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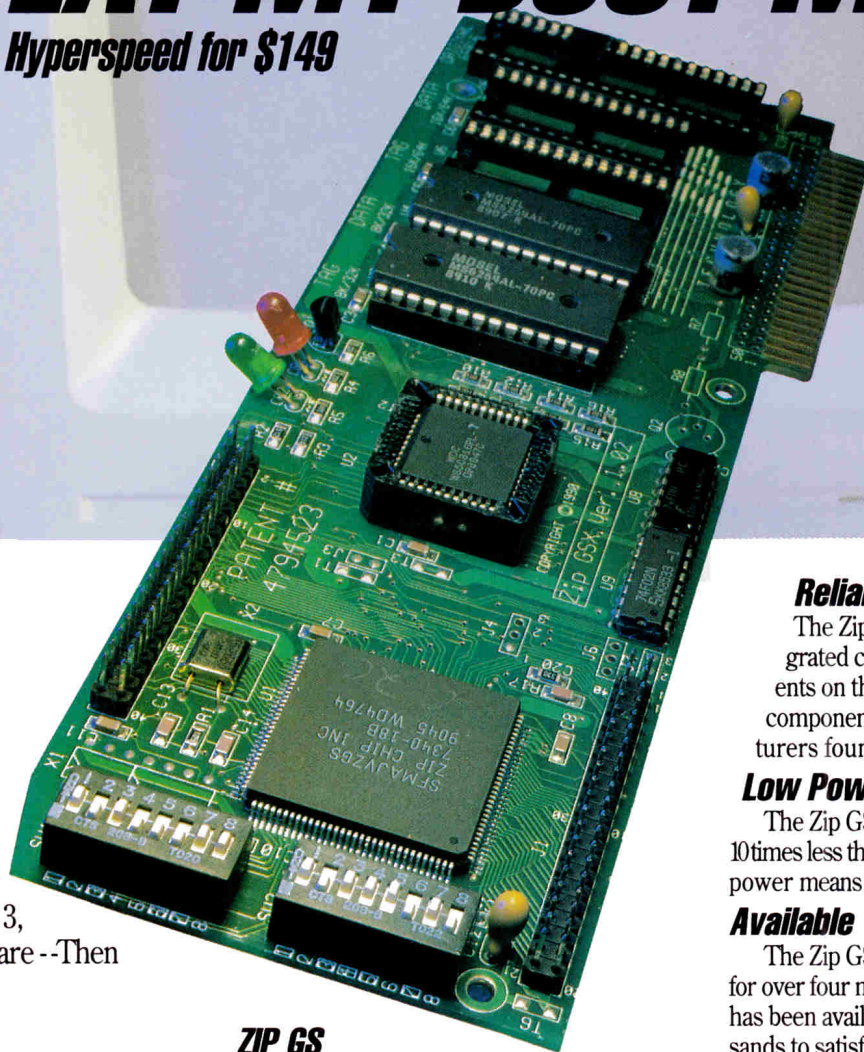
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To use powerful programs you need a powerful computer. Apple Computer left one thing out of the IIGS when they designed it...speed. The Zip GS puts the speed back in. The Zip GS comes standard with 8 K cache memory and runs at a very speedy 7 Mhz. The Zip GS gives you all the speed you need now and in the future because it's expandable. You will never have to buy another accelerator card again. All upgrades are available now.

Can you imagine the time you will save having your GS running up to 10 Megahertz faster. Appleworks performs like you always thought it should, recalculations in the blink of an eye. Word processing faster than on the new line of Macintosh computers. Nibble magazine said it this way "Apple Computer take note: this chip makes a full featured GS word processor faster than several Macintosh word processors running on a monochrome display." (monochrome display is the fastest) Hallelujah! **ZIP GS DELIVERS!**

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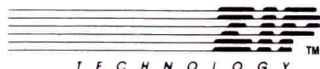
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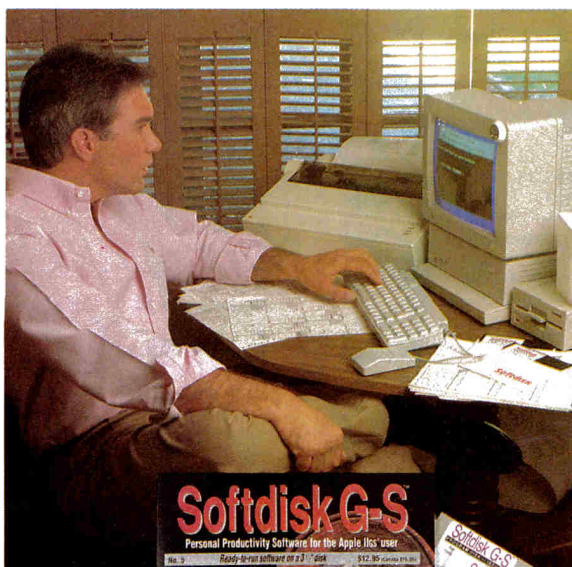
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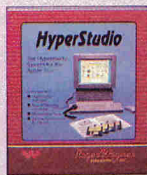
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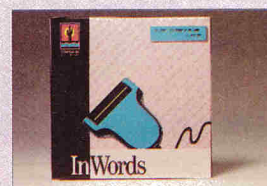
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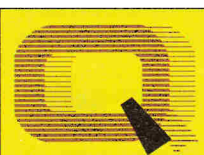
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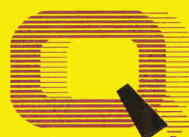
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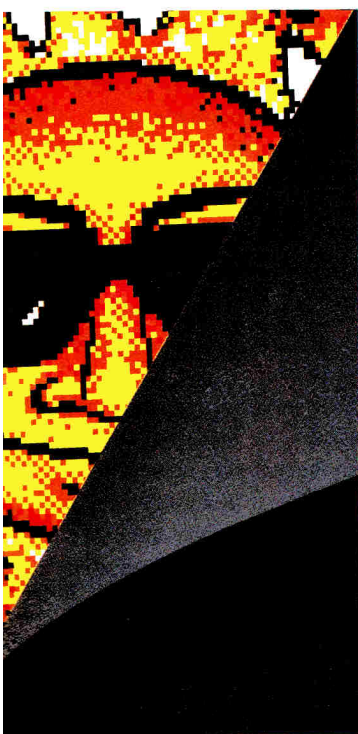
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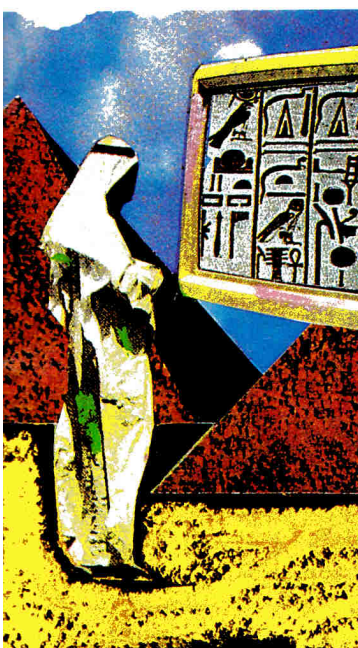
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p. 36



p. 50

ARTICLES

36 **Sneak Preview**

Spring means renewal in all kinds of different ways — the start of another baseball season, long days spent gardening, a time to peruse the crop of new book titles. For *inCider/A+*, this spring also meant a chance to preview Publish It! 4, an Apple II program from Timeworks, and The Writing Center, a Mac program from The Learning Company — two recent additions to the family of Apple page-layout software.

44 **Kid Power**

Desktop publishing, pure and simple, lets you design your own banners, signs, and fliers with a minimum of fuss and a maximum of creativity. With Broderbund's BannerMania and Print Shop programs and The Learning Company's Children's Writing & Publishing Center, kids and adults alike will find all the features they need for everyday projects.

50 **Users, Unite!**

For informative answers to all your computer-related questions, for timely opinions on current hardware and software products, for all the "latest and greatest" low-cost programs, for free classes that teach you more about your system, your best all-in-one resource is your local Apple user group.

56 **Graphics Gallery 5: Capture the Moment**

If you're facing a blank screen, don't be afraid to borrow from the world around you. Just roll 'em and shoot — grab some ready-made inspiration with an Apple II scanner or digitizer, plug the images into your favorite paint program, and make them your own.

COLUMNS

inCider's View * Dan Muse

The Simple Life.....8

Status Report * Paul Statt

The Old Geometer.....22

Bridging the Gap * Gregg Keizer

The Mac LC's Split Personality...26

AppleWorks in Action *

Ruth Witkin

House of Cards.....58

Apple IIcs Basics * Ron Lichty

Battle of the Languages 262

Learning Curve * David D. Thornburg

Classrooms Without Walls74

DEPARTMENTS

Letters to the Editor10

What's New

News, New-Product Focus, Notes from the APA, Shareware Solutions.....14

Apple Clinic

Avoiding the Bottleneck:
What's Print Buffering?
Applesoft Tokenizing,
AppleWorks Clinic
.....24

Reviews

Color MacCheese; 2088:
The Cryllan Mission,
The Second Scenario; GS Sauce;
ProSel-16; InWords.....30

Hints

Potpourri of Tips.....72

Editors' Choice

Apple IIe Card.....80



p. 30

THE SIMPLE LIFE

We kind of miss the days when publishing had that “kids, don’t try this at home” mystique.

Life was a lot simpler before fonts, pull-down menus, and ink-jet and laser printers. If you wanted to make a poster, you used markers and rulers, and if you referred to “cut and paste” you were talking about scissors and glue. We kind of miss the days when publishing was a secret process, with that “kids, don’t try this at home” mystique. With progress comes confusion. That confusion hit home recently as we examined the prerelease versions of the two products featured in this month’s



By DAN MUSE * EDITOR IN CHIEF

cover story (“Sneak Preview,” p. 36). As we planned the issue, we prepared to discuss two desktop-publishing programs. As we looked at the software, however, we saw a gaping difference between Publish It! 4 for the Apple II, from Timeworks, and The Writing Center for the Mac, from The Learning Company.

Publish It! 4, an improved version of a product that probably trails only AppleWorks in popularity, is closer to what people think of when you say “desktop publishing” — precise measurement, column alignment, and so on. The Writing Center, which borrows its name from the widely known Children’s Writing & Publishing Center for

the Apple II, has been described by The Learning Company as a “word publisher.” The company made a conscious effort to not position its product as a desktop-publishing package for fear that the label would invite pointless comparisons with programs such as PageMaker and Quark Xpress.

So what exactly is desktop publishing? We’re not trying to pick a philosophical fight here. We’re more interested in defining a term that

has become all-encompassing and, in the process, virtually meaningless. “Desktop publishing” can refer to a dozen Macs networked between a magazine’s editorial and design departments; an Apple II user running Publish It! to produce a newsletter; or a 10-year-old creating an ad for his lemonade stand.

Desktop publishing has evolved to the point where it almost contradicts its basic premise. Calling what *inCider/A+* and other magazines do “desktop publishing” is inaccurate. It’s not unlike the way “personal” computers are now considered fully utilized only when they’re part of a local-area network or acting as the client end of client/server systems. Of course, to imply that desktop publishing, or, more generally, personal computing has simply come full circle to the point where it mimics a typesetting department or a dumb terminal connected to a mainframe isn’t accurate, either. The beauty of desktop publishing and personal computing is that they offer the flexibility of both independence and shared resources.

The great thing about desktop publishing is that any personal-computer user — whether you’re running an Apple IIe, a IIc, a GS, or a Mac IIci or IIx — can produce attractive documents. The Writing Center is well suited for children, or adults, who want to design colorful fliers, posters, and so on. Publish It! 4, whose learning curve is a little steeper, is a desktop-publishing program in the true sense of “publishing”; new features such as automatic hyphenation make the program ideal for more-professional-quality newsletters and brochures. The gap between these two types of programs is probably why The Learning Company isn’t proclaiming The Writing Center a desktop-publishing program; its focus is on enhancing the writing process. Yet the program clearly excels at publishing, regardless of what you call it.

So what is desktop publishing? And does it even matter how you define it? To users, the only people who really count, it probably doesn’t make any difference. The computer press and other industry observers, however, must be careful to know where the increasing number of publishing products fit into the overall market. Otherwise, we’ll start reviewing apples as oranges. If that happens, the way software is categorized *will* become important to you. □



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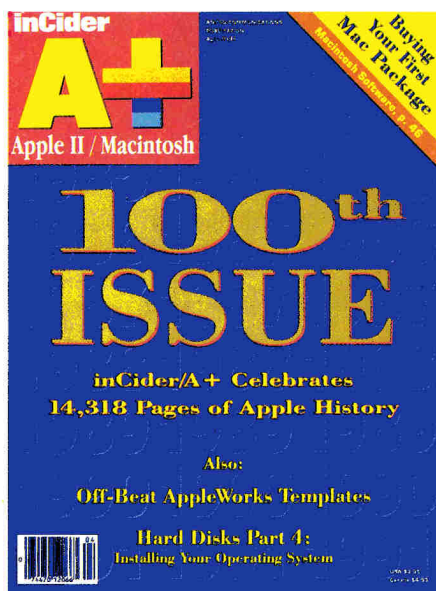
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LETTERS



CREDIT IS DUE

WORTHY OF NOTE AT THE TIME of *inCider/A+*'s 100th issue is columnist Dan Bishop. He's been writing Applesoft Adviser since the premier issue in January 1983.

Peg LePage
Former *inCider* Staff Member

REVENGE OF THE NERDS

UPON RECEIVING THE APRIL 1991 issue of *inCider/A+* I turned immediately to "100 issues of *inCider: A Look Back*" (p. 36). Having owned an Apple II Plus since 1982, seeing a magazine cover proudly displaying the II Plus brought back fond memories.

My occupation as a patent attorney puts me in constant touch with the latest technology. Years ago, though, I became interested in personal computers. In our corporate-law department I'm the system administrator of a network running Unix-based Banyan Vines to control 14

Compaq 386 MS-DOS workstations — but my II Plus is still in use at home, along with a IIGS and an MS-DOS clone.

Despite this history, I didn't realize how low I'd sunk into geekdom until I read the "Dubious Achievements" section of the article. For years I've worn my Seiko PC Datagraph watch proudly — the "Nerd Alert" you so elegantly called "Geek Gadget of the Decade." In fact, this watch replaced my former calculator watch!

Thanks for the retrospective. With any luck you'll still be around to do this again in another 100 issues.

Alan T. McDonald
Reynolds Metals Company
6601 W. Broad Street
Richmond, VA 23230-1701

DUET . . . THE WHOLE STORY

WHAT YOU'VE REPORTED regarding Cirtech's cancellation of its Duet Macintosh-emulation card for the IIGS is accurate. (See "Where's Duet?" April 1991, p. 14.) In addition, your readers should know that the card had a projected U.S. street price of \$900 — and it would have provided only half the vertical resolution of a real Mac. The IIGS monitor would have been a "window" that you'd slide up and down to see the underlying Mac screen.

In my opinion, what killed Duet was Apple's low-priced Macintoshes. While there are a large number of IIGS users who'd opt for an emulation card rather than a Macintosh, I think Cirtech's judgment was that most buyers, particularly the high volume of educators, would rather purchase a whole new computer than just an emulation card. After all, Duet would save them no money and give them imperfect screen emulation.

As Cirtech's U.S. distributor, we've had

a number of people tell us they'd buy a Duet if the screen-resolution problem were solved and if it were priced less than \$500. Few have said they'd buy it at its projected price with its projected limitations.

Tom Weishaar
A2-Central
P.O. Box 7651
Overland, KS 66207

CITIZENS OF THE WORLD

I WAS GLAD TO OPEN MY LATEST issue of *inCider/A+* and find an article on telecommunications services. (See "Bridging the Gap," April 1991, p. 63.) I've been waiting for the magazine to consider this important dimension of computing and I can't think of a more appropriate place to begin than America Online.

I was also pleased that your article considered the tremendous potential that telephone links hold for educators. Teachers who try America Online will find several well-established programs included in the membership price. Its longest-running project is the *Kids' Academic Bowl*, in which classes from different schools meet and compete on line by answering a range of questions written by participating teachers. Another program, which has been available for the past two years, is the service's *ScrapBookUSA Writing Project*. It links more than 40 schools nationwide in an on-line descriptive-essay exchange.

The ScrapBook library contains not only the essays written by participating students, but also a growing collection of curricular materials to support the stages of the ScrapBook project. Those of us involved with ScrapBook USA are working on expanding our link to the Soviet Union via a "Bering Bridge." All our ScrapBook

essays are currently received and read by schools in Soviet Siberia.

In addition to these two projects, there are contests and games designed for class participation. A staff of experienced educators is always eager to help teachers start their own projects and find other schools looking for links. There are also periodic "school-to-school" chats. The most recent of these put students in U.S. schools in touch with Soviet music students visiting Nome, Alaska; kids asked questions and shared insights.

Linking classes on line is a growing part of America Online, as well as an inexpensive alternative to some of the planned curricula available from other sources. As more teachers get involved, the kinds and quality of opportunities continue to grow. I hope you'll find appropriate space to bring these excellent programs to the attention of your many teaching readers.

Emery Roth II
("AFC Tooter" on America Online)
328 Romford Road
Washington, CT 06794

Plato said, "The direction in which education starts a man will determine his future life." If that's true, the best way to prepare children for life as citizens in the "global village" is to expose them early and often to radically different value systems and perspectives. Telecommunication can indeed be a relatively inexpensive way to introduce students from different backgrounds to each other as playmates and friends before ideologies and inculturation have a chance to separate them as enemies. — eds.

CON-TEMPLATE-TION

I WANTED TO INFORM YOU OF AN oversight in your April 1991 article about AppleWorks templates. (See "Templates, Templates, Everywhere," p. 41.) You listed many sources for templates (I realize that you couldn't possibly cover them all), but you missed a significant one from which many readers would benefit.

Softdisk and Softdisk-GS, two disk-based magazines, have been cranking out AppleWorks templates for quite some time. Softdisk-GS has had several outstanding

page-layout templates for AppleWorks GS that not only should pass your standards with flying colors, but may have changed your minds about the genre.

Not only are issues of Softdisk and Softdisk-GS reasonably priced, but you get more than just the templates with every issue. (Three-, six-, 12-, and 24-month subscriptions to Softdisk are \$19.95, \$39.95, \$69.95, and \$119.95, respectively, and the GS subscriptions are \$29.95, \$49.95, \$89.95, and \$139.95, respectively.)

Softdisk just recently completed a 12-issue tutorial of AppleWorks that used templates to explain the major components of the program and give hints and explicit instructions on spreadsheet functions. All installments in this series are available by ordering back issues.

You do your readers a great disservice by not mentioning this treasure of templates and tutorial articles that enable users to learn by doing — without having to start from scratch. (My apologies to Ruth Witkin.)

David Hindman
8 Wheatland Drive
Hutchinson, KS 67502

We ran a comparative review of Softdisk (P.O. Box 30008, Shreveport, LA 71130, 318-221-8718) in April 1987 (p.37). We liked it then, and we still like it now. Thanks for reminding us, David. By the way, Ruth Witkin sells her templates on disk through Quality Computers (20200 East Nine Mile Road, Box 665 St. Clair Shores, MI 48080, 800-443-6697). — eds.

COMMUNICATION BREAKDOWN

I NOTICED THAT IN TWO OF YOUR reviews in the April 1991 issue — Platinum Paint (p. 32) and Nexus (p. 76) — you mentioned that these programs can't import AppleWorks GS graphics images. That isn't completely true. If you have an AppleWorks GS graphics image you want to use in another program, you can use the *Save As* function to save it as an Apple Preferred Format picture, which you can then import into most paint programs.

Scott Salmon
Milford, NH

Welllll . . . okay, Scott — we did neglect to mention the APF workaround. But what we said is still true: You can't import AppleWorks GS graphics images directly into Platinum Paint or Nexus. — eds.

HYPERSTACKS II: THE SEQUEL

AS A PUBLISHER OF EDUCATION software for the past eight years, I think that the trend of public-domain stacks for hypermedia programs is the most exciting end-user revolution going on today. Stacks can be tailored so easily for education, business, and home. It reminds me of what David Thornburg once dreamed: Give a personal copier to all teachers in America and you give them the freedom to produce all the materials they need.

Your article "HyperStacks Done Dirt Cheap" (May 1991, p. 40) mentioned HyperCard and HyperStudio stacks, but completely missed the Tutor-Tech stacks available for Apple IIe, IIC, IIGS, and Laser computers. Teachers and enthusiasts are creating high-quality stacks and getting them published in a catalog now available from Techware.

The catalog is normally sent to all subscribers (\$10 a year) and Tutor-Tech users, but we'll offer one free issue to anyone who calls (800) 34-REACH and mentions "inCider/A+'s HyperStacks."

