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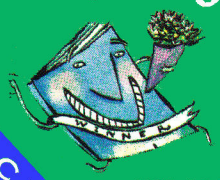

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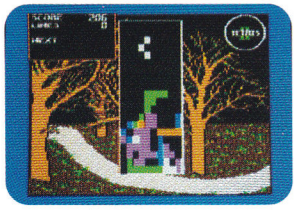

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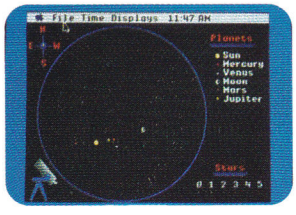

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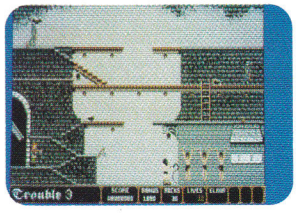

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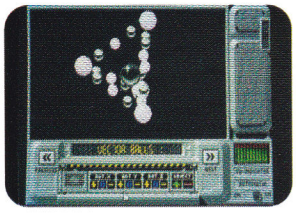

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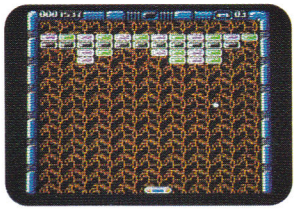

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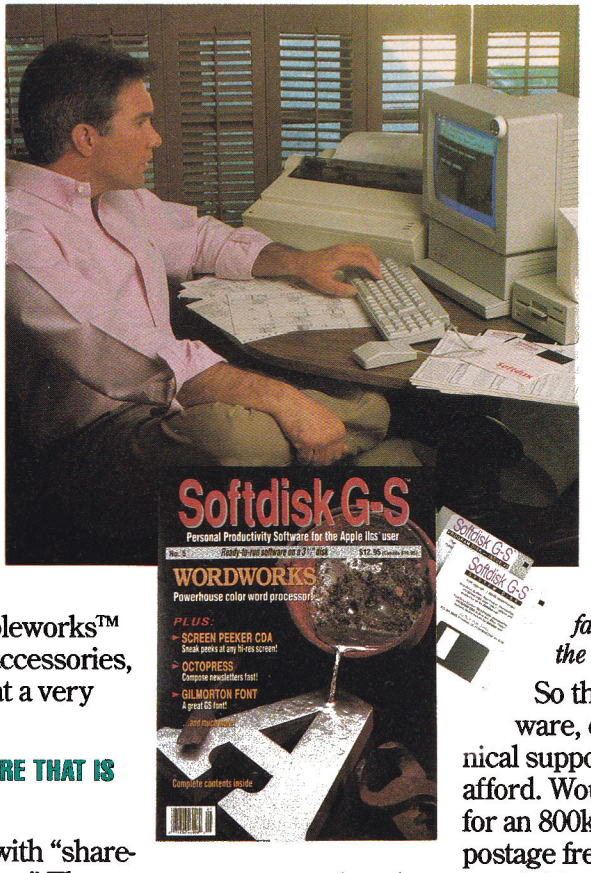

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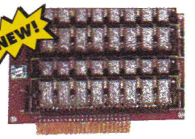

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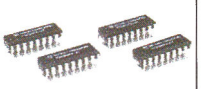

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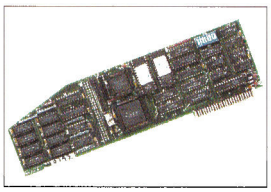

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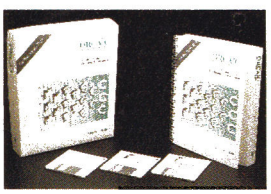

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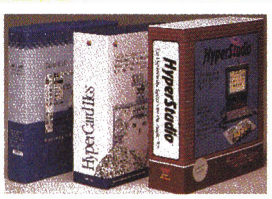

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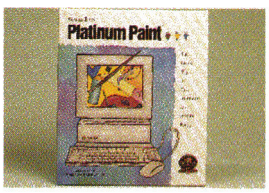

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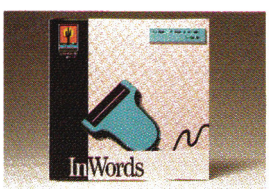

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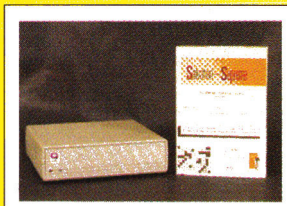

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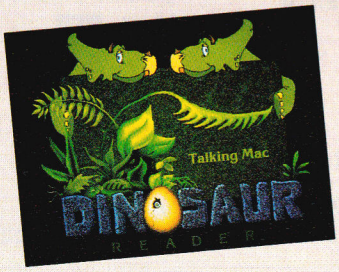

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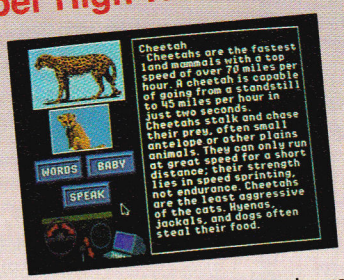

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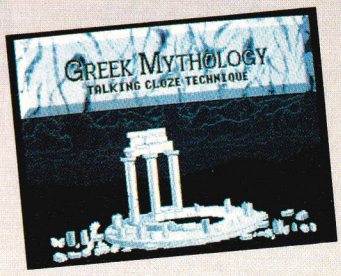

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Put it all together — video, animation, sound, music, graphics, text — in one seamless presentation. It's fun and it's challenging. Design your own multimedia extravaganza and let your Apple help you discover your own creativity.

30 **Sound and Image: The World on a Disc** by Carol S. Holzberg, Ph.D.
When it comes to multimedia, floppy disks and even hard disks just don't hold the answer. Education and entertainment have reached a new level: For vivid video clips, detailed digitized images, and sensational sound and music, compact discs and videodiscs are where the fun's at.

62 **Free Enterprise** by Cynthia E. Field, Ph.D.
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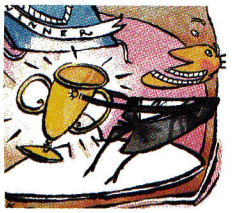

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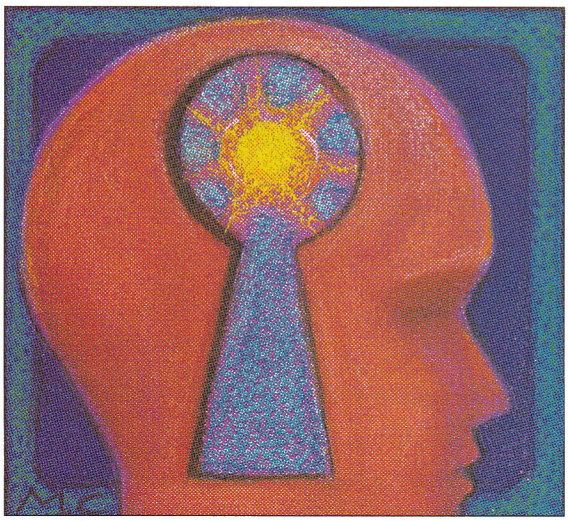
LOOK TO THE FUTURE

In a guest editorial, columnist David Thornburg predicts the dawn of a new information age.

One of my favorite Apple Computer education videos depicts a classroom in the year 2000. Using a hand-held appliance, a student gives a multimedia presentation on volcanoes to his classmates. The full-color animated production is displayed on a rear projection screen that takes the place of the blackboard in this school of the future. The device the student holds is compact, intuitive, and connected to a vast library of information that includes video, still images, text, and sound.



By DAVID D. THORNBURG, Ph.D.

The student gathered information for the report by browsing through this library and using the device to keep track of items he chose. Everything's neat and clean — the student never worked with a traditional authoring environment (such as HyperCard) and yet he created a unique presentation.

This technology is far from what students and teachers experience in classrooms today. Computers have had minimal impact on education as compared with business, and the reason has little to do with equipment cost. I'd bet that 40 percent of the teachers in this country haven't touched a computer in their lives and are intimidated by the very thought of using one. Therein lies the challenge. Companies are realizing that they must make technology easier to use, so that teachers and students will take the hardware and software off the storage shelf and bring it to the front of the classroom — so that even those who aren't skilled in the technology can reap its benefits.

Laser videodiscs are a perfect example of the technology suggested by the Apple film clip. For example, Pioneer makes an infrared bar-code wand for its model 2200 videodisc player that lets you pick your way through 54,000 still images per side. A student working with a word processor and a bar-code-generating program can create a document containing text and bar codes that represent pictures. When presenting the report, he or she can scan the bar codes with the wand and then point the wand at the laser-disc player's controls to bring up the selected pictures on screen. The beauty of this technology is that it requires virtually no training to use. If you need help, just ask a checkout clerk at your local supermarket.

CD-ROMs are also showing up in a number of information appliances that are looking more and more like the device shown in the Apple video — such as CDTV from Commodore. With its black satin finish and simple display, CDTV looks like a piece of high-quality stereo gear. But if you pop in a CDTV title, such as an illustrated encyclopedia or an atlas, it loads the software, then lets you navigate with a remote controller that's as easy to use as the one that came with your TV set.

Not to be outdone, Sony has demonstrated a prototype information appliance that uses 12-centimeter interactive CD-ROMs designed to hold educational programs and databases. It's about the size of a portable CD player, has a built-in color display, and will probably retail for less than $1000. In the meantime, Sony's Data Discman, a similar unit that takes 3-inch discs and generates a black-and-white text display, has been selling well in Japan for the equivalent of about $400. When it comes to the U.S., users will have complete reference libraries at their fingertips.

Laser videodiscs and CDTV open the door to classroom technology for educators who are intimidated by traditional computers. But is Apple on the cutting edge of these developments? Apple had the imagination to create a video showing a student using an information appliance, but why is it letting Commodore and Sony have the market? Apple has the creativity and the distribution strength to bring the product to customers at a reasonable price.

Perhaps Apple has forgotten its place as an industry leader. What happened to the spirit that brought us the Macintosh? Come on, Apple. Let's not fumble the future. ❑

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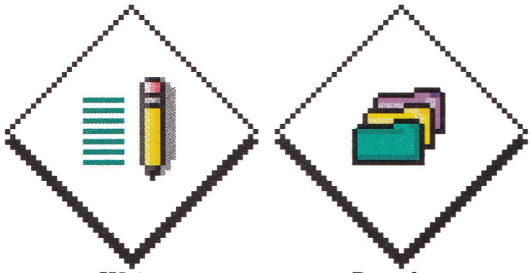

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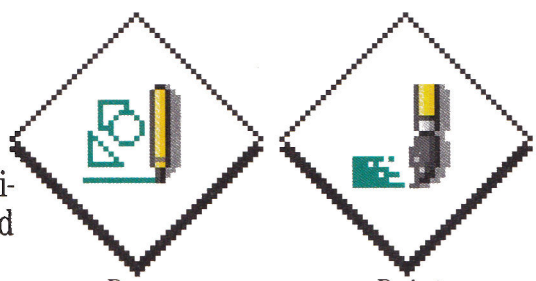

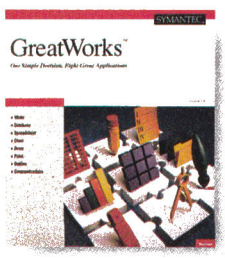

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LETTERS

BACK-SEAT DRIVER

IN THE SIDEBAR "UPDATE: SON OF Printer Polygamy" in "Long Live 7.0" (August 1991, p. 25), Gregg Keizer talks about using the Hewlett-Packard LaserJet IIP with AppleWorks. He states that HPII.SEG.ER.SHK, a public-domain printer driver for AppleWorks Classic, is what's needed to run the printer. He then says: "Remember, too, that you can use the IIP with a Macintosh after you add a third-party package of printer drivers, such as Seven Hills Software's Independence or Vitesse's Harmonie." He should have noted that these printer drivers are for the Apple IIGS — not the Macintosh.

A source for Macintosh third-party printer drivers is GDT Softworks Inc. (Suite 188-4664, Lougheed Highway, Burnaby, BC Canada V5C6B7, 604-291-9121). This company makes the PrintLink Collection of printer drivers (including some for the IIP) for the Macintosh.

David C. Dibbern
Apple Student Representative
Auraria Campus
Denver, CO 80215

Thank you for the correction as well as the referral. GDT Softworks is an accurate source for third-party printer drivers. — eds.

CAN'T FIND IT

IN "SHAREWARE: BARGAINS YOU'VE Never Dreamed Of" (June 1991, p. 34) you praise a shareware program for the Apple IIGS called Find File. It sounds as though it'd be great for people like me who are forever trying to remember where they saved something. In the article you advise us to contact an authorized Apple dealer for information regarding where to obtain this program. In this part of the country, though, if Apple II people enter an authorized dealership, we find ourselves in the domain of the "Mac-Krishnas." We aren't welcome and will receive no help. I can't handle the mysteries of the BBS, so could you tell me where I can obtain Find File?

Preston Boomer
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Preston, you're not out of luck. You have three alternatives for finding shareware — user groups, on-line services, and mail-order catalogs.

To find your nearest user group call Apple's User Group Locator service at (800) 538-9696, extension 500. If an on-line service is the route you want to take, contact CompuServe at P.O. Box 20212, Columbus, OH 43220, (800) 848-8199; GEnie at 401 North Washington Street, Rockville, MD 20850, (800) 638-9636; or America Online at 8619 Westwood Center Drive, Vienna, VA 22180, (800) 227-6364.

If you'd like to contact public-domain/shareware distributors, try Big Red Computer Club (423 Norfolk Avenue, Norfolk, NE 68701, 402-379-4680), Christella Enterprises (P.O. Box 483, St. Clair Shores, MI 48080), Caloke Industries (P.O. Box 18477, Department SK, Raytown, MO 64133), Continental Software Company (P.O. Box 1511, South Glens Falls, NY 12803, 518-761-6117), or Moonlight Software (P.O. Box 179144, San Diego, CA 92177). — eds.

SPLIT PERSONALITY

IN YOUR REVIEW OF MERCURY, the word processor from MECC (June 1991, p. 71), the reviewer described a "useful, well-designed, and reasonably priced" product, and awarded it four stars out of a possible five.

Our own experience with Mercury has been somewhat different. For us, it's a product with great potential, but it's crippled by at least one bug that renders it useless. Our version will "hang" occasionally when the user moves through a document via either the mouse or the arrow keys. This occurs without warning, forcing the user to

CROSSTALK

What's the word on our November word — *multimedia*? Are you "changing the world," or should the message be "don't believe the hype"?

Call our CrossTalk line, (603) 924-0301, and sound off on our topic of the month. Make sure you tell us who you are and where you're from, and we'll publish the best responses right here.

restart the computer. He or she loses any unsaved work. This problem isn't related to the size of the document, the ROM version, the memory-expansion board, or the memory chips. It fails to operate no matter what combination we try.

We've reported our experiences to our local MECC dealer, and have spoken directly to Paul Gullickson from MECC headquarters. All acknowledge that Mercury has problems and that the company is working to correct them.

This leads me to ask the following question: How did the highly positive review in your June issue come to be written? We're the disappointed owners of many legal copies of Mercury, purchased because of MECC's good reputation. We would be overjoyed to receive the same bug-free product your reviewer did.

A.J. Allen
Project Leader
Computers in K-12 Instruction and Learning
Saskatoon Board of Education
405 Third Avenue South
Saskatoon, Saskatchewan, Canada S7K 1M7

Jim Trunzo, the author of the review, maintains that he didn't encounter the problems you're having. Graigg Holly, MECC's manager in development, told us that there have been some complaints such as yours, and that MECC is trying hard to find the cause of the problem. As of now the company has found no pattern. Graigg also told us that MECC has had many happy Mercury consumers. — eds.

THERE'S A BETTER WAY

THE ARTICLE "HYPERCLASS: Interactive Multimedia Revolutionizes Education," was, for the most part, informative and accurate. (See May 1991, p. 34.) Unfortunately, the brief discussion of HyperMover contained an error. Storing HyperMover's intermediate data files on an AppleShare file server for transfer to a IIGS is obviously the optimal method for moving the files between computers. But Gregg Keizer's assertion that using an on-line service is the second-best solution is inaccurate. Utilizing the Apple File Exchange utility that's included with the Macintosh system software is a faster and cheaper way to get HyperMover files to a GS.

Jim Wong
625 Stanford Circle
Elk Grove Village, IL 60007

CORRECTIONS

In the "Product Information" box in the feature "Users, Unite!" (July 1991, p. 51), we misquoted CompuServe's membership charge. The correct rate is a one-time fee of $39.95 (not $39.95 per month).

In the feature "Sneak Preview: Desktop Publishing Panache" (July 1991, p. 36), the description of Publish It!'s group selection should say "open apple-clicking," not "shift-clicking." The Publish It! series doesn't use Apple's standard method of selecting multiple objects.

ADDRESS YOUR CORRESPONDENCE TO LETTERS, *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458.

MS-DOS APPLEWORKS*

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*inCider/A+ Magazine August, 1991

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As a special introductory offer to **inCider** readers, SuperWorks will be made available at the special price of $199.00 (plus $5.00 shipping and handling). SuperWorks has a regular retail price of $400.00. Send check or credit card information with order form at right to Remarkable Technologies, 245 Pegasus Avenue, Dept. SW, Northvale, NJ 07647. Phone: 201-784-0900 Fax: 201-767-7463

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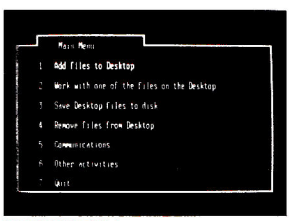

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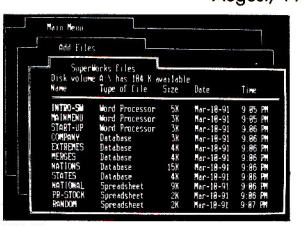

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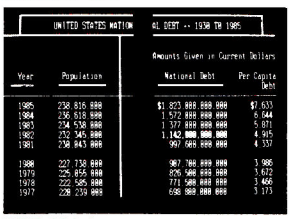

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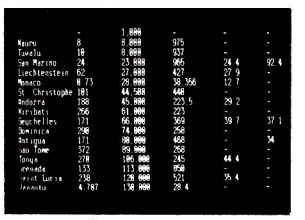

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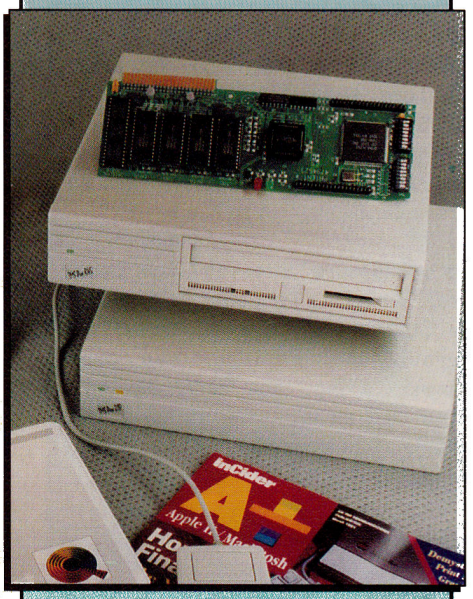

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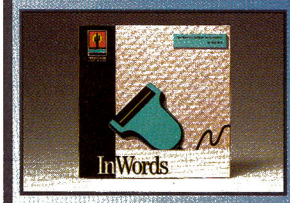

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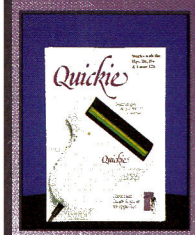

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This is the only hand -held, grey-scale image scanner for all "slot equipped" Apple IIs—the IIgs, IIe, II+ and the Laser 128. Quickie allows you to digitize flat page images quickly in multiple sizes and save all or parts of them to disk in standard Apple II graphic file formats. Software is provided in both GS/OS and ProDOS 8 formats.

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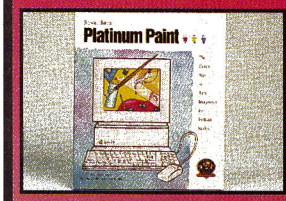

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CAN COMPUTERS TEACH?

Concerned about the quality of education? Perhaps your personal computer can help you educate your children?

Lynn Stewart, a teacher, teamed up with technical writer Toni Michael to write A Parent's Guide to Educational Software and Computers ($8.95 from Computer Publishing Enterprises, San Diego, California). "To learn effectively," they write, "children must have a feeling of success, safety, [and] empowerment." Stewart and Michael believe that computers can meet these needs. They list other features to look for in educational software, as well. For instance, children have short attention spans, so software should feature graphics, action, sound, and excitement. This "entertainment" often occurs when the child makes a correct response, a link that will encourage him or her.

Good software, they say, offers different skill levels, grows with the child, and guides him or her to correct answers without insulting the child. The authors lists several programs that meet this criteria.

Stewart and Michael also dispel some myths. They argue, for example, that computers isolate children. They suggest that you put your computer in a place where family members can participate in projects together. Kids are eager to show what they've done and to see what others have done; this makes them more outgoing, not less.

Stewart and Michael repeat themsleves often with common-sense advice. Even the five-step process for buying a computer borders on being offensively obvious.

But A Parent's Guide is comprehensive and explains how computers can enhance education. If you're wondering how to supplement your child's education, this book is a worthwhile reference. **— Dan Huston**

JACKS OF ALL TRADES

The market for Mac integrated software is suddenly thriving: Challenging Microsoft Works, long the sole contender, are **BeagleWorks** ($299.95, Beagle Bros, 619-452-5500), **ClarisWorks**, ($299, Claris, 408-727-8227), and **GreatWorks** ($295, Symantec, 408-253-9600).

Microsoft Works has been around almost as long as the Mac — the current version is still 2.0. Rumor has it that a major upgrade is planned to compete with the sudden horde of challengers.

GreatWorks was the first Works challenger. Announced as SmartWorks at the introduction of the Mac Classic and LC, it was written by TML Systems, the people who created languages for the

Apple IIGS. (See "Sneak Preview: SmartWorks," January 1991, p. 66, and "Your First Mac Package . . . What's the Best Deal?" April 1991, p. 46.) GreatWorks can work with eight types of files: word processor, database, spreadsheet, painting, drawing, chart, outline, and telecommunications. It needs 1024K, however, just to run.

Claris says ClarisWorks squeezes into less than 300K, because it decided to keep more program on disk and less in RAM. (ClarisWorks requires a megabyte of RAM and two floppy disk drives, but 2 megabytes and a hard drive are recommended.) But ClarisWorks' greatest strength may be its ancestry: It was written by the same programmers who created AppleWorks GS. ClarisWorks doesn't use "modules"; instead it uses what Claris calls "seamless environments." In case you outgrow ClarisWorks, the menus and interfaces of its spreadsheet, word processor, graphics program, and database manager are consistent with higher-level Claris products — Resolve, MacWrite Pro, MacDraw Pro, and FileMaker Pro. ClarisWorks also uses the company's custom spell-checking and help programs, which work with all Claris' Mac applications.

BeagleWorks was produced by the company that wrote AppleWorks 3.0. It uses what Beagle Bros calls "in-context editing" to let you work with all kinds of data — spreadsheet, database, word processing, or graphics — in a single document. BeagleWorks also uses "hot links" between documents — they work much like the "publish and subscribe" features of System 7.0 do, but under older versions of system software. BeagleWorks checks your spelling with a Microlytics industry-standard spelling checker and thesaurus. The package also includes a true painting program, with color — something the other integrated packages lack. BeagleWorks requires 1 megabyte of RAM and a hard-disk drive.

All three of the integrated entries use Claris' XTND file-exchange translators, which let you work with files from a wide range of applications — most significantly, AppleWorks 3.0, AppleWorks GS, Works, and Word. Each company also offers education discounts. It now appears unlikely that one integrated package will dominate the Macintosh market as AppleWorks dominated the Apple II arena. **— P.S.**

Illustration • Elizabeth V. Auer

"Apple II" indicates an 8-bit product compatible with IIes, IIcs, IIc Pluses, and IIGses unless noted otherwise.

NEW HARDWARE

▲

WARP DRIVE

If you're looking for speed, take a look at **TransWarp SE** ($1019) from Applied Engineering. Complete with 32K of RAM and an MC68030 processor, the company claims that TransWarp improves the Mac SE's performance by up to 800 percent.

TransWarp SE is available as a 25- or 40-megahertz CPU (central-processing unit), with no floating-point coprocessor or with a 16-, 25-, or 40-megahertz floating-point coprocessor to match the CPU speed. Four sockets accept either 1-megabyte or 4-megabyte 80-nanosecond fast-page SIMMs (single in-line memory modules), for a maximum of 16 megabytes of DRAM (dynamic random-access memory). It also contains a high-performance cache and an expansion connector for third-party devices such as large-screen monitors.

TransWarp is System 7 compatible. For more information, contact Applied Engineering, P.O. Box 5100, Carrollton, TX 75011, (214) 241-6060, or circle number 352 on the Reader Service card.

▲

THUNDERWARE STRIKES AGAIN

Where there's thunder, there's lightning. Designed for speed and control, the new **LightningScan Pro 256** for the Mac is a hand-held scanner for graphics professionals.

Priced at less than $500, LightningScan produces 256 shades of gray, with user-controlled resolutions of 100, 200, 300, and 400 dots per inch. It scans graphics and text, and is compatible with all desktop-publishing, illustration, painting, drawing, and optical-character-recognition (OCR) programs. It supports encapsulated PostScript (EPS), PICT, paint, TIFF, and ThunderScan file formats.

Included in the package is SnapGuide, a device designed to make straight scanning easy by preventing side-to-side motion, and ThunderWorks, an image-editing application with tools for drawing, zooming, controlling brightness and contrast, and altering gamma curves.

Nineteen filters let you add effects such as noise, blurring, enhanced edges, relief, sharpening, and smoothing. LightningScan is System 7 compatible and supports virtual memory.

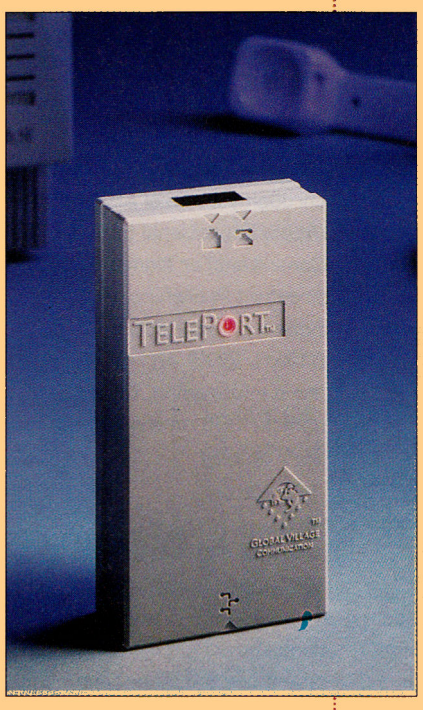
For more information, contact Thunderware, 21 Orinda Way, Orinda, CA 94563-2565, (415) 254-6581, or circle number 351 on the Reader Service card.

▲

FAX YOUR PIECE

What works on any Macintosh with an Apple Desktop Bus, is the size of a stack of 3-by-5 index cards, and can save you time while increasing your productivity? (Hint: It's not a finicky roll of ambitious toilet paper.) It's Global Village's **TelePort/Fax 9600** ($295), a new device that lets you send faxes from your computer while you work with other applications.

Backed by a 5-year warranty, the unit displays the status of your fax on your menu bar, and informs you of modem and telephone status, as well. It includes an MNP/5 error-correcting modem, and 300-, 1200-, or 2400-baud data communication. It's Hayes compatible and features autoanswer and autodial. If you own the TelePort 2400-baud data modem you can



upgrade with TelePort/Fax software for $60; 4800-baud TelePort/Plus owners can upgrade for $49; and TelePort owners can upgrade for $99.

For more information, contact Mike Richman, Global Village Communication, 1204 O'Brien Drive, Menlo Park, CA 94025, (415) 329-0700, or circle number 350 on the Reader Service card.

NEW SOFTWARE

◆

KEEP ON TRUCKIN'

The open road has its advantages — travel, freedom, adventure. Truck driving possesses a distinct romantic appeal for spirited ramblers who find it difficult to settle down. Now it's beckoning to Apple II-using educators as well, as Didatech introduces **Crosscountry Canada** ($49).

The practical aspects of truck driving, such as record keeping and map reading, make for excellent educational tools. Crosscountry Canada places students in the driver's seat of an 18-wheeler with cargo to be delivered to 80 cities throughout Canada — an exciting experience for 4th- through 9th-graders. Players compete to control mileage and expenses. The game can help teach a variety of subjects, including geography, math, problem solving, and even language arts.

Didatech also produces **Crosscountry USA**, **Crosscountry California**, and **Crosscountry Texas**. For more information, contact Didatech Software, 3812 William Street, Burnaby, British Columbia, Canada V5C 3H9, (604) 299-4435, or circle number 353 on the Reader Service card.

▲

SPECIAL SOFTWARE

Class Adaptive Technologies announces the release of several Macintosh programs for special-needs learners.

AugmentiCom and **HyperPhrase** are designed to improve communication skills. AugmentiCom uses speech output and single-switch technology to let users construct sentences and phrases. For those who can't read, HyperPhrase uses pictorial representations of words to construct two- and three-word sentences. Animated reinforcers and digitized sound and speech make the program fun and motivating.

NEW-PRODUCT FOCUS

▲ MAC ◆ APPLE II ▤ APPLE IIGS

Motor Training Games is a collection of programs that use animation, digitized sound and speech, and single-switch technology to address skills such as cause-and-effect, reaction time, and pattern matching. **Symbolic Draw** lets the operator use single-switch technology to sketch shapes and pictures and save them to disk. **Symbolic Logo** is a computer language that uses pictorial symbols to write programs; it's compatible with Logo and includes all standard Logo functions. Users can view programs in symbol or code mode.

The five CLASS packages require a minimum of HyperCard 2.0, a Macintosh Plus, and an external disk drive. Symbolic Logo is priced at $75; the other programs sell for $50 each. For more information, contact CLASS Adaptive Technologies, 16 Haverhill Street, Andover, MA 01810, (508) 475-2492, or circle number 354 on the Reader Service card.

▲

LAB LEARNING

If you're affiliated with a middle school or high school using networked Macintoshes in labs, you may be interested in William K. Bradford's **WKB Toolbox** ($3000), a collection of eight programs: GraphWiz, Algebra Xpresser, 3D Images, The Electronic English Handbook, Think & Write, MindMap, Bradford Class Manager (10 copies), and Bradford Discovery, with accompanying CD-ROM data disc. Specific curriculum applications for 20 subjects are included: algebra I, algebra II, geometry, advanced math/precalculus, statistics, grammar and composition, literature, history, government/civics, economics, geography, sociology, life science/biology, earth science, physical science/chemistry, and physics. If you'd like a more detailed explanation of Toolbox's applications, a descriptive guide is available on request.

You can order WKB Toolbox through your local AESC (Apple Educational School Consultant) or from William K. Bradford Publishing, 310 School Street, Acton, MA 01720, (800) 421-2009. For more information, circle number 355 on the Reader Service card.

◆

GAMES STUDENTS PLAY

The people at Children's Television Workshop designed Wings for Learning's latest Apple II educational package: **3-2-1 Contact: Wild Things!** ($75). Designed for grades 3 through 8, Wild Things! attempts to make science fun, encourages cooperative problem solving, and acquaints students with using reference materials.

The game hinges on demonstrating similarities between creatures by asking questions such as "What do fleas and frogs have in common?" To answer, kids must develop an understanding of classification and grouping. If they're playing in a group they're encouraged to help each other. In addition, the game comes with a two-book reference for students called Guide to the Wild. A Teacher Guide is also included, along with the program disk and backup. Wild Things is available for a free 30-day preview. For more information, contact Wings for Learning, 1600 Green Hills Road, P.O. Box 660002, Scotts Valley, CA 95067-0002, (408) 438-5502, or circle number 356 on the Reader Service card.

▲

THE WHOLE WORLD IN YOUR HANDS

For armchair intellectuals, political critics, activists, and concerned citizens, **Pax Imperia** ($59.95) gives you the opportunity to build the world you've always dreamed of. Changeling Software's debut product for the Mac puts you in charge of a unified world whose resources are rapidly depleting. You have no choice but to leave Earth, explore outer space, and colonize.

Pax Imperia simulates the world we live in today. You're in charge and must make your

decisions carefully, taking into consideration factors such as economics, technology, the military, diplomacy, and exploration. Within this world you can develop resources, build space fleets, converse with officials within your empire, and more. Play Pax Imperia at your computer or via modem, against people or against the Mac. Up to eight people can play at a time. "InterFACE actors" replace a menu, appearing on your screen with information or questions. Pax Imperia is System 7 compatible and requires 1 megabyte of RAM and a hard-disk drive. For more information, contact Changeling Software, 596 Elm Street, Windsor Locks, CT 06096, (203) 623-1963, or circle number 358 on the Reader Service card.

▲

THINGS CAN ALWAYS GET BETTER

"Word Finder is by far the most popular electronic thesaurus," says Mark Homuth, vice president of sales at Microlytics. Now comes **Word Finder Plus** ($69.95) for the Mac, with more than a million synonyms and a new "autoinflection" feature, which returns synonyms in the appropriate grammatical form. For instance, if you enter hitting, the program returns the word striking. Word Finder Plus is compatible with Apple's System 7.0 and HyperCard 2.0. If you own Word Finder currently and want to upgrade, call (800) 828-6293, or dial (716) 248-9250 within New York State.

Microlytics wasn't satisfied with its Spell Finder software, either, and consequently developed **Spell Finder 7.0**. Available in 17 languages, this updated version recognizes language-specific elements such as clitics for Italian and Spanish, elisions for French, and compound word forms for Finnish and Swedish. Also in Spell Finder 7.0's vocabulary

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Æ Update . . .

GS-RAM III is the latest IIGS memory expansion board from the 11 year old company that has shipped *over a quarter of a million* memory expansion boards for Apple II computers. GS-RAM III is an economical and compact 4" x 2 1/2" design that uses the minimum components for maximum efficiency giving you greater reliability and less heat build-up. GS-RAM III is much more efficient than competing designs that use two memory boards and up to 10 times the components for the same memory size. GS-RAM III is fully DMA compatible and is expandable in 1 - 4Mb sizes using only 2 chips per Mb. Attach an optional GS-2 Megabyte Expander for a total of 6 Megabytes.

Æ is offering a TransWarp GS performance boost. The proven and reliable stock TransWarp GS contains an 8K cache and more than doubles the speed of the IIGS. The new 32K Cache Upgrade will provide an additional 22-35% performance boost to the TransWarp GS. $109 is the Suggested Retail for this user-installable upgrade. The *Suggested Retail Price* for TransWarp GS with 8K Cache is now only $299 and only $399 with 32K Cache.

Æ releases Vulcan Gold and Gold-Cache Upgrade. Vulcan Gold is an internal hard drive for the IIGS, IIe and II Plus that supports GS/OS, ProDOS, DOS 3.3, Apple Pascal, CP/M and even MS-DOS for the PC Transporter. The new Vulcan Gold, available in 40Mb & 100Mb sizes and housed in a metallic gold case, contains a super-fast, state-of-the-art IDE caching drive mechanism. Vulcan Gold still retails for only $899 for the 40Mb version and $1795 for the 100Mb version.

Vulcan Gold contains a number of powerful software enhancements over its predecessor. Compared to the original 40Mb and 100Mb IIGS Vulcan, the new software offers significant performance increases — 50% on reading data and 300 - 900% when writing data. Instead of waiting for the system to boot in order to access different Vulcan partitions, the new software allows the user to instantly choose which partition to boot from by simply pressing the spacebar. In addition to choosing a partition from this menu, the user can choose to boot from another drive other than the Vulcan. A new and cleaner ROM provides more efficient operation.

Current 40Mb and 100Mb IIGS Vulcan owners can upgrade to these powerful software enhancements by obtaining the Gold-Cache Upgrade for $59. For IIe and 20 Mb Vulcan owners, call Æ for a detail of features that can help your performance.

Æ's new 5.25" drive is compatible with the Mac LC IIe Emulation Card. Apple's IIe Emulation Card for the Macintosh LC contains a DB-19 connector for connecting the Applied Engineering Apple II 5.25" Drive. Applied Engineering's new Apple II 5.25" Drive retails for only $189.

The new Ready Express telecommunication solution is available. Ready Express is a complete telecommunication package for the Apple IIGS, enhanced IIe, IIc and IIc Plus. The new package contains powerful ReadyLink communication software and the new DataLink II Express external modem with V.42bis. ReadyLink ($99 value) contains a number of extensive features including macros, pull-down menus and VT-100 terminal emulation. V.42bis provides automatic error correction and an effective speed of up to 9600bps. Over $200 of popular on-line service discounts are included with Ready Express. Optional GS Send-Fax allows a IIGS user to fax text and graphics from any GS/OS application. Ready Express retails for only $299 and only $349 with GS Send-Fax.

