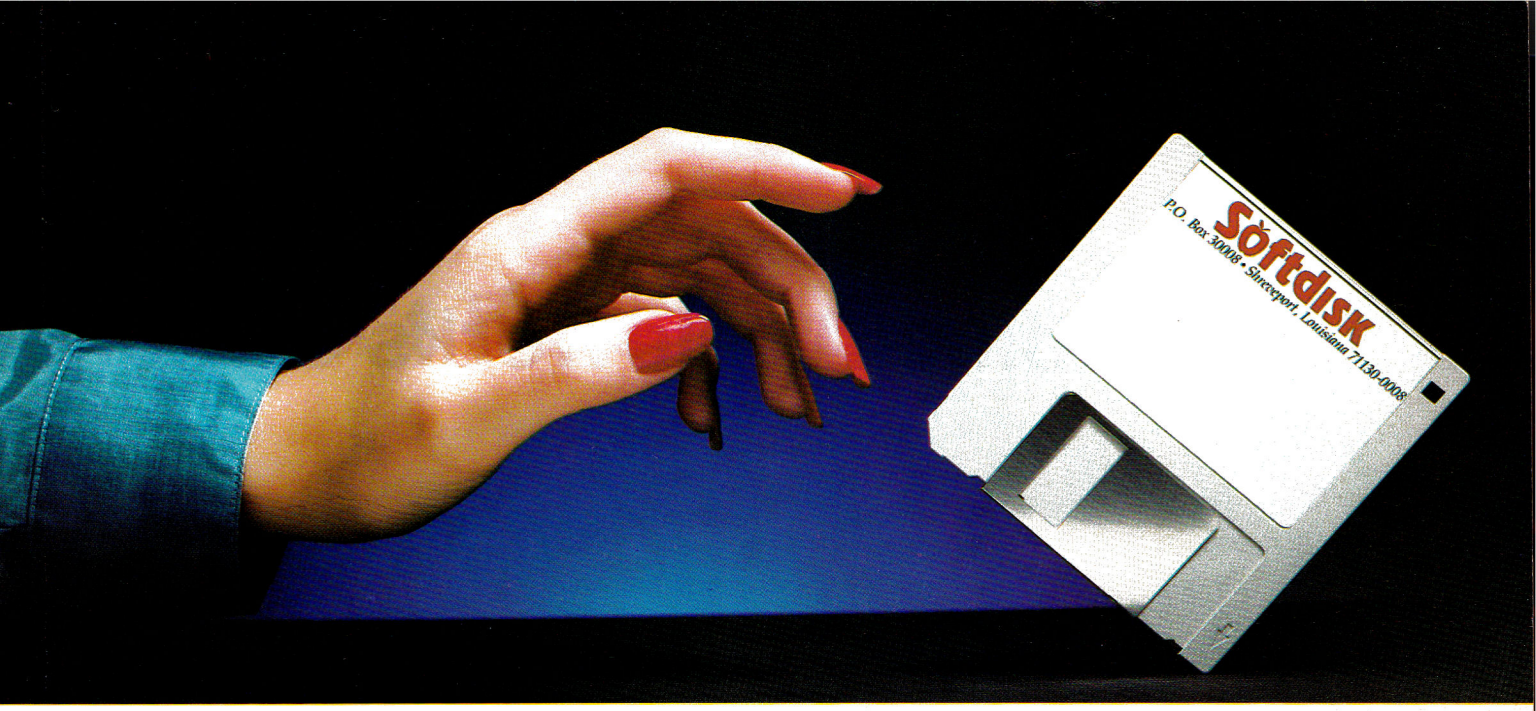
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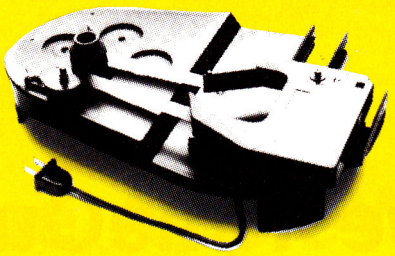
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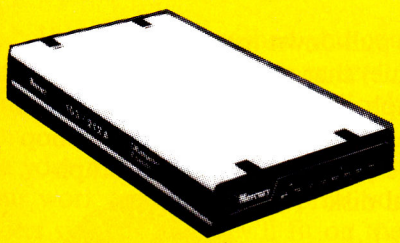
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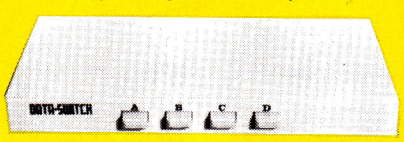


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Design

Art Director Donna Wohlfarth
Senior Designer/Ad Graphics Dianne K. Ritson
Production Manager/Designer Rosemary Ryan

Advertising

National Sales Manager Dale Strang (800) 441-4403
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Western Sales Representative James Burns, 3350 W. Bayshore Rd. Suite 201, Palo Alto, CA 94303 (415) 328-3470
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Marketplace/Classifieds Sales Representative Fiona Davies (800) 441-4403
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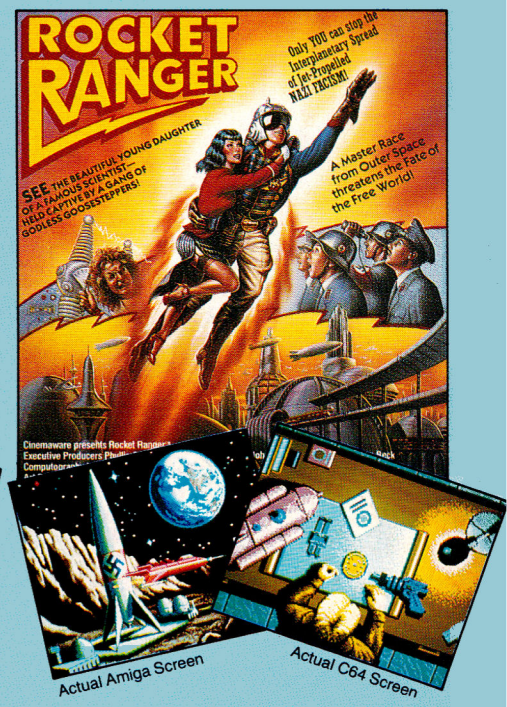
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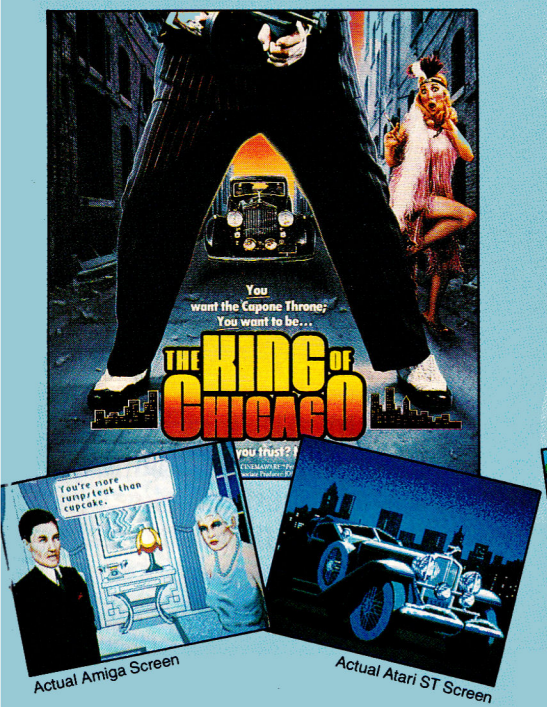
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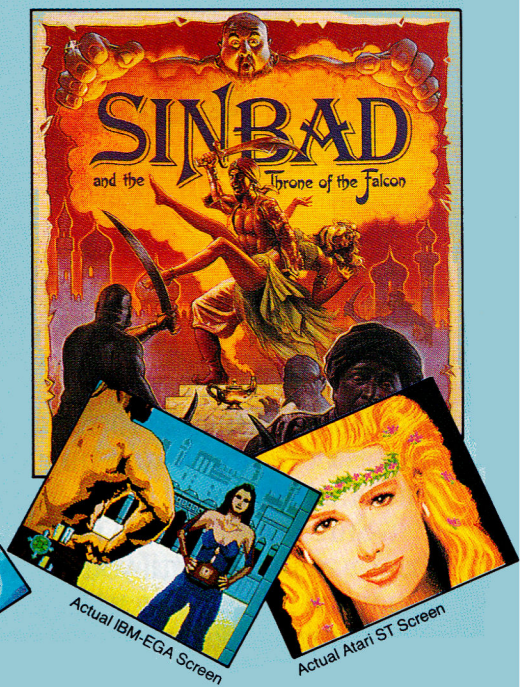










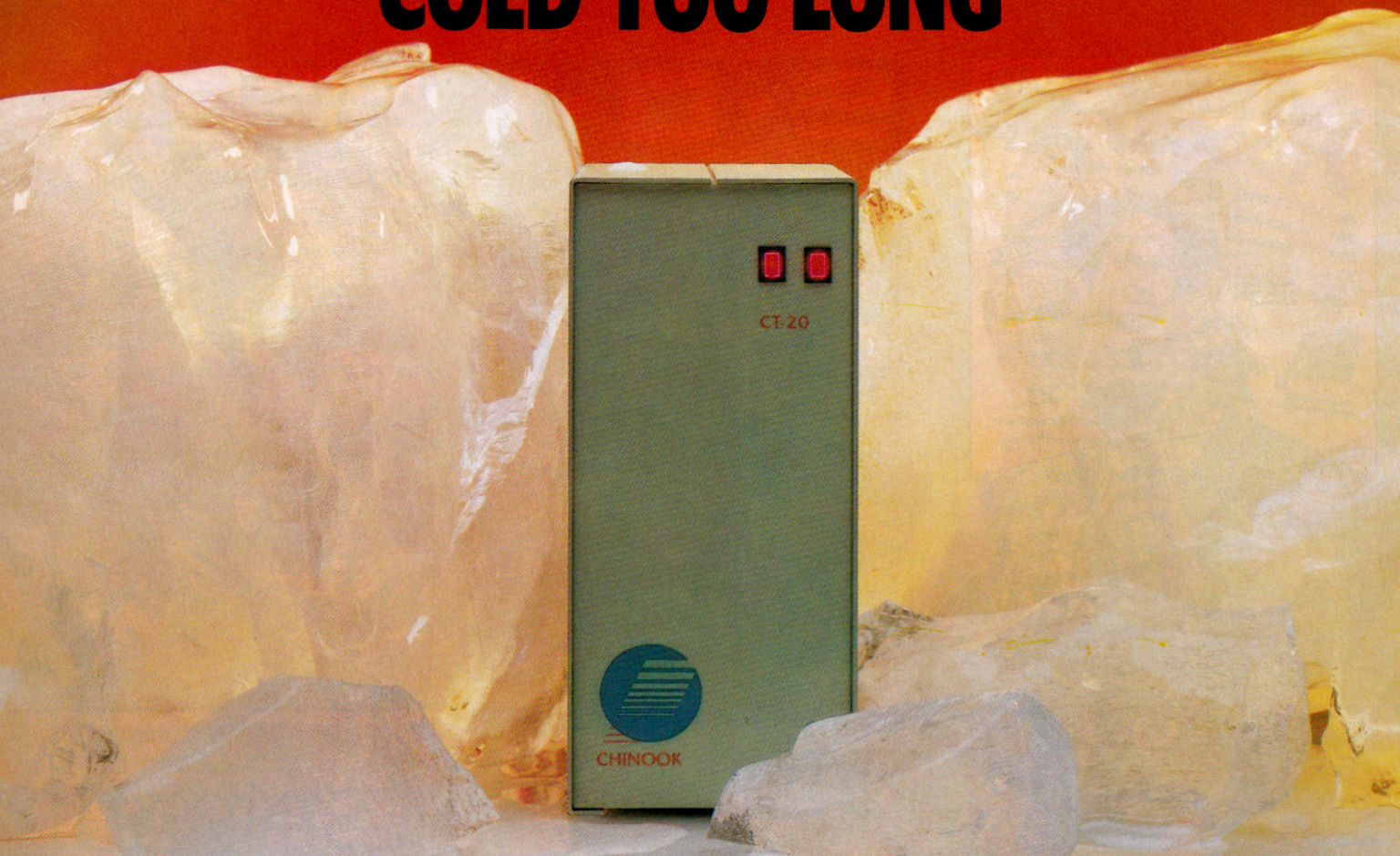


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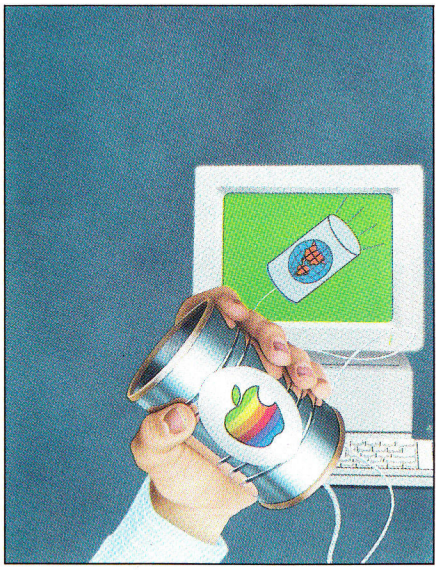
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Vol. 6 No. 10
October 1988

ON THE COVER

50 On Line with AppleLink

AppleLink—Personal Edition promises to change the way you telecommunicate—maybe even the way you work and play. It's a 24-hour-a-day on-line service just for Apple users—its easy-to-use interface gives you instant access to scores of databases and information files, news reports, social activities, classes, and group discussions.



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Local-area networks foster real classroom communication—teachers and students sharing ideas, information, peripherals, software, and resources. Let *inCider* help you choose the best system for your needs.

66 CLM: Watch What Develops

Join the celebration! October's Computer Learning Month, and that means contests, prizes, fairs, and sweepstakes galore. All ages are welcome—help introduce someone to the world of technology and watch the relationships grow.

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Mace on Games will return in November with a survey of popular geography games.

Learning to Love Telecommunications

by Dan Muse, Editor in Chief

I really don't like telecommunications. I use it to communicate with some of *inCider*'s writers and with Apple Computer, but I've always viewed it as a somewhat-necessary evil. If I have to use a modem, I can. In a pinch, though, overnight mail and facsimile machines seem more effective and less of a hassle.

It's not just me. There's not an editor at *inCider* who doesn't shudder when an author says he or she will "modem" an article to us. Since we work on a computer publication, we're not usually skittish about technology.

Nothing's perfect, but Murphy's Law seems magnified when telecommunications is involved. So many things can go wrong, especially in modem-to-modem communication (that is, you with your modem in Boston and your friend or colleague with his or her modem in San Francisco). Not only must you set up your system—modem, computer, and communications software all working on the same page—but you also have to be in sync with your on-line partner. And if he or she knows less about on-line communications than you do, you're in even bigger trouble.

I'll admit that practice helps. If things aren't working, I can usually figure out what the problem is—different baud settings, too many data bits, not enough stop bits, incorrect parity. I feel about telecommunications the same way I feel about taxes. I'd rather not pay, but sometimes there's no way around it.

Even with all the headaches, though, I've always had mixed emotions concerning telecommunications. As much as we joke about it (the phrase "telecommunications is hell" is popular around here), I can't resist the flexibility of having the contributing editor in California finish his article Monday at 5:00 p.m. and seeing the file on my Apple II at 5:15. I'm sure many of you have similar feelings—attracted by the benefits, discouraged by the difficulty. You may be able to have it all.



"Apple's commitment to on-line communications will legitimize the market, if nothing else."

AppleLink—Personal Edition is Apple's and Quantum Computer Services' attempt to bring the concept of on-line services and communications to the blissful modemless majority. It's a big challenge, but Apple and Quantum make a good team. Quantum's QuantumLink in the Commodore 64/128 market has attracted hundreds of thousands of people. And Apple's AppleLink for dealers (which works only on the Macintosh) is probably as easy to use as a telecommunications service can get, if you're familiar with the Apple interface. You can read all about AppleLink—Personal Edition on p. 50.

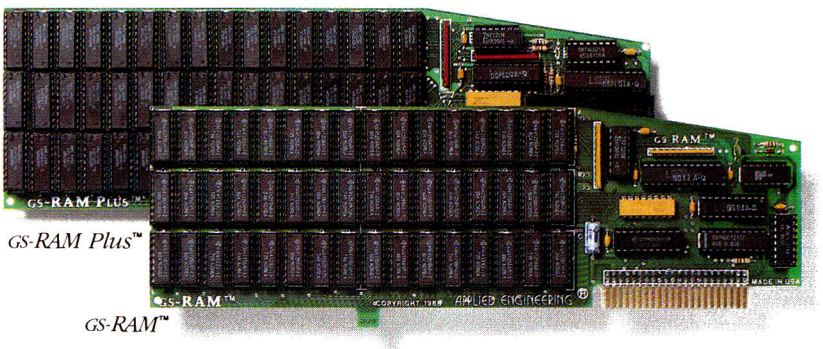
Whether or not it catches on, Apple and Quantum are taking the right approach; they're pushing AppleLink—Personal Edition as a mass-market consumer product. Like any good consumer product, it's fairly inexpensive. A subscription costs $35 and includes a slick, colorful guide to what's available on line (people will find the *TV Guide* approach helpful and reassuring), the necessary software, and two free hours of connect time.

AppleLink itself is also nonthreatening. The system welcomes users with graphics screens, then switches to text-based screens, either keyboard- or mouse-driven, once you get deeper into either "Apple Community," which is Apple's half of the system, or "General Services," Quantum's portion.

Apple's commitment to on-line communications will legitimize the market, if nothing else. Other services, such as CompuServe, GEnie, and The Source, should benefit in the long run.

The world may finally be ready for on-line communications. I think I may be ready. After seeing AppleLink—Personal Edition, I want to be. That's the key.

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LETTERS

Not So Fast

I own an Apple IIe with 128K and also use an Apple IIGS. How do I put the GS in emulation mode so that it can run IIe software at standard speed?

Leon Donovan
99-35 59th Avenue
Apartment 2J
Rego Park, NY 11368

First, hit Control-Open apple-Escape, then use your arrow keys to select the Control Panel and press Return. At the Control Panel, use the arrow keys again to select "system speed," and press Return. Now press either the right- or left-arrow key to select "normal" and hit Return one more time. That's all there is to it.

A handy reference for using the GS is inCider's Begin Computing, *which will appear on newsstands this month. —eds.*

Truly Special

Pete Johnson's Apple Clinic letter ("More Files Reincarnate," May 1988, p. 18) mentions that as a hobby he retrieves data from damaged disks. Our school needed his help when we damaged a disk of Bank Sreet Writer files that several special-education students produced. We sent Pete the disk with a note explaining the situation. Soon afterward we received a new disk with the retrieved files. Pete noted that he usually charges $25 for his service, but there would be no fee for our special children.

Thank you for putting us in touch.

Len Huber
Computer Coordinator
Williamstown Public Schools
96 School Street
Williamstown, MA 01267

Oh Those Printer Codes

I've used an ImageWriter to print from AppleWorks, but I've never been completely successful printing with my Panasonic KX-P1092 and AppleWorks. I've heard the Panasonic emulates the Epson FX series. I've tried all the listed printers without success. Any advice?

Marvin L. Marshall
4235 Via Norte
Cypress, CA 90630

With the variety of printers available, we receive many letters concerning printer codes. Since we're unable to keep track of them all, we suggest purchasing the AppleWorks Printer Code Chart from NAUG (National AppleWorks User Group, Box 87453, Canton, MI 48187, 313-397-1594). It covers printer codes thoroughly and costs $6.95 plus $1 for shipping and handling. —eds.

Help Is Just a Phone Call Away

I recently purchased an Apple IIe from a colleague at work and received some software as well. I have limited computer experience, and when I come across a problem, have nowhere to turn. How can I learn whether there's an Apple user group in my area or another source where I can acquire help and tips?

Dave Earley
Box 69
Carlisle, IN 47838

A great place to start is Apple's toll-free user-group number. Call (800) 538-9696, extension 500, to find the organization nearest you. See "Did Your Dealer Let You Down?" in our September 1987 issue, p. 70; "Not For Hackers Only," September 1985, p. 16; and "Guide to User Groups," September 1985, p. 105, for more information, too. —eds.

Roots and Stamps

I'm involved in genealogy research and stamp collecting. You rarely write about programs relevant to these interests.

My stamp collection includes the U.S., various European countries, Canada, Australia, and New Zealand. I want to track my collection and maintain an inventory for insurance purposes.

For genealogical software I need to run pedigree checks and family group charts. What do you recommend?

Thomas Wolff Noy
3510 Fleetwood Drive
Salt Lake City, UT 84109

For the serious stamp collector, CompuQuote's (6914 Berquist Avenue, Canoga Park, CA 91307, 800-STAMPS-5, 818-348-3662) specialized database manager Stamps comes in different versions for various countries and includes all stamps, descriptions, and market values. The first disk you order is priced at $95; each additional country is $45. An annual update is available each January for $25, with current market values and data on new stamps issued. A less expensive option for the novice collector is to build a database containing your specific requirements from scratch.

Try Family Roots from Quinsept, Inc. (P.O. Box 216, Lexington, MA 02173, 617-641-2930, $185), for your genealogical research needs. Contact the company for a free brochure if you're interested. Also check "Trace Your Roots," November 1986, p. 107, for tips on using the AppleWorks database and spreadsheet to prepare generational charts. —eds.

The Eyes Have It

We appreciate your favorable review of our ComputerEyes video digitizer for the Apple IIGS ("These Eyes," July 1988, p. 33), but this was diluted somewhat by a negative reference to ComputerEyes on a previous page (At a Glance, p. 31). Unfortunately, in the capsule review your writer

was using ComputerEyes' Apple IIe version as a comparison point without stating that fact clearly. The deficiencies alluded to are a direct result of the IIe's graphics limitations—not of the ComputerEyes product.

Had the capsule writer compared the scanner's images with those produced by ComputerEyes IIGS, the results would have been substantially different. ComputerEyes IIGS images are at least equal to those produced by scanners for most applications.

John Pratt
Vice President, Marketing
Digital Vision, Inc.
66 Eastern Avenue
Dedham, MA 02026

Getting Down to BASIC

I take exception to Robert Ryan's statement that the two GS BASIC programs he mentions (GS BASICs, August 1988, p. 74) "have beaten everyone, including Apple, in the race to develop a version of BASIC that lets you take advantage of certain advanced features of the IIGS."

Since April 1987, Iconix for the Apple IIGS has been available and commercially marketed by So What Software. This program, as well as Sonix for the IIGS, is the fastest and most efficient access to the IIGS' super-hi-res screen and sound features from Applesoft BASIC.

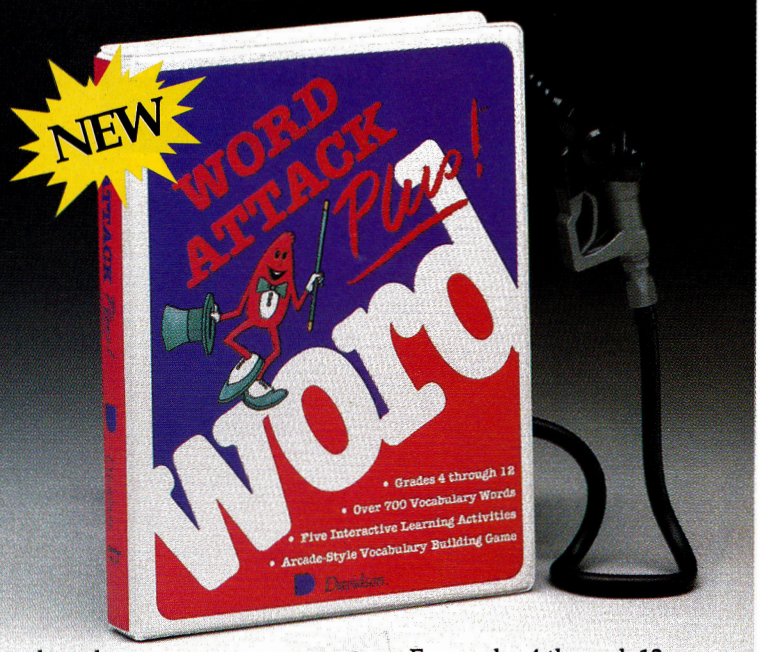
James Stephens, C.E.O.
So What Software
10221 Slater Avenue
Suite 103
Fountain Valley, CA 92708

inCider *is well aware of Iconix and Sonix for the Apple IIGS. (See New Products, December 1987, p. 154.) Although they're excellent accessories for Applesoft BASIC, routines accessed by PEEK, POKE, and CALL commands don't constitute a "language" according to our definition.* —*eds.*

Get On the Case

I was surprised that William Kennedy referred to the TimeOut case converter as dubious (Reviews, May 1988, p. 24). As a parent of an elementary-school student,

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ICW 10/88

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Teaching Tools From Teachers

Experts and users agree GraphicWriter 2.0 is the desktop publishing program for the Apple IIGS.



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

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

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

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

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See us at AppleFest, Booth #906.

1 - 8 0 0 - 6 2 7 - 3 8 3 6

I believe AppleWorks, with TimeOut installed, is the most versatile education program on the market.

While my son is working on the computer, I try not to stifle his creativity by pointing out minor errors. I then edit his completed task and help him "clean up" his documents, which often includes changing text. In this instance, TimeOut's case converter is a handy tool. Granted it doesn't do everything, but it beats the alternative of working through a long document to make certain changes. As for those things it doesn't do, I teach my son beginning programming by having him write macros to perform those chores.

Lee Dronick, QMCS
9027 Clover Circle
San Diego, CA 92126

All or Nothing

I was very interested in "Claris Wants You" (News Line, April 1988, p. 14), but the last paragraph bothers me. Does Claris intend to continue marketing high-priced, incomplete programs such as AppleWorks and expect people to spend more money to get them to work properly by buying from fourth-party developers? Claris should include this additional software with the original or in an inexpensive upgrade.

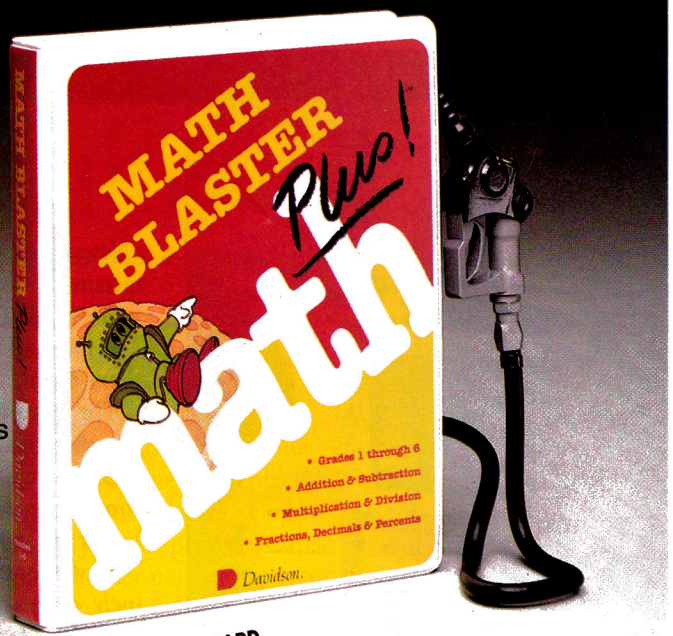
These days no vendor should offer a primary word processor without a spelling checker. I've never purchased AppleWorks for this reason, and will do so only when it becomes a program that doesn't force me to buy a supplementary program to make it do what I'm paying enough for in the first place. There are just too many good word processors on the market containing this feature.

Ralph L. Jones
2607 13th Street
Garden City, GA 31408

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

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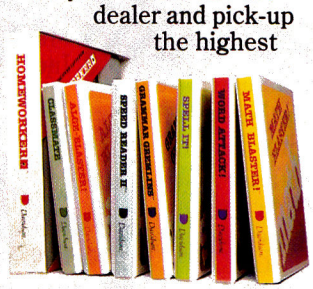
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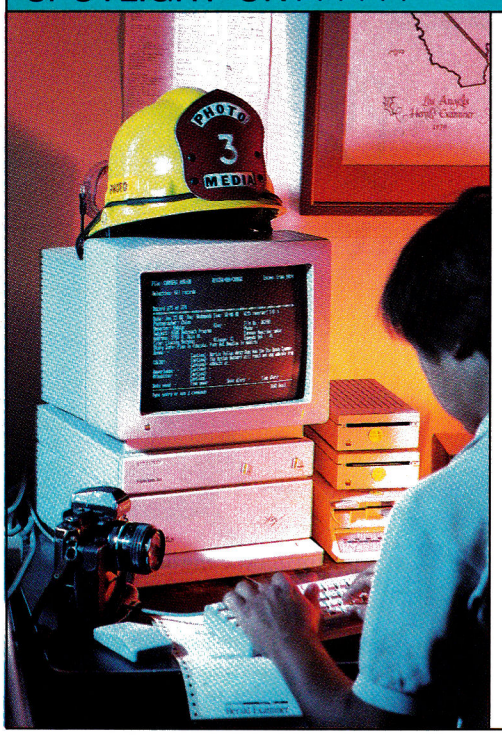
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NEWS LINE

by *inCider* staff

SPOTLIGHT ON . . . . . .

ROLLING THE PRESSES IN L.A.



L.A. Herald Examiner *staff photographer Paul Chinn: photo by Chris Gulker*

"A $2000 machine that saves $400,000–$500,000 worth of human resources is clearly a bargain. You're talking about half a million dollars that is much more efficiently used."

Newspaper people are always hurrying—they're usually on the verge of missing a deadline, so every second counts. What happens when a last-minute call for file photos comes? If the paper's the *Los Angeles Herald Examiner*, an Apple IIGS running the AppleWorks database manager tracks them down.

The computer helps the *Herald Examiner*'s photojournalists put a story together faster and more efficiently then they could when negatives were filed manually. As Chris Gulker, a staff photographer, explains, "To find something in the past, you had to know the date it was shot. We're much better at finding old stuff than we ever were before."

Now the paper's GS—equipped with 1½ megabytes of memory, two 3½-inch drives, one 5¼-inch drive, two Epson printers, a modem, and AppleWorks with Beagle Bros' TimeOut accessories—reigns supreme in the newsroom. And the transition to computerized filing was smooth—three weeks after the system was installed, the entire staff was trained.

How's it working? According to Gulker, the machine has never been down except for maintenance. "The only thing we want now is another one," he adds cheerfully. ***—P.P.***

MIDI HARMONY

Whether you think in terms of scales or square roots, the International MIDI Association (5316 West 57th Street, Los Angeles, CA 90056, 213-649-6434) serves as a resource for all MIDI (musical-instrument digital interface) users. According to President Lachlan Westfall, the 5-year-old group acts as a "MIDI-information network" for its 2500 members.

And just who joins the International MIDI Association? Initially, the group expected its members to be mostly musicians, but instead it attracted users with more technical backgrounds. Gradually it's come to include a greater cross section that runs the gamut from professional programmers and musicians to hobbyists. As musicians are becoming more computer proficient, according to Westfall, a typical member is likely to be a professional musician with a knowledge or background in computer science.

The IMA's latest reference for MIDI users is the rewritten *MIDI 1.0 Detailed Specifications*, version 4.0. In addition to providing information, IMA offers its members a discount to join the on-line service Performing Artist Network (PAN). IMA also provides memberships to retailers, schools, manufacturers, and distributors of MIDI-related hardware and software. **—E.O.**

HOSPITAL HELPERS

Three Boston-area software companies have helped make a stay in the hospital a little more pleasant for the young patients at Boston's Children's Hospital. Now those companies are challenging others to follow their lead.

Origin Software, Spinnaker Software, and Infocom, Inc., have donated collections of their software to the hospital. As Origin's Steve Morris recounts, the project began when an Origin staff member heard that Children's Hospital had an Apple computer, but no software. The hospital can't solicit for donations, so there was no way to obtain the needed programs. Now, Morris adds, the companies involved plan to "encourage our peers to follow our lead and adopt a hospital in *their* areas."

The project at Children's Hospital has been a resounding success. The hospital's IIe is always popular with the children, according to Karen Haunn, an activity therapist. The Apple is used primarily in the cardiology and transplant departments. But wherever it goes, it's always in great demand. "I bring it out three times a week for a whole day. The kids love it—they play games on it," she says. Haunn even takes the computer into the intensive-care unit for bedridden children. "They love it. They ask for it.

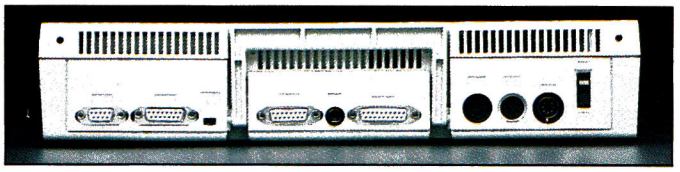
Continued on p. 18

Brightest Laser Yet!

NEW 128EX/2

by Eric Grevstad, Contributing Editor

This month's top news story: a new, compact Apple II compatible with high-speed processor and built-in 3½-inch disk drive. No, it's not the much-rumored new IIc. It's the Laser 128EX/2, the third generation of Laser Computer's low-priced, high-powered IIc look-alike. The EX/2 is designed to give Apple fans everything they could want in an 8-bit system, from a IIGS-style daisychain disk port to a standard MIDI interface for computer musicians, at a price of around $600.



Like all Lasers, the 128EX/2 has built-in ports similar to the IIc's, with the addition of a parallel port. On the EX/2, one serial port doubles as a MIDI interface.

The Laser 128, a one-piece IIe clone with built-in drive and ports like the IIc's (plus parallel port and IIe expansion slot), has been a success since its debut in 1986. Last year's 128EX added turbo speed, with a 65C02 chip that runs at 2.3 or 3.6 MHz as well as the 1-MHz speed of the IIc, and a pre-installed (if empty) memory-expansion card, so owners can plug in up to a megabyte of added RAM.

The 128EX/2 is another evolutionary step. The only visible change is a different internal drive, a 3½-inch, 800K microfloppy. (Laser will also offer an EX/2 with a 5¼-inch drive.) The memory card and 3.6-MHz CPU (central processing unit) are the same as in the EX; a quick AppleWorks spreadsheet test showed our prototype to be three times as fast as a IIc and 27 percent faster than a IIGS, though 6 percent slower than the 4-MHz Zip Chip.

So what else is new? An update to ROM maker Central Point Software's Universal Disk Controller lets the EX/2 link four disk drives, with up to three external units connected as if to a GS SmartPort (for a maximum of two 5¼-inch and two 3½-inch drives, assigned to slots 6 and 7, respectively). Laser's new beige daisychainable drives should be interchangeable with Apple's platinum models; we mated the EX/2 to a mix of the brands with no problem.

A clock/calendar with a NiCad (nickel/cadmium) battery, recharged during use so that it never needs replacement, is a new bonus. Clock settings, system speed, startup slot, and other parameters are governed by a ROM-based Control Panel, not as extensive as the GS', but almost as handy.

Finally, a rear-mounted switch changes the second serial port from a modem to a MIDI (Musical-Instrument Digital Interface) connector, ready for use with electronic keyboards or other instruments and recording, playback, and sequencing software. (The dual-purpose port indicates the EX/2's efficiency: If it were an Apple IIe, its features and interfaces would fill 11 slots.)

The Laser 128EX/2 is due for release in October, at a price of under $500 for the 5¼-inch model. (Laser officials hadn't fixed the cost of the 3½-inch version at press time, but set a tentative price of $549.) We'll have more details and hands-on tests in the next issue of *inCider*, but we're impressed with the manufacturer's ambition. Laser's low price and extra equipment have been thorns in Apple's side for two years. The EX/2 might even upstage a certain rumor.■



'Why can't we use the computer?' they ask," says Haunn.

Unfortunately, donation projects like this one are often put off. "It's easy to put it on a low priority list," says Eileen Milauskus of Infocom. "There's a mentality that the other person will always do it. And that's just not always true."

Will this project take off? Frank Catalano, Communications Manager of the Apple Programmers' and Developers' Association, hopes so. "Software companies are becoming major corporate players. Now it's time for them to bear some of the corporate responsibility," he says. "I'd like to see this done with hardware as well. I know Apple does an awful lot [of charitable donations] but you can't expect the two or three major players to bear all the responsibility."

Catalano goes one step further: He suggests creating a network of donations. "What would be really nice would be to see one of the existing software organizations set up a clearinghouse."

One thing is certain—if more hospitals received these donations, children might not dread hospital stays quite so much. "[The software program] is a huge success," Haunn says happily. "It is absolutely wonderful!" **—P.P.**

LABEL MADNESS

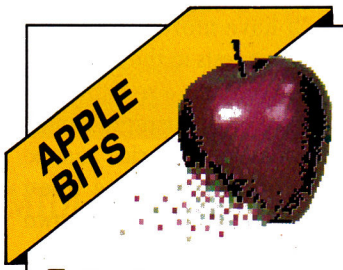
If your spouse, parent, or child has been spending too many nights lately staring solemnly into a video-display terminal, some Fun Labels may lighten things up. Sneak into the computer room, label a disk "MODEM ELIMINATOR: A telecommunications program for bashful people or those with no telephone," and watch the confusion.

These odd labels are the brainchild of Paul Raymer, an Apple II fan who has, perhaps, been living in Las Vegas a year or two too long. Labels can be irreverent ("Thunderscam: Copy pictures automatically so crudely your friends will think you drew them yourself") or all too true to life ("HEX TRANSLATOR: The program that translates EVERYTHING to HEX so no one can understand it, not even you"), but always witty.

The price is right—$5 plus $1 for shipping and handling for a disk with 36 labels. You'll need a dot-matrix printer and the Printrix utility program ($65, Data Transforms, Denver, CO 80203, 303-832-1501). Label Fun #1 is available from the Apple Printrix Club, P.O. Box 29857, Thornton, CO 80229. It's good cheap fun.

—P.S.

We're always looking for news of the Apple world. If you're making news, send your press releases and photographs to News Line, inCider, *Elm Street, Peterborough, NH 03458.*



■**Allan Z. Loren** is a name to watch at **Apple Computer**. He's the vice president of Apple Integrated Systems, but wait 'til next year.

■We hear that Sony has produced hundreds of thousands of **1.4-megabyte 3½-inch disks** for Apple. Does the **new Apple product** really need all that storage space?

■*inCider*'s got an **Apple CD Player** now; it's great listening to music while we work, but where's the software?

■Like the graphs from **Magna Charta**? Think they belong in a **desktop-publishing** program? A big DTP publisher agrees.

■October 1988 is the second anniversery of the **IIGS**. Congratulations to Apple! Too bad the **lithium battery** has only another three years left—looks like planned obsolescence from here.■

■**Epic Technologies** is right on top of the **new Apple product**. How about a modular internal modem/memory-expansion card? If you were at AppleFest San Francisco, hope you checked it out.

■**Strategic Simulations** is now officially licensed to use the name **Dungeons and Dragons** for its D&D—that is, for its fantasy adventure games.