Daniel Lampert
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CORRECTION

The monthly minimum listed for Prodigy on p. 65 of April's Bridging the Gap should be \$9.95, not \$12.95. The service's monthly maximum is \$12.95.

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Kensington, Inc. AntiGlare Filter GS	37.
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System Saver (<i>Platinum or Beige</i>)	58.
System Saver GS	65.
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Koala Technologies	
Koala Pad Plus w/Graphics Exhibitor	82.
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Maxell Maxell 3.5 DS, DD (<i>10</i>)	14.
Maxell 5.25 DS/DD	9.
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Salvation: Exorcisor (GS)	29.	
Salvation: Backup (GS)	29.	
Salvation: Renaissance (GS)	29.	
Salvation: Supreme Pack	99.	
Salvation: Wings (GS)	47.	

BUSINESS SOFTWARE

Beagle Brothers AW v3.0 Companion		27.
Beagle Bros. Clip Art 1 (GS)	26.	
Beagle Bros. Desk Accessories (GS)	36.	
Beagle Write	45.	
Beagle Write Desk Accessories or Font Pack 1 or 2	26.	
Beagle Write Font Lib. 1 (GS)	31.	
Beagle Write Picture Manager	25.	
Beagle Write (GS)	57.	

Outliner for Appleworks 3.0	41.
Timeout Series	CALL

Big Red Software

Labels, Labels, Labels	22.
Broderbund	
Bank Street Writer Plus (AP or C+)	47.
Claris Apple Works v3.0	173.
Apple Works (GS) v1.1	208.
Intuit Quicken v1.0	37.

Manzanita

BusinessWorks Bundle AP & GS (Sys. Manager, G/L, A/P, A/R, Inventory)	258.
BusinessWorks Payroll (AP & GS)	109.

Meca Software

Managing Your Money v4.0 (AP & GS)	98.
Milliken Publishing Medley (GS)	79.
Nolo Press Will Maker v3.0	35.

Seven Hills Software

Graphicwriter III (GS)	72.
Stone Edge	
DB Master Professional (AP & GS)	179.

Timeworks, Inc. Art Portfolio 4 in 1	69.
Graph It!	43.

People, Places and Things, or Design Ideas	25.
Publish-It v3.0 (AP & GS)	73.

WordPerfect Corp.

WordPerfect (AP or GS)	104.
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COMMUNICATION SOFTWARE

Applied Engineering ReadyLink	57.
Beagle Brothers Point-to-Point	58.
InSync Proterm	79.
Softspoken Crossworks	67.

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American Micro Research (Micro Sci)	
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AMR 800k 1.44 (GS)	168.
GS Partner: Quick 20MB	CALL.

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Apple 3.5 Drive (GS & C+)	315.
Apple 3.5 Unidisk	294.
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Unidisk 3.5 Controller	58.

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AE 5.25" Drive	126.	
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Transdrive 360K Single Drive	184.
Vulcan 100 Meg (AP or GS) 20/40	CALL

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20 MB w/SCSI II card	459.
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CV Technologies	
Ramfast SCSI Card w/256K Ram	178.

Laser Computer Inc.	
Laser 128 5.25 Disk Drive	88.

Laser 800KB Drive	168.
Laser 800KB Drive w/controller	199.

Universal Disk Controller	37.
---------------------------------	-----

EDUCATIONAL SOFTWARE

A.E.C. Spanish Vocabulary	
or Spanish Grammar	16.

Advanced Idea	
Audubon Wildlife Adventures: Grizzly Bears (5.25)	32.

Audubon Wildlife Adventures: Whales (5.25)	32.
Audubon Wildlife Adventures: Grizzly Bears (GS)	38.

Audubon Wildlife Adventures: Whales (GS)	38.
Stars & Planets (GS)	27.

Barron's	
Computer SAT Revised Version	31.

Britannica	
Algebra I: 1st & 2nd Semester	46.

Algebra I: 1st or 2nd Semester	27.
Designasaurus or Revolution (3.5)	27.

Algebra 1: 1st & 2nd Semester		46.
Algebra 1: 1st or 2nd Semester		27

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Carmen Sandiego Series	CALL

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Word Attack Plus	29.
Spanish or French	29.

Grade Busters Corp.	
Grade Busters 1, 2, 3	69.

Learning Company	
Magic Spells (3.5 or 5.25) or Gertrudes Secrets (3.5)	25.

Math Rabbit (3.5 or 5.25)	25.
Reader Rabbit (5.25)	25.

Talking Reader Rabbit (3.5)	31.
Think Quick (3.5 or 5.25) or Writer Rabbit (3.5 or 5.25)	29.

Writing and Publishing Center (3.5 or 5.25)	31.
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MECC	
Calendar Crafter Home Edition (3.5)	31.

Number Munchers or Word Munchers (3.5 or 5.25)	24.
Oregon Trail (3.5 or 5.25)	24.

Paint with Words (5.25)	24.
Spellevator (3.5 or 5.25)	24.

USA Geograph (3.5) or World Geograph (3.5)	49.
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Milliken Publishing	
The Story Teller (GS only)	32.

Mindscape Crossword Magic	33.
Orange Cherry Full Line	38 ea.

Queue Kidwriter (5.25)	25.
Kidwriter Gold Edition (3.5)	39.

Sensible Software	
Report Card II (AP & GS)	37.

Sensible Grammar (AP & GS)	59.
Simon & Schuster	

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Software Toolworks	

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or European Challenge (GS)	15.
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Third Courier (GS)	30.

Artworx Bridge 6.0 (AP or GS)	25.
Britannica Gnarly Golf (GS)	17.

Great Western Shoot-Out (GS)	17.
JigSaw (GS)	17.

Laser Force (GS)	17.
Task Force (GS)	23.

Broderbund Jam Sessions (GS)		30.
VCR Companion	30.	

Prince of Persia	22.
ByteWorks Ugly Duckling (GS)	25.

California Dreams Block Out (GS)	29.
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Vegas Gambler (GS)	15.
Casady & Greene Crystal Quest (GS)	19.

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Electronic Arts Bards Tale II		14.
Bards Tale III	31.	

or John Madden Football	23.	
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Micro League Sports	
Micro League Baseball w/General Manager & Stats	24.

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Microprose F-15 or Pirates	12.

Miles Computing, Inc.	
Questmaster (GS)	26.

Mindscape	
Balance of Power 1990 (GS)	32.

Hostage (GS)	15.
Captain Blood (GS)	26.

New World Computing Kings Bounty		26.
Might & Magic II	32.	

Origin Systems Ultima IV, Ultima V	37.	
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Ultima Trilogy (I, II & III)	37.
Wind Walker (GS)	25.

Ready Soft Space Ace (GS)	33.
Sierra On-Line Silphed (GS)	21.

Sir-Tech Software	
Wizardry Trilogy (includes I, II, III)	35.

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Chessmaster 2100 or (GS)	33.

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Spectrum Holobyte	

Solitaire Royale (GS)	22.
Tetris (AP & GS)	23.

Strategic Simulations	
AD&D Champions Krynn or Overrun	32.

AD&D Pool of Radiance	30.
Curse of the Azure Bond (GS)	33.

War of Lance	26.
SSG Halls of Montezuma (GS)	29.

Reach for the Stars (GS)	28.
Victory Software	

The Second Scenario	36
2088: The Cryllan Mission (GS).....	36

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 MOUSE
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 MATH RABBIT
 KID PIX
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 TETRIS
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 WILL MAKER
 SUPERPAINT
 TETRIS
 ADOBE TYPE MANAGER
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 QUICKEN
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 MICROSOFT WORKS

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 MAC WRITE II
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VIREX
 MICROSOFT WORKS

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WHAT'S NEW

KANSAS OR BUST

It's always been a pretty good deal for the average Apple II user — the A2-Central Apple II Developers' Conference in Kansas City each July. Despite the name, there's plenty to interest the casual programmer and even the home user, educator, or student. But this year there's even more reason to be in Kansas in July: The A2-Central Expo.

Bob Berkowitz of Events Specialists (Sharon, MA), the show's sponsor, said in April that many of the biggest companies in the Apple II business were already committed to exhibiting their wares at the show — among them, Apple Computer (Cupertino, CA), Quality Computers (St. Clair Shores, MI), Roger Wagner Publishing (El Cajon, CA), and Zip Technology (Los Angeles, CA). Roger Wagner, president and founder of Roger Wagner Publishing, maker of HyperStudio, will deliver the keynote address on Saturday, July 20th. Wagner will explain what he means when he says that in hypermedia “The Revolution Is Now,” and has hinted that he may introduce a new product.

Berkowitz hopes to build on his success in Kansas City and begin a series of “regional, user-oriented shows” across the country three or four times a year. The Kansas City show, which will be held on July 20 and 21, should attract curious Apple II users from across the Midwest. Admission is only \$10 in advance, and \$15 at the door. Call Events Specialists at (800) 955-6630 for more information.

SYSTEM 7.0: IS IT FOR YOU?

Apple's newest system software for your Mac will make it work better on a network, with less work for you. But less work for you means greater demands on your Mac — specifically on its RAM — that may convince you not to bother.

Macintosh system software includes the Finder, a program that most users probably know as the “desktop,” and operating-system software that, broadly expressed, supports all your application software by managing memory, input and output, and other common tasks. (Apple IIgs owners are hoping to hear this summer about System 6.0, which will include a faster Finder, the ability to read and write Mac and MS-DOS disks on a 1.44-megabyte Super-Drive floppy, improved MIDI music tools, and perhaps even interapplication communication.)

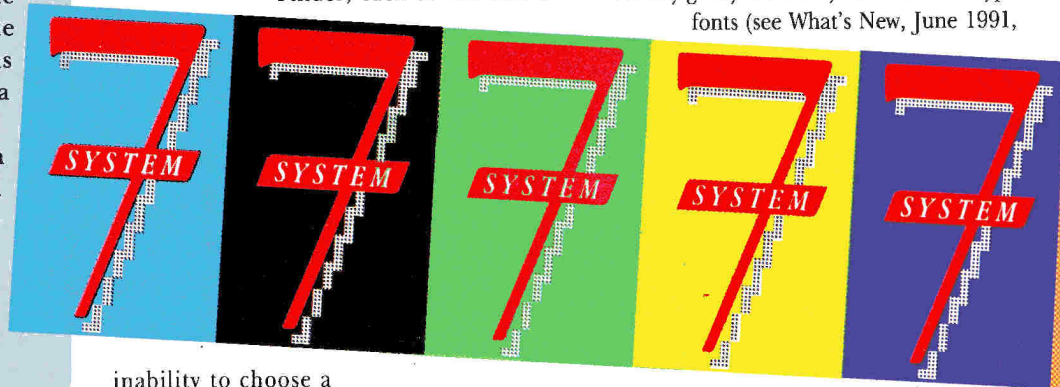
System 7.0 is different from System 6.0.7 in many ways. Most of the cosmetic changes are in the Finder. Icons that now sport a 3D appearance represent the frivolous; “tree structure” directories of files represent the useful. System 7.0 also makes copying files with the Finder easier, and simplifies the process of moving among file folders. The changes to the Finder itself repair some minor annoyances in the earlier Finder, such as the user's

to any menu or other part of the screen and you'll see a “Help” balloon. Developers will have to add this feature to existing applications.

But Macintosh System 7.0 might be called Network System 7.0; most of its new functions are network functions. System 7.0 carries to the network level the Mac's “cut, copy, and paste” metaphors for moving information between applications. Using special “publish” and “subscribe” features, you can move words, pictures, and any other kind of Mac data among all Macs on a network. This is actually only a small part of the broader “interapplication communication” ability that's built into System 7.0, if developers choose to take advantage of it.

System 7.0 requires 2 megabytes of memory. Because it's a multitasking system you may need more RAM just to run a single program. The Finder will run while you use any other program. The problem of needing more RAM is mollified a bit in Mac IIs and the SE/30 by a technique called “virtual memory,” which makes the machine think some of its disk storage is actually RAM. But the Mac Classic, Plus, LC, and Portable can't use virtual memory; you'll probably want to upgrade to 4 megabytes of RAM if you use System 7.0 on one of them.

You may get by without System 7.0. TrueType fonts (see What's New, June 1991,



inability to choose a folder or file from a list or by typing its name. You no longer need to physically move the cursor every time.

System 7.0 offers developers the chance to use “Help” balloons. Just put your Mac into “Help” mode, then move the cursor (don't click

p. 15) are available for System 6.0.7, and unless you need balloon help or want to use interapplication communication on a network, you may not need System 7.0. The next generation of Mac applications may require it; the current generation doesn't. — P.S.

NEW-PRODUCT FOCUS

▲ MAC ◆ APPLE II ■ APPLE IIgs

NEW RESOURCES



Clear Ideas

The Claris **Power Package** is a great combo for teachers with Macs — MacWrite II, MacDraw II, and FileMaker, all for \$199 — and it just got better. The new Claris **Power Package Idea Book** tells not only how to use these three powerful programs, but specifically how to get the most from Power Package in the classroom or school office.

The 62-page book features more than 150 suggestions for computer-based student activities you can integrate easily into your curriculum — ideas for teaching social studies, science, foreign languages, and English, and even some advice about creating your own computer programs. In addition, a comprehensive list of additional resources, such as software and books, rounds out the **Idea Book** with suggestions about where to turn next for help.

The model for the **Idea Book** was probably Claris' **AppleWorks Resource Guide for Teachers and Parents**, a 116-page compilation of educational templates, auxiliary programs, and ideas for users of AppleWorks and AppleWorks GS. It's now available in a second edition that includes ten actual lesson plans and more AppleWorks GS materials than ever.

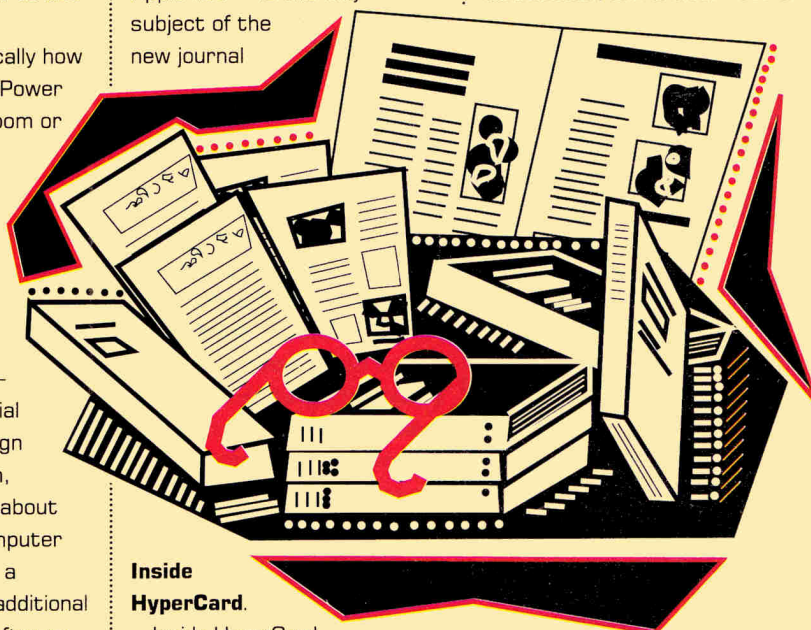
The Claris **Power Package Idea Book** costs \$15; the **AppleWorks Resource Guide for Teachers and Parents** is \$20 (plus \$3 shipping), from

Claris Corporation, P.O. Box 526, Santa Clara, CA 95052, (800) 544-8554 (credit-card orders only). — **P.S.**



Inside HyperCard

HyperCard, Apple's easy-to-use, powerful programming language for the Macintosh and now for the Apple IIgs — is the only subject of the new journal



Inside HyperCard.

Inside HyperCard promises to provide 16 pages of tips, tricks, and techniques each month for HyperCard developers. While targeted specifically at developers using Mac HyperCard 2.0, we saw much in the first two issues that would be of interest to Apple IIgs HyperCard programmers.

If you still doubt that **Inside HyperCard** can help you, call (800) 223-8720 and request a free sample issue (502-491-1900 in Kentucky). Test a few tips yourself — you may be surprised. A subscription — 12 monthly issues — costs \$69 a year. Contact the Cobb Group, P.O. Box 35160, Louisville, KY 40232-9719, for more information.

The HyperStudio Forum

Users of Roger Wagner's HyperStudio have been reading their own newsletter for a year now. But **The HyperStudio Forum**, released quarterly by The HyperStudio Network, is more than a publication: For \$29, subscribers receive, in addition to the newsletter, the annual Best of

disribute Scott Anderson's Fantavision animation software for the Apple II? We didn't; no release date had been set.

Contact The HyperStudio Network/HyperMedia Associates at Box 103, Blawenburg, NJ 08504, (609) 466-3196, for more information. — **P.S.**



The Stack Exchange

If you're using Techware's TutorTech hypermedia software on your Apple IIe/IIc or IIgs, you should be reading **The Stack Exchange**, a quarterly that stresses "down-to-earth" hypermedia — you could call it hypermedia "for the rest of us." It's the best source of information on TutorTech stacks.

The Stack Exchange includes an extensive catalogue of hypermedia hardware, ranging from blank disks and cables to videodisc players, in addition to the expected listing of stacks. All items can be ordered from TutorTech.

The magazine also solicits hints and letters from readers, and sponsors an ongoing contest in search of excellent stacks.

If you're using TutorTech, you should be reading **The Stack Exchange**; if you're not using this least expensive, least exclusive Apple hypermedia solution, **The Stack Exchange** may convince you you should be.

A one-year subscription (four issues) costs \$10. Contact Techware Corporation, P.O. Box 151085, Altamonte Springs, FL 32715-1085, (407) 695-9000, for more information. — **P.S.**

HyperStudio disk and substantial discounts on HyperStudio stacks, clip art, clip sounds, and external commands.

The HyperStudio Forum is emphatically not for HyperStudio programmers only. If you're just wondering what kinds of HyperStudio stacks are available and how to buy them — they're probably not for sale at your local software emporium — **The HyperStudio Forum** has all the answers.

The forum also reports news that might be of interest to HyperStudio users: Did you know, for instance, that Roger Wagner Publishing, producer of HyperStudio, has agreed to update and

NEW-PRODUCT FOCUS

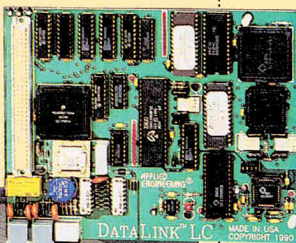
▲ MAC ◆ APPLE II ■ APPLE IIgs

NEW HARDWARE

P.S.: FOR APPLE II
AND FRANKLIN USERS

A company called **TEBR** is offering free telephone technical support to early Apple II series (particularly II and II Plus) and Franklin 1000/1200 computer users. Call (914) 669-5421 or send a self-addressed, stamped envelope to TEBR, RFD #1, North Salem, NY 10560-9705.

DataLink
modem for
Mac LC.



AND IT'S CHEAP, TOO

Whether it's computers or home electronics, the technology curve is the same. In any new field, the first entrants are bulky, inefficient, and expensive. Eventually, both the physical size of a unit and its price are refined downward. Often, one technology will speed advances in related fields.

The laptop-computer boom has forced manufacturers to produce smaller and lighter monitors, hard drives, and now CD-ROM drives. Weighing in at a dainty 3 pounds with battery pack, NEC's new CD-ROM reader, the **Intersect CDR-36**, is aimed at the portable-computer market. But the

best news is the list price: \$698. Given the discounts usually found on the street, schools and home users can now afford to tap into the enormous data capacities that CD-ROM offers. For more information, contact NEC at 1255 Michael Drive, Wood Dale, IL 60191, (708) 860-9500, or circle number 356 on the Reader Service card. — **C.C.**

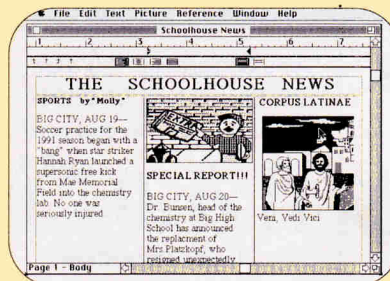
DATA TO GO

On the internal front, Applied Engineering is shipping the **DataLink LC**, a 2400-baud internal modem for the Macintosh LC. The card plugs into the processor-direct slot (PDS), is fully Hayes AT compatible, and lets you send text and graphics documents to any Group 3 fax machine. The DataLink LC includes a standard Mac mini-8 DIN serial connector (giving you an additional port) and a socket for installing a floating-point math coprocessor chip. List price is \$349. For more information, contact Applied Engineering at P.O. Box 5100, Carrollton, TX 75011, (214) 241-6060, or circle number 358 on the Reader Service card. — **C.C.**

NEW SOFTWARE

The Writing Center

The distinction between a graphics word processor and desktop-publishing software has never been less clear than in **The Writing Center**, a Macintosh program for writers of all ages in schools, homes, and even businesses and other organizations. The



Writing Center creates reports, outlines, letters, and newsletters easily. You could think of it as a powerful word processor that creates documents in one, two, three, or more columns, and integrates color pictures easily into them.