Æ has a multi-line technical support bulletin board. The free BBS is available 24 hours a day, 7 days a week. Troubleshooting tips, latest Æ software revision numbers, and a host of other information are available for users with any 300, 1200, or 2400 bps Hayes-compatible modem (set for No Parity) by dialing (214) 241-6677. If your modem supports V.42bis and MNP-5, then data compression and automatic error correction are supported. If Æ users need to contact Applied Engineering Technical Support directly for a knowledgeable Apple II technical expert, they can call 900-884-0123, Monday — Friday, 9:00 a.m. - 5:00 p.m. Central Standard Time. The cost of the call is $1.50 per minute with no long distance charge.

Æ
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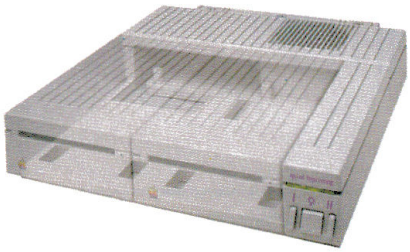
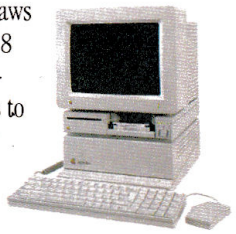


Beat the heat

Heat. The computer user's most insidious enemy. Peripheral cards unavoidably produce heat inside your cpu. Heat that can devastate your whole system. Conserver™ effectively cools your IIGS while it protects against power surges and helps organize your workspace.



A quiet but powerful cooling fan draws air from the top of the IIGS at a rate of 18 cubic feet per minute, lowering the temperature inside by more than 20 degrees to offset the heat produced by expansion cards. The difference can be critical to the life of your computer.

Power surges also invisibly threaten your computer's well-being. They occur when voltage spikes surge through your wiring seeking a place to dissipate. If that place is inside your computer, you'll very quickly gain a greater understanding of the laws of electricity. It's not a pretty sight.

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For beauty, we gave Conserver the same sleek lines of the IIGS and a perfectly matched platinum color. To reduce desktop clutter, the unit was cleverly designed to house two 3.5" disk drives, or one drive and the special diskette holder we include.

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are modern terms, proper nouns (such as names, places, and companies), and complex word forms, such as over-achiever and discontinuance. Both Word Finder Plus and Spell Finder 7.0 are available for OEM licensing. For more information, contact Microlytics, 2 Tobey Village Office Park, Pittsford, NY 14534, (716) 248-9150, or circle number 357 on the Reader Service card.

BRINGING MAC UP TO SPEED

Introduce your Macintosh to the arcade. Velocity Development's debut Macintosh product, **Spectre** ($44.95), boasts top-notch 3D graphics, digitized sound, and arcade-like action. This simulation/action game puts you in a warring cyberpunk world.

Armed with your trusty BattleCraft, you fight the clock and enemy RobotCrafts, and collect enemy flags. The better you get the harder the game becomes. You can play against other users or in teams over AppleTalk networks. **LAN Party Paks** are also available. For more information, contact Velocity Development at (415) 848-9168, or circle number 359 on the Reader Service card.

ELEMENTARY, MY DEAR MORIARTY

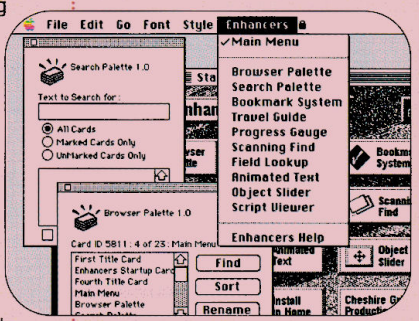
Moriarty's long been a leader in the world of crime, a netherworld ruled by ten secret societies. Now you can join the Scotland Yard Irregulars and help put an end to the maliciousness.

Don a trenchcoat (perhaps a deerstalker?) and boot up Mysterium Tremendum's Moriarty's Revenge ($59.95). Armed with a Rand McNally Pocket World Atlas and a computerized detective notebook, this Mac game sets you to traveling the globe, digging up evidence to rid the planet of those diabolical villains who wreak havoc ruthlessly among innocent populations.

For more information, contact Mysterium Tremendum, 245 Jefferson Drive, Pittsburgh, PA 15228, (412) 563-0599, or circle number 360 on the Reader Service card.

SMILE AND ENHANCE

First-time user or expert, developer or educator, Cheshire Grin's **Stack Enhancers** ($69) package for the Mac helps you tap into

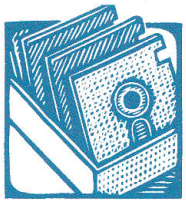


HyperCard's potential. With ten easy-to-use interactive-media and development tools, you can choose and install options with a simple click of the mouse.

The software's Browser Palette simplifies stack design and testing, while a Search Palette locates and displays text. An on-line help system makes things even easier.

For more information, contact Cheshire Grin Productions, 2145 Sherobee Road, Suite 43, Mississauga, Ontario, Canada L5A 3G8, (416) 896-8077, or circle number 361 on the Reader Service card.

SHAREWARE SOLUTIONS * BY JOE KOHN



DESIGNER DESKTOPS

One of the more satisfying and creative aspects of using the GS' graphics interface is that you can customize it to fit your style. Thanks to a variety of shareware solutions, you can change the look and feel of your system, including any number of GS/OS functions — from the message you see while the OS loads, to the way the Finder operates, to the look of the desktop, to the way you move from program to program.

Several caveats are in order first. Most customization programs require expanded RAM and extra storage space. Many work best with a hard-disk drive and 1.5 megabytes or more of RAM. Owing to the size of GS/OS system files, only a few custom options are available if you're booting the OS from 3.5-inch disks. The more memory and disk space available, the better your system will operate.

Now for the specifics: GS/OS' many components make for a variety of ways to customize your system. Some changes are functional; others are cosmetic. Paul Gauthier's freeware **CUSTOM.GSOS** program, for instance, lets you edit the message you see while the GS/OS thermometer bar is filling. You can even change the small graphic of the GS that's displayed during loading. Using Joseph Schober's freeware **Splash Editor**, you can change the background color.

Moving on to more serious pursuits, you can also install a feature-laden alternative to the Finder. Dave Hill's $29.95 **JumpStart** lets you create custom color menus listing your favorite programs, and launch them fast by pressing a letter or by clicking on your selection. It includes all standard Finder utilities and more, including the ability to view text files or AppleWorks files directly from the desktop, and to set up a 64K print buffer.

You can also stick with the Finder and modify it. John M. Intondi's freeware **Finder Patcher** utility, for example, lets you assign keyboard equivalents to all pull-down menu commands. If you're after cosmetic changes, Dave Leffler's freeware **Color.Cdev** lets you switch the color of the Desktop or create a multicolor patterned desktop. Todd Whitesel's freeware **Desktop Picture** INIT file lets you add a full-screen graphic as background.

With **IconEd**, a $15 shareware application from Paul Elseth, you can use fat-bits mode to customize any standard GS/OS icons — changing color, shape, or pathname attributes (letting you double-click on an AppleWorks word-processing icon, for instance, to launch AppleWorks). The error message "an application can't be found for this document" will be a thing of the past.

For more information on these nifty utilities, contact an Apple user group or a mail-order house, or download them from one of the on-line services. Once you've discovered the wonders of shareware, your GS won't have to look or act like any other. ❑

To submit your public-domain or shareware program for review, send disks to Joe Kohn at 166 Alpine Street, San Rafael, CA 94901.

Power to spare

With today's advanced peripherals and applications Apple didn't dream of a few years ago, it's easy to overload the standard Apple power supply. That's why Applied Engineering now offers a heavy duty power supply for the IIGS, IIe and II+. AE's Heavy Duty Power Supply more than doubles your Apple's power output.

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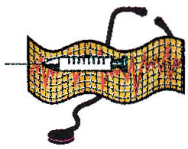


APPLE CLINIC

CHAIN GANG

CHAIN your programs and get around those system limitations.

By CECIL FRETWELL

MOVING AROUND

MY CURRENT SYSTEM HAS ONLY two 5.25-inch disk drives. I plan to expand to a 3.5-inch disk drive in the near future, but until then, I have to make do with what I have. Unfortunately, I'm not doing very well. Because of my limited disk-storage capacity, I've been forced to divide my program into two parts. No matter what I do, though, I can't seem to get my computer to switch back and forth between the two volumes. Is there something I can implement in ProDOS BASIC to make the computer search for the file in both drives, instead of just displaying the message *Path Not Found*?

David Lustig
Englewood, CO

If you're programming in Applesoft, you can use the CHAIN command to move from one section of a program to the next, even if each part is in a different drive. CHAIN is much like RUN, except that you can pass variables from one program to another. Here's an example:

```
PRINT CHR$(4);"CHAIN My.Program"
```

You can't loop back and forth between two sections with GOTO or GOSUB, and you must know the file's exact pathname. Each program section must be a self-contained module.

With this in mind, explore the following possibility. At the beginning of the execution of your main program, insert the following statements:

```
ONERR GOTO ####
PRINT CHR$(4);"PREFIX"
INPUT S$
```

Line numbers aren't shown because they aren't important, but you can't place any statements between the PRINT and INPUT statements. This fragment of code stores the current prefix in S$. Now that you know where you are, you have to find out where you're going — you need to know the prefix for the disk in the second drive. This information is easy enough to find if you use the statements:

```
PRINT CHR$(4);"PREFIX ,S6,D2"
INPUT SD$
```

If the second drive has a disk inserted in it, SD$ will contain its volume name. The key to these two subroutines working properly is the ONERR GOTO command. If any sort of error occurs (such as Path Not Found*) ONERR GOTO instructs your Apple II to jump to your error-handling subroutine, instead of crashing and burning with a disheartening beep. Your error-handling subroutine should instruct you to insert the proper disk into the proper drive, and return control to the main program.*

Once you know the volume name for the second drive, be sure to issue the statement `PRINT CHR$(4);"PREFIX ";S$`*, which takes you back to the main program disk.*

Do you now see how CHAIN can help you? You can CHAIN into a program on the second drive by using SD$ and any other directory names, as well as the program code name. Once the program on the second disk finishes, it can CHAIN back to a program on the first disk.

INSTALLER PROGRAM SCRIPT

THE INSTALLER PROGRAM ON the IIGS /SYSTEM.TOOLS disk uses script files as instructions to determine the files to copy from one disk to another. Can you tell me the rules for writing a script file so that I can make my own to use with the Installer? Are there any publications that cover this subject?

SSG Gary R. Lepellietier
APO NY

Although space constraints won't allow me to discuss the procedure for writing a script file, Apple Computer's Apple IIGS Technical Note 64 *has the information for which you're looking. You might also try* GS+ *magazine (P.O. Box 15366, Chattanooga, TN 37415-0366, 615-870-4960). Recent issues contain some articles on script files and include a selection of sample files.*

If you can't obtain a copy of the technical note, but you belong to a bulletin-board system such as CompuServe or GEnie, you can download the note. Most major bulletin-board systems have a complete set. Thanks to Parik Rao, Tim Swihart, and Rob Deichert for helping me answer this question via America Online.

ARE BAD SECTORS REALLY BAD?

I PURCHASED A 40-MEGABYTE hard disk recently to add to my existing SCSI (small-computer-systems interface) hard drive. When I formatted the drive, the utility program told me the disk had 75K of bad sectors. I called the vendor's technical-support staff, and was told I had no reason to worry, because the number of bad bytes was small, something like .2 percent of the disk drive's capacity. Does that seem valid?

Beth Diesch
Fort Hope, CO

It's an honest response. During the format process, any bad sectors are marked as used and can never be deleted by standard means. You never see those bad sectors during your day-to-day operations. Someday we may see flawless disks — before we start using them, that is. (They can always wear out.) As for your current situation, your hard disk doesn't have to be perfect to operate correctly.

CAN I PARTITION?

IS IT POSSIBLE TO PARTITION A 20-megabyte hard-disk drive for the Apple IIGs? If so, how would I go about doing it? I'd appreciate any information you could give me.

Jeffrey Niederauer
Los Gatos, CA

Jeffrey, you certainly can partition your 20-megabyte hard-disk drive. Although several specialized utility programs are available that can do the job, why spend more money than you have to? The GS/OS SYSTEM.TOOLS disk has an application called Advanced Disk Utility, whose filename is Adv.Disk.Util. Just fire it up and follow the on-screen prompts to create your partitions. It's that easy.

Before you boot up the application and start to work, though, make sure you have backups of all your applications and data; repartitioning a drive also formats it and wipes everything clean.

Before you partition your hard drive, think carefully about how you want to organize your system. Many users place applications and files in different volumes, so that they have to back up only their data. Others create business and home divisions, or ProDOS and GS/OS sections. Remember that ProDOS won't recognize more than two partitions, and neither can be more than 32 megabytes. (Obviously, this last restriction isn't a problem for you.)

For a more in-depth discussion of hard-disk drive ownership, consult inCider/A+*'s six-part "Hard-Disk Drives Made Easy" series. (See "Shopping for a System," January 1991, p. 61; "The SCSI Side of Life," February 1991, p. 47; "Off the Beaten Track," March 1991, p. 88; "The Wizard of OS," April 1991, p. 53; "It Pays to Be Organized," May 1991, p. 57; and "Surviving the Crash," June 1991, p. 42.) "Off the Beaten Track" deals in particular with formatting and partitioning your drive, and talks specifically about Apple's Advanced Disk Utility.*

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. BECAUSE OF THE VOLUME OF LETTERS, MOST WON'T APPEAR IN PRINT, BUT WE'LL TRY TO RESPOND IF YOU ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE.

APPLEWORKS CLINIC

By Claris Corporation
and the National AppleWorks Users Group

SETTING PARAMETERS

Is it possible to create an @IF statement in the AppleWorks 3.0 spreadsheet with an @OR parameter?

AppleWorks 3.0 can recognize formulas containing @OR and @AND. @OR checks to see if any of two or more statements are true. @AND checks to see if all the statements in the formula is true.

The formula @IF (@OR(C12=50, B12=50),0,1) verifies if either C12 or B12 contains a 50. If either does, a zero is displayed.

We could also write the formula as @IF (@AND (C12=50, B12=50),0,1) and it would check to see if cell C12 as well as cell B12 contains a 50.

In many instances you need to know if a value in a cell is greater than (or less than) a value in other cells, so you can formulate an @If statement as @IF (@ AND (C12>C11, C49>C48, D1, 25).

This formula checks to see if the value in C12 is greater than the value in C11, and the value in C49 is greater than the value in C48. If both of these are true, the value in D1 is displayed. If not it'll display a 25.

BACK TO APPLEWORKS

I've purchased a Macintosh LC recently and have transferred some of my AppleWorks letter files to a Macintosh word-processing application. This transfer worked great, but now I have to take one of my word-processing files back into AppleWorks. How can I accomplish this?

To transfer files from your Macintosh word processor back into AppleWorks 3.0 follow the steps below.

- Save the Macintosh file in ASCII (tab delimited) format.
- Launch the Apple File Exchange program on the Macintosh and transfer the file to a ProDOS-formatted 3.5-inch disk.
- Create a new AppleWorks file. From the AppleWorks main menu, choose Add Files to the Desktop, then select Make a new file for the Word Processor. Hit return. Finally, choose Make a new file from the second option — a text ASCII file. Select the ASCII file that you ported over from the Macintosh, press return, and voilà!

ONE OUT OF A DOZEN

I've been trying to print mailing labels using a label report format in the AppleWorks 3.0 database. I've set my page length to 1 inch (for 1-inch mailing labels), but the printer skips over 11 labels for every one that it prints. What do I do?

Because your printer normally runs off copy on an 11-inch page, AppleWorks is advancing the paper as if you were still using regular letter-sized paper. If you set the Accepts top-of-form command in your printer-setup screen to No, the mailing labels will print properly. We recommend this procedure if you print pages of less than a half inch frequently.

NOT ON LINE

Whenever I try to print either superscript or subscript characters on my ImageWriter II from an AppleWorks 3.0 document, the lines of text don't look uniform. Although the superscript and subscript text prints properly, depending on which character I used, the remaining text prints either too low or too high. Is there any way to avoid this?

You can correct this problem by inserting a superscript-begin command followed by a superscript-end command at the beginning of the first line of your document.

APPLEWORKS CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT THE POPULAR INTEGRATED PACKAGE APPLEWORKS — CLASSIC, 3.0, OR GS. ADDRESS YOUR CORRESPONDENCE TO APPLEWORKS CLINIC, *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. MENTION OF THIRD-PARTY PRODUCTS IN THIS COLUMN DOES NOT IMPLY ENDORSEMENT BY CLARIS CORPORATION. THE NATIONAL APPLEWORKS USERS GROUP (NAUG) IS AN ASSOCIATION OF MORE THAN 15,000 APPLEWORKS USERS. NAUG MEMBERS RECEIVE *APPLEWORKS FORUM*, A 36-PAGE MONTHLY NEWSLETTER WITH TIPS AND INFORMATION ABOUT APPLEWORKS. MEMBERS ALSO GET FREE TELEPHONE SUPPORT FROM THE GROUP'S 150 VOLUNTEER CONSULTANTS, AND HAVE ACCESS TO THE NAUG PUBLIC-DOMAIN LIBRARY AND MULTILINE APPLEWORKS BULLETIN BOARD. NAUG MEMBERSHIP COSTS $31 PER YEAR FROM THE NATIONAL APPLEWORKS USERS GROUP, BOX 87453, CANTON, MI 48187, (313) 454-1115.

McGEE AT THE FUN FAIR

Remember the days when we were all worried about the effects of television violence on our nation's children? Well, now there's another pastime that should make us just as uneasy. Omnipresent arcade games ensure that the average child has destroyed at least two zillion space aliens before he or she turns 8. For far too many children, their first experience with a microcomputer is via a Nintendo-type game machine. Wouldn't it be more suitable, sensible, productive, and appropriate to introduce youngsters to systems set up with nonviolent, noncompetitive software geared specifically for their age groups?

If you agree, Lawrence Productions' McGee at the Fun Fair could be the program for which you're looking. The third title in the company's "No Words" series of software for preschoolers, McGee at the Fun Fair is geared specifically for kids aged 2 to 5. (For more information on McGee, the company's first title in the series, see Editors' Choice, January 1990, p. 132; for an evaluation of Katie's Farm, the second title in the series, see the Reviews section, December 1990, p. 28.)

Lawrence Productions
1800 South 35th St.
Galesburg
MI 49053-9687
(616) 665-7075

- early-learning software
- 1-megabyte Apple IIGS, GS/OS 5.0 or later
- no copy protection
- $39.95

SOFTWARE TO COUNT ON

Youngsters don't need to activate any complicated pull-down menus, or coordinate intricate mouse movements. And best of all, this program isn't based on some space-aliens-attacking-earth scenario. Kids can actually relate to it. They'll feel a sense of accomplishment as they manipulate the computer so easily; they'll get a charge out of exploring the scenes; and they'll develop some hand/eye coordination by using the mouse. But, most of all, they'll have lots of fun.

Part of what makes this program so inviting to children is that its operation is easy to handle. When youngsters boot up the program from the two 3.5-inch program disks, McGee prompts them as he instructs them to "please put disk 2 in now" at the appropriate moment. Once the second disk finishes loading, the child sees McGee, his mom, his dad, his dog, and his pal, Tony, as they set out for the fun fair at a local park. At the fair, the youngster is in charge, and wherever he or she wants to go, McGee and Tony follow happily.

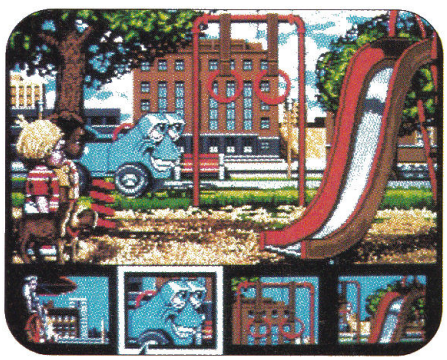
The child uses mouse clicks to navigate through the program. The top three quarters of the computer screen displays a large

Photography • Larry Dunn

graphics image, with four smaller images displayed at the bottom. From the initial screen, these small graphics include a man with a sketchpad, a clown, a court jester, and a man with a food-concession cart. If the child clicks on the man with the sketchpad, for example, the large graphics image changes to an animated display of the man drawing a picture. If the child clicks again on the man with the sketchpad, he completes a second drawing. If the child clicks on the clown, the scene changes quickly into the clown blowing up animal-shaped balloons. When the child clicks on the jester, he or she is treated to a display of juggling.

EXTRAS INCLUDED

All these scenes are animated realistically and include appropriate digitized sound effects. When the youngster clicks on the ice-cream vendor, for example, he or she watches McGee and Tony remove the wrappers, and listens to them as they slurp their ice cream. No matter where McGee



and Tony go at the fair, there's always plenty of interesting people to watch.

McGee at the Fun Fair contains fine graphics images, and includes fun sound effects and humor that preschoolers appreciate. The animation is fast and flicker-free. The program also encourages cooperation and reinforces the value of friendship. McGee sends a positive message to this impressionable age group about cross-racial relationships, as McGee is Caucasian and Tony is African American.

If your young child hasn't yet expressed any interest in your computer, McGee just might be the right introduction. Why not try it now — before your youngster memorizes the Mario Brothers' theme song.

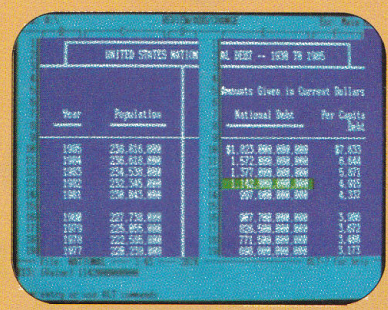
Joe Kohn
San Rafael, CA

★ ★ ★ ★ ★

SUPERWORKS

Remarkable Technologies
245 Pegasus Avenue, Dept. SW
Northvale, NJ 07647
(201) 784-0900

- AppleWorks software for MS-DOS machines
- IBM PC or compatible
- $199



Fast, powerful, elegantly simple, and uniquely easy to use and learn, AppleWorks Classic commands a vast army of devotees who refuse to give it up, even while envying the speed and advanced features of non-ProDOS computers. Imagine seeing AppleWorks' familiar file-card format when you boot up that dreaded computer in your office, with its arcane function keys and cryptic commands. Picture flipping open the clam-shell screen of one of those battery-driven lightweights and working in familiar AppleWorks format as you fly to Chicago or commute on the train. Sound too good to be true? Read on.

EXACTLY LIKE APPLEWORKS

Once it's installed on any PC, you get into AppleWo . . . sorry, SuperWorks . . . by simply typing **SW**. The program then loads from either a floppy or your hard drive. (The entire 190K program fits on a single IBM-compatible 5.25-inch floppy.) The start-up screen is one of the few that's different from comparable AppleWorks screens. Instead of announcing AppleWorks' three work-together modules, it reveals five — word-processing, database, spreadsheet, communications, and macros.

The main menu, though, is like going home again, except you'll notice one more function: communications. Choose *Add files to Desktop* and the next screen offers the familiar options of getting files from disk or making a new file. If you're familiar with AppleWorks, you can get to work right away. You already know how to use this program.

In fact, the program will look so familiar that reminders that you're using an MS-DOS machine can be jarring. Try to name a file *Correspondence* (or something similarly lengthy, which you've grown to enjoy in AppleWorks) and SuperWorks will cut you off at the eighth letter — *Correspo*. Well, you can live with that. If you're an AppleWorks user you'll be dashing off letters for your *Correspo* file without another look at the manual. The *Review/Add/Change* screen is identical and so are the word-processing functions. The PC's alternate key pinch-hits for the open-apple key.

If you still think this program's too good to be true, load SuperWorks' sample files and prove to yourself that this is AppleWorks in disguise. A database called *Extremes* tells you that Monaco is the most crowded country and Mongolia the least crowded. By positioning your cursor over the location column and pressing Alt-A for *Arrange* you can alphabetize locations from Al Aziziya, Libya, to Wenquan, China. When you're through you can remove the file by pressing **4** from the main menu to select *Remove files from Desktop*. SuperWorks will prompt you, à la AppleWorks, if the file is new, changed, or unchanged, and give you a choice of disk drives for saving.

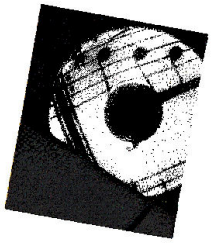
At this point in playing with SuperWorks' sample files you'll notice something strange: You now have nearly 20 files on the SuperWorks desktop, instead of AppleWorks' limit of 12. You can also use a mouse, add a password to your files, link several spreadsheets into a three-dimensional format, and include 128 different printer setups. Also, you don't have to predefine database field sizes, and the number of files on the desktop is limited only by the size of your machine's memory.

Last but not least, SuperWorks has its own powerful macro program. You invoke SuperWorks' macros by depressing function key F5, then following the manual's instructions to actually program your computer to automate repeated steps of almost limitless complexity. With the touch of one key you can regularly print a monthly or daily report that gathers data from many different spreadsheets or databases, then merge the information into a series of letters complete with mailing labels.

If you're dreaming of simply sticking

MULTIMEDIA

INTEGR



FOR A NEW GENERATION

Put it all together — video, animation, sound, music, graphics, text. It's fun and it's challenging. Design your own multimedia presentation and let your Apple help you discover your own creativity.

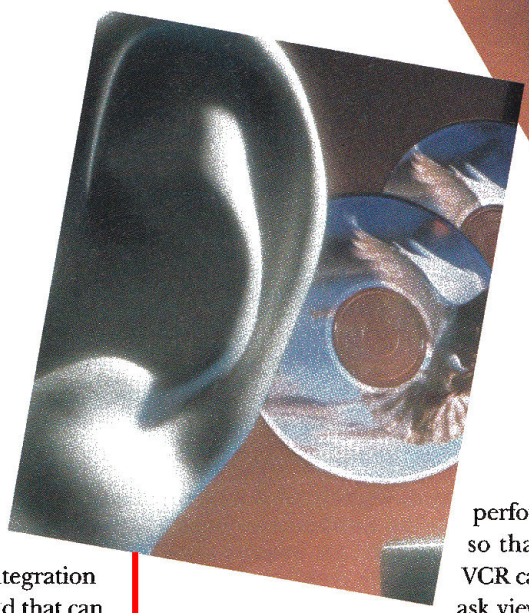
By PAUL STATT * SENIOR EDITOR

Remember when you could impress your friends with a complex spreadsheet, a detailed database, a snazzy illustration, or a polished newsletter? While these applications are certainly still useful, they don't get the oohs and ahs they used to. These days, if you want show your friends, family, or students just how cool computers can be, you've got to go with video, music, voices, photos — you've got to go *multimedia* — also known as *media integration*, a more precise and less daunting way of letting the world know that an Apple computer can bring together still pictures, moving pictures, written words, spoken words, sound, and music into one seamless presentation.

On the hardware side, to present information from more than one medium to an audience, you need a machine that displays in more than one medium. That's not as complex as it sounds. Your video-cassette recorder (VCR) probably plays sound as well as pictures, for example — that's multimedia in a sense. In fact, you don't need a computer at all to use multimedia products. **Optical Data**, for example, sells many videodiscs that work well without a computer (though they work better with one — more on that below). The National Geographic Society's **GTV** (in Mac and Apple II versions) is another multimedia product that doesn't require you to create a thing.

But if you already use a computer, hundreds of available multimedia products work with the Apple IIGS and the Mac. (See the accompanying article, "Sound and Image: The World on a Disc," for information on just a sampling.)

ATION



By using a computer to present multimedia, your role changes. You're no longer a passive part of an audience — you're the director. And media integration has many advantages in the classroom — the kind that can be expressed in the buzzwords administrators like to hear. You can create presentations that appeal to "visual learners," "textual learners," and "auditory learners" in a single class, for instance. It's education for the MTV generation.

Integrating various media in a presentation requires research: You need to be able to "look up" information stored in different media. To use an integrated-software analogy, you need to be able to search through a database to use it effectively. When you integrate different media, you "look up" pictures or text stored on a computer disk or a videodisc, or sounds on a compact disc. With hundreds or thousands of elements available, some educators claim that in the 21st century knowing how to do multimedia research will be as important as knowing how to find a book in a library. When you buy a videodisc or a CD of data, it should include computer software to help you find the facts you need. Most software publishers also include an index of the contents of the disc.

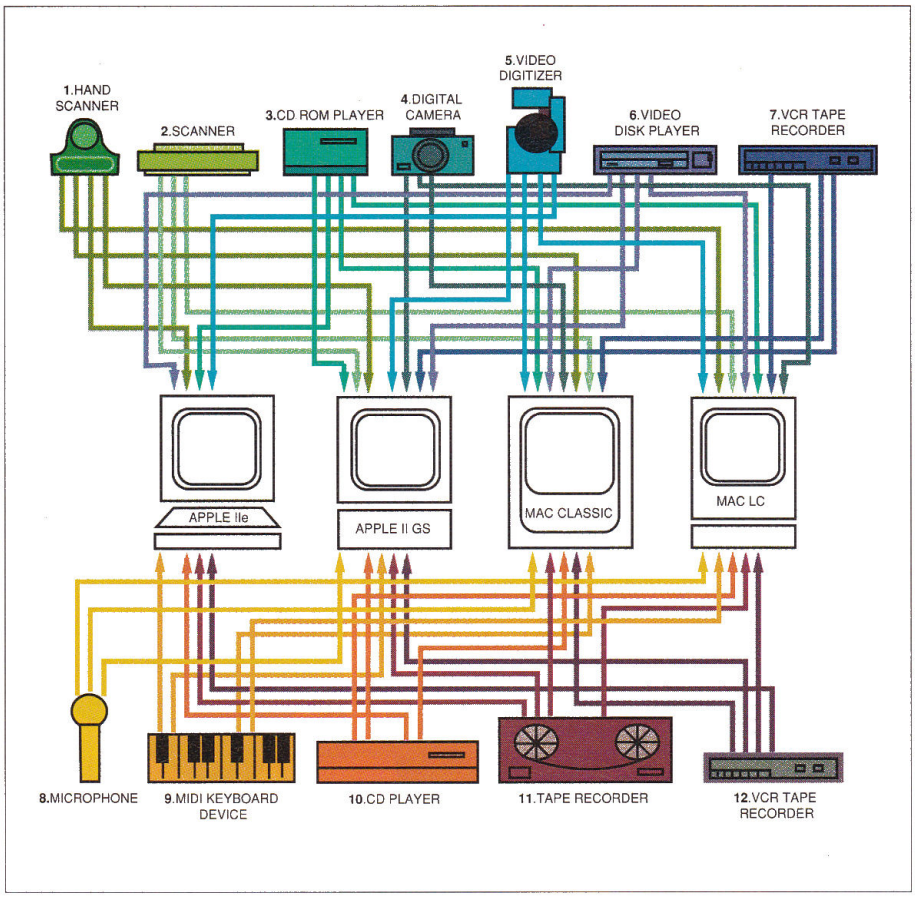
What if you want to go beyond presenting multimedia and create your own multimedia extravaganza? That combines both research and presentation of information: bringing in elements from all kinds of media, putting them all together in a logical fashion, and showing off the package attractively. You decide what plays when. You can record the performance on a videotape so that anybody who has a VCR can watch it. Or you may ask viewers to sit down at the computer keyboard and direct the flow of the performance themselves — that's what's meant by *interactive multimedia*.

TWO BY TWO

To create multimedia you need two kinds of hardware and two kinds of software. The first hardware/software combination is a computer and a program that lets you control the second combination: hardware devices (a videodisc player or CD-ROM drive, for example) that can play different kinds of software (a videodisc and CDs, say). That is, you can use a program such as **HyperStudio** on an Apple IIGS to control a videodisc player that displays digitized versions of Audubon's paintings of birds. Or you can use a program such as MacroMind's **Director** on a Mac to run a VCR that's loaded with a tape of the birds in your backyard. The accompanying figures display the bewildering mess of wire that can result when you begin to draw information into your computer from unorthodox devices and display data in unusual ways.

When you decide to delve into multimedia, the best advice is what first-time computer buyers have been hearing for a decade: "Buy your software first, then your hardware." Make sure the data you want to display is available as software in a medium you can integrate — videodisc, CD-ROM disc, MIDI files, computer graphics, or whatever.

Photographs * Dana Sigall



INPUT HARDWARE

1. Hand scanners are available for the Apple IIe, IIGS, and all Macs. GS and IIe hand scanners, such as Vitesse's QUICKIE, require an expansion card. Macintosh scanners, such as ThunderWare's LIGHTNINGSCAN, require the SCSI port. Hand scanners create 400 dot-per-inch images.

2. A number of flat-bed scanners are available for Macs: Apple's, for instance, costs $1799, and works through the SCSI port on any Mac. Apple IIGS System 6.0 will include a scanner driver; in the meantime, GS and IIe owners may want to consider THUNDERSCAN from ThunderWare, which turns an ImageWriter printer into a scanner.

3. CD-ROM drives are coming down in price; Apple's APPLE CD SCPLUS, for example, now costs only $799. It's typical of CD-ROM drives in that it requires a SCSI port and a software driver. Apple supplies drivers for all its machines.

4. The digital camera is a relatively new way to convert still images to electronic format. The Canon XAPSHOT RC 250 works with the Apple IIGS and Macintosh.

5. Video digitizers such as New Concepts' VISIONARY for the GS or COMPUTEREYES from Digital Vision for the Mac, GS, and IIe, turn any standard video (RCA or NTSC) image into a digitized computer graphic. GS and Mac II versions digitize in color.

6. Videodisc players are coming down in price. Note that these devices don't display a picture on the computer screen, unless you have a board such as Apple's VIDEO OVERLAY CARD installed. You'll need a serial cable to control the videodisc player from your computer; MECC's cables, for example, cost $25.

7. A video-cassette player is a good source of images on the computer if you have a Video Overlay Card, but with Abbate's VIDCLIP for the Mac and GS, you can stop and start videos (displayed on a separate screen) from the computer.

8. A microphone is standard equipment on the Mac LC and IIsi. If you buy HYPERSTUDIO for the Apple IIGS, a microphone is standard equipment. Farallon's MACRECORDER and Premier's MACMIKE are good options if you have some other Mac model.

9. Just about every kind of musical instrument — piano, guitar, drums, saxophone — is available now in MIDI format. MIDI equipment can be attached to Apple IIes, Apple IIGSes, and Macintoshes.

10, 11, 12. You can use any kind of music machine, from a Sony Walkman to a DiscMan, to create sounds for multimedia. On the Apple IIGS, you'll need a sound-digitizer card such as the one that comes free with HyperStudio; if your Mac isn't an SI or LC (which have built-in microphones and sound digitization) you'll need a hardware/software digitization system such as MacRecorder or MacMike.

(Also check that it's legal to use it — non-copyrighted — or be prepared to request permission and pay any fees.) Second, buy or borrow the hardware — such as a videodisc player or a CD-ROM drive — that you need to display the data. Third and fourth, get the computer software and the computer you need to create and control your masterpiece.

For instance, if you want to create a visual database of birds, make sure you can find a videodisc with bird photos — don't rush out and buy a videodisc player. If the birds that live in your county are your concern, you may be better off digitizing or scanning photos you take yourself. If you or your students are more interested in painting birds, invest in the best graphics software you can and a database manager, such as **FileMaker Pro** or **AppleWorks GS**, that lets you store graphics in records. If it's bird songs you want to hear, you need an audio digitizer, not a CD-ROM drive — unless, of course, you can find a CD-ROM disc that has recordings of birds.

Whether you plan to buy or make sounds and pictures, you're going to need a computer to combine and present them. What's the best computer for creating multimedia projects? Some say the Mac; others say the GS. They're both right.

REMEMBER WHAT "GS" STANDS FOR

When it comes to multimedia, the Apple IIGS has a lot going for it. One its most obvious features when it comes to integrating media is that its name does mean "graphics" and "sound." It's the easiest thing in the world to display graphics from the GS on a large-screen monitor, because it has an RCA video-out plug, which Macs don't have. That means you display your creation on any video monitor, and easily create videotapes that anybody can watch.

But perhaps the GS' greatest multimedia advantage is actually its available software — a package called HyperStudio. The Apple IIGS is the only machine that runs HyperStudio, a program that lets you create a multimedia presentation that plays sound and music, drives a videodisc player or VCR, and also creates and displays glorious full-color graphics. HyperStudio or Apple's **HyperCard IIGS** is the first program you'll need to create a presentation, because it effects transitions between screens — called *cards* in hypermedia jargon. If you've been wondering whether integrating media is

really what you want to do, HyperStudio, at $150, is a painless way to play with the possibilities.