■**Apple** will give away a videotape with every Apple sold this **Christmas**; we hope it doesn't star any **"knowledge navigators."**

■Seven Hills Software bought **GraphicWriter** from Data-Pak—the day Claris bought **GS Works**.

■**Redmond Cable** (Redmond, WA) has sold 1500 **ImageWriter II** cables—to **Amiga** owners. Amiga displays look great on the screen, but Commodore skipped the color printer. Redmond can connect anything.

■**Electronic Arts** has signed its largest **affiliated-labels** agreement to date. EA will now be distributing all titles from **Strategic Simulations** in the United States and Canada. This isn't just a big deal for EA, it's the biggest ever.

■**Sensible Software** is making life easier for **Apple IIGS** owners. Sensible Writer, Sensible Grammer, and Sensible Speller now all come on one 3½-inch disk.

■**Mindscape** has agreed to distribute microcomputer versions of some popular **Sega video games**. Out Run, Space Harrier, After Burner, and Thunderblades are the first Sega products that will move from the local pizza parlor to your home computer.

■**Schools** using old 64K versions of **Grolier** Electronic Publishing's Friendly Filer, EduCalc, The Grolier Writer, or Easy Graph can trade them in to **Houghton Mifflin** (which recently acquired Grolier) for the new 128K school versions. **Upgrades** are $36 each or $66 for a lab pack.

■If you're a happy **Nine-to-Five** user who happens to see Activision's latest HyperCard offering for the Macintosh, **Records**, you'll notice a distinct likeness. No surprise: E.R. Haas designed both products.

APPLE 11c, 11e, IIGS USERS:

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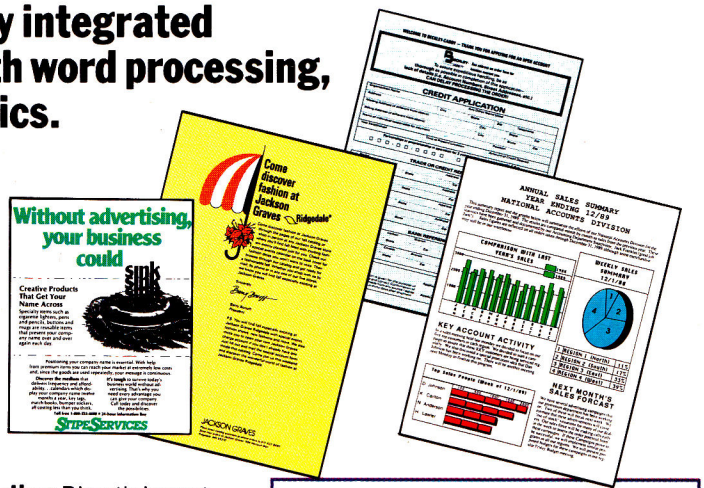
★★★★★ "Highest Rating" InCider Magazine

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• **Kerning and Leading**

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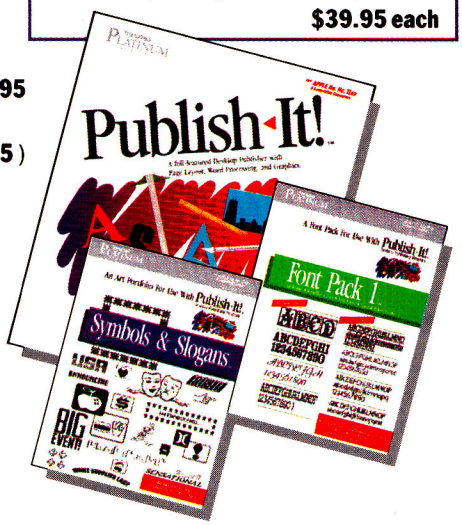
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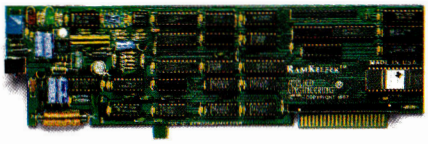
In about the time it takes to read this headline, you can have the Finder up and



Imagine. Turn on your IIGS and instantly the finder comes to life! All the speed and RAM power your IIGS was meant to have, packed into one, affordable "electronic hard disk."

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



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

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

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

RamKeeper uses a Switching Power Supply — the same technology used by Apple for the IIGS power supply. This design uses energy much more

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efficiently to keep your Apple running cooler.

Powers two memory cards in the same slot.

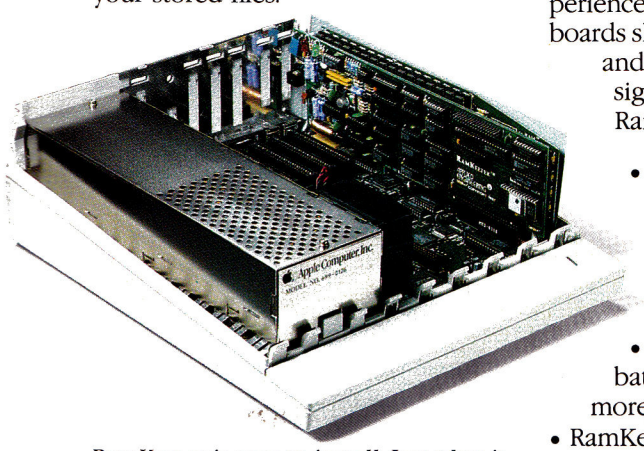
Have Apple's memory card, but now want the features of Applied's GS-RAM card? With RamKeeper, both cards act as one larger card. In one slot. Just attach one memory card to each side of RamKeeper and plug RamKeeper into the slot. And even with two cards, you can still keep slot 7 open with our optional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

RamKeeper also works fine with only one memory card.

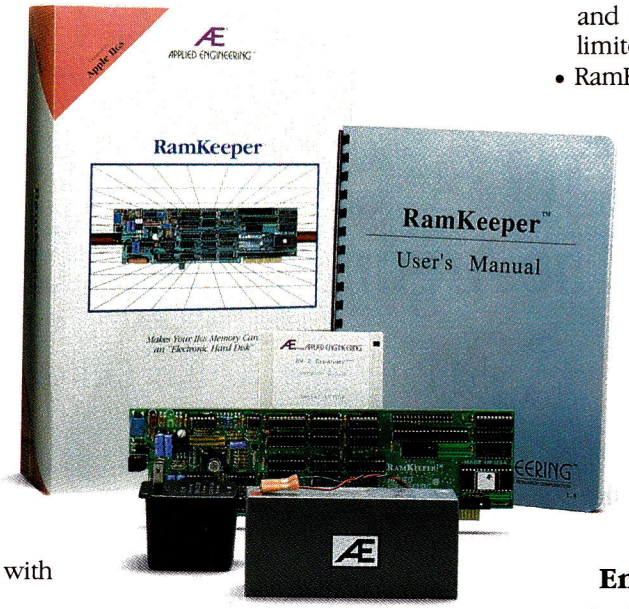
Makes all your memory usable memory.

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

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



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



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

Protect from program crashes.

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

Verifies data security.

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

Significant differences.

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

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

Free AppleWorks Enhancement software.

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

In addition, RamKeeper comes with the most powerful disk-caching program available anywhere. The cache tremendously accelerates access time to the Apple 3.5 Drive. Creating, in effect, a speed booster on top of a speed booster . . . a potent combination that runs most applications up to *seven times faster.*

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The Argument from Design

by Paul Statt, Senior Editor

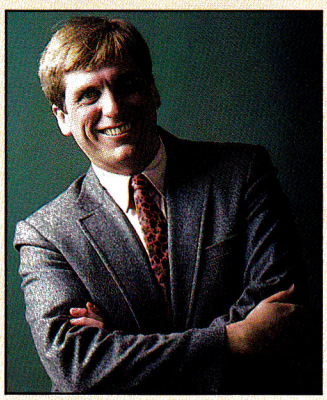
Apple's affair with its desktop interface is getting out of hand. Windows, icons, mouse control, and pull-down menus are a good idea, but not the last word in good design.

Good design makes things easy. Bad design is easy to spot: Donald Norman, director of the Institute for Cognitive Science at the University of California at San Diego and author of an engaging, popular book about industrial design called *The Psychology of Everyday Things* (Basic Books, 1988, $19.95), says, "When simple things need instructions, it is a certain sign of poor design."

Norman praises the Macintosh. "I'd give the Apple Macintosh a prize," says Norman, because it emphasizes visibility, feedback, clear mapping, and "consideration for the user."

But Norman isn't generous with prizes, because "the reward structure of the design community tends to put aesthetics first." I think Norman has fallen into his own trap. Maybe he never tried to install the Compact Disc Remote Desk Accessory on his Macintosh, or tried to browse through the HyperCard Whole Earth Catalog. Apple sent me both products on the same day, and neither operation is possible without reading lots of documentation. The Macintosh *is* beautiful—but it's not, by design, easy to use.

And what a jealous, selfish infatuation Apple has with its interface. On the one hand, Apple takes Microsoft and Hewlett-Packard to court, claiming they stole the interface I seem to recall Apple said was intuitive. On the other hand, an intuitive Apple IIGS developer like Bill Basham writes a program that plays music; of all things, its interface works like a *tape recorder*. Bill shows Apple Diversi-Tune. Apple shows Bill the *Apple Human Interface Guidelines*. Apple should quit worshipping its own icons, toss the desktop out the window, and pick up several copies of *The Psychology of Everyday Things*.



"Apple should quit worshipping its own icons and toss the desktop out the window."

I recommend Norman's book to anyone whose VCR has 25 features that never get used, or who has walked into an aesthetically pleasing glass door by not knowing whether to push or pull. But most of all, I recommend *The Psychology of Everyday Things* if you've ever screamed in frustration, "Is it just me who's stupid or is it this stupid computer?!"

It's not you. The computer's not to blame, either. More likely than not, you should be screaming at the software designer, not the programmer. The programmer isn't the matchmaker between you and your Apple; his or her job is to make the computer do its work.

I played two new games last week—both fun, both easy to understand and hard to master, both addictive, and both published by Spectrum Holobyte.

I played a prerelease copy of Tetris for the GS (see Editors' Choice this issue, p. 120) and wouldn't have been able to get an instruction book even if I wanted one. Anyway, it's hard to visualize ideas like "hitting the 5 rotates the current object 90° in a counterclockwise direction, unless the current object consists of two offset rectangles. . . . " Forget it. But you get the hang of it fast when you play.

Then I booted up Soko-Ban. I couldn't tell whether it was an adventure game like Leisure Suit Larry and Police Quest or an arcade game like Pharoah's Revenge until I had read the docs several times. I couldn't even tell which keys to use.

It's not bad documentation, it's bad design. Soko-Ban turned out to be a fascinating strategy game, but I never would have guessed it.

Apple would like all software to share a standard interface. I wouldn't. My argument is that I don't use, say, the washing machine and the CD player the same way, or even read a magazine and a book the same way—so why should I play games and process words the same way?

Apple's an innovative company. It should encourage software developers to create innovative software that's easy to use. "Easy to use" is no simple concept, reducible to a set of rules. "Good design" isn't explained in any one book. But *The Psychology of Everyday Things* explains it better than the *Human Interface Guidelines* and is more fun to read.■

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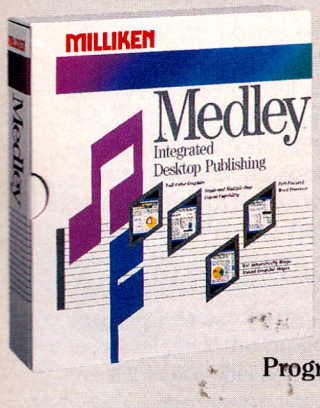
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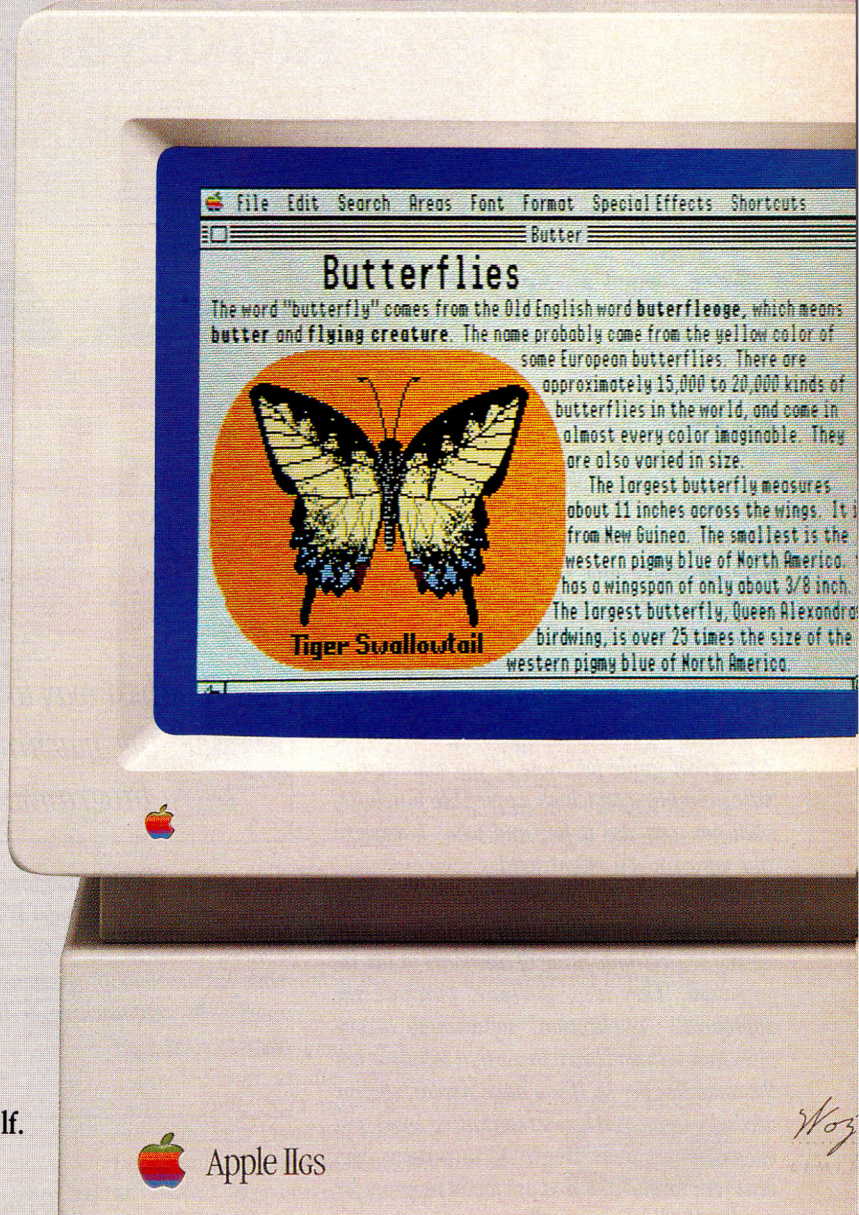
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Rookies and Robots

by William P. Kennedy, Ph.D., Technical Editor

Starting from Scratch

We've owned an Apple IIe for some time now but have never learned to use it. Could you suggest how we might start teaching ourselves?

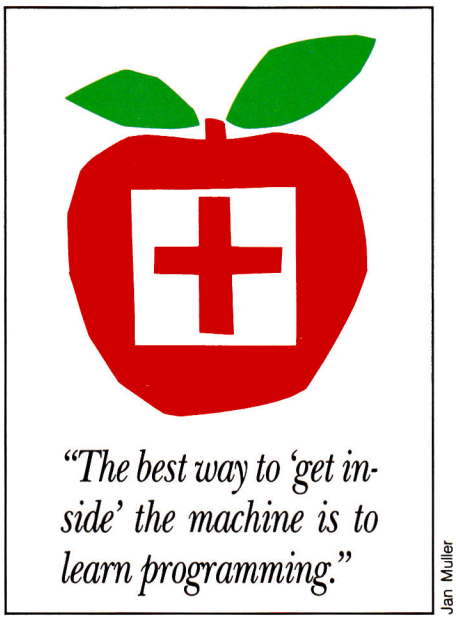
Ben Black
Greenville, TX

Believe it or not, your question is one of the most common but the toughest to answer, because you apparently have no particular need for a computer. Well, damn the torpedoes . . . .

First, let me pitch inCider*'s special edition,* Begin Computing *(IDG Communications/Peterborough, 80 Elm Street, Peterborough, NH 03458, 800-441-4403), appearing this month. It's a great guide for those of you who need a little prompting on which Apple II to purchase, what you can use it for, and what hardware and software you might need.*

Many people purchase a computer to help them accomplish a specific task such as word processing or electronic filing of calendars or tax information. They also, therefore, purchase the appropriate "application" software to accomplish that task and learn to use that software, not the computer per se. If you have similar, specific needs, I suggest that besides consulting books and magazines such as Begin Computing*, you visit your local dealer and ask for "a program for our IIe that'll let us . . . ."*

Others, including yourselves apparently, simply want to have experience in computing so that you won't drown in the "wave of technology." That's good. I believe the best way to "get inside" the machine is to learn programming. No, I don't want you to become "hackers" or, worse yet, get frustrated and learn to hate the machine. Rather, try to learn just the rudiments of programming. That should take the mystery out of the machine and give you a taste of—and perhaps a taste for—computers and their operations.



Jan Muller

Applesoft BASIC (Beginners' All-purpose Symbolic Instruction Code) is a programming language that, as its name implies, is tailor-made for neophyte programmers. Better yet, it comes with your machine, so it's a convenient place to start.

The manuals that came with your IIe are excellent texts on how to operate your machine and program in Applesoft BASIC. (They're also available from Addison-Wesley Publishing, Route 128, Reading, MA 01867.) You'll find many other BASIC programming books in just about any bookstore. Also, a good way to teach yourself programming is to study others' programs; try typing in and following the programs inCider *provides in the columns Applesoft Adviser, Apple Clinic, and Hints/Techniques. Take a look at "BASIC Training," "HELP!" and "The Making of a Macro" in our June 1988 issue, too.*

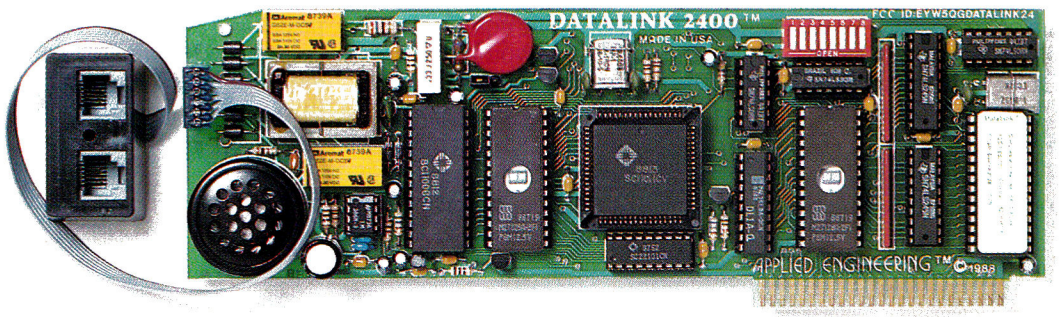
Deeper Scratching

I'm a proud owner of an Apple IIGS and am trying to make it as user-friendly as possible. I have both 3½- and 5¼-inch disk drives, as well as a 20-megabyte Apple hard-disk drive. I also own an Applied Engineering RamKeeper complete with a ROM disk on which I maintain a copy of the Finder and associated files. Booting from that ROM disk is great—up and running in seconds versus minutes!

Program listing. *Slot Booter.*

```
10  REM  Slot Booter  [1289]
20  REM  by Bill Kennedy  [1618]
30  REM  Copyright 1988, inCider  [2221]
40 D$ =  CHR$ (4)  [716]
50  PRINT D$;"PR#3": PRINT   [959]
60  VTAB 8: PRINT  TAB( 17)"Press 5 to boot a disk in
    the 3.5-inch drive #1."  [4829]
70  PRINT  TAB( 16)"Press 6 to boot a disk in the 5.25
    -inch drive #1."  [4615]
80  PRINT  TAB( 20)"Or press return alone to remain in
    BASIC."  [4316]
90  VTAB 12: HTAB 30: PRINT "(5, 6 or return) -->";: GET
    A$: PRINT A$  [3132]
100  IF A$ = "5" OR A$ = "6" THEN  HOME : PRINT D$;"PR
    #"; VAL (A$)  [2829]
110  IF A$ <  >  CHR$ (13) THEN 90  [1513]
120  HOME : PRINT D$;"CATALOG": NEW   [1502]
```

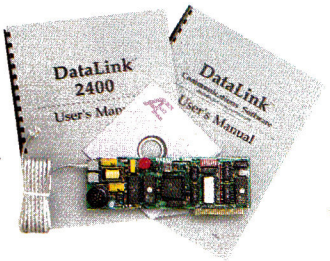
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Complete communications software included.

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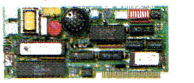
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Booting into the Finder from the ROM disk has its drawbacks, though. My wife and children usually just want to boot their software directly from either the 3½- or 5¼-inch drive. (You can't boot most programs from the Finder.) Is there an easy way, besides changing the start-up slot in the Control Panel to "scan," to let my family boot from a selected drive? I'd prefer something in BASIC because I don't have a lot of programming experience.

George Katele, M.D.
Riverside, IL

The ability to choose an alternate boot slot was one of my favorite features of the original Apple IIGS System Disk desktop that somehow got lost in later versions. Reinstalling that "menu bar" option would be one of the most elegant ways of solving your problem. Unfortunately, it would also require fairly extensive modifications to the Finder's code—and you did ask to keep it simple.

How about an NDA (new desk accessory) that'd let you select another boot slot? Would you settle for the BASIC startup program shown in the accompanying ***Program listing****?*

Type the listing in BASIC and SAVE it as STARTUP. That name is important, because ProDOS attempts to execute a BASIC or binary program file named STARTUP automatically whenever you first start up BASIC.SYSTEM.

To use STARTUP, simply choose (double-click on) BASIC.SYSTEM from the Finder. Then, as the program's message indicates, press number 5 or 6 to boot the disk in the respective slot and drive: 5 for your 3½-inch disk, which is relegated to slot 5, and 6 for your 5¼-inch disk in slot 6. Otherwise, press Return to remain in BASIC.

Sharing

My family owns two Apple computers; a IIe, which my parents use most often for their business, and a IIGS, which I use to do my homework and programming.

Recently, we took stock of our disk library and counted some 250 different floppies in sorry need of organization—hence our decision to purchase a hard drive. Any suggestions? We'd like to share that drive between the two computers. Would a switch box work? Also, we need to be able to partition the drive to accommodate the various DOS 3.3, ProDOS, and PASCAL programs we own.

E. Maini
Trumbull, CT

Thoughtful of you to share with your folks, but you do drive a hard bargain; multiple partitions and connections aren't easy to come by.

Sharing a hard drive requires a bit more than just a switch box, although you could use

Applesoft Program Typing Proofer

Tired of the frustrating hours you spend trying to find those typos you made when entering *inCider* freeware? Well, no more! Type in and SAVE to disk the ASOFT PROGRAM CODER shown in the accompanying **Program listing**. DO NOT type the bracketed numbers that appear at the end of each line; they're the proof values you'll use later.

Go ahead and RUN, then LIST the CODER program. The highlighted numbers at the end of each LISTed line should match the bracketed numbers in the listing. If so, BSAVE ASOFT.PROOFER,A$300,L$CF and, for later programming sessions, simply BRUN ASOFT.PROOFER. It'll operate under both DOS 3.3 and ProDOS. The proofer disconnects, however, whenever you change the output vectors—with the PR#0 command, for example. To re-install the proofer, just CALL 768.

The proofer isn't perfect. It also counts spaces, so if your proof number is off by a multiple of 32, your program line has some extra spaces. That's not usually a problem, though.

You already know how to use the proofer. If the highlighted number you see at the end of a LISTed line matches the published one, you can be fairly well assured you typed it correctly. Otherwise, edit or retype the line until the numbers match.

The proofer won't kill all your Applesoft bugs, but it will take a lot of sweat out of typing *inCider* freeware. Guaranteed.□ **—W.K.**

Program listing. *Applesoft Program Proofer.*

```
10  REM  ASOFT PROOFER CODER  [1571]
20  FOR I = 0 TO 207: READ N  [1095]
30  POKE 768 + I,N: REM  PROGRAM  [1579]
40  NEXT I: REM  HEX $300-$3CF  [1224]
50  CALL 768: END : REM  PROOFER INSTALLED!  [2087]
100  DATA  162,60,160,3,173,0,191,201,76,208   [1916]
110  DATA  20,173,48,190,141,206,3,173,49,190   [1987]
120  DATA  141,207,3,142,48,190,140,49,190,208    [2076]
130  DATA  18,173,83,170,141,206,3,173,84,170  [1976]
140  DATA  141,207,3,142,83,170,140,84,170,169    [2096]
150  DATA  0,141,58,3,141,59,3,96,0,0   [1617]
160  DATA  201,141,240,3,76,202,3,134,70,132    [1994]
170  DATA  71,186,138,105,7,170,189,0,1,201  [1911]
180  DATA  214,208,7,189,255,0,201,229,240,30     [2114]
190  DATA  189,253,0,201,40,208,6,169,152,201   [2059]
200  DATA  141,208,17,189,255,0,201,13,240,86   [2072]
210  DATA  169,0,141,58,3,141,59,3,240,76   [1889]
220  DATA  173,58,3,13,59,3,240,25,32,87     [1916]
230  DATA  219,32,87,219,165,50,72,41,63,133   [2064]
240  DATA  50,174,58,3,173,59,3,32,36,237     [1990]
250  DATA  104,133,50,160,0,140,58,3,140,59    [2041]
260  DATA  3,177,155,200,17,155,240,28,200,177     [1959]
270  DATA  155,200,24,113,155,208,9,200,177,155   [1984]
280  DATA  240,14,24,109,58,3,141,58,3,144    [1778]
290  DATA  242,238,59,3,176,237,166,70,164,71    [1961]
300  DATA  169,141,141,98,3,76,240,253    [1617]
```

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one as long as both computers don't need access to the drive at the same time. And if you both can't use the drive at the same time, why have a switch box? Just unplug the hard drive from one computer (power off!) and plug it into the other. But if you're going to all that trouble, why not purchase just one controller card to swap the whole system back and forth?

Make it easy on yourself and share for real: Compute side by side with a Sider II (First Class Peripherals, 3579 Highway 50 East, Carson City, NV 89701, 800-982-3232) and share a 20-, 40-, or 90-megabyte hard drive ($595, $795, and $1795, respectively) with the IIe using a MicroMUX ($850, including controller card for IIe, Johnson Associates, P.O. Box 42073, Phoenix, AZ 85080, 602-993-7440).

Other manufacturers, CMS in particular ($1024, $1084, and $1224 for its 20-, 30-, and 40-megabyte drives with one extra controller card, 1372 Balencia Avenue, Tustin, CA, 92680, 714-259-9555), also allow for multiple connections to a single hard drive via a small-computer-system interface (SCSI). But they don't let you partition their drives, as does the Sider, into DOS 3.3, CP/M, PASCAL, and ProDOS volumes. Rather (and this is the down side to the Sider/MicroMUX connection, besides the price), the partitions are between users. With the Sider/MicroMUX, your folks can use and modify all your files and vice versa. That may not be a problem unless you have some homework, or lack thereof, to hide. I'll let you decide that one.

Robot Basics

I own an Apple IIe and want to explore, in some depth, computer-controlled robotics. Your reviews of educational robots are very helpful, but I'm building my own robot's arms and need just an interface and support software. Are they available separately? What's required to make my own?

Nick Vizzone
San Antonio, TX

Our reviewer agrees: TSI Educational and Lego Systems TC Logo robots are great fun to use and useful tools for teaching computer-controlled robotics. (See Reviews, June 1988, p. 32.) The educational manuals are the important part.

Another great source for Apple II robotics is FischerAmerica, Inc. (175 Route 46 East, Fairfield, NJ 07006, 201-227-9283), which, through an authorized dealer, will sell you an Apple II robot interface and software for $116.

Building an interface and controller software shouldn't scare someone who's able to put his own arm together. The simpler controllers use the Apple II Plus, IIe, or IIGS game I/O port's annunciator outputs to drive motors (buffered, please—TTL logic) and the game-paddle (potentiometric) and push-button inputs to sense arm positions, and so on. Check any of the various Apple II technical manuals for more details. The Apple IIe *and* IIGS Technical Reference Manuals *are available from Addison-Wesley Publishing, Route 128, Reading, MA 01867.*■

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

Quickies

PFS:File to other databases: Obtain the ProDOS version of PFS:File, with which, as an upgrade from the original Pascal version, you receive PFS:Convert to update your files. Then use the "copy to ASCII" option to make a generic file. Make sure to set the end-of-file and end-of-form options to the decimal equivalent of a return (13).

—Rev. John Udics, Philadelphia, PA
Wayne Powell, Newport News, VA
Thomas Peck, Madison, WI

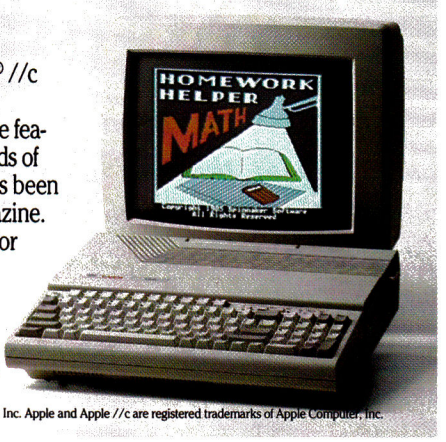
In response to "Drive Crazy" (Apple Clinic, July 1988, p. 24): Something on the daisychain logic board of the Apple 3½-inch drive gets intermittently "zapped" by static charges and can create some rather strange problems. The fix should be free from your dealer.

—Ed Danley,
Downers Grove, IL

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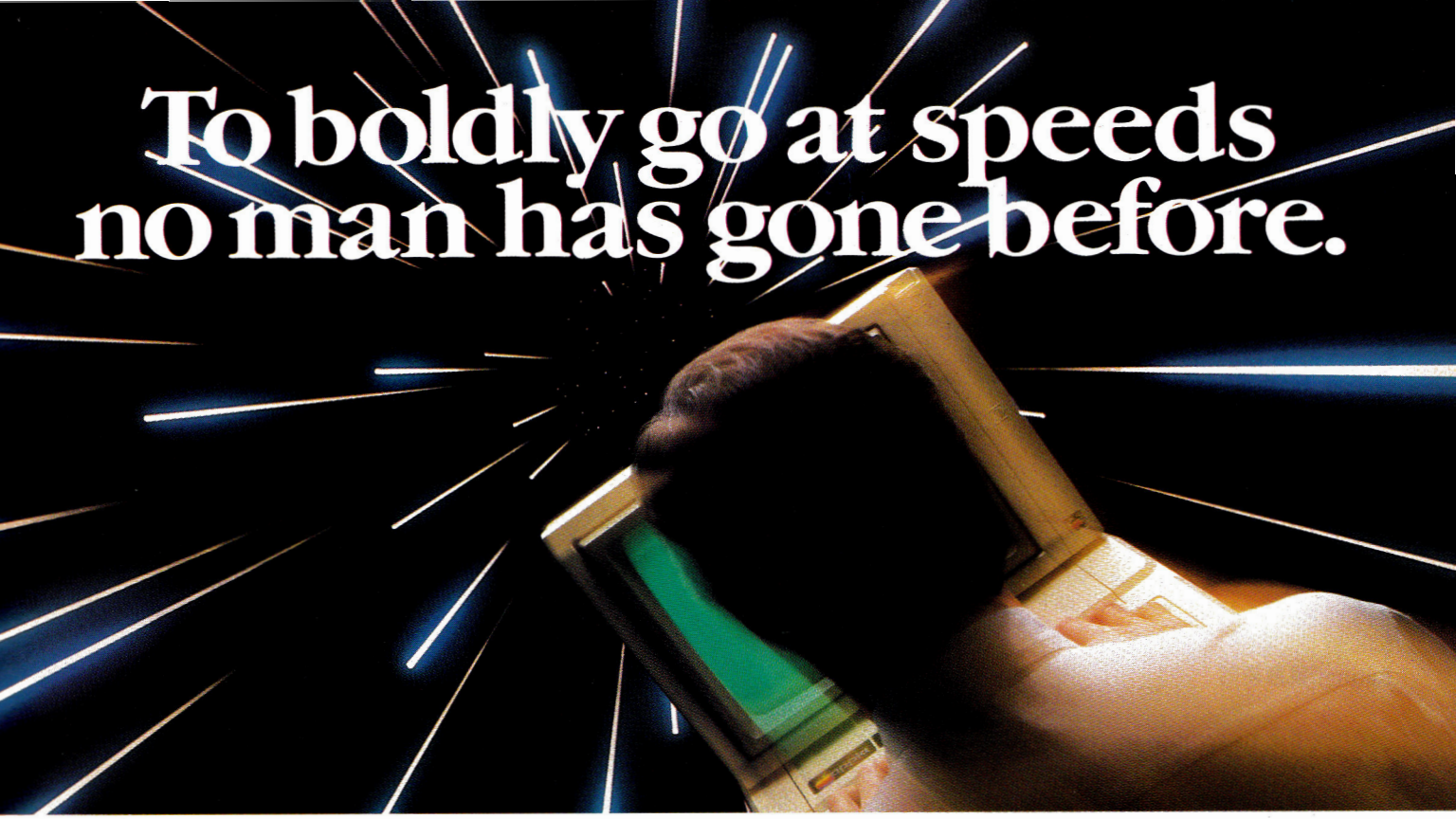


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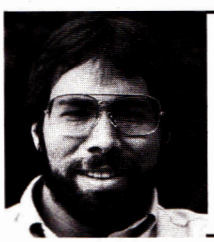


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Steve Wozniak, the creator of Apple Computer

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The Big Picture

SUPERPRINT

Scholastic Software, 730 Broadway, New York, NY 10003, (212) 505-3000
Graphics printing program; 128K
Apple IIe, IIc, IIGS
$39.95
Rating: ■■■■



After the incredibly successful debut of Broderbund's Print Shop, numerous imitations and variations on the home-printing theme have appeared on the market. Some are blatant rip-offs, others add minor nuances to the genre, and some unique few offer a substantially different approach. Scholastic Software's SuperPrint is among the latter, and it deserves recognition as the useful and innovative program it is.

IT'S BIG

SuperPrint offers the standard variety of options—graphically enhanced signs, letterheads, banners, and greeting cards. It surpasses most programs, however, by being able to print giant posters, wall-sized calendars, and bulletin-board-sized signs. As a matter of fact, while the "super" in SuperPrint's title can be applied to the program on several levels, it most appropriately describes the program's most outstanding feature—it makes really big printouts.

You can print each graphic in four different sizes ranging from super small to super large (sizes are relative to the type of output with which you are working), but it's the super-large graphics that are really intriguing. You can make posters as large as two feet wide by five feet high. With SuperPrint's ability to generate such large printouts, you can make door posters, custom-made table coverings, and bulletin-board backgrounds.

The quality of the finished product—even at its largest—is excellent, especially if you don't print in draft mode. With horizontal and vertical scrolling you can preview the design on screen in exactly the same size the program will print it. This feature is unique to SuperPrint, at least when dealing with potentially large printouts.

While giant printouts capture your imagination, SuperPrint's options and flexibility—whether you're working with a giant poster or a small greeting card—are most impressive. Your design layout is literally free-form. All printing programs let you select borders, different fonts, and so forth. SuperPrint is no exception, but it far exceeds the standards of graphics freedom.

Most programs allow only one or two different graphics elements in one creation; in many cases they must conform to a limited number of predetermined patterns. SuperPrint permits as many different graphics as there's room to place them. Using a procedure called Stamp, you select a graphic, position it, and "stamp" it in place. You can then reposition it and stamp it again, or switch to a new graphic and stamp that one in place. There are no limitations on where you can place graphics. You can even overlap them.

This liberal use of graphics makes SuperPrint limitless in its variety and applications. Select the super-small rainbow graphic, stamp ten of them in a row, and you have the top border for a letterhead. Place another picture around the borders of an entire page and you've created a new frame. You can save your creations, of course, and build your own graphics libraries. Also worth noting is that no mat-

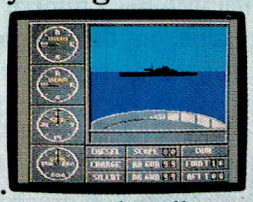
inCider's Ratings

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

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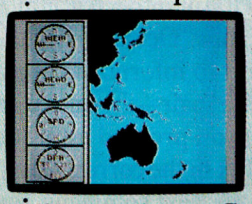
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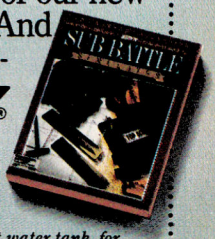
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At a Glance

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

The Graphics Studio is a good program, although it's somewhat hampered by its deviation from the standard GS user interface. There are enough features and tools to satisfy almost anyone; the resizable eraser is especially nice. Two other advanced features are noteworthy. The color-cycling animation lets you use as many palettes as you like—not just one—to simulate animated activity. You can also use a special file included on the program disk to create and display slide shows of your artwork.

The user's guide is disappointing, with both tutorial and reference sections loosely organized and superficially written. Two more things you'll want to know—The Graphics Studio supports only the ImageWriter printer and it requires 768K.

RAMTalker Plus (July 1988, p. 43), Electronic Learning Systems Inc., 2630 N.W. 39th Avenue, Gainesville, FL 32605, (904) 375-0558, $295
Rating: ■■■

RAMTalker Plus isn't a true speech synthesizer in the conventional sense, but rather a software-driven analog-to-digital converter. It consists of a multifunction card containing First Byte's SmoothTalker program, a 256K battery-backed RAM disk, and a ProDOS clock.

RAMTalker Plus can make AppleWorks talk. Keep in mind, though, that you'll need an external speaker or Walkman-style headphones to hear RAMTalker's speech.

SmoothTalker can speak letter by letter, word by word, or line by line. You can even send text from almost any software package to RAMTalker's voice (if you rewrite the program's source code). The package includes the patch to make AppleWorks talk.

Albert J. Lowry's Real Estate Investment and Management (August 1988, p. 44), Simon & Schuster, Inc., Gulf & Western Building, One Gulf & Western Plaza, New York, NY 10023, (800) 624-0023, $99.95
Rating: ■■■■

Albert J. Lowry's Real Estate Investment and Management forces you to quantify all the details you must consider when you're debating a property purchase. The package includes checklists to use while grading each property you're considering.

The process is quite detailed—the software asks you to grade each room of every property. Since you're grading all properties on the same basis, the program can make accurate and useful comparisons for you. It generates a printout that rates up to five pieces of property at a time.

Lowry's has a few deficiencies. The word-processing module is very slow. The package includes 20 form letters to help in your property management; you won't want to use the word processor for anything more complicated than filling them in. Also, you can't enter a negative appreciation rate when considering an investment's promise. Despite that, it's still worth having.