The integration of pictures into documents has been greatly improved since The Learning Company's popular Apple II (and MS-DOS) offering, **The Children's Writing & Publishing Center**. The Writing Center lets you paste any picture (of the Macintosh PICT type) anywhere in any file. A starter library of 175 pictures comes with **The Writing Center**, but for "serious" desktop publishing, it's good to know you can add your own — and that you can crop, rotate, resize, and flip any picture.

The Writing Center's word processor isn't weak, either. It includes a 100,000-word spelling-checker program and an optional thesaurus, and can import any Macintosh text file (of the ASCII type) and even files from **The Children's Writing & Publishing Center** for the Apple II. This feature should recommend **The Writing Center** to schools with labs of Apple IIs and a single Mac and laser printer. If you have any kind of color printer, from an ImageWriter II to an ink-jet, **The Writing Center** can print on that, too.

The Writing Center costs \$89.95. A school version that

includes curriculum materials costs \$129.95, and lab and network editions are also available. For more information, contact The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555,

(415) 792-2101, or circle number 353 on the Reader Service card. — **P.S.**

Children's Newspapers

Orange Cherry Software has released a low-cost, easy-to-use desktop-publishing program written especially for the Apple IIs. **Children's Newspaper Maker** enables children — and even adults — to create their own newsletters, news sheets, and newspapers.

Three levels of difficulty should make it possible to accommodate a wide range of writing abilities. You can choose to "edit" stories already written, to "rewrite" incomplete stories, or to publish from scratch, creating your own stories and artwork.

Children's Newspaper Maker includes a library of clip art in addition to a library of stories, and allows the importation of graphics in most Apple IIs formats.

It requires 1 megabyte of memory, and two 3.5-inch disk drives or a hard drive. The cost is \$49; an educator's version with a teacher's guide is \$59.

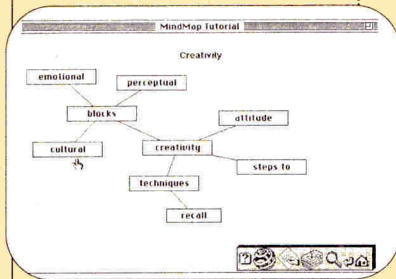
For more information, contact Orange Cherry/Talking Schoolhouse Software, Box 390 Westchester Avenue, Pound Ridge, NY 10576, (914) 764-4104, (800) 672-6002, or circle number 354 on the Reader Service card. — **P.S.**

Mind Maps

New from William K. Bradford is **MindMap**, a Macintosh interactive-multi-media construction kit that inspires creative thinking and lets teachers, students, and just about anybody else integrate all types of electronic information, from computer graphics to compact discs to laser discs.

Designed to help the process of developing ideas, MindMap is based on the learning strategy known as clustering, advocated by the National Writing Project. Clustering encourages the student to stir up a brain-storm of as many ideas, words, notions, sentences, and images on a given topic as he or she can, without trying to connect or evaluate them into anything organized.

Afterward, MindMap uses



the power of HyperCard to help create a visual map of those ideas, and then put together a coherent report, story, or other writing project.

MindMap costs \$99, and requires 1024K of memory on any Macintosh, and HyperCard 1.2.2 or higher. For more information about this kit, contact William K. Bradford, 310 School Street, Acton, MA 01720, (508) 263-6996, (800) 421-2009, or circle number 351 on the Reader Service card. — P.S.

AppleWorks from the People Who Wrote It

Beagle Bros — a company that started out publishing programmers' tools, moved to publishing tools for AppleWorks users, and ended up writing a good part of AppleWorks 3.0 for Claris — is now in the AppleWorks business. Beagle Bros is selling AppleWorks 3.0, the latest version, in two different bundles with Beagle Bros enhancement software.

The first bundle (\$295) should appeal to writers: It combines **AppleWorks 3.0**, which has a built-in spell checker, with **TimeOut SuperFonts**, a program that lets you print in different typefaces on your Apple II; **TimeOut TextTools**, which lets you create style sheets and indexes, and move blocks of copy easily, among other functions; and **Outliner**, which lets you create outlines as deep as six levels.

The second bundle (\$295) is for spreadsheet fanatics. Along with AppleWorks 3.0 you get **TimeOut Graph**, which turns spreadsheet data quickly into all types of charts; **TimeOut Side-Spread**, which prints spreadsheet and database files sideways; and **TimeOut SpreadTools**, which can even scan a spreadsheet file for errors and link cells from different files.

Beagle Bros will also upgrade any earlier version of AppleWorks to AppleWorks 3.0 for only \$79, or that plus all your TimeOut products to the latest versions for only \$99.95. These offers are valid directly from Beagle Bros only, 6215 Ferris Square, Suite 100, San Diego, CA 92121, (800) 345-1750. For details, circle number 352 on the Reader Service card. — P.S.

SHAREWARE SOLUTIONS * BY JOE KOHN



EUROPEAN CONNECTION

Although all varieties of software are available as shareware for the Apple IIcs, some of the best titles have stressed entertainment. And many come from Europe. Although somewhat controversial because they don't follow Apple's Human Interface Guidelines, software from three European associations has dazzled and amazed the States. These French groups are FTA (Free Tools Association), specializing in GS software, and Second Sight Software and The Phoenix, writing for the IIe/IIc.

FTA, a small group of programmers, graphic artists, and musicians — producers of last year's exciting Nucleus demo, as well as Photonix (a \$20 shareware fast disk copier), the race-car game MiniPrix Formula 1, and the Space Harrier demo — is back with more super-hi-res freeware fun with Modulae. Nucleus, originally demonstrated by fellow Frenchman Jean Louis Gassée, impressed all who saw it with its stunning animation and music. Modulae, a worthy sequel to Nucleus, requires a GS with 1.188 megabytes of RAM. It's an awe-inspiring interactive demo. Six interactive modules demonstrate everything from star patterns to 3D vector, fill-mode, and calculated animation. A rock 'n' roll soundtrack is included. Created with Huibert Aalbers' phenomenal \$20 shareware SoundSmith program, the music is among the best ever heard on any microcomputer.

Several FTA members are also members of Second Sight Software. **Flobynoid**, the first program they've created, may be the best Apple II freeware game ever released. It's similar to **Arkanoid** — highly addicting, fast action, astounding graphics. The object is to deflect falling spheres so that they bounce off intricate penetrable barriers. Power spheres are included as bonus points. As each screen is cleared of barriers, another, more difficult level is presented. Flobynoid requires either a joystick or a mouse, and a 5.25-inch disk drive. (You can't install it on a hard drive.) The editor that's included lets anyone create his or her own levels (knowledge of French required).

Another great game is Phoenix's **Tetris II**. This stunning game works on any Apple II with 128K and a 5.25-inch disk drive, and contains ten more levels than the commercially released version of Tetris. It supports a joystick, but doesn't require it. GS owners will need to reset their system speed to normal (1 megahertz) before playing. Boot the disk from slot 6, drive 1. (You can't install it on your hard drive.) Computerized music enhances game play. Tetris II is a colorful strategy game in which oddly shaped blocks drop from the top of the screen; you must rotate or flip them so that all pieces fit precisely with all other blocks to form a complete row. This game is fast action, and highly addictive. The animation (including VU meters) is superb.

Write to Joe Kohn at 166 Alpine Street, San Rafael, CA 94901. Enclose a self-addressed, stamped envelope if you'd like a reply.

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NOTES

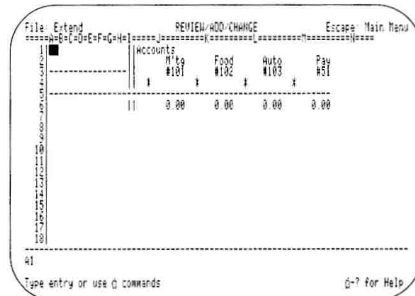
USERS AND PROGRAMMERS Sharing the Power to Create

AW Tip: Small spreadsheet files, designed creatively, can easily and efficiently accomplish tasks that usually require larger files. Smaller files calculate faster, save faster, and take up less memory space.

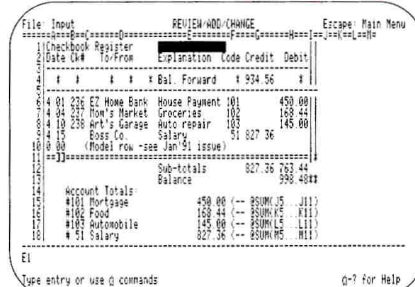
January's "AW Tip" (p. 20) described how to add rows to a spreadsheet as needed to keep files smaller. Adding appropriate formulas to columns only as needed is now available to AppleWorks 3.0 users with the new *Block Copy* feature. This capability is especially useful for lengthy checkbook, journal, and inventory applications, in which columns used for breaking out account-group totals enlarge and slow calculation dramatically. Many of these formulas aren't needed until the end of an accounting period.

The two spreadsheet templates illustrated below work together. The Extend spreadsheet is overlaid on the Input file to supply end-of-period calculation formulas only when needed. (Note: Set calculation order to *Rows* with Open apple-V.)

At the end of the accounting period the two files are merged to create the one file that will calculate data you need to close the books. The formulas in columns J through M of the Extend file are block-copied to the corresponding columns of the Input file. The formulas, now in the Input spreadsheet, are replicated (using relative cell references) to as many rows as you used for input. The account totals starting at cell E15 of the Input file collect the group totals from the overlaid portion of the file.



Supply end-of-period calculations with the Extend spreadsheet file.



Input the Extend spreadsheet file to create a compact end-of-period file.

You can then convert columns A through I to *Values Only* with the block-copy feature, stripping out memory hungry formulas. Columns J through M are then removed. The result is a compact end-of-period file for your archives.

Alternatively, you can leave the formulas intact in columns A through I and use Open apple-B to blank columns J through M. This returns the file to its original input mode. (Note: Don't delete the Extend portion of the merged spreadsheet with Open apple-D.)

You can expand the

overlay technique and modify it for other spreadsheet applications, cutting down on input time and enhancing data archiving. Use it to avoid the common practice of designing large, "do everything" spreadsheets, which take up an excessive amount of time in daily input and file maintenance.

AW Enhancement: TimeOut UltraMacros by Randy Brandt, published by Beagle Bros, brings automation and other added features to AppleWorks. You don't have to know macro programming to take advantage of the power of UltraMacros, either — it comes with ready-to-use macro files, and hundreds more are available in the public domain. You can learn to write your own custom macros pretty easily, though, thanks to a wide array of files, books, and articles on the topic. UltraMacros can automate and speed up almost any routine task performed with AppleWorks or its enhancements. A clock display and mouse control are also included. (See the end note below for information on ordering a disk containing a run-time demonstration of UltraMacros.)

AW Macros: This macro merges the two spreadsheets described in the "AW Tip" above. First name and create the Input and Extend templates exactly as indicated. Pay special attention to the "|*" marker in cell I11 in the Input template. Then compile and run this macro with both files on the desktop. The macro is specific to the example templates above, but you can modify it to work with other overlay applications. UltraMacros 3.1 is required.

```
A:<all:$O = "Extend":oa-q find : rtn :           { Get into file } :
oa-f>C<oa-y>I1<rtn oa-c>tb<oa- oa-9 rtn :         { copy block } :
$O = "Input":oa-q find : rtn :                   { get into second file } :
oa-f>C<oa-y>I1<rtn:oa-c>f<rtn :                   { paste model lines } :
oa-f>C<oa-y>I6<rtn :                             { posn for replication } :
oa-c>W<oa- : rtn down>.<begin :                 { initiate replication loop } :
down : $O = Cell                                { check for last row } :
if $O = "|*" then up rtn oa-R : oa-K :           { found - complete replication } :
launch "ultra.system" : stop :                   { launch default macro set } :
endif : rpt>!                                   { else continue } —
```

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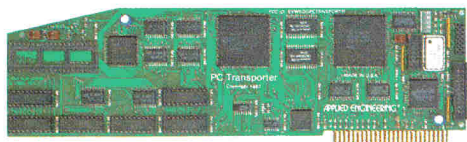
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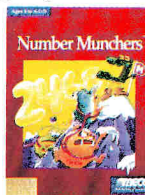
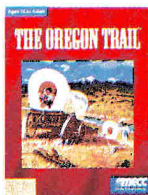
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THE OLD GEOMETER

Will young geometers who first meet the subject on their Mac screens still appreciate its beauty?

The Geometer's Sketchpad, from Key Curriculum Press of Berkeley, California, is a wonderful little drawing program that generates accurately the figures of plane geometry, such as circles, lines, and points, on the Macintosh. It can also record the process by which a complex figure, such as a line segment or an angle divided into halves, is generated.

As a teaching tool it's the best software an instructor of geometry with a Mac can buy. One classroom teacher who saw a demonstra-



By PAUL STATT • SENIOR EDITOR

tion of The Geometer's Sketchpad at a conference exclaimed, "This would be worth its cost just for writing tests." It's a truly useful tool for drawing geometric diagrams that you can display on a wall with an overhead projector, or print on paper for copying.

This Sketchpad seems like a miracle to the old geometer, who in his youth drew figures painstakingly with a pencil, a straightedge, and a compass. Now circles grow and shrink to a point as he clicks the mouse button. Perfect perpendiculars appear, midpoints are constructed without so much as a smudge. A segment of a line, a perpendicular line, a couple of brightly colored circles, and there: The segment's divided by the Golden Mean. A square squats and becomes a rhombus. The sides of a triangle grow, and the angles between them stretch and shrink: The triangle he's drawn has truly become "any triangle," as described in the old geometry books. He sees a point slide to become a line, the line grow to a square, the square into a cube —

and suddenly there's the shape of the mysterious "fourth dimension," always difficult to see. The old geometer feels as if he's traveled to *Flatland*, the land where Edward Abbot's classic explanation of the dimensionality of space begins.

The Geometer's Sketchpad's calculator can measure the size of all three angles in a triangle, and even add them together. It comes as no surprise to the old geometer that the sum of the measures of the three angles is 180 degrees, no matter how far one side extends or how fat one angle is. It comes as no surprise because he once *proved*, a quarter of a century ago, that the sum of the measures of the angles of a triangle is 180 degrees.

When I first saw The Geometer's Sketchpad I was shocked. "This will take the proof out of geometry," I thought. Further study revealed that "taking the proof out of geometry" isn't an unwanted or unexpected side effect of this single program; "taking the proof out of geometry" is, in fact, an educational strategy that's gained some following since I stopped teaching almost ten years ago. The Geometer's Sketchpad is the software companion to *Discovering Geometry*, a high-school textbook by Michael Serra (also published by Key Curriculum Press, but not required for enjoying the software). It's subtitled *An Inductive Approach*. (Euclid, on the other hand, might have written something called *The Elements of Geometry: A Deductive Approach*.)

When I finally ran The Geometer's Sketchpad on my Mac LC and saw figures dancing on the screen — figures that in my geometry class had danced only in my imagination — I was humbled and awed. The Geometer's Sketchpad is a beautiful program, but it's hard for me to praise it. Plato's tools were a ruler and a straightedge; he never recommended the Macintosh LC. But I'm an anachronism. I don't like it, and I hope that young geometers who first meet the subject on the screens of their Macs can still appreciate its beauty.

I felt so bad that I sat down with a pencil and paper and proved that the sum of the measures of the angles of any triangle is 180 degrees. It wasn't difficult, just lonely. □

Public Domain Software

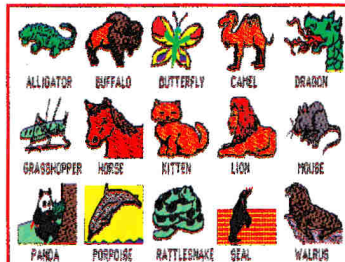
IIGS Sound & Music

SL01 MiidiSynth™ Jukebox: This program is the hottest music program available for the IIGS. Full orchestral sounds with unbelievable quality. You won't believe your ears!

SL02, SL03 & SL04 MiidiSynth Song Disks: Three full disks for MiidiSynth songs for Jukebox program.

GS94 Modulæ: If you liked Nucleus, then you'll love this sound and graphic demo program which really shows off the IIGS.

GS63 HyperStudio Sound Effects: A collection of sounds in ACER format which are just right for use with *HyperStudio*.



GS123 Animal Print Shop GS Graphics: An all-new collection of over eighty multicolor graphics for use with Print Shop GS. All of the graphics are of animals. This disk is shipped with a sheet showing all the graphics on the disk. Copyright (c) 1991 Big Red Computer. Only \$3.50.

IIGS Utilities

GS120 Icon Mania: Everything you need to add new icons to the IIGS desktop. Two icon editors and hundreds of predrawn icons you can use.

GS121 HoroscopeGS: A desktop program to generate birth horoscopes. You enter your date of birth and the longitude and latitude of your place of birth. A horoscope will be drawn which represents astronomical information such as the positions of the planets at the time of birth. Many people believe that a person's character is affected by planet positions and such.

GS47 GS/OS Goodies: Our all-time best selling disk. This disk contains over 20 brand new desk accessories including D.T. Painter, Screen Saver & GS Catalog.

GS83 Customize GS/OS: Load fonts and desk accessories on the fly, plus A2.FX, Instant Icon, Finder.Patcher, and RunQ.

GS99 Twilight Screen Saver: This shareware CDev is a completely modular screen saver which operates under the Graphic Control Panel. This is a must-have program for all IIGS owners.

GS76 Productivity Disk: This disk is loaded with useful tools including Write-It!, a desk accessory which is a complete word-processing program.

GS93 IIGS Telecommunications: If you own a modem, you need this disk. It contains the GS-version of Shrink-It plus a host of other telecom programs.

K301 DB Master 1.0.1 3.5" Version: A complete shareware database management system for the Apple IIe, IIc or IIGS. Great for a small business. You can create files and forms in just minutes.

GS62 Desk Accessories: Included on this disk are DA's that allow you to format a disk, copy and view files, control an ImageWriter printer, preview fonts and locate files on your hard disk. Plus a Tetris-like NDA game.



Taito Closeout: We've purchased the remaining inventory of Apple II games from Taito and are offering them at special reduced prices. This includes *Arkanoid II: The Revenge of DOH*. In *Arkanoid*, you use energy balls to break down force barriers to advance on to more levels. There's even an editor so that you can design your own levels. Here's your last chance to purchase these great Apple II games.

TA61 Arkanoid II: DOH GS 15.00
TA60 Qix GS 5.00
TA06 Renegade for Apple IIe/IIc 5.00
TA05 Qix for Apple IIe/IIc 5.00
TA89 GS Super Combo Pak: For only \$20, we'll send you all three GS titles: *Arkanoid II*, *Qix GS* and *Renegade*.

IIGS Games

GS117 Star Trek Classic GS: This shareware game by Joe Jaworski is a remake of one of the earliest computer games ever written. Fire your photon torpedoes and laser, do short range scans and use your warp drives to defeat Klingon and Romulan star ships. It requires 1.5 Megs of RAM and System 5.0.4.

GS110 Milestones 2000: This reliefware game by Dr. Ken Franklin is great for younger children. Based on an old French card game, you have to play mileage cards to advance your own auto while stalling your opponent with flat tires and accidents.

GS105 Space Clusters: This game is a clone of *Gaxalian*. Use a joystick to shoot the invaders before they can swoop down and destroy your ship.

GS118 Memory Card Game: This disk contains a full-color GS version of the classic card game called *Concentration*. It's great for young children. Also included are *Hearts* and *Wisconsin Rummy* games.

GS103 & GS104 Cosmocade: On the first disk, you must Journey to Calibus in a fast-paced arcade style game. Part two is called *Naxos*. A joystick and 768K is required. This is a shareware game.

GS88 PicMix: This program turns any SHR graphic into an on-screen jigsaw puzzle.

GS119 Columns Version 2.0: In this game which is similar to Tetris, you arrange falling blocks so that colors line up. Includes rock music background.

GS112 Arkanoid II Levels & Cheat: This disk contains several new levels and a super cheat program for use with *Arkanoid II* by Taito.

GS72 Cartus Primus Card Game: This disk contains card games for cribbage, pinochle, gin rummy, hearts, pitch, euchre and sheephead.

HyperCard GS Stacks

All *HyperCardStacks* require Apple's *HyperCard GS* program and 1.5 Megabytes of RAM.

HC01 HyperCard Starter Pak: A sampling of the first stacks created for this great program.

HyperStudio Stacks

All *HyperStudio Stacks* require Roger Wagner's *HyperStudio* program version 2.1.

HS30 thru HS35 Star Trek Stack: A six-disk complete encyclopedia of facts about *Star Trek: The Next Generation* TV series. Includes sound effects, animations and database of facts.