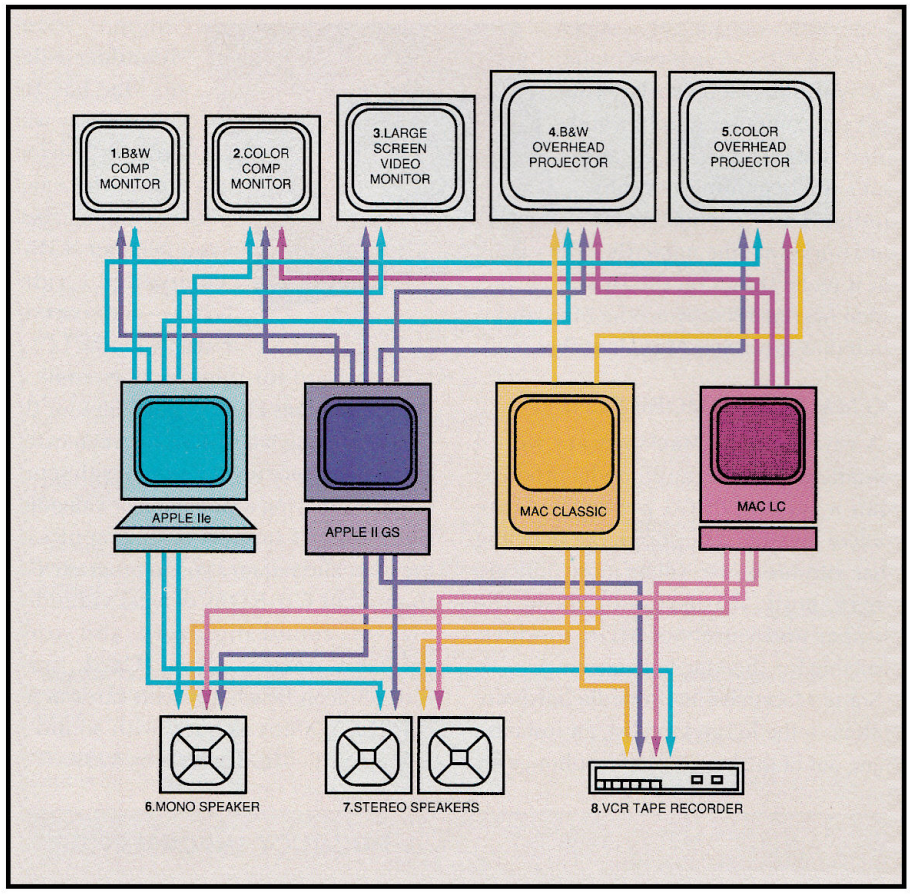
HyperCard IIGS isn't as well established as HyperStudio. Like HyperCard for the Mac, it requires a bit more manipulation to control an external device such as a videodisc player. But it is in color on the GS, and it comes from Apple. Theoretically, HyperCard IIGS is more powerful than HyperStudio. To use HyperCard on the GS, though, you need a hard-disk drive and 2 megabytes of random-access memory (RAM). You can use it on an unaccelerated GS, but to avoid insanity, you'll also want either a **TransWarp GS** or a **Zip GSX** if you plan to use the software to any extent.

GS users can also use Golem's **Nexus** to combine words, graphics, and sounds, as well as to run such external devices as a videodisc player. **TutorTech**, a hypermedia program from Techware that runs on any Apple II, can control external devices, too. But if you own a GS, you need a copy of HyperStudio.

HyperStudio also includes a sound-digitizer card for the GS, much like the one that comes with the Mac LC. **Sound Shop**, the digitizing software packaged with HyperStudio, can record, modify, and play back nonmusical sounds beautifully. Basically, there are two kinds of sound and music you can integrate into your multimedia productions: those stored on the computer's hard drive, and those played on an external device. Sounds stored on the computer have the advantage of being relatively easy to create and save, but they take up lots of disk space. Sound and music stored in external devices require specialized hardware that conforms to the industry-standard *musical-instrument digital interface*, abbreviated *MIDI*.

The Apple IIGS has never inspired the number of creative music products the Mac has, but, on the other hand, those available for the GS aren't as expensive as Mac products. For example, **SynthLAB** for the GS is a quick but elegant way to create your own tunes to use in multimedia presentations. It supports MIDI and costs only $25 from the Apple Programmers and Developers Association.

Another unsung hero that keeps the GS strong in multimedia is the **Apple II Video Overlay Card**. It costs only $549, and does work that can cost thousands on a Macintosh. Basically, the Video Overlay Card lets you combine computer-generated.



OUTPUT HARDWARE

1. A 9-inch black-and-white monitor is about as good as it gets for the Mac Classic. HyperCard runs only in black-and-white in about a 9-inch window, so it isn't as bad as it sounds.

2. Macintosh LCs and Apple IIgses are made with color graphics in mind — the computer's monitor is the place to start displaying your work. If you bought an LC or GS and didn't get a color monitor, the only question to ask is "Why not?"

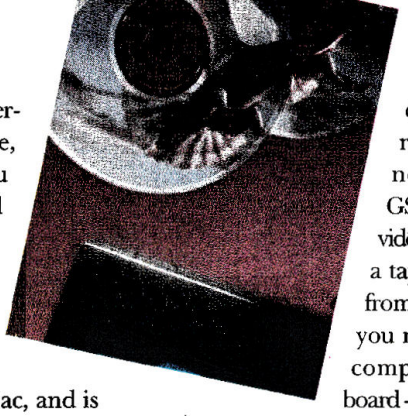
3. The Apple IIgs has a handy RCA "video out" jack, which you connect to any video screen that has an RCA "video in" jack. Many televisions sold today have such a jack; almost all VCRs do as well. The quality of the image won't be as good as it was on the GS' standard RGB monitor, but you'll be able to show your multimedia work to a much larger audience, and, if you're using a Video Overlay Card, the action on screen will look great.

4, 5. Overhead projection is the only way to display graphics to a large audience from a Mac, and it works from the Apple II as well. It isn't cheap, especially for color: Telex's MagnaByte 6001, for instance, costs more than $5000. Black-and-white displays — more accurately, red and blue — cost less, around $1000. Prices are dropping for color: A new system from InFocus, called the 1600 LC PC VIEWER, costs only $2695 and displays true color. Overhead-projection systems require special cables, although no additional hardware in the computer: Make sure cables for your computer are included in the package.

6. The Apple IIgs and every Macintosh have a standard "mini phono" plug, which means that it's ready to take a pair of Walkman headphones. If you want more listeners than that, you can buy a pair of stereo speakers designed to amplify a personal stereo, but you'd be wasting half your money because the Apple IIgs and most Macintoshes don't have stereo output. A cheaper alternative is a "mini phono to RCA phono" converter cable; Radio Shack sells one for about two bucks (part number 274-378).

7. Stereo output is built into some Macs, in particular the Macintosh SE/30 and all Macintosh IIs. You can add stereo sound to the IIgs with an add-on board such as Applied Engineering's SONIC BLASTER; currently you can't add stereo to the Macintosh LC or Macintosh Classic.

8. Don't forget that when you make a videotape recording of your multimedia masterpiece, you can record the sound at the same time. Just use the "mini-phono to RCA phono" converter cable mentioned above.



images with video images — superimposing titles over a videotape, say. Without video overlay, you can't put computer graphics and video images together — and that's the beginning of multimedia. The Video Overlay Card works with the Apple IIe, but it really shines on the IIGS. Video overlay is costly on the Mac, and is limited to expensive Mac IIs at that.

DO MACS HAVE MORE FUN?

A catalogue of Mac software would contain many more multimedia products than a catalog of GS products. More choices mean more options, but deciding what software to use will be more difficult. For example, if you're into music, the number and variety of MIDI products available for the Mac is staggering.

Some Macs have multimedia hardware built in — the LC and the IIsi, for instance, come out of the box with microphones for digital sound recording — but no Mac has the GS' easy way with videotapes. To record a tape of the action from a Mac's screen, you need an NTSC-compatible video board — one's not even available for the LC.

HyperCard for the Mac does some of the same things HyperStudio does for the GS — creating transitions between cards, letting you spice up transitions with sound or music, playing a videotape or videodisc. But it doesn't support color graphics on the Mac, and requires you to program a bit to control CD-ROM drives, videodisc players, sound digitizers, and other external devices. **SuperCard**, from Aldus/Silicon Beach, presents cards in full color — it's not as good with sound as HyperCard — and costs only $299.

An easy, if expensive, alternative is a multimedia-production program such as the aforementioned Director from MacroMind ($995), Farrallon's **MediaTracks** ($295), or AuthorWare's **AuthorWare Professional** ($8000). These programs give you total control over external devices and let you create professional computer animations on a Macintosh, but some cost more than your computer.

You could perhaps reach a compromise with Gold Disk's **AnimationWorks** (available at a discount to educators) to create animated sequences, and use a program such as Voyager's **Videodisc Accessory Series** ($49.95) to control videodiscs or VPC's **VidClip** ($89, also available for the Apple IIGS) to control a videotape player. To create animated faces for use in multimedia, a specialized program such as BrightStar's **interFACE** is recommended.

Another low-cost option for Macintosh users is a new authoring system called **MediaText**. Developed at the University of

PRODUCT INFORMATION

AnimationWorks
Gold Disk
20675 South Western Ave.
Suite 120
Torrance, CA 90501
(213) 320-5080
$199.95
$475 education lab pack

Apple CD SCPlus, $799
QuickTime, included in upcoming OS releases
Video Overlay Card, $549
Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010

AppleWorks GS, $299
FileMaker Pro, $300
HyperCard 2.1, $49 upgrade
$199 **Development Kit**
free for HyperCard 2.0 v2
HyperCard IIGS, $99
Claris Corp.
5201 Patrick Henry Drive
Box 58168
Santa Clara, CA 95052-8168
(800) 544-8554
(408) 727-8227

Authorware Professional
Authorware Inc.
8500 Normandale Lake Blvd.
Minneapolis, MN 55437
(612) 921-8555
$8000

Color ComputerEyes GS, $249.95
ComputerEyes/2, $129.95
ComputerEyes Mac, $449.95 color, $249.95 B/W
Digital Vision
270 Bridge St.
Dedham, MA 02026
(617) 329-5400

Director
MacroMind Inc.
410 Townsend St.
Suite 408
San Francisco, CA 94107
(415) 442-0200
$995

GTV: A Geographic Perspective on American History
National Geographic Society/ Optical Data Corp.
30 Technology Drive
Warren, NJ 07076
(800) 524-2481
$995

HyperStudio 3.0
Roger Wagner Publishing
1050 Pioneer Way
Suite P
El Cajon, CA 92020
(619) 442-0522
$149.95

interFACE
BrightStar Technology
14450 NE 29th St.
Bellevue, WA 98007
(206) 451-3697
price not available at press time

LightningScan, $295
LightningScan Compact, $359
LightningScan Pro 256, $499
ThunderScan, $219
Thunderware Inc.
21 Orinda Way
Orinda, CA 94563
(415) 254-6581

MacMike
Premier Technology
1072 Folsom St.
San Francisco, CA 94103
(415) 255-9300
$59.95

MacRecorder, $249
MediaTracks, $295
Farallon Computing
1321 Wakarusa Drive
Lawrence, KS 66049
(913) 843-8101

MediaText
Constructive Instruments
627 South Division
Ann Arbor, MI 48104
(313) 668-8664
$89.95

Nexus
Golem Computers
P.O. Box 6698
Westlake Village, CA 91360
(805) 499-7785
$79.95

Optical Data Corp.
30 Technology Drive
Warren, NJ 07059
(908) 668-0022

Quickie
Vitesse Inc.
13909 Amar Road
La Puente, CA 91747-0929
(818) 813-1270
$299

1600LC PC Viewer
InFocus Systems
7770 SW Mohawk St.
Tualatin, OR 97062
(503) 692-4968
(800) 327-7231
$2695

Sonic Blaster, $129
TransWarp GS, $299 8K, $399 32K
Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060

SuperCard 1.5
Silicon Beach Software
P.O. Box 261430
San Diego, CA 92126
(619) 695-6956
$299

SynthLAB
Apple Programmers and Developers Association
Apple Computer Inc.
20525 Mariani Ave.
MS-33G
Cupertino, CA 9501406299
(800) 282-2732
$25 members only

TutorTech
Techware Corp.
P.O. Box 151085
Altamonte Springs, FL 32715-1085
(407) 695-9000
$195

VidClip
Video Production Controls
38 Newbury St.
Boston, MA 02116
(617) 236-7006
$89

Videodisc Accessory Series
The Voyager Company
1351 Pacific Coast Highway
Santa Monica, CA 90401
(213) 451-1383
$49.95

Visionary GS
New Concepts
665 West Jackson St.
Woodstock, IL 60098
(815) 338-8658
$349

XapShot RC 250
Canon USA
100 Jamesburg Road
Jamesburg, NJ 08831
(908) 521-7000
$795

Zip GSX
Zip Technology
5601 West Slausen Ave.
Culver City, CA 90230
(213) 337-1313
$149 7MHz 8K
$199 8MHz 16K
$229 9MHz 16K

Michigan's Highly Interactive Computing Environments laboratory and distributed by Wings for Learning, MediaText is an all-in-one solution to the problem of integrating different types of media.

MediaText looks like a word processor. It doesn't create any between-card effects; in fact, it doesn't use cards at all. Instead, it begins with a text screen, and you add buttons in the margin to create multimedia presentations. MediaText uses the same kinds of controls for CD-ROM, videodiscs, videotapes, and whatever other devices it may someday be able to control. You learn only once how to integrate; it's a simple matter of adding a different type of external device if you want to add materials in a different medium. MediaText is designed to make multimedia as easy as word processing.

Integrating various media into presentations isn't as easy as, say, integrating word processor, spreadsheet, and database manager. The goal is to make media integration as simple as data integration. In the same way that cut, copy, and paste commands in every program written for an Apple computer were supposed to make integrated software redundant by linking data from any program to every other, Apple would like to make media integration unnecessary. To ease the pain of mixing media, Apple has introduced **QuickTime**, a set of standards for the format and timing of "dynamic data types" — videos and records. Apple has created its own set of standard dialogs for controlling dynamic data, and established a new file format, called "movie," for animated data.

QuickTime is an extension of Mac system software, so developers will have lots of incentive to adopt it. In the near future, all software will combine music, sound, graphics, and video in presentations as smoothly as integrated software works today.

But why wait? You already own the hub of the multimedia universe — a computer. If you own a Mac, you already have the authoring system — HyperCard, included with every Mac sold. If you have a GS, you ought to have HyperStudio. All you need now is to decide on what you want to do. Whether it's footage of Madonna, flashes of Mozart, film clips of volcanos, or something completely unique to your own imagination, the elements for a dazzling production already exist. You job is to put them together, and that's getting easier and more exciting all the time. ❑

FURTHER READING

LASER DISCS AND CD-ROM

"I Want My GTV"
Stattus Report
September 1990, p. 30

"A Star Is Reborn"
September 1990, p. 58

"Back to the Future"
Editors' Choice
September 1990, p. 100

"Read Me a Story"
What's New
January 1991, p. 19

"Compact Discovery"
Learning Curve
April 1991, p. 80
May 1991, p. 88

"CD-ROM Comes of Age"
May 1991, p. 44

"Desert Storm"
Reviews
October 1991, p. 58

HYPERMEDIA

"Hypertext for Your GS"
Editors' Choice
August 1989, p. 108

"Does HyperStudio Stack Up?"
September 1989, p. 44

"Curing the 8-Bit Blues"
September 1989, p. 48

"In the Cards"
Speaking of Graphics
October 1989, p. 94

"Exploring HyperStudio"
March 1990, p. 56

"StoryWorks"
Reviews
April 1990, p. 32

"HyperScreen: On the Button"
Editors' Choice
May 1990, p. 96
Reviews
September 1990, p. 38

"Link Up: Nexus"
Editors' Choice
August 1990, p. 100

"Super Story Tree"
Reviews
October 1990, p. 75

"Exploring Hypermedia"
November 1990, p. 36

"The Apple II Culture Reborn"
February 1991, p. 37

"Nexus"
Reviews
April 1991, p. 76

"HyperClass: Interactive Multimedia Revolutionizes Education"
May 1991, p. 34

"HyperStacks Done Dirt Cheap"
May 1991, p. 40

"MediaText"
What's New
September 1991, p. 15

"HyperStudio's New Developments"
What's New
October 1991, p. 16

VIDEO

"Video Title Shop"
Reviews
January 1989, p. 28

"Home Video Producer"
Reviews
January 1989, p. 30

"VCR Companion"
Reviews
January 1989, p. 33

"Roll Video"
May 1989, p. 42

"Art & Film Director"
Reviews
July 1989, p. 28

"Reel-World Images"
July 1989, p. 40

"IIc Videotapes"
Apple Clinic
March 1990, p. 26

"Making Movies with Your Apple II"
April 1990, p. 44
May 1990, p. 45

"A Fish Called Herman"
April 1990, p. 51

VIDEO DIGITIZATION

"Digitize to the Max"
July 1987, p. 40

"ComputerEyes GS"
Reviews
July 1988, p. 33

"Visionary GS"
Reviews
September 1990, p. 36

SCANNERS

"ThunderScan"
Reviews
January 1988, p. 26

"Speed Tool"
Editors' Choice
June 1990, p. 96

"Scanners Head to Head"
January 1991, p. 44

"On the Other Hand: 5 Affordable Mac Scanners"
January 1991, p. 55

"Graphics Gallery 5: Capture the Moment"
July 1991, p. 56

"LightningScan Compact"
What's New
September 1991, p. 16

"Thunderware Strikes Again"
What's New
November 1991, p. 15

ANIMATION

"Fantavision GS"
Editors' Choice
February 1988, p. 120

"Cartooners"
Reviews
June 1989, p. 106

"AnimationWorks"
What's New
August 1991, p. 13

ACCESSORIES

"ShowOff"
Reviews
December 1988, p. 33

"Slide Shop"
Reviews
March 1989, p. 78

"The Medium Is the Message"
August 1989, p. 60

"Overhead Projection"
August 1989, p. 65

"True Colors"
What's New
September 1991, p. 14

SOUND AND MUSIC

"Making Music"
August 1987, p. 38

"TML Speech Toolkit"
Reviews
March 1988, p. 40

"Apple Serenade"
May 1988, p. 70

"FutureSound"
Reviews
March 1989, p. 32D

"Sonic Blaster"
Editors' Choice
May 1989, p. 108
Reviews
June 1989, p. 36

"Sound Ace"
Reviews
June 1989, p. 36

"Face the Music"
October 1989, p. 34

"DoubleTalk"
Reviews
November 1989, p. 30

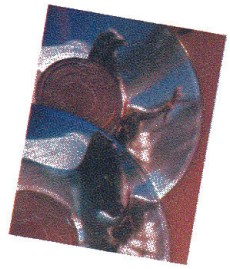
"Is It Live or Is It Apple II?"
August 1990, p. 52

"Command Performance"
August 1991, p. 40

"The MIDI Beat"
August 1991, p. 44

"Shan's Digicorder"
What's New
October 1991, p. 18

SOUND AND IMAGE THE WORLD ON A DISC



When it comes to multimedia, floppy disks and even hard disks just don't hold the answer. For vivid video clips, detailed digitized images, and sensational sound and music, compact discs and videodiscs are where the fun's at.

By CAROL S. HOLZBERG, Ph.D.

At the California Academy of Sciences in San Francisco's Golden Gate Park, nine Macintosh computers run an interactive-software presentation called LIFEmap, which traces evolutionary development for eight major life forms, including plants, mammals, early vertebrates, and reptiles. LIFEmap's modules feature hand-painted graphics images, scanned photographs, animal sounds, music, animation, and digitized speech.

While the Macs occupy only 5 percent of the 4000-square-foot hall, they communicate about 95 percent of the exhibit's display content. Yet economy of space isn't the only reason LIFEmap has met with such overwhelming success. Crowds congregate around the computers because this type of interactive multimedia is fun. People appreciate hands-on involvement — they enjoy being drawn into the learning experience personally.

WHAT DID YOU CALL IT?

The term *multimedia*, or *media integration*, refers to a collection of techniques incorporated into a single electronic document. (See our accompanying feature, "Integration for a New Generation," p. 24, for details.) Typical multimedia applications combine text, sound, graphics, and video. Visual elements include illustrations, scanned images, and full-motion video, as well as still photographs, animation, and film clips. Audio elements consist of stereophonic music, digitized speech, taped recordings, and realistic sound effects. It's true that none of these ingredients by itself constitutes new technology. Together, however, their message is pure magic.

Interactive multimedia is suitable for a wide range of applications, not just museum exhibits. Educators harness the power of multimedia to turn classroom lectures into more dynamic experiences. At home, multimedia offers entertainment value and the ability to bring to life huge information databases, such as almanacs, encyclopedias, and fact books.

The Macintosh and the Apple IIGS have emerged as powerful multimedia computing platforms — dependable, easy to operate, easy to learn. Even beginners find Apple's graphics-based user interface, point-and-click menus, and dialog boxes simple to navigate.

While the Apple IIGS is a proven and affordable multimedia workhorse, it's clear that the Macintosh is the multimedia computer of choice at Apple. Apple's recently announced **QuickTime**, new system-software architecture for the Mac, is designed specifically to let third-party developers integrate what Apple calls *dynamic media* — sound, video, and animation — easily and consistently.

IT'S IN THE CARDS

If you want to design your own multimedia extravaganza, personal authoring toolkits such as **HyperCard** from Claris and **SuperCard** from Aldus/Silicon Beach provide tools that let you develop your own applications.

You don't have to be a professional multimedia author or a programmer — or even a highly skilled amateur — to create customized software with HyperCard or SuperCard. You can build applications by designing *cards* (screens) that integrate text, sound, graphics, and scanned images, and contain *buttons* (check boxes or rounded rectangles) that initiate actions. Programmed *scripts*, the instructions that direct the action, linking cards to other cards or *stacks* (groups of related cards), remain hidden behind the scenes, reducing a user's perception of data manipulation to mere point-and-click control. Both HyperCard and SuperCard also make it easy to access images and sounds created with another program or stored on other media such as CD-ROM (compact-disc read-only memory) discs or videodiscs.

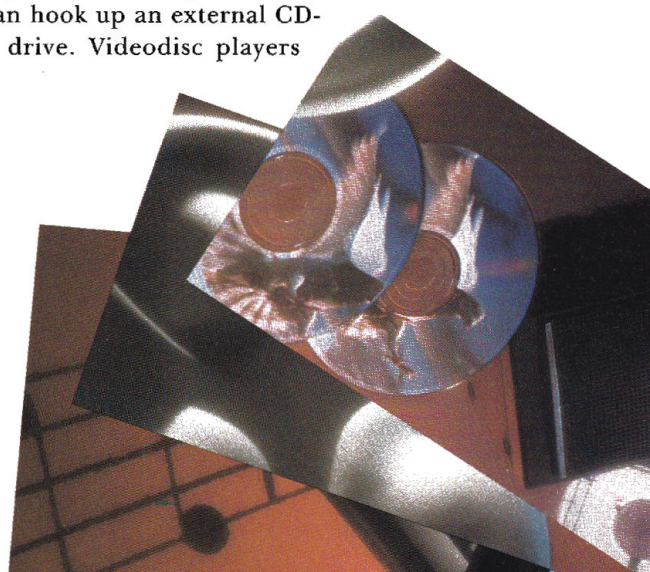
Two other information-management toolkits, **CD AudioStack** and **VideoStack** from The Voyager Company, let you control any CD or videodisc from your Macintosh and use it as a source of material for your own multimedia stacks (more on that in the next section). CD AudioStack uses ready-made HyperCard buttons to play audio CDs and the audio portions of mixed-mode compact discs. A special module lets you define "audio events" and create buttons that play back music passages in any order. VideoStack, compatible with both HyperCard and SuperCard, lets you access audio and visual data from any off-the-shelf videodisc.

OPTICAL PUBLISHING

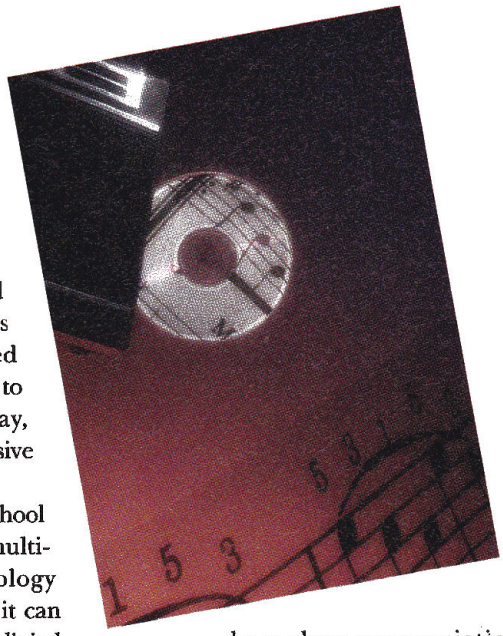
Effective multimedia presentations and applications obviously rely on large amounts of data, graphics, sound, music, video, and photography. For instance, an interactive lesson on the Revolutionary War with only a couple of illustrations and a handful of sounds wouldn't be very impressive and wouldn't come anywhere close to mining the wealth of exciting material available on this period in our country's history. Yet products containing video, digitized images, and sound place huge demands on your computer system in terms of storage.

That's where optical media come in. CD-ROMs and videodiscs are large-capacity storage media and can easily accommodate the space-intensive sound, images, and animation clips you need for multimedia presentations. While typical Macintosh floppy disks store 800K (kilobytes) or 1.44MB (megabytes) of data, laser-encoded compact discs hold more than 550MB — the equivalent of nearly 700 800K floppies. A 12-inch videodisc platter looks like an overgrown CD; each side holds up to 54,000 images — the equivalent of about 1300 80-slide carousels.

How do you access all that information? Every Macintosh (from the Plus on) has a built-in small-computer-system interface (SCSI) port on its back panel to which you can hook up an external CD-ROM drive. Videodisc players



connect through the Macintosh's RS-232C serial (modem) port.



LIBRARIES ON DISC

In the early days, CD-ROM drives were expensive (typically around $1200); software titles were few. This combination of problems provided little incentive for the general public to purchase CD-ROM drives. Today, drives cost about $700 and inexpensive software titles abound.

Several products, targeting both school and home markets, incorporate multimedia special effects. CD technology can bring children's books to life; it can combine the crystal-clear sound of a digital music performance with annotated notes, graphics, and sound to make classical music more accessible; it can store history and geography databases containing maps, sounds, high-quality illustrations, and photographs — powerful research tools for student assignments and reports.

CD-ROM drives retrieve data much more slowly than conventional hard disks. Still, their large storage capacity makes them convenient electronic warehouses for stockpiling content-based software such as reference libraries, information databases, and corporate records.

Unlike floppy disks and hard disks, however, the material on CD-ROMs can't be modified in that medium. Many discs let you access CD information with a few simple keystrokes and copy it to conventional hard disks and floppies, then edit it or incorporate it into other files and print it. Let's take a closer look at a brief sampling of products for home and school.

If you have young children, you'll delight in the Discis Books edition of **Cinderella: The Original Fairy Tale**. Other titles in the series include books by popular children's authors such as Beatrix Potter, Robert Munsch, Audrey Nelson, and Sean Huigin.

Each Discis book appears on screen with original text and illustrations, and all titles share the same interactive format. Youngsters click on icons to hear a story read aloud; the software highlights words as the player reads them, so children can follow the text. Readers click on any word to hear its pronunciation. Click on a graphic and its word form appears on screen followed by a clear pronunciation. Customizing options let you personalize the program so that your children or students can hear Spanish translations or English definitions for selected words.

History buffs with a taste for current events will appreciate **Desert Storm**, Time Warner's CD "newsdisc" on the war in the Persian Gulf (reviewed in October 1991, p. 58). This CD features thousands of stories, correspondents' reports, and eyewitness accounts, presenting a week-by-week analysis of the conflict as events unfolded on a daily basis. In addition to key news documents and profiles of notable personalities such as Colin Powell, Norman Schwarzkopf, Tariq Aziz, and Peter Arnett, Desert Storm includes several special effects, with hundreds of color photographs, detailed maps, and illustrations of Allied and Iraqi aircraft, missiles, and weapons. You listen to taped interviews, speeches, and music. Audiovisual clips capture the images of war.

If you prefer less weighty topics, take a break with Unidisc's **Guinness Multimedia Disc of Records**. Based on the best-selling print edition of the *Guinness Book of World Records*, this CD compiles an amazing list of personal achievements and authenticated facts. Topics include science, technology, sports, business, nature, the arts, and entertainment in more than 7000 records on 5000 cards. You can search by browsing through individual cards, selecting one of three indexes (*Who*, *What*, or *Where*), or typing in a combination of up to four separate words or phrases (search terms). The disc also supports Boolean logical connectors (such as AND, OR, and NOT) to narrow search criteria. Sound effects, music, color photographs, and animation spice up the information.

Discover the location of the world's largest planetarium. Find out who holds the record for the longest sermon. Learn the identity of the youngest person ever to accumulate a million dollars. If you have a desire to know the widest, biggest, fastest, thinnest, or longest aspect of any recorded event, the Guinness CD won't disappoint. If you're a trivia addict, you need this disc.

If you appreciate the outdoors, feast your eyes and ears on CMC's **Multi-Media Audubon's Mammals**. This CD lets naturalists relax in front of the computer screen (though not quite the same as gathering around the fire) with the complete text of John J. Audubon's *Quadrupeds of North America* (1840 edition). Mammals also comes with 150 exquisite color lithographs, featuring modern animal names and identifications. And for your multimedia listening pleasure, Audubon's work has been enhanced with high-quality animal sounds, courtesy of Cornell University. You can view, print, or copy CD text and graphics. With Multi-Media Audubon's Mammals, you can experience the thrill of nature without actually tramping through the backwoods.

Multimedia World Fact Book from Bureau Development is another CD that lets your fingers do the walking. This disc provides comprehensive factual information on 249 nations, dependencies, and other political entities. Appendices include the structural organization of the United Nations, a comprehensive list of international organizations, and data on weights and measures for both U.S. and metric systems.

The United States Central Intelligence Agency compiled statistical profiles for each entry. You'll find information on geography, people, economy, politics, communications, and defense. High-resolution color maps and flags, as well as high-quality audio clips for several national anthems, add to the effect. This CD is an invaluable reference tool for those who require up-to-date information on any country in the world.

Classical-music buffs will delight in Voyager's multimedia **CD Companion** series. Titles include Beethoven's **Symphony No. 9** and Stravinsky's **Rite of Spring**.

Each package delivers an irresistible adventure in music appreciation.

Stravinsky's Rite of Spring, for instance, comes with an audio CD recording of the Montréal Symphony, conducted by Charles Dutoit. A multipart "companion" HyperCard program refines the musical experience. One software activity, called *A Pocket Guide*, lets you play any one of the symphony's 14 sections at the point-and-click of the mouse. A second activity, *Stravinsky's Orchestra*, provides a detailed summary of instruments, complete with text commentaries, illustrations, and audio samples. *Close Reading* features continuous, real-time commentary by the noted scholar and pianist Robert Winter. Icons invite listeners to pause the performance and explore the music in leisurely detail. You experience the composer's world by reading about his life and times.

Additional audio samplings, articles, illustrations, and a challenging game round out the multimedia presentation. It's an information-rich adventure that charms the senses and makes Stravinsky's complex composition accessible even to people with no background in music.

VIDEO MAGIC

Typical videodiscs contain multimedia databases with text, high-quality audio clips, and spectacular visuals. Individual records may feature full-color still-action photographs, slides, film clips, real-time video, voice-overs, sound effects, or music.

You control playback speed and direction with a hand-held remote-control device or your computer (if the videodisc player has special circuitry and an RS-232C serial port for computer hookup). You can explore disc pictures in any sequence and freeze frames for study. Videodiscs for U.S. and Canadian markets output to NTSC (National Television Standard Code) specifications and require a television or a compatible video monitor. Since video motion runs at 30 frames per second, a 12-inch videodisc offers about 60 minutes of continuous play.

Many videodisc applications play as stand-alone presentations; that is, you don't need a computer. Hooking up your videodisc player to your computer has many advantages, though. You can't modify the information on a videodisc directly, but software-based management tools such as HyperCard let you customize interactive presentations to show selected frames in a particular order for a specified amount of time.

Floppy-based companion files usually provide verbatim transcripts of any disc dialogue, supplemental background information, reference articles, or full-text descriptions for still frames and motion clips. When floppy-disk data become outdated, you can revise a file's contents easily.

Optical Data and The Voyager Company publish several interactive multimedia videodiscs designed to interface with Macintosh computers. (Some Optical Data

PRODUCT INFORMATION

CD AudioStack
The Voyager Company
1351 Pacific
Coast Highway
Santa Monica, CA 90401
(213) 451-1383
$99.95
requires Mac Plus
or higher
hard-disk drive
HyperCard 1.22 or later
Mac-compatible
CD-ROM drive
speaker or headphones

Cinderella:
The Original Fairy Tale
Discis Knowledge
Research
45 Sheppard Ave. East
Suite 410
Toronto, Ontario
Canada M2N 5W9
(800) 567-4321
(416) 250-6537
$74.95
requires 1MB Mac
8-bit color board
for color display
Mac-compatible
CD-ROM drive

Desert Storm:
The War in
the Persian Gulf
Warner New Media
3500 West Olive Ave
Suite 1050
Burbank, CA 91505
(818) 955-9999
$39.99
requires 1MB Mac Plus
or later
2MB for color
System 6.0.5
Mac-compatible
CD-ROM drive
B/W on Mac LC 12"
color monitor

The Frog, $495
Space Shuttle, $295
Optical Data Corp.
30 Technology Drive
Warren, NJ 07059
(800) 524-2481
(908) 668-0022
require 1MB Mac Plus
or later
computer-compatible
videodisc player
(Pioneer LD-V2200)
512K GS
3.5" and 5.25" disk drives
Pioneer LD-V4200
videodisc player

Guinness Multimedia
Disc of Records
Unidisc
4401 Capitola Road #4
Capitola, CA 95010
(408) 464-0707
$149
requires 2MB Mac Plus
or higher
System 6.0.4 or later
Mac-compatible
CD-ROM drive

Health: AIDS
ABC News Interactive/
Optical Data Corp.
30 Technology Drive
Warren, NJ 07059
(800) 524-2481
(908) 668-0022
$495
requires 1MB Mac Plus
or later
computer-compatible
videodisc player
(Pioneer LD-V2200)

HyperCard 2.1
Claris Corp.
5201 Patrick Henry Drive
Box 58168
Santa Clara, CA
95052-8168
(800) 544-8554
(408) 727-8227
$49 upgrade
$199 HyperCard
Development Kit
free for HyperCard 2.0 v2
requires 1MB Mac Plus
or higher
System 6.0.5 or later

Multi-Media
Audubon's Mammals
CMC Research Inc.
7150 SW Hampton
Suite C-120
Portland, OR 97223
(800) 262-7668
(503) 639-3395
$79
requires 2MB Mac Plus
or higher
System 6.0.5 or later
Mac-compatible
CD-ROM drive
8-bit color,
32-bit QuickDraw
external speaker
or headphones for audio

Multimedia World
Fact Book
Bureau Development, Inc.
141 New Road
Parsippany, NJ 07054
(800) 828-4766
(201) 808-2700
$99
requires 1MB Mac
2MB for color
Mac-compatible
CD-ROM drive

Regard for the Planet
The Voyager Company
1351 Pacific
Coast Highway
Santa Monica, CA 90401
(213) 451-1383
$75 videodisc
$59.95 videodisc companion
requires Mac Plus
or higher
hard-disk drive
HyperCard 2.0 v2 or later
Mac-compatible
CD-ROM drive

Rite of Spring
Symphony No. 9
The Voyager Company
1351 Pacific
Coast Highway
Santa Monica, CA 90401
(213) 451-1383
$99.95 each
requires Mac Plus
or higher
hard-disk drive,
4800K available space
HyperCard 2.0 v2 or later
System 6.0.5 or later
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CD-ROM drive
external speaker
or headphones for audio

SuperCard 1.5
Silicon Beach Software
P.O. Box 261430
San Diego, CA 92126
(619) 695-6956
$299
requires 1MB Mac Plus
or higher
2MB for color
(with 8-bit color card)
System 6.0.4 or later
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VideoStack
The Voyager Company
1351 Pacific
Coast Highway
Santa Monica, CA 90401
(213) 451-1383
$99.95
requires Mac Plus
or higher
hard-disk drive
HyperCard or SuperCard
Mac-compatible
videodisc player

titles come in Apple IIGS versions, as well.) Each disc comes with a HyperCard stack that provides a comprehensive list of the visuals on disc and descriptive information, plus supplemental text and graphics. The software lets you to perform key-word searches, while controlling the videodisc player directly from your computer.