TimeOut FileMaster (May 1988, p. 29), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, $49.95
Rating: ■■■■

With FileMaster, you can perform "housekeeping" tasks such as formatting, copying, and comparing without ever leaving AppleWorks. It's easy to use and very handy.

Advanced AppleWorks users can use FileMaster to create an "expert mode" where, for example, you can make sure your AppleWorks never again asks, "Are you sure you want to do this?"

You can also use the program to select files to copy to your backup disk—saving time by not backing up untouched files. Features like this ensure that you'll use FileMaster often.

TimeOut QuickSpell (May 1988, p. 29), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, $69.95
Rating: ■■■

QuickSpell is very flexible—so flexible it will seem cumbersome at first. Each time you use it, you'll need to pick which words to correct and which to ignore. You'll get used to it fast, however, and appreciate time not spent looking at possible spellings for always-unfamiliar personal and trade names.

QuickSpell does have one fault—more words than you'll ever need. A request for suggested spellings may get you 400 words or more. Still, it's a program worth including in your library.

TimeOut SuperFonts (May 1988, p. 33), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, $79.95
Rating: ■■■

With TimeOut SuperFonts, you can jazz up your tried-and-true AppleWorks documents with a variety of fonts and type sizes. You can include up to 64 different fonts in a document, although in the interest of a pleasing design you'll want to use a little restraint. You can also add pictures—hi-res or double-hi-res, stored in standard Apple format. SuperFonts, like other graphics-based programs, requires quite a bit of memory. To avoid disk swapping, make SuperFonts memory resident or run it from a RAM disk.

Continued

ter how you're using graphics, you can mix styles and sizes on the same design.

OPERATIONAL DETAILS

SuperPrint uses the same basic menu-driven commands to create all its various formats. Once you know how to create a sign, for example, it's just as easy to create a calendar or stationery. The instruction manual includes a tutorial for each type of creation, but the program is so intuitive that the average user could run it easily without ever opening the manual.

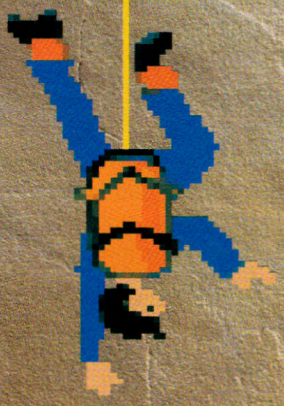
On-screen prompts take you through the process step by step. If the prompts and menu-selection procedure somehow fail to ease your anxiety, simply select View to preview an exact replica of your eventual printout to determine that all's well with your creation.

Incidentally, if you do use the tutorials, be aware that you'll run into a few minor errors and omissions. Occasionally the instructions neglect to inform you about disk swaps. (Don't despair—the on-screen prompts won't let you proceed until you have the correct disk in the correct drive.) Also, when using the Text command and selecting the style, the manual's procedures neglect to inform you that you must "lock in" the cursor position before making your choice of styles. Aside from these caveats, the manual is above average in its clarity and ease of use.

SuperPrint supports numerous printers and interfaces, the majority of which are selectable during the printing process. A status box indicates the current setup and you can change a category easily by selecting an area (such as Print Quality) and using the area keys (or a mouse) to indicate your choice from the on-screen list. You can print in black-and-white or color (if you have an ImageWriter II).

Scholastic has taken great care to cover all the bases with SuperPrint. The program operates with either one or two disk drives and comes on four 5¼-inch double-sided disks—a master program disk; a backup disk; a clip-art, fonts, and backgrounds disk; and a banners and poster-art disk. If you prefer using a 3½-inch disk, Scholastic will exchange your disks

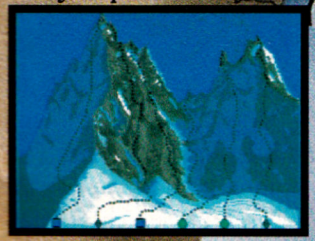
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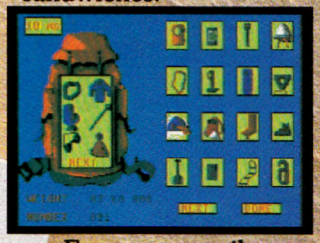


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for $10. The program disk is the only one you'll need to convert because it's the only copy-protected disk. You can transfer the others with no problem. This offer should appeal to Apple IIGS owners.

GS users can also benefit from the microfloppy's faster speed. Saving five to seven minutes per picture with a GS is worthwhile, considering that when working with SuperPrint's giant formats on a IIe, it's not unusual to invest 15 to 20 minutes. Also, GS owners can enter the Control Panel and set up a RAM disk to use with the banner option. The program doesn't have to make the frequent disk accesses otherwise required.

Overall, SuperPrint is an impressive package offering a wide range of applications and features. Scholastic Software has indicated a commitment to SuperPrint by releasing four theme-oriented graphics packs to supplement the 200 pieces of clip art included with the original program. Whether you're looking for your first printing program or you want to expand on what you already have, SuperPrint is worthy of your consideration.■

James V. Trunzo
Leechburg, PA

Continued

TimeOut UltraMacros (May 1988, p. 34), Beagle Bros Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 296-6400, $59.95
Rating: ■■■■

A *macro* (short for macroinstruction) makes your Apple do what you probably thought it could do in the first place: do your work for you. A macro is a single computer instruction that stands for a series of instructions.

You pay for AppleWorks' ease of use with your time; you need lots of keystrokes to finish a job. It's a pain in the neck if you have to do it more than once. With UltraMacros, you can "automate" those keystrokes: Do what needs to be done once, and when you've finished type Control-@. Now every time you type Solid apple-A, AppleWorks will remember what you did the first time and do it again.

TML Standalone Pascal (March 1988, p. 40), TML Systems, 8837-B Goodby's Executive Drive, Jacksonville, FL 32217, (904) 636-8692, $125
Rating: ■■■■

TML Pascal is a fully integrated mouse-and-window editing system and compiler/linker. It gives you a leg up on programming with a complete set of built-in goodies to access the GS ToolBox routines. The phrase "standalone" simply differentiates this package from the original (and still available) version, which works as a language tool with several different assemblers.

The TML Standalone editor is full-featured, providing advanced functions such as shift clicking and powerful search-and-replace commands. You can also open up to four windows at one time, stacking them or zooming in as you prefer.

The TML Source Code Library Disk, also available from TML Systems, gives you the complete coding for dozens of programs. Another add-on is the TML Speech Toolkit, which turns typed-in text into synthesized speech.

Graphic Edge 1.01 (February 1988, p. 24), Pinpoint Publishing, 5865 Doyle Street, Suite 112, Emeryville, CA 94608, (415) 654-3050, $89
Rating: ■■■

Graphic Edge is a graphics accessory for the AppleWorks spreadsheet. It doesn't pop up while AppleWorks is running, though. Because you have to boot it independently, the program requires only 128K.

When you set up a spreadsheet, you'll need to know in advance that you'll be exporting the information to Graphic Edge—that way you can provide all necessary components (like minima and maxima).

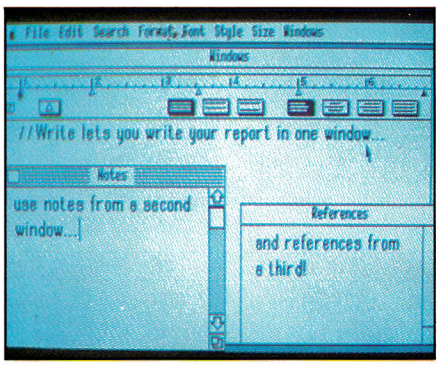
Once in Graphic Edge, you'll have to reboot AppleWorks if you need to fix a value. You can correct labels and headings within the program. After creating a graph, you can switch to the program's graphics mode to add "user objects" such as boxes, patterns, and even graphics from some drawing and painting programs.

While monochrome mode supplies a crisp, readable display, the program's color display is blurred and nearly unreadable. Color printing is also poor. Sometime in the future look for Pinpoint "Fotomats" that will convert Graphic Edge files to 35mm color slides.

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

Bee-Cause is a no-frills simulation. It doesn't have any sound; it's almost entirely text; and the animation is limited—but students will learn the importance of recording observations, asking questions, testing hypotheses, and intrepreting data. The program is easy to use, with menus and on-screen instruction to guide students through their options. Students "guess" why bees are most attracted to one of the flowers shown on screen, then try to prove their theory through observation.□

End



Window Writing

II WRITE 1.5

Random House Media, 400 Hahn Road, Westminster, MD 21157, (301) 848-1900, (800) 638-6460, (800) 492-0782 (MD)
Pull-down menu-driven word processor; 128K Apple IIe, IIc, IIGS in monochrome display mode; mouse recommended
$59.95 home version (free backup in 5¼-inch or 3½-inch format)
$69.95 school version
$269.95 AppleShare version
Rating: ■■■

II Write or not II Write? With apologies to William Shakespeare, that's the question modern-day playwrights, storytellers, book-report writers—and their teachers—need to consider. Although II Write was designed principally for students aged 9 and up, this MacWrite-like word-processing program is easy enough for early elementary or special-education students to use with minimal assistance.

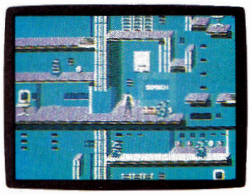
MOUSE OR MOUSELESS

Like authentic Macintosh or GS software, II Write largely conforms to the Apple "human interface" standard. The program offers nine intuitive pull-down menus: Apple, File, Edit, Search, Format, Font, Style, Size, and Windows. II Write supports a mouse, but works almost as well with the Apple and arrow keys—a nice twist for mouseless schools and households.

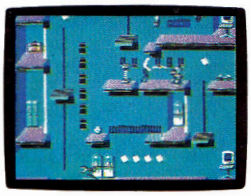
On-line help for virtually every program feature is a click away in the Apple

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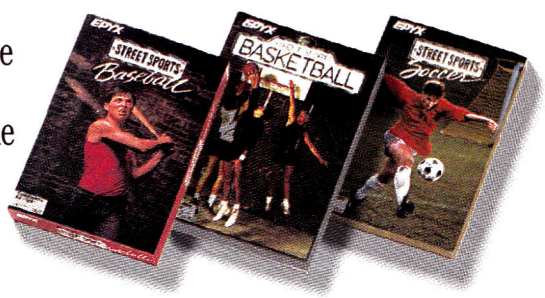
It's back, too. The same dingy alleys. Scruffy playgrounds. Dark parking lots. You'll pick three-on-a-side from the neighborhood's ten toughest players.

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menu. Each mini-lesson is expressed in terms clear enough for children—or teachers new to computing—to understand. You may not even need the accompanying 80-page manual, except perhaps to review a mouseless technique in greater detail or look up an unfamiliar term in the four-page glossary.

II Write's File menu lists the usual options for starting, saving, deleting, or printing a document. Each II Write document can be as long as about eight double-spaced pages. Longer works can be broken into "chapters" of up to eight pages each.

II Write can import and export ASCII text files, and can also read AppleWorks word-processor files. Version 2.0 (scheduled for release this fall) should include an option to format a data disk, a necessary convenience for anyone who has ever discovered—too late—that his or her disk is already full.

WINDOWS ON THE WRITING WORLD

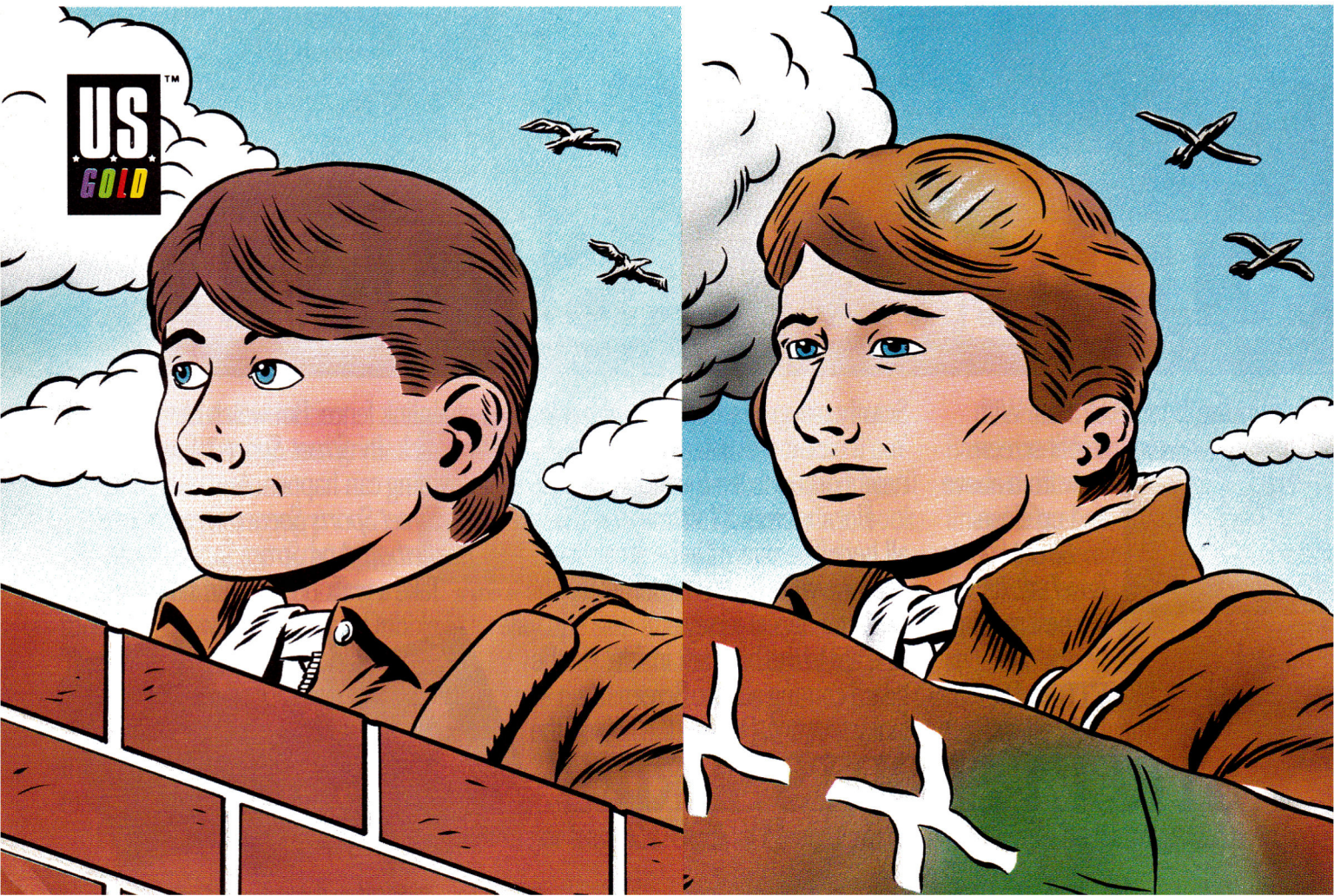
What makes II Write special is its ability to display four windows on screen (with four separate documents) at a time. Not only can you copy and paste text from one place to another in a single document, but also from one document to another. Multi-windowing can be a boon to students who like to keep an outline, a personal dictionary, or a mini-thesaurus in one window and their work-in-progress in another.

Just as for most II Write features, there's more than one method for window hopping. Use the size box to shrink windows first to view them all at once. Then click on any one window to "activate" it, or pull down the Windows menu and select a document, or use the quickest method of all—press Open Apple-1 through 4 to enter the desired window.

II Write's unique Copy Format feature lets you simplify document layout by taking a "snapshot" of an existing format and placing it in another window. Imagine the time and effort these one-shot transfers can save. You can copy complicated formats quickly with multiple rulers, each with its own tab settings, margins, justification, and spacing. Boilerplate all your book reports—or at least their formats—and spend more time concentrating on your writing.

Like any good word processor, II Write lets you search for and replace designated text. Here the concepts underlying the commands are simple enough even for kids to grasp: Find, Find Next, Change, Change This.

The commands listed in II Write's Format menu let you insert rulers and page breaks at will. A II Write document on screen displays solid-line page breaks, but



page numbers aren't indicated anywhere. If you need to tailor the length of your composition, you can scroll through the document to "keep track" of page breaks, or you can design and display a header or footer and include page numbers there.

Younger students who find rulers confusing and older ones who find them distracting can convert them to "skinny" rulers. Each ruler has its own zoom box—click on it and shrink the ruler's height. These reduced-size guides display only margins and tab settings.

II Write offers five attractive and readable fonts: Textbook, Newspaper, Typewriter, Midwest, and Script. All appear clean on screen and crisp on paper. You can emphasize text in bold, italic, or underline. II Write also displays superscripts and subscripts to help you format your end notes or science and math formulas with technical precision. Shadow and Outline styles aren't offered, but those are of arguable value in academic settings anyway.

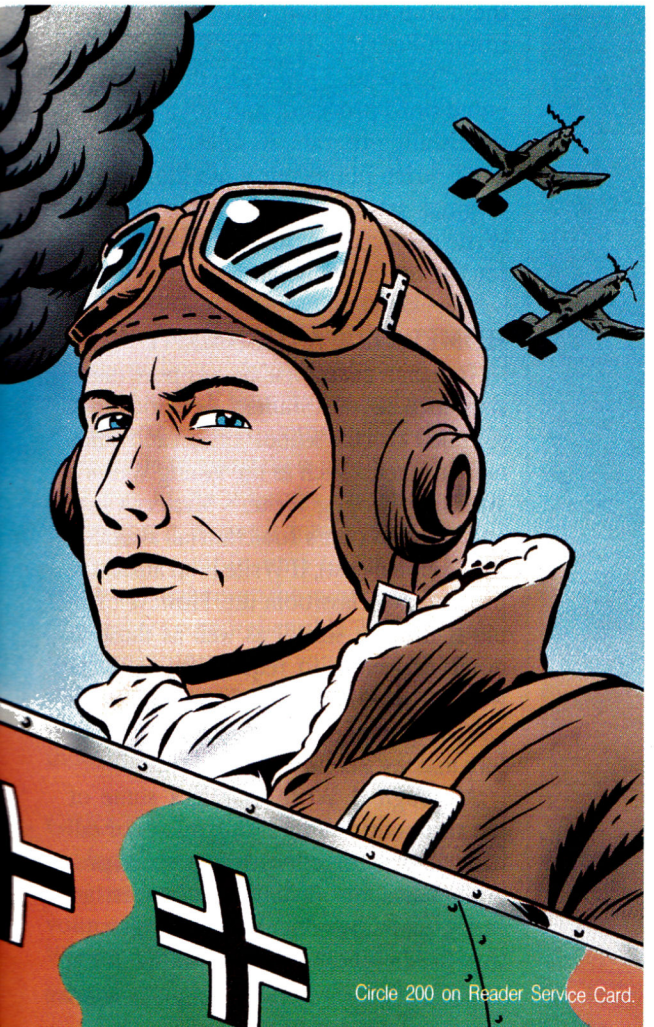
Type size varies from 9 to 16 point (for all fonts except Script, which is restricted to 14 point). Large, bold fonts are ideal for very young, learning-disabled, or visually impaired children. None of the styles is superfluous or sickeningly calligraphic. Your students will have to work hard to "overdo it" with II Write's fonts.

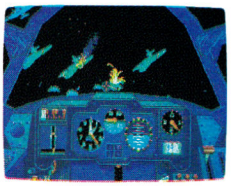
You can print single or multiple copies of a complete document or a range of pages in Draft, Standard, or High-Quality mode on any of the popular printers II Write supports, including those from Apple, Epson, Star, and Panasonic. For most uses, Standard quality is not only acceptable, but also relatively fast compared to some other graphics-based word processors. The program doesn't support color printing, however.

DAVID MEETS GOLIATH

No question about it: II Write is an attractive, functional, easy-to-use program. Curiously enough, the documentation that accompanies II Write would have you believe that this program is the "premier" or "most innovative" word processor available for the Apple II. The *Teacher's Guide* (available with the school version) further claims that II Write is "noticeably different in appearance from other Apple II software; it works in a uniquely intuitive manner; and it has a sophistication that is unmatched among programs designed for school and home use." All this makes one wonder if II Write was developed on another planet.

Like it or not, II Write, you have a major competitor in Claris' (originally StyleWare's) enormously popular Mac-like word processor MultiScribe, which has separate versions for the IIe/IIc and the IIGS. Even respected academic pub-




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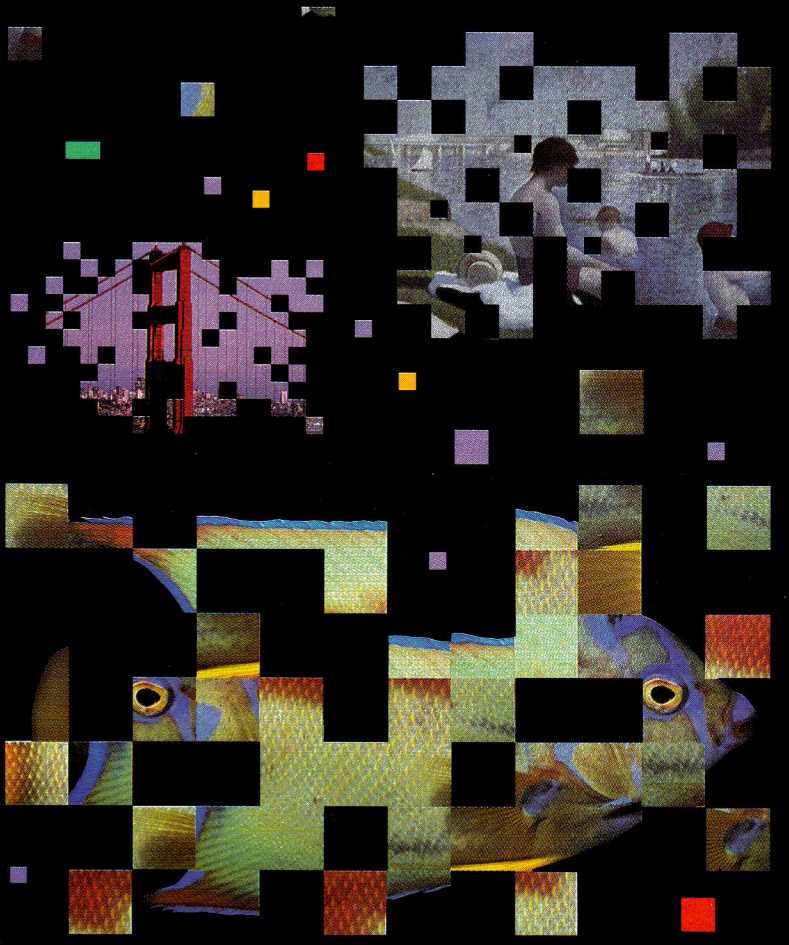
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Note: Comparisons are based on current Apple, IBM, and Commodore 64/128 versions of the product.
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lisher Scholastic Software sells the Scholastic MultiScribe System for the IIe and IIc—a $99.95 package that includes a word processor, spelling checker, Picture Manager, and "activities book."

Unlike II Write, MultiScribe for the IIe and IIc doesn't "do" windows (although the GS version does). And MultiScribe has some overly fancy, academically inappropriate fonts. But MultiScribe offers other valuable features, such as a built-in spelling checker and—in the IIe/IIc version—a Font Editor for modifying existing fonts or designing new ones from scratch. According to Random House spokeswoman Kris Ronningen-Fenrich, the company may in the future offer II Spell, a spelling checker.

II Write is incapable of integrating graphics into documents without using scissors and paste, whereas MultiScribe GS or the Picture Manager enhancement tool (for the IIe/IIc version of MultiScribe) lets you incorporate computer artwork without cutting and pasting in the traditional sense. According to Ronningen-Fenrich, II Write's developers opted to create a low-end, education-oriented word processor and not a desktop-publishing program. Besides, as Ronningen-Fenrich points out, students can add original artwork or photos to their II Write projects, providing an opportunity for "better creativity and better writing."

HOMEWORK ASSIGNMENT

Together with ancillary support materials such as the Student Activities disk supplied with the school version and other enhancements such as the Young Writer's Workshop, Young Writer's Mystery Club, and Young Writer's Toolchest (all available at additional cost), II Write is an attractive program for classroom use. However, Apple II users at school as well as those at home may want to request the II Write working demonstration disk and investigate other options, like MultiScribe, before making a commitment.

Although II Write may lack some of the competition's built-in features or enhancements, this education-oriented program has some distinct advantages: an easily maneuverable keyboard alternative to the mouse, great-looking fonts

both kids and teachers will like, and multi-windowing capability for "prewriting," writing, and revising. All three help put the emphasis on the writing process—something Shakespeare would have liked.■

Cynthia E. Field, Ph.D.
Wakefield, RI



Numbers Made Easy

MAGNACHARTA

Third Wave Technology, 11934 Lorain Avenue, Cleveland, OH 44111, (216) 671-8991, (800) 223-WAVE
Graphing program; Apple IIe, IIc, IIGS
$59.95
Rating: ■■■■

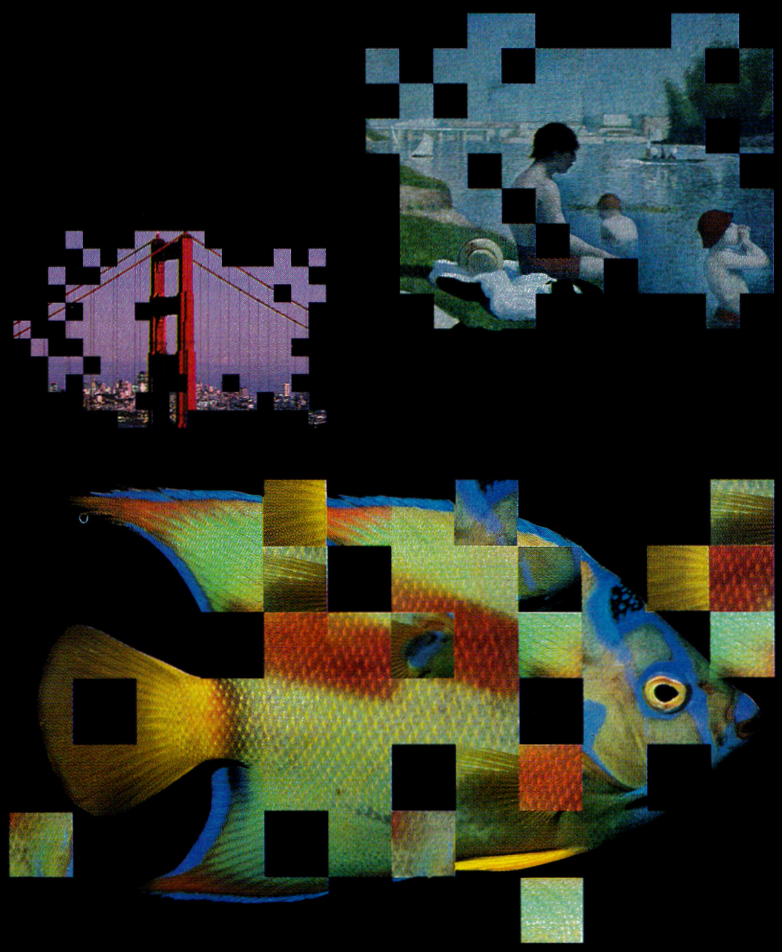
If you work with a lot of numbers—and every business does—you know that sooner or later they turn into an uncontrollable mass of figures. You end up with so many rows and columns that it's almost impossible to grasp their meaning. A terrific way to get a handle on all this information is to put it into a chart.

Using a simple, easy-to-understand graph can make even the most complex set of numbers comprehensible. With all the financial information your spreadsheet tracks, a picture really is worth a thousand words (or, in this case, maybe I should say a thousand spreadsheet cells).

GREAT GRAPHS

MagnaCharta is a business-graphics program that gives you two ways to handle your numbers: You can import AppleWorks text files (or text files created by

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other programs), or use MagnaCharta to create worksheets for the information you want to graph. The program can handle up to 400 data items in any user-selected combination of rows and columns.

MagnaCharta simultaneously supports keyboard, mouse, and joystick control—a nice feature that will give you a lot of flexibility. If you have a mouse, you'll move through the program's pull-down menu selections more rapidly than with a keyboard or a joystick. You can also access many commands with closed-apple and option key combinations. These commands are mnemonic (Option-S saves a file, Option-G graphs the data, and so on), so they're easy to memorize.

The menus themselves are easy to understand and work with. MagnaCharta gives you a wide array of choices, so you can do just about anything you want with your charts, including editing title lines and axis labels easily. Furthermore, MagnaCharta isn't copy protected, and it comes with an indexed 92-page manual written in a friendly, informal style.

You can print your graphs in two sizes, and rotate the images on paper for a better appearance. (A pie chart in particular looks less like an egg when it's rotated.) The package also lets you opt for double-strike printout, which produces a darker chart.

MagnaCharta lets you create nine different types of graphs, including a unique 3-D chart that will give you a completely different perspective on your numbers. You can control everything you see on screen—borders, axis names, tick marks, location of the legend box, even how much space you want between bars on your column and bar charts. MagnaCharta is also fast when it creates your pictures—an important feature of any graphics package.

QUIRKS

To enter new data or edit old information in a MagnaCharta worksheet, you must first select the cell (click on it), then input the label or value you want to appear in the cell. You move to the next cell you want to enter or in which you want to change a number, then select it and type in the data. This process is a bit cumbersome, and a lot slower than a standard spreadsheet.

The program occasionally uses exponential notation to display your data—any number larger than 999 or smaller than 1. An entry of $1000 is displayed as 1e3. If you're not used to this type of display, you'll have to work harder to interpret the figures on your worksheet.

The manual says that "exponential notation is an arithmetic 'shorthand' used to handle very big and very small numbers in as few digits as necessary," and it does a good job of explaining how the process works. However, while "exponential notation really saves handling a lot of zeros," as the MagnaCharta manual notes, I don't care for it.

In actual practice, you won't do much figure reading or editing within MagnaCharta, so the view it gives you of your numbers is more of an annoyance than a major problem. Note that with bigger numbers, though, you can't always tell what your data are. For example, an entry of 30,000 and 30,009 both display as 30e3.

The fields in which you can change the title or either axis label are longer than the text the program lets you enter, so if you're not paying attention, you can type in more data than the program will display. There's no beep to let you know you've run out of room.

While the main-menu selections return your cursor to the menu line automatically, the secondary menus don't. They leave the cursor down in the data area, which makes it all too easy to select only the cell on which the cursor happens to rest, rather than the cells you want to chart. You can, of course, reselect the cells that hold the information you want to picture, but the program should return you to the menu line where you started.

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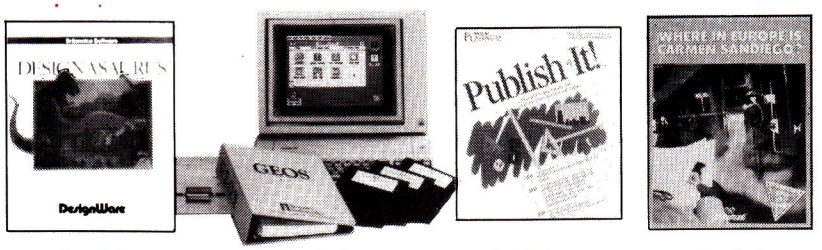
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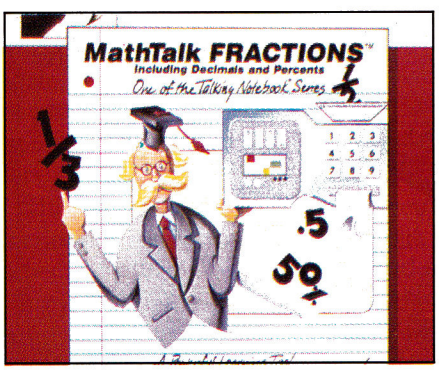
VISA MasterCard

If you have trouble with MagnaCharta, Third Wave Technology provides a toll-free tech-support number, with good help on the end of the line.

A CLEAR VALUE?

MagnaCharta is a helpful, easy-to-use addition to your spreadsheet, as it translates all those rows and columns of data into meaningful, understandable pictures. It's a terrific addition for AppleWorks users, because the program is designed to pull data from AppleWorks files and turn them into graphs. In all, MagnaCharta is a solid value for spreadsheet users.■

Gregory Glau
Prescott, AZ



Talking in Numbers

MATHTALK FRACTIONS

First Byte, 45 Temple Avenue, Long Beach, CA 90806, (213) 595-7006
Talking math-education program; 768K Apple IIGS
$49.95
Rating: ■■■■

"Welcome to Mathtalk Fractions." That's how the synthesized-yet-realistic voice of Professor Matt A. Matics greets you when you boot up Mathtalk Fractions—and indeed his friendly approach sets the tone for the whole program. The Professor reappears frequently throughout the modules to introduce activities guaranteed to seduce kids into trying drill-and-practice problems covering fractions, decimals, and percentages.

Although the program includes no real tutorials, Mathtalk Fractions is motivating and effective nonetheless. Make sure you have enough RAM, though—this one requires 768K just to get off the ground.

EXPLANATIONS

Mathtalk Fractions comes on a single 3½-inch disk. The package contains a 35-page booklet with a description of the program's objectives, an overview of activities, and a licensing and use agreement. There are no specific lesson plans or teacher-student support such as worksheets.

The first several pages of the documentation define terms such as *fraction*, *lowest terms*, *decimal*, and so on. The remainder explain how to convert fractions to decimals and percentages, and how to reduce fractions to lowest terms.

I'd much rather see a disk tutorial. Kids who don't understand fractions aren't likely to stop playing long enough to refer to a wordy text. Pairing weak students with better ones in cooperative learning and play situations may overcome this shortcoming, though. This leaves the tutoring to able students and lets Mathtalk work as good drill-and-practice.

TAKE YOUR PICK

From the main menu, you can choose one of four activities—Problem Factory, Fraction Shuffle, Fun House, and Team Challenge. In the Problem Factory, you create your own three-part equation for decimals or fractions. Enter the parts of your multiplication, division, subtraction, or addition equation at the top of the screen. The whole line might look something like this—44.2 × 10.5 = ?

Having created your own question, you now have to answer it. The program lets you know whether you're right or wrong and awards points for correct answers.

Problem Factory is the least impressive of Mathtalk's activities. For one thing, the

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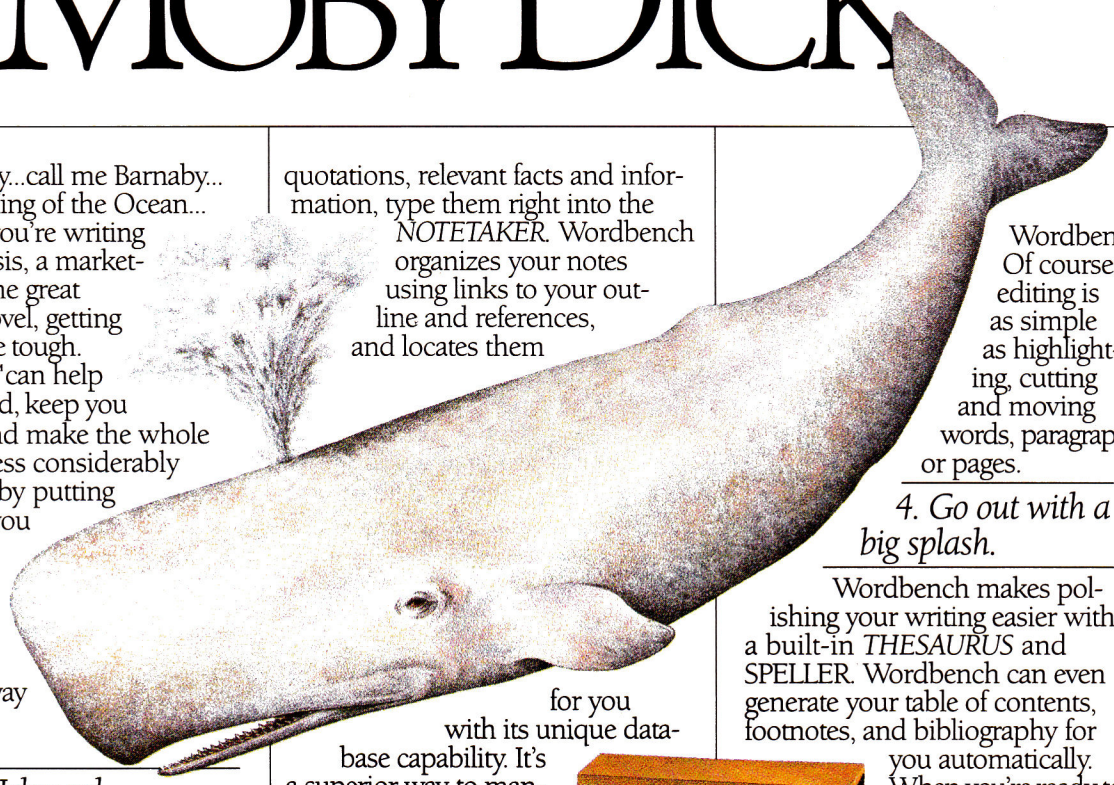
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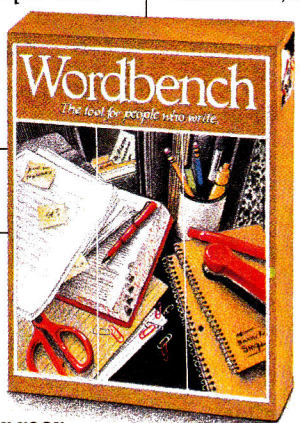


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only "problem solving" here is figuring out how to enter the operand sign into an equation without any clear instructions. Second, it's misleading to call this activity a Problem Factory. It's simple calculation, not problem solving. Finally, without guidance most students would select activities they perform well to get the greatest number of points rather than practice weak areas. The program should do some pretesting to determine weak areas and start students with those.

FRACTION SHUFFLE

Blackjack fans should enjoy this activity. You can "wager" your accumulated points on any of 12 common fraction questions in a round of this game. Each problem is hidden behind one of 12 playing cards displayed on screen. Pick a card and you'll get a question like $\frac{2}{3} \times \frac{3}{1} =$. Again, the student practices the four basic processes and must answer with lowest-terms proper fractions, mixed numbers, or whole numbers.

This activity has some merit if you overlook all the work you have to do with paper and pencil. The answer is the only thing you enter into the program. On the positive side, the wagering challenge and colorful graphics are incentives to play Fraction Shuffle. In the process, many students may increase their skill in reducing fractions to their lowest terms. Again, pairing students will add a tutorial element.

FUN HOUSE

The three amusing activities here—Popper, Lazer, and Coin Drop—make the most of the IIGS' graphics to attract students to equivalent-fraction problems and conversion of common fractions to decimals and percentages.

Popper simulates a circus dart throw. Each correct response fires a dart and pops a balloon to score points.

You can play the easy (for two points), medium (for three points), or difficult (for five points) game. The sizes of the numerators and denominators determine the level of difficulty. The main skills tested here are finding the common denominator and reducing the answer to lowest terms.