HS26 & HS27 Civil War Stack: Learn about the causes, the personalities and the history behind the U.S. Civil War. Great graphics & sound effects.

HS20 & HS21 Dinosaur Stack: Learn all about dinosaurs with this excellent two-disk stack. For each type of dinosaur this stack shows the relative size, a map showing the geographic distribution, some textual info and three scanned pictures.

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GS122 Fkt Graphics: This program can be used to draw graphs of functions of the type $f(x)$. You can use sin, cosine, tangent, etc. The computed graphs are SHR pictures which can be imported into DTP programs like *AppleWorks GS*.

GS48 GIF Graphics: 75 colorful graphics in GIF format plus an all-new IIGS graphic utility program to view or convert them.

GS124 Dinosaur Clip Art: Black and white clip art (640 mode) of dinosaurs which we have converted from the Mac. It's great for use in GS programs such as *AppleWorks GS*, *HyperStudio* or *HyperCard GS*.

GS59, GS64, GS67, GS73, GS74, GS86, GS87 & GS98 Super Hi Res Clip Art: These 8 disks contain clip art graphics that we either converted from the Mac or scanned in on the IIGS. They're great for use with *AppleWorks GS* or *HyperStudio*.

GS40 Fractals & Animations: This disk contains 11 programs that create animated computer graphics or fractal displays.

GF02 Display Fonts: A collection of GS-type fonts for use with most GS programs and *SuperFonts*. These are medium-sized fonts which work great for desktop presentations.

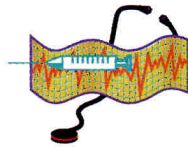
GS32 FontAsm: This is the best shareware GS-font editor available. Plus it comes with several new fonts.

All the disks listed in this ad (plus hundreds more) are available from Big Red for only \$3.50 a piece. Why pay more for public domain and shareware disks? And if you order ten or more disks the price drops even lower to only \$3.10 per disk. All disks listed in this ad are 3.5" disks and the price includes all shipping and handling fees (U.S. addresses only). You do not have to be a member to order. We also have a large collection of 5.25" disks for Apple IIe & IIc computers. Big Red has been in business for over nine years and is one of the largest distributors of Apple II public domain software in the world. We will be happy to provide technical support for any disk we offer.

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APPLE CLINIC

AVOIDING THE BOTTLENECK

**Adding a buffer lets you print those pages
without tying up your computer.**

By CECIL FRETWELL

WHAT'S PRINT BUFFERING?

IHAVE AN APPLE IIGS WITH AN ImageWriter II and I'd like to speed up its printing. I've heard that I can do this by using a "print buffer." What does this mean?

Jonathan H. Clark
Noblesville, IN

A print buffer is much like cache memory; it's a "holding zone" for data. (See "Handy Storage," June 1991, p. 17.) Because your computer can send an electronic image of a character far faster than the printhead can create a physical image on paper, your computer sends the electronic image to a holding area that's either extra memory in your printer or space reserved in your computer's RAM.

If you add memory to your printer, the computer fills this space and the printer empties it, as fast as they can. If the buffer is small, this "zone" fills up quickly and the printer sends a signal to the computer to pause. The computer monitors this signal constantly to see when the buffer can receive more characters.

If your buffer memory is in the computer, you need special software that uses interrupt processing. This software lets the computer store characters in the buffer until it's full or the printing is complete. If the buffer is filled, the computer must pause.

A buffer won't increase the speed at which the printhead creates each character on a page, but it lets you work on other tasks while the printer

produces a hardcopy. Once your computer finishes sending a letter to the print buffer, you can begin working on another letter even though the first one continues to print.

Those of you with Macs running MultiFinder have probably seen internal print buffering in action. The background-printing feature lets you tell your Mac to print a document and then go on working immediately. (Your computer's buffer stores data more quickly than the printer's.) Internal buffering is a popular option on modem software; it means you don't have to waste money on line while your printer is spewing paper. I'm not aware of any Apple II word processors that offer this feature.

APPLESOFT TOKENIZING

AFTER USING BASIC.SYSTEM TO enter my Applesoft program, I used a word processor to list it. My output looked like garbage with some recognizable strings such as the contents of PRINT statements, which I'd enclosed in quotation marks. What's wrong with my program?

Eric Higbee
Delaware Water Gap, PA

Nothing is wrong with your program, Eric. When Bill Gates wrote Applesoft, memory space was really at a premium. So instead of storing the five letters in the word "PRINT," he used a single hexadecimal byte, \$BA. Then when he wrote the LIST code, he translated \$BA back into PRINT. This is called "tokenizing." A word

or command is replaced with a symbol or "token" to save space. To see tokenizing in action, type NEW, and then enter the following program.

```
J10 A = 1
J20 B = 2
J30 C = A + B
J40 PRINT "C = ";C
```

Now RUN the program and use CALL -151 to enter the monitor. Type "800.82F" and if you have a IIGS, you'll see something like this:

```
800:00 -.
801:09 08 0A 00 41 D0 31 00-....AP1.
809:11 08 14 00 42 D0 32 00-....BP2.
811:1B 08 1E 00 43 D0 41 C8 42 00-....CPAHB.
81B:29 08 28 00 BA 22 43-).(.
824:20 3D 20 22 3B 43 00- C =";C
82A: 00 00
```

In the hex dump, I've edited standard monitor output to more clearly show the tokenized program — your display will show 16 bytes per line. If you aren't using a IIGS, you won't see the ASCII equivalents on the right-hand side, so you'll have to take my word for it. (You can translate the bytes yourself if you don't trust me.)

A program always starts with a hex \$00. Then each line of the program has the following layout. (I'll put examples from the statement starting at \$811, line 40, in parentheses so you can follow along.) The first two bytes of the line contain the location of the next line in the program (1B 08 = \$81B). The next two bytes represent the line number for the statement (1E 00 = 40). These bytes are followed by the tokens and strings in the line. (The ASCII rendition of the letter C is \$43. The token for the = operation is \$D0. The ASCII rendition of the letter A is \$41. The token for the + operation is \$C8. The ASCII rendition of the letter B is \$42.) Finally, a line always ends with the null character \$00.

In the example listing, each location is displayed as a period (.) if its contents don't contain a printable character. For instance, \$0C would form-feed your printer, but it doesn't show up on your screen.

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APPLEWORKS CLINIC

By Claris Corporation and the National AppleWorks Users Group

NEW SIZE

I'm using AppleWorks GS 1.1 and System Software 5.0.2 on an Apple IIs with an ImageWriter II. How do I change the font so that I can print more characters per line on my spreadsheet?

To adjust the typeface and size, you need to import your spreadsheet into the word-processing module.

- Bring up your spreadsheet and choose **Select All** from the **Edit** menu.
- Select **Copy** from the **Edit** menu to place your file on the Clipboard.
- Open a new word-processing document.
- Paste the contents of your Clipboard into the new document and change the font.

You can also use the "hot-copy" feature explained in the AppleWorks GS 1.1 **Update** booklet (p. 33): holding down the control key and dragging selected material between windows.

WHAT'S THE AVERAGE?

I have a problem with a gradebook spreadsheet I developed to keep track of my class. My spreadsheet works correctly until I alphabetize my list of students. Then the formulas that compute the class averages change and I get incorrect results. How can I avoid this problem?

Every time you move a cell, AppleWorks adjusts all formulas that refer to that cell so that they contain the new location. This change lets AppleWorks adjust cell references automatically whenever you insert, delete, or move rows or columns.

The **Arrange** command moves cells, then the program "corrects" all the formulas to reflect the new locations. Therefore, if cell C13 reads @AVG(C1...C10), and you move C1 to location C5, C13 will read @AVG(C5...C10) and you'll miss cells C1 - C4.

To avoid this, design your spreadsheets with a boundary of blank cells surrounding any column of numbers. Then make all formulas that operate on a column refer to the blank cells that surround it. In our example, C1 and C12 would be blank and C2 through C11 would contain your values. C13 would read @AVG(C1...C12). Like most

AppleWorks functions, @AVG ignores blank entries, giving you more freedom to alter your spreadsheet and still get correct results.

IS THE LC FOR ME?

I've been using AppleWorks for many years and am considering purchasing a Mac LC. Will I be able to continue to use AppleWorks on my LC? If I purchase Mac applications like MacWrite II or FileMaker Pro, will I be able to convert my AppleWorks word-processing and database files to those applications?

Apple's newly released Ile Card will let you run AppleWorks 2.0, 2.1, and 3.0 on your Macintosh LC. If you're transferring AppleWorks word-processing files to MacWrite II, save them as you normally would, then use the Mac's Apple File Exchange utility, and MacWrite II will be able to read the data. If you're transferring AppleWorks database files to FileMaker Pro, save the files as a text (ASCII) file to disk and choose the option Tab between categories, returns between records. You can then import your database files into FileMaker Pro.

CAN I SAY YES?

When AppleWorks tries to save a new copy of a file that's already on a disk, the program sometimes displays the message Insufficient room for your file on this disk. Is it OK to delete the old copy of this file? Should I respond Yes to this question?

If you use AppleWorks 2.0, don't respond Yes, because you could damage a database file. Claris fixed this bug in versions 2.1 and 3.0, so if you use these later versions you can let the program delete the old copy of the file.

If you damage a file, though, all isn't lost. Many users recover damaged AppleWorks word-processing and database files successfully using **RepairWorks**, a commercial AppleWorks file-recovery program from Quality Computers (\$34.95; 20200 E. Nine Mile Road, St. Clair Shores, MI 48080, 800-996-1508).

RepairWorks is an easy-to-use menu-driven program that runs on enhanced Apple IIs, IIsx, and IIfx Pluses, Laser

128s, and Apple IIsx computers equipped with at least two floppy-disk drives.

TEXT AND NUMBER FORMATS

I appreciate the text-manipulation feature AppleWorks 3.0 adds to the spreadsheet module. I use it to print letter grades and comments for students. Once the spreadsheet displays a text response, though, it loses the format for any numeric entry in that cell. Is there a way to preserve numeric format?

When AppleWorks 3.0 displays text in a cell it destroys any numeric cell formats implemented with the Open apple-L (OA-L) command — but it respects all formats implemented with OA-V. The trick is to use OA-V to format the numeric values for the cells that will change back and forth between text and numeric entries.

USING HP PRINTERS

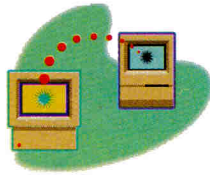
Can I use a Hewlett-Packard printer with AppleWorks GS?

AppleWorks GS runs under the GS/OS operating system, which doesn't include drivers for any Hewlett-Packard (HP) printers. But two third-party vendors sell GS/OS drivers that let you use some of the more popular HP printers with AWGS:

- Seven Hills Software (2310 Oxford Road, Tallahassee, FL 32304, 800-627-3836) markets **Independence** (\$39.95), which includes drivers for HP DeskJet, DeskJet Plus, DeskJet 500, and LaserJet IIP printers.

- Vitesse Software (Box 929, La Puente, CA 91747; 818-813-1270) markets **Harmonie** (\$49.95), a collection of GS/OS printer drivers that includes ones for HP DeskJet, DeskJet Plus, DeskJet 500, LaserJet IIP, LaserJet III, PaintJet, and PaintJet Plus printers. Harmonie also has drivers for 24-pin Epson LQ printers.

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BRIDGING THE GAP

THE MAC LC'S SPLIT PERSONALITY

**Plug Apple's IIe Card into your LC and
come face to face with your Mac's other side.**

By GREGG KEIZER

THE BEST BRIDGE IS ONE YOU CAN'T see. Zen overtones and all, that's true. In southern Louisiana, where the ground is as soggy as wet corn flakes, bridges prop up the highways for miles. But because the vegetation grows right up to the road, you don't see water. Unless you stop the car and lean over the railing, you'd never know you were 20 feet above the swamp.

Spanning distances between swamp-surrounded towns is one thing; bridging gaps between computers is another. Yet the saying is even more true for technology. Invisible translators make the best bridges between the Macintosh and the Apple II. We'd be happiest if we could simply stick a 3.5-inch disk in a Mac's drive and call up

an AppleWorks file with the click of a mouse button, or run a Mac program such as **Microsoft Works** on the Apple IIgs.

It's not quite that easy. But one landmark product from Apple makes a good case in its claim to be the best invisible bridge around. The **Apple IIe Card**, long-awaited and finally here, may not mean the difference between success and failure for its host, the Macintosh LC, but it will be a determining factor in Apple's attempt to stay on top in the classroom, and should play a big part in convincing Apple II home users that the future starts with the letter *M*.

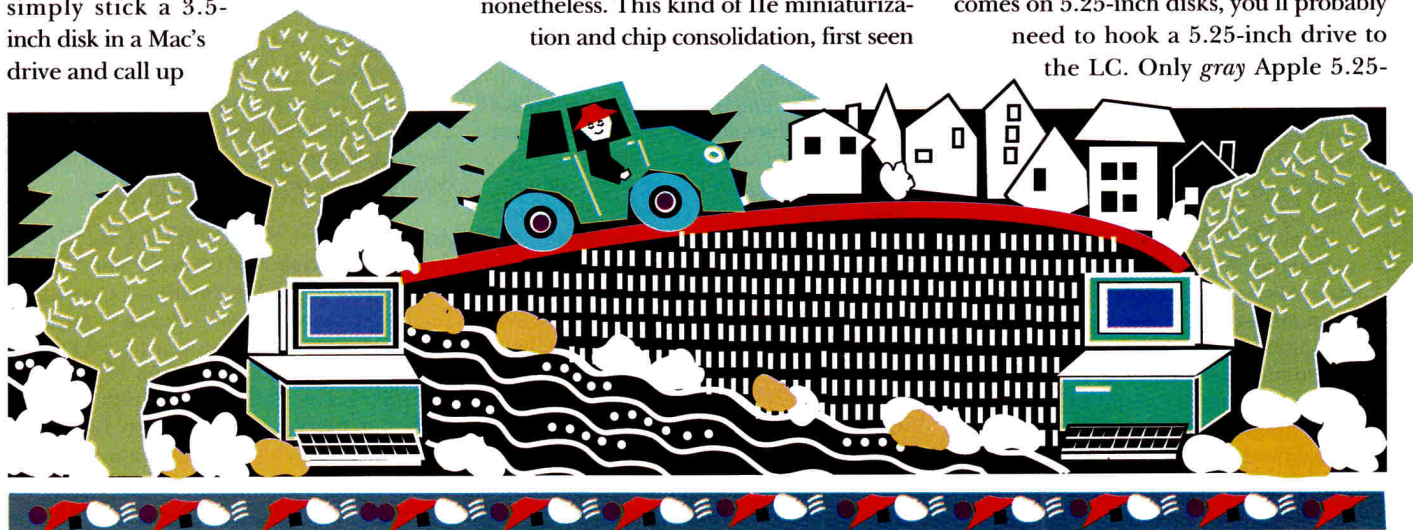
The Apple IIe Card is, in effect, a lilliputian, slotless Apple II motherboard. The 3-by-5.5-inch card may hold only a handful of chips, but it's a nearly complete computer nonetheless. This kind of IIe miniaturization and chip consolidation, first seen

in the Apple IIgs, makes the card's \$199 price possible.

According to Apple, only authorized dealers can install the IIe Card. Nonsense. I plugged in the card and pulled it out several times without a problem. True, the fit is a bit tight, but that's solved with some patience and care. You don't even need any special tools. But if you do damage the card while installing it, you could void your warranty.

If you feel confident about installing it yourself, remove the single screw from the rear of the Macintosh LC case and lift up on the two latches to pop off its top. The processor-direct slot (PDS) is on the left, near the back of the case. Just pull off the port cover, tilt up the IIe Card to make sure its port clears the case edge, and push the board into the PDS connection. Plug in the included cable — it's the Y-shaped link between the IIe Card on one end and a disk drive and/or joystick on the other. Replace the LC's cover and tighten the screw. Total screwdriver-to-screwdriver time shouldn't be more than ten minutes.

While emulating the IIe, the LC's internal 3.5-inch drive accepts ProDOS disks, letting you forgo another drive if you have all your II software on the small format. But because most II software still comes on 5.25-inch disks, you'll probably need to hook a 5.25-inch drive to the LC. Only *gray* Apple 5.25-



inch drives work with the LC and the card; earlier drives aren't supported. You can daisychain two 5.25-inch drives, and can even slip a white-cased UniDisk 3.5-inch drive into line as long as you put it first in the series. (UniDisk is the only type of 3.5-inch drive you can use; you can't use the Apple 3.5 Drive.) Connecting drives is as easy as plugging the Y cable into the back of the first drive.

Installing the IIE Card spotlights one of the LC's major shortcomings: It has only one PDS connection. Stick in the card and you've maxed out the LC's add-on abilities. If you plan to add an internal modem or a math coprocessor chip to your LC, you have a tough choice ahead: Fill the PDS with a IIE Card or save it for something else. Although there's not currently a device that'll piggyback two cards in one slot, multifunction cards such as Applied Engineering's **DataLink LC**, which has a modem, a spot for a math coprocessor chip, and an extra serial port, already exist for the LC.

If the card is the heart of Apple's II-in-a-Mac solution, software is the soul. On the 3.5-inch disk included with the IIE Card you'll find a Macintosh application called *IIE Startup*. Copy it (and its supporting file, *IIE Pref.s*), to the LC's hard-disk drive, then double-click on its icon. Now, close your eyes.

Okay, you can open them. The comforting Apple IIE interface is magically on your LC's now-black screen. For all intents and purposes, the LC has time-warped back to 1983, and in the process turned itself into a fast, RAM-fat, enhanced Apple IIE computer.

Before you dig out **The Print Shop** or **AppleWorks**, though, spend some time in the *Option Panel*. (Press Open apple-Control-Escape.) This impressive software-engineering coup neatly solves a potentially messy problem: How can a slotless LC mimic a seven-slot Apple IIE? The answer? Pair imaginary IIE slots with the LC's real-world ports, RAM, internal clock, and other built-in capabilities.

Apple IIgs users will feel at home immediately in the *Option Panel*, because it shares several traits with the GS' graphical *Control Panel* first found in System 5.0. To check out slot settings, for example, you click on *Slots*. The representation is more

intuitive on the IIE Card's *Option Panel* than on the GS' *Control Panel*, what with the physical spaces showing slots and icons standing for cards. (See **Figure 1**.) These slots are software representations of hardware in an authentic IIE system. If you ever want to disable your modem, for example, simply "pull" the ghost Super Serial Card by dragging the *Modem Port* icon (slot 2 of **Figure 1**) into the *Spare Cards* section. To print in IIE mode to an AppleTalk-networked LaserWriter, drop the AppleTalk (*Network Printer*) icon into an empty spot. (See slot 1 of **Figure 1**.) It's easier than cracking the case of a IIE; more fun, too. (To print to an AppleTalk-networked LaserWriter from an authentic IIE you'd need to install an Apple II Workstation Card.)

Other icons in the *Option Panel* let you designate up to 1 megabyte of the LC's RAM as a ghost Apple IIE Memory Expansion Card (in increments of 256K), change the characteristics of the imitation Super Serial Card, alter the mouse-tracking speed, and select a printer on an AppleTalk network.

You've got a slew of selections under *General Controls*. You can double the speed of IIE software by picking *Fast*, choose a new beep sound (see the accompanying sidebar "Stupid Card Tricks"), replicate the Auxiliary Slot Memory Card for those Apple II programs that can't use Memory Expansion Card RAM, flip the monitor from monochrome to color, set key-repeat speed, invert the display, and establish a buffer to capture quick typing. (See **Figure 2**.) It's all as simple as clicking the mouse button.

The LC interprets these settings and adjusts its RAM, mouse, and ports accordingly. When you slip a mock Super Serial Card (the *Modem Port* icon) into slot 2 you're actually configuring the LC's modem port. Play with the memory-card icon and you're telling the LC to shift some of its own memory to work with the emulation. And if you install a network

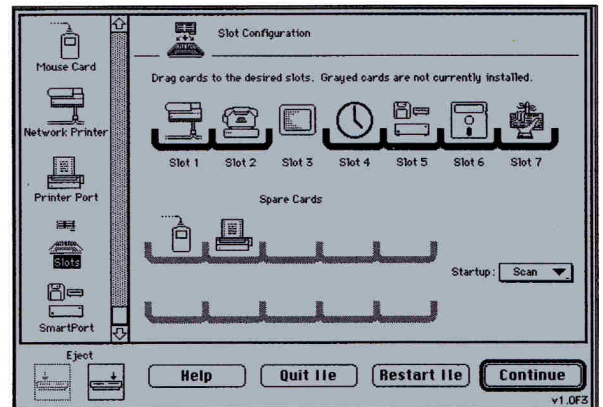


Figure 1. IIE Card's slot configuration.