Optical Data's **Living Textbook** series, for example, features high-school-oriented videodiscs designed to supplement classes in earth, life, and physical science. One title, called **The Frog**, consists of a two-sided videodisc with 200 full-color slides of major tissues, bones, and muscles, and 34 narrated motion clips showing frogs in their natural habitats and comparisons of human and amphibian systems.

Frog anatomy, physiology, embryology, development, and a variety of body systems, such as respiration, circulation, and digestion, are detailed. The anatomy segments are so comprehensive that many schools choose to use this disc as an alternative to dissection — an approach that's popular with many students (and very popular with frogs).

Three HyperCard floppies let you search by topic or word, build personalized video presentations, or view electronic data cards with descriptive information for individual frames. Card buttons let you call up associated video images and motion segments or control videodisc functions (such as spin-up, eject, reverse, and fast forward). An Apple IIGS version is also available.

Another Optical Data videodisc, **Space Shuttle**, takes you on a voyage to the last frontier while offering a detailed look at NASA's first 11 shuttle missions. Three double-sided videodiscs feature photographs and motion clips depicting shuttle launchings, landings, and crew activities. Video highlights include Sally Ride's first flight in space, repair of the Solar Max satellite, and film of actual space walks. HyperCard stacks provide descriptions of all visual information stored on disc. Accompanying software lets you navigate the material, find text, create text lists, or access video sequences associated with text descriptions. An Apple IIGS version is available.

In Voyager's **Regard for the Planet**, you're treated to a remarkable cultural feast. This disc contains nearly 53,000 still images taken by Marc Garanger, a noted French photographer. Garanger traveled the world for more than 30 years, and the disc features some of his best shots.

Pictures are grouped by geographic location — dozens of countries, including China, Egypt, Morocco, Algeria, India, USSR, and the United States. Many of the photographs are of people, but several shots of landscapes, buildings, and other structures are also included. You listen to a translated interview with Garanger as his pictures display rapidly on screen.

A HyperCard stack called *Video Controller* lets you access specific frames or alter the speed of the presentation. Other HyperCard activities let you play a geography game, select a location on a world map to see photos from that area, or display photos according to 53 subjects areas, including architecture, festivals, technology, and costumes. While you'll appreciate the videodisc contents even without a computer, the HyperCard stacks draw you more deeply into the multimedia presentation.

An ABC News Interactive videodisc called **Health: AIDS** is a must-see for any high-school student. This documentary-like disc features ABC news footage, on-site reporting, colorful animation, and interviews designed to increase student awareness of the human immunodeficiency virus. The disc also contains charts, statistics, and a glossary of definitions.

ABC News *Nightline* anchorman Ted Koppel guides you through the program. Dr. C. Everett Koop, former United States surgeon general, offers medical facts that dispel myths about AIDS. Detailed profiles of disease victims show how the virus can infect "ordinary" people as well as intravenous drug users and homosexuals.

You can preview Health: AIDS with or without a computer. The accompanying HyperCard stacks, however, let you customize the presentation, access supplemental resources, and review verbatim transcripts. The software isn't crucial for delivering the information, but it lets you personalize the viewing and supplement the content with encyclopedic reference materials.

Computer-controlled videodisc presentations offer an amazing collection of sights and sounds. So far, however, this technology has been confined mainly to classrooms. Unlike CDs, there are relatively few videodiscs with mass appeal that are both inexpensive and computer controllable. As we noted above, several videodiscs run without computers, but that's not what multimedia's all about.

Because videodisc players require an NTSC-compatible monitor for display, you must set up your player near a TV set. In many homes, this hardware arrangement is inconvenient. Until computer-compatible videodisc players come down in price (a player such as Pioneer's LD-V2200, for instance, costs about $800) and more software titles become available, only schools will benefit from this technology.

RAZZLE-DAZZLE 'EM

Whether you prefer to run dazzling off-the-shelf productions with splendiferous audiovisual displays or "roll your own" computerized presentations with HyperCard or SuperCard, one thing is certain: Products such as the ones highlighted here are changing the way we access information. Education and entertainment have reached a new level. If you're looking for an excuse to purchase a CD-ROM drive or a videodisc player, let multimedia be your incentive for a sound (and graphics) investment. ❑

CAROL S. HOLZBERG IS AN ANTHROPOLOGIST AND COMPUTER JOURNALIST, AND SERVES AS THE COMPUTER-RESOURCE SPECIALIST AT HER LOCAL ELEMENTARY SCHOOL. WRITE TO HER AT 11 LEVERETT ROAD, SHUTESBURY, MA 01072. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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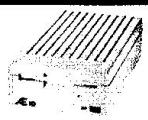

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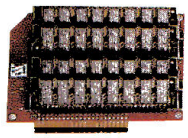

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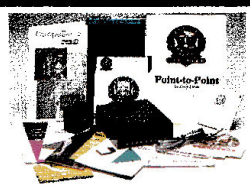

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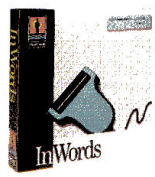

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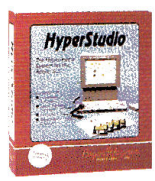

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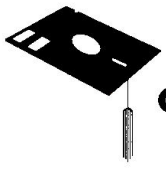

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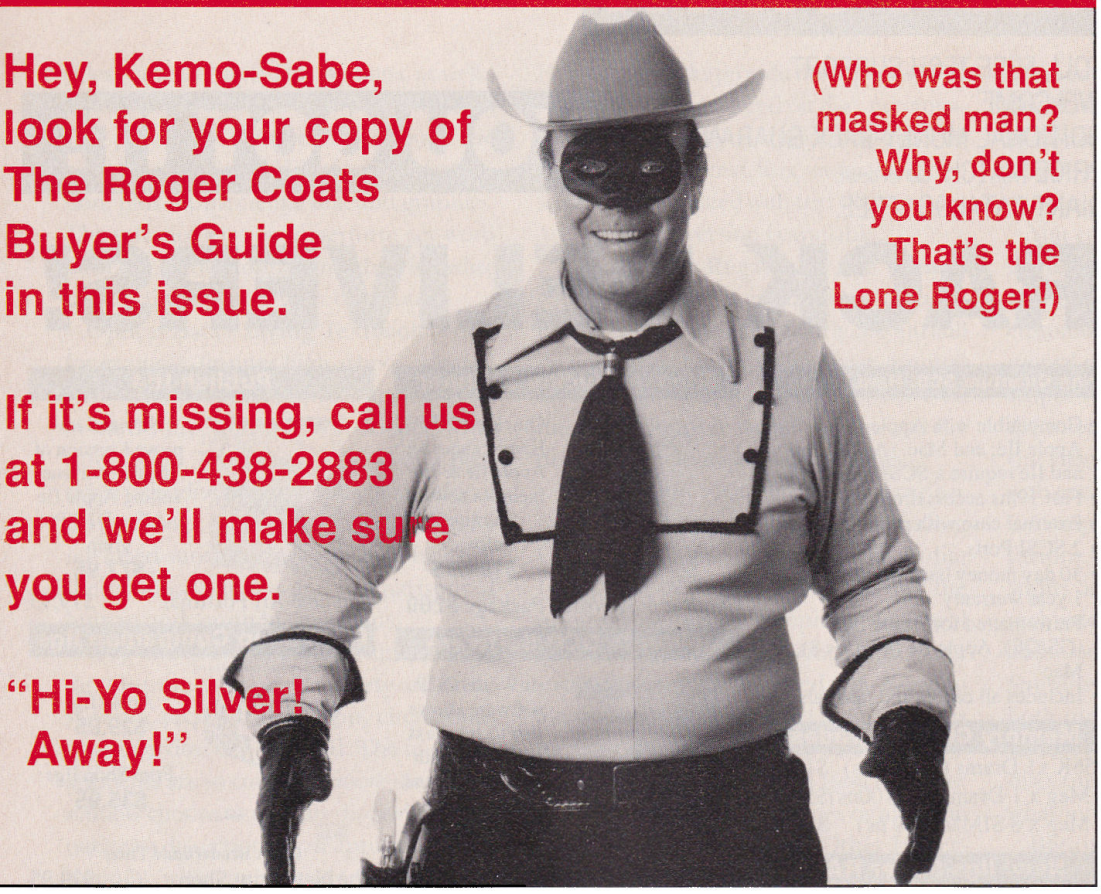

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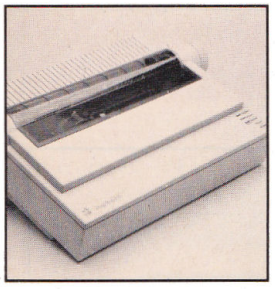

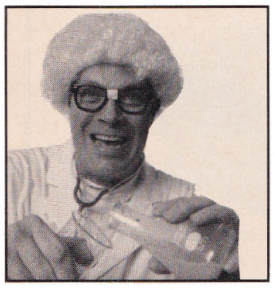

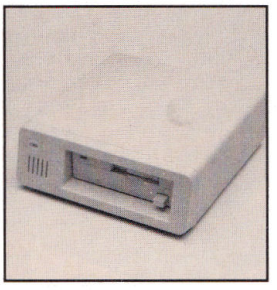

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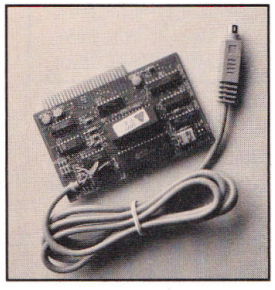

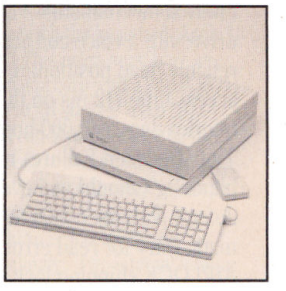

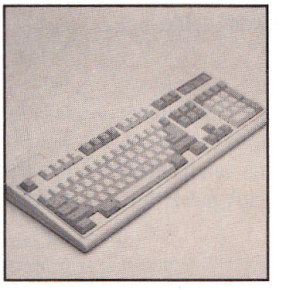

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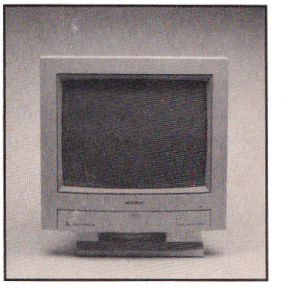

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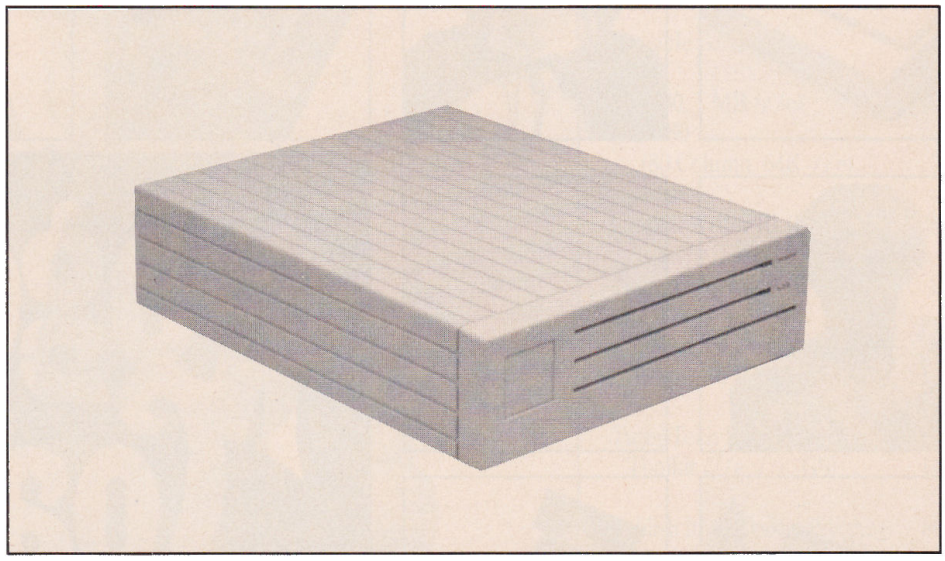

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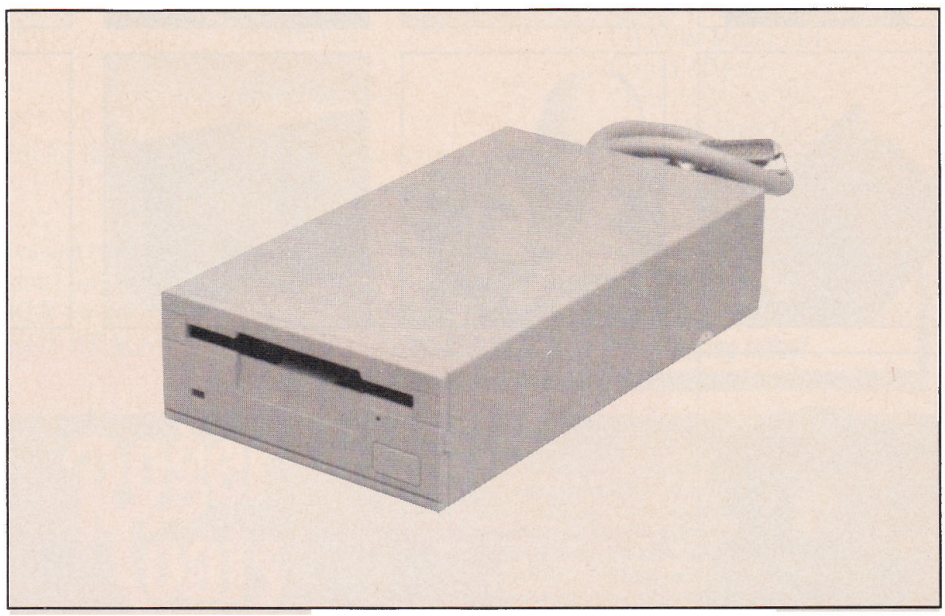

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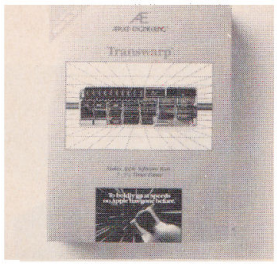

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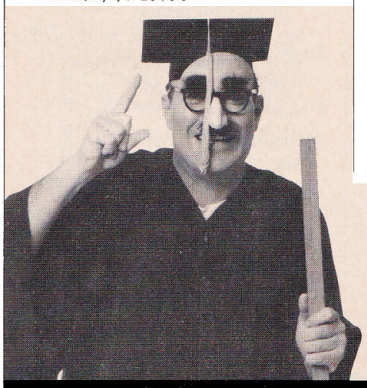
AAU24/$89.00

Apple //e, //c,][Plus

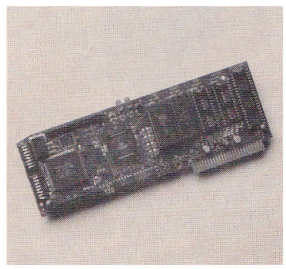
Zip Chip 8 MHz
Make your //e or //c faster than a IIGS. Easily replaces the 6502/65C02 CPU chip and does not require a slot. Addresses all memory. Comes with super control software to automatically configure the chip at boot time. 1 yr.
AZT02/$149.00



Accelerators

Apple IIGS

AE TransWarp GS
This state of the art accelerator allows you to increase the speed of your IIGS by more than 200%. Reduce printing time on graphics-based programs by up to 40%. Run your favorite applications at warp speed. Easy to install. Uses slot 3 or 4 and will not override the slot's function. 1 yr.
7 MHz/8K Cache:
AAU106/$229.00
7 MHz/32K Cache:
AAU106+ /$309.00



Zip Chip GS
Give your IIGS a power boost with these three different accelerator cards. Easy to install. Uses slot 3 or 4 and will not override the slot's function. 1 yr.
7 MHz/8K Cache.
AZT03/$149.00
8 MHz/16K Cache:
AZT05/$199.00
9 MHz/32K Cache:
AZT06/$249.00

Cables

Apple //c,][Plus, IIGS, Macintosh

//c to Hayes Modem.
10 ft, DIN 5M to DB-25M. 1 yr.
ABC01/$11.00

//c to ImageWriter I.
10 ft, DIN 5M to DB-25M. 1 yr.
ABC02/$11.00

//c to ImageWriter II.
10 ft, DIN 5M to Mini 8M. 1 yr.
ABC05/$11.00

Serial Card to ImageWriter I or Hayes Modem.
10 ft, DB-25M to DB-25M. 1 yr.
BBC03/$11.00

Serial Card to ImageWriter II.
10 ft, DB-25M to Mini 8M. 1 yr.
ABC04/$11.00

IIGS, IIc+, or Macintosh to Hayes Modem.
10 ft, Mini 8M to DB-25M. 1 yr.
BBC08/$11.00

IIGS, IIc+, or Macintosh to ImageWriter I.
10 ft, Mini 8M to DB-25M. 1 yr.
BBC09/$11.00

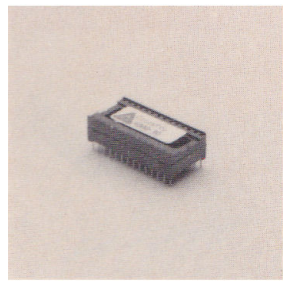
IIGS, IIc+, or Macintosh to ImageWriter II.
10 ft, Mini 8M to DB-25M. 1 yr.
BBC07/$11.00

Centronics Parallel 36-Pin.
8 ft, Centronics 36 to Centronics 36. (male to male) 1 yr.
BBC06/$16.00

Mini-8 Switchbox to ImageWriter II.
6 ft, Mini 8M to Mini 8M "straight-through." 1 yr.
BBC07ST/$11.00

Clocks

Apple II



****Apricorn ClockPro.**
No-slot clock that fits into any occupied or unoccupied 28-pin ROM or EPROM socket. Apple //e users install it under the CD or EF ROM; //c and IIc+ users install it under the Monitor ROM underneath the keyboard; Apple][and][Plus users must have an expansion card with a 28-pin ROM or EPROM socket. Even IBM users can install it either on the motherboard or on an expansion card. Driver software (included) automatically senses where ClockPro is and configures accordingly. Two internal lithium batteries maintain correct time for more than 10 years! Lifetime.
AAR06/$37.00

Apple //e

AE TimeMaster H.O.
Keeps the current time and date in your Apple //e. Compatible with DOS 3.3, ProDOS, CP/M, and Pascal. Features on-board timer capable of timing any interval up to 48 days long down to the nearest millisecond. Meets and surpasses all Apple protocols. Completely compatible with all Apple languages. Includes driver software and sample programs. Auto-recharging nickel-cadmium battery will last for over 20 years. 5 yr.
AAU25/$78.00

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Look for the ** two asterisks in front of selected products. These are economy-minded specials to stretch your budget dollar

If you don't see it, just call us. We have hundreds of items not listed in this product selection guide.
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Computers

Apple IIGS

Apple IIGS
New, ROM 03 IIGS CPU with 1 MB RAM, keyboard, and mouse. Requires disk drive and monitor (*see the following appropriate sections*).
AAG01/$869.00

Laser 128

Laser 128
Please see "Laser Computers and Accessories."

Floppy Disk Drives & Controllers

Apple //e, //c

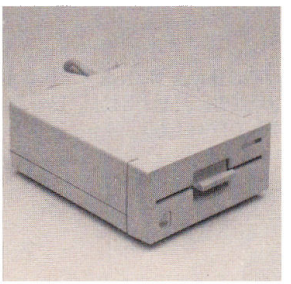
Apple UniDisk 3.5" Drive.
This is the only 3.5" drive that will work on the //c. //e requires controller card (*see below*).
AAC08/$329.00

Our pledge to You:

- value
- service
- support

Floppy Disk Drives & Controllers

Apple //c+, IIGS

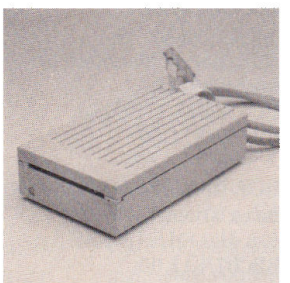


Apple 5.25" Drive.
The original, genuine Apple drive. 1 yr.
AAP09/$273.00

Apple //e, IIc+, IIGS, Macintosh

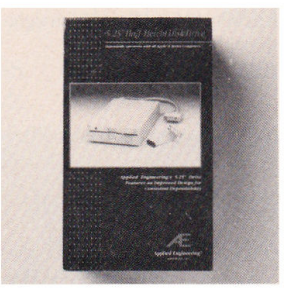
****AMR 3.5" Drive.**
Please see inside front cover for specifications and price.

Apple IIc+, IIGS, Macintosh



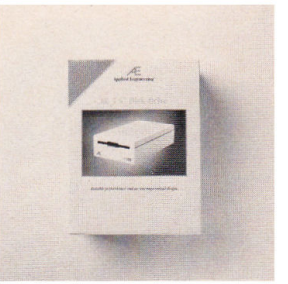
Apple 3.5" Disk Drive.
The original, genuine Apple drive. 1 yr.
BAP08/$329.00

Apple II, Laser 128 Series



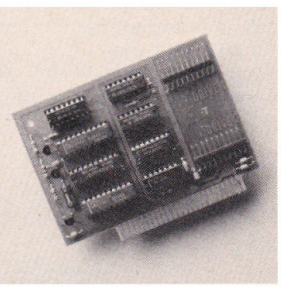
AE 5.25" Drive.
Quiet half-height drive compatible with all Apple IIs ([[Plus and //e require Disk][controller card). 24" cable. 1 yr.
AAU40/$149.00

Apple IIGS, Macintosh



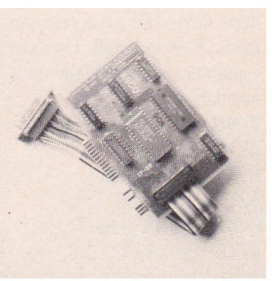
AE 3.5" High Density Drive.
Uses high-density 3.5" disks to hold an incredible 1.6 MB of data (twice as much as the 800K drives!). 1 yr.
Apple IIGS: AAU125.H/$269.00
Macintosh: MAU125.H/$225.00

Apple][Plus, //e



AE 5.25" Disk][Controller Card.
Allows][Plus and //e users to run either original Apple Disk][or Applied Engineering 5.25" drives. 1 yr.
AAU41/$57.00

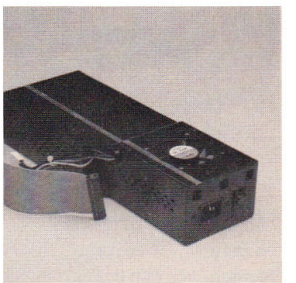
Apple //e



Apple UniDisk Controller Card.
Required to run the Apple UniDisk 3.5" drive on the //e.
AAE08/$57.00

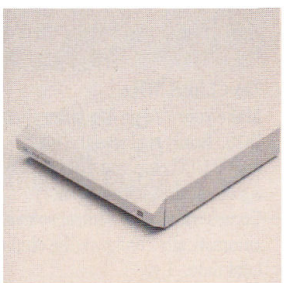
Hard Drives & Tape Drives

Apple][Plus, //e, IIGS



AE Vulcan Internal Hard Drive.
Fastest internal hard drive for the //e,][Plus, or IIGS. Includes 16-bit controller. Operating system installed, partitioning software and other utilities included. Multi operating systems include: ProDOS, DOS 3.3, CP/M, and Pascal. 70-watt 110/220V switchable power supply with cooling fan. 1 yr.
40 MB //e,][Plus:
AAU110E/$649.00
40 MB IIGS:
AAU110G/$649.00

Apple //e, IIGS, Macintosh



****AMR GS-Partner.**
Sits on top of IIGS and under monitor; no other cooling device required. Intelligent supply automatically switches to 110/220V. Also compatible with Apple //e and Macintosh (//e and IIGS require Apple or RamFAST SCSI interface). These drives use top-quality Quantum internal mechanisms. 1 yr.
52 MB: AMR25/$569.00
105 MB: AMR26/$779.00
210 MB: AMR27/$1199.00

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Orders Only:
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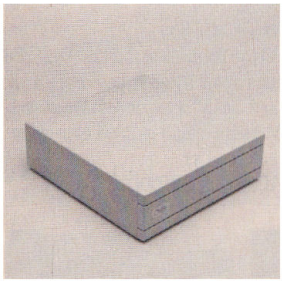
Price quotes & technical support:
1-619-274-1253

Hard Drives & Tape Drives

Apple //e, IIGS, Macintosh

****AMR 44 MB Removable Hard Drive.** Features the popular Syquest removable drive mechanism. Fast, 25ms average access time. Uses standard 44 MB removable cartridges for virtually unlimited storage capacity. Compatible with Apple II, Macintosh, and even IBM and Amiga (//e and IIGS require Apple or RamFAST SCSI interface). Includes 1 44 MB cartridge.
MMR20/$599.00

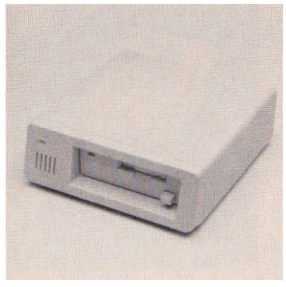
****AMR Mini Series.**
Please see inside front cover for specifications and prices.



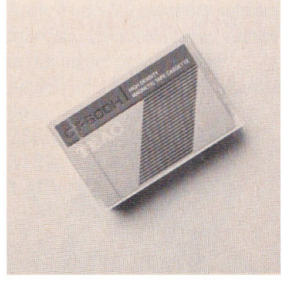
CMS External SDU Series Hard Drives. Intelligent power supply automatically switches to 110/220V. //e and IIGS require Apple or RamFAST SCSI interface. 1 yr.
20 MB (28ms): BCM08/$359.00
30 MB (29ms): BCM17/$389.00
40 MB (28ms): BCM10/$409.00
45 MB (28ms): BCM09/$419.00
44 MB Removable (20ms; includes 1 44 MB cartridge): BCM40/$629.00
81 MB (28ms): BCM11/$489.00

Apple //e, IIGS, Macintosh

CMS 44 MB Removable Drive Cartridge. Add another instant 44 MB of hard drive storage to your CMS or AMR 44 MB removable hard drive. 1 yr.
BCM41/$89.00



CMS 150 MB External Tape Backup. If you have a large hard drive and are tired of playing the floppy shuffle, you need a tape backup. These tape systems can backup up 100 MB of data in about 1/2 hour on a Macintosh system (times will be longer on an Apple II system). //e and IIGS require Apple SCSI interface.
MCM42/$929.00

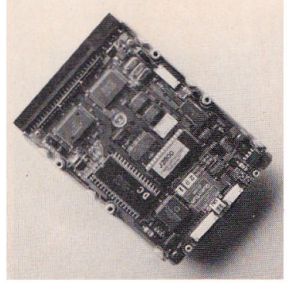


TEAC 150 MB 600 ft Cassette Tape. Increase the capacity of your CMS 150 MB tape backup infinitely with these tape cartridges.
MCM43/$32.00

Apple //e, IIGS, Macintosh

TEAC Tape Backup Cleaning Kit. Tape drive heads periodically need cleaning, and this kit can do it for you quickly and easily.
BCM14/$21.00

Macintosh

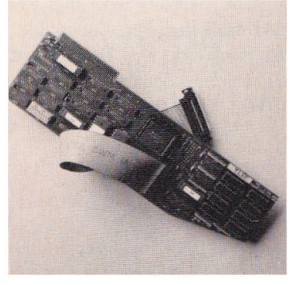


Quantum Internal Hard Drives. Quantum is the same brand that Apple uses. These drives are lightning-fast and super-reliable, featuring 17 ms access times, 2 MB/sec asychronous transfer rates and 4 MB/sec synchronous transfer rates, 1:1 interleave, and 60,000 hour MTBF (Mean Time Between Failure) ratings. Bare-bones drive only (no case or power supply). 2 yr.
52 MB Low Profile (28ms): BQM02LP/$289.00
105 MB Low Profile (19ms): BQM03LP/$439.00
210 MB Half-Height (14ms): BQM05/$818.00

SCSI Interface Cards

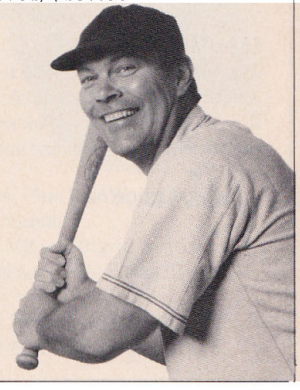
Apple //e, IIGS

Apple High Speed SCSI Card. Features high-speed Direct Memory Access (DMA) transfers to and from disk. 90 days.
AAP16/$109.00



CV Tech RamFAST SCSI Card. Features 256K of cache memory and Direct Memory Access (DMA) for lightning-quick disk reads & writes. Operates twice as fast as Apple's High Speed SCSI under any circumstances. 8 to 10 times faster using ProDOS 8 or 16. Can boot any partition on the hard drive, instead of booting only the first partition. Supports CD-ROM, and has built-in tape backup software in ROM which can back up your drive in the background while you work! Lifetime.
ACV01/$187.00

We're batting 1000 in the mail-order league, Join our team!



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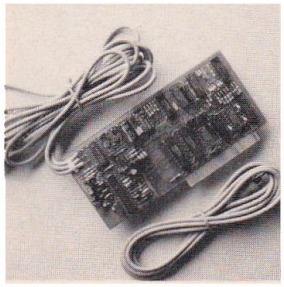
Input Devices

Apple //e, IIGS, Laser 128 Series

Vitesse Quickie Hand Scanner.
Please see middle pages for specifications and price.

Apple IIGS



Computer Eyes.
Scan images into your IIGS with up to 16 colors. Supports Super High Res and Double High Res. Compatible with PaintWorks Plus, Deluxe Paint, 8/16 Paint, and Publish It!. 1 yr.
ADV02/$189.00

Joysticks/ Mice, Trackballs

Apple //c, IIc+, //e, IIGS, Laser 128 Series

Laser Mouse.
This low cost mouse is a perfect companion for your Laser, Apple //c, IIc+ , or //e computer. //e owners will need to have an Apple mouse interface card. 1 yr.
ACW08/$43.00

Joysticks/Mice, Trackballs

Apple //e

Apple //e Mouse.
The original, genuine Apple mouse. Includes interface card and MousePaint.
AAE10/$119.00

Apple II, Laser 128 Series

CH FlightStick.
Contour pistol grip joystick with full 360 degree control. Dual button control and center adjust make this the ultimate joystick for flight simulators. Compatible with //e, //c, IIc+, IIGS, and Laser computers. Voted InCider's All Time Best Joystick. 90 days.
ACP02/$47.00

CH Mach III Joystick.
Versatile, long-lasting joystick for your //e, //c, IIc+, IIGS, or Laser computer. Features include multiple fire buttons, self-centering or free-floating, and center adjust, 90 days.
ACP01/$31.00

Apple IIGS, Macintosh

CH RollerMouse ADB.
Stylish trackball for your IIGS. Uses much less room than your mouse. 90 days.
BCP04/$85.00

Kensington Turbo Mouse ADB.
Stylish trackball for your IIGS. Uses much less room than your mouse. Features include pass-through ADB port, dual button (one for single click, one for click and hold), and a programmable "feature key". 1 yr.
BKN03/$121.00

Laser Computers & Accessories

Laser 128.
Fully Apple compatible, lightweight, portable with more features than the //c or //e at a very affordable price. Runs thousands of Apple programs. Features include: 128K RAM, 5.25" internal disk drive, serial port, parallel port, modem port, joystick or mouse port, RGB color port, video port, external disk drive port and even an expansion slot for adding //e expansion boards. RAM is expandable to over 1 MB with Laser RAM expansion module. 1 yr.
ACW01/$319.00

Laser 128EX.
All the features of the Laser 128, but runs 3 times faster than the //c or //e. RAM is expandable to over 1 MB with a built-in RAM expansion feature. 1 yr.
ACW02/$389.00.

Laser 128 Color System.
This system includes the Laser 128 w/ 5.25" disk drive computer and the Laser 14" 6420 RGB monitor at savings that turns the competition green with envy. The price of this system bought separately is $568.00. Look at this savings. 1 yr.
ACW14/$509.00

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Price quotes & technical support:
1-619-274-1253

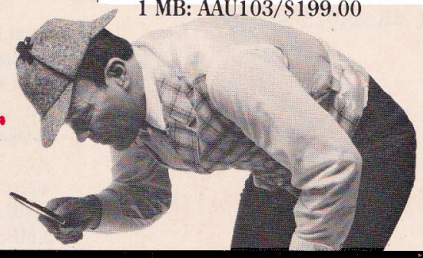
Laser Computers & Accessories

Laser 190A Dot Matrix Printer.
The affordable and reliable ImageWriter alternative. The perfect accessory for your Laser or Apple system. A parallel port is built in, with an optional serial port available for full ImageWriter compatibility. Black ribbons also available. 1 yr.
ACW07/$189.00

Laser UDC Card.
Allows //e users to use the AMR and AE 3.5" drives. 90 days.
AMR24/$49.00

All other Laser 128 accessories available; please call for availability and pricing.

We're always investigating ways to give you more for your dollar



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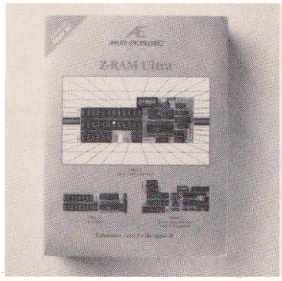
Memory Expansion

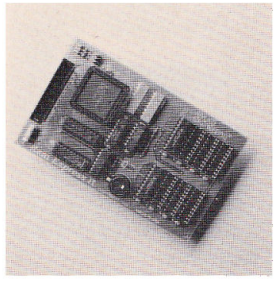
All memory chips used on these boards carry a lifetime warranty through ROGER COATS.

Apple //c



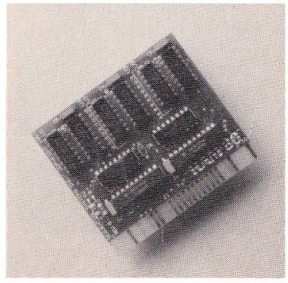
AE Z-Ram Ultra 2.
Expand your //c's memory up to 1.125 MB, with clock and calendar and AppleWorks 3.0 expander software from AE. User installable. Allows you to run bigger programs like AppleWorks 3.0 up to approximately 3 times faster. 1 yr.
256K: AAU07/$199.00
512K: AAU08/$214.00
1 MB: AAU09/$249.00

Apple IIc+

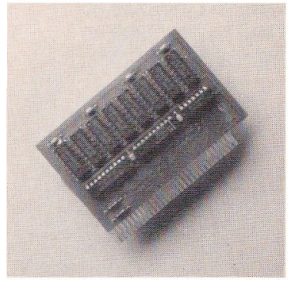


Ram Express II.
Expand your IIc+'s memory up to 1.125 MB, with clock and calendar and AppleWorks 3.0 expander software from AE. User installable. Allows you to run bigger programs like AppleWorks 3.0 up to approximately 3 times faster. 1 yr.
256K: AAU101/$149.00
512K: AAU102/$169.00
1 MB: AAU103/$199.00

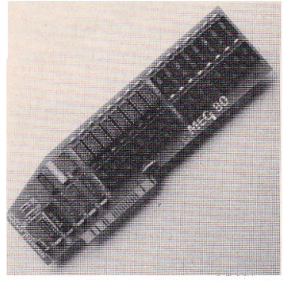
Apple //e



****Sequential Systems RAM 80 Card.**
Give your //e 128K RAM with 80 columns. 100% Apple compatible. The educator's choice for economy with quality in mind. 2 yr.
ASS01/$34.00



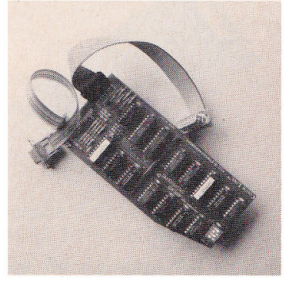
AE Extended 80-Column Card.
Give your //e 128K RAM with 80 columns. 100% Apple compatible. 1 yr.
AAU38/$79.00.