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I liked Popper. Waiting to hear the balloons "pop" motivated me to figure out the answers. My only complaint is having to wait a good 15 seconds for the program to retrieve each new question.

The Lazer game uses two types of questions to drill students on lowest terms and equivalence of fractions. In one form, you examine a rectangular box divided into equal segments, some of which are colored. The task is to determine the fraction of the box that's colored. For example, in an eight-segment box with four sections colored red, one-half of the box is red. For youngsters who haven't grasped the concept of fractions, the boxes provide a more concrete model.

The alternate questions require a little more thought. These are true-or-false questions comparing whether or not two fractions are equivalent. For example, does .19 equal $\frac{9}{20}$? To answer, you have to convert both numbers to the same type—decimal or common fraction—and then decide. This activity forced my students to evaluate the relationship between decimals and common fractions. That's a better approach than programs that simply require recalling facts.

Coin Drop is a variation of the old probabilities game in which you guess the number of times a flipped coin will turn up heads or tails. The Professor's elaborate machine drops, flips, and flops the coins after you guess the outcome for a set number of tries. It's cute, but any learning here occurs after the game when you convert the outcome (say six heads out of ten drops) to fraction and percentage scores. Every time you're correct, you score points.

TEAM CHALLENGE

In the Team Challenge, you compete for points in a game-show format to practice fraction, decimal, or percentage questions. From a gallery of six whacky characters with names like Amelia Brainer, Ida Know, and Bart Reducer, you choose a team of three against whom you'll compete.

Some characters are better at math than others. Beating the top players (those identified with four asterisks) gets you 40 bonus points. You get only ten points for beating the easy characters. For any red-blooded sixth-grade kid, the challenge to go for the high score will be irresistible.

At the easy level, Team Challenge focuses mostly on adding and subtracting fractions and decimals. Other questions at this level test your ability to convert mixed numerals back and forth.

The harder level challenges your knowledge and mental agility as you equate ratio, decimal, fraction, and percentage expressions within a brief time limit. For example, you may have to express $\frac{13}{52}$ as a percentage. This is a subtle, effective way of making you apply the rules for finding equivalent fractions. Playing this game often enough will increase your understanding of the meaning of fractions and relationships between terms such as *ratio* and *percent*.

Team Challenge will also reinforce knowledge of processes. For example, one question may ask you to divide 8.973 by 0.38 and show the answer to the nearest hundredth. If you don't know that process, you'll need to refer to the back of the documentation for the proper steps. Because that would cost you points, learning the process becomes important.

FINAL MARKS

The IIGS is an exciting machine. Most teachers would prefer, however, to see its capabilities for sound and graphics matched with software that tutors students. Nevertheless, good drill-and-practice still has its place.

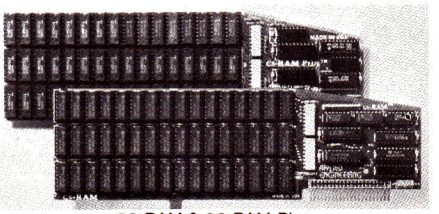
You can use Mathtalk Fractions effectively to reinforce essential concepts and processes and to promote understanding of the relationships among decimals, percentages, and fractions. Mathtalk gets a B from the teacher, but an A from the student.■

Jack Emberly
Maple Ridge, British Columbia, Canada

Games Editors Play, p. 106

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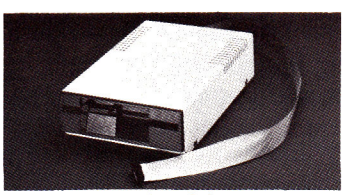
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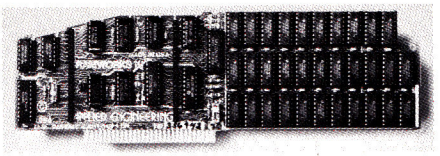
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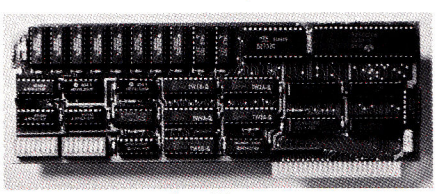
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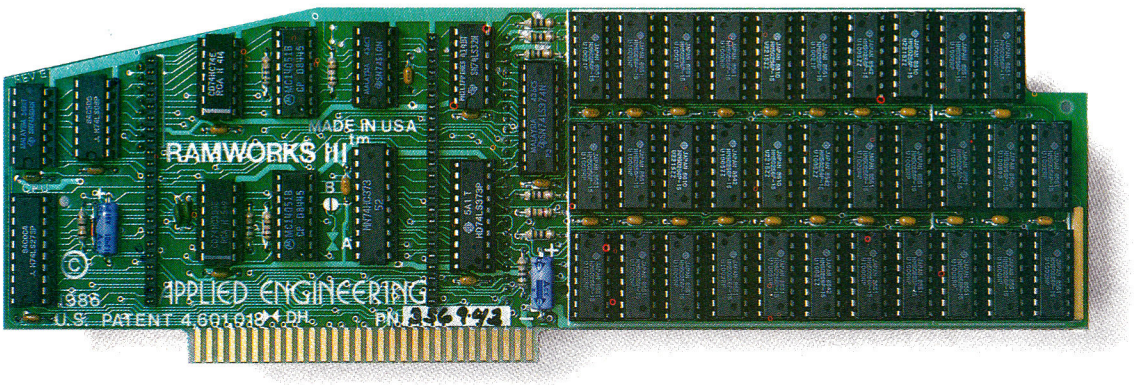
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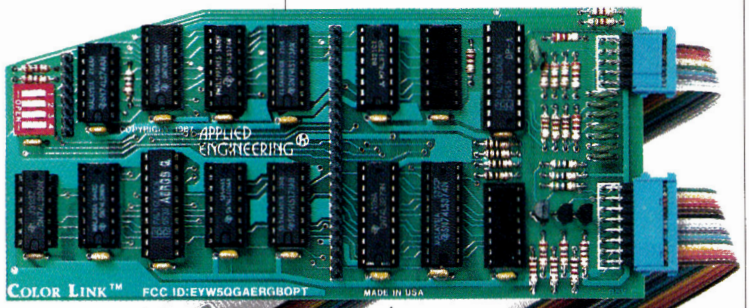
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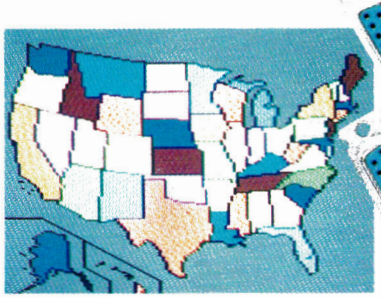
RGB color is an option on RamWorks and with good reason. Some others combine RGB color output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks RGB option offers better color graphics plus a more readable 80 column text (that blows away any

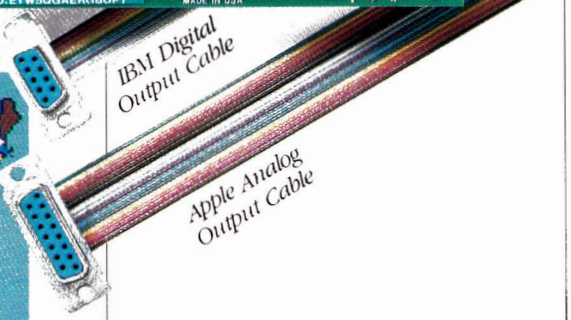
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Steve Wozniak, the creator of Apple Computer

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ON LINE with



APPLELINK

Like the original Apple II, AppleLink promises to change the way you work and play. It's not just new software—it's a 24-hour-a-day on-line service for Apple users only. Log on for instant access to a world of information.

Telecommunications has always been the kid with potential. Since the early 1980s every year has been the year of on-line communications. On-line services, electronic mail, and bulletin-board systems offer obvious benefits, but hard-to-use modems and communications software, plus high phone and connect-time charges, have kept the "average" Apple II off line. A strong, dedicated group of vendors has made telecommunications a profitable business, but using a modem to access information and "talk" to other computer buffs hasn't been the activity "for the rest of us."

Now Apple Computer's changing that. Telecommunications may never be as easy as picking up the phone to call your Uncle Joe, but AppleLink—Personal Edition is making great strides in bringing on-line services to Apple II users who aren't particularly modem-savvy. Currently, AppleLink is available for 300-, 1200-, or 2400-baud communication on Apple IIes, IIcs, and IIGSs. According to Apple at press time, the Macintosh version won't be ready for another three or four months.

LOW-COST, LOW-HASSLE

AppleLink—Personal Edition is a joint venture of Apple Computer (20525 Mariani Avenue, Cupertino, CA 95014, 408-996-1010) and Quantum Computer Services. To this arrangement Quantum brings plenty of experience in making communications easy: In 1985 the company unveiled Q-Link, an on-line service now used by hundreds of thousands of Commodore 64/128 telecommunicators.

Apple is taking the same low-cost, low-hassle approach. The AppleLink Software Kit, with manuals, tutorials, disks, a free subscription to the monthly magazine *AppleLink Update*, and two free hours of connect time, is available from authorized Apple dealers for $35.

Current hourly rates are just $15 for prime time (7 a.m.–6 p.m. weekdays) and $6 for nonprime (6 p.m.–7 a.m. weekdays and all day weekends)—lower than those of most other commercial information services. And unlike most other services, Apple charges nothing extra for 2400-baud communication. Watch your time on line, though—AppleLink is addicting.

Like the Apple II itself, AppleLink is simple to learn and simple to use; because the service is designed only for Apple II users it's much easier to access than CompuServe, The Source, GEnie, and so on. The average Apple II fan can probably log on without even reading the manual. (*Do* read the manual first, though—it's chock full of helpful information.)

Unlike other services, AppleLink uses a point-and-click mouse interface, which simplifies the most complex tasks: Pull-down menus and buttons select all commands. The rest of the computer world has moved to the mouse interface—it's about time that information services joined in. For IIe and IIc users who don't have a mouse (or who still like the keyboard better than the mouse), AppleLink has equivalent keystroke commands for each option.

AppleLink's different for another reason. With other on-line services, you can use just about any communications software: You call up, log on, then type in the appropriate passwords and codes. Apple has taken this a step further. AppleLink has its own communications program, which you'll need to enter the system.

The advantage is that each disk contains its own password, identification, and mouse-driven commands. Insert the disk and you're ready to log on—it's that fast and easy. You don't have to remember awkward passwords and access codes. The software also lets you put a number of different screen names on the same account. If other users get to know you under one name, you can log on again under another name and remain unknown.

TUNE IN TO APPLE

The first time you log onto the system, the software asks you to enter certain information about yourself and a method of payment, to allow automatic billing. Orientation takes a couple

by Jeff Cable, Contributing Editor

of minutes, but it's a one-time setup. The system sends the information to the billing service, and writes some of the data directly to your program disk. From now on, whenever you boot your AppleLink disk you'll go directly to the main menu.

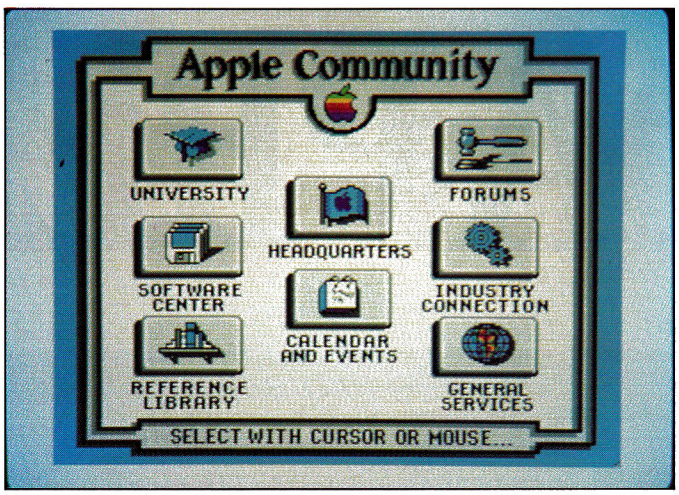
AppleLink's main menu uses high-resolution graphics to present two options: Apple Community, with information provided and directed by Apple Computer, and General Services, maintained by Quantum. Both lead you into a marketplace of opportunity. If you pick Apple Community, you'll see a submenu of eight more choices: Apple University, Software Center, Reference Library, Headquarters, Calendar and Events, Forums, Industry Connection, and access to General Services. The General Services icon on the main menu offers eight other stops—Mall, Recreation Center, Customer Service, Club House, People Connection, Learning Center, News Room, and Financial District—plus access to Apple Community. When you select any of these items, AppleLink switches to a text screen and shows a menu bar at the top. From here you'll access more specific events, listings, and services.

Overwhelmed by the variety of offerings, like a child in a candy store? That's why your subscription to *AppleLink Update* is so important. It reads like a multichannel TV digest and keeps you informed about all AppleLink services and special features. Of particular interest is the *Update*'s Calendar of Events. Missed the fun in Christine's Tavern in June? How about Steve Wozniak's open forum in the Auditorium?

Still shopping? Drop into Customer Service's Members' Online Guide for a map and description of each AppleLink feature. Consult Today's Best Bets, Don't Miss, and Tonight! to plan your evening activities.

FORUM FOCUS

Most bulletin-board systems (BBSs) offer you "freeware" and "shareware" software for downloading and later use on your Apple II. AppleLink does, too. You'll find software titles such as FreeWriter and Sub Attack in the Software Center of the Apple Community or in the Apple Forum libraries. AppleLink offers hundreds of interesting public-domain programs—games, utilities, graphics software, sound generation, desk accessories, icons, fonts, and even some software updates.



Selecting the Apple Community icon, you'll see a submenu of seven choices that address the particular needs of Apple II users (Apple University, Software Center, Reference Library, Headquarters, Calendar and Events, Forums, Industry Connection) plus access to General Services.

A message and mail service is also a common feature of BBSs. AppleLink does it better. For instance, visit the Lobby to chat with any other AppleLink user—from anywhere in the country. Typical conversations range from technical jargon to stories about Uncle Fred's dentures.

The system also lets large groups of people gather in the same "room" at the same time, but if you want to have a private discussion, you can send a "flash" message to any individual and meet him or her in a "private room." In the course of researching this article, *inCider* invited users to meet in a room called "Apple II Forever" and had one-on-one conversations with people all over the United States.

And how many times have you wished you could talk directly with the programmer of your favorite software, or get an informed answer to a nagging AppleWorks problem? AppleLink's Apple II Forums give you a multitude of opportunities to meet, learn, and exchange valuable information with other Apple II enthusiasts and industry leaders. (See the accompanying sidebar for a list of third-party companies participating in AppleLink.)

Every night AppleLink presents a variety of Special Interest Forums hosted by industry experts. Just log on at the correct time and go to the Auditorium, People Connection, or Industry Connection (consult the AppleLink Calendar), where you then select and take part in the forum of your choice. During AppleLink's beta testing, for instance, Steve Wozniak hosted an informal forum where he entertained more than 100 other AppleLink subscribers with stories of past pranks and new ideas.



AppleLink's main menu presents two options in colorful high-resolution graphics; from subsequent and more specific submenu items, AppleLink switches to a text screen with menu bar to let you explore the area in more detail.

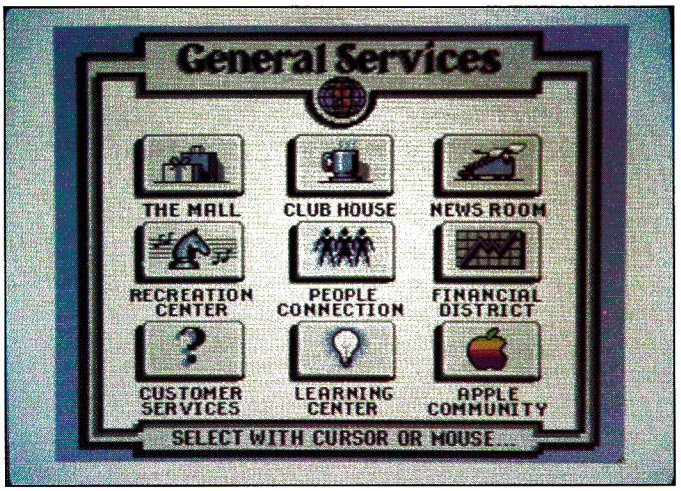
CASUAL CORNERS

Want to find out about new products, hardware and software under development, or updates for your favorite titles? Your best bet is to hang out in the Apple Café, where special guests address fellow AppleLink users twice a week. With your modem and your Apple II, it's almost like being in the same room (even though you have to BYOB).

Better yet, why not start your own club? AppleLink's Club House and Recreation Center let you find others interested in your hobby—anything from genealogy to astrology to coin collecting. Both services provide message boards, software libraries, and conference centers so that you can share your enthusiasm.

The Club House and Recreation Center also offer news and reviews of games, films, music, sports, and books. Have an opinion? Post your ideas in the Exchange and read reactions from fellow "think tankers."

Head to the Mall to shop for a new coffee cup and polo shirt in Comp-u-Store, or plan your next vacation with American Airlines' EAAsy Sabre travel service. While you're in the Mall, don't forget to send roses to a friend or maybe run a classified ad or attend one of the AppleLink auctions.



Under the General Services option, a graphics-based submenu presents eight activities similar to those offered by other commercial on-line providers (Mall, Recreation Center, Customer Services, Club House, People Connection, Learning Center, News Room, Financial District) plus access to Apple Community.

Third-Party AppleLink Participants as of August 1, 1988

Activision/Mediagenic
P.O. Box 7286
Mountain View, CA 94043
(415) 960-0410
Reader Service No. 335

Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
Reader Service No. 336

Baudville
5380 52nd Street
Grand Rapids, MI 49508
(616) 698-0888
Reader Service No. 337

Beagle Bros
6215 Ferris Square
Suite 100
San Diego, CA 92121
(619) 452-5500
Reader Service No. 338

Berkeley Softworks
2150 Shattuck Avenue
Berkeley, CA 94704
(415) 644-0883
Reader Service No. 339

Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3500
(415) 479-1185

Byte Works
4700 Irving Blvd. N.W.
Suite 207
Albuquerque, NM 87114
(505) 898-8183
Reader Service No. 340

Claris Corporation
440 Clyde Avenue
Mountain View, CA 94043
(415) 960-2790
Reader Service No. 341

Davidson & Associates
3135 Kashiwa Street
Torrance, CA 90505
(213) 534-4070
Reader Service No. 342

Electronic Arts
P.O. Box 7530
San Mateo, CA 94403
(415) 571-7171
Reader Service No. 343

Epic Technology
46733 Fremont Blvd.
Fremont, CA 94538
(415) 683-0932
Reader Service No. 344

Epyx
600 Galveston Drive
Redwood City, CA 94063
(415) 366-0606
Reader Service No. 345

MDIdeas
1163 Triton Drive
Foster City, CA 94404
(415) 573-0580
Reader Service No. 346

Orange Micro
1400 North Lakeview Ave.
Anaheim, CA 92807
(714) 779-2772
Reader Service No. 347

PBI Software
1163 Triton Drive
Foster City, CA 94404
(415) 349-8765
Reader Service No. 348

Random House
201 East 50th Street
New York, NY 10022
(212) 572-2433
Reader Service No. 349

Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614
(209) 683-6858
Reader Service No. 375

TML Systems
8837-B Goodby's
Executive Drive
Jacksonville, FL 32217
(904) 636-8592
Reader Service No. 376

WordPerfect Corp.
288 West Center Street
Orem, UT 84057
(801) 227-4420
Reader Service No. 377

SERIOUS-LINK

AppleLink's not just all fun and games—it's a massive resource center, as well. At minimum, you have an Apple Computer technical-support group right in your home. Just ask for Customer Relations, attend forums, or post your hardware and software concerns on the various message boards. Apple promises you'll hear back in 24–48 hours.

And for the most up-to-date news, you needn't hang out in the local newspaper office or watch a lot of TV. AppleLink's News Room is updated every 15 minutes; weather reports, financial information, headlines, national and world events, and foreign affairs are all covered.

Need to do some research for school or that continuing-education class? Let's say you're preparing a report on cancer, and you need information on the latest treatments. In the past, you'd have to make a trip to your local library and start thumbing through stacks of material. Now with AppleLink you can go to the Learning Center and call up Grolier's American Academic Encyclopedia on line. Just type in your keyword and the service will present a list of its collection of articles on the subject. AppleLink brings the library home to your personal computer—and you can save anything that interests you to your own disk for later reading—off line.

Or, why not sign up for a course at the University of Tomorrow or Apple U.? Apple U.'s in the Apple Community and the U. of T.'s located in the Learning Center. Each offers live (but unaccredited) classes, a library, and a student center. Go to General Services' Learning Center to register for courses on business writing, English composition, BASIC fun, and more.

Finally, you might head for the Financial District and get the latest stock information plus market, national, and world business news as they pertain to the various stock and commodities markets. Personal financial planning may never be the same again. Exchange tips with other bulls and bears on the Investors Debate Board. Watch out, Wall Street!

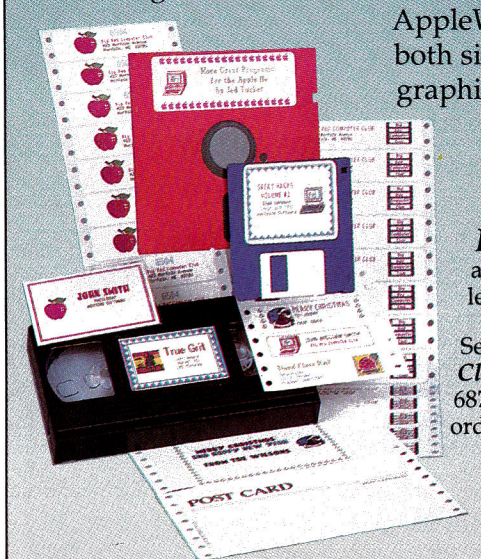
Even with all these activities within your reach, try to find time to relax and chat with other AppleLink users. The camaraderie you'll find on People Connection makes it one of the most interesting areas of AppleLink. Think of it—thousands of people with one thing in common: They're Apple users.

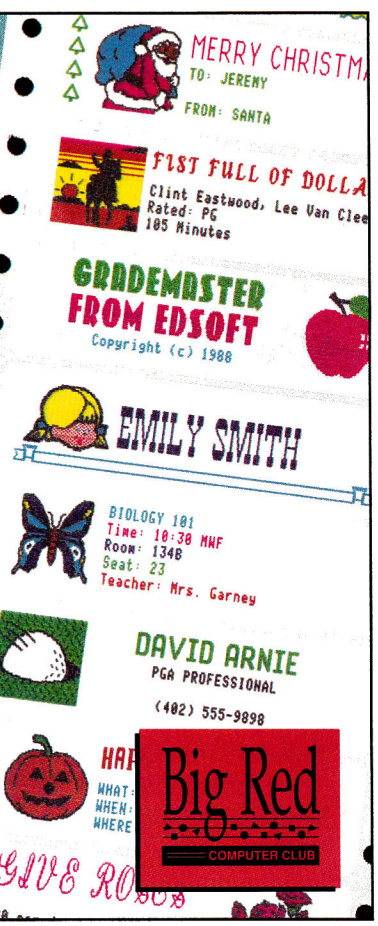
At AppleFest in Boston last May, Apple employees wore shirts that said, "AppleLink: Once You're Linked, You're Hooked." Then, it was a catchy phrase; now it's a reality. And the best part is, it's only a phone call away. ■

Jeff Cable is an application specialist and free-lance computer consultant. Write to him at Wolf Computer, 105 North Santa Cruz Avenue, Los Gatos, CA 95030. Enclose a self-addressed, stamped envelope if you'd like a personal reply.

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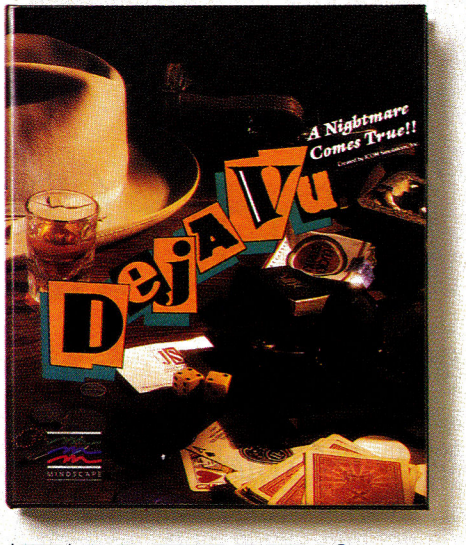


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The Classroom Co

A local-area network linking teachers and students means real classroom communication—lower equipment costs down the line as it fosters the sharing of peripherals and software. Let inCider *help you choose the best system for your lab or classroom.*

The benefits of tying your Apple IIs together in a classroom network are obvious—simplified disk mangement, shared software and peripherals, better communication between teacher and student during projects and assignments. (See part 1 of this article in the September 1988 issue, p. 68, for a detailed analysis.) Deciding *which* network is the right one for your classroom, however, isn't so obvious.

A classroom network can be as simple as computers sharing the same printer or hard-disk drive—but it can be as complex as a dedicated computer working as a file server allocating dozens of programs to a roomful of workstations. How do you sort out the systems on the market and choose the best one for your needs?

START SMALL

An arrangement such as shared printing or hard-drive access is suitable for small classrooms that still want some of the advantages of a network, but don't need a sophisticated (and expensive) system.

Caretaker Plus from Rose Electronics is one device that lets several computers share a common printer. This unit comes equipped with a 16K buffer and either four or eight ports in parallel or serial configuration. If the amount of information you run through the Caretaker regularly exceeds the buffer space, you can expand it to 64K or 256K. Caretaker Plus accepts files simultaneously through all ports and feeds them to your printer on a first-come first-served basis; after you transmit your material to the buffer you can continue working on your computer without waiting to print your files. This system is ideal for small to medium-sized classrooms where students work on projects requiring heavy production of printed output.

To expand the Caretaker Plus system into a low-cost network, you can connect it to a **Porter** code-activated switch (also from Rose Electronics) or another electronic switching device. The Porter lets you connect one computer to several peripheral devices—modem, printer, plotter, or even a mainframe. Like the Caretaker Plus, the Porter comes with four or eight parallel or serial ports with 16K of standard buffer memory, also expandable to 64K or 256K. You can stretch your network even further by adding peripherals to the Porter, or even by adding another Porter unit.

Q-System from Sequential Systems is another print buffer compatible with the Apple II, II Plus, IIe, and IIGS. Q-System is an automatic parallel or serial device. Students don't need to memorize any special commands, and there are no switches to operate, which makes things easier on kids and teachers alike. Like Caretaker, Q-System's buffer lets you send your files to the printer, then return to your work on the computer.

Another way to set up a small-scale, low-cost network is to share a hard-disk drive. Connecting two or more computers to a hard drive lets students and teachers share the same storage space and the same files. A mininetwork like this is suitable for very small schools, or situations in which a teacher needs to set up an assignment on one or more machines, then let students or groups of students go to work. The limitations of such an arrangement include no file-access restriction and the small number of computers you can cable to a hard drive. In addition, you'd have to position the computers close to the hard drive.

You can connect a **CMS** hard-disk drive to several Apple IIs, but you can partition the drive into only two segments. You can limit access to one or both partitions; you could use one as a student workspace, and the other to store teachers' records. The connected computers must be within approximately 25 feet of the hard drive.

To share a hard drive, you can also use Apple's **LocalTalk** cabling with GSs or IIes equipped with Apple II workstation cards.

MicroMUX from Johnson Associates is another system connecting several Apple IIs to one or more hard-disk drives—**Sider** hard drives only, however (First Class Peripherals). The system consists of a base unit that attaches to the side of the drive and connecting cable to tie in the computers. MicroMUX can support up to four computers, but each machine needs its own interface equipment. By daisychaining additional Sider hard drives and MicroMUXes, though, you can expand the system as your storage needs dictate.

MicroMUX permits only shared storage space; you can't limit file access.

EXPANDING YOUR OPTIONS

A true network involves more equipment and more expense, but also provides greater capabilities and flexibility. Again, you have a number of choices, based on what you need and how much you can spend.

onnection

SchoolMaster from Compulynx lets you network up to 32 Apple IIes, IIcs, or IIGSs in any layout with no distance or cable-length limitations. It can run existing software without modification; you don't need special network versions. SchoolMaster connects parallel and serial printers, and features a built-in print buffer and spooler, so students at individual workstations can send documents to a printer and go back to their assignments.

The central SchoolMaster unit contains the most unique and beneficial feature of the network—two internal RAM disks. You can load even complex programs into workstations simultaneously and quickly. In addition, connectors on the unit let you hook up two external disk drives. The print buffer, print spooler, and printer connectors are also housed in the main SchoolMaster unit.

Each workstation connects to SchoolMaster via its own network cable in what's known as a *star* configuration. (Stringing workstations on the same cable is a *ring* configuration. See the accompanying **Figures**.) This topology makes for faster transfer rates owing to direct cabling to every workstation on the network. Cabling isn't cheap, though. Running cable from the file server to each workstation runs your bill up a little higher, especially if your workstations are located far from the file server.

Each computer must be equipped with a **SchoolMate** selector box so that students can choose between programs on the network or off-line work using software in their own disk drives. The selector box attaches to a SchoolMate card plugged into slot 6 in each workstation. This board replaces standard disk-drive controller and printer controller cards.

Rounding out the system, the optional **SchoolMaster Toaster** unit loads programs from external disk drives into either of the internal RAM disks in the central SchoolMaster unit.

Rose Electronics produces a standard networking selector called the **Rose Master Switch**. This system lets a group of computers share access to a host computer (running networked software) or any of a variety of peripherals—printers, modems, plotters, or a mainframe.

The Rose Master Switch comes in a wide variety of configurations with different numbers of parallel and/or serial ports. The base units come with a 64K buffer expandable to 256K, 512K, or 1 megabyte. The number of computers you can connect to this system is limited by available buffer memory. You can expand it, though, by connecting a Master Switch loaded with workstations and peripherals to another Master Switch acting as a network bridge.



Students working at individual computers select a device by sending a code to the "new" destination. A device in any port can communicate with a device in any other port; pairs of devices can also communicate with other pairs. Master Switch sends data from one device to another if the destination device is free, or queues them and transmits them in order of priority. Master Switch can queue up to 64 commands or files. The system's main advantages are its ease of use and ease of expansion, making it suitable for just about any size classroom or lab.

The **DigiCard Classroom Network**, from Major Educational Resources, uses a "Master Controller" housing two floppy-disk drives to support up to 28 workstations. Each workstation requires an interface unit connecting it to the others in a *daisychain* configuration. You can also connect two drives at each workstation for data or individual work. The Master Controller can load software simultaneously or sequentially, and provides printer sharing for parallel or serial printers.

You can expand the DigiCard system with a **Shared Resource Controller**, combining a hard-disk-drive file server, print server, backup for data files, and two local-area networks. The Controller's **D-Net** port supports an additional 32 workstations—Apple IIs, IBMs and compatibles, or Macintosh computers, or any combination of those models—at distances of up to 4000 feet. The multiple machine support of the Shared Resource Controller provides an added modicum of flexibility for schools already using these different computers.

Velan's (Very Efficient Local-Area Networks) **V-Net** system supports up to 64 individual workstations and eight printers. Each workstation is cabled directly to the computer functioning as the file server (star configuration). Workstations can be up to 1000 feet from the master computer. Each workstation is connected to the network with a serial interface card and appropriate cabling. V-Net supports Apple II workstations, as well as Macintosh and IBM.

The management software that comes with V-Net includes handy utilities that partition hard-drive sectors for different classes, transmit electronic mail among students and teachers, and collect and distribute homework assignments on the network.

LARGER NETWORKS

LanTech's **ELAN** (Educational Local-Area Network) has room for 128 nodes on a single network: The teacher's host Apple II Plus, IIe, or IIGS can serve up to 127 student workstations. Any hard-disk drives and printers you'll use on the network must be connected to the teacher's station, and can be accessed from the individual computers. LanTech offers 20- and 40-megabyte hard drives for storing network programs. The teacher's computer can have up to four disk drives installed, provided none is installed in slot three.

Each workstation must be equipped with a Satellite board, an Expander card (plugged into any slot except slot 3), and the ELAN twisted-pair cable assembly. The Expander board also serves as a printer card (for print spooling).

The ELAN network can support more than one operating system simultaneously, so students can use DOS 3.3- and ProDOS-based prorgams at the same time. The total network cable distance can reach up to 1000 feet (although LanTech can make accommodations for larger networks).

Using the company's **AROS III** network-management software, students can be divided into as many as 30 groups. The teacher can boot a program and send it automatically to a particular group of students—individual study groups or separate classes. Using their own personal security codes, individual students can also load programs from the host hard drive.

As far as networking goes, Corvus Systems is definitely the veteran. The company introduced its first local-area network, Omninet, in 1981. Corvus' **Omninet II** cabling system with **Constellation III** management software is its latest network product.

The heart of the Corvus system is the **Omninet Hard Drive**. It doesn't require a dedicated file-server computer, a difference that's definitely an advantage for schools where computers are at a premium. Network programs are stored on the Omninet drive; the Omninet II cabling system connects workstations to the drive to complete the setup.

Omninet II cabling is simplicity itself: The cable connectors are just like telephone jacks, and just as easy to plug in. Your network can be up to 4000 feet long with as many as 64 workstations and printers hooked up. The twisted-pair connecting cable comes in precut, preconfigured lengths of 5, 15, and 50 feet with the jacks at each end, or in bulk reels with 500 feet of cable to custom-design your layout.

A nice accessory is Corvus' **Active Junction Box II**. You'll need

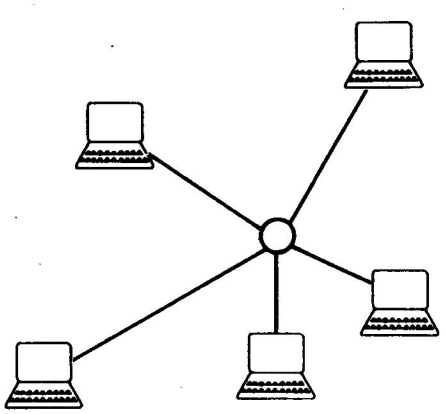


Figure 1. Star configuration.

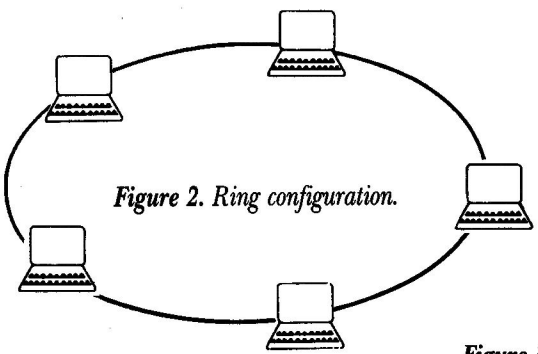


Figure 2. Ring configuration.

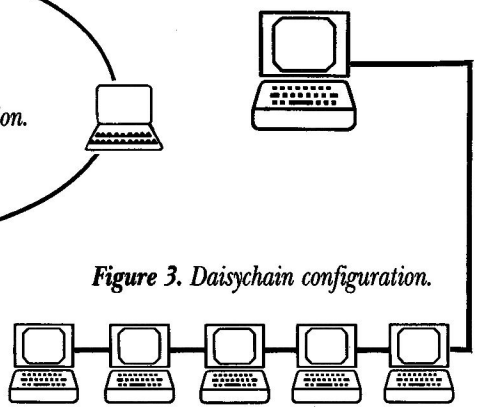
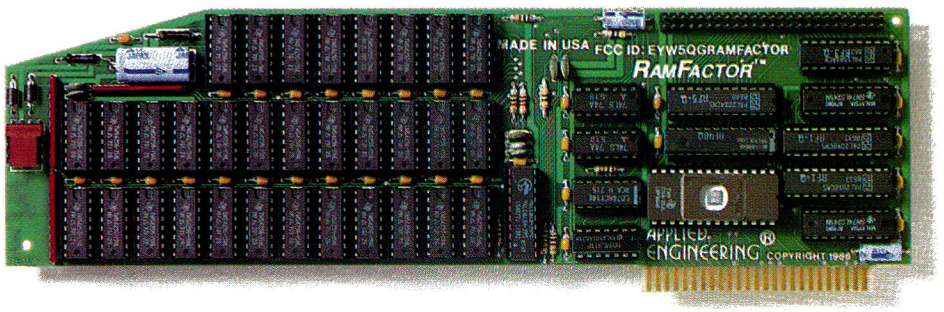


Figure 3. Daisychain configuration.

RamFactor™

The Ultimate Slot 1-7 Memory Card



RamFactor is automatically recognized as additional workspace memory by AppleWorks 1.3 and 2.0. In addition, RamFactor's memory can be used for creating the ultimate in program speed—a lightning-fast RAMdisk for the Apple IIGS, IIe, II+, Franklin and Laser 128. A RAMdisk does not depend on the slow moving parts of a conventional floppy drive. RAMdisks eliminate wear and tear on your disk drive plus your programs run up to 20 times faster! When a program is in RAM, your computer won't have to search for it in the mechanical disk drive during program operation. With RamFactor, you can have up to 9 seperate simultaneous RAMdisks—even in different operating systems! Now you can instantly switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/AM to Apple Pascal 1.3 to ProDOS.

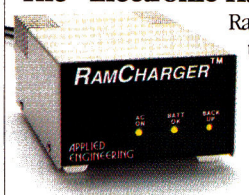
Apple Memory Expansion Card Compatible

RamFactor is 100% Apple Memory Expansion Card compatible. This means that software designed for Apple's card is automatically compatible with RamFactor. Thousands of software programs—including AppleWorks, Pinpoint, MacroWorks, MultiScribe, and Managing Your Money—can take advantage of the speed and performance RamFactor provides. But with Apple's card, you can have only one RAMdrive partition instead of the 9 simultaneous RAMdrives that RamFactor offers. And that's only part of the story . . .

2.0 AppleWorks Power

Other slot 1-7 cards can give AppleWorks a larger desktop, but that's the end of their story. RamFactor provides many more powerful functions. It's the only slot 1-7 card that increases AppleWorks 2.0 internal limits by increasing the maximum number of records in the database to 22,600, increasing the maximum number of lines permitted in the word processor to 22,600, and expanding the clipboard size to 2,250 lines maximum. RamFactor is the only standard slot card that will automatically load all of AppleWorks into RAM, dramatically increasing speed and eliminating the time required to access the program disk. It will even display the time and date on the AppleWorks screen with a ProDOS clock. RamFactor will automatically segment large files so they can be saved on multiple 5¼" and 3½" floppies or a hard disk. All this performance is available for the Apple IIe, Laser 128, Franklin or 64K Apple II Plus when used with an 80 column card. No other standard slot card comes close to enhancing AppleWorks so much.