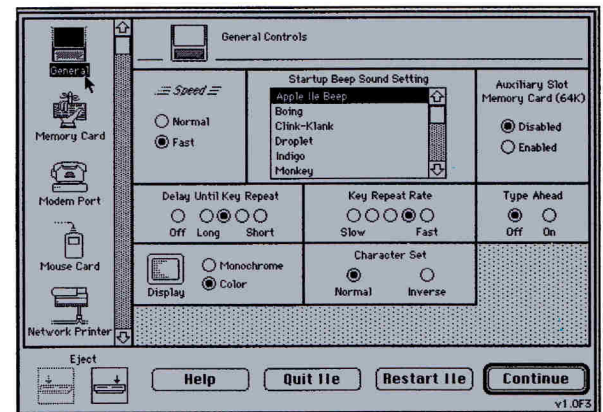


Figure 2. Options in General Controls.

printer, you're waking up the AppleTalk port at the back of the Macintosh. Some may call it a friendly interface showing ports and memory configuration. I call it magic.

If it walks like a duck, talks like a duck, and swims like a duck, it must be a duck. So my LC must be an Apple IIE.

As far as I can tell, it is. With the IIE Card installed and IIE Startup operational, the LC ran every Apple II program, save one, that I threw at it. It ran color software such as **BannerMania**. It ran workhorse programs such as **AppleWorks** and **Publish It! 3**. It even ran old Apple II games I had to dust off before sticking in the disk drive. The only program I couldn't get to work was America Online's proprietary telecommunications software. Neither America Online's nor Apple's tech-support personnel had a solution to the problem, though the former begged off because they hadn't yet seen the card and the latter claimed that they'd tested AO thoroughly.

AppleWorks adored the extra memory the IIE Card stole from the LC. Publish It! 3

BRIDING THE GAP

appreciated the emulation's twice-the-speed-of-the-average-IIe quickness. Print Shop treasured the crisp hardcopy that spilled from the PostScript printer connected to my LC through AppleTalk.

Still, the IIe Card can't do everything. It's not a real bridge, for one. The LC is either an LC or it's an Apple IIe — it can't be both at the same time. (You can run IIe Startup under Multifinder, but the point's moot because the emulation takes over the entire screen and doesn't appear in a window like other Mac software.) And you can't shift files from the fake IIe to the real Mac. If you write with AppleWorks in IIe mode and want to use the document in MacWrite II on the Mac, you'll still have to save your work to a 3.5-inch disk, then run it through an **Apple File Exchange** conversion before the LC can recognize the file. (See "Connecting in the '90s," December 1990, p. 72, for details on using this utility, which comes on every new Mac.)

Although the IIe Card's top speed is double that of a standard, unaccelerated IIe, it's still only two-thirds as fast as an Apple IIGS running Apple IIe software. And you're stuck with floppies. There's currently no way to borrow from the LC's 40 megabytes of hard-disk space to store ProDOS files.

The most glaring omission hits hard at anyone using an AppleShare-equipped network (one with a dedicated file server) of Macs and Apple IIs. An LC can't run Apple II software that's stashed on an AppleShare file server. Of course, you can connect the LC to an AppleTalk network, a cabling connection in which Apple IIs and Macs share LaserWriters and other

peripherals. But as a II, a IIe Card-equipped LC is a lonely computer. IIe mode has no access to AppleShare, the Macintosh software that lets you access files and applications on the file server's hard-disk drive. Although the *Network Printer* icon acts as an Apple IIe Workstation Card by giving the IIe software access to AppleTalk so that it can print to a networked LaserWriter, it can't make use of AppleShare. (According to an insert included with the card's packaging, Apple will release a software upgrade by the end of summer that will support AppleShare file-server capabilities.)

Finally, and most galling to IIGS owners, the IIe Card is just that — a card that runs IIe software. No IIGS programs allowed. Apple has its reasons, but some provision should be made to accommodate GS software — even if it's more expensive and takes time to design and develop. There's no excuse for keeping a million or more Apple IIGS users out in the cold. Without such emulation, GS owners have little motivation to move on to a Mac.

Warts and all, the IIe Card performs admirably. It could be perfect, but, of course, it's not. Instead, it lets you move on to a new machine and its powerful applications without sacrificing the classic II programs on which you've come to depend. The IIe Card transmutes something new into something old, something unfamiliar into something comfortably familiar — and in the process builds an invisible bridge between two worlds. □

WRITE TO GREGG KEIZER AT 614 LINDEN STREET, SHREVEPORT, LA 71104. ENCLOSE AN SASE.

STUPID CARD TRICKS

Sorry. No Letterman gig yet for the IIe Card. But this hunk of plastic does know some impressive tricks.

Ever since the Macintosh hit the streets in '84, it has wowed Mac heads with the ability to grab whatever's on the screen and turn it into a graphics file. All it takes is a press of the open apple-shift-3 key combination. To do the same on an Apple II you needed something like Thirdware's **FingerPrint Plus**, an add-on board that takes a picture of the screen and saves it to disk (\$149; 3300 Corporate Avenue #116, Fort Lauderdale, FL 33331, 305-389-9009). Forget that noise. With the Apple IIe Card installed in an LC you can snap any Apple II screen with that same three-key press. A **Save** dialog box pops up, you name the shot, then press Return. Once back in Macintosh mode, load your favorite graphics program and open the screen file, which is in PICT format. The Apple IIe screen is now on your Mac, in a window ready to print or play with. If you have color graphics software for your LC, Baseline Publishing's **Color MacCheese** perhaps (\$99.95; 5100 Poplar Ave., Suite 527, Memphis, TN 38137, 901-682-9676), you can even display color IIe screens in all their glory on the Mac. Dozens of uses come to mind, from documenting Apple II software to printing Apple II art on a LaserWriter.

Let's go for less function and more frivolity. If you've used the LC for long, you've probably discovered that you can change the beep that sounds when you do things like try to quit an application before you've saved your file. Go to the Control Panel (while in Macintosh mode), select **Sound**, click on **Add**, then click on the **Record** button. Now, say something — anything. Using its microphone and sound-input firmware, the LC records your "Stop that!" for posterity. Next, fire up the IIe Card and when you reach the IIe screen, go to the Option Panel (Open apple-Control-Escape). Under **General**, pick the "Stop That" sound and head back to IIe emulation.

From now on, rather than hear the annoying, tinny IIe beep, you'll hear your "Stop that." Who says the IIe doesn't talk back?

— G. K.

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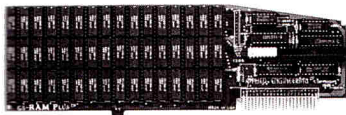
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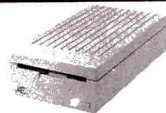
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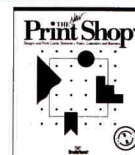
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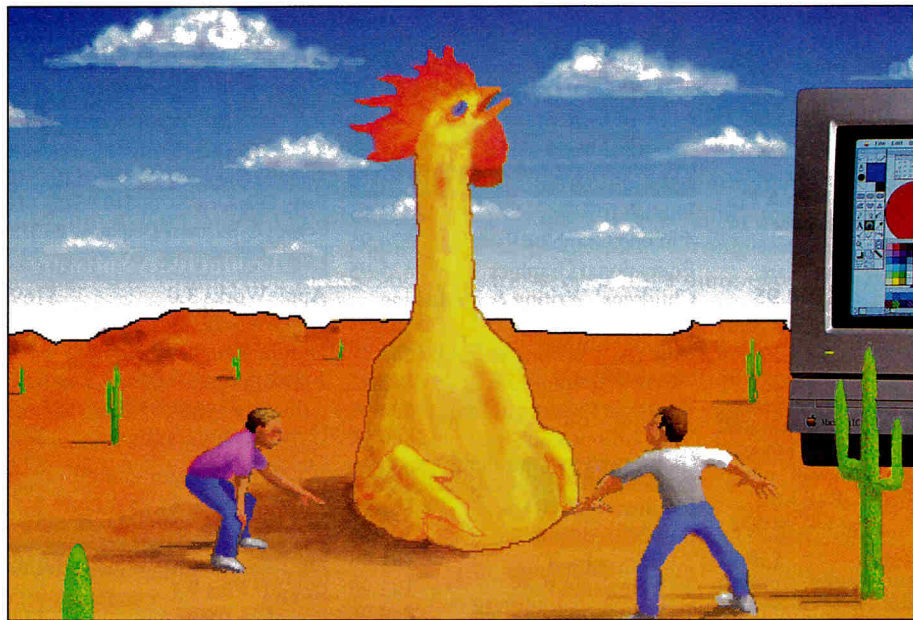
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REVIEWS

★ ★ ★ ★ ★
POOR GOOD GREAT



COLOR MACCHEESE

BASILINE PUBLISHING INC.

5100 POPLAR AVENUE, SUITE 527, MEMPHIS, TN 38137, (901) 682-9676

32-bit paint program; Macintosh with color QuickDraw in ROM; 1 megabyte; \$99.95

★ ★ ★ ★ ☆

Admit it — we're all price chauvinists at heart. Who'd guess that a \$100 paint program could take on the big boys? Recently I had the opportunity to try out a handful of 32-bit paint programs for the Macintosh, including Studio/32, PixelPaint Professional, and an offering from Baseline Publishing and Delta Tao Software called Color MacCheese. Studio/32 and PixelPaint Professional are top-of-the-line paint programs in the Mac market and carry hefty price tags to match. So naturally I assumed that MacCheese, costing six times less (I've seen street prices of \$56), must be a simple, bare-bones kind of affair, suit-

able for use as a kid's coloring book.

I probably shouldn't be admitting all this, because my assumptions proved to be 100 percent wrong, and announcing it just calls attention to the egg splattered on my face. But it's important to note that although many people tend to equate high price with quality, you can still find bargains without sacrificing an ounce of quality. Color MacCheese is one of those great bargains.

EAZY CHEEZY

What's the best part about Color MacCheese? It's simple. It's intuitive. You should definitely look through the manual,

but mostly because it's entertaining. It's about 36 pages short, with a brief description of each of the tools and menus, a few helpful tips for special techniques, and an amusing four-page fable that tells the story of Color MacCheese's creation and the philosophy of Delta Tao, the company that programmed MacCheese. If you

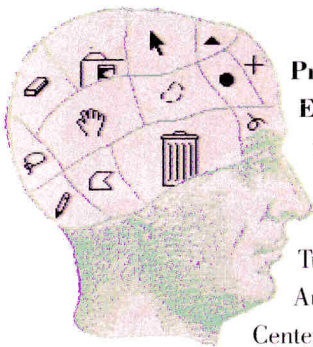
get confused, just look at the MacCheese help window as you pass the mouse/pointer over the various tools, menu items, and buttons and you'll find an on-line source of information. Need a clue for what a menu selection does? Just point to it. Want to know the keystroke command for a particular tool? That information is there, too. And if you hold down the shift, option, or command key while pointing at a tool, the help window gives the low-down on how that key modifies the tool in question. This is especially great for a beginner, but it's also good to have around as a refresher for the advanced user. If it starts to get in the way, you can simply close the window. I'd love to see an item like this added to every Macintosh program. I mean, talk about user friendly — isn't that the name of the game for the Mac?

MacCheese has a compact toolbox with standard tools for drawing, painting, and filling, plus some nifty blending and even *transmogrifying* features. (More on the toolbox later.) The next two windows form a powerful pair of palettes for choosing colors and patterns. One is a grid-type palette that holds a set of standard colors ➤

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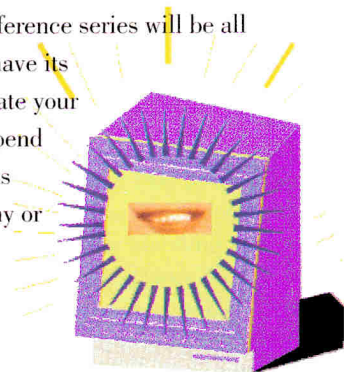
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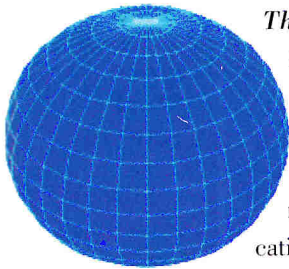
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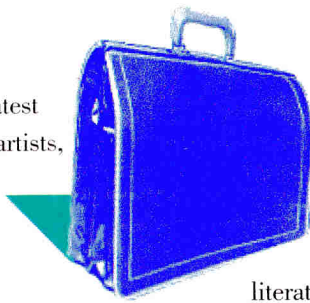
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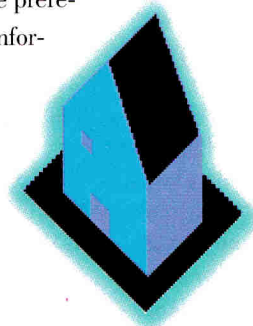
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**MACWORLD
EXPOSITION**

and patterns for speedy selections — it even lets you define your own patterns as well. The second holds a color wheel that lets you choose easily from a rainbow of colors in a matter of seconds, then adjust your selection precisely with a *value slider* that lightens or darkens the color. Both windows are small, so it's convenient to leave them open all the time. That's a lot nicer than having to go to a pop-up menu or pull-out palette every time you want to choose a new color.

SMALL BOX, BIG TOOLS

Economy is the name of the game for the Color MacCheese toolbox. It seems compact and spartan, but each tool offers multiple options, and you end up with a lot more power than you'd expect. For instance, a fill tool is a fill tool, right? It's shaped like a bucket and spills out ugly blocks of uniform color. Wrong. Click and hold down the mouse button and you get a line. Drag the line around to any direction and length, then release, and you get a smooth gradient fill.

This approach is typical of the program. Instead of cursing recalcitrant or complex tools, you spend your time smiling and thinking, "This is how everything *should* work!"

In addition to the standards, the toolbox also has several "goodies." If you're just playing, they're great toys, but if you're a serious artist, they're a necessity. There's an eyedropper for picking color directly from work that's in progress, options for picking up "brushes" from the artwork, and the ability to capture small sections of your painting and save them as patterns.

If you have enough memory available on your Mac, Color MacCheese also lets you open multiple documents at the same time — quite handy for keeping a scrap page open and creating clip art that you'll pick up as a brush or paste into your current artwork.

There are also three different blending tools: The rake drags and pulls pixels around between two different color areas; the water-drop tool softens and blends like a watercolor brush; and the *transmogripher* inserts pixels of new-but-related colors into areas you choose. No more flat, boring expanses of color with these tools!

As fun as all these gadgets are, I make

the most use of the transparency tool. With this feature, any drawing tool currently in use (except the pencil tool) renders a transparent overlay of the color or pattern selected. With a simple slider control in the *Options* menu you can set the level of transparency anywhere from completely solid to invisible — and the degree of control is precise. For the professional artist and amateur alike, this tool can add a level of refinement and finish that's difficult to achieve with paint programs.

CHEESE IS A WHIZ

As a simple example of how you might use the transparency tool, look at the "Big Chicken" picture at the opening of this review. I rendered the clouds in the sky simply by blocking in the basic cloud shapes in white with the transparency level set almost at solid. Then I selected a purplish-blue color and set the transparency level to low (almost invisible) so that I could apply the modeling within the cloud shapes layer by layer in random patterns (in the same manner as applying watercolor washes).

Every time I added a new layer, it deepened each of the layers beneath it. By using a variety of brush sizes and varying strokes, the look of a natural cloud started quickly to take shape. I used the same approach throughout the entire "Big Chicken" picture. Once I laid in the initial drawing, I used the transparency tool and controls to refine and complete the picture quickly. Note the use of transparent layers in the modeling (shading) of the chicken's body and crest.

PRO/AM PAINTING

In a recent upgrade to Color MacCheese the developers added a new *Export* option to the *File* menu; it lets you save pictures in a number of standard Mac formats. (MacCheese artists don't have to live in a vacuum any longer.) You should note that MacCheese will work only on Macs with Color QuickDraw in ROM, such as the Mac II family, the SE-30, the portable, the the LC. Also, the makers of MacCheese strongly recommend installing 32-bit QuickDraw in your System folder. Even if your monitor supports only 256 colors, 32-bit Quick-

Draw will let MacCheese work in 16- or 32-bit mode by simulating more colors through dithering. Finally, while MacCheese will work on a system with only 1 megabyte of memory, the company recommends 2 megabytes (or more).

The more I use Color MacCheese the more I like it. It may not sport some of the bells and whistles that many of the bigger-budget paint programs have, but it features everything any serious or amateur artist really needs to do impressive work. Besides, all the fancy doodads in the world are useless without a friendly work environment. It's impossible to maintain any creative momentum when you're struggling with an interface.

And that's why I like MacCheese so much. When I'm using it, I'm not thinking about the program. I'm thinking about creating.

Roger Goode
Hillsboro, NH

2088: THE CRYLLAN MISSION, THE SECOND SCENARIO

VICTORY SOFTWARE
P.O. Box 821381, Houston, TX
77282-1381, (713) 493-3232

Apple IIGS role-play game; 1.125 megabytes on a ROM 3; 1.25 megabytes on a ROM 1; no copy protection; \$69.95



If you'd like to spend a few pleasurable hours exploring a distant planet, meeting and greeting humanoids, battling monsters, and navigating dark caverns, consider the latest sci-fi role-playing game from Victory Software — 2088: The Cryllan Mission, The Second Scenario.

The game starts with the same premise as its predecessor, 2088: The Cryllan Mission. You must assemble a crew of six, travel to the planet Crylla, and discover the whereabouts of the USS *Houston's* crew, the earth ship that discovered Crylla. From that point on, everything about the two scenarios is different, making the second one not merely a sequel, but a completely new game. Those who played the first scenario are going to love the improvements; those who are first-

time visitors won't be penalized for not being familiar with the earlier game.

DIFFERENT WORLDS

The second scenario is supplied on three disks that are chock-full of animated displays of five different lands, 14 dungeons, 17 towns, and 26 types of monsters. Victory Software uses a form of file compression that lets a data disk store several megabytes of information. This technique saves you a lot of disk swapping during game play.

When you start the game, you can either assemble a crew in the Kinnar Space Academy, or use the crew supplied on disk. When the party arrives on Crylla, they need to fend off menacing creatures and make friends with the natives. Remember to talk to the natives. After all, you don't know your way around and you have no idea where to obtain the necessary entry permits, weapons, or transportation. Make friends with the right native and you'll get lots of needed information.

The game employs the familiar IIGS interface, with pull-down menus, icons, and numerous overlapping windows. One of the game's major strengths is its use of the animated display window that tracks all travel. That window, which occupies about 50 percent of your screen, has nine command icons along the bottom that change continuously to reflect your current situation.

You'll find different command icons and viewing screens depending on your location — on the surface of the planet, in caves, in towns, or engaged in combat. Icons display appropriate commands for the situation, but you can use the pull-down menus or command-key equivalents instead. When you click on the icon for *life scan* or *terrain scan*, the display window changes quickly to display the nearby flora and fauna, or to describe the lay of the adjacent land. (If you're traveling at night the terrain scan is especially handy.)

Four other smaller graphics displays show time, direction of the closest city, a map grid, and a health indicator for each member of the party. As the surroundings change, so do the windows. If you're wandering around in grasslands, you'll see the grass wave in the breeze. If near water, you'll see ripples.

As your team ventures forth, you'll need to find armor and suitable weapons. Some you'll be able to buy; others you'll take as spoils of war. As monsters approach, you'll have the option of controlling the battle yourself or letting the computer handle it. While you get used to the game you may have more success letting the computer control the battle. As you became more proficient and have more armor and weapons, you'll want to assume control more often.

JUST RIGHT

The game seems to include just about everything you could possibly want in a role-play adventure game. It's fast, for one thing, and it comes with great sound effects, superb animation, and a number of monsters to battle and townspeople to befriend. All navigation and movement are mouse driven. Although it's not at all clear how you should advance when you first start playing, practice makes perfect. If you need help, there's even a built-in "Easter egg" that will produce a hidden menu to help you on your quest.

The package includes a comprehensive 30-page manual, which provides background information on Crylla and your mission there. It was written for the original Cryllan mission, however. A two-page addendum provides information on new displays, new commands, new functions, and new features, but various aspects of the game don't become clear until you've played it for a while. But then, learning about Crylla is half the fun!

Joe Kohn
San Rafael, CA

GS SAUCE

HARRIS LABORATORIES, INC.
1143 RIVERWOOD DRIVE, BURNSVILLE,
MN 55337, (612) 941-2948

Apple IIGS memory card; card with zero K
\$129.95; \$55 extra per megabyte



Is that a memory card? Where are the chips? What are those funny mini-cards hanging off the side? Do I put this in a Macintosh? We can't say that it hasn't been tried before. MDIdeas featured single in-line memory modules (SIMMs) on

its gargantuan 8-megabyte OctoRAM card, but, probably because of the equally gargantuan price, it just wasn't the year of the OctoRAM.