****Sequential Systems Meg 80 Card.** Expand your //e's memory up to 1.0625 MB. User installable. Allows you to run bigger programs like AppleWorks 3.0 up to approximately 3 times faster. Another educator's favorite.
256K: ASS02.1/$99.00
512K: ASS02.2/$119.00
1 MB: ASS02.4/$139.00

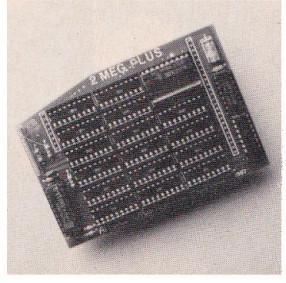
Apple //e

AE RamWorks III.
Expand your //e's memory up to 1.0625 MB, with clock and calendar and AppleWorks 3.0 expander software from AE. User installable. Allows you to run bigger programs like AppleWorks 3.0 up to approximately 3 times faster. RGB and additional RAM also available *(see below)*. 1 yr.
256K: AAU18/$139.00
512K: AAU19/$154.00
1 MB: AAU20/$194.00



ColorLink RGB Option.
Allows RamWorks III users to hook up a RGB type monitor to their //e. RamWorks III required. 1 yr.
AAU66/$101.00.

Apple //e

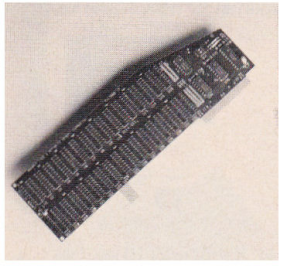


AE Plus RamWorks 2 MB Expander.
2 MB card to give even more memory. RamWorks III required. 1 yr.
1 MB: AAU64/$129.00
2 MB: AAU65/$169.00

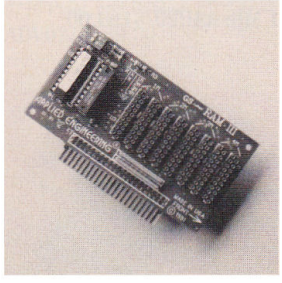
Memory Expansion

All memory chips used on these boards carry a lifetime warranty through ROGER COATS.

Apple IIGS

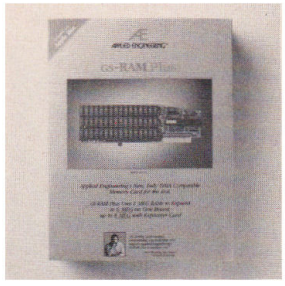


****Apricorn RAMPro IIGS.**
Memory on a budget. Increase your IIGS's memory by up to 4 MB. DMA compatible. Installs in memory expansion slot. Compatible with ROM 01 and ROM 03 IIGS. Lifetime.
1 MB: AAR09.1/$94.00
2 MB: AAR09.2/$139.00
4 MB: AAR09.4/$229.00

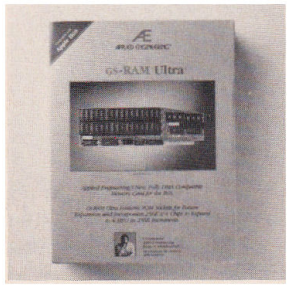


AE GS-RAM III.
The latest IIGS memory board, holds up to 4 MB of RAM using the new 1 MB x 4 ZIPP chips. Its super-small size reduces heat production and prolongs its life. 1 yr.
1 MB: AAU148.1/$149.00
2 MB: AAU148.2/$209.00
3 MB: AAU148.3/$269.00
4 MB: AAU148.4/$319.00

Apple IIGS

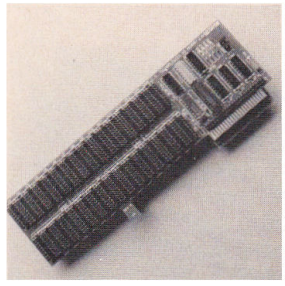


AE GS-RAM Plus.
Increase your IIGS's RAM up to 6 MB. Installs in memory expansion slot Compatible with ROM 01 and ROM 03 IIGS. Includes AppleWorks 3.0 expander software. 1 yr.
1 MB: AAU45/$194.00
2 MB: AAU46/$249.00
3 MB: AAU47/$299.00
4 MB: AAU48/$349.00
5 MB: AAU49/$399.00
6 MB: AAU50/$449.00



AE GS-RAM Ultra.
Increase your IIGS's RAM up to 4 MB. Installs in memory expansion slot. Compatible with ROM 01 and ROM 03 IIGS. Includes AppleWorks 3.0 expander software. 1 yr.
256K: AAU112/$164.00
512K: AAU113/$179.00
1 MB: AAU114/$199.00
2 MB: AAU116/$249.00
3 MB: AAU117/$299.00
4 MB: AAU118/$349.00

Apple IIGS

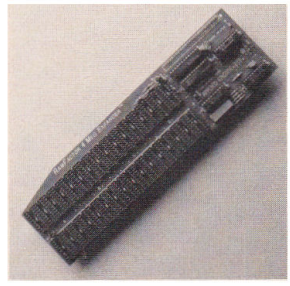


CV Tech GS Memory Board.
Increase your IIGS's memory up to 4 MB of RAM, plus piggyback your Apple memory card for a total of 5 MB RAM! Lifetime.
1 MB: ACV02.1/$149.00
2 MB: ACV02.2/$199.00
3 MB: ACV02.3/$259.00
4 MB: ACV02.4/$319.00

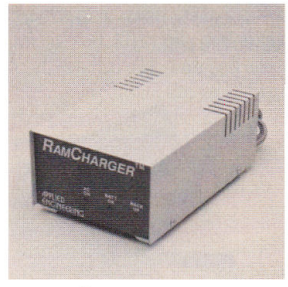
Apple][Plus, //e, IIGS, Laser 128 Series

AE RamFactor.
Up to 1 MB of additional RAM. Can be used only as a RAM disk in the IIGS, and as fully usable memory in the //e,][Plus, and Laser 128 Series. Options: Use a RamCharger to hold the memory contents in EROM; and a piggyback card to increase your RamFactor to 5 MB RAM (*see below*). 1 yr.
256K: AAU13/$169.00
512K: AAU14/$189.00
1 MB: AAU15/$229.00

Apple][Plus, //e, IIGS, Laser 128 Series

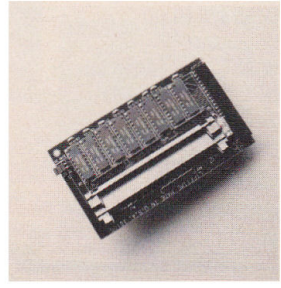


AE RamFactor Expander.
Add even more memory to your RamFactor card, up to 5 MB! 1 yr.
1 MB: AAU72/$215.00
2 MB: AAU73/$255.00
3 MB: AAU74/$305.00
4 MB: AAU75/$355.00



AE RamCharger.
Allows RAM to become battery backed up ROM for a super-quick bootup. 1 yr. **AAU16/$149.00.**

Macintosh Classic



Mega Micro Mac Classic Memory Board.
Up to MB of additional memory for your Classic. Comes with 1 MB installed; can be upgraded to 3 MB using 1 MB x 8 SIMMs (does not support 2 MB)
1 MB: MMM01.1/$74.00
3 MB: MMM01.3/$169.00

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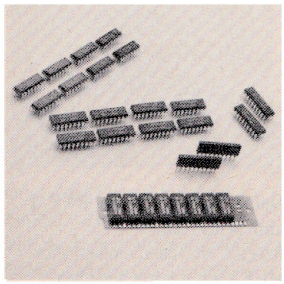
1-619-274-1253

Memory Chips/ SIMMS

All memory chips and SIMMs carry a lifetime warranty through ROGER COATS.



256K x 1 DRAM Chips.
Expand memory cards that use 256K x 1 chips, such as AE RamWorks III, Z-RAM Ultra II, and RamFactor; Sequential Systems Meg 80; and Applied Ingenuity GS-Juice (**not** Juice +). 100ns, set of 8. Lifetime.
ACH01/$22.00

256K x 4 DRAM Chips.
Expand memory cards that use 256K x 4 chips, such as AE GS-RAM Ultra and Ram Express II. 100ns, set of 2. Lifetime.
BCH09/$19.00

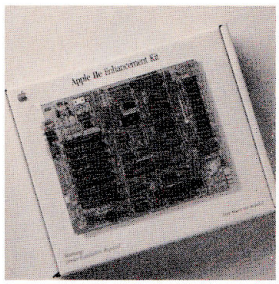
1 MB x 1 DRAM Chips.
Expand memory cards that use 1 MB x 1 chips, such as AE GS-RAM Plus; Applied Ingenuity GS-Juice +; CV Tech GS Memory Board; and Apricorn RAMPro GS. 100ns, set of 8. Lifetime.
BCH03/$64.00

1 MB x 4 ZIPP Chips.
Expand memory cards that use 1 MB x 4 ZIPP chips, such as the AE GS-RAM III. Also usable with the Amiga 3000 and SupraRAM RX for the Amiga 500. 100ns, set of 2. Lifetime.
BCH10/$66.00

1 MB x 8 SIMMs.
Expand the memory in your Macintosh SE, SE/30, LC, or II. These are industry standard SIMMs with a speed rating of 80 nanoseconds (ns). Lifetime.
BCH07/$65.00

Miscellaneous Hardware Items

Apple //e



Apple //e Enhancement Kit.
4 chip ROM set, including a 65C02 processor, which replaces the 6502 and runs faster and cooler; newer CD and EF ROMs; and a new Video/Character Generator ROM, to add new graphics characters to your //e. Required to run certain programs, such as Copy II Plus v9.0 and higher, and Publish It! 3 and higher.
AAE02/$58.00

Apple IIGS

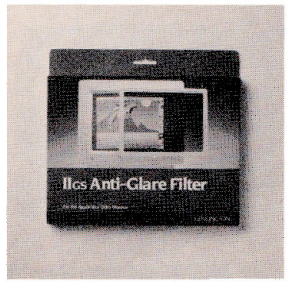
NiteOwl Slide-On Replacement Battery.
This easily-installed battery replaces the battery in your IIGS when it dies. Just cut off the old battery and slide this new one on.
ANW01/$15.00

If you don't see it, just call us. We have hundreds of items not listed in this product selection guide. 1-800-438-2883

Apple II, Macintosh

Curtis 3.5" Starter Kit.
Includes a 3.5" disk box (holds 40 disks), a monitor copy clip, a printer stand, a 6-outlet surge protector, and a 3.5" disk drive cleaning kit.
BRT01/$29.00

Apple IIGS, Macintosh SE



Kensington Anti-Glare Filters.
Keeps the glare off of your IIGS or Macintosh SE.
Apple IIGS: AKN06/$35.00
Macintosh SE (and SE/30): MKN09/$35.00

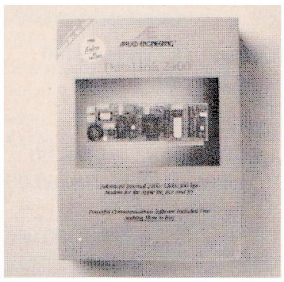
Apple II, Laser 128 Series, Macintosh

Sony Disks.
So, you didn't buy a hard drive, and now you need more floppies? No problem. We have top-quality Sony blank disks available in 10-packs, boxed or bulk.
Boxed 5.25": APM51/$11.00
Boxed 5.25" High Density: BPM51/$17.00
Boxed 3.5": BPM55/$14.00
Boxed 3.5" High Density: BPM56/$24.00
Bulk 3.5": BMT01/$9.00

Modems

All of our 2400 baud modems are fully Hayes compatible and are capable of transmitting at 300, 1200, or 2400 baud. They are compatible with most modem standards, including Bell 103 and 212 protocols, European CCIT v.22bis, v.22, and v.21. All include pass through telephone jack, phone cable, and built-in speaker.

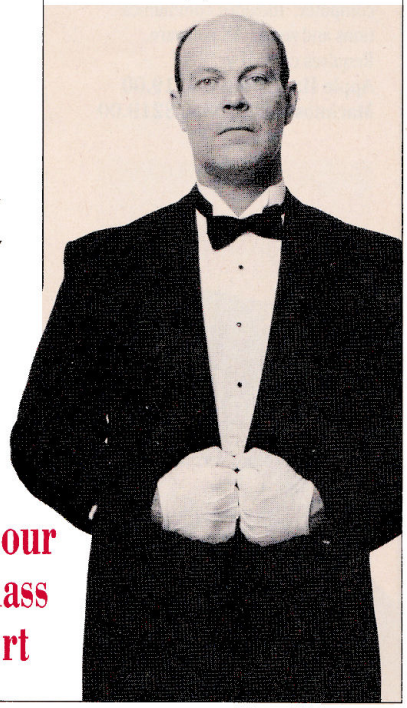
Apple II+, //e, IIGS



AE DataLink 2400 Baud Internal. Includes Apple II communications software. 1 yr.
AAU63.1/$159.00

Apple IIGS

AE DataLink 2400 Internal with Send-FAX. Same as the regular DataLink 2400, but also has the ability to send FAXes from your IIGS. Includes communications and send-FAX software. 1 yr.
AAU63.1F/$216.00



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Modems

Apple II, Laser 128 Series, Macintosh

AE DataLink Express 2400 Baud External. Includes communications software. Requires cable. 1 yr.
Apple II: AAU63.2/$169.00
Macintosh: MAU63.2/$169.00

AE DataLink Express 2400 with MNP-5.
Same as the regular DataLink Express, but also has state-of-the-art MNP-5 error correction and data compression. Includes communications software. Requires cable. 1 yr.
Apple II: AAU63.3/$199.00
Macintosh: MAU63.3/$199.00

AE DataLink Express 2400 with MNP-5 and Send-FAX.
Same as the regular DataLink Express, but also has MNP-5 error correction/data compression and the ability to send FAXes from your computer. Includes communications and send-FAX software. Requires cable. 1 yr.
Apple II: AAU63.4/$219.00
Macintosh: MAU63.4/$219.00

Data Technology Products MXE-2400 External
Requires cable and software. 5 yr.
BTP01/$99.00

Apple II, Laser 128 Series, Macintosh

Supra 2400 Baud External.
Includes coupons for online discounts. Requires cable and software. 5 yr.
BSC01/$89.00

Supra 2400 Plus External.
Same as the regular Supra 2400 baud external, but also has MNP-5 and v.42bis error correction and data compression. With v.42bis, you can get effective transfer rates of up to 9600 baud! Requires cable and software. 5 yr.
BSC02/$149.00

Zoom 2400 Baud External.
Requires cable and software. 7 yr.
BZM01/$89.00

Macintosh LC

AE DataLink LC with Send-FAX.
Internal 2400 baud modem. Can send FAXes at 4800 baud. Includes communications and send-FAX software. 1 yr.
MAU63.10/$239.00

AE DataLink LC with v.42bis.
Similar to the DataLink LC with Send-FAX, but cannot send FAXes. This modem has v.42bis error correction and data compression, which can transfer files at an effective baud rate of up to 9600 baud. Includes communications software 1 yr.
MAU63.11/$249.00

AE DataLink LC v.42bis option.
Add this to your DataLink LC with Send-FAX and get both options! 1 yr.
MAU63.12/$54.00

Macintosh Portable

AE DataLink Mac Portable with MNP-5 and v.42bis.
Internal 2400 baud modem. Features MNP-5 and v.42bis error correction and data compression, so that you can transfer files at an effective baud rate of up to 9600 baud! Includes communications and send-FAX software. 1 yr.
MAU63.6/$199.00

Macintosh II

DataLink Mac II with MNP-5 and Send-FAX.
Internal 2400 baud modem with MNP-5 error correction/data compression and the ability to send FAXes from your computer. Includes communications and send-FAX software. 1 yr.
MAU63/$199.00

All Macintosh Systems

Data Technology Products MXE-2496M External 2400 Baud
Can send **and receive** FAXes at up to 9600 baud! Includes communications and send/receive-FAX software. Requires cable. 5 yr.
MTP02/$195.00.

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Price quotes & technical support:
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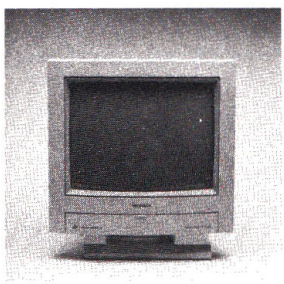
Modems

All Macintosh Systems

Zoom 2400 Baud External Modem with Send-FAX.
Same as the regular Zoom 2400 baud modem, but also has the capability to send FAXes right from your Macintosh at 9600 baud. Group III send FAX compatible. Requires cable; software included. 7 yr.
MZM02/$99.00

Monitors

Apple IIGS

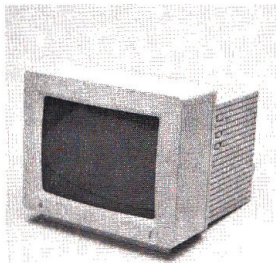


Magnavox Color RGB Monitor.
The inexpensive alternative to the Apple RGB monitor. Features include tilt/swivel base; manually switchable Digital RGB, Analog RGB, LCA, and Composite inputs; stereo audio inputs; and earphone jack. Requires cable (*see below*). 2 yr.
BMX01/$299.00

Magnavox Color RGB Monitor Cable.
Required to connect the Magnavox Color RGB Monitor to the IIGS.
AMX03/$24.00

Monitors

Apple IIGS



Apple IIGS Color RGB Monitor.
Attach this to your IIGS for incredible color and graphics. 1 yr.
AAG02/$459.00

PC-Transporter & Accessories

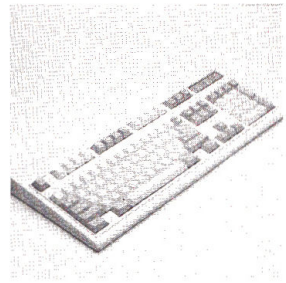
(for IBM emulation on the Apple)

PC-Transporter.
Run IBM software on your][Plus, //e, or IIGS. Card easily installs inside your computer. Store data on any Apple ProDOS device, even make up to two 16 MB partitions on your hard drive. Exchange data from ProDOS to MS-DOS and back. Use your existing keyboard, monitor and mouse and avoid buying two of everything. Requires appropriate drive (Apple 3.5" drive, AE 3.5" drive, AMR 3.5" Drive, or AE TransDrive system) and installation kit (][Plus also requires IBM style keyboard and cable). Full 640K of memory for IBM, 768K of extra memory when running Apple II software. 1 yr.
AAU82/$269.00

PC-Transporter and Accessories

(for IBM emulation on the Apple)

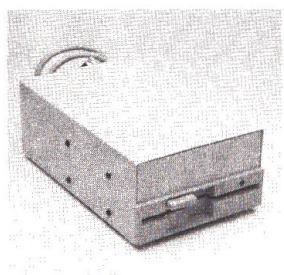
][Plus, //e Installation Kit.
All cabling needed to run PC Transporter on your][Plus or //e. Includes installation video tape. 1 yr.
AAU84/$31.00



IBM Style Keyboard.
Full-fledged XT compatible keyboard for use with PC Transporter only. Includes cable. Required for][Plus setup. 1 yr.
AAU93/$109.00

IIGS Installation Kit.
All cabling needed to run PC Transporter on your IIGS. Includes installation video tape. 1 yr.
AAU83/$38.00

8087-2 Math Coprocessor.
Breeze through math-intensive applications with the 8 MHz 8087 math coprocessor option. 1 yr.
AAU96/$199.00



TransDrive System.
1- or 2-disk system allows you to boot, read, write, and format MS-DOS 5.25" disks. 1 yr.
Single Drive: AAU85/$189.00
Dual Drive: AAU86/$286.00

TransDrive Add-On Drive.
So you only bought a single drive system, and it wasn't enough, eh? Not to worry. This add-on drive unit fits inside the chassis on the single drive and gives you a second drive. 1 yr.
AAU87/$123.00

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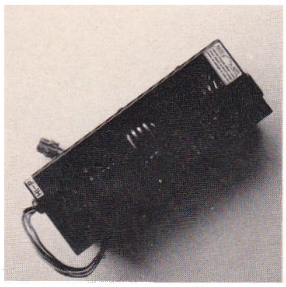
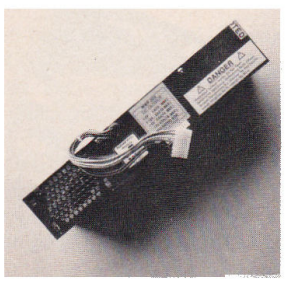
Power Supplies

Apple //e,][Plus



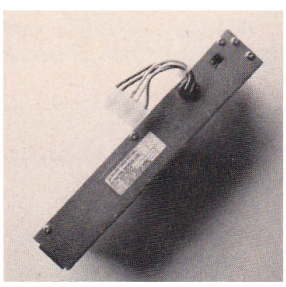
AE Heavy Duty Power Supply.
Supplies 100 watts of power to handle the most power-demanding peripheral cards.
AAU27E/$78.00

Apple IIGS



AE Heavy Duty Power Supply.
Like the //e and][Plus version, this one provides 100 watts of power for those power-hungry IIGS interface cards.
AAU27G/$89.00

Macintosh LC



AE Heavy Duty LC Power Supply.
High output 38.25 watt power supply for the Mac LC replaces Apple's 25.62 watt power supply. Supports the power pull of most demanding LC expansion cards. 5 yr.
MAU27LC/$105.00

Printers

Laser 190A Dot Matrix.
See "Laser 190A Dot Matrix Printer" under "Laser Computers and Accessories."

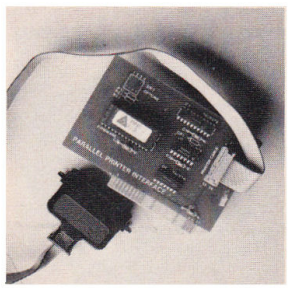
Apple ImageWriter II.
The original, genuine Apple printer. Black and 4-color ribbons available. 1 yr.
BAP02/$459.00

Parallel Interfaces & Buffers

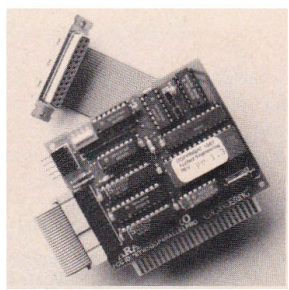
****ApriCord 8 by Apricorn.**
Use this to connect parallel devices to your IIc+, IIGS, or Macintosh. Lifetime.
AAR02P/$59.00

****ApriCord //c by Apricorn.**
Attach parallel peripherals to your //c computer. Lifetime.
AAR02/$49.00

Parallel Interfaces & Buffers



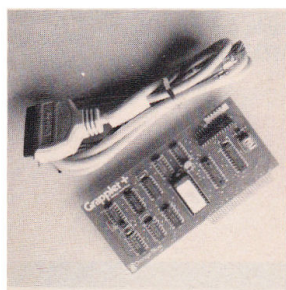
****Apricorn Printer Pro.**
Use this to connect parallel devices to your //e,][Plus, or IIGS. Lifetime.
AAR01/$49.00



AE Parallel Pro.
Allows you to connect a parallel device to your //e,][Plus, or IIGS computer. 1 yr.
AAU68/$77.00

AE Buffer Pro.
Attaches onto the Parallel Pro to free up your computer during printing. Automatically buffers from 32 to approximately 256 pages of output to the printer so you can multitask! 1 yr.
32K: AAU69/$89.00
128K: AAU70/$97.00
256K: AAU71/$105.00

Orange Micro Grappler 9-Pin.
Connect Epson™or other parallel printers to your IIc+, IIGS, or Macintosh computer and fool your computer into thinking you have an ImageWriter II. 1 yr.
BOM01/$104.00



Orange Micro Grappler Plus.
Use Epson™or other parallel printers with your][Plus or //e and make your software think you have an ImageWriter II. 1 yr.
AOM08/$89.00

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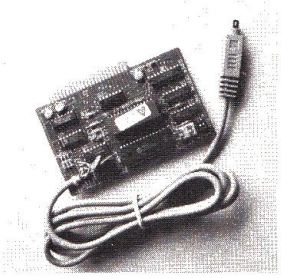

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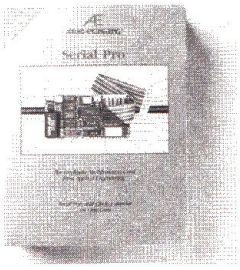

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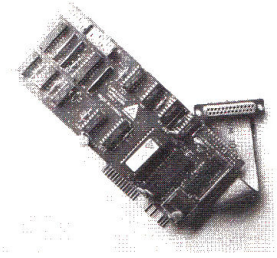

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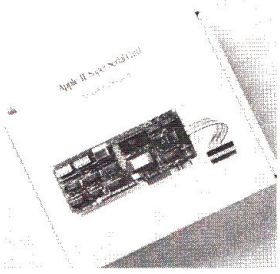

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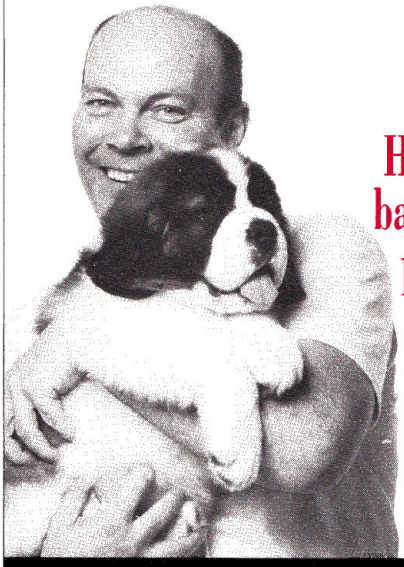

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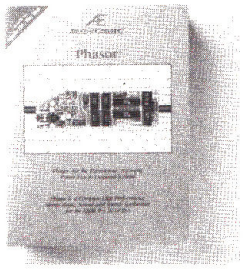

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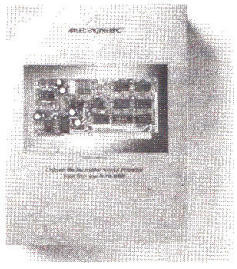

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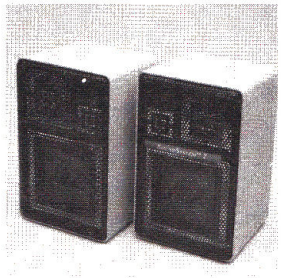

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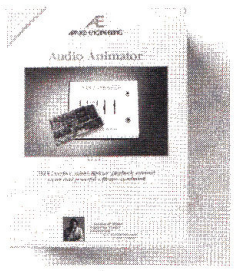

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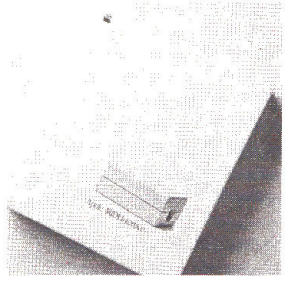

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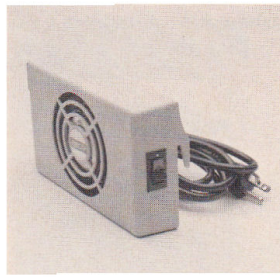
Apple //e



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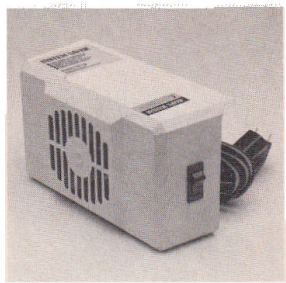

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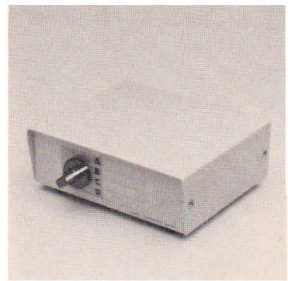

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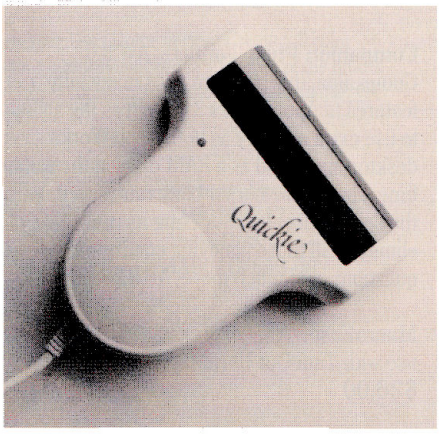

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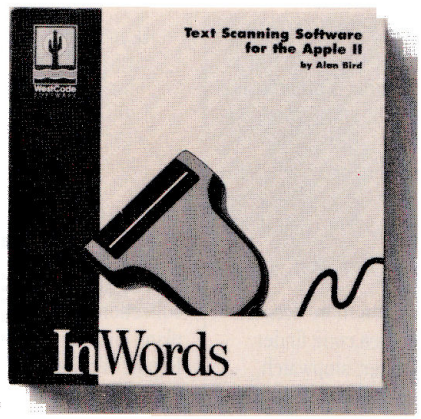

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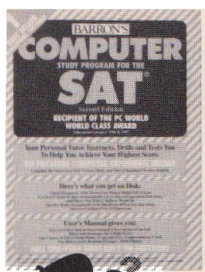

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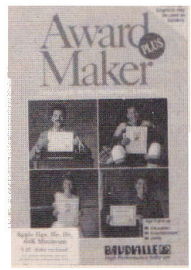

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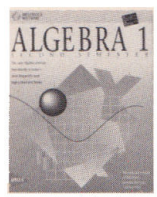

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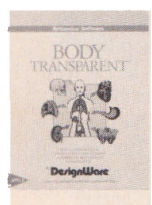

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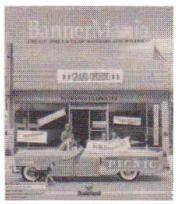

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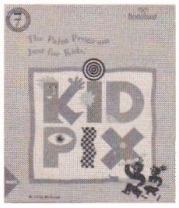
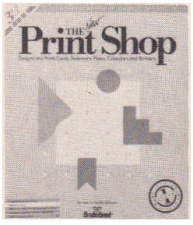
Apple II, Laser 128 3.5": ABD45.3/$26.00
Apple II, Laser 128 5.25": ABD45.5/$26.00
IBM: IBD45/$26.00
Macintosh: MBD45/$38.00
Macintosh School Edition: MBD45S/$51.00



Kid Pix.
Painting program for children. Tools make appropriate noises as they are used! Many other interesting features, too.

Macintosh: MBD46/$33.00
Macintosh School Edition: MBD46S/$43.00



The New Print Shop.
Create greeting cards, banners, signs, and more with this outstanding package. Libraries also available, please call for availability and pricing.

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Apple II,Laser 128 3.5": ABD01.3/$32.00
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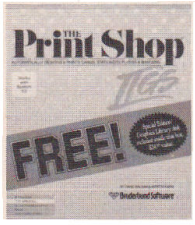
Macintosh: MBD07/$37.00
Apple II, Laser 128 School Edition 3.5": ABD01S.3/$43.00
Apple II, Laser 128 School Edition 5.25": ABD01S.5/$43.00
IBM School Edition 3.5": IBD01S.3/$51.00
IBM School Edition 5.25": IBD01S.5/$51.00
Macintosh School Edition: MBD01S/$49.00



The Print Shop GS.
Same features as The New Print Shop, but this one makes use of the capabilities of your IIGS. Libraries also available, please call for availability and pricing.
Apple IIGS: ABD01G/$38.00
Apple IIGS School Edition: ABD01SG/$51.00

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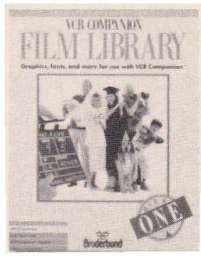
IBM: IBD25/$33.00
Macintosh: MBD25/$33.00
Apple II, Laser 128 School Edition 3.5": ABD25S.3/$36.00
Apple II, Laser 128 School Edition 5.25": ABD25S.5/$36.00
IBM School Edition 3.5": IBD25S.3/$41.00
IBM School Edition 5.25": IBD25S.5/$41.00
Macintosh School Edition: MBD25S/$43.00

VCR Companion.
Allows you to create video titles, credits, introductions, intermissions, scene transitions, and more. For Grades 4 and up.

Apple II, Laser 128 3.5": ABD18.3/$33.00
Apple II, Laser 128 5.25": ABD18.5/$33.00
IBM: IBD18/$37.00
Apple II, Laser 128 School Edition 3.5": ABD18S.3/$43.00
Apple II, Laser 128 School Edition 5.25": ABD18S.5/$43.00
IBM School Edition 3.5": IBD18S.3/$47.00
IBM School Edition 5.25": IBD18S.5/$47.00



VCR Companion Film Library.
Apple II, Laser 128 5.25": ABD24.5/$19.00
IBM 3.5": IBD24.3/$20.00
IBM 5.25": IBD24.5/$20.00

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Where in the World is Carmen Sandiego.
Chase Carmen and her gang all over the world and learn about the world at the same time. Includes the World Almanac.
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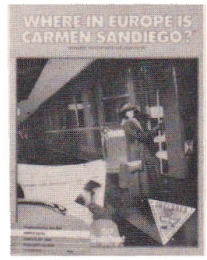
Apple IIGS: ABD21G/$32.00
Macintosh: MBD21/$32.00



Where in Europe is Carmen Sandiego.
Follow Carmen's gang all around Europe. Includes Rand McNally's Atlas.
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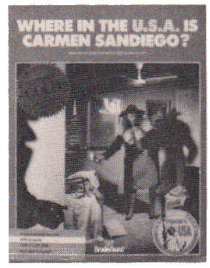
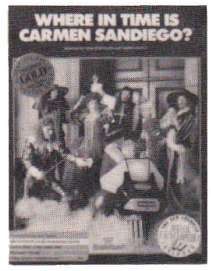
Apple II, Laser 128 5.25": ABD19.5/$29.00
Macintosh: MBD19/$32.00



Where in the USA is Carmen Sandiego.
Carmen's troop is on the loose in the US! Includes Fodor's USA Travel Guide.
Apple II, Laser 128: ABD20E/$29.00
Apple IIGS: ABD20G/$32.00
Macintosh: MBD20/$32.00



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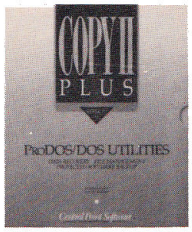
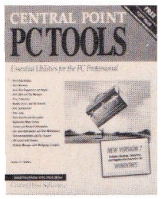
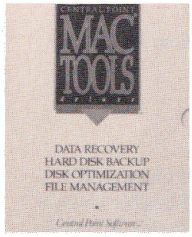


Copy II Plus v9.1.
Copy disks, files, copy-protected software, delete files...this excellent utility package does it all!
Apple II, Laser 128: ACE01/$27.00

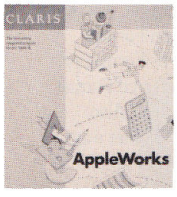


PC-Tools v7.0.
The Ultimate PC Utility program. Copy disks and files, delete and undelete files, format disks, manage directories...and that's just the beginning. Also includes a desktop organizer and superb hard disk backup program.
IBM 3.5": ICE01.3/$120.00
IBM 5.25": ICE01.5/$120.00



MacTools Deluxe.
All of the features of Copy II Plus for the Apple II (except copying protected software).
Macintosh:
MCE01/$86.00

Claris



AppleWorks 3.0.
Integrated Word Processing, Database, and Spreadsheet software. Cut & Paste between the different areas of the program. No need for lots of different, expensive software packages; everything's right here!
Apple II, Laser 128: ACL02/$169.00

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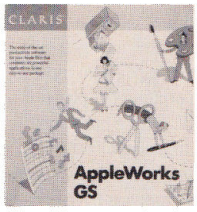
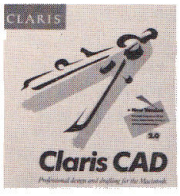
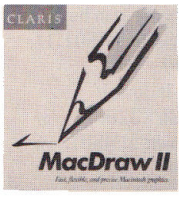


AppleWorks GS.
Integrated Word Processing, Database, Spreadsheet, Graphics, and Communications software. Cut & Paste between the different areas of the program. Utilize the power of your Apple IIGS! Requires 1.25 MB.
Apple IIGS: ACL01/$199.00



Claris CAD v2.0.
Unleash the power of CAD on your Macintosh.
Macintosh:
MCL05/$649.00



MacDraw II.
Create professional-looking drawings quickly and easily.
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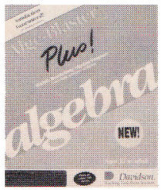

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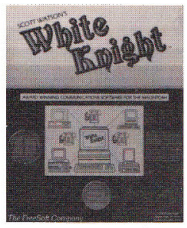
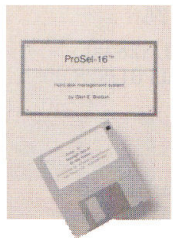


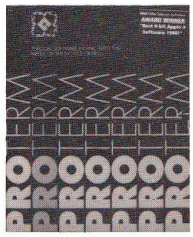
White Knight.
Powerful communications software for the Macintosh. Supports VT52, 100, and 102 terminal emulations, and X-, Y-, and Zmodem file transfer protocols.
Macintosh: MRR01/$97.00

Glen Bredon



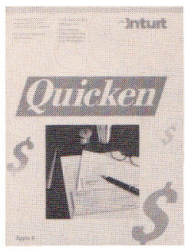
ProSel 16.
Program selector and file/volume utilities for the Apple IIGS. Customizable. Includes printed manual.
Apple IIGS: APS02/$74.00

InSync Software



ProTerm v2.2.
Powerful communications software for your Apple II or Laser computer. Features X-, Y-, and Zmodem file transfer protocols. Several terminal emulations available.
Apple II, Laser 128: ACK01/$79.00

Intuit Software



Quicken.
Write checks, keep financial records, track income and expenses, budget and manage your cash flow, and more. Includes macros to automate your work, and many helpful reports, including itemized tax deductions.
Apple II, Laser 128 v1.0: AIS01/$41.00
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McGee.
Watch McGee as he bounces a ball, rides a hobby horse, watches TV, plays with a puppet, makes a phone call, gives a treat to the dog, crawls under the rug, plays in the tire swing...McGee is up with the sun! You can actually hear the noises, such as doors closing, the cat meowing, or water running. For Ages 2-6.