The "Electronic Hard Disk"



RamCharger is an optional battery back-up device, (about the size of a disk drive), that can plug into a connector on RamFactor. With RamCharger added to RamFactor, your program will appear almost instantaneously when you turn on your computer. RamCharger contains LED's that let you know RamFactor's reserve power status. Since RamCharger has its own built-in power supply, it can retain RamFactor's memory indefinitely. Plus, RamCharger's battery will continue backing up RamFactor's memory for up to 10 hours during power failures. An optional "Y" cable is also available that allows one RamCharger to power two fully expanded RamFactors.

If 1 MEG Isn't Enough



A 4 MEG RamFactor Expander can be plugged into the expansion port on RamFactor for up to 5 MEG's total. RamFactor Expander uses standard 1 MEG chips and can be expanded in 1 MEG increments. With the addition of RamCharger, both RamFactor and the expander will provide up to 5 MEG's of lightning-fast battery backed storage.

Features

- Compatible with Apple IIGS, IIe, II+, Franklin and Laser 128
- 256K to 1 MEG on main board with 256K memory chips; expansion port supports up to 5 MEG with Expander option
- 100% Apple Memory Expansion Card compatible
- RamCharger battery back-up option available for permanent storage
- Reduces power strain to internal power supply with RamCharger option
- Fully socketed and user upgradeable
- Expands internal limits of AppleWorks 2.0
- Automatically recognized by ProDOS, DOS 3.3, Apple Pascal 1.3 and CP/AM
- Built-in RAMDrive software (true RAMdisk not disk caching)
- Graphic memory test included
- Allows Apple II+ to run AppleWorks 2.0 without buying additional software
- Automatically recognized by AppleWorks 1.3 and 2.0
- Fits in any I/O slot except slot 3
- 5 year warranty — parts and labor
- Proudly made in the U.S.A.

RamFactor with 256K	**$269**
RamFactor with 512K	**$389**
RamFactor with 1 MEG	**$629**
RamFactor Expander with 1-4 MEG	**CALL**
RamCharger backup option	**$179**
"Y" cable	**$24**

(Allows one RamCharger to power two RamFactors.)

Order RamFactor today . . . with 15 day money back guarantee and our five year warranty. *See* your dealer or *call* (214) 241-6060, 9 a.m. to 11 p.m., 7 days, or *send* check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add $10.00 if outside U.S.A.

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Product Information

Active Junction Box
$185
Constellation III
$495
Omninet Cabling System
$60 per workstation
$199 per interface card
Omninet Hard Drive
$1795 (20MB)–$7995 (126MB)
Corvus Systems/
Control Data
160 Great Oaks Blvd.
San Jose, CA 95119-1347
(408) 281-4100

Reader Service No. 310

AppleShare File Server
$799
AppleShare Print Server
$299
AppleTalk PC Card
$249
Apple II Workstation Card
$249
Apple IIGS Workstation Installation Kit
$99
Aristotle Menu-Management Software
$199
Ethernet Interface Card
$699
LocalTalk Cabling System
$75 per 10-meter kit
$125 per 25-meter kit
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 94014
(800) 732-3131

Reader Service No. 311

AROS III
$400
ELAN
$189 satellite board
$120 expander board
$17 cable 3, 5, 10 feet
$34 25 feet
$50 50 feet
$1295 optional 20MB hard drive
$1695 optional 40MB hard drive
LanTech Corporation
11811 North Tatum Blvd.
#P150
Phoenix, AZ 85028
(602) 953-6300
(800) 522-0666

Reader Service No. 312

Caretaker Plus
$395 (4 ports), $495 (8 ports)
Porter
$295 (4 ports), $395 (8 ports)
Master Switch
$549–$749
Rose Electronics
P.O. Box 742571
Houston, TX 77274
(713) 933-7673

Reader Service No. 313

ClassWorks
Computer Networking Specialists
Route 1
Box 286-C
Walla Walla, WA 99362
(800) 372-3277
$16,130 (45MB, 20 stations)–$21,430 (126MB, 30 stations

Reader Service No. 314

CMS Hard Drives
$895 20MB, $1095 43MB, $1295 60MB
CMS Enhancements
3080-A Airway Ave.
Costa Mesa, CA 92626
(714) 259-9555

Reader Service No. 315

DigiCard Classroom Network
$2495 Master Controller
$195 interface unit per workstation
Remote D-Net Card
$195
Shared Resource Controller
$2995 20MB, $4995 43MB, $6995 70MB, 130MB also available
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Hunt Valley, MD 21030
(301) 628-1527

Reader Service No. 316

MicroMUX
Johnson Associates
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Phoenix, AZ 85023
(602) 993-7440
$715 base unit, $174 interface kit, $50 cable
$939 total cost with one interface kit

Reader Service No. 317

QuikNet
Belkin Components
14550 South Main Street
Gardena, CA 90248
(213) 515-7585
$59

Reader Service No. 318

Q-System
Sequential Systems
1200 Diamond Circle
Lafayette, CO 80025
(800) 999-1717
$249.95

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The Sider
First Class Peripherals
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Carson City, NV 89701
(702) 883-4000
$595 20MB, $795 40MB
$845 60MB tape backup

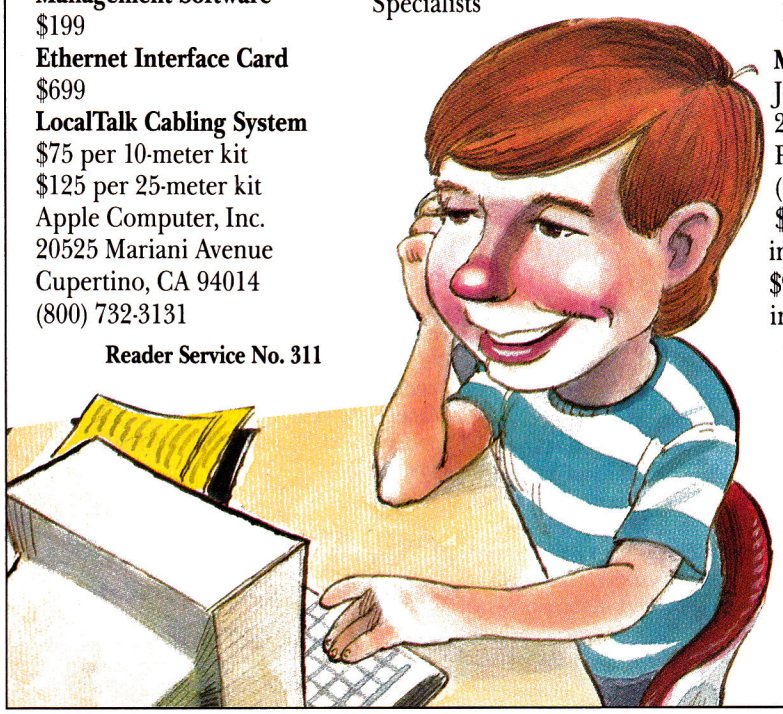
Reader Service No. 320

SchoolMaster
$1745 without internal RAM disks
$2495 with internal RAM disks
SchoolMate Selector
$195 per workstation
Schoolmaster Toaster
$595
Compulynx, Inc.
9236 Deering Avenue
Chatsworth, CA 91311
(818) 407-1985

Reader Service No. 321

V-Net
Velan, Inc.
849 Independence Ave.
Mountain View, CA 94043
(415) 960-3388
$5745 (20MB file server, 16 ports)–$12,880 (115MB file server, 64 ports)
$85 IIe interface card
$20 ROM adapter
$30 cabling per workstation
$20 installation per workstation

Reader Service No. 322



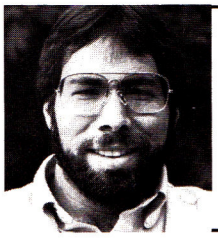


Prepare to be blown away by your Apple.™

Phasor produces sound effects, music, and speech so striking, Applied Engineering feels you should be warned.

Have a weak heart? Don't read any further. And by all means, *don't go near* an Apple IIe, II+ or IIGS equipped with the new Phasor sound synthesizer from Applied Engineering.

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"I recommend Applied Engineering products wholeheartedly!"

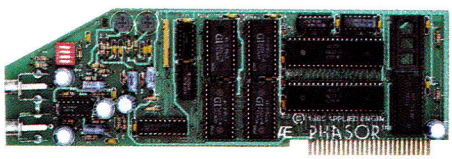
Steve Wozniak, the creator of Apple Computer

What's best, the Phasor works with more off-the-shelf software than any other sound card you can buy. So now all your favorite games — like Skyfox™, Under Fire™, Willy Byte™, Tactical Armor Command™, Maze Craze™, Zaxxon™ and Ultima IV™ — can have shattering sound effects. Educational packages like Music Construction Set™, Guitar Master™ and Music Star™ are also dramatically enhanced.

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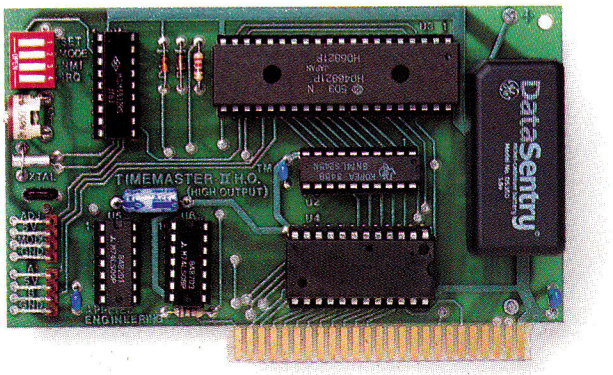


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The first clock card to add time and date to AppleWorks' screens and files.



Timemaster H.O. So many features it's become the world's best selling clock card.

It's the smart way to put the time and date on your Apple IIe or II+. Because only the Timemaster H.O. packs *ALL* the important features of all the competition *combined,* including leap year, year (not just in ProDOS), month, date, day of week, hours, minutes, seconds and milliseconds. It's totally ProDOS, DOS 3.3, PASCAL and CP/M compatible. And, of course, it works better than any other clock with AppleWorks.

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• Time in hours, minutes, seconds and milliseconds; date with year, month, day of week and leap year • 24-hour military format or 12-hour AM/PM format • Eight software controlled interrupts so you can run two programs at the same time (many examples included) • Can be set precisely to the exact second • Digital I/O port for advanced applications • Allows AppleWorks to time and date stamp all data automatically • Displays time and date on AppleWorks screens and files • Five-year warranty.

Timemaster H.O.	$99.00
BSR option (may be added later)	$29.00

Order Timemaster today ... with 15-day money back guarantee and our five-year parts and labor warranty. See your dealer or call (214) 241-6060, 9 a.m. to 11 p.m. 7 days, or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add $10.00 if outside U.S.A. Prices subject to change without notice.

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it if you're setting up a long-distance network—upwards of 4000 feet. This device boosts network signals for effective communication at that distance. You can also use it as a bridge between a new Omninet II cable layout and an older Omninet system. The old Omninet network cards and transporters are compatible with the new system, so you won't need to replace anything.

Constellation III network-management software includes an impressive array of features, supporting DOS 3.3, ProDOS, and Pascal simultaneously, providing utilities for file transfer between operating systems, and managing program, data-file, hard-drive, and printer sharing. You can set up shared and private volumes, as well. Each user has easy access to any storage device on the network; encrypted passwords restrict file access.

One peculiarity is that the Corvus system doesn't recognize Apple IIGSs on line as GSs. To run a GS on the Corvus network, the machine must be in IIe-emulation mode—a waste of the computer's capabilities. Nevertheless, the Corvus/Constellation III combination is an effective, time-tested network well suited to moderate (20–30 workstations) and large classroom networks (30 workstations and beyond).

If Corvus is the veteran, **AppleTalk**'s the newcomer. It's going to be another big-league network that will find its way into larger school systems for two reasons: its potential for expansion and its comparatively high cost.

First and foremost, any school interested in setting up AppleTalk needs a Macintosh computer as a dedicated file server

Networking Glossary

Access privileges. The ability to open and make changes to files and their contents. Access privileges let you control access to information stored on the server.

Bridge. A device that lets you connect similar networks to create a larger network.

Connectivity. Another word for network, or the linking of computers to share data and resources, with the capacity to communicate electronically with each other. The computers don't have to be of the same type; some link micros to minis; others link Apple IIs to IBMs and Macs.

Disk server. A hard disk with software that lets users on a network share storage space. A disk server doesn't let users on the network share files, however.

File server. Typically, a specially configured computer that functions as the central hub or command center of the network, directing and monitoring information to and from the other computers and peripherals on the system. File servers are often connected to hard disks. With the appropriate special software, it organizes programs saved on the system, loads selected programs, saves student work, handles security, queues files for the printer, accesses printers and other peripherals, transmits electronic mail, transfers data among files and workstations, stores student records, and more. Users can commonly access all files on the file-server hard disk.

(Macintosh Plus, SE, or Macintosh II)—a big expense right there. If your school already has a Mac capable of running AppleTalk, doing so will take it out of service.

Components of the AppleTalk network include **Apple II Workstation** cards, **LocalTalk** cabling, **AppleShare File Server**, and **Aristotle** network-management software. Every Apple IIe on the network requires a workstation card and the software that comes with it. Your IIes must also be enhanced; the cost of enhancing a labful of older IIes (at approximately $70 each) is something else you may have to consider.

You don't need an interface card to connect an Apple IIGS to AppleTalk—the port's already there. You will, however, need the Apple IIGS Workstation software, which gives you access to the AppleShare File Server. You can also tie in a Macintosh with 512K, a Mac Plus, Mac SE, Mac II, or an MS-DOS computer equipped with the **AppleTalk PC** card.

The AppleShare File Server running from the host Macintosh allows for simultaneous file access by multiple users, diskless startup at the Apple IIe and IIGS workstations, controlled file access, plus many of the usual network-management features. The system also allows for easy expandability by connecting multiple AppleTalk networks through Apple's LocalTalk network cabling or **Ethernet** bridge. This way, you can connect classroom, computer-lab, and administrative-office networks.

The AppleShare Print Server runs concurrently with the File Server software to manage print queuing; you can get back to

Gateway. A device that lets different networks communicate with each other.

Local-area network (LAN). Computers hooked together or to a central server by cables. In a computer lab, machines are situated relatively close together. Computers linked in a LAN don't have to be confined to a single room, though; they may be spread out over an entire school, for instance.

Network administrator. The person responsible for monitoring and maintaining operation of the network.

Node. Any device connected to the network—a computer workstation or a printer or other peripheral, for instance.

Password. A word or set of characters that protects files or other information on the server.

Print server. A specially equipped computer that spools documents sent to the printer. A print server lets users work on their computers while they wait for their documents to be printed.

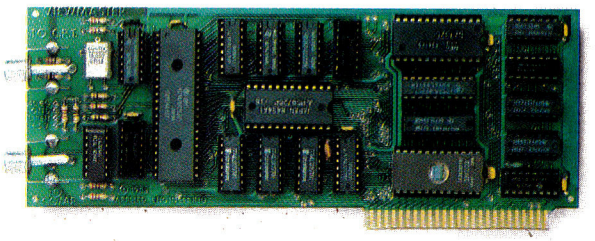
Spooler. A software application that functions as a kind of printer buffer. It receives printing requests from individual workstations, saves them to disk if the printer is busy, and lines them up to be printed. It frees the workstation to move on to other tasks during printing.

Workstation. Any individual computer hooked into the LAN.□

—Carol S. Holzberg, Ph.D.

Viewmaster 80

Now run AppleWorks™ on your II+ *and* keep full 80 column compatibility!



	BUILT-IN SOFTSWITCH	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7 x 9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERRIDE	INVERSE CHARACTERS	
VIEWMASTER 80	√	√	√	√	√	√	√	√	
SUPRTERM		√					√	√	
WIZARD 80					√		√	√	
VISION 80	√	√			√				
OMNIVISION		√					√	√	
VIEWMAX 80	√	√			√			√	
SMARTERM	√	√				√	√		
VIDEOTERM		√	√		√	√		√	

One look at the chart will give you some of the reasons there's only one smart choice in 80 column cards for your Apple. But the real secret to Viewmaster 80's success is something even better: Total compatibility.

Each Viewmaster 80 includes our powerful AppleWorks expand software, allowing AppleWorks to run on the II+ with only 64K (or more) memory. (We recommend the RamFactor memory card, but any compatible Apple memory card will work.) The software provides our full range of AppleWorks enhancements, including expanded records, word processor, multi-disk saving, time and date display on screen with any ProDOS clock, and more!

The Viewmaster 80 works with all 80 column applications, including DOS 3.3, ProDOS, CP/M, Pascal, WordStar, Format II, Applewriter II, dBase II, VisiCalc, Multiplan, and *hundreds* of others — including AppleWorks.

Here are just a few of the powerful features the Viewmaster 80 delivers for a great price: • 80 Characters by 24 lines • Very low power consumption • High speed (18 MHz) scroll rate • Upper and lower case characters and true descenders, both inverse and normal; all on-screen editing functions are supported • User-definable cursor shape • Compatible with Apple II, II+ and IIe • Five-year warranty.

Viewmaster 80 $159.00 **16K RAM Card $89.00**

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work while the system runs out your document.

At the workstation level, students and teachers work directly with Aristotle management software. This system consists of two related programs—menu display and menu management. The display presents teacher names, class names, and applications available to a particular class or student. The management portion lets the network administrator tailor menus.

One way you can bring the cost of an AppleTalk network down is to look at some cabling alternatives. Belkin Components' **QuikNet** system consists of compact adapters you connect to each computer and peripheral; they convert network signals for transmission over modular, telephone-style cable, instead of the more expensive coaxial cabling AppleTalk uses. What's more, with QuikNet cabling an AppleTalk network is no longer limited to 1000 feet—QuikNet modular cabling can extend up to 3000 feet without loss of data.

THE RIGHT COMBINATION

A network without appropriate management software is like a post office full of letters with the wrong stamps on them. You don't want too much or too little; choose your software as carefully as your network hardware, considering price and capabilities. Most networks described above consist of hardware configurations and system-management software from the same manufacturer, so they complement each other well.

An alternative management system is the **ClassWorks** network from Computer Networking Specialists. ClassWorks operates under DOS 3.3 and gives up to 63 students at a time access to the same program. Each student has his or her own password. ClassWorks requires a network with at least one 128K Apple IIe or a IIGS as a master computer. The master computer must also be equipped with a printer. ClassWorks supports Apple II Plus, IIe, and GS workstations.

ClassWorks can track students' progress and give feedback for as many as 2000 students, each one attending nine separate classes. Each class has room for 50 individual lesson results and ten summaries. The software supports 20 subject areas covering grades K–12. Each subject-area sequence can have up to 400 learning objectives, with eight lessons supporting each objective.

Computer Networking Specialists distributes its ClassWorks system with Corvus networking hardware. It provides a "turnkey system," everything a school needs to get networking—all the appropriate hardware, the ClassWorks management system and curriculm software, and training in use of the system.

Like any other computer product, every network system and management package does things a little differently. Know the right questions to ask: How many computers do you want to connect? Will they all be Apple IIs or do you have other types of machines? How far apart will they be? How many printers do you have? How many programs will you want to run at any given time? On one hand, look at what your classroom or school system needs; on the other, figure what your network will cost. Then you'll be able to decide which network will be your best connection.■



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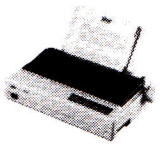
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Watch What Develops

October's Computer Learning Month! Join the celebration—help introduce someone to the world of technology.

by Cynthia E. Field, Ph.D., Contributing Editor



What happens when three executives from competing educational-software companies join forces around a boardroom table? When their goal is nothing less than equal access to technology for kids and adults everywhere, the result is Computer Learning Month—an all-out multilevel effort to help people from all walks of life become computer literate.

REACHING OUT . . .

Last October was the first celebration of Computer Learning Month. This year the project's in overdrive, geared up to recognize and reward in small and large ways the efforts of many thousands of students—as well as teachers, parents, and groups of all descriptions. Indeed, this perspective on people using technology *together*, not alone, is just one of the ways in which Computer Learning Month has matured in the past year.

Contests, sweepstakes, parents' nights, computer fairs, group events, and other activities promoted by Computer Learning Month and by individual sponsors—including schools, libraries, PTAs, and user groups—focus on the 1988 theme: "Take Part in Computer Learning Month. You'll Love the Relationships That Develop."

Perhaps the "relationship" that sets a prime example is the one that has grown among the three educational-software executives and Computer Learning Month "activists": Kathleen Hurley, vice president of Mindscape's educational division; Jan Davidson, founder and president of Davidson & Associates; and Cathy Carlston, vice president for educational-market planning at Broderbund Software.

Davidson first proposed the idea for Computer Learning Month to a trade organization, the Software Publishers Association (SPA), in the spring of 1986; SPA soon became the official sponsor for Computer Learning Month 1987. Since then, Computer Learning Month has become a separate nonprofit educational foundation, though it remains a subsidiary of SPA.

According to Carlston, one reason Computer Learning Month distanced itself somewhat from SPA is its emphasis on education: "Computer Learning Month is a noncommercial campaign and is not meant to entice people to purchase anything. The idea is to share the world of computing with the world at large."

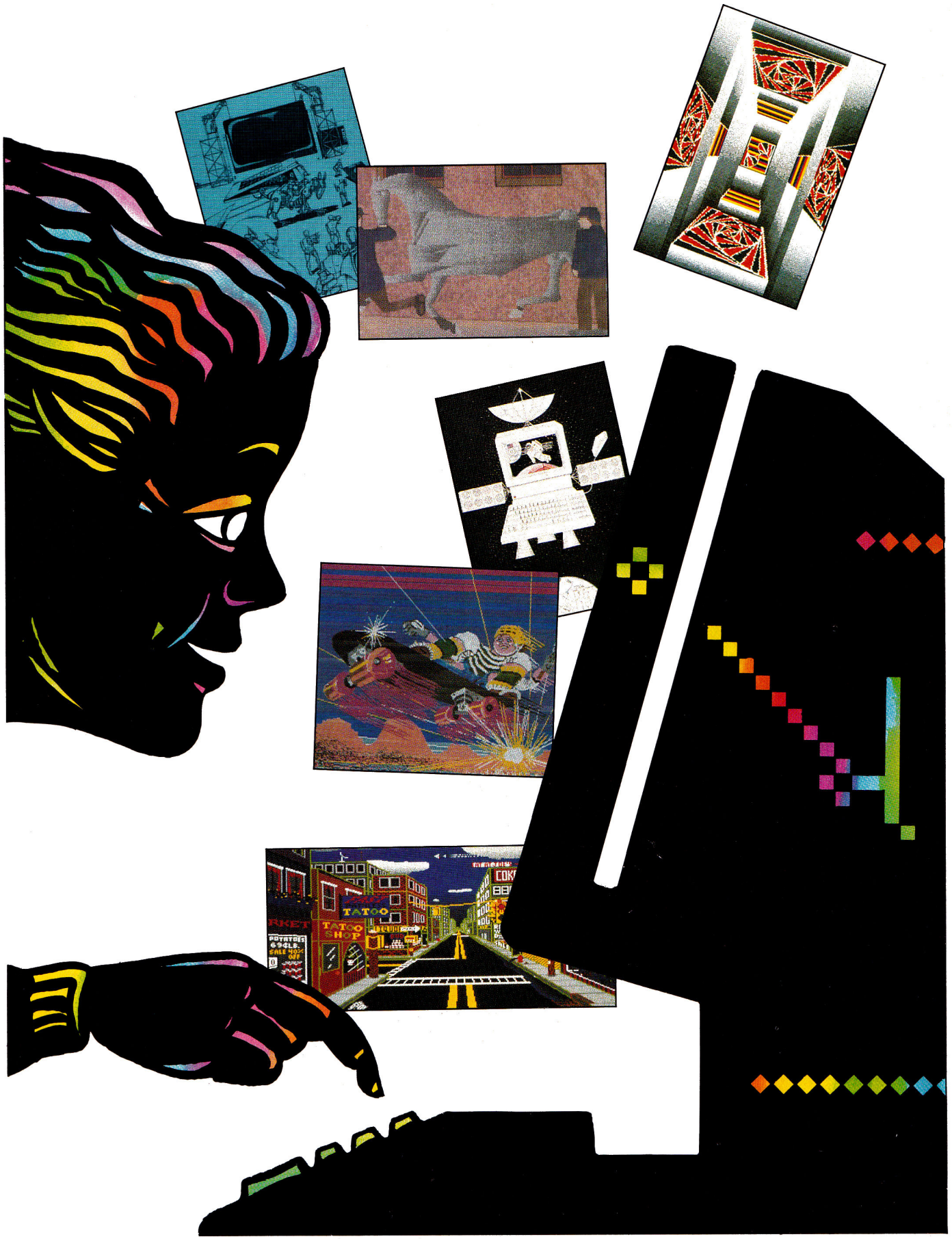
As an independent organization, Computer Learning Month has been better able to foster relationships with other organizations, including government groups, national and international nonprofit agencies, and commercial sponsors (including Apple Computer and *inCider* magazine), more of which are needed to help underwrite printing and publishing costs.

Having worked closely with Hurley, Carlston, and other members of the Computer Learning Month executive board, Davidson notes, "One of the things we have done as a group has been to work together for the good of the whole rather than to be terribly competitive. There's an unusual chemistry among us."

. . . AND GROWING

That "chemistry" seems to be something everyone associated with Computer Learning Month would like to spread. As Sally Bowman, director of the project, points out, "We want to motivate a grass-roots effort for people who know about computers and technology to help people who don't."

Those roots are apparently spreading at a phenomenal pace. Bowman adds, "In 1987 we had more than 45,000 entries in


TATOO
TATOO SHOP

our contests; we shipped 4000 computer-fair kits to dealers; we sent a half-million posters to teachers; and we mailed 1.1 million booklets to parents."

At press time, Bowman noted, "For Computer Learning Month 1987 we had 34 sponsors; this year it's 58 and increasing daily. So far we have 18 national nonprofit Honorary Sponsors including the NEA [National Education Association], the AFT [American Federation of Teachers], EDUCOM [a university-level educational organization], the International Council for Computers in Education, the National Foundation for the Improvement of Education (best known for its "Christa McAuliffe Scholars"), the National Catholic Education Association, the Association for Children and Adults with Learning Disabilities, and the Council for Exceptional Children."

CONTESTS GALORE

In hopes of catalyzing even more explosive growth this year, Computer Learning Month 1988 is running nearly a dozen contests, each with at least two grand prizes in one or more categories (elementary-, middle-, and secondary-school levels, for instance). Most contests offer dozens of second and third prizes, too. Grand prizes include Apple, Commodore, IBM, and Tandy computer systems. Software programs make up the second-prize winnings. Third prizes include honorable-mention certificates.



Left, Jan Davidson, founder and president of Davidson & Associates; right, Kathleen Hurley, vice president of Mindscape's educational division.

Contests this year focus on just about anything and everything to do with computers. And no one's left out. If you don't yet own or use a computer, you can still learn about them and enter a contest.

EVERYONE'S A WINNER

"It was mandatory." That's how Illinois student Bill Burns unabashedly describes *his* introduction to Computer Learning Month last year. Lucky for Bill he had an "encouraging" teacher—his computer painting of the Golden Gate Bridge won him a home computer. Lucky for Bill's school, too—St. Joseph's was awarded an Apple IIGS, thanks to its star sixth-grader's efforts!

In 1987 both Jason Burge, a fifth-grader from Fairfax, Virginia, and Shannon Stankiewicz, a ninth-grader from Longwood, Florida, won computer systems for themselves and their schools by writing essays about uses of computers in the year 2001. Jason's future computer would be, among other things, a talking watch; Shannon's would help her design clothes and organize fashion shows.

What's up this year? Keep reading—below you'll find a rundown of Computer Learning Month 1988 events.

CONTESTS FOR THE REST OF US

The **Art and Computers** competition is open to anyone who can think of a creative way to use two-dimensional artwork (18 by 24 inches maximum) to express a message about computing—in photographs, paintings, collages, or, in short, any form of original art.

The **Best Special-Student Success Story** is an essay contest in which exceptional students in kindergarten through high school describe in no more than 750 words how a computer and another person *together* have made them successful in otherwise unlikely ways.



Left, Sally Bowman, director of Computer Learning Month; right, Cathy Carlston, Broderbund's vice president for educational-market planning.

Group to Group: Sharing Your Computing Knowledge sounds like a lot of fun! The idea behind this contest is for your group of five or more (senior citizens, Girl Scouts, computer-club members—you name it) to share its computing knowledge with another group within your community. Kids can teach other kids or adults; adults can teach other adults or kids. The judges are looking for groups that help other groups produce something *tangible* on the computer.

The **Newsletter/Storybook** contest is open to all levels of students as well as to adults over the age of 18—even those who don't have access to a computer to prepare their "publications." The theme of the newsletter or storybook must be computing, however, and each work will be judged on "originality, content, writing skills, design, illustration, layout, and overall attention to detail."

The **Telecommunications Dream Project** (co-sponsored by the International Council for Computers in Education) challenges you to describe an ideal experiment you'd like to perform with friends using telecommunications equipment and software. The emphasis is on reaching out to people across distances, in other states or other countries.

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B.J. the Talking Computer

From Jan Davidson, founder and president of the education-software firm Davidson & Associates, *inCider* received a copy of a winning student essay from Computer Learning Month 1987. The following story was written by Charlotte Moore, a second-grader last year at Franklin Street School, Reidsville, North Carolina. Ms. Davidson adds, "I was particularly touched by this child's view of the computer as a warm, kindly, helpful friend. Surely the Computer Learning Month effort can be called successful if others acquire a similar feeling for the technology."

Hello. My name is B.J. I am a computer in the second grade at Franklin Street School. I have always wanted to talk, and now I get to.

I get bored sitting here all alone at night because there is no one here to work with me. I am glad to see morning come when all the students come into the classroom with new ideas.

When they touch my keys with their fingers, it tickles my insides. They give me their ideas and problems, and I give them answers. I can also give them problems, and they give me the answers. I like to see their faces when they answer a problem right.

I have to eat like everyone else, but my lunch is a disk. A disk makes me think of games to play and lessons to teach. Without a disk, I could not do anything.

I am glad I got a chance to talk to you, but now it is time to say good-bye. I will see you in class tomorrow. B.J.□

CONTESTS FOR EDUCATORS

A series of four **Lesson Plan** competitions appeals to teachers interested in one or more of the following areas: **Learning Together**, **Early-Childhood Education**, **Telecommunications**, and **Special Education**. Each lesson plan you submit should be no more than 1000 words long and, depending on the contest, may be accompanied by photos, short videotapes, or handouts.

Would Computer Learning Month forget college and university professors? No way! The **Higher-Education Faculty Papers** contest encourages faculty members to submit 2000-word undergraduate instructional plans together with references and ancillary materials.

Winning lesson plans from both groups will be printed in Computer Learning Month 1989 publications for distribution to other educators. Lesson-plan books featuring 1987 winners are available now at nominal cost for each of three grade levels: K–5, 6–8, and 9–12.

MAKE AN EVENT OF IT

The **Computer Learning Month Event** is, according to the project's official publication, "the most comprehensive contest and the most rewarding. . . . This event should be a get-together for sharing computer skills." You can order Computer Learning Month Event Kits, but you'll have to be quick: At press time, kits were expected to be shipped only until October 10!

Entries for all Computer Learning Month contests must be received by November 15; to receive complete information, contest rules, and entry forms, you'll need ***The Official Computer Learning Month 1988 Publication***. (See the sidebar for ordering this guidebook and other Computer Learning Month materials.)

SWEEPSTAKES

Computer Learning Month 1988 is also sponsoring two types of noncompetitive contests. The **Share the Magic of Computing Sweepstakes** encourages individuals to pass along their knowledge about home computing and various types of software with three friends. You have until December 31, 1988, to enter. Grand prize? A computer system, of course!

The **Computer Learning Month Certified School Sweepstakes** will award three grand prizes: two computer systems to participating schools (drawn randomly) and one to the Department of Education (U.S.) or the Ministry of Education (Canada) that "represents the state or province with the highest percentage of Computer Learning Month certified schools."

To become certified, all teachers in a school, working in pairs, informal groups, or workshops, must try three computer programs they haven't used before. Deadline: November 15.

MORE CONTESTS?

If the dozen or so Computer Learning Month competitions and sweepstakes don't catch your fancy, take a look at the dozens more contests, activities, and promotions sponsored by software companies, hardware manufacturers, and computing and educational magazines. Check *The Official Computer Learning Month 1988 Publication* for full details.

Some contests, like that sponsored by Optimum Resource, challenge you to write about the "ingenious, creative ways" you use software developed by a particular company. Others are of a more "generic" nature. The Learning Company, in conjunction with Tandy/Radio Shack, for example, is running a **Look into the Future Story-Writing Contest**. The best storytellers can win computers, software, or a trip to EPCOT Center at Disneyworld.

PUBLICATIONS

Besides running contests and sponsoring sweepstakes, Computer Learning Month distributes free booklets and other printed materials to help parents, teachers, students, and computer users everywhere keep abreast of changes in this exciting technology and to "share the magic."

Everything You Need to Know (But Were Afraid to Ask Your Kids) About Computer Learning, a booklet for parents and teachers, focuses on educational software and its value for students, including children with special needs.

The official **Computer Learning Month Poster** helps schools, stores, and community groups promote their Computer Learning Month events, while its ***Family Activities Guide*** lists dozens of computing projects to try at home.

Preparing for a Career in the 21st Century emphasizes the importance of computer knowledge in the Information Age. This book is geared toward high schoolers, college students, and adults.

The University Software Resource Guide, codeveloped by EDUCOM, is written for college faculty members who want to learn about instructional uses of computers in higher-education settings. This book contains information about both faculty- and commercially developed software.

According to Director Sally Bowman, motivating the presentation of local events that recognize innovative applications of computers is the key to increasing their effective use. As Kathleen Hurley notes, "We really went to extremes to involve everyone this year—from novices to experienced users, early childhood to adult, with contests and booklets. It's a fun time to be in this business and to help people understand the benefits of technology."■

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

Ordering Information

Computer Learning Month Event Kit
P.O. Box 60967
Palo Alto, CA 94306-0967
$12.50 shipping
one kit required for each group of 25 participants in your event

Computer Learning Month Lesson-Plan Books
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$3 each, 1–5 copies
$2.50 each, 6–10 copies
$2 each, 11–20 copies
$1.50 each, more than 20 copies
specify grade level (K–5, 6–8, 9–12)

Official Computer Learning Month 1988 Publication
Computer Learning Month
Department INE10
P.O. Box 60007
Palo Alto, CA 94306-0007
complete information including contest rules



1) *First place, 1987 computer-generated art, Scott Gilmore, 10th grade, Wilton High School, Wilton, CT.*
2) *Noncomputer-generated art, Robert Gordy, 12th grade, Acadiana High School, Lafayette, LA.*
3) *Computer-generated art, Scott Ferguson, 10th grade, Upper Arlington High School, Columbus, OH.*
4) *First place, 1987 noncomputer-generated art, Fame Truster, 8th grade, Indian Lake School, Lewiston, OH.*
5) *Second place, 1987 computer-generated art (Apple II), Darren Andes, 8th grade, Fieldstone Middle School, Montvale, NJ.*
6) *Honorable Mention, 1987 computer-generated art, Robert Volatile, 12th grade, Wilton High School, Wilton, CT.*

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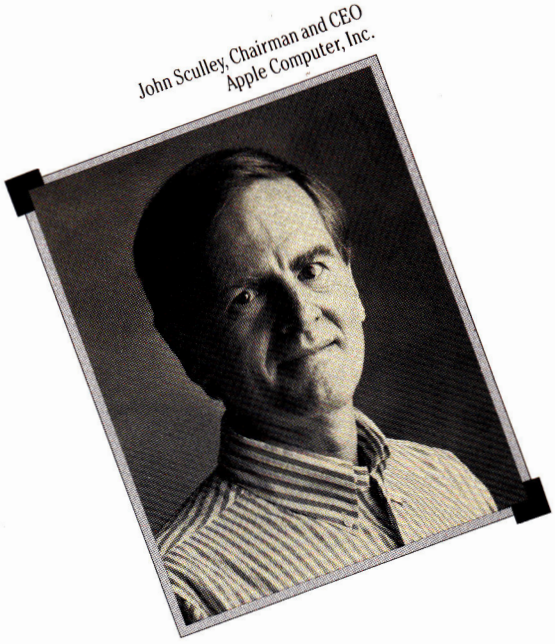
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Cash-Flow Trilogy: Part 2

by Ruth K. Witkin

Play "what if" with last month's spreadsheet to refine your financial projections.

The saga continues, with installment two of a three-part episode that began last month with the creation of a powerful cash-flow spreadsheet ("Cash-Flow Trilogy: Part 1," September 1988, p. 80). This month we'll refine it; in November our trilogy winds up with cut-and-paste, merging the spreadsheet with a memo. (If you missed the September column, contact *inCider*'s editorial department to obtain a reprint.)

Later in this column, you'll learn an intriguing way to use the MIN and MAX functions as well as discover solutions for getting rid of good old 80N—the printing quirk that makes some AppleWorks users see red.

COPYING CASH-FLOW FORMULAS

Start the AppleWorks program and load CASHFLOW. You've entered all the formulas in Years 1 and 2, and the Percent of Sales formulas (column I) in Year 3. Let's pick up from here to make your spreadsheet look like the one in **Figure 1**. First, copy the formulas in column E to column H: Place the cursor on the line in E4, press OA-C, and hit Return. Press OA-9 to jump the cursor to E41 and hit Return again. Move the cursor to H4 and hit Return again.

AppleWorks now highlights B5 and asks you to indicate a *No change* or *Relative* reference. All references are relative *until you get to the MACRS and income-tax formulas*. So, type **R** now and each time AppleWorks highlights a cell location *except* for the *No change* cell locations in the accompanying **Table**. At these reference locations press Return.

EDITING A FORMULA

One loose end remains. Copying Formula 6 (MACRS depreciation) enters the wrong percentage in Years 2 and 3. The depreciation allowance is 32 percent in the second year and 19.2 percent in the third year, so edit the formulas: Move the cursor to E34 and press OA-U to start the Edit command. Press the right-arrow key six times to place the highlight on 2. Type **3** (to make it *.32*) and hit Return.

Next, move the cursor to H34 and press OA-U. Press the right-arrow key six times. Type **19** (to make it *.192*) and hit Return again. Press OA-S to store the spreadsheet on disk.

Formula and Line	Reference cells
MACRS Depreciation (E34)	B33
Income Tax (E39)	B39 and C39

Table. *No-change cell locations.*

ENTERING PRACTICE NUMBERS

Figure 1 shows practice numbers. Except for D6, the numbers in column D are the increases projected for Year 2 over Year 1. The number in C6 is the cost of sales in Year 2, not an increase. Including this number in a cell in the *Proj* column instead of in a formula makes it easier for you to change at will, because you don't have to edit the formula.

First, turn off automatic recalculation, which will speed the process of entering the numbers: Leave the cursor where it is and press OA-V. Type **RFM** to select *Recalculate Frequency Manual*.