But Harris Labs watched the price of SIMMS fall, and when the time was right, it pounced with GS Sauce, a SIMM-based memory-expansion card for the Apple IIGs.

K.I.S.S.

K.I.S.S. stands for "keep it simple, stupid." Someone once said that every time a design engineer graduates from college, the professors should imprint this acronym on his or her retinas. If you've ever tried to figure out whether a DIP switch is on or off, you'll understand the sentiment. Harris Labs' engineering department must have those letters painted on the wall in 4-foot-high red interior super gloss, because GS Sauce makes sense.

First of all, it's tiny: only 7 inches long and 2.25 inches tall, thanks to its SIMMS. No more messy banks of chips bumping into the back of your IIGs — this unit is small and stylish. The 1-megabyte version is a little awkward because the 256K SIMMS are all on one side of the card and angled out. But the 4-megabyte version has two 1-megabyte SIMMS on each side, mounted so that they lie flush. Slipping it into the memory-expansion slot is easy, even if you've got a SCSI card the size of a Mack truck resting in slot 7.

Harris Labs' use of surface-mounting technology (SMT) also makes for a smaller package. Instead of poking a component's leads through holes in the card and then hand-soldering them, chips and other parts are laid on conductive pads treated with solder paste. Then the entire card is heated in an infrared oven. The procedure saves time, money, and space.

IT'S IN THERE

There's even more good stuff here. Ever lose your documentation and then want to add chips to your memory board? Getting the chips in is easy — if you don't break those fragile little legs off. Then you have to make sure the jumpers are placed properly so that your computer will recognize the extra memory. Those dreaded jumper pins are nowhere in sight

Continued on p. 68



SNEAK PREVIEW

Spring means renewal in many ways — the start of another
baseball season, long days spent gardening . . .

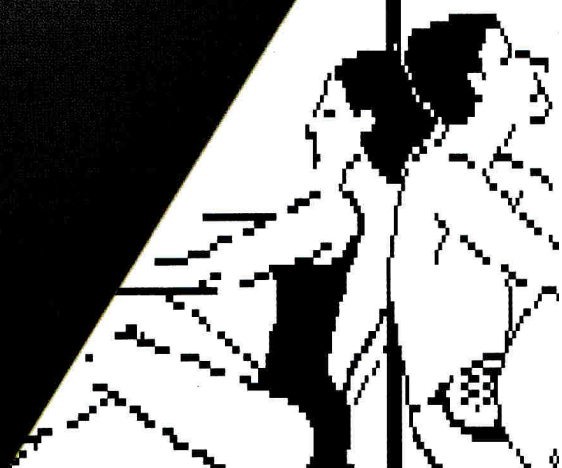
For *inCider/A+*, spring once again proved to be a time to
preview additions to the family of Apple page-layout programs.

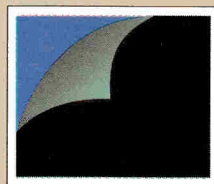
For Apple II desktop-publishing aficionados, Timeworks has announced yet another feature-packed upgrade to its perennially popular program, Publish It!. This year's release, **Publish It! 4**, is easier to use than ever before, thanks to a dozen new convenient features. These '91 niceties — among them, powerful capabilities such as automatic hyphenation — mean that anyone with a 128K Apple II can match wits with his or her Mac-using counterparts at home, in school, or at the office.

For Mac buffs, there's **The Writing Center**, a grownup sequel to The Children's Writing & Publishing Center from The Learning Company. The Writing Center, for wordsmiths aged 7 to adult, runs on 1-megabyte Macintosh computers, including LC and Classic models equipped with a hard drive. According to The Learning Company, The Writing Center shares some word-processing and page-layout features with programs such as MacWrite II and PageMaker, but offers unique features, as well, including on-line help, a menu of predesigned page formats, and graphics rotation and flipping.

Percy Bysshe Shelley once wrote, "If Winter comes, can Spring be far behind?" After another April of testing software, the saying at *inCider/A+* is a little different: "If Spring comes, can new desktop-publishing programs be far behind?"

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





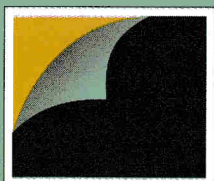
THE WRITE STUFF

The Writing Center is all Mac in its look and feel. Eight intuitive pull-down menus — *Apple*, *File*, *Edit*, *Text*, *Picture*, *Reference*, *Window*, and *Help* — span the bar at the top of the screen. In familiar Mac (and Apple IIGs) fashion, the program supports multiple document windows, which you can resize and move. Other “Mac-coutrements” include scroll bars for viewing parts of a

document; dialog boxes for customizing your work; ruler-based formatting for fine-tuning margins, justification, tabs, and line spacing; and mnemonic command-key alternates for turbocharging functions such as saving, printing, copying, pasting, or undoing.

That’s where any similarity to other Mac word processors or page-layout programs ends, however. In fact, **The Writing Center** is neither a word-processing nor a desktop-publishing program — it falls somewhere in between. Regardless of what you call it, there’s nothing else like it available for the Mac. For starters, it looks great on the Mac LC — whether you’re viewing a road-sign-yellow alert triangle or incorporating one or more of the program’s 200 strikingly attractive full-color illustrations into your book report, school newsletter, club poster, or promotional brochure. According to **The Learning Company’s** Sharyn Fitzpatrick, an expert panel of educators critiqued all artwork to ensure both its curricular and cultural appropriateness.

The Writing Center will work on a black-and-white Macintosh, but colors on screen (or printed on paper with black toner or ink) are dithered in shades of gray. Colorizing text on monochrome Macs is easy: Just select a hue by name from the pop-up paint palette. Whether your Mac has color capabilities or not, full-color publications are possible if you have a color-capable



DESKTOP PUBLISHING PANACHE

The latest **Publish It!** incarnation sports the same comfortable look and feel as its predecessors. Pull-down menus organize **Publish It! 4’s** primary features, while pop-up dialog boxes let you customize the program’s secondary features. To center an exam title, for instance, pull down the *Format* menu and choose *Justification*. In the ensuing dialog box, click on the *Center* radio button

and confirm your choice by clicking on the *OK* button. Most **Publish It! 4** features are that easy to use.

Even the fast, powerful automatic-hyphenation feature’s a breeze: Select the *Hyphenate* option from the *Edit* menu; within seconds your document’s done. (The actual speed will depend on your system. For purposes of testing our prerelease version of **Publish It! 4**, we created a 12-page newsletter on an unaccelerated Apple IIGs running in fast mode.) Automatic hyphenation is particularly useful when you’re producing a newsletter or other document in which maximum readability demands full justification. Without hyphenation capabilities, the program must add space between words to extend a line — so that it ends exactly at the 13-pica mark, for example. An ASCII (*American Standard Code for Information Interchange*) file containing an editable “exceptions list” on the **Publish It! 4** program disk lets you add words such as proper names that are best left unhyphenated.

Power publishers can bypass some menu choices altogether by using *Quick Keys* — mnemonic open-apple-key commands that let you work faster. One of our favorite new **Publish It! 4** speed-up features, however, goes a step further and bypasses both the *Objects* menu and the OA-M command: Double-click on any object and its *Specifications* dialog box opens

printer such as the Apple ImageWriter II or the Hewlett-Packard PaintJet.

CREATIVE PURSUITS

As its name implies, this program emphasizes writing. It's fast enough to process even your most free-flowing words and ideas, and its *Find/Change* feature together with the thesaurus lets you replace one term quickly with an even better one. In addition, The Writing Center's 100,000-word "spell changer" helps you find and fix spelling mistakes.

The program can print page numbers automatically at the bottom center of each sheet, but the prerelease version of The Writing Center that we tested for this preview couldn't kern characters (change the amount of space between characters) or adjust leading (the space above and below lines of text), or create headers, footers, and footnotes. These features aren't expected to be included in the final version of the product.

Regardless, modern term-paper style sheets sometimes recommend end notes instead of footnotes, and The Writing Center's superscript text style and ruler-based indentation tabs can format them with aplomb.

Speaking of term papers, The Learning Company's Dave Cannon told us at press time that The Writing Center package will include a free "how to write term

SPECIAL FEATURES

- **predesigned page formats:**
report or letter, newsletter, custom
- **graphics rotation, flipping, resizing**
- **color palette**
- **color clip art**
- **thesaurus included in school versions**
- **100,000-word spell checker**
- **ruler-based formatting**
- **compatibility with The Children's Writing & Publishing Center Apple II files**
- **headline-text overlay on graphics**
- **automatic text wrap around picture boxes**
- **portrait and landscape print modes**
- **rules between columns**
- **text and picture borders**
- **preview of formatting options (fonts, color, and so on)**
- **page-preview mode**

papers" guidebook, offering not only traditional advice about gathering and organizing information, but also pertinent tips for publishing the finished piece with The Writing Center software, as well.

The Learning Company's newest creative-productivity program also handles unformatted ASCII (*American*

automatically. This window lets you type precise measurements for a Publish It! object, whether it's a text frame, a graphics frame, or a geometric shape. Just as before, Publish It! 4 lets you choose the unit of measure you prefer and use on-screen rulers or user-defined grids to help you lay out your design.

PUTTING IT ALL TOGETHER

As always, the program's icon-based toolbox displays both page-design and drawing tools. Select the text tool with your mouse (the program also supports the joystick, a device that's far from ideal for desktop-publishing purposes, though), then draw a frame into which you'll add the text of your newsletter, quiz, or activities calendar, for example. You can type with Publish It!'s built-in word processor; more likely, however, you'll want to import a formatted AppleWorks 3.0 or Bank Street Writer word-processing file, or bring in text from an unformatted ASCII file.

Thanks to Publish It! 4's "auto-flow" feature, importing text requires somewhat less preparation than before. Insert the I-beam tool into a text frame on page 1, say, and select the appropriate import option from the *File* menu. Click on the right paging arrow. In the pop-up dialog box that appears, indicate the number of new pages you want to add to your document. Publish It! 4

reproduces the original page's layout and automatically links text on the first page with text on each newly added page. Unless you're producing a book or other large document, this feature should cover your needs: The software lets you insert as many as 99 pages in one fell swoop.

SPECIAL FEATURES

- **automatic hyphenation**
- **double-clicking on any object to open specifications dialog box**
- **compatibility with Publish It! 3**
- **three save-file formats available:**
normal, template, ASCII
- **compatibility with GS/OS System fonts**
- **auto-flow for easier text importing**
- **selection of all objects on a page**
- **compatibility with New Print Shop graphics**
- **data-disk formatting within program**
- **compatibility with Hewlett-Packard LaserJet and DeskJet printers**
- **descriptive names for PostScript files**
- **toll-free Teacher's Hotline**

RESERVATION FORM

Please make reservations for:

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____
TELEPHONE _____

(Children under 12 stay free.)

OF PERSONS _____ (4 maximum)
Sorry, we're not able to accommodate pets.

DATE OF ARRIVAL _____
DATE OF DEPARTURE _____
AMOUNT ENCLOSED _____

A deposit of 1/3 of the total amount will hold your reservation. We'll mail a confirmation upon receipt of your deposit. The balance due must be received two weeks prior to your arrival. If you must cancel, we will return your deposit. If you give us at least two weeks' notice, we will refund your deposit subject to re-rental of the unit you had reserved.

Please make checks payable to:
Francis Hines
49 Stock Farm Road
Sudbury, MA 01776

DIRECTIONS

Cross the Cape Cod Canal over the Bourne Bridge or the Sagamore Bridge. Continue on Route 6 to Exit 9 and stay to the right off the ramp which leads directly onto Route 134. Proceed through four (4) sets of traffic lights. At the fourth light, Route 134 becomes Swan Pond River Road. Follow to the end of the road. Turn left onto Lower County Road. William & Mary Motel is approximately two miles on the right, just after Depot Street.

THE BEACHCOMBER



Vacation Condominium
on Cape Cod

Unit 2
William & Mary Motel
433 Lower County Road
Dennisport, MA 01939
(508) 443-2352

INTRODUCING ...

The Beachcomber (Unit 2) at William & Mary Condominium Motel is a modern two-room mini-suite which offers a living, dining, room with kitchenette and a separate bedroom/bath with glass sliding doors overlooking a private patio.

The unit is completely furnished, including dishes and cookware, cable TV, and patio furniture. The Beachcomber offers a double bed in the bedroom and a full-size sleeper sofa in the living room. Daily maid service and linen are provided.

The unit is steps away from our crystal clear solar-heated pool and a leisurely 5 minute stroll to clean white sandy beaches where admission is free for walk-in guests.

We are located "mid-Cape" centrally located to all points of interest: Island ferries, whale watching, scenic routes for photography. Nearby are golf courses, a playground, shopping, the Cape Cod Bike Trail and within walking distance are at least 4 restaurants and an old-fashioned ice-cream parlor!

THE AFFORDABLE VACATION

The Beachcomber is owned by Francis and Maureen Hines. Guests who respond to the motel's public advertisements reserve their stay through the motel office, but friends on our mailing list can save money by reserving privately.

The reason you save:

1. Take advantage of our 5% weekly discount rates.
2. We're not obligated to collect 9.7% room tax.
3. Deduct an additional 5% if you make a reservation before June 1, 1991.

As our rate schedule on the next page shows, enjoying a week or more at The Beachcomber can save substantially. The service and amenities are the same; only the rates are reduced.

Compare:

- Spring/Fall Rates: \$39/2 persons
- Summer Rates: \$69/2 persons

We anticipate a busy season and would love to hear from you soon!

1991 RATE SCHEDULE

The Beachcomber (Unit 2)

at

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Spring Season: May 1st - June 26th
\$259.00 per week

Summer: June 26th - Labor Day
\$459.00 per week

Fall: September 3rd - October 26th
\$259.00 per week

We also offer nightly and special "long" weekend rates during Spring and Fall.

Please call for details!



Attractive layouts are easy, thanks to The Writing Center, full-color word-processor/page-design software for the Macintosh family from The Learning Company. The brochure shown above was produced on a high-end Seiko ink-jet printer.

Standard Code for Information Interchange) text files imported from or exported to other programs such as the word processors you may now be using at the office, in school, or at home. For instance, moms and dads who take work home can write, edit, and print memos, letters, and reports with The Writing Center in the

comfort of the family room. The software can also import files created with The Learning Company's Children's Writing & Publishing Center for the Apple II.

Whether it's the school paper you're working on or a science lab report, formatting's a breeze with The Writing Center. From the outset, the program offers you

Talk about one fell swoop — remember how selecting a group of objects sometimes meant finessing with the lasso or shift-clicking one object and then another time after time? Publish It! 4 lets you select all objects on a page by pulling down the *Objects* menu or pressing OA-E, the same command you use to select all text with the I-beam tool.

Yet another appealing Publish It! 4 feature is the program's ability to save any given file in three formats: as a *Normal* Publish It! document, as a *Template*, or as an *ASCII* file for export to other programs. Template files, which preserve all objects and links but strip the layout of text, are ideal for creating new versions of a news-

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49 Stock Farm Road
Sudbury, MA 01776


Although Timeworks' Publish It! 4 for the Apple II supports color text and graphics, you'll get the most professional-looking results with black-and-white laser printing. This brochure was created with an Apple LaserWriter model.

three ready-made formats from which to choose: *Report* or *Letter*, which flows text into a single column on the document page; *Newsletter*, which divides the page into two columns; and *Custom*, for documents one to nine columns wide.

Any of these three formats can include a heading on the first page of the document, much like the banner on a newspaper or the title area on a newsletter. Headings are unique because you can overlay headline-sized text on top of a picture. While traditional page-layout programs make you contend with a *Send to Back/Bring to Front* or *Transparent* command, The Writing Center orients heading text and graphics properly and spontaneously.

Text in the body of your document flows automatically around picture boxes. (Text doesn't flow around objects themselves, just the boxes that contain them.) And text reflows appropriately whenever you move, manipulate, or resize a picture. (A selected picture acts like an object with "edit handles" to make these jobs easier.) If you create a large document (ultimate length depending only on your Mac's memory), the program inserts additional pages as needed. You can also force page breaks manually with a special option listed in the *Edit* menu.


Fickle formatters needn't be concerned, though. The Writing Center lets you switch from one layout design




Life on Our Planet

By Tyrone Mendez

On the planet Earth there are many living things. There are lots of animals. Some are big, like elephants and giraffes. Some are very small, like ants. Some animals live in water. There are lots of plants too. Some of them are big trees. Some of them are small like grass and flowers in the garden.






Some of the animals and plants are almost extinct. That means there are no more of them left. This is happening because people are polluting the air and the water also building houses and stores and roads where all the animals used to live. Another thing that is happening is that people are killing off some of the animals to get things like fur and ivory.

Some people say that one little animal is not that important. They think people are more important than animals and plants. But I think we should take better care of our planet. We should let the animals and plants stay in their homes. This is their planet too.

People should be more careful about littering. People should try to recycle things like paper, cans, and bottles so we don't use up all our space for garbage and so we don't use up all our trees to make paper. People should not cut down trees. We should keep trees and plants because they give us oxygen to breathe. Besides, they make places look pretty. I wouldn't like to go camping in a place that didn't have trees!



For kids, the easy-to-use Writing Center is ideal for classroom projects, such as this simple report. Ready-made formats, basic options, and a number of automated features make clean page designs a snap.

letter, sales brochure, course catalog, or any publication that uses the same format week after week or month after month. Unfortunately, you can't preserve selected text — a headline, letterhead, or title page, for instance. Maybe next spring . . .

Speaking of file storage, here's an extra for power users and novices alike who sometimes run out of data disks on which to save their desktop-published creations: Publish It! 4 comes to the rescue with its new *Format* entry in the *File* menu, which lets you initialize both 5.25-inch and 3.5-inch floppies. If you ever run out of disk space in the middle of a project, this little feature will seem big.

GRAPHICS NEWS

Although we didn't test this feature, Timeworks notes that Publish It! 4 can harvest the new crop of graphics created with Broderbund Software's **New Print Shop**, including custom *Quick Print* designs, which among other things let you treat text as a graphics object. Unlike most New Print Shop graphics — which you can import either in black-and-white or color — full-panel and letterhead images transfer as black-and-white only.

Among the best news for Apple IIGs users — particularly those with hard-disk drives and large font collections — is Publish It! 4's ability to locate and install type-

faces contained in your GS/OS System Disk's Fonts folder. Earlier versions of Publish It! didn't support the native GS operating system's hierarchical file structure. With Publish It! 4, however, installing a font is as easy as selecting the System Disk icon, opening System and Fonts folders sequentially, then choosing the font file you want.

HOT OFF THE PRESS

Publish It! 4 boasts new printing options, too. The program now works with Hewlett-Packard's LaserJet and DeskJet printers; unfortunately, though, it doesn't support the potential 300 dpi (*dots per inch*) print resolution of which these devices are capable. Actual resolution (75 by 150 dpi) results in quality similar to that achieved on dot-matrix printers such as Apple's ImageWriter II. Don't get us wrong: Publish It! documents created on a dot-matrix printer are among the best we've ever seen.

If you print your publications on an Apple LaserWriter, you should find Publish It! 4's *Print PostScript to Disk* feature more convenient: You can now give each PostScript file a descriptive name. (In Publish It! 3 you could save PostScript files, but not with an intuitive name. For example, you couldn't save your club's newsletter file as NEWSLETTER.)

to another, and add or omit a heading, anytime during the creative process. Because the program supports both portrait and landscape printing modes, the kinds of publications you can generate are limited only by your willingness to experiment.

At press time the company noted that it was planning to include on disk a series of sample documents, such as a calendar and a poster-sized "for sale" ad. In addition, academic templates will accompany school editions of the program.

PICTURE PERFECT

The Writing Center supports all Macintosh fonts (three are included in the package) as well as Mac graphics created with any paint program and saved in PICT format or copied from the Scrapbook via the Clipboard.

Unlike dedicated page-layout programs, The Writing Center doesn't offer shape and pattern palettes: You can't add rules or boxes just anywhere or overlay text on a patterned background, for instance. The program can, however, place rules between columns or draw various kinds of borders around text, pictures, or pages.

Whatever the formatting choices you employ, The Writing Center gives you a WYSIWYG (what you see is what you get) preview via "sample" boxes showing

PRODUCT INFORMATION	
The Writing Center	The Children's Writing & Publishing Center
The Learning Company	The Learning Company
6493 Kaiser Drive	6493 Kaiser Drive
Fremont, CA 94555	Fremont, CA 94555
(800) 852-2255	(800) 852-2255
(415) 792-2101	(415) 792-2101
\$89.95 home	\$59.95 home
\$129.95 school	\$89.95 school
\$249.95 lab pack	\$179.95 lab pack
\$699.95 network	
\$19.95 thesaurus	
(optional for home	
edition, included in others)	

typefaces, sizes, styles, colorized text, border styles, and picture-editing effects. In addition, the handsome *Page Preview* mode helps you visualize each desktop-designed page before printing.