Amiga (requires 1 MB): CLP01/$28.00
Apple IIGS (requires 512K): ALP01/$28.00
IBM: ILP01/$28.00
Macintosh: MLP01/$28.00

Katie's Farm.
The sequel to McGee. McGee visits his cousin Katie at the farm. Help Katie gather eggs, then watch Aunt Thelma milk the cow. See the scarecrow dance and a lazy turtle come to life. With a little help from Uncle Neil, McGee can even ride the horse! You can hear the chickens squawk and the buckets squeak. For Ages 2-6.

Amiga (requires 1 MB): CLP02/$28.00
Apple IIGS (requires 512K): ALP02/$28.00
IBM: ILP02/$28.00
Macintosh: MLP02/$28.00

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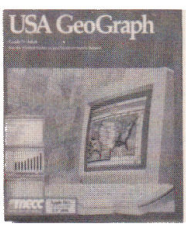
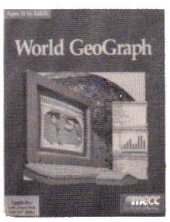


USA GeoGraph.
Illuminates geography, population structure, and social and economic characteristics of the U.S.A. and its territories. For Grades 6-adult.
Apple IIGS: AME03/$54.00
Apple IIGS School Edition: AME03S/$71.00



World GeoGraph.
Similar to USA GeoGraph, but this one spans the entire globe! For Grades 6-adult.
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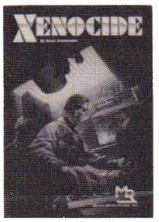
Apple IIGS School Edition: AME04S/$71.00

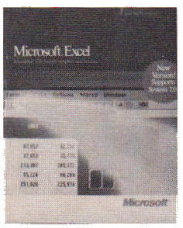
Micro Revelations



Xenocide.
An alien race has taken over research outposts on three moons orbiting the planet Talos IV. There have been no communications recently, so we must assume the worst – that all humans have been killed. In order to stop the alien race from spreading, you must destroy the three moons. In order to accomplish this, though, you must go down to the surface and plant explosives in the Bio-labs. You have to finish the job before it's too late!

Apple IIGS: AXN01/$29.00

Microsoft Corporation



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The most powerful spreadsheet yocan buy!
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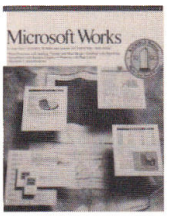

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IBM (Windows): IMS03W/$339.00
Macintosh v4.0: MMS02/$285.00

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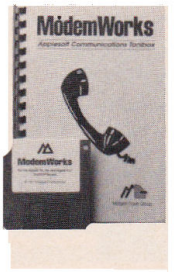

ModemWorks.
Design your own communications program! Simple enough for the novice programmer, yet flexible and powerful enough for the pro.
Apple II, Laser 128 3.5": AMG02/$31.00

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Music Writer.
Create full musical scores using your computer.
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Apple II, Laser 128 Special Edition: APG01SE/$199.00
Apple IIGS Special Edition: APG01SG/$199.00
Apple II, Laser 128 Professional Edition: APG01PE/$399.00
Apple IIGS Professional Edition: APG01PG/$399.00

Raptor, Inc.

Second Chance v2.0
This GS Desktop program allows you to convert 320 mode graphics into 640 mode and import them into 640 mode programs without the distortion that you usually get. Works with Screen Format, PaintWorks Format, or Apple Preferred Format graphics files. Also includes 17 other ways to enhance your graphics, and much more.
Apple IIGS: ARP01/$39.00

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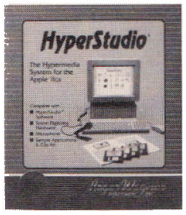
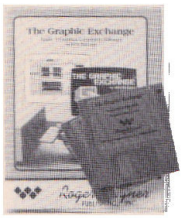


HyperStudio.
Integrates text, graphics, and sound on your IIGS. Comes complete with a Hypermedia authoring system, paint tools, a text editor, sound editor, sound digitizing hardware card, and microphone. **Requires 1 MB of RAM.**
Apple IIGS: ARW02/ $89.00.



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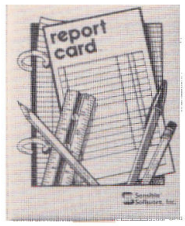

Report Card II.
Keeps track of up to 100 students and 90 activities per class. Handles incompletes, grouping activities; calculates student and class averages and extra credit; ranks students according to various sorting options. Built-in editor.
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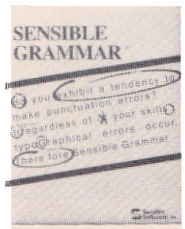
Apple II, Laser 128 10-Disk Lab Pack: ASN04LP/$129.00



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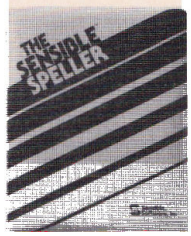
Proofread your document with an extensive library of over 2,000 commonly misused phrases. Also catches many punctuation, capitalization, and other typographical errors.
Apple II, Laser 128: ASN02/$54.00
Apple II, Laser 128 10-Disk Lab Pack: ASN02LP/$215.00



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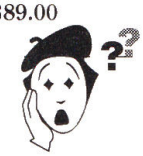
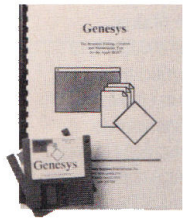


Simple Software Systems, Inc.



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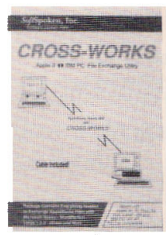

CrossWorks v2.0.
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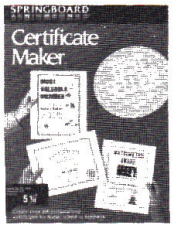

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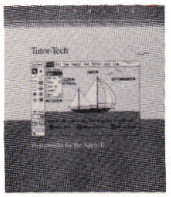

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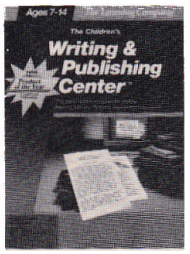

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Apple II, Laser 128 5.25": ATL02E/$37.00
IBM: ITL02/$37.00

Vitesse

Harmonie v2.0. Please see inside back cover for specifications and price.

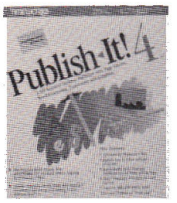
Salvation for Microsoft Windows (IBM). Please see inside back cover for specifications and price.

Salvation Supreme. Please see the inside back cover for specifications and price.

WestCode Software

InWords v1.0. Please see the middle pages of this catalog for specifications and price.

Timeworks Software



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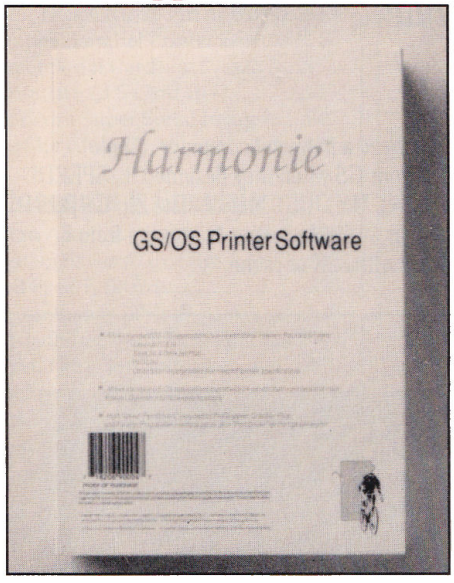

Harmonie

The Harmonie printer driver software package unleashes the power of the IIGS for top-quality text and graphics printing under any GS/OS application that uses the GS/OS Print Manager. You can choose from the very best of the high-quality (but low-cost) laser, ink-jet, and 24-pin dot matrix printers. There are also Harmonie drivers included for the ImageWriter II and ImageWriter LQ printers.

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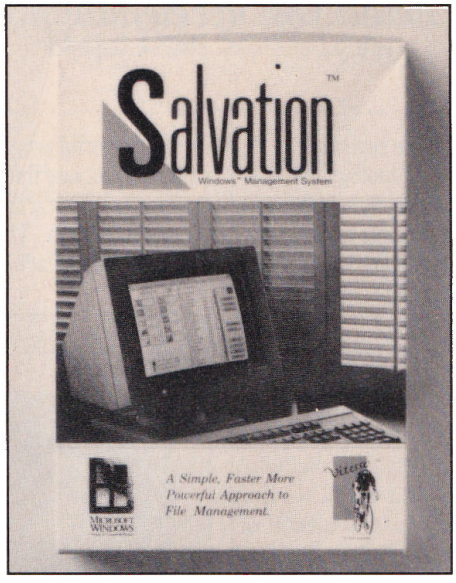
IBM



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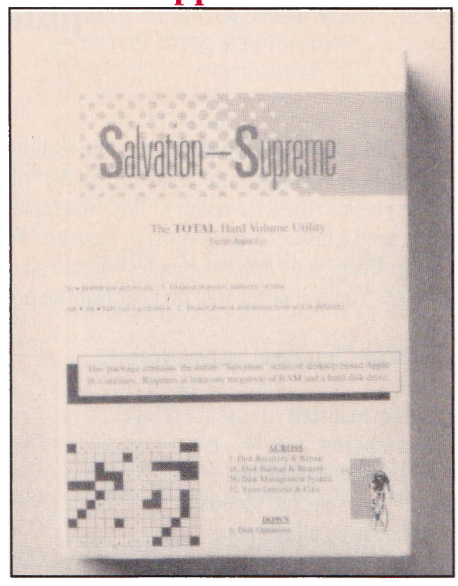
Apple IIGS



Salvation-Supreme

Salvation-Supreme is a complete hard disk drive utility package designed specifically for the Apple IIGS. Salvation-Supreme comprises all five of the excellent stand-alone Salvation utility programs; Bakkup, Deliverance, Exorciser, Renaissance, and Wings.

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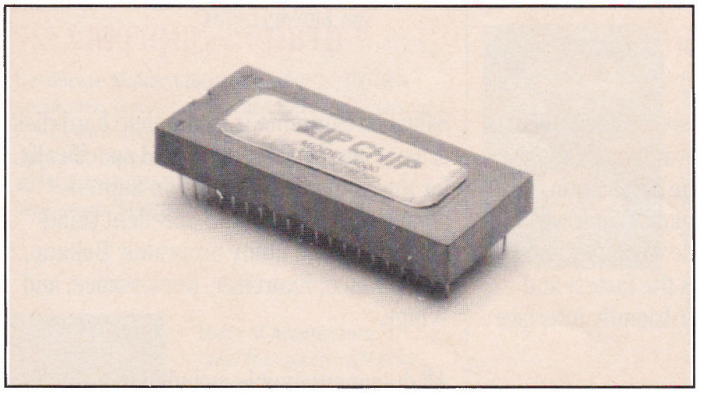

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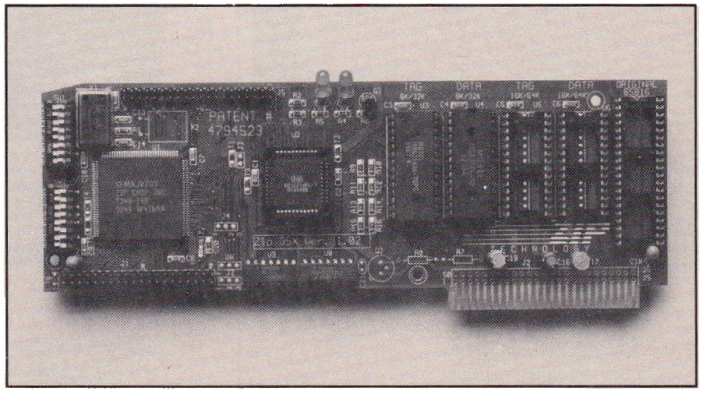

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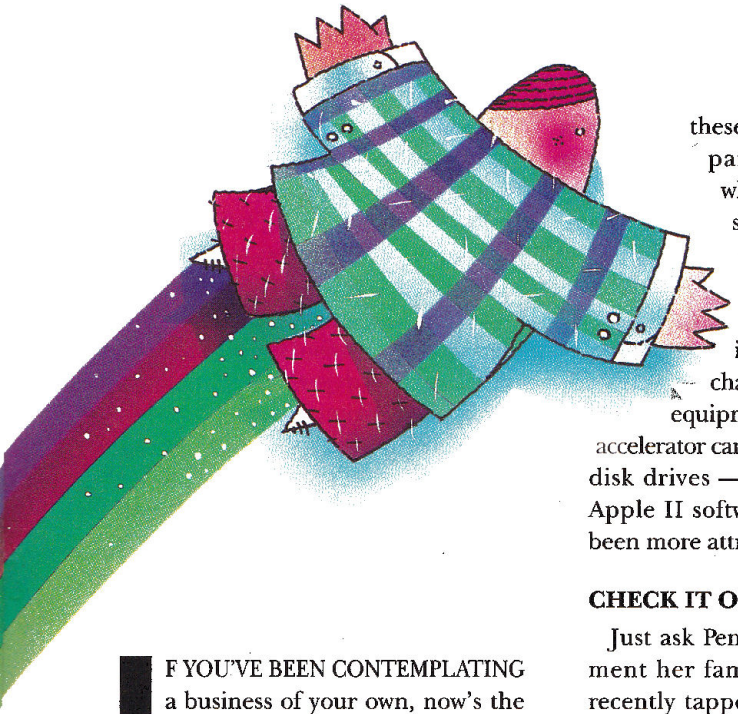
FREE ENTERPRISE

Bargain-basement hardware prices and top-drawer Apple II small-business software make for a profitable partnership in any economic climate.

By CYNTHIA E. FIELD, Ph.D.
CONTRIBUTING EDITOR



IF YOU'VE BEEN CONTEMPLATING a business of your own, now's the time to act — for enterprising Apple II users, the computer's the key that can open countless windows of financial opportunity, even in hard times.

A little resourceful thinking is all it takes to capitalize on the Apple II system you now use, not to mention the considerable knowledge you already have. Whatever your occupation — part-time AppleWorks consultant, professional dog groomer, retail shopkeeper — the computer gives you an entrepreneurial edge as it helps you balance your books, organize your sales records and mailing lists, handle your correspondence, and produce fliers and newsletters to recruit new customers.

Running your business lean and mean — a recession survival skill — can help you master the fine points of cash management. Recruiting the basic computer system you already own for your new business venture frees you to use the money you save to purchase other office necessities, such as an answering machine, a photocopier, or a fax unit. And if you need to beef up your system, good deals are plentiful these days. Mail-order companies and store owners who manage to survive the shakeout usually offer unparalleled service and value: Like no other time in recent memory, it seems, you can purchase peripheral computer equipment — everything from accelerator cards to high-capacity hard-disk drives — at bargain rates. And Apple II software prices have never been more attractive, either.

CHECK IT OUT

Just ask Penny Hansen. To supplement her family's income, Hansen recently tapped into her accounting expertise to launch a new bookkeeping business in Acworth, Georgia. "I feel as though I'm playing when I'm doing this," quips Hansen. "I like computers and I like accounting."

For hardware, Hansen "appropriated" her kids' Laser 128. Her program of choice was ACTAsoft's **Alpha Check Plus**, an enhancement product that transforms **AppleWorks 3.0** into a full-fledged single- or double-entry accounting system for individuals and small businesses.

Among the software's easy-to-use features is an on-screen graphics check facsimile. If you can write a check the conventional way, you can write checks with Alpha Check Plus. The program updates your check register automatically and prints continuous-form checks you can insert into window envelopes.

Although Alpha Check Plus comes with a ready-made database and financial report formats that include *Trial Balance*, *Vendor Report*, *Expense Report*, and *Reconcile*, you can customize any design to suit your needs. Moreover, because you have access to every AppleWorks 3.0 word processor, database, and spreadsheet tool, you can create custom reports within the database itself or transfer information via the Clipboard from one AppleWorks module to another.

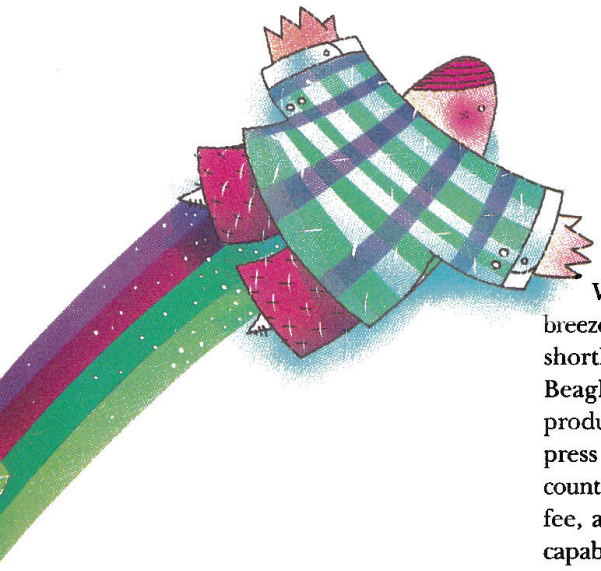
Among other ACTAsoft offerings are **Alpha Invoicer**, a complete billing system that tracks back orders, computes sales-tax collections, and calculates discounts, and the **Business Master Bookkeeping Series**, which includes Alpha Check Plus as well as the company's optional **Payroll Plus** module.

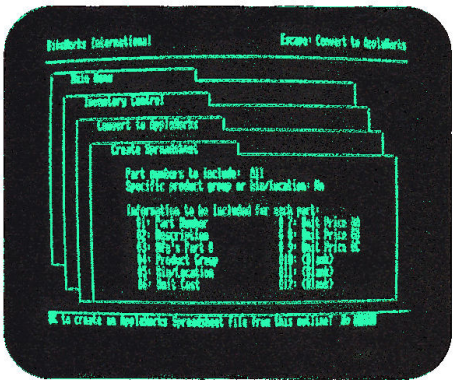
When you press Solid apple-Escape, Business Master headlines the customary AppleWorks screen with a menu bar that offers, among other things, automated letter- and memo-writing capabilities, an envelope addresser, a Rolodex-card printer, a purchase-order generator, and an accounts-receivable tracker. Install Business Master and a couple of Beagle Bros' enhancements, such as **TimeOut SuperFonts**, **SuperForms**, and **Graph**, and you can literally run your whole business from an AppleWorks desktop.

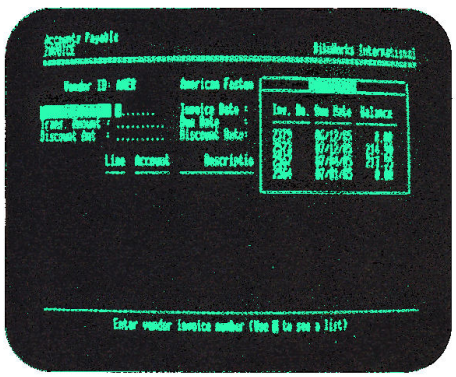
We know what you're thinking: Can an Apple II really compete with an IBM PC in the business arena? The answer's a definitive yes. As fast as you can say "MS-DOS," Penny Hansen points out that before she chose Alpha Check Plus, she investigated a number of alternatives, including at least one well-regarded PC accounting system. Bad enough that a new hardware setup would have set Hansen's fledgling business back some $2000, but the software she tested didn't offer the flexibility she wanted — the flexibility that AppleWorks 3.0 and Alpha Check Plus could provide.

Julian Clark, M.D., a New York psychiatrist and Apple IIGS user, echoes Hansen's enthusiasm. Dr. Clark considers Alpha Check Plus "a lot better than [Intuit's] Quicken" and reiterates the

Illustration * Ken Bowser







Manzanita's BusinessWorks software is a series of stand-alone AppleWorks look-alike programs, available separately or as a package. Modules include accounts receivable and payable, payroll, and inventory control, with automatic updating of appropriate accounts in the general-ledger portion of the software.

fact that "you can use your Alpha Check Plus database any way you want because of AppleWorks." And billing patients is "a breeze," says Dr. Clark, thanks to a custom shorthand command he wrote with the Beagle Bros AppleWorks enhancement product **TimeOut UltraMacros**. At the press of just a couple of keys, his macro counts a patient's visits, calculates the total fee, and uses AppleWorks' mail-merge capability to generate a bill automatically.

MACRO ECONOMICS

If AppleWorks and a single macro can save a psychiatrist from "going crazy," consider what macros can do for your business by spending some time with Bruce Rapee, an UltraMacros power user who manages real-estate holdings, including an apartment building and a mobile-home park, for a group of Miami-area investors.

Rapee's office boasts two fully loaded Apple IIe systems. Each computer's tethered to a 20-megabyte Chinook hard-disk drive (for storing data files) and internally enhanced with an 8-megahertz Zip accelerator and a 5-megabyte Applied Engineering RamFactor card. The extra memory is crammed with AppleWorks 3.0 files and a slew of TimeOut add-ons, Software Toolworks' **Dollars and Sense** (originally from Monogram Software), and Scholastic's **Springboard Publisher II** (now available only for Macs).

Rapee notes that creating boilerplate documents such as leases, contracts, and loan commitments is a snap with WestCode's **InWords** OCR (optical character recognition) software and Vitesse's Quickie hand-held scanner. Thanks to his turbocharged Apple II systems, Rapee can generate lease-renewal agreements at a rate of nearly 100 per hour.

Having investigated commercial real-estate management software only to find it lacking, Rapee turned to AppleWorks 3.0 and TimeOut UltraMacros to create a customized landlord/tenant package, which the company's property manager uses in day-to-day activities such as tracking accounts receivable, logging rents, and printing bank deposits. She simply calls up each tenant's account and types in the payment; AppleWorks calculates arrearages, late charges, and new balances automatically and issues printed receipts. This UltraMacros-based system makes it just as easy to track incidents such as parking or noise violations, as well, and send notices to the offending tenants.

Rapee's package boasts more than three dozen interlaunching UltraMacros task files, each displaying appropriate screen prompts that remind the office manager of the commands she needs to press to get a job done. From the main module, for example, she presses Solid apple-I to bring up the *Incident* records module. From there she presses F (*Find*), M (*Make*), or R (*Report*). Each macro option elicits additional submenu choices.

"I'm perfectly happy with AppleWorks," says Rapee. "I couldn't begin to do on an IBM what I've done with AppleWorks and the Apple II. It's as if Randy Brandt [author of UltraMacros] gave birth to something that has capabilities no one ever dreamed of."

If you have a modem and you'd like to test-drive a few of Rapee's real-estate or investment templates for AppleWorks 3.0, you can download the files or send Rapee electronic mail via CompuServe; his ID number is 75026,1365.

ENTERPRISE COMPUTING

Powerful as it is, AppleWorks 3.0 — with or without its many enhancements — isn't the only business software available for the Apple II. Dorothy Williams, manager of Hawkins Ace Hardware in Rogers, Arkansas, should know. Williams says she's used a vast majority of all the programs ever written for the Apple II. "My dad likes to make sure I can get everything possible out of the machine," she laughs.

Diloware's **The Invoicer** (originally from MiccaSoft), Turning Point's **Time Is Money**, and Broderbund's **Bank Street Mailer** are the only three programs Williams now uses to run her family's 110-year-old plumbing-supply store and four other businesses, including retail and wholesale flower shops.

Besides top-notch technical support, Williams praises The Invoicer's ease of use and speed. "I trained one employee to

use the program and he learned it in 10 minutes," she remarks. Williams says that the monthly billing process, which used to take two days to do manually, now takes less than three hours.

CASH CROP

If your business-software wish list includes an AppleWorks look-alike program that offers sophisticated accounting features, superb error handling, and context-sensitive, pop-up help boxes, look no further than **BusinessWorks** from Manzanita Software Systems.

You probably wouldn't be surprised to find such an attractive business program working behind the scenes in a manufacturing facility or in a retail store or service business. But you might be taken aback to find it toiling down on the farm — that is, until you visited the James Weaver Farm in Red Oak, North Carolina.

Nancy Weaver, whose family raises tobacco, corn, peanuts, soybeans, and cotton, says she looked at a number of business programs for her Apple IIGS before selecting BusinessWorks. She reports that she loves the program's ease of use — and the "wonderful" customer support she has received from Manzanita.

With the exception of **Inventory Control**, Weaver uses all BusinessWorks modules: **General Ledger**, **Accounts Receivable**, **Accounts Payable**, and **Payroll**. She explains that when she pays a bill, BusinessWorks not only prints the check, but also debits the appropriate account in the general ledger automatically so that at the close of the month she can see precisely what she spent for a particular commodity, such as fertilizer.

"The program does exactly what I need it to do," says Weaver. "Farm laborers often borrow money (as an 'advance') and the program gives me the option to go in and have the loans deducted automatically from weekly paychecks."

YOUR TURN

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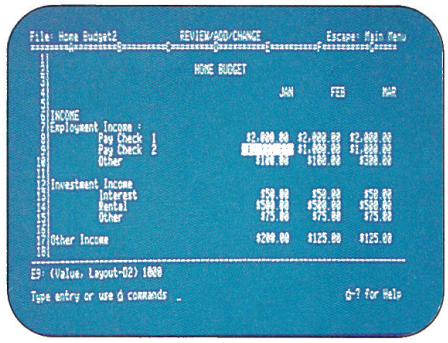

Flexibility is AppleWorks' hallmark. In combination with enhancement modules such as Beagle Bros' TimeOut Ultra-Macros, Claris' star package can balance your books and print bills and reports.

CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. SHE'S A CONTRIBUTING EDITOR TO *INCIDER/A+* AND IS THE AUTHOR OF PRESS ROOM, OUR MONTHLY COLUMN COVERING DESKTOP PUBLISHING. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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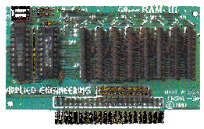

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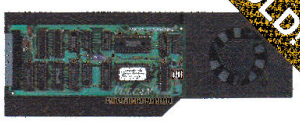

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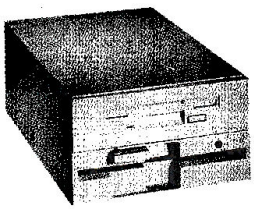

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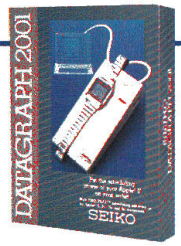

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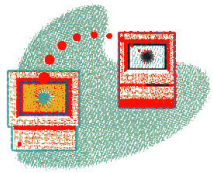

BRIDGING THE GAP

YOU ASKED FOR IT

Your letters don't go unread — this month, we offer some solutions to a sampling of your questions.

By GREGG KEIZER

BUILDING BRIDGES — REAL BRIDGES — isn't easy. Footings must be sunk, cement poured, cable strung, roadways laid — mighty engineering feats all. No wonder it took years to build the Brooklyn Bridge and span the Golden Gate. No wonder that for centuries, "high technology" meant stone, then steel.

Building bridges between the Mac and the Apple II may demand less sweat, a lot less money, and no 12-inch cabling, but it's still a one-step-at-a-time feat of engineering — especially for anyone who looks at computers as tools, not Rubik's Cubes. You've got better things to do than re-invent the wheel.

That's why you read Bridging the Gap. And that's why you write letters. Boy, do you write letters. Sorry I haven't written back. I meant to — but the volume of mail is, to be frank, nearing critical mass.

To turn that vice into a virtue, let's take a look at some of the real problems you have in building your own bridges.

LAW AND ORDER

Our family law firm has two Apple IIe computers that my wife and I use for word processing in drafting documents. We also have a detached word processor of another brand, which our secretary uses for preparing documents in final form. We're considering purchasing a Mac for our secretary to replace her current machine. Is there any simple way to use the Apple IIe disks with a Mac? Would one Mac model be preferable to others for this purpose?

— James H. Glavin III

Connecting aging Apple IIs with a brand-new Mac got a lot easier when ***System 7.0*** *hit the streets. Although you can simply shuffle files from a 3.5-inch disk drive-equipped Apple IIe to a Mac via "sneakernet" — walking disks from computer to computer — a more practical connection requires a minimal network.*

Any Mac with at least 2 megabytes of RAM and a hard disk will do. Because your secretary will use the Mac mostly as a writing and document-production tool, the slower (and less expensive) LC will do fine. Its larger-sized monitor will come in handy when she starts to take on elementary desktop-publishing jobs for the office.

Set up the Macintosh, install System 7.0 (see "Long Live 7.0," Bridging the Gap, August 1991, p. 24, and "In the Network Groove,"

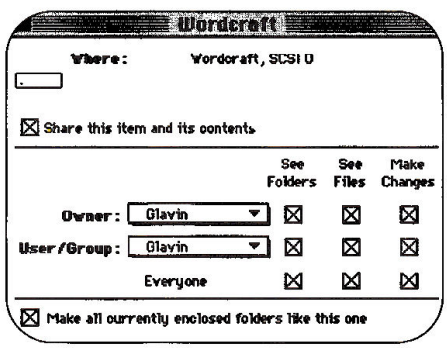

Figure 1. Configuring a System 7.0-based network; here, the Mac's hard-disk drive becomes a shared folder under the Mac owner's name.

September 1991, p. 40), and connect it to the two IIes with ***LocalTalk****-compatible cabling and connectors. If you, your wife, and your secretary are in separate rooms, look at Farallon's* ***PhoneNet****, which lets you use existing phone wiring. Don't forget that you'll need an* ***Apple II Workstation Card*** *for each IIe. Configure the Mac's hard-disk drive — the entire volume — as a shared folder. Pick an easily remembered name (*Glavin *will do fine) as that Mac's owner's name (****Figure 1****). Now, when you want to transfer word-processing documents from your Apple IIe (let's assume that you're using* ***AppleWorks****), just save it to a 5.25-inch disk, as usual. Next, use the Workstation Card Startup disk to reboot the IIe, and when it comes time to type in the user name, type* Glavin.

Though Apple IIGSes can connect gracefully with a System 7-running Macintosh, a bug prevents Apple IIe users from linking unless it's as the network administrator (the Mac's owner). Normally, that could be a problem, as giving everyone access to the Mac's hard-disk drive could result in a lot of snooping and risk unauthorized file deletion. But because you're working in a small office — a family one at that — there are probably few secrets. Even if there are, your secretary can't look at what's on your IIe disk, though you and your wife can see what's on the Macintosh.

Once you're connected, simply copy the file(s) to the Macintosh with software such as System Utilities. With a program like ***MacWrite II*** *or* ***MacWrite Pro****, your secretary can open the AppleWorks word-processing files (formatting intact), make her corrections, and print them to a laser or ink-jet printer. Total cost for this mini-network is around $725, Mac and printer not included. That's a small price to pay for nearly instant file transfer — and a lot less than buying two new computers.*

APPLE II FOREVER

I want to do serious book-length desktop publishing with a Mac IIsi running Microsoft Word and Quark XPress or Aldus PageMaker. Currently, I use an Apple IIc with AppleWorks. I have more than 20 disks of material to transfer to the Mac. Ideally, I'd like to continue using the Apple IIc. The best our local computer salespeople could come up with is to use a disk-conversion service. I wouldn't be able to continue using the IIc, though.

I've read that the Mac's SuperDrive is supposed to read ProDOS, but none of the Mac salespeople knew much about that. If the SuperDrive works as I read, I should be able to get a 3.5-inch drive for my Apple IIc, convert files to that format, then read

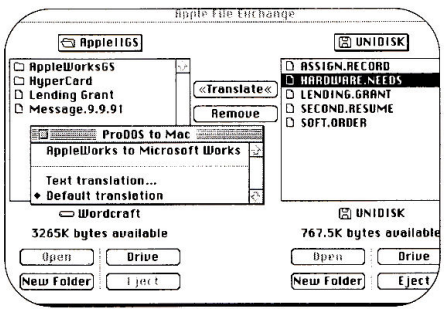

Figure 2. Converting a ProDOS file to a Macintosh-compatible format via Apple File Exchange.

the AppleWorks files (or ASCII files) from the SuperDrive. Is this practical?

— Lisa Shanks

You're right about the SuperDrive. It can read a ProDOS-formatted 3.5-inch disk, with some help. That comes in the form of ***Apple File Exchange*** *(AFE), a utility included with each Mac's operating-system software. (See "Swap 'til You Drop," Bridging the Gap, March 1991, p. 100.) With AFE and a SuperDrive-equipped Mac (all the new models have one as standard equipment), you can easily read AppleWorks files. Here's what you need.*

First buy a UniDisk 3.5-inch drive for your IIc. Next, copy your AppleWorks files from their 5.25-inch disks to the smaller format. Then you can begin to move them to the Mac.

Run AFE on the IIsi, then stick a 3.5-inch ProDOS disk in the Mac's internal SuperDrive. Select a file from the list that appears in the window on the right, pick Default *from the* ProDOS to Mac *menu (**Figure 2**), and fire away. In moments the file's converted to a format the Mac can read.*

To put text into a page-layout program such as Quark XPress or Aldus PageMaker, I'd recommend MacWrite II or MacWrite Pro instead of Microsoft Word. MacWrite includes file translators that can open AppleWorks word-processing files directly, letting you avoid the additional step of saving your work to a plain ASCII format, as you'd have to do if Word were your choice for the Mac. Run MacWrite, open an AppleWorks document, make your changes, then save it as a MacWrite or Word file, ready to pour into your page-layout program.

Only a System 7.0 network would be more elegant, but that's impossible — the IIc can't communicate with other computers via LocalTalk. The beauty of this setup — which costs about $450, by the way, disk drive and MacWrite included — is that you can keep using your IIc. Because the transfer process is reasonable, you can move AppleWorks files to the IIsi at a moment's notice. Maybe Apple II is *forever.*

PERFECTO MUNDO

I have an Apple IIGS at home and have recently purchased a Mac IIsi for my office. I use WordPerfect on the GS, although I also have AppleWorks GS loaded on the hard disk. I use Microsoft Word on the Mac. I'm interested in transferring files between WordPerfect and Word. I'm writing a book with WordPerfect on the GS, and although I do most of my writing at home, on occasion I get some writing done at the office. Is the exchange possible? Must I convert the WordPerfect files to AppleWorks GS first? I understand that I can't transfer Microsoft Works files to AppleWorks. Given that, is there a solution to my dilemma?

— Barnaby C. Wittels

Your best bet, assuming that you're cranking out most of your copy on the GS at home, is to move text from the IIsi to the GS on those occasions when you've written at work.

Moving text from the Mac to the GS — at least text files on disk — isn't easy. Unfor-

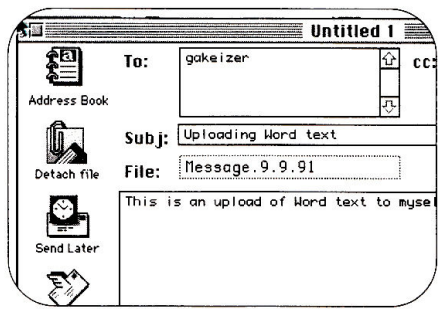

Figure 3. Uploading a file to your America Online mailbox is easy, thanks to the software's simple icon-and-menu interface — and you can log on from either a Mac or a GS.

tunately, Apple seems to think that the only direction files should move is the opposite, from Apple II to Mac, never back. GS 3.5-inch disk drives, for instance, can't read Mac 800K disks; nor is there a GS version of Apple File Exchange.

GS/OS 6.0, the next iteration of the GS' operating-system software, reportedly bridges the gap better; it includes the necessary software tools to accept Mac disks. An external 3.5-inch SuperDrive for the GS is also on the horizon. If not, an alternative is to use telecommunications to move text from your office Mac to your home GS. Sign up with ***America Online****. This service may not be the biggest on the block, but it's the best at moving files between Apple IIs and Macs. (See "Telephone Tag," Bridging the Gap, April 1991, p. 62.)*

Equip each computer with a modem — a 2400-baud modem on each end expedites file transfer and keeps your telecommunications bill down — and install America Online's

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special software on both. It's free, and you can create just one account even though you're accessing the system from multiple machines.