Now enter the numbers. Place the cursor on B5, type **450000**, and move the cursor to C5. Type **1**, and move the cursor to D5. Type **.2** and move the cursor to the next cell containing a number. Type that number and move the cursor again. Referring to **Figure 1**, continue typing a number and moving the cursor until you enter all numbers. After the last number, press Return.

To keep typing to a minimum, copy the projections you typed for Year 2 into Year 3: Place the cursor on the line in D4 and press OA-C, then hit Return. Press OA-5 to highlight the cells to D21, and

Q&A

CHARACTERS PER INCH

When I print a document from AppleWorks I sometimes want to add "headlines" at four characters per inch, but my ImageWriter II manual doesn't say anything about that. I know it's possible, because I got the ASCII code from a friend, but not the keystrokes AppleWorks needs. What do I do?

Brooks Weisblatt
Cooper City, FL

You need a printer that can produce four characters per inch. The ImageWriter II can print only 9, 10, 12, 13.4, 15, or 17 cpi. To make it print nine characters per inch, its minimum, use the code ***ESC n*** *(decimal 27 110), then access your printer options (Open apple-O, CI, 9). Here's a compromise solution. Try this code:* ***ESC n CONTROL-N*** *(decimal 27 110 14) to make the ImageWriter print "double wide"—4.5 characters per inch (half of nine). Close enough?*□

—Paul Statt, Senior Editor

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hit Return again. Move the cursor to G4 and hit Return again.

Now press OA-K to recalculate the formulas. Move the cursor around the spreadsheet, which should now look like **Figure 2**. Some formulas use the results of other formulas in their computations. When the latter group recalculates, the former doesn't have time to recompute properly. To be sure the results are accurate, recalculate twice each time you alter this spreadsheet.

This spreadsheet is 94 characters wide and prints at 12 characters to the inch. First, set the character size: Press OA-O to bring up the Printer Options screen. Type **CI** to select *Chars per Inch* and press Return. Type **12** and hit Return again.

Next, increase the right margin so that the header page number and date print flush with the right edge of the spreadsheet: Type **RM** and press Return; type **.2**, and hit Return again; now type **TM** to select *Top Margin* and hit Return; type **.5** and hit Return again. Press OA-S to store the settings and return the spreadsheet to the screen.

It's time to print, so turn on your printer. Leave the cursor where it is and press OA-P to bring up the Print screen. Press Return to confirm *All*. Press Return again to identify the printer (or type a printer number, then Return). Type today's date and press Return twice. The printer whirs and here's your spreadsheet.

USING YOUR SPREADSHEET

The percentage cells in columns D and G are your "what if" playground. That's where you make your projections, change them to your heart's content, and see the instant effects on the bottom line. The formulas work equally well whether you enter an increase (for example, **.15**) over the previous year, a zero (**.0**) for no change, or a decrease (**–.15**).

Say you project a 30 percent increase in the cost of sales (not 35 percent as shown in **Figure 1**) and a 6 percent (not 10 percent) increase in office expenses. Try it now. Place the cursor on D6. Type **.3** and move the cursor to D17. Type **.06** and press Return. Press OA-K to recalculate. Except for the income-tax formulas in row 26, the spreadsheet reflects your changes instantly.

	A	B	C	D	E	F	G	H	I
1	September 1988			CASH FLOW ANALYSIS					
2									
3		YEAR 1	P/Sales	Proj YEAR 2	P/Sales		Proj YEAR 3	P/Sales	
4									
5	Cash Sales	450000	1	.2		1			1
6	Cost of Goods Sold	157500		.35					
7									
8	Gross Profit								
9									
10	Cash Disbursements:								
11	Salaries	75000		.1	82500				
12	Payroll Taxes								
13	Rent	18000		.15	20700				
14	Advertising	27500		.15	31625				
15	Loan Repayment	20799			20799				
16	Insurance	15000		.08	16200				
17	Office Expenses	9000		.1	9900				
18	Utilities/Phone	7500		.08	8100				
19	Maint & Repairs	2000		.05	2100				
20	Professional Fees	12000		.1	13200				
21									
22	Total Cash Disbursements								
23									
24	Cash Flow Before Taxes								
25									
26	Less: Income Taxes	22345							
27									
28	Cash Flow After Taxes								
29									
30									
31	WORK AREA								
32									
33	Capital Equip Purchase	200000							
34	Depreciation (MACRS 5-yr)								
35	Principal Repayment	14252			16544			19293	
36									
37	Taxable Income								
38	Income Tax Schedule:								
39	Less than $75,000	50000	75000						
40	$75,000 or more								
41									

Figure 1. *Practice numbers on cash-flow-analysis spreadsheet.*

	A	B	C	D	E	F	G	H	I
1	September 1988			CASH FLOW ANALYSIS					
2									
3		YEAR 1	P/Sales	Proj YEAR 2	P/Sales		Proj YEAR 3	P/Sales	
4									
5	Cash Sales	450,000	100.0%	20%	540,000	100.0%	20%	648,000	100.0%
6	Cost of Goods Sold	157,500	35.0%	35%	189,000	35.0%	35%	226,800	35.0%
7									
8	Gross Profit	292,500	65.0%		351,000	65.0%		421,200	65.0%
9									
10	Cash Disbursements:								
11	Salaries	75,000	16.7%	10%	82,500	15.3%	10%	90,750	14.0%
12	Payroll Taxes	15,000	3.3%		16,500	3.1%		18,150	2.8%
13	Rent	18,000	4.0%	15%	20,700	3.8%	15%	23,805	3.7%
14	Advertising	27,500	6.1%	15%	31,625	5.9%	15%	36,369	5.6%
15	Loan Repayment	20,799	4.6%		20,799	3.9%		20,799	3.2%
16	Insurance	15,000	3.3%	8%	16,200	3.0%	8%	17,496	2.7%
17	Office Expenses	9,000	2.0%	10%	9,900	1.8%	10%	10,890	1.7%
18	Utilities/Phone	7,500	1.7%	8%	8,100	1.5%	8%	8,748	1.3%
19	Maint & Repairs	2,000	.4%	5%	2,100	.4%	5%	2,205	.3%
20	Professional Fees	12,000	2.7%	10%	13,200	2.4%	10%	14,520	2.2%
21									
22	Total Cash Disbursements	201,799	44.8%		221,624	41.0%		243,732	37.6%
23									
24	Cash Flow Before Taxes	90,701	20.2%		129,376	24.0%		177,468	27.4%
25									
26	Less: Income Taxes	22,345	5.0%		11,238	2.1%		16,103	2.5%
27									
28	Cash Flow After Taxes	68,356	15.2%		118,138	21.9%		161,365	24.9%
29									
30									
31	WORK AREA								
32									
33	Capital Equip Purchase	200,000							
34	Depreciation (MACRS 5-yr)	40,000			64,000			38,400	
35	Principal Repayment	14,252			16,544			19,293	
36									
37	Taxable Income				64,953			81,920	
38	Income Tax Schedule:								
39	Less than $75,000	50000	75000		11,238			0	
40	$75,000 or more				0			16,103	
41									

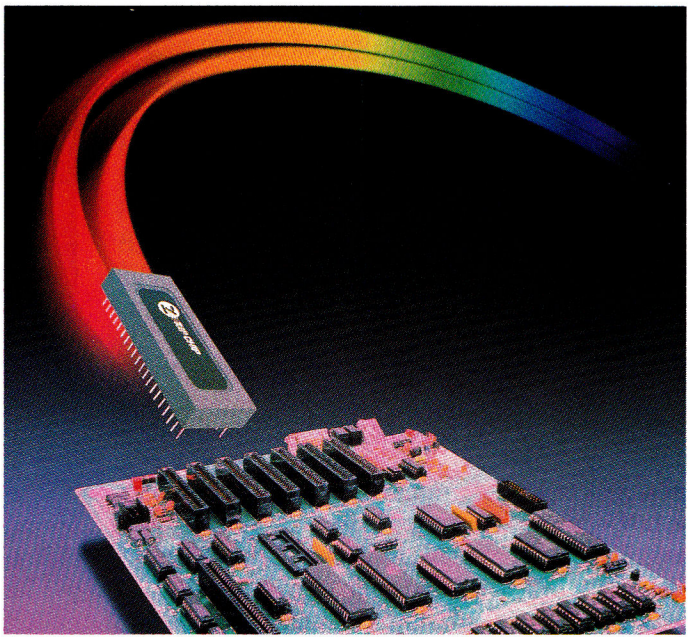
Figure 2. *Completed cash-flow-analysis spreadsheet.*

The income-tax formulas must copy the results of the formulas in rows 39 and 40, so have AppleWorks calculate again: Leave your cursor where it is and press OA-K. The cash-flow spreadsheet is complete and you can experiment with it on your own.

Expanding this spreadsheet to handle four, five, or more years is a simple matter of using the same copy techniques as when you created Year 3.■

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Life Goes On

by Robert M. Ryan

The art and science of programming a computer involves much more than simply stringing language statements together. The most important steps in programming come long before you enter a PRINT or IF/THEN statement.

Before you code a program, you've got to define what you want a program to do, the output the program should produce, and the input necessary to produce that output. Then you have to come up with an algorithm that'll convert the input into the appropriate output. In this month's column, I'll use the electronic game of Life to demonstrate the steps needed to complete a programming project successfully. (Follow along in the accompanying AC/BASIC **Program listing**.)



Jan Muller

Simulating a simple biological system in the game of Life will show you how to define a programming problem and outline the solution.

DEFINING THE PROBLEM

The game of Life is one of the oldest and most fascinating computer games. It was created by John Conway, a British mathematics professor, and popularized in the early 1970s by Martin Gardner in his "Mathematical Games" column in *Scientific American*. Its enduring popularity is a reflection of the complexity and diversity a very simple set of rules can generate.

The game of Life simulates a simple biological system consisting of a grid of cells—you can think of each cell as a biological niche. Each cell therefore has eight neighboring cells; one above, one below, one on either side, and four on the diagonals. At any time, a cell can either contain life or be devoid of life. (It can be either on or off.) Whether a cell is on or off is completely dependent on the following rules of the Life system:

1) If, in the previous generation, the total number of neighboring cells that were on was zero or one, then the cell will be off.

2) If the total number of neighbors with life was two, then the cell maintains the condition, either on or off, that it had in the previous generation.

3) If the total number of neighbors with life was three, then the cell has life in the current generation.

4) If the total number of neighbors with life was four or more, then the cell is off for the current generation.

In the Life system, time is discrete; you measure it in generations. You provide the first generation, called the *parent* or *seed* generation. The rules of the Life system produce subsequent generations; the game's challenge is to create dynamic yet stable systems that last for hundreds of generations. Your challenge is to create a program that adheres to the rules of Life.

SPECIFYING OUTPUT

Since the game consists of a rectangular grid of on and off cells, you can easily represent the output of the program with a window on the IIGS graphics screen. To keep generation-processing time short, I use a window that's smaller than the screen. Whenever a cell is off, I leave it blank on the output display. When a cell is on, I represent it with an asterisk.

The big question, of course, is how to generate output. You achieve this by examining the Life universe and printing asterisks wherever you find life. For this you need an internal representation of the Life universe; you'll find it in two arrays, parent% and filial%, both two-dimensional.

Parent% contains the current condition of the Life system. To create the next generation, your program examines each cell in parent% according to the rules of Life, then stores the results in filial% and displays them in the output window. The program then copies filial% into parent% and repeats the process.

The exact representation of the Life universe in an array is quite simple: Each element of parent% and filial% corresponds to a cell in that universe. If an array element such as (5,13) contains a 0 (zero), then that cell doesn't contain life, and the corresponding location in the output window will be blank. If the element contains a 1 (one), then the cell has life, and the corresponding location on the output screen contains an asterisk.

To generate the output of the Life program, you simply test the elements of the output array (filial%) and print a blank where the array value is 0, and an asterisk where the value is 1.

PROGRAM INPUT

Because both arrays are initialized to 0, you need some way to seed the system with life. I use a very primitive seeding routine

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in my program. I could have trapped menu and mouse events, but they slow down program execution, and I wanted to produce generations as fast as possible.

To speed up the process, my program lets you seed 12 cells with life by simply clicking on them with the mouse. The program polls the mouse and puts a 1 into the parent% array element that corresponds to the output location you clicked. You can change the number of seeds or modify the seeding routine entirely if you like.

INPUT TO OUTPUT

Once you have the seed, you must process the next generation. I use nested FOR/NEXT loops to add the values of the neighbors of each cell in the parent% array. I then apply the system rules in series of IF/THEN statements to see whether the corresponding cell in filial% is on or off.

"The game of Life is one of the oldest and most fascinating computer games. Its enduring popularity is a reflection of the complexity and diversity a very simple set of rules can generate."

Ideally, the Life system is infinite. Unfortunately, your output window isn't. The easiest way to handle the borders of the display is to keep track of one row or column of cells outside the visible display and to ignore what happens beyond these boundary rows and columns. Thus, although my arrays start with element (0,0), I don't display row 0 or column 0. They're present in the Life universe, so all displayed cells have eight neighbors.

Program listing. *The game of Life.*

```
rem IIGS Game of Life by Bob Ryan
rem Copyright 1988, inCider
rem A/C BASIC compile with c, m, and u options

dim parent%(61,15), filial%(61,15)
window 1,"life",(44,80)-(464,192)
menu 1,0,1,"project"
menu 1,1,1,"quit"
menu 2,0,0,""
gen% = 1
gosub GETSEED

LOOP:
  gosub SWAPIT
  gosub COMPUTE
  gosub DISPLAY
  gosub SWITCH
  if menu(0) <> 0 then
    locate 1,1
    print "Total number of generations: ";gen%
    delay! = timer
    while timer < delay! + 3
    wend
    stop
  end if
  gen% = gen%+1
goto LOOP

DISPLAY:
  cls
  for y% = 1 to 14
    for x% = 1 to 60
      if filial%(x%,y%) = 1 then
        locate y%,x%
        print "*";
      end if
    next x%
  next y%
return

SWITCH:
  for x% = 0 to 61
    for y% = 0 to 15
      parent%(x%,y%) = filial%(x%,y%)
    next y%
  next x%
return

GETSEED:
  c = 0
MLOOP:
  delay! = timer
  while timer < delay! + 1.25
  wend
  if mouse(0) = 0 then MLOOP
  col% = int(mouse(5)/8+.5)
  row% = int(mouse(6)/8+.5)
  locate row%,col%
  print "*";
  parent%(col%,row%) = 1
  c = c + 1
  if c = 11 then return
goto MLOOP

SWAPIT:
  for x% = 0 to 61
    parent%(x%,14) = parent%(x%,0)
    parent%(x%,1) = parent%(x%,15)
  next x%
  for y% = 0 to 15
    parent%(1,y%) = parent%(61,y%)
    parent%(60,y%) = parent%(0,y%)
  next y%
return

COMPUTE:
  for x% = 1 to 60
    for y% = 1 to 14
      sum1% = parent%(x%-1,y%) + parent%(x%,y%-1) + parent%(x%+1,y%)
      sum2% = parent%(x%,y%+1) + parent%(x%-1,y%-1) + parent%(x%+1,y%-1)
      sum3% = parent%(x%-1,y%+1) + parent%(x%+1,y%+1)
      sum% = sum1% + sum2% + sum3%
      if sum% = 2 then
        filial%(x%,y%) = parent%(x%,y%)
      elseif sum% = 3 then
        filial%(x%,y%) = 1
      else filial%(x%,y%) = 0
        end if
    next y%
  next x%
return
end
```

End

It's a simple solution, but it's not very satisfying. A better method, the one I use in the listing, is to make the Life system *toroidal*—that is, to make it wrap around itself so that the top row of cells borders the bottom row and the left side borders the right. This way, the Life system is completely self-contained.

Achieving a toroidal effect is quite simple—I use a *swap* routine. Here, after the program calculates a generation, displays it, and copies it back to the parent% array, I copy the top visible row of cells to the boundary row at the bottom of the system and the last visible row to the boundary row at the top. I perform a similar swap between the left and right sides. The result, in effect, is that each of the visible cells around the border of the window has eight neighbors, and their invisible neighbors come from the opposite side of the display.

IMPLEMENTATION

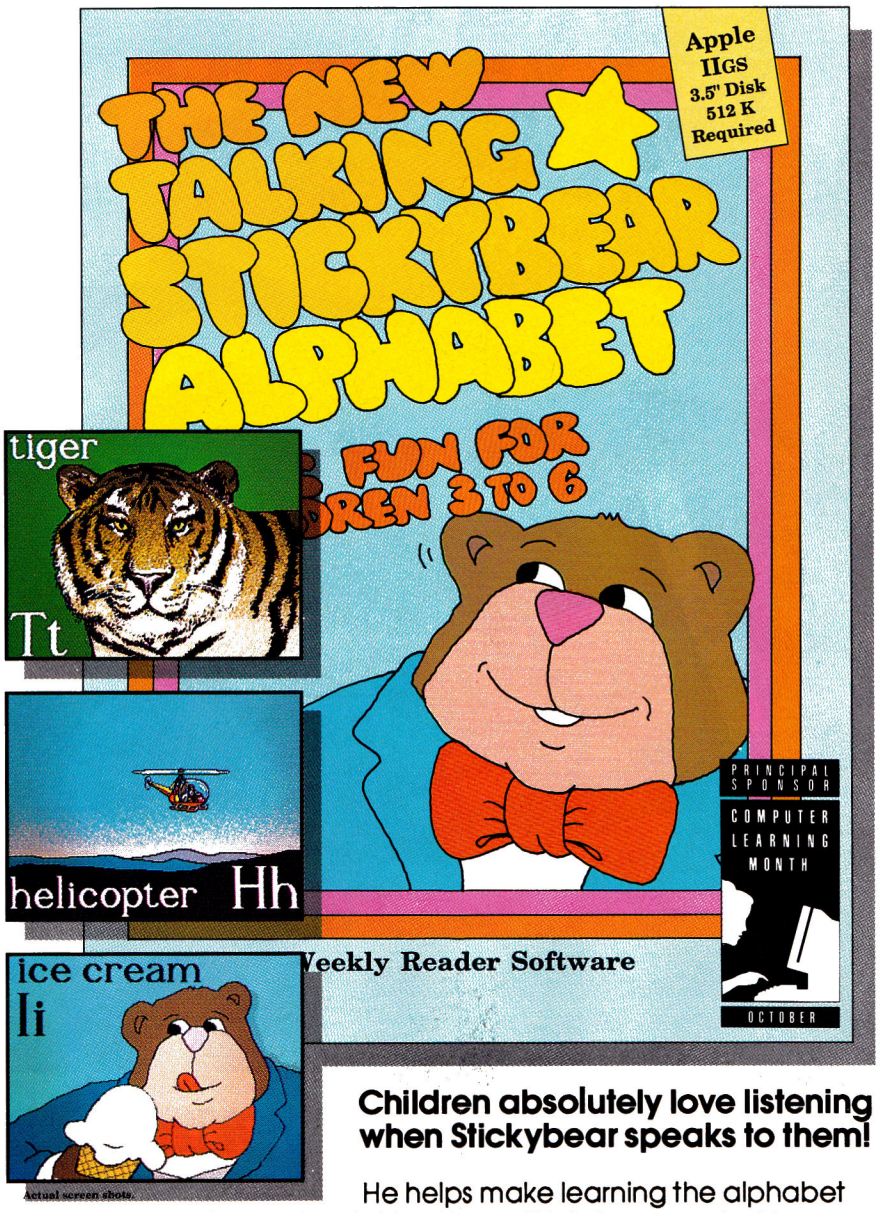
Once you know what your output should look like, what the input is, and how you get from one to the other, you can begin to write the program. The accompanying **Program listing** contains the code I wrote to create the Life system.

Enjoy the game of Life, and note carefully how I implemented the steps described above. Because of space constraints, I wasn't able to add a lot of chrome to this program, such as succeeding generations displayed in different colors. If you want to see how I implemented color and event trapping in version 2 of the program, download the file **life.extra** from the *inCider* bulletin-board system (603-924-9801). I'll also post the printed edition on *inCider*'s BBS.

Remember, you can't code a program you haven't thoroughly thought through. Save yourself a lot of work coding and debugging by putting your effort into defining your problem. You'll be a faster and better programmer for it.■

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

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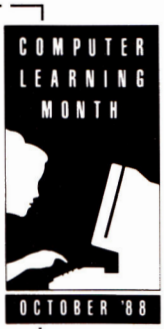
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by Cynthia E. Field, Ph.D.

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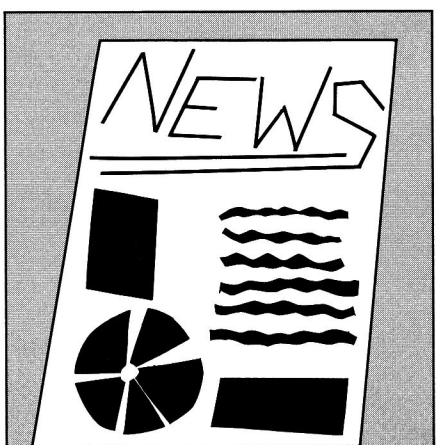
THE KISS TECHNIQUE: KEEP IT SIMPLE, SWEETHEART

However high your aspirations, let's start by designing a one-page newsletter. (We'll create templates for more elaborate desktop-publishing endeavors in future columns.) It involves a three-step process, which you can speed up considerably by doing some careful preparation. You'll first create a pencil sketch from which to design your template and, consequently, your newsletter. Once you've designed your newsletter's template, you simply include the new text and graphics for every issue.

For this project I used Timeworks' **Publish It!**, a program that makes a 128K Apple II work like a Macintosh; Publish It! has windows, icons, and pull-down menus and requires the mouse. If you use a different page-layout program, you may have to adapt some of the procedures outlined here. Fundamental concepts remain the same, though.

FIRST THINGS FIRST

Before you begin to play with a desktop-publishing program's design tools, take a pencil and a blank piece of paper and sketch the tentative layout of your newsletter-to-be. Use a ruler to keep track of sizes of areas where you'll place titles, columns, and graphics.



Roll the presses! With Publish It! you do more than just report the news, you make *the news.*

Jan Muller

One warning: Don't get too fancy. At this stage, you want to look at the forest more than the trees. Try to balance text, pictures, and headlines so that no feature overpowers the other two. Once you've laid out the elements on paper and have an idea of their respective dimensions, you can rev up your mouse.

OBJECTS GALORE

Publish It! treats whatever you put on the page as an "object." Text areas, clip art, lines, rectangles, and circles are all objects—like stickers you can remove, replace, move, stack, show, or cover up. Objects make page layout easy and object editing (read "changing your mind") a snap. But they also make the process rather slow. That's why you'll save time in the long run by designing a template now; you won't have to move text or picture objects around the screen every month.

Use the program's shape and area tools along with its "rubber-band" capability to draw and place the objects you want. For example, positioning the mouse on the screen page, press the mouse button to mark the upper left-hand corner of the round rectangle surrounding my prototype newsletter's title area. (See the accompanying **Figure**.) Drag the mouse down, then across the screen page to the right (using the on-screen rulers as guides) until the round rectangle is the desired size (about 2 inches high and 7 inches wide). Release the mouse button to drop the object in place.

SPECIFICATIONS

Of Publish It!'s many attractive features, "show specifications" is invaluable. Listed under the Objects pull-down menu, the specifications feature opens up a dialog box with precise dimensions for any selected object: left starting point, top starting point, width, and height.

What's handy about this feature is that if your column width, say, is "off" a fraction of an inch, you don't have to fool around with the mouse to adjust it visually (though you can if you want). Instead use "specifications" and type in the desired dimensions—to three decimal places' precision! Publish It! resizes the object for you automatically.

The accompanying **Table** summarizes my prototype newsletter's areas and specifications. These are guidelines to help you set up a newsletter like that shown in the **Figure**.

Remember, with Publish It! you can delete any object easily by first activating it with the pointing tool and a mouse



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click, then selecting *Cut* from the Objects pull-down menu. You can move any object by similarly activating it and then dragging it into its new position. For starters, copy my format, then improve it as you go along. Feel free to send me samples of your work. (I *love* to read, and any subject interests me—I think.)

STACKING OBJECTS

One of the basic tenets of newsletter design with a program like Publish It! is that you stack objects as you would pancakes. For instance, before you type the newsletter's title and subtitle, you need to create separate text areas on top of the round rectangle you've already put in place.

Select Publish It!'s text tool. "Rubberband" a text area within the round rectangle. Then add another, smaller text area to accommodate the subtitle. These three layered objects (a round rectangle, a larger text area, and a smaller one) compose the title-area unit.

Whenever you make a significant change to your page, always save the new, improved layout. Designing an attractive newsletter style sheet can be time-consuming—and a little tedious. This is especially true with the unaccelerated IIe or IIc running from a floppy disk. You don't want to subvert your accomplishment by neglecting to save the work in progress frequently.

Add the newsletter's three columns (text areas) and the graphics area. Ignore the Pull Quote and Information Box objects for now. Size and position the columns and the graphics area with the mouse and screen rulers. Use "specifications" to fine-tune the layout.

FILLING IN THE BLANKS

For my 13-character title, I selected Publish It!'s Wilmette font in 72-point size to accommodate as many as 16 characters. To try other sizes, select any font and size. Type in as many characters as the program allows. (It will "beep" you when you're out of room.) Count these test characters as you go and delete them afterward.

When you've found an appropriate font and size, select the I-beam tool and place it in the upper-left-hand corner of the text area. Type your newsletter's title. Experiment with styles (under the Font pull-down menu). For my title, I selected Shadow and Italic, but Plain and Outline or Plain and Italic combinations look good, too. Highlight the title by simply dragging the I-beam tool across it with the mouse. Pull down the Font menu and click on the style you want.

For my subtitle (with information about the publisher, the issue, and the date), I selected 10-point Wilmette in a plain type style. Newsletter experts counsel that it's best to use no more than one or two different typefaces on a page. For example, try one for text and another for titles and captions. Additional typefaces can be distracting to the reader. Lest we forget while we're having all this fun, the essential purpose of a newsletter is to communicate, right?

The Publish It! manual includes an appendix with examples from its six font libraries. If your desktop-publishing program's documentation lacks this information, create samples of different fonts by printing them. It's a lot easier to see fonts on paper than on screen.

Center-, left-, or right-justify the title and the subtitle by highlighting the text and accessing the *Justification dialog* from the Format pull-down menu.

To further enhance the title of my newsletter, I drew a heavy line under the word *Plus* and a thinner one under the whole subtitle. Set line thickness via the Object menu and draw the line with Publish It!'s straight-line tool.

Okay, you've finished your title and subtitle. You've defined your columns with the text tool and your graphics area with the graphics-area tool. Save this layout. It's your template—the blank pages you'll start with as you prepare to publish each succeeding issue of your newsletter. Most of your layout work is done.

GETTING THE PICTURE

Since my newsletter involved real estate, I chose a *house* graphic from Publish It!'s clip-art library. Select any graphic that characterizes *your* theme. The program lets you crop a graphic to fit any previously defined graphics area, but you may find you have to enlarge or reduce the area a bit to accommodate a piece of clip art that's

Table. *Start-up specifications for objects used in newsletter template (all dimensions in inches).*

Objects	Tool	Left	Top	Width	Height
TITLE					
Round Rectangle	Shape	0.250	0.573	7.500	2.000
Title	Text	0.497	0.687	7.000	1.700
Subtitle	Text	0.748	2.047	6.500	0.250
BODY					
Column 1	Text	0.175	2.750	2.500	6.000
Column 2	Text	2.730	2.750	2.500	7.500
Column 3	Text	5.269	2.750	2.500	7.500
GRAPHIC					
Clip Art	Graphic	0.191	9.006	3.308	1.597
PULL QUOTE					
Pull Quote Shadow	Shape	5.961	6.373	1.722	1.147
Pull Quote Box	Shape	5.765	6.133	1.722	1.147
Pull Quote Text	Text	5.923	6.404	1.444	0.851
INFORMATION BOX					
Information Box	Shape	5.263	9.151	2.527	1.438
Information Text	Text	5.355	9.293	2.362	1.130

larger or smaller than anticipated.

Unless you tend to be compulsive, don't type the majority of your newsletter's text with Publish It! It's a drag—literally. You have to slide the program's scroll bars constantly to find your typing location. Instead, use the AppleWorks (or another) word processor to type, edit, and check the spelling of the body of your newsletter.

Because Publish It! reads AppleWorks word-processing files (AppleWorks, Bank Street Writer, and ProDOS ASCII text files) directly, it can transform AppleWorks' underline and boldface commands into a WYSIWYG (what-you-see-is-what-you-get) display. Nevertheless, I prefer to save "finishing touches" for Publish It!; I type text in AppleWorks and forego formatting until later on.

A 1½ page (3K) AppleWorks word-processing file fits nicely into this simple, three-column newsletter when you use the 10-point Deerfield font for the body of your work.

Select Publish It!'s linking tool and click on the newsletter columns one by one in the order in which text should flow. Pull down the File menu and import the desired AppleWorks file, then sit back and watch the text flow into place, column to column, automatically.

Nothing grabs the reader's attention like a highlighted quotation extracted from the body of your text. You can put one of these pull quotes into a box to make it stand out, but how about adding a shadow under the box to make the quote jump right off the page?

Create a shaded rectangle with the rectangle tool. Select any fill pattern from the dialog accessed via the Objects pull-down menu. Continue using options listed in this menu to *Copy* the rectangle, to change the fill pattern to solid white color, and to *Paste* the copy—shifted up and to the left of the original.

Next, add a text area on top of the "white" rectangle. Using the I-beam tool, drag the mouse over the quote you want to pull. Select *Copy* from the Edit menu. Position the I-beam tool in the pull-quote box's text area. Pull down the Edit menu and select *Paste*. Voilà!

This final design stage is where I like

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Dial lists	unlimited	16	—
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Load/Save AppleWorks™ files	Y	N	N
Editor commands	42	12	14
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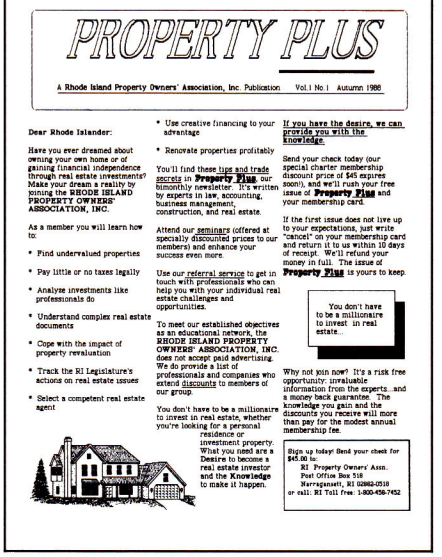
Reader Service Number 308

to add finishing touches such as underlining and boldface. For my real-estate newsletter, I decided to add an information box at the bottom of the third column. If you anticipate each issue having a similar box, you can add it to the basic template you've saved on disk.

Use the rectangle tool to create the box's border. Select a thicker line weight and a shaded pen pattern (you can find both features under the Objects menu) to make your box prominent. Next use the text tool to define a text area within the box. Position the I-beam tool and type the information you want. If you don't have enough room for this text, enlarge the area (you'll have to enlarge the box it's in, too) or try a smaller type style.

The secret's out—you don't have to be Henry Luce or William Randolph Hearst to produce a top-notch publication. Begin thinking in terms of a fluid page on which you can float objects and layer one (or more) atop another. Understand Publish It!'s flexibility, and you'll be off and running—the presses, that is.■

Figure. Final newsletter.



PROPERTY PLUS

A Rhode Island Property Owners' Association, Inc. Publication Vol.I No.1 Autumn 1988

Dear Rhode Islander:

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Cynthia E. Field is a contributing editor and the author of Field Trip, inCider's *column on educational software. Write to her at 60 Border Drive, Wakefield, RI 02879. Enclose a self-addressed, stamped envelope if you'd like a personal reply.*

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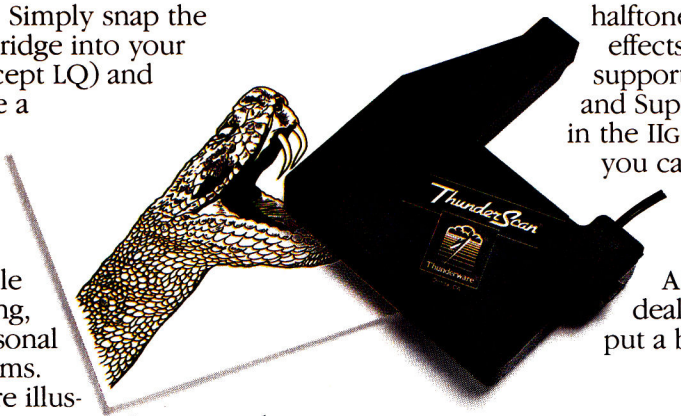
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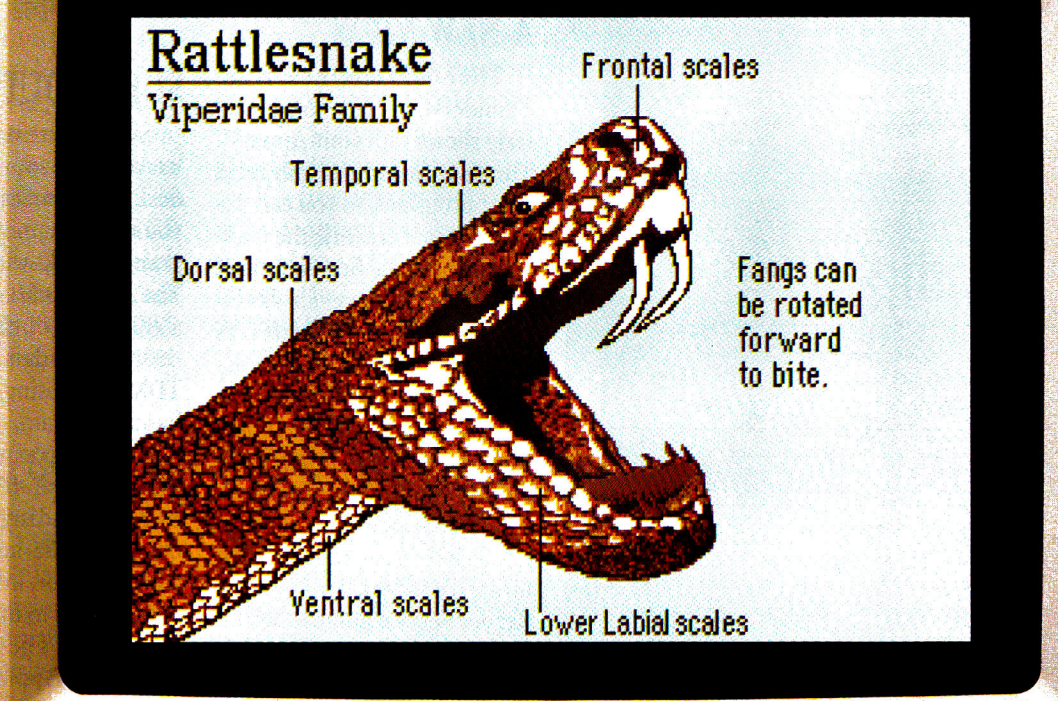


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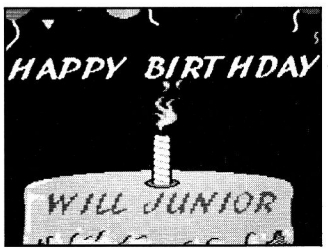
NEW PRODUCTS

edited by Pat Payne

Software

BEST BUDDIES

VCR Companion lets you create titles, graphics, credits, introductions, intermissions, and endings for your **videotapes**. With more than 120 design elements to choose from, including fonts, icons, borders, and animation, you can liven up your movies for $49.95. For more information, contact Broderbund Software at 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3200 or (800) 527-6263.



Create an Oscar-caliber flick with VCR Companion's design elements.

SAVE THE WORLD

Who'll Save Abacaxi? is a **political simulation** that puts kids in the hot seat as president of a hypothetical third-world country. The program is designed for students in grades 7–12 who'll have to deal with problems such as illiteracy, unemployment, and overpopulation. The program package includes maps, a presidential profile, and primary source documents. Free backup disks are included, and quantity discounts are available from Focus Media, Inc., P.O. Box 865, Garden City, NY 11530, (800) 645-8989, or (516) 794-8900. Circle Reader Service number 352 for more information.



Students grapple with political issues and global concerns in Who'll Save Abacaxi?

OCCIDENTAL ACCIDENT

Move over, Ouija board! Now Tao Master lets you play the ancient Chinese fortune-telling system **I Ching**, or Book of Changes, on your computer. Translating the Chinese yin and yang into binary code, your Apple throws six on-screen coins to create a hexagram and provide an answer to your question, according to the program's developers.

Tao Master is available from Intervision Software Company, 2402 Shenandoah Street #7, Los Angeles, CA 90034, (213) 836-4643, for $19.95. Circle Reader Service number 360 for more information.

A NEW VIEW

ThunderView, new from ThunderWare, lets you create **slide shows** with your Apple II. The program works with most paint programs, so you can display original artwork; the package includes the first volume of the Image Library, an assortment of clip-art graphics, as well. Two versions are available—one for the GS and one for the rest of the Apple II family. ThunderView is priced at $39.95 from ThunderWare, Inc., 21 Orinda Way, Orinda, CA 94563, (415) 254-6581. For more information, circle Reader Service number 361.

START MAKING SENSE

If balance sheets baffle you, Professional Software has help in store for you—a new software package designed to help you learn **accounting basics**. Pro Tutor Accounting uses a question-and-answer format and keeps track of incorrect answers.

The program's 3000 questions cover six areas—debits and credits, the accounting equation, bank reconciliation, journals, trial balances, and entry adjustment. Two versions of Pro Tutor Accounting are available: The home and business edition is $99; the educational version, which tabulates student test scores, is $249. For more information, contact Professional Software, Inc., 51 Fremont Street, Needham, MA 02194, (617) 444-5224 or (800) 343-4074, or circle Reader Service number 362.

SUPER DUPER!

Super Accessories #1 will let you use your IIGS' **classic desk accessories** even when you're in the middle of a program. It works with On Three's The Desktop Manager (TDM), a collection of classic desk accessories: It lets you call up TDM while using any ProDOS-based program.

Super Accessories #1 also offers several features of its own, including a file-type changer, a character ruler, and a block editor, in AppleWorks-style folders to make them easier to use. The program requires an Apple IIGS or an Apple IIe with GS upgrade, 512K, one 3½-inch drive, and TDM's main accessories. Super Accessories is available for

$39.95 from On Three, Inc., 4478 Market Street, Suites 701-702, Ventura, CA 93003, (805) 644-3514. Circle Reader Service number 363 for more information.

HOLDING HANDS

Now you can turn your Apple II into a DEC VT220 terminal. Modem MGR, a new telecommunications package, lets you use your IIc, IIe, or GS to **communicate with a VAX mainframe**. In addition, MGR includes a setup program to define keypad keys on the IIc and IIe, since the mainframe doesn't automatically recognize the 8-bit machines' number keys. (The system recognizes the IIGS numeric keypad automatically as a VT220 keypad.)