The Learning Company's popular "word-processor publishing tool" for the Apple II, The Children's Writing & Publishing Center, has matured into a slick '90s product for writers of all ages — one that exploits the Mac's talent for both graphics-based display and ease of use. After all, although the message reigns supreme, the medium counts, too.

Another convenience is version 4's compatibility with Publish It! 3: Files created with Publish It! 3 and Publish It! 4 are interchangeable. Lay out a new design with Publish It! 4 at home, say, and you can use the file with Publish It! 3 at school, and vice versa.

MEANS OF SUPPORT

Like its premier Apple II product, Timeworks' customer-relations policies seem to get better with each passing year. In addition to planned improvements in telephone support, the company has instituted a toll-free Teacher's Hotline (800-535-9497) to help you learn more about low-priced site-licensing agreements.

You can also call this number to speak with a resident consultant (a former teacher) who can help you integrate Publish It! 4 into your curriculum. Registered users can request a copy of the free book *Ten Complete Lesson Plans for Bringing Desktop Publishing to the Classroom*.

DIVE INTO DESKTOP PUBLISHING

Whether you're designing small creations such as labels, bookmarks, and gift tags or full-page publications such as newsletters, classroom handouts, and business forms, we can't think of a better way for Apple II users to cultivate their desktop-publishing skills than with Publish It! 4. If you already use Publish It!, the

PRODUCT INFORMATION	
Publish It! 4	The New Print Shop
Timeworks, Inc.	Broderbund Software
625 Academy Drive	17 Paul Drive
Northbrook, IL 60062	San Rafael, CA
(708) 559-1300	94903-2101
\$149.95 home	(800) 521-6263
\$99.95 school	(415) 492-3200
\$34.95 upgrade	\$49.95 home
from 1 or 2	\$59.95 school
\$29.95 upgrade from 3	\$119.95 lab pack

upgrade price — \$29.95 from Publish It! 3 and \$34.95 from older versions of the program — has to rank as one of the year's best Apple II bargains.

And if you haven't yet taken the plunge into desktop publishing, the advanced features you'll find in this brand-new edition of a time-proven product should be enough to push you over the edge. □

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

We don't recommend plucking your Vulcan™ off a table and dragging it along the ground. But it's nice to know you could.

October 30, 1990

Gentlemen:

I use my Apple IIGS with a Vulcan and an AE A/D converter at professional waterski tournaments to measure jump distances. I wish to commend you on the durability of your Vulcan Hard Drive.

I was using the computer at the U.S. National Waterski Championships in August when a gust of wind picked up the canopy under which we were operating. Wires running to my system were attached to the canopy and when the canopy blew away, it pulled the computer with the Vulcan off the table and onto the ground, dragging it along the ground some twenty feet. I was actually in the process of writing data to the hard disk at the time.

Even though the incident pulled many of the attaching wires out of the computer, no damage occurred to the computer or the hard drive. I subsequently verified all of the data on the hard drive and found no errors and no bad or damaged blocks in either ProDOS or MS-DOS (I use half my storage for my PC Transporter's MS-DOS files and half for ProDOS).

Needless to say, I am very grateful for a soundly built and well-engineered product.

*Sincerely yours,
Roger Dilling
Milledgeville, Georgia*

We hope you never drag your hard disk through the dirt, but can appreciate the engineering required to make the above letter possible. Until recently, if you wanted a hard disk for your Apple, you had to add an outdated, external box to your desktop clutter. Now, with Vulcan™ on the scene, you have an internal to consider. One that's lightning fast, clean, powerful and affordable.

A glance at the other computer manufacturers; IBM, Compaq, Dell, Mac, tells

you something. They're all very different systems, but all come with internal hard disks (it's hard to even find a Mac these days without an internal hard disk). The reason? Internals are the latest advance. The modern storage solution. They become a transparent part of your system, and in the case of Vulcan, actually enhance the rest of your system.

Enhancing the rest of your system. Many feel Apple's standard power supply is insufficient. Add a Vulcan and you make a significant improvement to the rest of your system. The high efficiency power supply in Vulcan is rated in excess of 70 watts, nearly double the capacity of Apple's standard power supply and that of other drives. Vulcan power supply components are heatsinked to the aluminum case for cool operation and long life. And we added an ultra-quiet, flush-mounted cooling fan to keep things cool inside. Vulcan actually beefs up your power supply. External hard disks drain it.

Ease of use. Most hard disks are pretty intimidating. It's frustrating to bring home a new hard disk, only to discover you've got to spend a lot of time setting up for your particular operating system, partitions and formatting. Vulcan comes pre-formatted, pre-partitioned and includes the latest Apple Operating System. You'll be using your Vulcan within minutes. Just pull out your old power supply, plug the Vulcan in it's place, insert the card and turn on the computer. Vulcan will boot to your familiar Apple Finder in a few seconds. Now *that's* ease of use.

Incider/A+ Magazine put it simply in their "Best of the Best" Holiday Shopping Guide: "*The best internal hard disk is the Vulcan from Applied Engineering - you can use it with DOS 3.3, ProDOS or GS/OS, and it comes with its own fan and power supply*". Vulcan incorporates the most popular standard protocols for a hard disk and includes an ultra-fast 16-bit data bus controller, not

the less expensive 8-bit others use. And since Vulcan is fully compatible with our PC Transporter, you can create ProDOS or MS-DOS storage space, in addition to GS/OS, DOS 3.3, CP/AM or Pascal 1.3. No



other hard disk works with all these operating systems.

Vulcan gives your Apple IIGS, IIe, II+ or II upgradeability (20-100 MB), useable speed, safe power (its FCC certified and works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz), practically unlimited size and AE's famous tech support and one-year warranty.

Order today! To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7 1/4% sales tax. Shipping not included.

Vulcan 20 MB.....\$699
Vulcan 40 MB.....\$899
Vulcan 100 MB.....\$1795



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The enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100
Carrollton, TX 75011



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Projects for Young Publishers



Kid Power

Desktop publishing, pure and simple, lets youngsters design their own banners, signs, ads, and fliers with a minimum of fuss and a maximum of creativity. By VIVIAN DUBROVIN

TETE WANTS TO ADVERTISE HIS summer pet-care service. Sara needs to produce a science-fair poster. Glen is in charge of a committee to welcome home the team that just won the state championship. Completing these types of projects used to require repeated attempts with color markers, pens, rulers, glue, and so on. Today's youngsters can take a more efficient approach: As a parent or teacher, it's up to you to introduce your students or children to the wonders of computerized desktop publishing.

The best time to teach someone is when he or she needs to learn, and that philosophy holds true when it comes to intro-

ducing children to desktop publishing. When boys and girls need signs, fliers, and banners for school or extracurricular activities, they'll be eager to master this new tool. By creating simple projects, boys and girls can learn how to use different fonts, import and position graphics, and design an attractive page. Perhaps more importantly to them, they'll accomplish what may have seemed at first like a daunting task.

A number of programs on the market, for both the Apple II and the Macintosh, let children have fun while learning basic desktop-publishing skills. Three of the more popular are **The New Print Shop**

(on the Macintosh, you'll have to settle for "classic" **Print Shop**) and **BannerMania** (for both the Apple II and the Mac) from Broderbund, and **The Children's Writing & Publishing Center** (currently available only for the II, but see this month's cover feature, "Sneak Preview," p. 36, for details on the upcoming Mac version) from The Learning Company. While the Apple II and Macintosh versions vary to some extent, children can develop basic desktop-publishing skills on either computer. (See "Desktop Publishing Grows Up," Editors' Choice, February 1989, p. 112, and "Kid Stuff," Reviews, May 1989, p. 36, for more on CWPC; see Reviews, January 1991, p. 34, and February 1991, p. 32, for more on The New Print Shop and BannerMania.)

FLYING HIGH

You can produce 8.5-by-11-inch fliers with either The Children's Writing & Publishing Center (CWPC) or The New Print Shop (although CWPC may be easier for young children to work with). Letter-sized fliers are perfect for posting on school or community bulletin boards — and they're also quite impressive when hand-delivered.

The sample in **Figure 1** was designed with CWPC. To re-create this project, you'll need the CWPC program disk, the picture disk, and a blank disk to save your work. Use the arrow keys to highlight your choice and press Return to select it.

At the main menu, the choice *Report, Story or Letter* is already highlighted; you need only press Return to select it. On the next screen, choose a page design *Without a Heading*. This selection will bring up a screen that has a menu bar across the top and a work area below. While working on this screen, use the escape key to move the cursor between the menu bar and the work area.

You can place pictures either before or after you enter text. Following the instructions below, try both methods: placing the cat picture first, typing your

STRETCH IT, SHRINK IT

In addition to offering strong messages, banners are one of the easiest projects to design. And The New Print Shop for the Apple II is one of the easiest programs to use. Here are step-by-step instructions to help your children or students create their own banners in a wide range of sizes. Printing at 100 percent produces a vertical banner for a door or a wall; 25 percent creates a bookmark. (See the accompanying figure.) Printing horizontally at 50 percent will give you a sign for the front of a desk. Let's get started.

When the main menu appears, press the down-arrow key three times to highlight **Banner**. Press Return to select it. (Insert program disk A into drive 1 because the **Banner** project is on A.) If you have two drives, place data disk 1A, containing pictures and fonts, in drive 2. If you're using one drive, the program will prompt you when you need to switch disks. When the program asks whether you want to **Design Your Own Banner** or **Load a Saved Banner**, choose the former (already highlighted); press Return to select it. Next it asks whether you want a horizontal or a vertical banner. The sample's vertical, so press the down-arrow key once to highlight it and Return to select it.

The **Banner** menu should appear on screen, with options for Graphics, Message, Trim, Print or Save, Preview, and Color. You'll use all of them, but start with Graphics. It's already highlighted; press Return to select it. Choose where you want to place your graphics. The diagram on the right side of the screen shows how the images will look. Select **Graphic Both Ends** (already highlighted). The next screen asks whether you want to select the graphic by **Browsing** or by **Typing Name**; select **Browsing**. Press the down-arrow key ten times to highlight the computer graphic and its label on the accompanying list. Press Return to select it.

The program asks whether you want to modify your layout. You need to select another graphic for the bottom, so type **Y** and press Return. Now it's time to choose that second graphic. The **A** in the boxes indicates the first one you chose; press the down-arrow key once to highlight the bottom graphic and type **B** to change it. You could choose the graphic by browsing again, but let's do it by **Typing Name** this time. Press the down-arrow key to highlight this choice, and press Return. Type **PRINTER** and press Return. Names of other images are on the card that comes with the program. When the diagram returns to the screen, the bottom box has a **B** in it to show that the second graphic will be printed there. Type **F** to flip it. The **B** is now backward to show the way the graphic is facing. Press Return. When you return to the **Banner** menu, the box beside the image is black to show you've chosen a graphic.

Message is now highlighted; press Return to select it. You'll choose the font by **Browsing**; it's already highlighted. Press the down-arrow key once to highlight the Imperial font. Press the spacebar to see a sample and then press Return to select it. Now type your name in capitals and press Return. When you return to the **Banner** menu, **Trim** is highlighted; select it. Now choose **Browsing**. Press the down-arrow key three times to highlight **Frilly**. Press the spacebar to preview it and Return to select it. If you have a color printer, choose **Color** from the **Banner** menu and try various options. Before printing, press the down-arrow key to highlight **Preview** and hit Return. Press any key to return to the menu. Highlight **Print or Save** and press Return. Press the down-arrow key five times to highlight **Save Your Banner** and press Return. Press the up-arrow key twice to highlight **Print**; turn on your printer and press Return. Voilà — a colorful, attention-grabbing banner that will get your message across.

— V.D.



Projects for Young Publishers

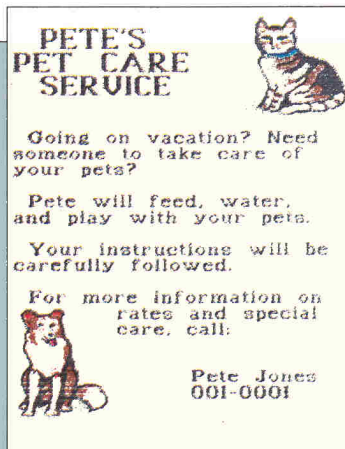


Figure 1. Pet-care flier created on an Apple IIe with The Children's Writing & Publishing Center, from The Learning Company.

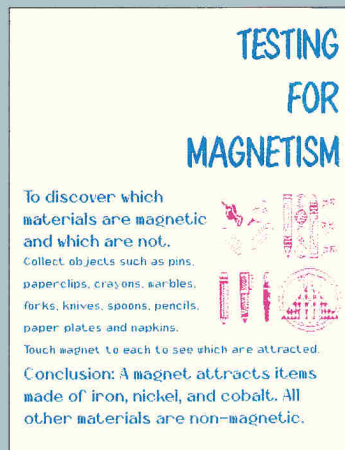


Figure 2. Science-fair poster designed with Broderbund's New Print Shop on an Apple IIe.

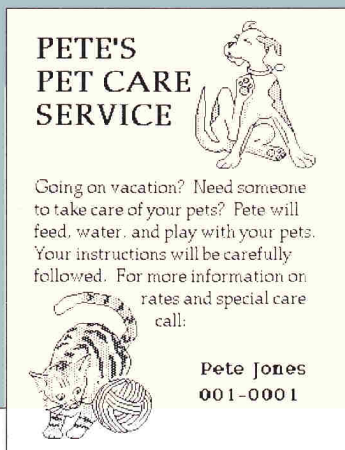


Figure 3. Pet-care flier created with The Print Shop on a Macintosh.

text, then placing the dog picture (as shown in **Figure 1**).

Put the picture disk, side 1, in drive 2. (If you have only one 5.25-inch drive, screen prompts will tell you when to swap disks. If you're using CWPC on a 3.5-inch drive, you won't have to swap.) Press Escape to move the cursor to the menu bar and select **Picture**. Choose **Select Picture** and

Select by Name. The next menu lets you choose a picture group. Both pictures for this flier are in the *Animals* group. Highlight *Cat 2* and press the return key.

The cat picture will appear in the upper-left corner of your screen along with instructions for placing the picture. Use the right-arrow key to place the cat on the right side of the page and the down-arrow key to move the picture down a few lines. Typing **F** will flip the picture so that the cat faces into the page. When the cat's in the correct position, press Return.

To choose a typeface for the title, select **Font** on the menu bar. Choose the large plain style on the bottom row. When you're typing text, press Return to start a new line and the spacebar to skip a space. Now type the first three lines (as shown in **Figure 1**). Skip a line.

To choose a smaller type size, select **Font** on the menu bar. Choose the first style in the second row. Hit Return once and type the first paragraph. Skip a line between paragraphs and add a space (to serve as an indentation) at the beginning of each paragraph.

Now place the dog picture the same way you did the cat. Because *Dog 2* isn't on the first menu, choose *more* first to bring up additional choices. When the picture appears in the upper-left corner of your screen, use the down-arrow key to move it to the bottom of the page. When the top of the picture is under the word *For* in the bottom paragraph, press Return. The words in the last paragraph will wrap around the

picture. Press Escape and now finish typing the last lines.

It's time to save and print your document. First remove the picture disk from drive 2 and insert your storage disk. Press Escape and select **File** from the menu bar; then **Save on Storage Disk**. (If you don't have a formatted disk, create one now, typing in a filename like **PETCARE**.) After the program saves your flier, you'll return automatically to the menu bar. Select **Print** to bring up that menu. Choose **Print** again. To place a border around your flier, select **Change Options** and highlight **Yes** next to the **Border on Page** choice. Select **No** for the other printer options. To begin printing, select **Print Now**.

After printing, you must return to the main menu before turning off the computer: Select **Next** on the menu bar and **Go to Main Menu**.

POSTER ART

Oversized signs and posters are useful for publicizing any number of events — science exhibits and county fairs, for instance. The sample in **Figure 2** was created in The New Print Shop and printed in the program's 3-by-3 size, which produces a 25.5-by-33-inch poster.

Because hand lettering is a problem for many children, especially the extensive amount needed for a project such as a poster, desktop publishing can reduce production time dramatically. Hunting for the right graphics images can still be a time-consuming task, but children can use drawings, paste pictures, or fasten objects on their posters. For example, the blank space to the left of the heading in **Figure 2** was designed to allow space for fastening the actual magnets used in the experiment.

To create the science-fair example, you'll need The New Print Shop program disk (sides A and B), data (graphics) disks 1A and 1B, and a blank disk to store your work. If you have two disk drives, use drive 1 for the program disk and drive 2 for the graphics and storage disks to cut down on swapping. Use the arrow keys to highlight a selection and the return key to select it.

When the main menu is on your screen, choose **Sign or Poster**. Select **Design Your**

Own, then *Tall*. When the *Sign or Poster* menu is on your screen, start with *Graphics*. Place data disk A in drive 2 and choose *Small Tiled* layout. Select the first graphic by *Browsing*. Use the down-arrow key to bring up additional selections until *PENS* appears. Press the spacebar to see the graphic, then Return to select it.

When the program asks whether you want to customize the layout, type **Y**. To turn off a space you don't want, hit the arrow keys to highlight the area, followed by the spacebar. Turn off all spaces except the fourth and fifth squares in rows 4 and 5. Now highlight the fourth square in the fourth row. Press **C** to *change* this graphic. Choose *Typing Name* and *PUSH-PINS*. Move around with the arrow keys and press **C** to *change* the fifth square in the fourth row to *PLAYTIME*, and the fifth square in the fifth line to *PICNIC*.

To explore a few more options, move all four squares up a bit. Highlight the fourth square in the fourth row. Press **M** to *modify* and **M** again to *move*. Press the up-arrow key four times to move it and press Return to accept it. Do the same thing with the fifth square in this row. Move the bottom two squares up slightly by pressing the up-arrow key twice.

When you press Return, you'll get the *Sign or Poster* menu back on screen and *Message* will be highlighted. Select it now. (Selecting fonts is similar to selecting graphics—just use the arrow keys and press Return.) Because the font for this sample is on disk 1B (the flip side of the original, but a separate disk if you've made backups), you must change the disk in drive 2: Highlight *Change Data Disk*, switch disks, and press Return. Select *Typing Name* and type **SUTTER** (a particular font). The next screen shows the placement of the graphics. The New Print Shop doesn't wrap text around graphics images, so you'll need to type around them.

The title of this sample is positioned on the right. Press Control-P twice before you type the title — **TESTING FOR MAGNETISM** — in capital letters. After pressing Return for a new line, press Control-N for a new font. Choose *Typing Name* and type **SMALL**. Press Control-P twice to position the type on the left. Type the statement of the experiment's objective (as shown in **Figure**

2). Press Control-N to choose *Typing Name* again and type **TINY** for the experiment's description. Press Control-F twice to switch back to **SMALL** type for the conclusion. Press Escape to exit the message. Preview your poster. Now select *Print or Save*. (Remember to remove the data disk from drive 2 and replace it with your storage disk before saving. You can format a blank disk at this time if you need to.) You may want to test your paper position and print a one-page draft copy to check for errors before setting the size for the poster.

BANNER MANIA!

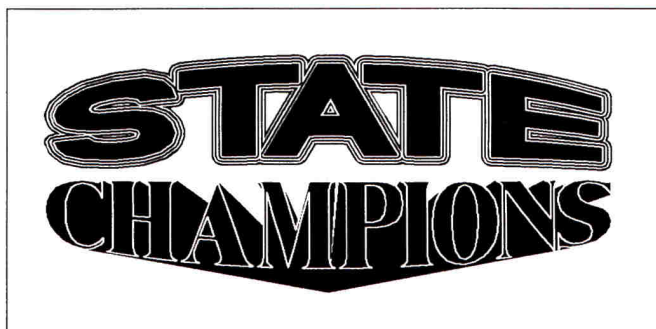
Although fliers and posters give children the chance to experiment with different fonts and page designs, Broderbund's BannerMania lets them play with the design of individual letters. While some banners can be as simple as those in The New Print Shop, others can be quite complex. You can either print the banner shown here (right) across eight pages or reduce it to fit on one sheet of computer paper. Like The New Print Shop, BannerMania can also print a reverse image for heat-transfer projects.

To create this sample with the Apple II version of BannerMania, you'll need the program and a storage disk. When the title page is on your screen, press any key to bring up the main menu. Select *Create New Banner*. From the *Layout* menu choose *Medium over Medium*. In capital letters, type **STATE** on the first line and **CHAMPIONS** on the second line. Press Return to bring up the *Font* menu; the first line will be highlighted. Select *Bold*. Press the spacebar three times to change the outline to *Vibes*.