When you finish writing on the Mac with ***Microsoft Word****, save it as a text (or ASCII) file. Connect to America Online and send a message to yourself, attaching the file (***Figure 3****). When you get home, start up the GS, connect to America Online, and read your mail. You'll get the chance to download the attached text file, which you'll save to disk. Run* ***WordPerfect****, load or import the text file, make your format changes, and save it as a WordPerfect file. You'll spend about $220 for the modems and necessary cables, then an additional $10 or so a month for America Online.*

FILE-EXCHANGE BLUES

I'm trying to use Works to Works and Apple File Exchange to convert GS files to Microsoft Works on my Mac LC. If I select *Show Eligible Files*, my GS files go dim. I go ahead and complete the transfer anyway, and although it appears to be successful, when I try to import the files into Works I get the filename with no files identified in the folder. When I use the Works to Works exchanger I can't pull up the menu *AppleWorks to Microsoft Works*. All I can see is *ProDOS to Mac*; I use the default selection and sense a successful transfer, but no luck.

— Ed Venanzi

Unfortunately, AppleWorks GS isn't AppleWorks. And it's the latter that ***Works to Works*** *(included with* ***Microsoft Works*** *for the Mac) translates. That's why AFE dims the GS filenames and won't put up the* AppleWorks to Microsoft Works *menu selection.*

The AppleWorks/Microsoft Works connection made possible by AFE and Works to Works moves files in only one direction — from the Apple II to the Mac. (See "Swap 'til You Drop," Bridging the Gap, March 1991, p. 100.) Most formatting arrives intact from AppleWorks, including spreadsheet and database files, though you may have some cleanup to do. Word-processing documents make the transition best of all.

AppleWorks GS users are out of luck. You can't turn your AWGS files into AW Classic documents (though you can import Classic files easily into AWGS). Your best bet is to save files in formats you can import later into Microsoft Works, or another Mac program. You can save AWGS word-processing files in plain text format, for instance, then open them in Works. Save AWGS database and spreadsheet files in ASCII. You'll have lots of work to do on the Mac end, but it's all you can hope for with Works.

A new Mac integrated package from Symantec offers a glimmer of hope. ***GreatWorks*** *opens AWGS word-processing files easily, as does Claris' MacWrite II (through its included XTND translator). All you have to do is run them through Apple File Exchange by picking* Default *under the* ProDOS to Mac *menu, then open them in GreatWorks'* Write *module. You'll still have to save AWGS spreadsheet and database files as ASCII, though, before importing into GreatWorks.*

Seems strange, doesn't it, that the most Mac-like program for the GS — AppleWorks GS — has a more difficult time swapping data with a Macintosh than its older cousin AppleWorks has? No one ever said life with an Apple II would be fair. ❑

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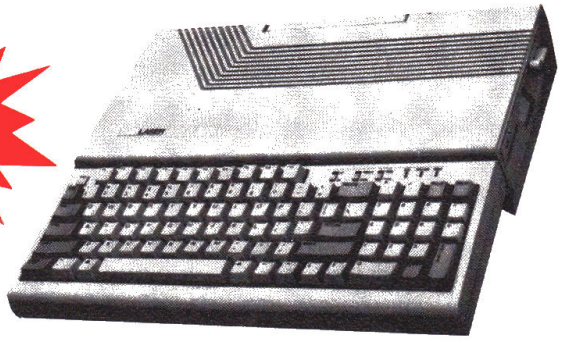

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By RUTH K. WITKIN

RUNNING A SIDELINE BUSINESS IS a great way to supplement your income and give vent to your entrepreneurial bent. But sideline businesses can't usually offer a store or an office for customers or clients to visit. To attract attention when your business is, in effect, invisible, you have to rely on mailed pieces to let people know about your product.

With a little thought, creativity, and AppleWorks, you can produce an informative, easy-to-read sales piece that whets the buyer's appetite and gives you the entrepreneurial edge over the competition. In writing copy for your product, it can help to think of what you're selling as an *ACE* of an *IDEA*: You must attract *Attention*; *Convince* the reader; convey *Enthusiasm*; develop *Interest*; be *Descriptive*; make it *Easy* to buy; and get *Action*.

Keep your sentences short and punchy. Eliminate lazy or tired words. Make sure grammar, punctuation, and spelling are correct. Hone and polish until you get just the right tone and content.

Figure 1 shows a snazzy sales sheet filled with fascinating facts about miniature antique cars, the kind sold at swap meets and flea markets. I found the line drawings in a clip-art book filled with fine-quality, copyright-free artwork. After printing the piece, I pasted the car drawings in place.

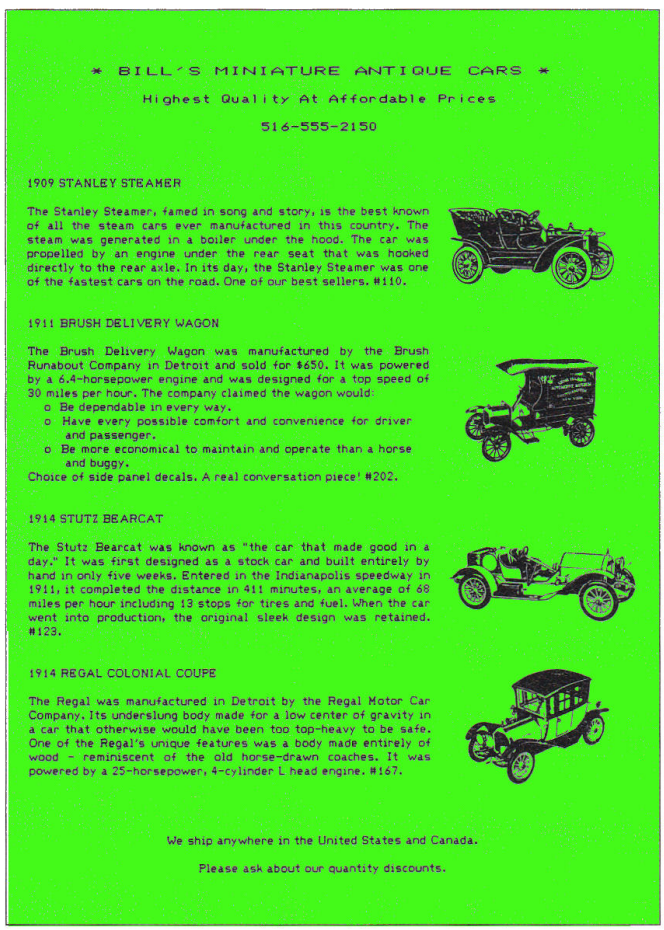

Figure 1. Sales sheet for a sideline business that sells miniature antique cars at swap meets.

The text and illustrations in this example fit on one 8.5-by-11-inch page and can be reproduced on a copy machine at minimal cost. If you have a greater variety of products, you need only create more pages. It's a good idea to provide product prices on a separate price sheet that you can update easily.

A DOCUMENT FROM SCRATCH

Create a new word-processor file named **BROCHURE**. AppleWorks' *Review/Add/Change* screen appears with the cursor in line 1 column 1.

Figure 2 contains text, line numbers, and "blots" signifying where you press Return. *Word wraparound* makes any word that can't fit at the end of a line move down to the beginning of the next line by itself. You press Return only to end a paragraph or to insert a blank line.

If you make a typo, the delete key backs up the cursor and erases the character. So that we're working with the same line and column numbers, type only one space between sentences.

Now press Open apple-Z (OA-Z) to keep the blots and tab carets on screen as you work. Enter the text as follows, referring to the bottom of the screen for your current line-and-column position:

Line 1. Type *** BILL'S MINIATURE ANTIQUE CARS *** and press Return twice to end the heading and insert a blank line. The cursor moves to line 3.
Line 3. Type **Highest Quality At Affordable Prices** and press Return twice. The cursor moves to line 5.
Line 5. Type **516-555-2150** and press Return four times. The cursor moves to line 9.
Line 9. Type **1909 STANLEY STEAMER** and press Return twice. The cursor moves to line 11.
Line 11. Referring to **Figure 2**, type the entire paragraph that starts with *The Stanley Steamer, famed in song and story* . . . .

After you type **#110**, press Return three times to both end the paragraph and insert two blank lines. The cursor moves to line 20.

Line 20. Type **1911 BRUSH DELIVERY WAGON** and press Return twice. The cursor moves to line 22.

Line 22. Type the entire paragraph that starts with *The Brush Delivery Wagon was manufactured by the Brush Runabout Company.* . . . After you type **would:**, press Return to reach line 26.

Line 26. Now enter the bulleted text as follows: Type **o** and press Tab. Type the sentence **Be dependible in every way.** (You'll fix the misspelling of *dependable* later.) Press Return to end the paragraph. The cursor moves to line 27.

Line 27. Type **o** and press Tab. Type **Have every possible comfort and convenience for driver and passenger.** Press Return. The cursor moves to line 29.

Line 29. Type **o** and press Tab. Type **Be more economical to maintain and operate than a horse and buggy.** Press Return. The cursor moves to line 31.

Line 31. Type **Choice of side panel decals. A real conversation piece. #202.** Press Return three times to insert two blank lines. The cursor moves to line 35.

Line 35. Type **1914 STUTZ BEARCAT** and press Return twice. The cursor moves to line 37.

Line 37. Now type the paragraph that starts with *The Stutz Bearcat was known as* . . . . In the third sentence of the paragraph, type **in** and **the** without a space between them, as shown in **Figure 2.** At the end of the paragraph, press Return three times. The cursor moves to line 46.

Now take your time and type the rest of the text shown in **Figure 2,** starting with the heading *1914 REGAL COLONIAL COUPE* and ending with the shipping and discount sentences. When you finish, the cursor should be in line 57 column 41. This completes the text in the miniature-cars sales piece. Press OA-S to store it on disk.

CHECKING THE SPELLING

After all this typing, you want to be sure everything's spelled correctly, so leave the cursor where it is and press OA-V to start the *Verify Spelling* command. The highlight is on *All*, which tells AppleWorks to check the spelling of every word in the document. (Selecting *Word* checks the spelling of the word under the cursor, or to the left of the cursor if it's between words. Selecting *Block* checks the spelling of each word in the block of text you highlight.)

Press Return to confirm *All*. AppleWorks scans its custom and main dictionaries to find each word in your document, finally highlighting *dependible*.

Type **G** to tell AppleWorks to provide suggested spellings. AppleWorks displays *DEPENDABLE* and *DEPENDABLY*, with a highlight on *DEPENDABLE*. The program zeroed right in on the correct spelling, so press Return to accept it.

Next, AppleWorks highlights *STUTZ* as an unknown word. STUTZ is spelled correctly. The next time you check spelling in this or a related document, you want AppleWorks to move past each occurrence of the word, so type **A** to add it to your dictionary. AppleWorks now highlights *BEARCAT*, another word to add to your dictionary, so type **A** again.

```
Line
1     * BILL'S MINIATURE ANTIQUE CARS *□
2     □
3     Highest Quality At Affordable Prices□
4     □
5     516-535-2150□
6     □
7     □
8     □
9     1909 STANLEY STEAMER□
10    □
11    The Stanley Steamer, famed in song and story, is the best
12    known of all the steam cars ever manufactured in this
13    country. The steam was generated in a boiler under the hood.
14    The car was propelled by an engine under the rear seat that
15    was hooked directly to the rear axle. In its day, the
16    Stanley Steamer was one of the fastest cars on the road. One
17    of our best sellers. #110.□
18    □
19    □
20    1911 BRUSH DELIVERY WAGON□
21    □
22    The Brush Delivery Wagon was manufactured by the Brush
23    Runabout Company in Detroit and sold for $650. It was
24    powered by a 6-hp engine and was designed for a top speed of
25    30 miles per hour. The company claimed the wagon would:□
26    o  Be dependible in every way.□
27    o  Have every possible comfort and convenience for driver
28    and passenger.□
29    o  Be more economical to maintain and operate than a horse
30    and buggy.□
31    Choice of side panel decals. A real conversation piece!
32    #202.□
33    □
34    □
35    1914 STUTZ BEARCAT□
36    □
37    The Stutz Bearcat was known as "the car that made good in a
38    day." It was first designed as a stock car and built
39    entirely by hand in only five weeks. Entered inthe
40    Indianapolis speedway in 1911, it completed the distance in
41    411 minutes, an average of 68 miles per hour including 13
42    stops for tires and fuel. When the car went into production,
43    the original sleek design was retained. #123.□
44    □
45    □
46    1914 REGAL COLONIAL COUPE□
47    □
48    The Regal was manufactured in Detroit by the Regal Motor Car
49    Company. Its underslung body made for a low center of
50    gravity in a car that otherwise would have been too
51    top-heavy to be safe. One of the Regal's unique features was
52    a body made entirely of wood - reminiscent of the old
53    horse-drawn coaches. It was powered by a 25-hp, 4-cylinder L
54    head engine. #167.□
55    We ship anywhere in the United States and Canada.□
56    □
57    Please ask about our quantity discounts.
```

Figure 2. The unformatted text used to create the miniature car sales piece.

In the *Stutz Bearcat* paragraph, the highlight stops on the run-on words, *inthe*. Press Return to confirm *Replace*. In this situation, it doesn't matter if you confirm *All* occurrences or choose *This word*, so just hit Return. AppleWorks displays *INTHE* on the prompt line, inviting you to type a replacement. Move the cursor on top of the *T*, press the spacebar to insert a space between the words, and hit Return again.

REPLACING TEXT

Spelling check completed, you decide the text reads better with the abbreviation *hp* replaced with the word *horsepower*. When checking your spelling, AppleWorks starts anywhere — no matter where the cursor is located — and reviews the entire document. When finding words, AppleWorks looks only below the cursor position, so press OA-1 to jump the cursor to line 1 column 1.

Press OA-R to bring up the *Replace* screen, and hit Return to confirm *Text*. Type **hp** as the text to replace and hit Return. Now type **horsepower** as the replacement text and hit Return. It's a safe bet there aren't any words with the combination *hp* in them, so have AppleWorks replace the abbreviations all at once by typing **A** to select *All*. Presto — AppleWorks replaces every occurrence of *hp* with *horsepower*, and leaves the cursor on the comma after the last *horsepower*.

FINDING TEXT

You don't have to scan the text to see the result. AppleWorks can show you easily: Press OA-1 to return to the beginning of the document and OA-F to bring up the *Find* screen. Now hit Return to confirm *Text*, then press OA-Y to delete *hp*. Type **horse-**

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```
Line    =====<====<====<====<====<====<====<====<====<====<====<
1       --------Top Margin:  0.5 inches
2       --------Bottom Margin:  0.6 inches
3       --------Centered
4       --------Chars per Inch: 6 chars
5            ^* BILL'S MINIATURE ANTIQUE CARS *❑
6       ❑
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8                 Highest Quality At Affordable Prices❑
9       ❑
10                              516-555-2150❑
11      ❑
12      ❑
13      ❑
14      --------Left Margin:  0.5 inches
15      --------Right Margin:  2.7 inches
16      --------Proportional-2
17      - -------Justified
18      1909 STANLEY STEAMER❑
27      ❑
28      ❑
29      1911 BRUSH DELIVERY WAGON❑
30      ❑
35      wagon would:❑
36      --------Left Margin:  0.7 inches
37      --------Right Margin:  2.9 inches
38      --------Indent: 3 chars
39        o^ Be dependable in every way.❑
40        o^ Have every possible comfort and convenience for
41           driver and passenger.❑
42        o^ Be more economical to maintain and operate than
43           a horse and buggy.❑
44      --------Indent: 0 chars
45      --------Left Margin:  0.5 inches
46      --------Right Margin:  2.7 inches
47      Choice of side panel decals. A real conversation piece!❑
49      ❑
50      ❑
70      4-cylinder L head engine. #167.❑
71      --------Skip Lines: 4 lines
72      --------Right Margin:  0.5 inches
73      --------Centered
```

Figure 3. Format indicators in the sales piece.

power as the text to find and hit Return.

And there's *horsepower* in the *Brush* entry. Type **Y** to have AppleWorks find the next occurrence in the *Regal* entry. Type **Y** again. There are no more occurrences, so press the spacebar to exit AppleWorks' *Find* mode. Now press OA-S to store the edited version on disk.

PRINTING THE PAGES

In the next step you format the sales piece so that it looks like the one in **Figure 1**. It helps to have a hardcopy to look at, so turn on your printer. Leave the cursor where it is and press OA-P to bring up the *Print* menu.

Hit Return to confirm *Beginning*, hit Return again to confirm the printer (or type a printer number, then Return), and hit Return again to confirm one copy. The sales piece now prints as two pages, not the single page shown in **Figure 2**. On screen, AppleWorks shows the page breaks.

FORMATTING THE DOCUMENT

Formatting gives the text a polished, professional look. **Figure 3** shows the locations of these options. Start at the top. Press OA-1 to jump the cursor to line 1 column 1.

First, change the standard top and bottom margins to allow you to print all four entries on a single page: Press OA-O to bring up the *Printer Options* screen. Type **TM** (for *Top Margin*) and hit Return. Type **.5** and hit Return again. Now type **BM** (for *Bottom Margin*) and hit Return. Type **.6** and hit Return. While you're still in the *Printer Options* screen, have AppleWorks center your headings: Type **CN** (for *Centered*) and press the return key again.

Now increase the size of the main heading to six characters per inch: Type **CI** (for *Chars per Inch*) and hit Return. Type **6** to specify six characters per inch, and hit Return. Press Escape to exit the *Printer Options* screen. (The whole document is now centered and formatted to print at six characters per inch. You'll take care of that shortly.)

Next, have AppleWorks print the entire page in boldface, so that it yields clearer, crisper results when you duplicate it on a copy machine. All you need do is enter a *Boldface Begin* caret before the first character on the page: With the cursor on line 5 column 1, press Control-B. Next, move the cursor to line 7 column 1, so that you can increase the size of the subhead to eight characters per inch. Press OA-O, type **CI**, and hit Return. Type **8**, hit Return again, and press Escape.

In this piece, you want balanced left and right margins, with enough room at the right for illustrations. Place your cursor on line 14 column 1 and press OA-O. Type **LM** and press Return. Type **.5** and hit Return again. Now type **RM** and hit Return. Type **2.7** and hit the return key once again.

Give the text a typeset look by specifying proportional spacing and left- and right-justified lines of equal length: You're still in the *Printer Options* screen, so type **P2** (for *Proportional-2*) and hit Return. Type **JU** and hit Return again. Press Escape. Ah, things are looking better.

The next step is to format the bulleted sentences in the *Brush* entry. First, make the bulleted text narrower than the rest of the text: Move the cursor to line 36 column 1 and press OA-O. Type **LM**, press Return, type **.7**, and hit Return again. Now type **RM**, hit Return, type **2.9**, and hit Return again.

Next, wrap words around to a three-character indent: Type **IN** (for *Indent*) and press Return. Type **3** and hit Return again. Press Escape. Now stop the indent: Place the cursor on line 44 column 3 and press OA-O. Type **IN** and press Return. Type **0** and hit Return again. Reset the margins for the rest of the text: Type **LM**, hit Return, type **.5**, and hit Return again. Type **RM**, hit Return, type **2.7**, and hit Return again. Press Escape.

You want extra lines between the *Regal* paragraph and the shipping and discount sentences, so have AppleWorks skip lines: Press OA-9 to jump the cursor to line 74, move the cursor up to line 71 column 1, and press OA-O. Type **SK** (for *Skip Lines*) and hit Return. Type **4** and hit the return key again.

And finally, increase the right margin to center the last two sentences across the page: Type **RM** and hit Return. Type **.5** and hit Return again. Type **CN** and hit Return again. Press Escape.

After all that work, you're eager to see what the pages look like on paper. Turn on your printer and press OA-P to start the *Print* command. Press Return three times (to confirm *Beginning*, select the printer, and confirm one copy). Your page (without car illustrations, of course) should look like the one in **Figure 1**. For fun, compare it to the raw text in **Figure 2**. Formatting sure makes a difference! Press OA-S to store the pages on disk.

NEXT MONTH

With the holiday season right around the corner, next month you'll use AppleWorks to create a simple database that prints on Rolodex-type cards the names, addresses, and phone numbers of people you want to contact. ❑

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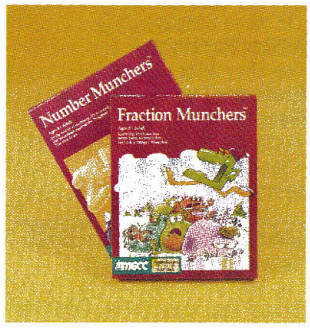

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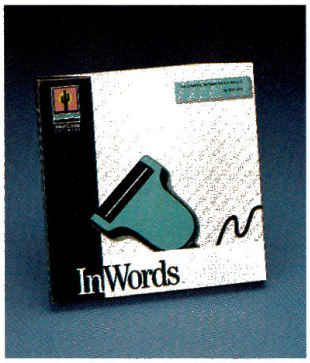

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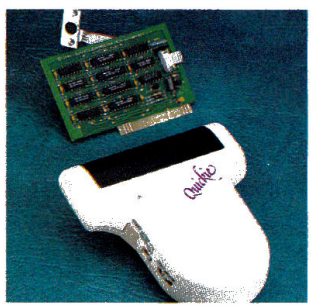

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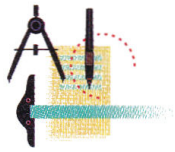

PRESS ROOM

TEMPUS FUGIT

Time may fly, but you can be the pilot when you organize with a daily "to-do" form.

By CYNTHIA E. FIELD, Ph.D.

WITH THE NEW SCHOOL YEAR under way, there's no time like the present to formalize your teaching — or studying — schedule. And what could be more appropriate than a daily "Things To Do" form or a weekly assignment calendar? Documents like these can help you arrange your sideline consulting or home-business commitments, as well.

The fact is, personal organizers of any kind are easy to create with a desktop-publishing program such as **Publish It! 4** for the Apple II (Timeworks, 625 Academy Drive, Northbrook, IL 60062, 708-559-1300, $149.95) or **Publish It! Easy** for the Macintosh ($249.95). This month we'll use Publish It! 4 to design our feature template — a daily to-do form based on a layout submitted by Karl Ivers, a Press Room reader from Kansas.

AN APPLE (CALENDAR) A DAY

If you've ever felt, as Karl Ivers does, that scratch paper isn't sufficient to get you to the right place at the right time, you'll be eager to start up Publish It! 4 on your Apple II. Work in *Size to Fit* mode: Press Open apple-4 (OA-4) and create the nine objects that make up Ivers' handsome layout, as shown in **Figure 1**.

We include the specifications for all template objects in the accompanying **Table**. Starting with the *HEADER* section, select the filled-box tool and draw a rectangle that's approximately 5 inches wide and .5 inch high. Drawing objects is easy — we call it *rubber-banding*. Select the appropriate tool, hold down the mouse button, drag the mouse, and release the button when the object looks the way you want. Rubber-banding is kind of like playing cat's cradle with a stretching and shrinking elastic between your fingers instead of string.

The rectangle's interior should be white. If it's not, be sure the rectangle is selected (it displays corner "handles"), pull down the *Objects* menu, choose *Set Fill Pattern*, and click on the white color swatch. If the rectangle isn't selected, click on it with the pointer before pulling down the *Objects* menu.

Creating an object with precise dimensions is absolutely painless with Publish It! 4. Best of all, perhaps, is that you can use any of three methods to do so:

- You can select the object (use the pointer to click on the box), pull down the *Objects* menu, choose *Show Specifications*, and edit the specs to conform to those provided in our **Table**. Use the delete key to erase unwanted information, and jump from one specification box to the next at a press of the tab key.
- If you want to speed up the process of editing an object's specs, select the object and type OA-M, Publish It!'s "quick-key" command. The *Show Specifications* dialog box pops up automatically.
- A new Publish It! 4 feature lets you edit specs with lightning speed. Just double-click on the object to see its *Show Specifications* dialog box.

Use similar procedures to create the black-filled "shadow box" listed in the accompanying **Table**. When you create the shadow box, it may partially or completely cover the white box you just drew. If it does, select the shadow box, pull down the *Objects* menu, and choose *Move to Back* to place it behind the white-filled rectangle.

Completing the to-do form's header is easy: Select the text tool and draw an appropriately sized text frame. (See the accompanying **Table** for details.) Select the I-beam tool and click it inside the text frame. Pull down the *Font* menu and choose *Select Font*.

Although you can experiment later (that's what computers are for, after all), we suggest that for now you use the same font Ivers did: *24-point Deerfield*. Now type the phrase **Things To Do**. Select the phrase (hold down the mouse button, drag the mouse across the text, and release the button), pull down the *Font* menu, and choose *Bold*.

Press the spacebar five times, switch to the *12-point bold Desplaines* font, and type the first letter of each day of the week, **S M T W T F S**, inserting a space between days. After you've typed the series, press the spacebar twice, switch to the *9-point plain Desplaines* font, and type the underline character (Shift-_) 12 times. That's it!

Next, draw and dimension the template's *CURRENT MONTH* and *NEXT MONTH* text frames, but leave them empty for now. A little later we'll show you a neat trick for making calendars with the **AppleWorks 3.0** spreadsheet module (Claris Corporation, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168, 408-727-8227, $249).

The left side of Ivers' layout is perfect for tracking appointments by the half-hour. He uses two text frames to create this *APPOINTMENTS* section of the to-do form. In the *hours* text frame, use the *9-point plain Desplaines* font. Type **7:30**, press the return key twice, type **8:00**, and so on. (Instead of typing *12:00*, you can type **NOON**, as we did.) When you finish

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	Use	Plan to buy
Apple II	❑ 1	❑ 4
Macintosh	❑ 2	❑ 5
IBM/MS-DOS	❑ 3	❑ 6

Which model?

Apple IIgs	❑ a	❑ i
Apple IIe/c/c Plus	❑ b	❑ j
Mac SE/Mac Plus	❑ c	❑ k
Mac Classic	❑ d	❑ l
Mac LC	❑ e	❑ m
Mac SE/30	❑ f	❑ n
Mac II series	❑ g	❑ o
Other computer	❑ h	❑ p

II Are you an educator? Yes ❑ q

1	26	51	76	101	126	151	176	201	226	251	276	301	326	351
2	27	52	77	102	127	152	177	202	227	252	277	302	327	352
3	28	53	78	103	128	153	178	203	228	253	278	303	328	353
4	29	54	79	104	129	154	179	204	229	254	279	304	329	354
5	30	55	80	105	130	155	180	205	230	255	280	305	330	355
6	31	56	81	106	131	156	181	206	231	256	281	306	331	356
7	32	57	82	107	132	157	182	207	232	257	282	307	332	357
8	33	58	83	108	133	158	183	208	233	258	283	308	333	358
9	34	59	84	109	134	159	184	209	234	259	284	309	334	359
10	35	60	85	110	135	160	185	210	235	260	285	310	335	360
11	36	61	86	111	136	161	186	211	236	261	286	311	336	361
12	37	62	87	112	137	162	187	212	237	262	287	312	337	362
13	38	63	88	113	138	163	188	213	238	263	288	313	338	363
14	39	64	89	114	139	164	189	214	239	264	289	314	339	364
15	40	65	90	115	140	165	190	215	240	265	290	315	340	365
16	41	66	91	116	141	166	191	216	241	266	291	316	341	366
17	42	67	92	117	142	167	192	217	242	267	292	317	342	367
18	43	68	93	118	143	168	193	218	243	268	293	318	343	368
19	44	69	94	119	144	169	194	219	244	269	294	319	344	369
20	45	70	95	120	145	170	195	220	245	270	295	320	345	370
21	46	71	96	121	146	171	196	221	246	271	296	321	346	371
22	47	72	97	122	147	172	197	222	247	272	297	322	347	372
23	48	73	98	123	148	173	198	223	248	273	298	323	348	373
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3	28	53	78	103	128	153	178	203	228	253	278	303	328	353
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5	30	55	80	105	130	155	180	205	230	255	280	305	330	355
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7	32	57	82	107	132	157	182	207	232	257	282	307	332	357
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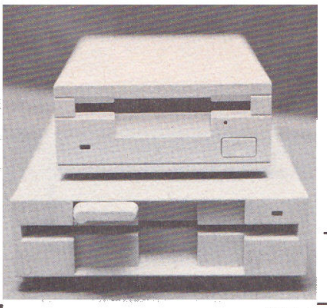

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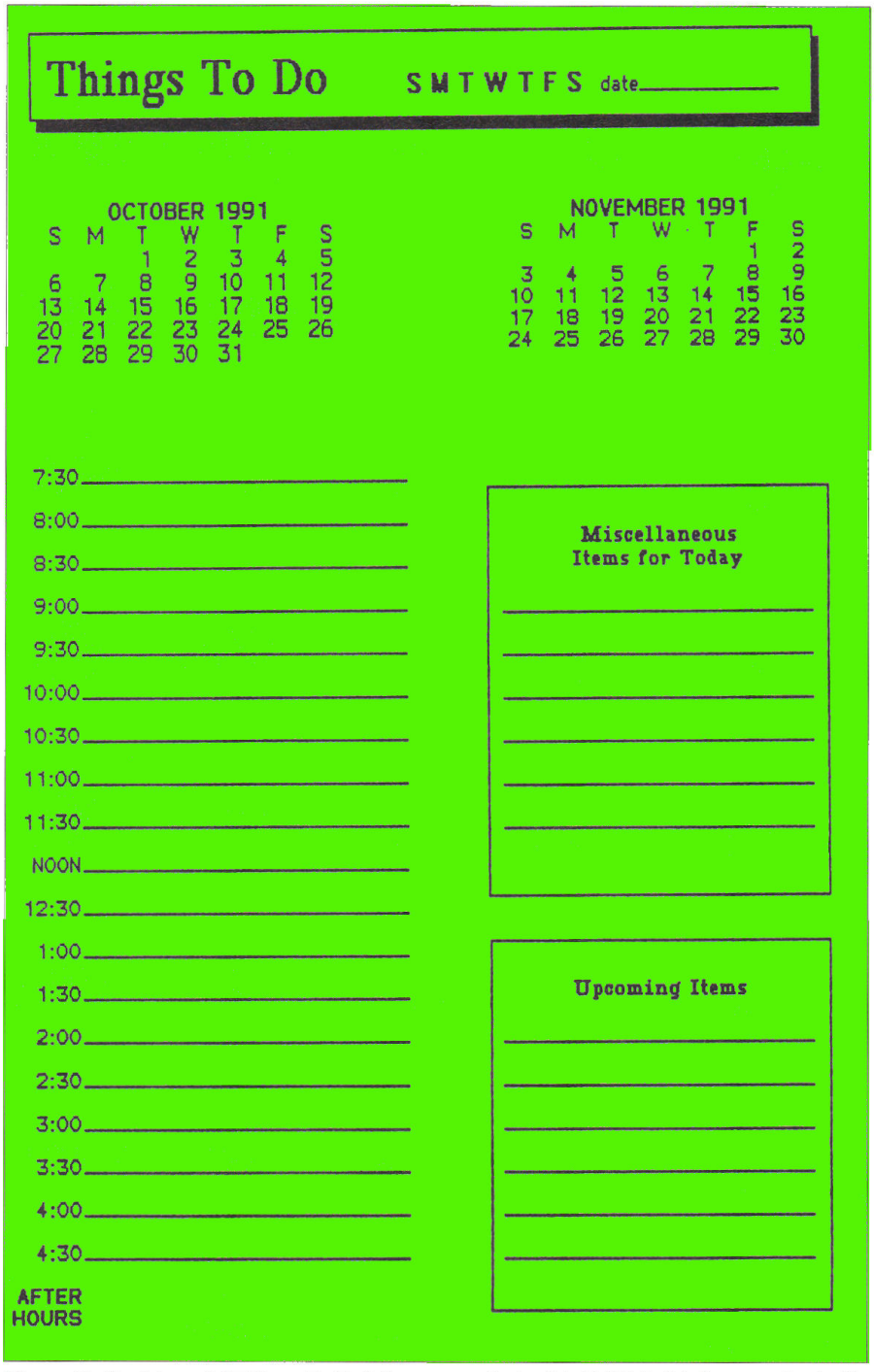

Figure 1. Karl Ivers' "Things To Do" form, created with Publish It! 4 on an Apple II.

entering hours, press the return key twice and type **AFTER HOURS**.

Place the I-beam in the very upper-left corner of the frame and press OA-E to select its contents. Pull down the *Format* menu, choose *Justification*, and click on the *Right* button in the *Justification* dialog box. This option makes the appointment times line up properly.

The *lines* text frame in the *APPOINTMENTS* section consists exclusively of lines created with the *9-point plain Desplaines* font and 28 underline characters. Press the return key twice at the end of the first line to skip down to the next appointment line. Select the first typed line and the blank line underneath. Copy the selection (OA-C) and paste it (OA-V) 18 times to create additional appointment lines.

The *MISCELLANEOUS* and *UPCOMING* text frames are constructed similarly. Draw the frames according to the specs in the accompanying **Table**. Use the *10-point bold Deerfield* font for the titles (*Miscellaneous Items for Today* and *Upcoming Items*). Use the *9-point Desplaines* font and 24 underline characters to create each line within these areas. After you type the titles and lines, select all text within each frame and choose *Center* from the *Justification* dialog box.

Placing a frame around each area is nearly automatic: Double-click on the text frame and click on the *Frame Borders* radio button in the *Show Specifications* dialog box. When you finish the template, it should look something like the screen printout shown in **Figure 2**.

Pull down the *File* menu and save the layout on a data disk as **To.Do.Form**, or any other name you like. (You can include up to 15 characters.) A new Publish It! 4 feature lets you format data disks within the program. This convenient option is listed under the *File* menu.

Publish It! 4 also lets you save designs as templates, but avoid doing so for this project. If you were to save your to-do form as a template, you'd lose all the text you typed and end up with only empty frames. Save your form as a customary Publish It! 4 document file.

CALENDAR CRAFTING

Ivers' to-do form is pretty neat in itself, but his cleverness really shines in the calendar-making process. Start up AppleWorks 3.0 (or an earlier version) and add a new spreadsheet file to the Desktop. Name the file **MONTHS**.

Use the AppleWorks *Layout* command (OA-L) to narrow the column widths of columns A through G to six spaces each. In cells A2 through G2, type the first letter of the name of each weekday, beginning with **S** for *Sunday*. Using OA-L again, select *Row* and right-justify these labels.

In cell A3, type the value **1**. In B3 enter the formula **+A3+1**. Press OA-C to copy the formula within the worksheet to the range of cells C3 through G3: Use B3 as the source, move to C3 and press the period key, then move to G3 and press the return key. Copy the block of formulas (B3 through G3) to rows 4, 5, 6, 7, and 8.

Now make all cell references *Relative* here.

In cell A4, type the formula **+G3+1**. Copy this formula (with *Relative* cell references) to each cell in the block from A5 through A8. Press OA-K five times to recalculate. The spreadsheet should now look like **Figure 3a**. Press OA-Z to view the spreadsheet's formulas. The result should look like **Figure 3b**. Save this template on a data disk.

The first day of October falls on a Tuesday and the last day on a Thursday. (Consult a standard wall or desk calendar for this information.) Place the cell pointer on C3 and type the value **1**. Press OA-K five times to recalculate the spreadsheet and generate correct, consecutive dates.

To erase blocks of "extra" dates, place the cell pointer where appropriate and use the AppleWorks *Blank* command (OA-B). Place the cell pointer in D1 and type **OCTOBER**. The completed October calendar should look like **Figure 4**. Be sure to rename the file (OA-N) **October.1991** before saving it.

Press OA-C to copy the completed current-month calendar block to the Clipboard. Add a new word-processing file to the Desktop. Copy the calendar (OA-C) from the Clipboard to the word-processing document. Print the calendar to disk as a text file by pressing OA-P and selecting the *ASCII* option. Select *Spaces substituted for tab stops* when asked, and type an appropriate name at the pathname prompt.

Object	Left Start	Top Start	Width	Height	Effects
HEADER					
white box	1.623	0.920	5.041	0.569	white fill pattern
shadow box	1.668	0.981	5.041	0.569	black fill pattern
text frame	1.729	1.072	4.891	0.361	
CURRENT MONTH					
text frame	1.659	1.994	1.988	1.115	
NEXT MONTH					
text frame	4.697	1.995	1.990	1.116	
APPOINTMENTS					
hours text frame	1.438	3.713	0.483	6.200	
lines text frame	1.962	3.713	2.350	5.806	
MISCELLANEOUS					
text frame	4.620	3.915	2.066	2.500	framed
UPCOMING					
text frame	4.623	6.833	2.063	2.250	framed

Table. Specifications for to-do form (all dimensions in inches).

Open the *MONTHS* spreadsheet file, and change its name to **November.1991**. Then create and save a November calendar. (Ivers suggests that you create all 12 monthly calendars for a given year during one work session.)

Now quit AppleWorks 3.0 and restart Publish It! 4. Open your *To.Do.Form* template and place the I-beam in the *CURRENT MONTH* text frame. Pull down the *File* menu and choose *Import Text File*. The calendar will flow into the text frame. Use the same procedure to complete the *NEXT MONTH* text frame.

When you take a close look at these mini-calendars, you may find that you need to insert or delete a space here and there to line up items correctly. Feel free to format the calendars to suit your style. For example, we added **1991** to the header and put the name of the month and the year in boldface text.

To create these monthly calendars, though, you don't need to use AppleWorks 3.0. Although the process is somewhat more tedious, you can use Publish It! 4. Just insert the I-beam into the *CURRENT MONTH* or *NEXT MONTH* text frame. Publish It! 4 can't calculate each succeeding date automatically for you, so you'll need to type in the dates in the *10-point Desplaines* (or some other) font. You'll also need to press the spacebar when appropriate to line them up correctly.

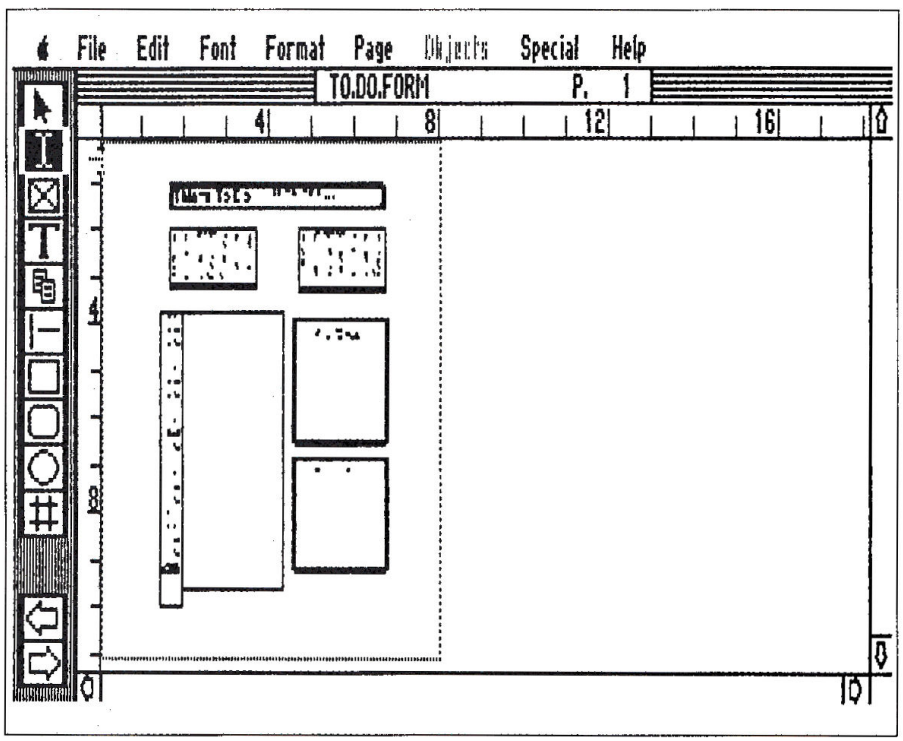

Figure 2. Printout of to-do form layout screen.

FINISHING TOUCHES

When your to-do form is completed, save it with a new name, and use Publish It! 4's double-strike mode to print a master copy. Photocopy a sufficient quantity so you'll have a form for each day of the month. Experiment with color paper, which often costs little more than white paper yet brightens up those blue Mondays.

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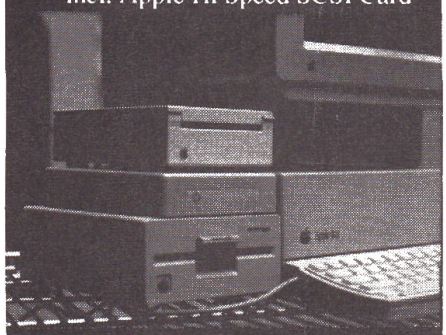

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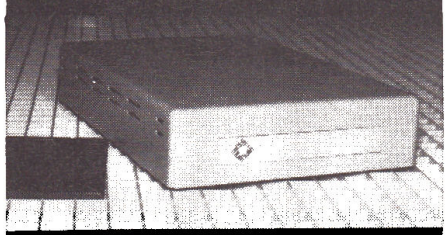

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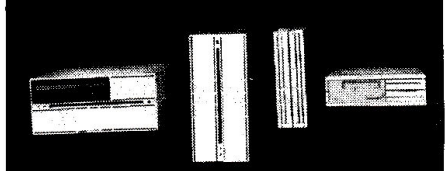

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```
File: Months                    REVIEW/ADD/CHANGE                Escape: Main Menu
=======A=====B=====C=====D=====E=====F=====G=======H========I========J====
   1|
   2|     S     M     T     W     T     F     S
   3|     1     2     3     4     5     6     7
   4|     8     9    10    11    12    13    14
   5|    15    16    17    18    19    20    21
   6|    22    23    24    25    26    27    28
   7|    29    30    31    32    33    34    35
   8|    36    37    38    39    40    41    42
   9|
  10|
  11|
  12|
  13|
  14|
  15|
  16|
  17|
  18|
-------------------------------------------------------------------------------
A1

Type entry or use @ commands _                                  @-? for Help
```