The emulation package supports many sophisticated terminal features, including reverse screen and programmable answerback. Modem MGR is available for $49.90 plus $3 shipping from MGR Software, Suite 101, 305 South State College Boulevard, Anaheim, CA 92806, (714) 993-0294. Circle Reader Service number 364.

LOOKING GOOD

Image Master:Basic Paint lets you use **136 colors** on screen at a time. It has 64 built-in palettes, and you can create as many more palettes as you want. Image Master:Basic Paint requires an Apple IIGS with 512K and an RGB monitor. The program comes with a 30-day guarantee. It's available for $44.95 from Jada Graphics, Inc., 7615 South 48th Street, Omaha, NE 68157, (402) 733-8028 or (800) 634-4552. For more information, circle Reader Service number 365.

MAKING TRACKS

Master Tracks Jr. is a **lower-cost version** of Passport Designs' Macintosh program, **Master Tracks Pro**. Featuring 64 recording tracks, a conductor track for continuous tempo control throughout a composition, automated punch-in and punch-out recording, and tape recorder-style controls, Master Tracks Jr. is designed to be easy to use. Because it supports the MIDI file format, you can share files with other sequencing programs.

Master Tracks Jr. requires an Apple IIGS with a Passport (or compatible) MIDI interface. At $149.95, the package also includes *A Passport to MIDI*, a free booklet for beginners. Contact Passport Designs, Inc., 625 Miramontes Street, Half Moon Bay, CA 94019, (415) 726-0280, or circle Reader Service number 357 for more information.

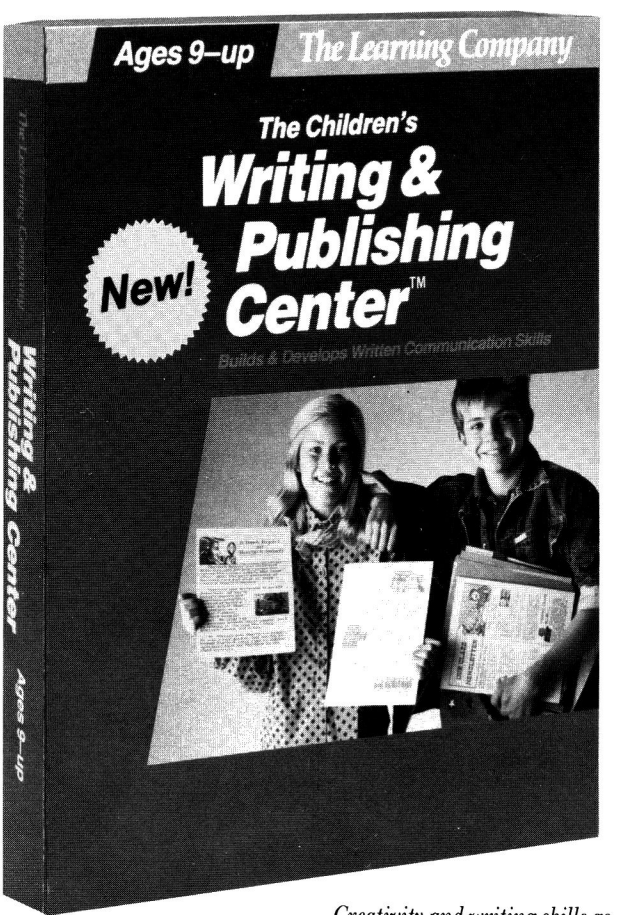
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FastData Pro requires at least 64K and sells for $49.95, plus $3 shipping and handling. Include an additional $2 for a 3½-inch disk. For more information, contact FastFind Company, 28503 Coveridge Drive, Rancho Palos Verdes, CA 90274, (213) 544-2350, or circle Reader Service number 390.

CHILD AUTHORS

Help children develop their **writing skills** with The Children's Writing and Publishing Center, a package that includes both word-processing and desktop-publishing features. The program aims to make writing fun by stimulating students' creativity. Kids can produce illustrated reports, stories, and newsletters. The program is available in two versions—the consumer edition is priced at $59.95 and the school edition, which has more supplemental information, sells for $79.95. Contact The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555, (415) 792-2101, (800) 852-2255, or circle Reader Service number 391.



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NEW PRODUCTS

Product Updates

•**Managing Your Money version 3.0** is now available from MECA Ventures. It supports the new federal tax structure fully and can export data to AppleWorks. Other new features include improved loan handling, daily appointment tracking, improved net-worth reports, and editing of archived transactions. Version 3.0 is available for $39.95 to registered owners of version 2.0. Otherwise, the price is $149.95. (Add $2.50 for shipping and handling.) For more information, contact MECA Ventures, Inc., 355 Riverside Avenue, Westport, CT 06880, (203) 226-2400.

•The price of **Activision**'s **Paint Write Draw** combination has been reduced to $129.95 through December 31, 1988. The package includes Paintworks Plus, Writer's Choice Elite, Draw Plus, and Clip Art Gallery. For more information, contact Activision at 3885 Bohannon Drive, Menlo Park, CA 94025, (415) 329-0500.

•**Sierra On-Line**'s **Mixed Up Mother Goose** is now available in an Apple IIGS version, featuring digitized sound effects and voice synthesis. It's available for $29.95 from Sierra On-Line. For more information, contact the company at P.O. Box 485, Coarsegold, CA 93614, (209) 683-4468.

•**Data East** is now offering two of its most popular programs, **Karate Champ** and **Kung Fu Master**, as a package for $14.95. For more information, contact Data East, 470 Needles Drive, San Jose, CA 95112, (408) 286-7074.

•**Simon & Schuster** is now offering a Lab Pack version of **Typing Tutor IV**. The package contains five copies of the program and one set of documentation for $150. (Educational discounts are available.) For more information, contact the company at 1 Gulf & Western Plaza, New York, NY 10023, (212) 373-8500.

•**Broderbund Software** has lowered the price of its touch-typing instruction program **Type!** The consumer version now retails for $26.95; the school edition is priced at $36.95; and the lab pack is $73.95. For more information, contact Broderbund Software Inc., 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3200.

•Mindscape will publish Strategic Simulations' backlist of **strategy and simulation games**. Look for the first releases to be Fortress, Battalion Commander, Nam, and Geopolitique 1990. Game enthusiasts can contact Mindscape, Inc., at 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667.

•Houghton Mifflin has revised its **Guidance Information System** (GIS), which helps high-school students choose colleges and careers. GIS now has a tutorial and help screens. The new version also lets you look through occupation files while you're browsing through college files. For more information, contact Houghton Mifflin Company, Educational Software Division, P.O. Box 683, Hanover, NH 03755, (603) 448-3838.

•J & S Software has updated the **J & S Gradebook**. Version 5.4.1 can print student averages and total points and lets teachers create their own progress reports. The company has also updated Biology Test Maker and Earth Science Test Maker. Now running under ProDOS, these test generators can create exams more quickly. For more information, contact J & S Software, 135 Haven Avenue, Port Washington, NY 11050, (516) 944-9304.

•Optimum Resource's **Weekly Reader Software** line is now available on 3½-inch disks. Customers who already own these programs' 5¼-inch versions can trade them for the new disk format. Contact Optimum Resource, Inc., at 10 Station Place, Norfolk, CT 06058, (203) 542-5553 or (800) 327-1473.

•MiccaSoft has updated **The Invoicer with Accounts Receivable** to include 40 new features and reduce its time performing routine tasks. For more information, contact MiccaSoft Update Department, 406 Windsor, New Braunfels, TX 78130, (512) 629-4341.

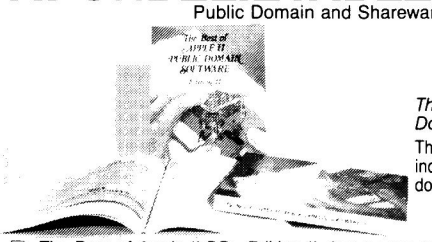
•Abracadata has updated **Design Your Own Home: Interiors** and **Design Your Own Home: Landscape** to include several new features and a friendlier user interface. Start your fall projects by contacting the company at P.O. Box 2440, Eugene, OR 97402, (503) 342-3030.

•All of **Davidson & Associates'** educational software is now available on **3½-inch disks**. The company will exchange program disks free for customers who buy new computer systems with 3½-inch drives. For more information, contact Davidson & Associates, Inc., 3135 Kashiwa Street, Torrance, CA 90505, (213) 534-4070.

•**ASCII Express MouseTalk** is now available in a new version that supports DEC VT-100 terminal emulation, high-speed modems, and Binary II protocol transfer. For more information, contact United Software Industries, 8399 Topanga Canyon Boulevard, Suite 200, Canoga Park, CA 91304, (818) 887-5800.

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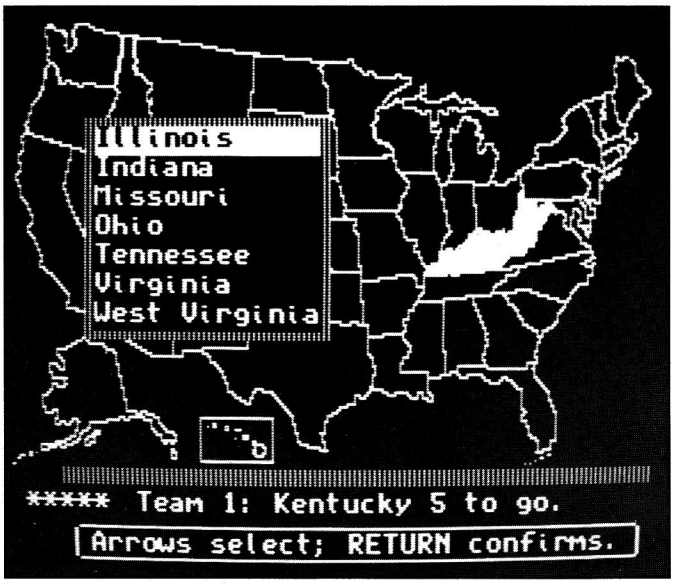
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Learning U.S. geography is a shared experience with National Inspirer.

THE WHAT?

The National Inspirer is a new **U.S. geography** program for kids in grades 5–12. Designed for kids to use in groups rather than individually, the program encourages cooperative learning. In addition to teaching geographical facts, The National Inspirer helps kids improve their map-reading skills, learn how to work within a group, and research information. Available from Tom Snyder Productions, the program sells for $69.95. Contact the company at 90 Sherman Street, Cambridge, MA 02140, (617) 876-4433, or circle Reader Service number 392 for more information.

USEFUL UTILITIES

With The Graphics Manager, you'll have 12 utilities to help you manipulate **hi-res, double-hi-res, and Dazzle Draw graphics**. The program also provides a utility to help you print on your ImageWriter II in single colors other than black with almost any program.

Retailing for $29.95 plus $3 shipping and handling, The Graphics Manager is available from Kraig D. Pritts Data Services, 76 West Elizabeth Street, Skaneateles, NY 13152, (315) 685-5130. For more information, circle Reader Service number 393.

BASICALLY SMART

AV Systems' BASIC Artificial Intelligence is a disk and book set that uses BASIC programming to teach the fundamental principles of **artificial intelligence**. The disk contains nine different programs with documentation included; the book provides additional explanations of the programs, including one that even navigates a robot destroyer. The BASIC Artificial Intelligence Set retails for $19.95 from AV Systems, 1445 Estrella Boulevard, Santa Barbara, CA 93110, (805) 569-1618. Circle Reader Service number 394 for more information.

Resources

EDUCATED DECISIONS

The booklet ***A Guide to Selecting Educational Software*** answers common questions about the software your kids will use. It's available free from Mindscape, Inc. For organizations and institutions needing 100 or more copies, the company will charge a small fee (10–15 cents per copy, depending on the exact quantity). To order, send a stamped, self-addressed, business-sized envelope to Educational Software Guide, Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062. For more information, circle Reader Service number 395.

WHAT'S NEW

What's new in the world of **public-domain software**? Find out with the Big Red Computer Club's free public-domain-software catalogue featuring descriptions of all programs in the club's library, plus telephone technical support. Contact the Big Red Computer Club at 423 Norfolk Avenue, Norfolk, NE 68701, (402) 379-4680, or circle Reader Service number 396 for more information.

TOO CLOSE FOR COMFORT

The *Computer Encounters Series* for **beginning computer users** is devoted to helping novices through various areas of computer use. Volume 1 contains basic information about buying a personal computer; Computer Encounters 2 covers the dos and don'ts of using a computer system; volume 3 provides specific information about using an Apple II; and 4 teaches you the basics of programming an Apple II. Each book comes with a pocket-sized dictionary that defines the terms discussed in that volume. Computer Encounters 3 and 4 come with a disk of sample programs, as well. The first two volumes are available for $14.95 each; 3 and 4 are priced at $29.95 apiece. For more information, contact Insight Data, P.O. Box 8829, Albuquerque, NM 87198, (505) 888-4410, or circle Reader Service number 369.

Hardware

REMEMBER WHEN

With GS Juice Plus, you can expand your **GS' memory** even further. The GS Juice card, which is compatible with DMA devices, holds up to 4 megabytes. You can also use it with the Memory Saver to give you 8 megabytes. The package includes Diversi-Cache and a memory diagnostic program. GS Juice Plus is currently priced at $75 with zero kilobytes and $499 with 1 megabyte from Applied Ingenuity. (Call to check current prices.) For more information, contact the company at 14922M Ramona Boulevard, Baldwin Park, CA 91706, (818) 960-1485, (800) 346-0811, or circle Reader Service number 356.

GET A GRIP

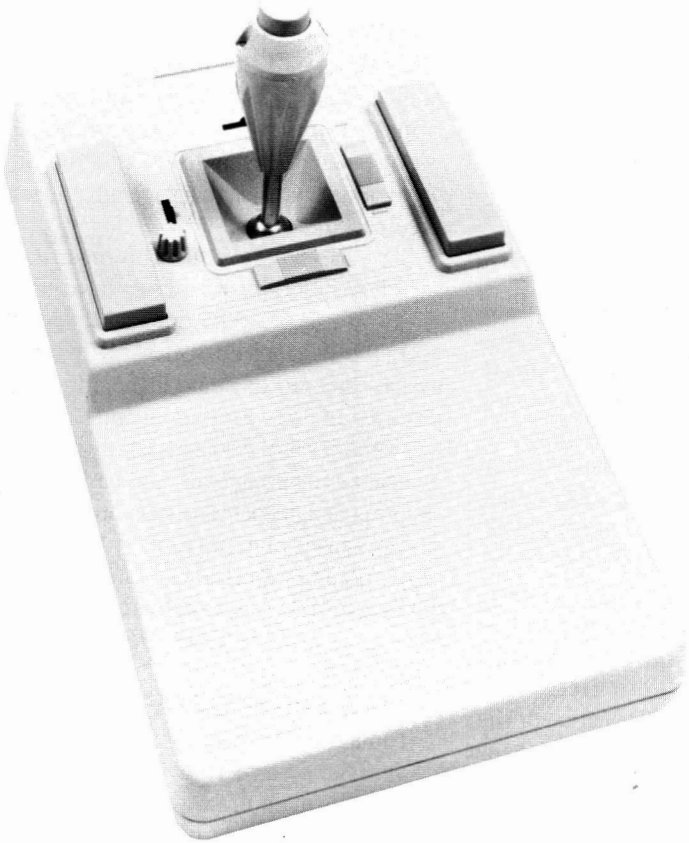
If you need more precise control for applications such as desktop publishing and game playing than your mouse provides, take a look at CH Products' Mach IV Plus. Using the Mach IV Plus in absolute mode, the product **simulates a mouse** you can use with all Apple IIs. It also has three rate modes—slow, medium, and fast—in which the cursor moves in the same direction as the joystick handle. The further the stick handle moves from the center, the faster the cursor goes. The Mach IV Plus plugs directly into any Apple except the unenhanced IIe, which requires a mouse port. CH Products sells the Mach IV Plus for $89.95. Contact the company at 1225 Stone Drive, San Marcos, CA 92069, (619) 744-8546, or circle Reader Service number 358.



Protect your keyboard from drips and spills with SafeSkin.

THIN SKINNED

Protect your computer **keyboard** from coffee spills and other hazards with SafeSkin, a thin, flexible **plastic cover** that stays on while you use your Apple. Retailing for $29.95 and made for the entire Apple II family, SafeSkin is available from Merritt Computer Products, Inc., 4561 South Westmoreland, Dallas, TX 75237, (214) 339-0753. For more information, circle Reader Service number 359.



Enjoy more control over your programs with the Mach IV Plus, a combination mouse and joystick.

NET NEWS

QuikNet is a new **cabling system**, designed as an alternative to AppleTalk, consisting of adapters that attach to each computer and peripheral you're networking. The adapters convert the computers' signals for data transmission over modular, telephone-style cables and existing phone-system wiring.

QuikNet adapters, including six feet of modular cable and either a DB-9 or 8-pin mini DIN connector, are available for $59. For more information, contact Belkin Components, 14550 South Main Street, Gardena, CA 90248, (213) 515-7585, or circle Reader Service number 401.

ON TIME

Applied Time, new from Applied Ingenuity, will help your Apple II keep track of the **date and time**. This clock/calender card can time- and date-stamp AppleWorks and ProDOS files, and also lets you set the time and date from the keyboard without changing any DIP switches.

Applied Time is available for $49 from Applied Ingenuity, 14922M Ramona Boulevard, Baldwin Park, CA 91706, (818) 960-1485, (800) 346-0811. For more information, circle Reader Service number 402.

ON SCREEN

The PCV 6420AV is a new low-cost **microcomputer viewer** from In Focus Systems. When attached to an overhead projector, it displays computer images and data, producing a resolution of 640 by 200 pixels. It features both RGB and composite-video inputs and is compatible with the entire Apple II family. The PCV 6420AV PC Viewer is available for $895 from In Focus Systems Inc., 7649 Southwest Mohawk Street, Tualatin, OR 97062, (503) 692-4968, (800) 327-7231. Circle Reader Service number 403 for more information.

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

Space Odyssey

by Cynthia E. Field, Ph.D.

Maybe you can't fool Mother Nature, but you can have endless fun discovering her wondrous phenomena. Last time ("Serendipitous Software," August 1988, p. 84), we explored more-or-less terrestrial topics, such as animal life, electronics, human anatomy, and earthquakes. Let's raise our sights a bit this month.

The six programs reviewed here can help you and your children understand why the sun doesn't actually rise, why model rockets eventually fall, and why the saying "What goes up must come down" isn't necessarily true. Ready for takeoff?

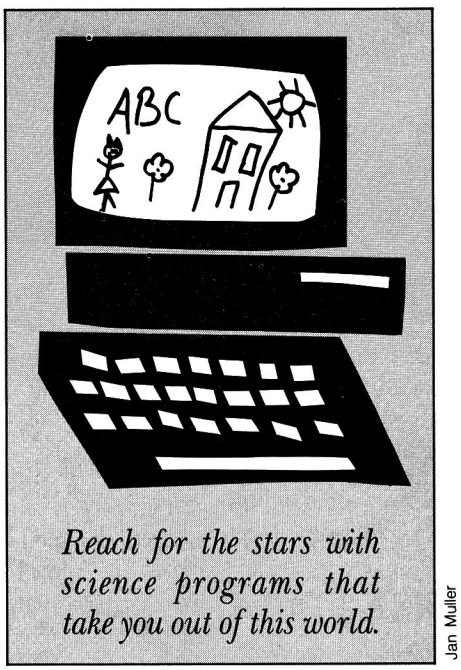
OUR PLACE IN THE UNIVERSE

Sky Lab from MECC introduces children to basic concepts of astronomy—not in a boring, pedantic way, but through interactive, graphics-based tutorials. The program requires an Apple II with 64K.

Sky Lab consists of four programs: The Rotating Earth, The Revolving Earth, The Revolving Planets, and Halley's Comet. Each program offers three approaches to learning: Demonstration, Discovery, and Test Your Understanding.

The Rotating Earth, for example, underscores the theory behind a number of everyday observations, such as the sun's rising in the east and setting in the west. The explanatory text is succinct, and the animated graphics screens are appealing. Together, they communicate concepts about astronomical phenomena in ways a book can't.

To help children learn what *really* happens when the sun appears to rise, Sky Lab's demonstration module displays a "Backyard View" first. This graphics sequence shows a generic rural-midwestern backyard (no clotheslines, trash cans, or cityscape sights). The interactive demonstration progresses from sunrise through sunset by panning the screen from left (East) to right (West). Like airport-runway markers, this backyard has E, S (South), and W signs posted.



Reach for the stars with science programs that take you out of this world.

Jan Muller

Sky Lab's success is no doubt a result of its "Space View." In the first program, you become a little graphics person sticking to the edge of the earth as seen from space. The sun, in all its blazing glory, appears to the left of Earth. Space View demonstrates what happens at dawn, noontime, sunset, and midnight. The sun isn't moving at all, of course—Earth is. The little person rotates right along with it.

After he or she completes the tutorial demo, the child can opt for the second learning mode, Discovery. Here, your child can experiment with what he or she has seen in the demonstration without any guided interference from the program.

The final module, Test Your Understanding, is a matching game that challenges you to link Backyard and Space Views.

The second Sky Lab program, The Revolving Earth, helps kids conceptualize the position of the earth at sunrise, sunset, and midnight relative to the positions of the zodiac's 12 constellations.

The third program, The Revolving Planets, concentrates on Earth's position relative to the activities of superior planets (like Mars, those that are farther from the sun than Earth is) and inferior planets (like Venus, those that are closer to the sun than Earth is).

The final program, Halley's Comet, takes an approach similar to that of The Revolving Planets; this time the program compares the orbits of Earth and Halley's Comet.

Like other MECC products, Sky Lab is well designed for teaching and has an appealing interface. Text, though graphics-oriented, is readable even on the GS' RGB monitor. The package includes a free backup disk.

Sky Lab's manual is superbly organized, clearly written, and describes related activities you can do with your kids, adapted from the 1982 text *Basic Astronomy Curriculum*, by the staff of Como Planetarium, St. Paul, Minnesota. Projects include designing a model of the solar system with BBs, marbles, ping-pong balls, and basketballs. Another activity demonstrates how to construct a mini-planetarium. The manual also includes facts about the sun, the planets, and comets, as well as background information on the history of astronomy.

A VIEW FROM ABOVE

Though a bit pricey ($59.95), **Wonders of the Solar System** from PDI is all encompassing. Its main draw is an extensive database of facts about 81 solar bodies, ranging from planets to probes, moons to

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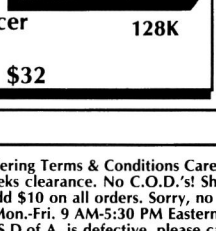


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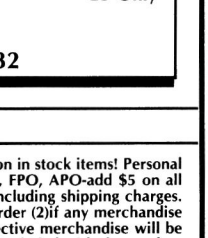
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asteroids. Each database record includes up-to-date (1986–1987) information organized into 14 categories, including Diameter, Mass, Composition, and Other Traits.

Like any database, this one lets your child search for information, sort facts, even add as many as 29 new records or edit existing information. For example, my version of Wonders of the Solar System listed 1986 as Halley's Comet's next appearance. You'd probably want to modify that date to 2061. It's exciting to think that your children have a shot at seeing the comet when it next comes into view, 73 years from now. Why not introduce them to their future by instilling what may become a lifelong interest in astronomy?

A replica, nonmodifiable database is included on one of the two program disks, so children can't inadvertently or mischievously alter hundreds of years of astronomy research results!

Ordinarily, I'm wary of databases on disk as educational tools. The average child might need an external motivating factor, such as a teacher, to guide his or her searches. Wonders of the Solar System is an exception for two reasons.

First, some kids are engrossed in astronomy the way other kids are into MTV. Many children opt to do school reports about the solar system, and this program can serve as another reference for these self-directed researchers. All database search results print quickly on the ImageWriter II. Other printers should work, also.

Second, Wonders of the Solar System offers more dynamic activities that help liven up database exploration. The program offers a Planetary Simulation (watch planets orbit the sun at speeds you select) and three game-like modules: Lander (land a spacecraft on any of the solar bodies in the database), Launcher (choose a speed and guide a multistage rocket), and Reconstruct (build and paint space-exploration equipment, such as a Lunar Excursion Module, from on-screen parts).

Wonders of the Solar System requires only 48K, so it would be unfair to expect stunning color graphics. The program works with the keyboard, but a set of paddles or a joystick is recommended.

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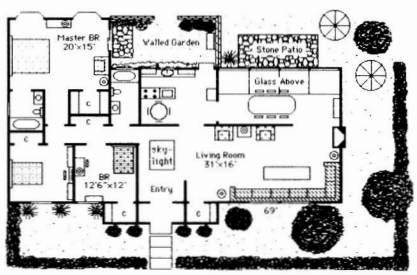
One of the best surprises I experienced in preparing this column occurred when I opened the four programs I'd requested from Estes Industries.

A little background: Estes Industries is affiliated with the Hi-Flier Manufacturing Company, the folks who make gliders and kites. Estes makes model rockets.

I confess to spending more time as a teenager preparing for SATs than flying

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rockets, so I was unaware of model rocketry's popularity as a hobby. According to Estes' Bob Cannon, codeveloper of these tutorials (**In Search of Space**, **Physics of Model Rocketry**, **Flight**, and **AstroCAD**), "more than a million people a year" discover this exciting hobby.

"Unfortunately," according to Cannon, "a teenaged boy or girl who's interested in model rocketry will drop out after six months (because of other interests like cars and dating). Interestingly, they usually come back to it when they're adults and have kids of their own."

Whether or not you have kids, these four tutorials—with or without a basic starter kit (a kit consisting of rocket, engines, launch pad, ignition system, recovery wadding, and pertinent literature costs less than $20)—can help you understand more about seemingly inscrutable topics, such as aerodynamics, G forces, and apogee determinations. Each program requires 64K.

Cannon, a part-time teacher at Colorado State University, and programmer Mike Dorffler used two popular Baudville programs, **Blazing Paddles** and **Take 1**, to create the exceptionally well-done graphics and animation sequences. Cannon wrote the accompanying scripts. His clear explanations simplify even the most difficult concepts.

In Search of Space, for example, is subtitled Introduction to Model Rocketry. This program includes animated-graphics descriptions of rocket parts, engines and their classification, and igniters and their installation, complete with labels. Tech Tip, a trademarked, pink-suited space nerd originally designed for the Estes catalogue, teaches the latter subject. The program emphasizes safety rules for working with model rockets.

In Physics of Model Rocketry, Tech Tip teaches you how to calculate G forces. Cannon's program design makes learning how to deal with such seemingly complicated formulas child's play—well, almost. Other modules on the Physics program disk help you understand Newton's laws of motion and related concepts such as action/reaction, inertia, and acceleration. The program explains how communications satellites can remain in orbit—a fortunate circumstance for those of you owning satellite dishes!

Flight, a third program, teaches aerodynamics through a straightforward discussion of forces (drag, lift, thrust, gravity, and relative wind) that impinge on flying objects—whether butterflies, kites, birds, or rockets.

In Search of Space, Physics, and Flight are exceptional products for a number of reasons. They're graphics-based, animated, and well written, and handle dif-

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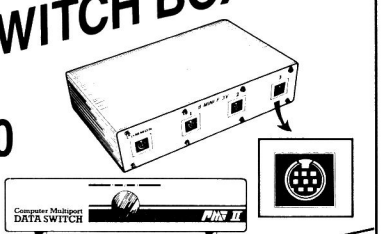
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II cue #66

The best way to improve your programming skills is to study programs written by masters. Since its December 1987 issue, *Apple Assembly Lines* has published a series of articles in which one master, Bob Sander-Cederlof, disassembles the work of another master, Bob Lissner. The program being disassembled is, of course, AppleWorks. For information on how to subscribe to *Apple Assembly Lines*, see ***Open-Apple***, June 1988, page 4.38.

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ficult subjects in the simplest way. Moreover the programs are affordably priced ($24.95–$44.95) and run on any Apple II (64K required). They provide the incentive for you to put your newly discovered theory into practice by introducing your kids to a hobby the whole family can enjoy.

Unlike the previous Estes programs, AstroCAD is neither graphics-based nor for amateurs. AstroCAD will appeal to advanced users who need this series of BASIC programs to crunch numbers. The program is subtitled "Performance Analysis for Model Rockets," and that's exactly what it is: CAD (computer-aided design) in a mathematical—not graphics—sense.

The disk contains a series of programs that perform complicated analyses (drag prediction, optimum weight, elliptical-fin design, apogee determination) in seconds. These calculations use complex formulas to which children might not be otherwise exposed until high school, if then. But a motivated young student can RUN and LIST a program, print it (PR#1 turns the printer on, PR#0 turns it off), and practice working with formulas and their variables with pencil and calculator or slide rule.

According to Cannon, enthusiastic model-rocket hobbyists, ranging from 10-year-olds to young and 40-ish adults to senior citizens, all participate in model-rocketry workshops. In one workshop he led, a bevy of four or five nuns became as excited as the rest during experimental launches: "They were laughing and jumping up and down so vigorously, you could see their tennis shoes under their long robes."

If you and your children might enjoy getting in on some of the fun, take a look at one or more of Estes' computer programs and peruse the company's model-rocketry catalogue. Believe me, physics doesn't get any better than this!

GROWING PAINS

Next time Field Trip comes back down to earth to discuss programs that address smoking, drug abuse, and alcoholism in children.■

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

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

Easy Graph

by Tom Addicks

Teaching students to graph and plot points is essential in math and science curricula. Easy Graph (see **Listing 1**) charts ordered number pairs quickly, making this a less time-consuming exercise for students. Instead of addressing questions pertaining to scales, ruling, and plotting, the program lets students concentrate on interpreting a graph.

At the simplest level, the program graphs ordered pairs with reference to the origin. You can also connect the dots with straight lines (line 290). If the range of data exceeds the screen's resolution, or if you want better resolution, answer Y at the prompt "Automatic scaling?" (line 1030). This tells the program to scale your data.

Easy Graph indicates the intervals chosen for each axis and the starting point (line 392 for graphs with reference to the origin, and line 520 for graphs you've scaled to fit the screen). When you're ready to save the hi-res screen, simply choose S at the prompt.

To label the axes, you'll need a drawing program such as Mouse Paint. (Be sure to use the correct pathname and suffix by invoking the RENAME command when loading a graph into your drawing program.) If you want to print your graph, be sure you have a printer card that dumps graphics, or graphics software such as Beagle Bros' Triple Dump.

***Listing 1.** Easy Graph.*

```
5  REM  EASY GRAPH  [923]
6  REM  by Tom Addicks  [1494]
7  REM  Copyright 1988, inCider  [2198]
10  TEXT : HOME : CLEAR   [603]
20  GOSUB 2000: REM  DIRECTIONS  [1414]
30  DIM X(100),Y(100)  [837]
40 CO = 0: HOME   [651]
50  HOME : PRINT "Do you wish to REVIEW a previously c
     reated graph? ";: GOSUB 6000:Y$ = A$  [5988]
60  IF Y$ = "Y" THEN 5000  [1116]
70  GOSUB 1000: REM  ENTER DATA  [1403]
80  GOSUB 3000: REM  GET DATA RANGE  [1654]
90  REM  DRAW AXES  [939]
100  IF CH$ = "B" THEN  POKE 49232,0: GOTO 250  [1903]
110  HGR   [255]
120  HCOLOR= 3  [317]
130  HPLOT 24,150 TO 24,0  [960]
140  HPLOT 24,150 TO 275,150  [1128]
150  FOR Y = 150 TO O STEP  - (8): HPLOT 22,Y TO 24,Y:
      NEXT   [2589]
160  FOR X = 24 TO 275 STEP 10: HPLOT X,153 TO X,150: NEXT
       [2487]
170  HCOLOR= 3  [367]
290  VTAB 21: PRINT "CONNECT the points? ";: GOSUB 600
     0:CP$ = A$  [3320]
293  IF AS$ = "Y" OR XL > 250 OR YL > 144 OR XS < 0 OR
     YS < 0 THEN 400  [3832]
295  REM *****LIMIT ON X=250 LIMIT ON Y=144  [2271]
300  FOR I = 1 TO HM  [846]
302 F1 = FIRST:S1 = SEC  [1383]
305  FOR ZZ = 250 TO 0 STEP  - 25  [1462]
310  IF XS >  = 0 AND XL <  = ZZ THEN FIRST = 24 + (X(
     I) * 250 / ZZ):XU = ZZ / 25  [4910]
315  NEXT ZZ  [370]
320  FOR YY = 144 TO 0 STEP  - 18  [1479]
325  IF YS >  = 0 AND YL <  = YY THEN SEC = 6 + (YY -
     Y(I)) * 144 / YY:YU = YY / 18  [5085]
330  NEXT YY  [383]
340  HPLOT FIRST,SEC  [887]
345 CO = CO + 1  [839]
350  IF CP$ = "Y" AND CO > 1 THEN  HPLOT F1,S1 TO FIRS
     T,SEC  [2909]
380  NEXT I  [328]
390 FIRST = 0:SEC = 0:CP$ = "":CO = 0  [2293]
392  HOME : VTAB 21: PRINT "HORIZONTAL interval is "XU
     : PRINT "VERTICAL interval is "YU: PRINT "ORIGIN
     is (0,0).": PRINT "SAVE graph (S) or BEGIN again
     (B) ";  [9480]
393  GET CH$: IF CH$ > "Z" THEN CH$ =  CHR$ ( ASC (CH$
     ) - 32)  [2953]
395  IF CH$ = "S" THEN 4000  [1239]
396  IF CH$ = "B" THEN  TEXT : HOME : CLEAR : GOTO 10  [1946]
398  PRINT  CHR$ (7);: GOTO 393  [1143]
400  REM  ** FOR AUTO SCALING **  [1708]
410  FOR I = 1 TO HM  [956]
415 F1 = FIRST:S1 = SEC  [1496]
420  FOR LL = 500 TO 0 STEP  - 25  [1547]
430  IF RX <  = LL THEN FIRST = 24 + (X(I) - XS) * 250
      / LL:XU = LL / 25  [4485]
440  NEXT LL  [467]
450  FOR QQ = 288 TO 0 STEP  - 18  [1602]
460  IF RY <  = QQ THEN SEC = 150 - (Y(I) - YS) * 144 /
     QQ:YU = QQ / 18  [4429]
470  NEXT QQ  [507]
```

Continued

When running the program, line 20 sends you to the instructions, then returns to ask whether you want to view a previous graph. Line 70 sends the program to a subroutine at line 1000 that asks you to enter your ordered pairs. The subroutine at line 3000 finds the smallest and largest pairs, then calculates the range to see whether it'll fit on screen.

The program then returns to line 90 and begins plotting the axes. If the data range exceeds the screen's limit, or if you choose automatic scaling, line 293 sends the data to line 400 to be scaled down and plotted. Otherwise, Easy Graph plots the data in lines 300–400. Choosing S at line 520 or 392 sends the program to line 4000, which saves the picture.■

Write to Tom Addicks at Box 703, Housatonic, MA 01236.

Random-Number Generator

by Thomas Bannon

There's one disturbing fact about Applesoft's random-number generator, RND(0): It isn't very random. The same sequence of numbers appears every time you boot your Apple. Random-Number Generator (**Listing 2**) creates a new numerical sequence with every new boot and is far less complicated than certain fixes you might run across.

Listing 2. Random-Number Generator.