Figure 3a. Karl Ivers' calendar spreadsheet, created with AppleWorks 3.0.

```
File: Months                    REVIEW/ADD/CHANGE                Escape: Main Menu
=======A=====B=====C=====D=====E=====F=====G=======H========I========J====
   1|
   2|     S     M     T     W     T     F     S
   3|1     +A3+1 +B3+1 +C3+1 +D3+1 +E3+1 +F3+1
   4|+G3+1 +A4+1 +B4+1 +C4+1 +D4+1 +E4+1 +F4+1
   5|+G4+1 +A5+1 +B5+1 +C5+1 +D5+1 +E5+1 +F5+1
   6|+G5+1 +A6+1 +B6+1 +C6+1 +D6+1 +E6+1 +F6+1
   7|+G6+1 +A7+1 +B7+1 +C7+1 +D7+1 +E7+1 +F7+1
   8|+G7+1 +A8+1 +B8+1 +C8+1 +D8+1 +E8+1 +F8+1
   9|
  10|
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  18|
-------------------------------------------------------------------------------
A9

Type entry or use @ commands                                    @-? for Help
```

Figure 3b. Formulas in spreadsheet.

```
File: Months                    REVIEW/ADD/CHANGE                Escape: Main Menu
=======A=====B=====C=====D=====E=====F=====G=======H========I========J====
   1|                    OCTOBER
   2|     S     M     T     W     T     F     S
   3|                 1     2     3     4     5
   4|     6     7     8     9    10    11    12
   5|    13    14    15    16    17    18    19
   6|    20    21    22    23    24    25    26
   7|    27    28    29    30    31
   8|
   9|
  10|
  11|
  12|
  13|
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  18|
-------------------------------------------------------------------------------
A8

Type entry or use @ commands                                    @-? for Help
```

Figure 4. October 1991 calendar created with AppleWorks spreadsheet template.

If you're creating daily to-do forms for a group, you'll need anywhere from 28 to 31 copies per person each month. For such large quantities, offset lithography using disposable paper-printing plates may be more economical than photocopying.

On each sequential form (you'll have 31 for October, for instance), circle the appropriate day in the *HEADER* area and pencil in the date on the line you created for it. Place your to-do forms in a folder or binder to keep them organized. The wide left margin we reserved on the *To.Do.Form* template is perfect for three-ring binding.

Time flies! You can't do much to stop it, but at least you can use your time more wisely. And Karl Ivers' to-do form may be just the assist you need. ❑

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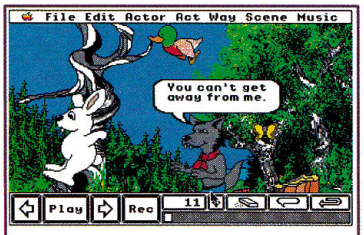

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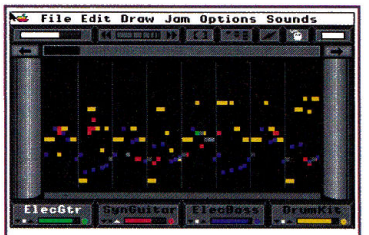

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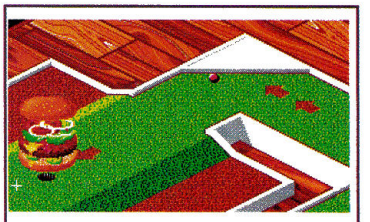

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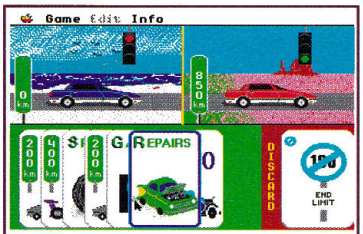

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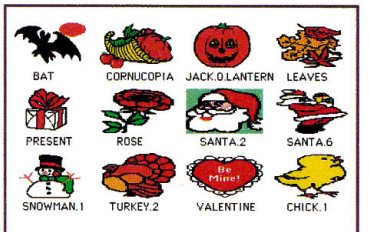

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one of your ProDOS-formatted AppleWorks floppies into a PC disk drive and loading an AppleWorks file into SuperWorks, you're getting carried away. You can transfer files only via direct-connect cable or over the phone lines via modem.

In my first test run of the communications module, anticipation turned quickly to disappointment at its scarcity of features. The *Setup Communications* menu doesn't offer a directory to store phone numbers. Nor does it have automatic log-on to save you from having to type your password and membership number every time you want to log on to CompuServe. In fact, there's nothing in the program or the manual that informs you how to even dial a phone number. Perhaps later versions will remedy this deficiency, but with this incarnation of SuperWorks you'll have to either get the information elsewhere, or buy and install a separate MS-DOS communications program.

Sending an AppleWorks file to SuperWorks on a PC through a direct-cable connection is quick and easy once you're set up. Your old AppleWorks word-processing files show up on screen exactly the same; you can still search and manipulate your old databases in the same manner, and your important spreadsheets will still add up. You can even import your spreadsheet data quickly into Lotus, and share your database records with dBASE.

SuperWorks also lets you import any of your AppleWorks files into heavy-duty desktop-publishing applications and print them on your choice of 128 printer setups (including Apple's ImageWriter) listed in the *Specify information about your printers* section of the *Other activities* option.

Once you've imported your AppleWorks files into SuperWorks, you can use the file-transmission option in SuperWorks' communications module to send your file (or any new SuperWorks file) to any other PC, or even some non-PCs. (I was able to exchange files between SuperWorks and the Cambridge Z-88, a 2-pound notebook computer with its own proprietary software.)

You can't send SuperWorks files back to AppleWorks, however — at least not with the unaided SuperWorks communications module. Although the program's file-reception option worked flawlessly to import an AppleWorks file, its reverse function, file transmission, failed in repeated attempts to export a file to AppleWorks. (It worked fine, though, when sending SuperWorks files to other computers, including those that weren't MS-DOS.)

To be fair, the manual doesn't mention sending files to AppleWorks, but even the technical-support staff at Remarkable Technologies thought the program could do so before it finally conceded it couldn't. (The tech people finally retreated to a "Why would you want to?" posture.) According to the company's representatives, though, if Remarkable finds that its customers want the ability to download to AppleWorks, the company will fulfill their needs and add this feature to a future version of SuperWorks.

Even if the company corrects that shortcoming, you'll find some other complaints. There's no spelling checker, nor any TimeOut add-ons, and you must insert a "piracy protection plug" into the parallel port of your computer before the program will work. The first two are nuisances, but the last is unforgivable. Future versions would be better with another form of copy protection.

In its simplest use, SuperWorks appears to be the spitting image of AppleWorks, so much an identical twin that you'll forget it's not AppleWorks. As you get to know it better you'll realize that SuperWorks is actually more a look-alike cousin with subtleties of its own. To get the most out of SuperWorks' features, you'll need to learn something about PCs and the MS-DOS operating system.

SuperWorks is a long-awaited godsend for AppleWorks users forced to operate in an MS-DOS world, or for those in need of some special PC feature that's simply not available for the Apple II series, such as laptops for traveling. SuperWorks is a welcome, friendly face that lets you get to work right away — you don't need to learn the language first.

If you've got an Apple II with everything on it, though, don't put it up for sale. SuperWorks by itself is still no replacement for AppleWorks fully enhanced with Beagle Bros and Applied Engineering add-ons.

Barbara Gibbons
Verona, NJ

★ ★ ★ ★ ★

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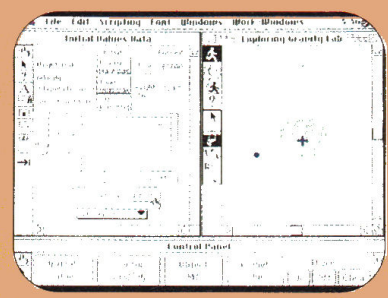

Although understanding gravity is a concept even young physics students can grasp, predicting gravity's effect on the space shuttle or a comet, for example, is another matter. With Wings for Learning's Physics Explorer: Gravity, though, one of 12 programs designed specifically for the Macintosh and geared for teachers to use as supplementary learning materials for their upper-grade classes, kids can actually witness the laws in motion. (At press time two of the series' other physics modules became available — Harmonic Motion and One-Body Mechanics. The company also expects to introduce Particle/Wave Theory, AC/DC Circuits, Two-Body Mechanics, and Ripple Tank and Defraction later this year.)

A MATTER OF SOME GRAVITY

Physics Explorer: Gravity covers the action of bodies in a gravitational field, such as their dynamics, ballistics, angular momentums, and escape velocities. In addition to the activities and prepared labs that come with the program, students can engage in open-ended explorations. Students and teachers can set up their own gravitational models and explore the relationships among changes in motion and changes in certain data values, such as

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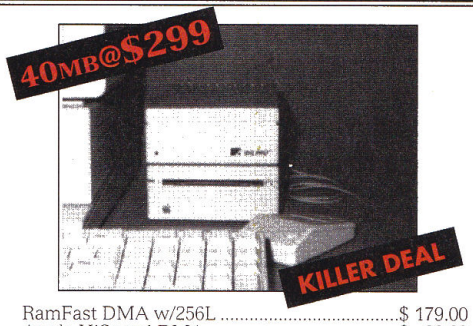

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angular momentum, mass, velocity, and distance. The ability to set up hypothetical problems and test for predicted outcomes makes this program a valuable addition to any physics curriculum. The Gravity module even provides lab work for problems that classrooms can't normally test without clearance from NASA. The program's core concepts are circular orbits, Kepler's Second Law, and the weights of the planets.

SHOOTING FOR THE MOON

When students boot up the program they'll see the main screen, which is the activities window. It looks like a split screen, but actually includes three windows — a lab-data window on the left, the lab window on the right, and a Control Panel at the bottom right. (All the windows barely fit on a 13-inch screen, so the view will get much tighter on a Macintosh Plus or SE.)

There are tool icons down the sides of the two main windows, and buttons in the Control Panel that let you run and stop the lab demonstrations, change values (such as mass and height) and turn on the trace function. (It provides a visual representation of the orbital path and display vectors.) You can change the initial values shown in the data window by clicking on their respective boxes. After running experiments in an activities section, the program lets you export the information and produce a graph from a spreadsheet. You can change the value and start the experiment again. A graph of the activity is shown in the data window.

CUSTOM-DESIGN YOUR CLASSES

The Gravity program also comes with an extensive teacher's guide that covers Macintosh operation as well as program basics. The package also includes two program disks, two backup disks, and a word-processing disk. The word-processing disk comes with files in Microsoft Word 4.0, Microsoft Works, and text formats of all student activities found in the teacher guide, so that instructors can tailor activities to their individual classes without retyping or re-creating material.

The documentation guides teachers in designing problems and instruction of their own, but it lacks an index, and some of the page numbers in the table of contents are wrong.

Although provision is made for students to devise experiments on their own, the program isn't geared for self-paced individual study. The Physics Explorer series is intended as a supplement to regular classroom instruction. Physics Explorer: Gravity is complex in its subject matter and in its programming. Don't be surprised if you set up situations in which satellites either crash into the surface of their planet or achieve escape velocity and go spinning off into the cosmos.

If you just want to play around at being Master of the Universe, a shareware program such as Gravitation, Ltd., which covers the same territory in a more immediately accessible way, would be more what you're looking for.

UNLIKE MAC

For those who are familiar with the Macintosh and have come to expect whiz-bang graphics images from Mac programs, Physics Explorer: Gravity will be somewhat disappointing. Color use is minimal — you'll see it only in the lab window.

For those who know the Macintosh only by its reputation for a simple and straightforward interface, the proliferation of windows, buttons, and tool icons may be disconcerting.

The heart of this program is its computational engine, though, not its graphics display, and with that there seems to be no problem whatsoever. (Wings for Learning has tested the program extensively, but if a teacher finds a problem, he or she can fill out the accompanying evaluation card and send back the product to the company.) Besides, the point is to see what the objects are doing, not how attractive they are.

Even with its not-so-spectacular graphics images and its not-so-straightforward interface, this product still represents a major improvement over paper-and-pencil or electronic calculations. If you're a physics teacher who has Macs in the classroom, you should consider Physics Explorer: Gravity a fine supplement to studies in gravitational theory. Your students will thank you for it.

Louise Kohl
Austin, TX

★ ★ ★ ★ ★

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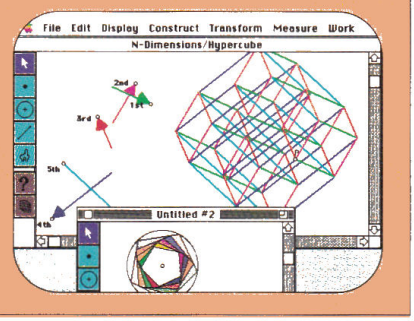

There's nothing plain about plane geometry when you can explore, analyze, and even animate your designs with The Geometer's Sketchpad. This astonishing new Macintosh program from Key Curriculum Press adds a whole 'nother dimension to math education. The company calls it "dynamic geometry."

Start with the program's *Euclidean Toolbox*, a palette that offers, for example, point, circle, segment, ray, and line tools. Look out, Ticonderoga — graphite pencils, as well as rulers and compasses, could become passé when high-school students learn how easy it is to use a mouse to click points, drag lines, construct polygons, and rubber-band circles. Instead of making students fret about pencil skids and smudges, Sketchpad helps kids discover and test mathematical principles.

There's no need for erasers, either. The program offers unlimited levels of *Undo/Redo*, a feature that's not only handy for those times when you change your mind, but also for backtracking through a geometric construction and performing a step-by-step replay for your own enrichment or for classroom demonstration.

On color-capable Macintoshes, such as the LC I used to prepare this review, you can color objects as well as shade them. Use the program's text tool for labeling objects or for creating captions and comments to annotate your designs.

Sketchpad supports Mac fonts and provides a handful of text-enhancing type styles.

In true object-oriented fashion, the program's selection and translation tools help you move objects, rotate them, and dilate (enlarge or shrink) them. A unique animation feature makes enlivening drawings as easy as selecting a point and choosing its path. Although my fairly mundane geometric constructions didn't test these limits, The Geometer's Sketchpad supports as many as ten points traveling simultaneously along ten paths.

GEOMETRICKS

Sketchpad's a lot more than just an animated, hi-tech doodle maker, though. The *Measure* pull-down menu calculates dimensions such as distance, radius, area, and arc angle automatically. But don't take the program's word for it: You can verify a circle's area, for instance, by pulling down the *Measure* menu, selecting *Calculate*, and clicking buttons on a pop-up, four-function calculator. Select *pi*, click on the calculator's multiplication key, and complete the formula by multiplying the radius by itself.

The program's extraordinary script feature lets you use traditional "givens" and "lets" to record the development of each sketch in word format. Open a new script (the program supports multiple sketch and script windows), click on the *Record* button, and plot your drawing in the sketch window; an invisible scribe writes down each step for you in the script window automatically. Move and resize the two windows and watch the script evolve as your drawing takes shape.

Although The Geometer's Sketchpad supplies countless ready-made sketches and scripts for exploration and analysis, you'll be eager to create your own. Playing a script is a lot like playing an audiocassette tape. Create a sketch with the appropriate givens and press the *Play* button in the script window. You can speed the reconstruction by clicking on the *Fast* button, or slow the process with the *Step* button.

EASY AS PI

Like all great software, The Geometer's Sketchpad provides alternative ways to perform similar functions. For example, you can draw a segment by using the appropriate straightedge tool; by selecting any two points, pulling down the *Construct* menu, and choosing *Segment*; or by simply pressing Command-L. Standard Macintosh keyboard commands such as Command-S for saving are supported, too.

You'd expect top-notch educational software to offer excellent on-line help, and The Geometer's Sketchpad is no exception. In standard fashion, menu choices are dimmed when unavailable. If a segment's selected, the *Measure* menu may let you calculate its length or slope, but not circumference or perimeter. You can learn a lot about geometry by judiciously studying unavailable features.

Context-sensitive alert boxes advise you when — and why — you can't perform certain operations. When I tried to create a complex animation, for example, the program told me: "That would move Circle 1, which is the path of Point G! Paths themselves can't move during animations."

The documentation that accompanies The Geometer's Sketchpad is nearly as impressive as the program itself. A three-ring binder organizes *Teaching Notes* and *Sample Activity Masters*, as well as a folded quick-reference card and a 150-page *User Guide and Reference Manual*. According to the company, The Geometer's Sketchpad is a perfect accompaniment to *Discovering Geometry: An Inductive Approach*, a high-school text with which the program is correlated.

Copious diagrams, helpful margin notes, and clear explanations are hallmarks of Sketchpad's documentation. Nothing's taken for granted about your background — either in geometry or computing.

Face it — a subject that some video-generation kids consider as fresh as Pythagoras needs all the help it can get. While The Geometer's Sketchpad dispels students' preconceived notions — or fears — of geometry, it also encourages a playful approach to math that many teachers should find refreshing. ❑

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

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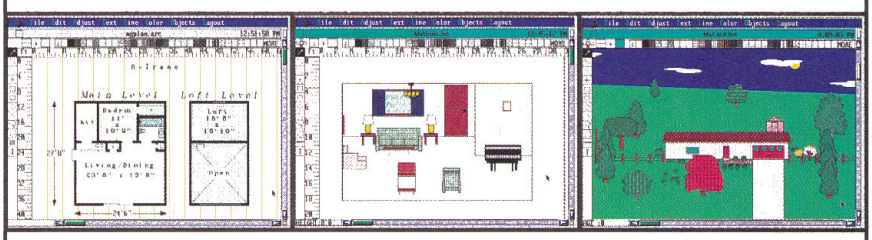

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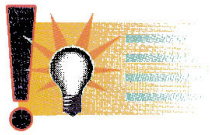

HINTS

HEX OBJECT

A definition here, a shortcut there — our information swap can help you stay one step ahead of frustration.

Edited by THE STAFF OF INCIDER/A+

DECIMAL-TO-HEX CONVERTER

Ever need to convert decimal numbers to hexadecimal and find yourself without a clue as to how to start? This program can handle any number that's less than 38 digits long. To use it as a subroutine, just renumber the program and substitute your own variables. Don't forget to assign the appropriate value to the width variable, **W** — *40* for 40 columns and *80* for 80 columns. Here's a summary:

• Lines 10–15 clear the screen and all variables; set **C$** for hexadecimal numbers; get the decimal number to be converted, **N$**; and check for digits not numbering over 38 in **LEN(N$)**.

• Lines 25–30 calculate the correct number of digits to handle overflow in the arrays. **IF X <= 2 THEN X = X +1** sets up arrays **B(X)**, **B$(X)** and assigns a value for variable **W** according to screen width.

• Lines 35–45 convert the last digit of the decimal number **B(F)** and check for numbers over 9 to convert to hex numbers A, B, C, D, E, F.

• Lines 55–75 use **B(F),B(F+1)** to convert the rest of the decimal numbers one digit at a time to equivalents in hexadecimal.

• Lines 85–135 convert individual numbers to string values — **B(F) to B$(F)**; reassemble individual string-value numbers into one **T$**; print it; and ask whether the program should continue or quit in **ANS$**.

• Lines 140–165 convert decimal numbers 10, 11, 12, 13, 14, 15 to hexadecimal numbers A, B, C, D, E, F.

• If the numeral you enter contains more than the number of digits allowed, line 170 lets you know and gives you a chance to start over.

Write to Joseph Lee at 3459 Vanwig Ave., Baldwin Park, CA 91706.

WHAT'S AN LPJSD?

Ever done a lengthy printout and had to stand there worrying about the incoming paper mixing it up with the outgoing? I tried tilting chair backs, I tried weighting the first sheet. Nothing worked — until I tried the "long print-job support device." It's marketed in every department store, and you probably already own several of them. It's a *hanger*. (The kind with the cardboard tube works best.)

Set the hanger on top of the printer, with the tube about 3 inches past the edge where the paper comes out; tape the hook to the cover. When the first printed sheet comes out, pass it over the tube and you'll have plenty of separation between sheets.

If your LPJSD doesn't fit on top of the printer, cut off the hook and bend the wires to fit snugly against the output area. A little tape secures it and finishes the job. ❑

Write to Rick Dalzell at 201 Park Ave., Bay City, MI 48708.

Program listing. Your Apple calculates decimal-to-hex conversions.

```
5  REM  "Hex" Decimal-to-hexadecimal conversion program
6  REM  by Joseph Lee, version 1.2
7  REM  Program that converts numbers from decimal to hexadecimal
       with range limited by the computer
10 HOME : CLEAR :C$ = "ABCDEF": PRINT "Please enter the number
   to convert": INPUT N$: IF N$ = "" THEN 10
15 IF  LEN (N$) > 38 THEN 170
20 REM  Change input to value format
       and put 1 more place value for the number
25 X = LEN (N$) + 1:N = VAL (N$): IF X <  = 2 THEN X = X + 1
30 DIM B(X),B$(X):W = 40
35 F = 1:B(F + 1) = INT (N / 16): REM  Get the last
   of the hexadecimal number
40 B(F) = N - (B(F + 1) * 16)
45 IF B(F) > 9 THEN GOSUB 145
50 REM  Loop to get the rest of the digits
55 FOR F = 2 TO X - 1
60 B(F + 1) =  INT (B(F) / 16)
65 B(F) = B(F) - (B(F + 1) * 16)
70 IF B(F) > 9 THEN  GOSUB 145
75 NEXT
80 REM  Loop to convert the hexadecimal number to a string
85 FOR F = X - 1 TO 1 STEP -1
90 IF P = 0 THEN GOSUB 160
95 IF B$(F) <  > "" THEN 105
100 B$(F) = STR$ (B(F))
105 T$ = T$ + B$(F)
110 NEXT : IF T$ = "" THEN T$ = "0"
115 PRINT : PRINT  SPC(1)N" decimal equals "T$" hexadecimal.":
    REM  Print out the hexadecimal string/number
120 VTAB 10: HTAB (W - 13) / 2: PRINT "More ? (Y/N)";: GET AN$
125 IF AN$ = "y" OR AN$ = "Y" THEN 10
135 END
140 REM  Loop that converts base-10+ digits
        to hexadecimal digits
145 FOR J = 10 TO 15
150 IF B(F) = J THEN B$(F) =  MID$ (C$,J - 9,1): RETURN
155 NEXT
160 IF B(F) <  > 0 THEN P = 1: RETURN
165 IF B(F) = 0 THEN  POP : GOTO 110
170 PRINT : PRINT "Your entered number has too many digits.
                   Please reenter.";: GET L$: GOTO 10
```

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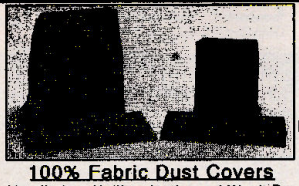

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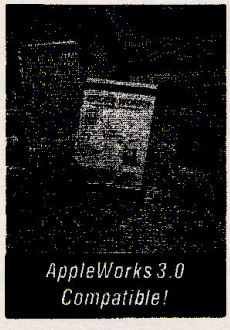

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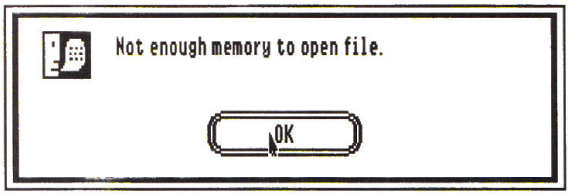

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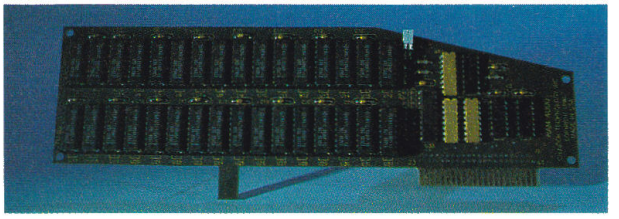

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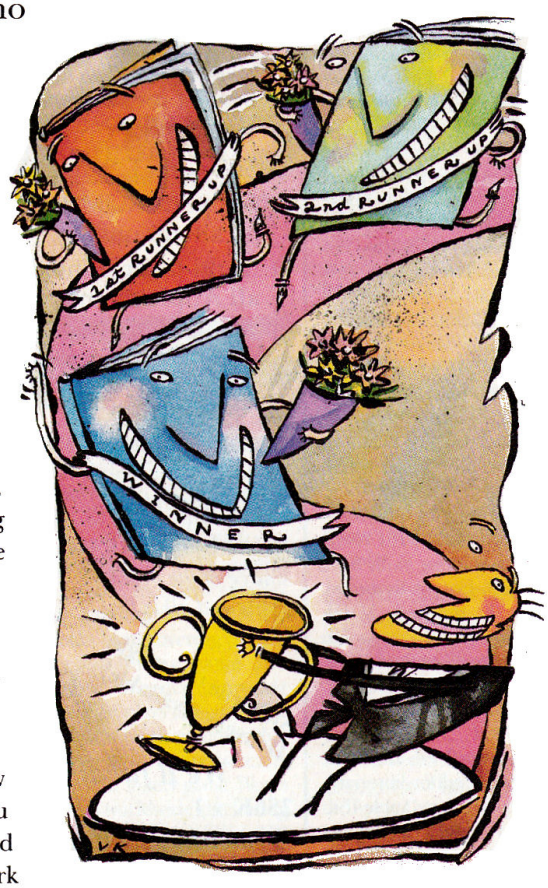
BOOKSHELF BEAUTIES

A look at this year's parade of winners — pull up a chair and get comfortable.

What books do the editors at *inCider/A+* read to maintain their reputations as experts in all aspects of Apple computing? *Bluff Your Way in Computers* ($3.95, Centennial Press, Lincoln, Nebraska) comes from the same folks who brought you *Cliff Notes* in college, and has the same advantages (it's short and snappy) and disadvantages (it lacks depth) you'd expect in a cheat sheet. It's funny and cheap, but for real data here's what you'll find on our bedside tables.



MYSTERIES OF APPLETALK

Just what *is* the difference between AppleTalk and AppleShare? ***Planning and Managing AppleTalk Networks*** ($19.95, Addison-Wesley, Reading, Massachusetts) answers that troubling question and many others. This is the book to read if you're thinking about installing an AppleTalk network in your school or office. It lacks information about other types of networks, but, after all, it's an official Apple publication.

Once you read *Planning and Managing AppleTalk Networks* you'll know enough about networks to realize you need one, but you'll be overwhelmed by the array of choices among network types, topologies, and transmission media. (If you're wondering what the heck that means, let us recommend the shorter but cheaper *Understanding Computer Networks*, $9.95, Addison-Wesley.)

inCider/A+ readers ask many questions about networks, and the *inCider /A+* staff itself has more network troubles than we know what to do with. "I can print on the LaserWriter in the advertising department but not on the one in editorial," we hear through the walls. According to Sondra Garcia, author of *Planning and Managing AppleTalk Networks*, "Very often, administrators in small- to medium-sized networks simply slip into the [tech-support] role — either because they are told that this is now part of their jobs or because they are the only ones in their group who have the technical interest or skill." Amen. We've been praying for this book for a long time.

By the way, *AppleShare* is the name of the network-service software — usually a file server on a Macintosh, but sometimes a print server on a LaserWriter — that runs on the AppleTalk network. Please don't call and ask us to explain — buy the book.

THE ELEMENTS OF WORD PROCESSING

The Mac Is Not a Typewriter ($9.95, Peachpit Press, Berkeley, California) states its theme in the title: All the rules you learned in typing class are suspended when you begin to write with a word processor on a computer. If you use an Apple IIGS word-processing or desktop-publishing program, or even the 8-bit Apple II product Publish It!, you can learn from this book. (Peachpit Press has also published *The PC Is Not a Typewriter* for MS-DOS sufferers.)

It wouldn't be difficult to belittle the simplicity of *The Mac Is Not a Typewriter*. For instance, one rule states, "Use only one space after periods, colons, exclamation marks, question marks, quotation marks — any punctuation that ends a sentence." The book consists of a score of simple rules like that — simple but *powerful*.

Remember Strunk and White's rule "write with nouns and verbs"? That advice isn't hard to understand, merely hard to apply. *The Mac Is Not a Typewriter* is like that. But everybody who prints pages with words on them should have a copy of this book and read it again and again — it's that simple.

ABCs OF C

We'd cut our teeth on Applesoft and wormed our way through Pascal — it was time to find out what all the other programmers were gabbling about. C? Sounds like a pasta shape you'd find in your alphabet soup at lunch! Luckily, we had handy a copy of Dave Mark's award-winning book, ***Learn C on the Macintosh*** ($34.95, Addison-Wesley). (Well, it hasn't actually won any awards, but it should.)

Mark's style is comfortable and sensible, and the stripped-down version of Symantec's Think C that comes with the book is just enough of a compiler to let you have fun without getting into serious trouble. Now, if we could just get this array of pointers to behave. ❑

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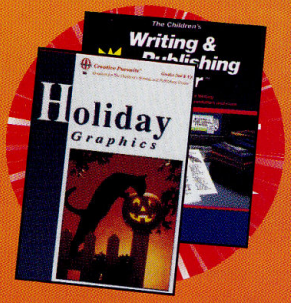

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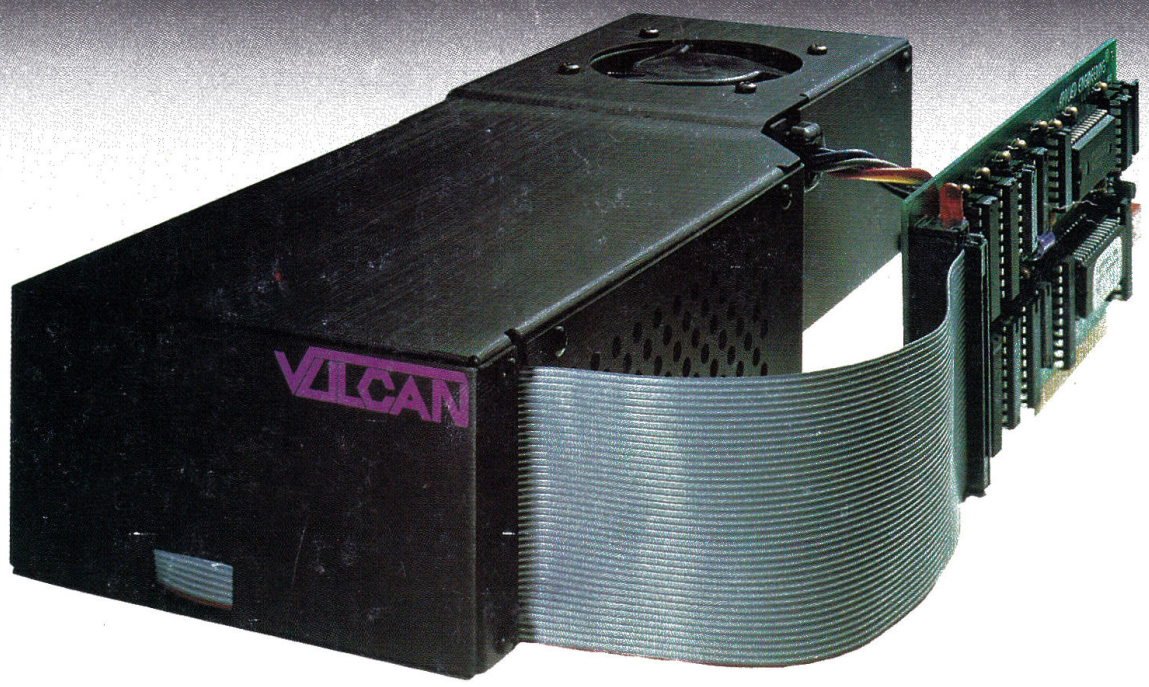

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