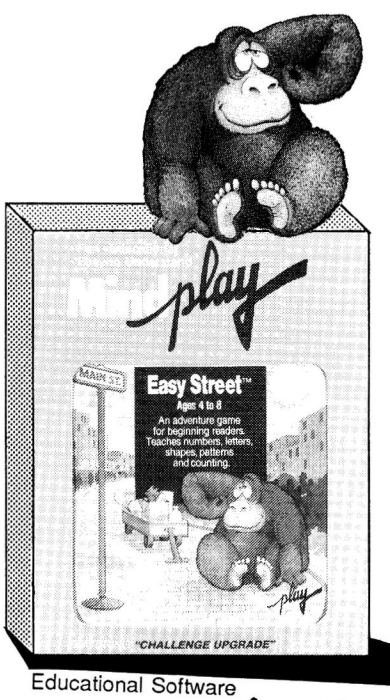
```
10  REM  DEMO PROGRAM FOR RANDOM NUMBER GENERATOR  [3025]
20  REM  BY THOMAS BANNON  [1353]
30  REM  COPYRIGHT 1988, INCIDER  [1773]
100  REM  INITIALIZE GENERATOR  [1775]
105  GOSUB 7000  [480]
110  DIM R(100)  [552]
115  HOME  [266]
120  PRINT "TAP A KEY TO INITIALIZE THE"  [2203]
130  PRINT "   RANDOM NUMBER GENERATOR"  [2129]
140  CALL - 741  [637]
145  REM  GET TWO RANDOM BYTES  [1765]
150  CALL 768  [455]
160  PRINT "AGAIN"  [766]
170  CALL - 741  [667]
175  REM  TWO MORE  [943]
180  CALL 779  [487]
185  REM  SET UP USR() FUNCTION  [1837]
190  POKE 10,76: POKE 11,22: POKE 12,3  [1547]
200  REM  EXERCISE GENERATOR  [1721]
210  FOR I = 1 TO 100:R =  USR (0): NEXT  [1885]
220  REM  FILL ARRAY  [1140]
230  FOR I = 1 TO 100:R(I) =  USR (0): NEXT  [2059]
240 Y =  USR (0)  [879]
250  REM  INITIALIZATION OVER  [1872]
500  DIM A(100)  [670]
1000  FOR I = 1 TO 1000  [1080]
1010  GOSUB 6000  [619]
1020 R1 =  INT (R * 100)  [1315]
1030 A(R1) = A(R1) + 1  [1021]
1040  NEXT  [150]
1050  FOR I = 0 TO 99  [795]
1060 T = T + A(I) * A(I)  [1256]
1070  NEXT  [180]
1080 CHISQ = ((T / 10) - 1000)  [1584]
1090  PRINT "CHISQ = ";CHISQ  [1260]
1100  IF CHISQ < 69.2 OR CHISQ > 134.7 THEN  PRINT "TH
     E ROUTINE FAILS": GOTO 9999  [4200]
1110  IF CHISQ < 77 OR CHISQ > 123.2 THEN  PRINT "THE
     ROUTINE IS SUSPECT": GOTO 9999  [4478]
1120  PRINT "THE ROUTINE PASSES"  [1656]
1130  GOTO 9999  [589]
```

Continued

Continued

```
480  HPLOT FIRST,SEC  [1027]
490 CO = CO + 1  [984]
495  IF CP$ = "Y" AND CO > 1 THEN  HPLOT F1,S1 TO FIRS
     T,SEC  [3054]
500  NEXT I  [448]
510 FIRST = 0:SEC = 0:CP$ = "":CO = 0  [2413]
520  HOME : VTAB 21: PRINT "HORIZONTAL interval is "XU
     : PRINT "VERTICAL interval is "YU: PRINT "ORIGIN
     is ("XS","YS").": PRINT "SAVE graph (S) or BEGIN
     again (B) ";  [9736]
524  GET CH$: IF CH$ > "Z" THEN CH$ =  CHR$ ( ASC (CH$
     ) - 32)  [2829]
530  IF CH$ = "S" THEN 4000  [1119]
540  IF CH$ = "B" THEN  TEXT : HOME : CLEAR : GOTO 10  [1835]
550  IF CH$ <  > "S" AND CH$ <  > "B" THEN 520  [2232]
1000  HOME : INPUT "NAME for HORIZONTAL axis? ";HA$  [2898]
1010  INPUT "NAME for VERTICAL axis? ";VA$  [2537]
1020  HOME  [406]
1030  PRINT "Use AUTOMATIC scaling? ";: GOSUB 6000:AS$
      = A$: PRINT  [3426]
1040  INPUT "NUMBER of ordered PAIRS? ";HM  [2413]
1050 HA$ =  LEFT$ (HA$,5):VA$ =  LEFT$ (VA$,5)  [2044]
1060  HOME : PRINT "        "HA$"        "VA$  [1379]
1070 C = 3  [376]
1080  FOR I = 1 TO HM  [861]
1090  VTAB C: PRINT I  [616]
1100  HTAB 9  [287]
1110  VTAB (C): INPUT "";X(I): VTAB (C): HTAB 21: INPUT
```

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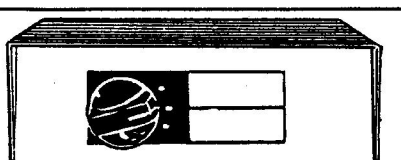
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	B. Own	C. Plan to buy in 1-3 months
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Apple IIc	2. ☐	2. ☐
Apple IIGS	3. ☐	3. ☐
Laser 128	4. ☐	4. ☐
Apple II +	5. ☐	

D. How long have you owned your Apple II?
1. ☐ Less than a year 2. ☐ 1-2 years 3. ☐ More than 2 years

Indicate the following types of software or hardware you plan to purchase in the next 3 months:

E. 1. ☐ Entertainment
2. ☐ Education
3. ☐ Productivity software/home
4. ☐ Productivity software/work

F. 1. ☐ Printer
2. ☐ Modem
3. ☐ RAM Card
4. ☐ Hard Disk

G. How often do you recommend /influence the purchase of software or hardware to friends or work associates:
1. ☐ Once a week
2. ☐ One time per month
3. ☐ Two times per month
4. ☐ More than three times per month

H. On a scale of 1 (no interest) to 4 (great interest) please rate the following columns in inCider:

1. inCider On Line	1 2 3 4	4. AppleSoft Advisor	1 2 3 4
2. New Products	1 2 3 4	5. Editor's Choice	1 2 3 4
3. AppleWorks in Action	1 2 3 4	6. Features	1 2 3 4

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5	10	15	20	25	155	160	165	170	175	305	310	315	320	325	26	31	36	41	46	176	181	186	191	196	326	331	336	341	346
27	32	37	42	47	177	182	187	192	197	327	332	337	342	347	28	33	38	43	48	178	183	188	193	198	328	333	338	343	348
29	34	39	44	49	179	184	189	194	199	329	334	339	344	349	30	35	40	45	50	180	185	190	195	200	330	335	340	345	350
51	56	61	66	71	201	206	211	216	221	351	356	361	366	371	52	57	62	67	72	202	207	212	217	222	352	357	362	367	372
53	58	63	68	73	203	208	213	218	223	353	358	363	368	373	54	59	64	69	74	204	209	214	219	224	354	359	364	369	374
55	60	65	70	75	205	210	215	220	225	355	360	365	370	375	76	81	86	91	96	226	231	236	241	246	376	381	386	391	396
77	82	87	92	97	227	232	237	242	247	377	382	387	392	397	78	83	88	93	98	228	233	238	243	248	378	383	388	393	398
79	84	89	94	99	229	234	239	244	249	379	384	389	394	399	80	85	90	95	100	230	235	240	245	250	380	385	390	395	400
101	106	111	116	121	251	256	261	266	271	401	406	411	416	421	102	107	112	117	122	252	257	262	267	272	402	407	412	417	422
103	108	113	118	123	253	258	263	268	273	403	408	413	418	423	104	109	114	119	124	254	259	264	269	274	404	409	414	419	424
105	110	115	120	125	255	260	265	270	275	405	410	415	420	425	126	131	136	141	146	276	281	286	291	296	127	132	137	142	147
277	282	287	292	297	128	133	138	143	148	278	283	288	293	298	129	134	139	144	149	279	284	289	294	299	130	135	140	145	150
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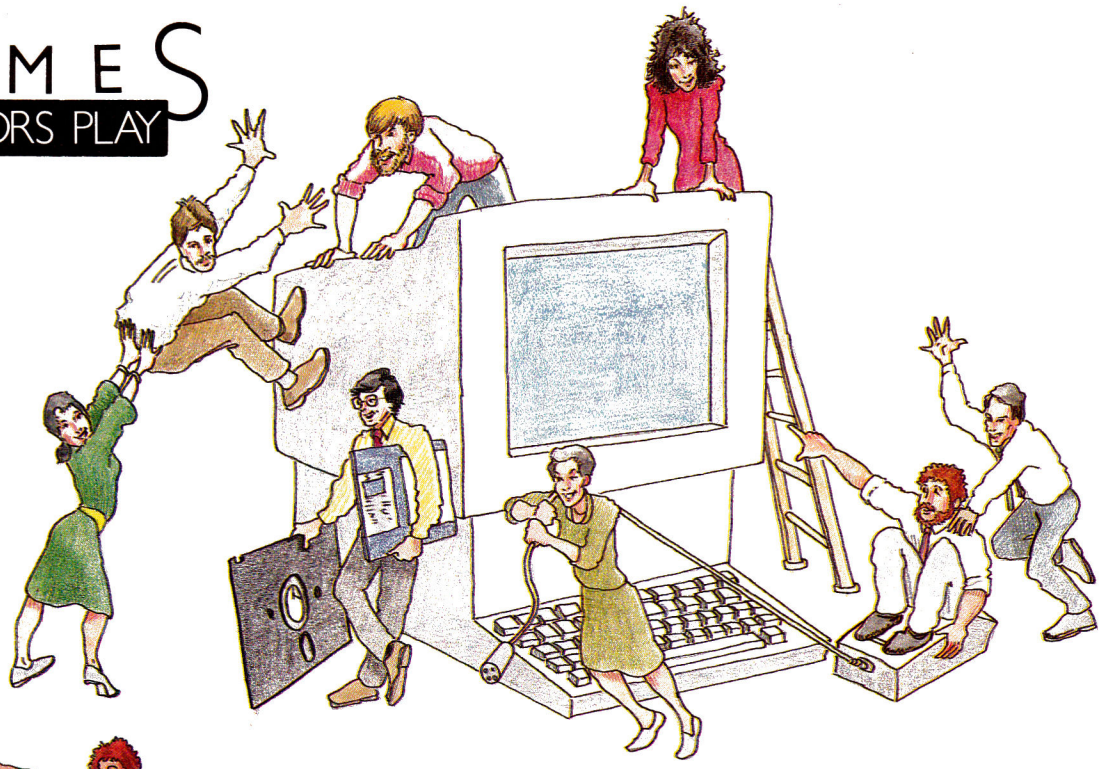
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Aye, it's been near six months since I first told ye of me exploits as a swashbuckler in the 16th-century Caribbean. Ah, but things have changed since then . . . .

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Curiously enough, this version of Pirates doesn't ask whether you want to hear music and sound effects. I guess it just assumes that since they're better, you'll want to hear them. That doesn't bother me—it's just curious.

You'll notice all the latest enhancements along the way as you play out your career as a pirate. When you set off from your first port of call, the map of the Caribbean on which you sail about even looks better. Splashing waves and looming storm clouds add life to the sea, especially when you close in for battle with another ship.

After you board a merchant ship or another pirate vessel, you'll see the enemy captain heading for you with fire in his eyes. When you face off to duel, you'll hear him groan every time your blade finds its mark.

The extra graphics and sound effects Microprose has put into the new version of Pirates make this already great game even better. Another new feature comes at the end of your career. When you retire from pirating, your accumulated wealth, land, and social status are scored, and you can end up being anything from a beggar or a thief to a king's adviser.

. . . and plays . . .

Tomahawk, *Datasoft, 19808 Nordhoff Place, Chatsworth, CA 91311, (818) 886-5922, (800) 245-4525. $39.95 (GS version).*

It can skim the trees at speeds of more than 100 knots, day or night, in any weather, to deliver a barrage of laser-guided Hellfire missiles. It can swoop down out of the clouds and blast away at an enemy installation with pinpoint accuracy. It's the ultimate aircraft of modern-day combat—the U.S. Army's AH-64A Apache advanced attack helicopter.

Datasoft has done an admirable job of simulating the complex controls and intricate maneuvers involved in flying one of these multimillion-dollar monsters (or at least how I'd imagine it would be). The game adds night missions, impaired visibility owing to cloud cover, crosswinds, turbulence—not to mention enemy tanks, helicopters, and anti-aircraft guns that do their best to blast you out of the sky.

You can take three hits before having to worry about an unexpected landing and whether or not your life-insurance policy is up to date. You can also bring your Apache in on one engine, although that takes a degree of skill and practice.

The sound effects are fabulous. When you first strap yourself into your Apache and rev up the engines, it sounds like the real thing. The roar changes according to speed and whether you're climbing or diving.

When you take out an enemy target, it explodes with a resounding shudder in a plume of flame. Another sound I heard all too often was the hellacious reverberation of a crash landing.

I can't imagine how many hours of training it takes for an Army pilot to learn how to fly this airborne beast, much less be able to fly it as the fearsome combatant it was designed to be. It won't take you quite as long to get Tomahawk in the air, but you're certain to see the "helicopter destroyed" message a few times before you begin to terrorize the battlefield. Flying a state-of-the-art machine is dangerous business.

Ellen Otis plays . . .



Murder on the Atlantic, *IntraCorp, Inc., 14160 S.W. 139th Court, Miami, FL 33186, (305) 252-9040, (800) 468-7226 (orders only). $34.95.*

October and Halloween—a time when eerie spirits, ghosts and werewolves roam the night. A time when creatures hidden deep in fog bay at the moon and leave their tracks across murky bogs. A perfect time to play a mystery game—a murder on board a 1938 luxury-cruise liner. I booted up Murder on the Atlantic ready to immerse myself in a dark, suspenseful story.

Would I bumble and stumble along like Inspector Clouseau looking for clues somewhere on the ship? Do I possess the logic and intelligence of Sherlock Holmes, piecing the hints together and formulating my hypothesis?

I was prepared for horror and treachery to shadow my every move. But first I waited endlessly for the disk to boot, only to then stare at the same graphics image of a cruise ship. Courageously, I continued tapping two keys repetitively (*E* to enter a cabin, *I* to interrogate the few passengers I came across). For the most part, all the game told me was that I saw "nothing of interest."

Soon I decided to trade my list of clues for a more practical list of activities you can perform while playing Murder on the Atlantic. Here goes:

- Paint your nails. The game moves so slowly you have endless time to file, polish, and dry your nails while pressing the same four keys.
- Redecorate your computer room. While staring at the same image, your eyes begin to wander and soon you're thinking how nice that vase would look on the other bookshelf.
- Decide what you'd do with $10,000. That's IntraCorp's grand prize for solving the murder. If you play the entire game and can figure out this who-done-it, you deserve $10,000 for your perseverance.
- Turn on the TV or VCR and revel in a classic 1938 Charlie Chan mystery. For Halloween, stay away from tricks and enjoy a vintage treat.

Pat Payne plays . .



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

I've always envisioned myself slipping behind the wheel of a high-powered automobile, pulling on my driving gloves, and roaring away. My Hyundai doesn't provide much scope for my fantasy, but Test Drive does.

First choose your vehicle. Pick from the likes of a Ferrari Testarossa, Lotus Turbo Esprit, Porsche 911 Turbo, Lamborghini Countach, or Corvette. The game provides technical specifications for each, so you'll know what you're getting into (so to speak).

Once you've made your choice, you'll get your chance to prove yourself on the road. Drive up a winding mountain way, passing trucks and other cars—and avoiding cops—as you go. Don't forget to shift—blowing the engine is just as deadly as crashing. If you manage to reach the top of the mountain, you'll find out your average speed on the trip up and the number of points you amassed at that rate.

The graphics screens in Test Drive are good. They're not great, but they're certainly good enough to let you see where you're driving—no complaints there.

Test Drive provides several advanced features to keep you from getting bored as you get more proficient. You can choose to imitate a real car's shifting pattern, for example, instead of simply clicking the joystick's fire button. And, of course, you can always drive even faster.

Don't expect Test Drive to be true to life. You'll find you earn more points by driving as fast as possible and passing wildly, even if that results in a close encounter with a cliff, than you will by driving more slowly and avoiding crashes. Boston drivers aside, that just isn't how it's done.■

Short Takes . . .

Paperboy

■■■

Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, (800) 221-9884. $39.95 GS version. Joystick recommended.

Deliver *The Sun* while avoiding pedestrians, skateboarders, cars, and other hazards. You'll get bonus points for doing damage to noncustomers' homes along the way. A nice change from the missiles and fighter planes found in so many games. (See Games Editors Play, August 1988, p. 49.)

Tetris

■■■■■

Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501, (415) 522-3584. $39.95.

The Soviets are just pretending *perestroika* and *glasnost*, because Tetris is a subtle commie plot to bury us with colored blocks. Once you start, you won't stop. As addictive as Shanghai, but takes more strategy and coordination. (See Editors' Choice this issue, p. 120.)

Superstar Ice Hockey

■■

Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667, (800) 221-9884. $39.94. Joystick required.

We were excited about Mindscape's Superstar Ice Hockey. . . then we played it. The Apple II world is still waiting for a good ice-hockey game.□

Continued

```
      "";Y(I)  [2194]
1120 C = C + 1  [691]
1130  IF C = 23 THEN  HOME : PRINT "       "HA$"
      "VA$:C = 3  [2578]
1140  NEXT I  [323]
1150  PRINT : PRINT "Everything OK? ";: GOSUB 6000:OK$
      = A$  [3018]
1155  IF OK$ = "Y" THEN 1170  [1260]
1170  RETURN  [327]
2000  REM  INSTRUCTIONS  [1374]
2010  HOME  [376]
```

Continued

Continued

```
6000  REM  CHOOSE A RANDOM NUMBER  [1861]
6010  REM  RANDOM NUMBER IS RETURNED IN R  [2427]
6020 J = 1 +  INT (100 * Y)  [1414]
6030 Y = R(J)  [699]
6040 R = Y  [554]
6050 R(J) =  USR (0)  [972]
6060  RETURN  [372]
7000  REM  POKE ROUTINE INTO MEMORY  [2061]
7010  FOR I = 768 TO 927  [1055]
7020  READ X  [358]
7030  POKE I,X  [535]
7040  NEXT I  [358]
7050  DATA  165,78,141,164,3,165,79,141  [1677]
7060  DATA  165,3,96,165,78,141,166,3,165  [1789]
7070  DATA  79,141,167,3,96,169,0,141,163,3  [1889]
7080  DATA  141,162,3,141,161,3,169,1,141  [1776]
7090  DATA  160,3,160,32,173,164,3  [1447]
7100  DATA  74,144,33,24,173,160,3,105  [1657]
7110  DATA  101,141,160,3,173,161,3,105  [1702]
7120  DATA  137,141,161,3,173,162,3,105  [1723]
7130  DATA  7,141,162,3,173,163,3,105  [1635]
7140  DATA  108,141,163,3,110,163,3,110  [1731]
7150  DATA  162,3,110,161,3,110,160,3,110  [1827]
7160  DATA  167,3,110,166,3,110,165,3,110  [1852]
7170  DATA  164,3,136,208,190,173,167,3,133  [1760]
7180  DATA  158,173,166,3,133,159,173,165  [1653]
7190  DATA  3,133,160,173,164,3,133,161,169  [1742]
7200  DATA  128,133,157,165,158  [1240]
7210  DATA  24,10,176,19,24,38,161,38,160  [1667]
7220  DATA  38,159,38,158,165,157,56,233  [1654]
7230  DATA  1,133,157,76,130,3,169,0,133  [1629]
7240  DATA  170,96  [570]
7250  RETURN  [287]
9999  END  [182]
```

End

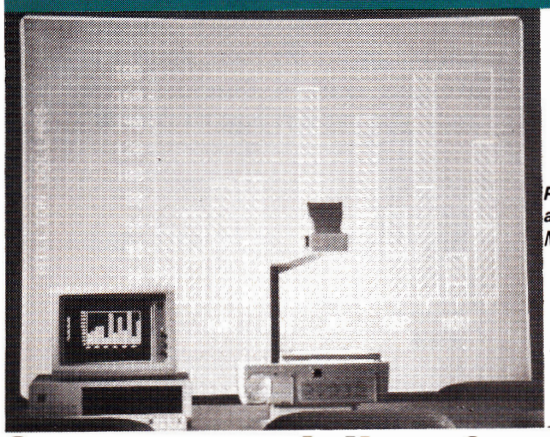
Mathematically, it's easiest to use the linear congruential method to generate random integers. (The Apple IIGS Toolbox uses this same method for random-number generation.) The formula $a_i = (a_{i-1} * b + 1) \bmod m$ calculates the next random integer in a random sequence. In this formula a_{i-1} is the previously calculated random integer; b is a fixed constant; and m is the upper limit for random values.

Lines 6000–9999 in this BASIC program listing POKE in the machine-language code for the random-number generator. Above that is a BASIC demonstration of how to access the random-number generator. The latter program also tests the random-number generator by producing 1000 integers (some repeated) between zero and 99. It then performs a "chi-square" analysis to determine whether those numbers are indeed random. They are.

Note that the program generates the initial value for a_i from the Apple's RDKEY routine ($FD0C), which randomly changes the value in addresses $4E and $4F each time a key press is requested. Also, the values for b and m are 1812433253 and 2e32, respectively—both "good" values according to popular texts on random-number theory.■

Write to Thomas Bannon at 87-57 252 Street, Bellerose, NY 11426.

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Memory Move

by Paul Morville

The Apple IIGS' memory is divided into 64K banks, which on a 1024K machine are numbered $00-$12 (0-18), $E0-$E1 (224-225), and $F0-$FF (240-255). (See the **Table** for the entire layout.) ProDOS 8 doesn't support the loading of files into these banks, but Memory Move (see **Listing 3**) is a machine-language program that transfers data between 64K banks.

Table. GS memory banks.

```
$00-$01 : Apple 128K memory
$02-$12 : One Megabyte Expansion
$13-$3F : Additional Expansion
$E0-$E1 : Display, Input/Output System RAM
($E1 is where the Super-Hi-Res memory is located
$2000-$9FFF)
$F0-$FD : ROM Expansion
$FE-$FF : 128K of ROM
```

Listing 3. Memory Move.

```
1   REM  MEMORY.MOVE  [1041]
2   REM  BY PAUL MORVILLE  [1355]
3   REM  COPYRIGHT 1988, INCIDER  [1746]
10  FOR I = 0 TO 22: READ N: POKE 768 + I,N: NEXT I  [2096]
20  HOME :L = 773: REM  LENGTH OF DATA  [1887]
30 SS = 776: REM   SOURCE START    [1827]
40 DS = 779: REM  DESTINATION START  [2098]
50 SB = 783: REM   SOURCE BANK    [1714]
60 DB = 782: REM   DESTINATION BANK  [2013]
70  INPUT "LENGTH: ";D  [937]
75 P = L: GOSUB 1000  [866]
80  INPUT "START: ";D  [895]
85 P = SS: GOSUB 1000  [966]
90  INPUT "START (DES): ";D  [1238]
95 P = DS  [534]
100  INPUT "FROM BANK: ";B1  [1188]
105  POKE SB,B1  [598]
110  INPUT "TO BANK: ";B2  [1054]
115  POKE DB,B2  [594]
120  CALL 768: GOTO 20  [752]
999  END  [362]
1000  POKE P,D -  INT (D / 256) * 256  [1892]
1010  POKE P + 1, INT (D / 256)  [1523]
1020  RETURN  [432]
1100  DATA  24,251,194,48,169,48,0,162,0,32,160,0,32,8
      4,0,224,56,251,169,0,72,171,96    [3857]
```

Type in **Listing 3** as an Applesoft program and save it as MEMORY.MOVE. When you run Memory Move, the program asks you several questions regarding length, source, and destination of data. Simply type in the numbers in decimal form, and the program will move the data. To end the program type Control-C and Return when the prompt asks for the data length.■

Write to Paul Morville at 17 Twin Lakes Drive, Waterford, CT 06385.

AppleWorks RAM Update

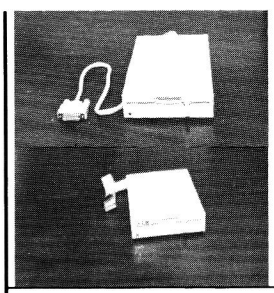
by Bill Knepper

In the September 1986 issue of *inCider*, Ken Kashmarek presented a way to load

Continued

```
2080  PRINT "This program graphs ORDERED pairs."  [3341]
2090  PRINT "If you choose 'AUTOMATIC SCALING' then th
      e increments on the axes may differ."  [6927]
2100  PRINT "If the RANGE of your data is TOO LARGE th
      en the increments": PRINT "along the axes will be
       altered for better resoultion."  [10624]
2120  PRINT "The ORIGIN will correspond to your smalle
```

Continued



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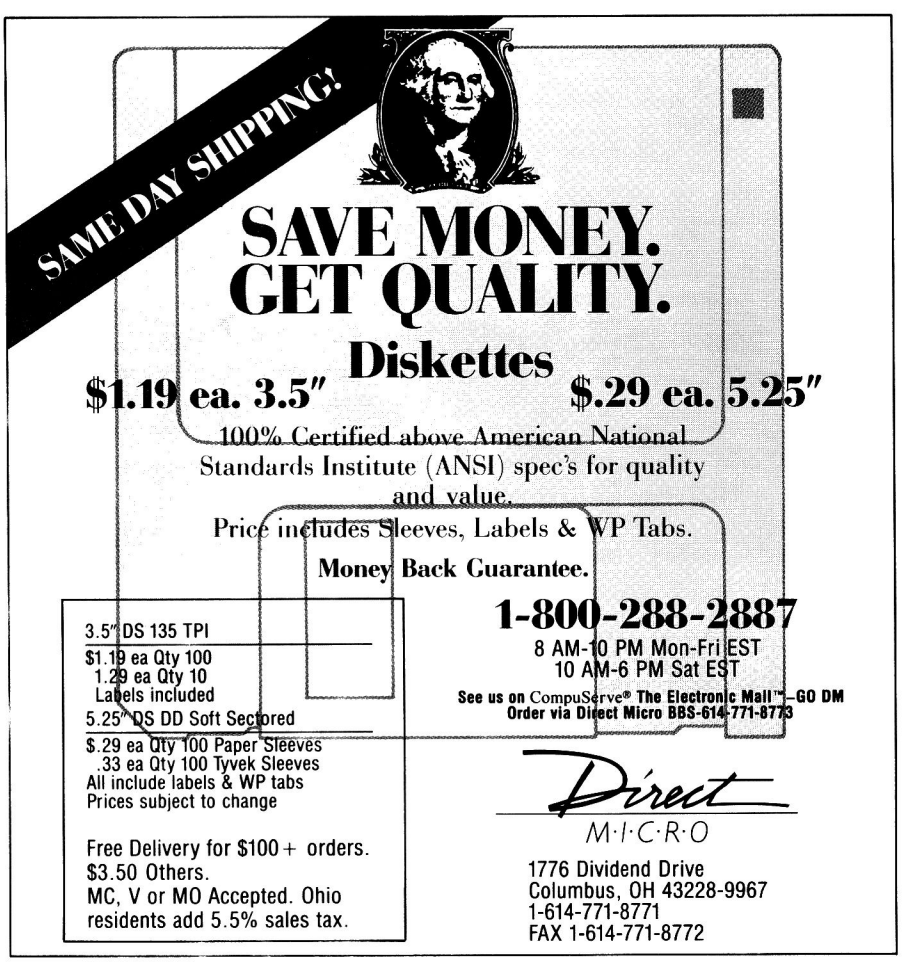
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```
      st ordered pair.": PRINT   [5880]
 2160  PRINT "You may PRINT your graphics using an appr
      opriate": PRINT "hires screen dump routine or pri
      nter card."  [9247]
 2170  PRINT : PRINT "Hit any key to continue.": GET A$
        [3197]
 2180  RETURN   [317]
 3000  REM  FINDS RANGE OF DATA FOR SCALING  [2477]
 3010  HOME   [356]
 3030 XS = X(1):YS = Y(1):XL = X(1):YL = Y(1)  [2777]
 3040  FOR I = 1 TO HM - 1  [1286]
 3050  IF XS > X(I + 1) THEN XS = X(I + 1)  [2353]
 3060  IF YS > Y(I + 1) THEN YS = Y(I + 1)  [2367]
 3070  IF XL < X(I + 1) THEN XL = X(I + 1)  [2361]
 3080  IF YL < Y(I + 1) THEN YL = Y(I + 1)  [2120]
 3090  NEXT I  [233]
 3110 RX =  ABS (XL - XS):RY =  ABS (YL - YS)  [2525]
 3120  HOME : IF RX > 500 OR RY > 288 THEN  PRINT "RANG
      E of data is TOO LARGE for proper": PRINT "resolu
      tion-- try REVERSING the axes.": END   [8860]
 3130  RETURN   [247]
 4000  REM  SAVE  [688]
 4010  HOME : VTAB 21: PRINT "Put DISK in drive."  [2474]
 4020  INPUT "NAME for graph? ";NG$  [1944]
 4030  PRINT  CHR$ (4);"BSAVE";NG$;",A$2000,L$2000"  [2311]
 4040  HOME : VTAB 21: PRINT "Hit ANY KEY to begin agai
      n.": GET A$: GOTO 10  [3892]
 5000  REM  LOOK AT GRAPH  [1257]
```

Continued



AppleWorks into RAM ("Running AppleWorks from Your RAM Disk," p. 119). If you settle for a 55K desktop with a large RAM card, you can load the whole AppleWorks program and run it from a RAM disk. Using Kashmarek's approach, you can switch in and out of AppleWorks as needed.

I've discovered a simple but effective improvement. For anyone who owns Copy II Plus ($39.95, Central Point Software, 15220 N.W. Greenbrier Parkway # 200, Beaverton, OR 97006, 503-690-8090), your days of writing elaborate routines to transfer files to RAM are over.

Copy the following files to a newly formatted disk in order:

PRODOS: try to use a copy modified with Bird's Better Bye (Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, CA 92121, 619-452-5500)

BASIC.SYSTEM

UTIL.SYSTEM: from the Copy II Plus disk

MACRO.SYSTEM: only if you've modified AppleWorks with a macro program

APLWORKS.SYS: called APLWORKS .SYSTEM if you don't use a macro program

SEG.00

PRODRIVE: from the software supplied with your memory card copy the portion that creates a RAM disk

Now type in this simple program and save it as STARTUP:

```
10 PRINT CHR$(4) "-PRODRIVE"
20 PRINT CHR$(4) "-UTIL.SYSTEM"
```

ProDOS will boot and look for the first SYSTEM file; if it's BASIC.SYSTEM, ProDOS will look for a file called STARTUP and find it no matter its location in the list.

STARTUP creates your RAM disk and runs the UTIL.SYSTEM program from Copy II Plus. Use this high-speed copy program to move all files you need to /RAM, including BASIC.SYSTEM, UTIL.SYSTEM, MACRO.SYSTEM, APLWORKS.SYS, and SEG.00. Putting them on disk in order facilitates this step.

Copy AppleWorks with its three files, SEG.PR, SEG.M0, and SEG.M1, to the flip side of your disk and use Copy II Plus to transfer them to the RAM disk.

Use Copy II Plus' quit feature to get to ProDOS; select either MACRO.SYSTEM (if you're using Bird's Better Bye) or use the volume name /RAM and the filename you want.

What are the benefits? First, you don't have to write elaborate code to break down huge files before transferring them. Second, BASIC.SYSTEM is in RAM; jumping out of AppleWorks to dabble in Applesoft is quick.

Third, you can copy as many files as you anticipate needing. For example, you might put your line editor on the front side of your boot disk; if you want to program after you leave AppleWorks, it's right there ready to go. Fourth, UTIL .SYSTEM from Copy II Plus is in RAM; if you want to manipulate files in the middle of AppleWorks (which is slow to move files), you can save your desktop to /RAM, load UTIL.SYSTEM, work with your files as much as you like, then return to AppleWorks where you left off.

Using this method, you can go from a cold start to AppleWorks' main menu in less than two minutes, including the time it takes to type in the date and flip the disk. In those two minutes you've loaded not only AppleWorks, but BASIC.SYSTEM and Copy II Plus' features, as well.■

Write to Bill Knepper, P.O. Box 369, Sandpoint, ID 83864.

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

Continued

```
5010  HOME   [316]
5020  INPUT "What is the NAME of the graph? ";NG$  [3204]
5030  HGR   [330]
5035  VTAB 21  [451]
5040  PRINT  CHR$ (4);"BLOAD";NG$;",A$2000"  [1936]
5050  PRINT "Hit ANY KEY to return to the beginning.":
      GET A$: TEXT : GOTO 40  [4752]
6000  GET A$: IF A$ = "y" THEN A$ = "Y"  [1817]
6010  IF A$ = "Y" OR A$ = "n" OR A$ = "N" THEN  RETURN
       [2511]
6020  PRINT  CHR$ (7);: GOTO 6000  [1194]
```

End

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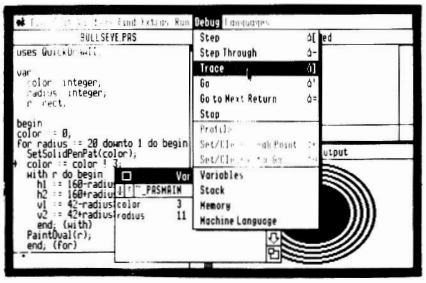
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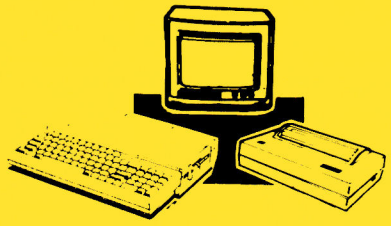
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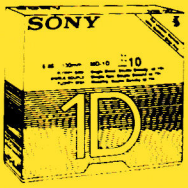
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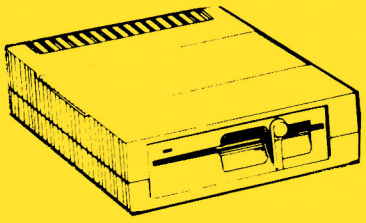
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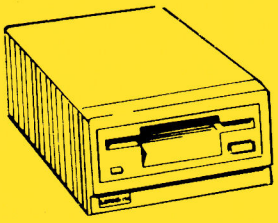
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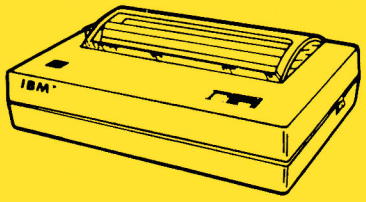
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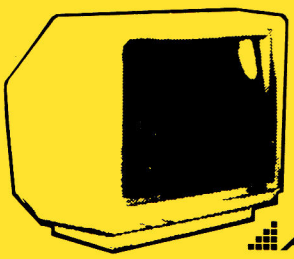
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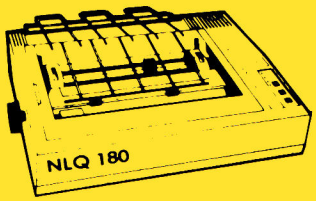
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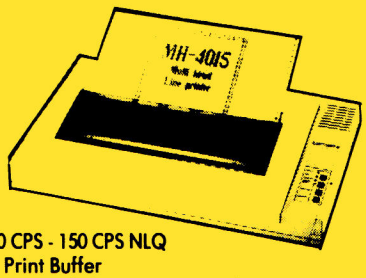
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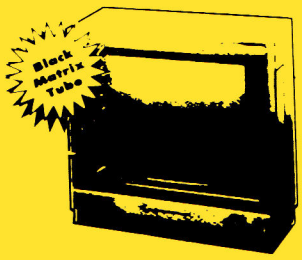
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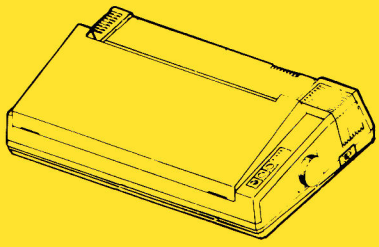
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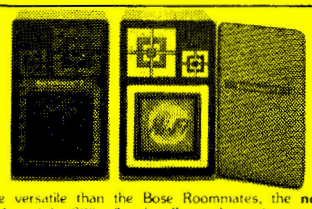
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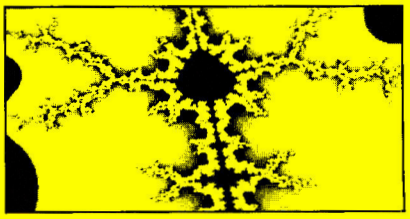
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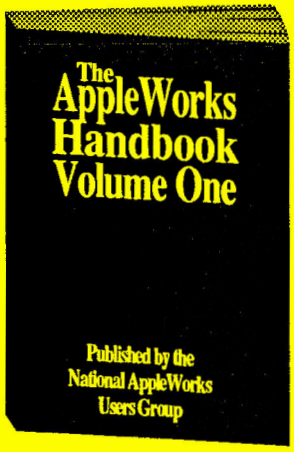
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TETRIS:
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The Soviet Union has given us many things over the past few years—vodka, caviar, arms treaties. Now it's exporting something new—computer games. **Tetris** was developed in the U.S.S.R. by Alexei Pazhitnov, a research analyst, and Vadim Gerasimov, a computer-science student, and is distributed by AcademySoft in Moscow, Andromeda Software Ltd. in London, and Sphere Inc. in the United States for the Apple IIGS.

Tetris' premise is simple yet intriguing. In the middle of your screen sits a blank box. Puzzle pieces of four blocks each—some aligned, some squared off, some at bizarre angles—drop down from the top. All you have to do is rotate and position the pieces as they fall so that you leave no blank spots (or as few as possible) at the bottom. Sounds simple, right? Wait 'til you try it.

Nine levels of difficulty, with the pieces dropping faster and faster, defy your dexterity. As soon as you think you've got Tetris licked, you're humbled again as you try the next level. The program includes a tournament game and an advanced mode (which no one here dared try), as well. Also worth mentioning are the beautiful background graphics.

Tetris is as addictive as Activision's Shanghai (Editors' Choice, June 1987, p. 112). There aren't any outrageous visual effects, digitized music, or complicated plots—just the simple challenge of completing the puzzle. And the challenge is irresistible.

"It's newsworthy enough that this game comes from the Soviet Union," says Review Editor Lafe Low. "That it's a captivating game is all the better. Tetris is at once relaxing, challenging, frustrating, and—yes, I have to use this word again—addictive."

Editor in Chief Dan Muse agrees. "It's interesting that Tetris was developed in the U.S.S.R.," he notes, "but if it weren't fun, it would be yesterday's news by now."

"You know it's a good game when all the editors cluster around the computer," adds Associate Editor Pat Payne. "When Tetris is running, there's always a crowd."

Tetris is available in this country for $39.95 from Spectrum Holobyte, a division of Sphere, Inc., 2061 Challenger Drive, Alameda, CA 94501, (415) 522-1164. This one could make even a vacation in Siberia fun. ■

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



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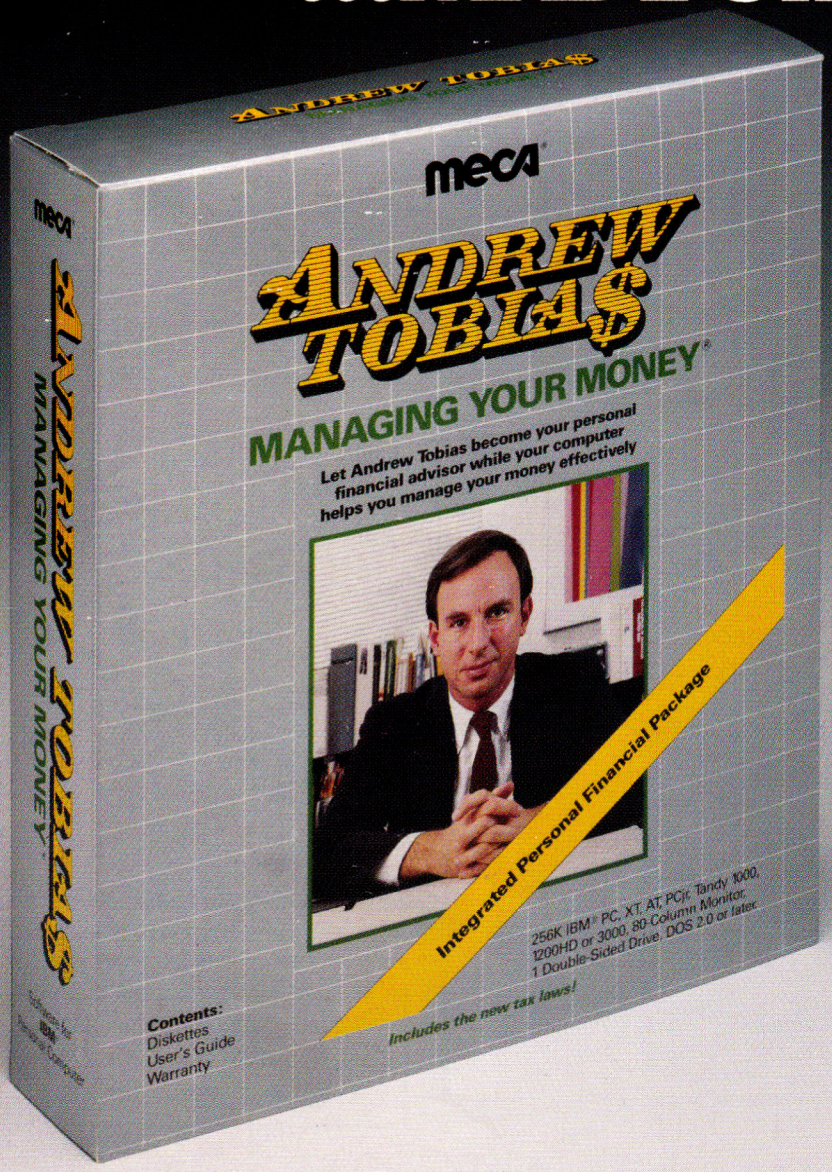
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