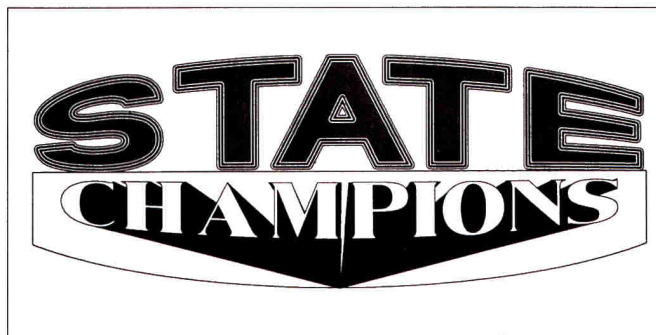
Press Open apple-4 (OA-4) to switch to the second line. Press Closed apple-F (CA-F) to switch to the *Font* menu. Select *Headline* for this second line. From the *Effect* menu choose *Vanishing Down*. From the *Color Set* menu choose *Black* for the first line. Press OA-4 to highlight the second line. From the *Color Set* menu select *Black*. From the *Shape* menu select *Double Convex*, and from the *Print/Save* menu choose *Change Justification* and *Even*. Now press OA-1 to review your banner. Save it and select *Print Banner* to produce a hardcopy.

IF YOU HAVE A MAC . . .

The Mac versions of The Print Shop and BannerMania share many traits with



Sign created with Apple II version of BannerMania, from Broderbund Software.



Sign created with Mac version of BannerMania.

their Apple II cousins, but there are a few differences. The Mac programs naturally use mouse-controlled pull-down menus across the top of the screen, letting you move between menus more easily. In addition, a continuous preview screen means that boys and girls can not only watch their projects develop, but experiment and see immediate changes

THE ART OF TEACHING

Whether you're using an Apple II or a Macintosh, the most important aspect of teaching desktop publishing is to get your children or students off to a good start. Here are five steps that will help make it a rewarding experience:

1. To avoid frustration, set up the program on the computer (or install it on the hard-disk drive) and make sure that it works with the printer the child will be using.
2. Give the child a brief introduction to the program. Create one of these sample projects with the child to be sure he or she understands how the program works.
3. Suggest other projects the child can do on his or her own. Provide extra graphics, special paper, and colored ribbon to encourage the child to explore additional options.
4. Make time on the computer available for the child's use. If computer time at home or at school is limited, encourage the child to think his or her project through before turning on the computer. You can create a catalog of graphics and layouts to help kids plan.
5. Give praise and encouragement. The more children work with desktop publishing, the more skilled they become.

with different graphics, fonts, and page layouts, as well.

Although the Mac version of The Print Shop won't print oversized signs for posters, it can create 8.5-inch fliers. It also offers different graphics images. **Figure 3** shows how the pet-care flier looks when created in The Print Shop on the Mac.

MAC PAGES

To create the sample in **Figure 3**, double-click on *Sign* in the main menu to bring up this project. Pull down the *Graphic* menu and highlight *Select Graphics*. Click on the large image and scroll through the graphics screen by clicking on the right arrow in the scroll bar. Click on the cat picture to choose it. Click on another square and then select the dog picture. Click on *OK*.

Pull down the *Graphics* menu again and highlight *Graphic Layout*. Select the smaller dog picture and drag it to the top-right corner of the page. (You can adjust it later if you need to.) Click on the cat to select it. Drag the smaller picture to the lower-left corner.

Click on the left alignment box at the bottom right of your screen. Pull down

squarely on the page, select *Adjust Printer* from the *File* menu. Select *Print Sign* and choose the number of copies you want.

THE BIGGER THE BETTER

To create the banner shown at the bottom of p. 47 on the Mac, click on the BannerMania title screen to bring up a work screen. Pull down the *Layout* menu and choose *Medium over Medium*. From the *Edit* menu select *Edit Banner Text*. In capital letters, type **STATE** on the first line. Press Return for the second line and type **CHAMPIONS** on this line. From the *Layout* menu select *Even Justify*. Click on the top line. Under the *Font* menu choose *Bold*, and from the *Effect* menu, select *Vibes*.

Click on the bottom line and pull down the *Font* menu again. Choose the *Headline* font for this line. Now from the *Effect* menu choose *Vanishing Down*. Because this choice isn't on the first menu, scroll down until it appears.

Now press the shift key

the *Font* menu and highlight *Palatino*. Pull down the *Size* menu and choose *24 pt.* for the title. Type the title. Switch to *14 pt.* and now type the body of the flier. Words will wrap as you type, but not around the cat graphic — you'll need to add spaces with the spacebar to position these last lines of text. Highlight Pete's name and telephone number and select *Bold* on the menu at the right of your screen. If you need to adjust the picture, you can return to the graphics layout.

Now turn on your printer. To ensure that the flier will print

and click on the top line to highlight both lines. From the *Shape* menu, select *Double Convex*.

From the *Edit* menu select *Banner Size*. There are two ways to affect the size of the banner: reduce the scale and stretch the length. To print it in normal size across two sheets of paper you don't have to change anything — just click on *OK*. Then pull down the *File* menu and highlight *Print Banner*.

BUT YOU'RE NOT A KID . . .

To an adult well-versed in the intricacies of desktop publishing, the projects and instructions we're talking about here may seem like child's play. But that's just the point — basic projects like these let youngsters just starting out in both computers and publishing create attractive, useful documents for classroom, home, and after-school activities.

Desktop publishing piques kids' interest and excites their imaginations — it challenges them to try something different, to experiment on their own. If you're a parent or teacher, helping a child discover his or her creativity will bring out your creative potential, too — and you'll find all the features you need for everyday projects without the hassle of learning a blinding array of formatting functions you may never need. When it comes to communication, basic designs are often the most effective — so see what pure simplicity can do for your documents. □

VIVIAN DUBROVIN IS A FREE-LANCE COMPUTER JOURNALIST. WRITE TO HER AT 8600 FIRETHORN DRIVE, LOVELAND, CO 80538. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

PRODUCT INFORMATION

BannerMania

\$34.95 home, \$49.95 school,
\$89.95 lab pack (Apple II version)
\$59.95 home, \$69.95 school,
\$139.95 lab pack (Mac version)

The New Print Shop

\$49.95 home, \$59.95 school,
\$119.95 lab pack (Apple II version)

The Print Shop

\$59.95 home,
\$69.95 school (Mac version)
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3200

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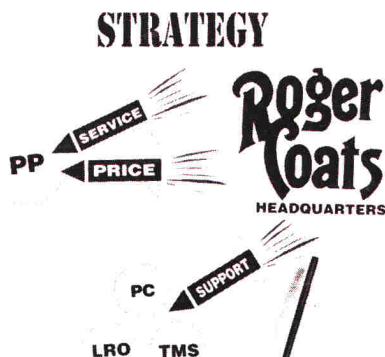
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USERS, UNITE!

For informative answers, timely opinions, free classes, and a wide selection of the "latest and greatest" low-cost programs, your best all-in-one resource is your local Apple user group.

By JOE KOHN * CONTRIBUTING EDITOR



The only social requirement *these* clubs demand is an interest in Apple systems. Putting computing power where it belongs — in the hands of the people — is the job of more than 1300 officially recognized Apple user groups around the country and hundreds more around the world. Club members are 300,000 strong in the United States alone, with thousands of others in 50 foreign countries. They meet in schools and community rooms and libraries and universities and even at the Pentagon. Some groups meet informally over pizza and beer in a member's home, while others gather at local high-school

computer labs. They span the USA from Yakima, Washington, to the Kennedy Space Center in Florida, from Honolulu to the backwoods of northern Maine. They meet in far-flung corners of the earth, in Bangkok and Kuwait City, in London, Stockholm, and Tokyo. Some, like the Micronetworked Apple User Group or one called A2, never meet in person, but conduct all business via modem over **CompuServe** or **GENie**.

Some groups have wacky names, like Apple Fritters in Rhode Island, Chomp in California, Sphinx in Connecticut, and the Leatherstocking Computer User Club in upstate New York. Some, such as **Washington Apple Pi**, provide support for all Apple Computer models, while others, like the

Apple III Society of Southern Connecticut, support only older machines. Some organizations, like the **Boston Computer Society**, have separate groups for Apple II and Mac computers, while others, like the California-based Tri-Valley Apple II User Group and the **Berkeley Macintosh User Group**, are devoted to a single platform.

Some clubs, such as the Disabled Children's Computer Society in Berkeley and the Alliance for Technology Access in Albany, California, specialize in providing assistance and training to people with special needs. Some units — the Apple Librarian User

Group, and the 3M Personal Computing Group, are sponsored by corporations. There are government clubs, such as the aforementioned Pentagon and NASA Headquarters Macintosh User Groups. There are groups made up solely of college students, and others comprising only elementary-school kids. There are even organizations like the **National AppleWorks User Group**, devoted to a single software program.

But despite the wide variety of names, places, venues, sponsors, and member ages and occupations, all these groups have one thing in common: They all exist

the business of giving away information." Relying on the notion of strength in numbers, user groups foster the sharing of hints, tips, and solid information in a supportive, self-help-style forum.

Staffed in large part by volunteers, most user groups publish informative newsletters, host hardware and software product demonstrations, provide telephone technical support to members, teach classes, offer training, and generally provide a relaxed, enjoyable atmosphere in which computer users can meet their neighbors. Most maintain large libraries of public-domain and shareware programs members can copy, free if you supply the disks or for a small fee that goes toward the group's operating expenses (see "Shareware: Bargains You've Never Dreamed Of," June 1991, p. 34). Many also provide members with a list of local dealerships offering user-group discounts on currently available hardware or software products.

Whether you own a II or a Mac, whether you're an expert or a novice, whether you use your machine for work, school, or fun, chances are there's an Apple club in your locale that wants to help you utilize your computer more productively.

REACHING OUT

User groups have played a prominent role in the history of Apple Computer right from the beginning: After all, it was at a meeting of the Homebrew Computer Society that Steve Wozniak introduced the original Apple I computer. Although most groups are quick to point out that they're independent organizations unaffiliated with Apple Computer, they all

Group and the Biomedical Research Mac Users Group, for instance — are directed at those in specific occupations. Some, like the Disneyland Macintosh User Group, the Domino's Macintosh User

to help computerists gain a greater understanding of the machines they use. The motto of the Berkeley Macintosh User Group sums it up: "We're in



NEWS FLASH

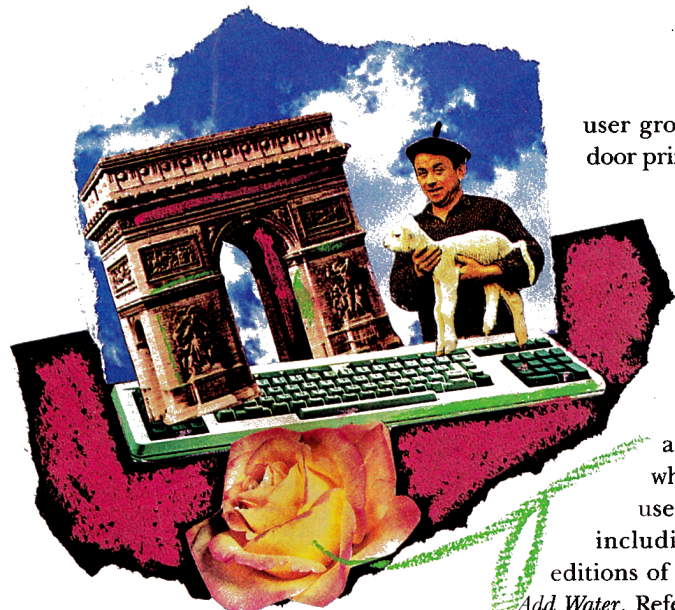
Editors of Mac-oriented club newsletters can now tap an additional resource: the Macintosh User Group News Service (MNS). Founded by Don Rittner, president of the Macintosh Enthusiasts Club of the Capital Area (MECCA) in Albany, New York, MNS is a United Press-like news service producing a monthly disk of articles, reviews, tutorials, clip art, news, and other Mac-related information, mailed to participating organizations in the Apple user-group community. Each disk features regular pieces by widely known Mac columnists such as Denise Caruso, Tom Pittman, and Dan Gutman.

Best of all, any user group can become a member of MNS free; each MNS issue is underwritten by a corporate

sponsor. A demo version of the sponsor's software may be included on the MNS disk for placement in the club library, or a developer may request that clubs reprint an advertisement in their newsletters. Local newsletter editors may reproduce articles from the MNS disk, as long as appropriate credit is listed.

Rittner is forum leader of America Online's user-group and User Group Connection areas. If you'd like your club to join MNS, leave a message for Rittner via America Online's electronic-mail service (screen name AFL DonR), or write to him for additional information at Mug News Service, 1726 Lenox Road, Schenectady, NY 12308.

— J.K.



receive support and information, some of it not available from any other source, from Apple's **User Group Connection** (UGC).

Started in 1985 by Ellen Leanse, Apple's "user group evangelist" at that time, the UGC has grown into an eight-person department whose sole purpose is to offer assistance to user groups. Although the UGC is strictly involved with domestic clubs, the unit's current manager, Craig Elliot, tells us that similar departments in 25 regions around the world help coordinate the efforts of Apple user groups internationally.

To streamline communication, Apple requests that each user group designate one individual to serve as the local contact person, or, in Apple parlance, the "ambassador." Each month, the UGC sends every ambassador a package containing various resources that may prove valuable to club officers and members — videotapes, the latest issue of Apple's *Technical Notes* publication for programmers, or information from third-party software developers on product discounts, for example, plus Apple's monthly user-group newsletter, *Quick Connect*, which local club newsletters may reprint.

The UGC prepares a dozen different mailings each month to accommodate the diverse needs of various types of groups. The information sent to a community-based Apple II-only club will be very different from the material sent to a corporation-sponsored Mac organization, for instance. In addition, members are afforded certain amenities just for belonging to a user group. As an example, a recent mailing from the UGC to Apple II-oriented groups included 24 copies of *The Apple II Guide*, a 225-page book extolling the virtues of that machine. Some

user groups gave them away as door prizes, while others charged members a few dollars.

The same book, available from authorized Apple dealers, carries a price tag of \$19.95.

The UGC not only helps clubs already in existence, but can offer assistance to individuals who want to start an Apple user group in their locale, including several different editions of the 100-page book *Just Add Water*. Referred to affectionately as *JAWS*, this little volume contains everything you need to know about establishing and sustaining an Apple user group, including tips from founders and officers of clubs around the country. It's an indispensable resource — and, like all UGC's offers, it's free.

Communication among user groups and with the UGC is quick and convenient: All ambassadors have access to Apple Computer's in-house telecommunications system, AppleLink — the same system authorized Apple dealers use to stay in touch with the company. Much of the technical information available to dealers is also available to user-group ambassadors through AppleLink's on-line technical database. If a club member has a particular problem no one in the group can answer, for instance, the ambassador can log onto AppleLink, go to the *Reference* section, and conduct a database search, which may produce a solution in minutes.

In addition to the database, another AppleLink section is reserved for ambassadors discussing user-group-related issues among themselves. Although AppleLink can be expensive for dealers to use, Apple subsidizes the fees charged to ambassadors, so that the rates are competitive with those of the various consumer-oriented on-line information services.

You need special software to call AppleLink by modem; the Mac version of that program is quite sophisticated, but because the Apple II version is prone to crashing, many II groups prefer to use Quantum Computer Services' **America Online** network to stay in communication with the UGC. America Online offers a user-group forum, and many officers and members

THE SWEDISH CONNECTION

In one small nation in the far north, where kings and commoners alike are committed to a longstanding tradition of social democracy, "the computer for the rest of us" has garnered a distinct following — modest in size, but loyal. Andreas Wennborg, a GS user from Goteborg, tells us about the Apple User Group of Sweden:

"AUG has about 250 paying members. It's the only user group in Sweden, and possibly Scandinavia, that deals with Apple II and III computers. Membership is 150 sek (about \$24) per year. Our eight-page newsletter, *Apple User News*, comes out six times a year. We have four meetings in Stockholm and two in Goteborg per year. We're a national group, and the members of the board and the club members are spread out all over Sweden, although about 100 members live in the Stockholm area. The officers try to get to every meeting, and that's why I fly up to Stockholm; it's only 50 minutes by plane. Sometimes I take the car if I want my GS with me. When we meet in Goteborg the president stays in a hotel here. (Talk about dedication!) By the way, our user-group president works for IBM.

"The Apple II hasn't been sold for several years in Sweden. The GS was never introduced here, and the 20 GS owners in the club all imported their machines themselves from the USA, the United Kingdom, or Ireland. The only help Apple Sweden can give an Apple II owner is AUG's phone number. But Apple Sweden helps AUG a lot. Through AUG, an Apple II owner can get almost any spare part for his or her Apple. Apple Sweden still has a large number of Apple II parts; those that Apple doesn't have it gets from Holland or the USA. Apple also helps us recruit new members. Last year Apple Sweden did a large mailing (1000-plus) for the group. Apple did the copying, paid the postage, and mailed the information from AUG. In short, Apple Sweden wants Apple II users to be members of AUG. And AUG is the only source of support for the Apple II and III in Sweden."

— J.K.

use it to communicate with fellow members and with groups across the country. The UGC as well as several of the larger clubs, including the Boston Computer Society and the Berkeley Macintosh User Group, also maintain an official presence within the forum.

Located within the UGC area are electronic versions of *Quick Connect* and other Apple-sponsored publications, along with monthly compilations of the best of recent public-domain and shareware programs, which local club editors and software librarians can download. In addition, a newsletter-exchange area lets groups share articles. On occasion, the UGC also conducts real-time electronic conferences, with user groups from around the country participating.

Although AppleLink and America Online are the only networks on which the UGC maintains an active presence, it recognizes the areas devoted to Apples on both GEnie and CompuServe as Apple user groups. Although it's odd at first to think of them as user groups when their members never meet face to face, the thousands of people accessing these systems around the world utilize on-line forums much the same way other people use traditional clubs — as their prime sources of computer information. If you post a question, for example, you'll receive a number of responses within hours.

Many clubs also operate electronic bulletin-board systems (BBSes) with conference



and message areas, as well as on-line libraries of public-domain and shareware software whose files are available for downloading.

OUTSIDE COMMITMENTS

Apple user groups are such an efficient way to disseminate information that many third-party hardware and software developers maintain close ties to such clubs. Many vendors send representatives to talk to user groups and demonstrate products at meetings. Through the "Beagle Buddy" and "Seven Hills Partner" programs, for

instance, user-group members can conveniently update their old software products to the latest versions, right at club meetings. Although Buddies and Partners are volunteer positions, contact members receive complimentary copies of programs produced by the companies. Everybody benefits: The company gains a reputation for customer support and goodwill, user-group members can update on the spot, and volunteers get free software.

A number of other companies provide services to user-group members, as well. The National AppleWorks User Group's monthly newsletter, for instance, lists vendors offering special pricing to members of that organization. Claris Corporation has provided discounts on AppleWorks and AppleWorks GS to mem-

bers of UGC-recognized clubs; still other companies provide free evaluation copies of software, with the stipulation that club members review the program in their next newsletter. Often, after the review is written, that package will be given away as a door prize.

Getting involved with a user group will provide you with a unique learning experience — maybe even enough knowledge to change your computer status from novice to power user. If you don't know how to contact your closest local Apple club, call Apple Computer's **User Group Locator** service, listed in the accompanying "Addresses" box. If you find there's no group in your locale, you can join one of the large national organizations, or purchase a modem and access one of the electronic clubs. You can also contact the User Group Connection for assistance in setting up a new club in your area.

Benefit from other people's experience, learn new ways to use your system, take advantage of some of the best software bargains around. When it comes to computer accessories, a \$20 or \$25 yearly membership fee may be the smartest investment you'll ever make. □

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National

AppleWorks
User Group
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User Group

Connection
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Cupertino,
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User Group Locator
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x500

Washington Apple Pi

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JOE KOHN IS A COMPUTER CONSULTANT SPECIALIZING IN APPLE SYSTEMS. HE'S THE FOUNDER OF THE APPLESIG USER GROUP AND IS ALSO A MEMBER OF NAUG, THE BOSTON COMPUTER SOCIETY, THE MICRONETWORKED APPLE USER GROUP, A2-CENTRAL, AND THE GRAVENSTEIN USER GROUP. WRITE TO HIM AT 166 ALPINE ST., SAN RAFAEL, CA 94901. ENCLOSE AN SASE IF YOU'D LIKE A REPLY.

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GRAPHICS GALLERY

CAPTURE THE MOMENT

Just roll 'em and shoot — grab some ready-made inspiration
with an Apple II scanner or digitizer.

By **DEBORAH GREH, Ed.D.**

GETTING STARTED IS THE HARDEST part of any creative endeavor — writing, painting, and, yes, drawing on the computer screen, too. But even if you're something less than inspired, you don't have to avoid that blank screen altogether. Your best bet may not be starting from scratch at all — you may be better off digitizing or scanning an image from the world around you and importing it into your graphics program as a foundation on which to build.

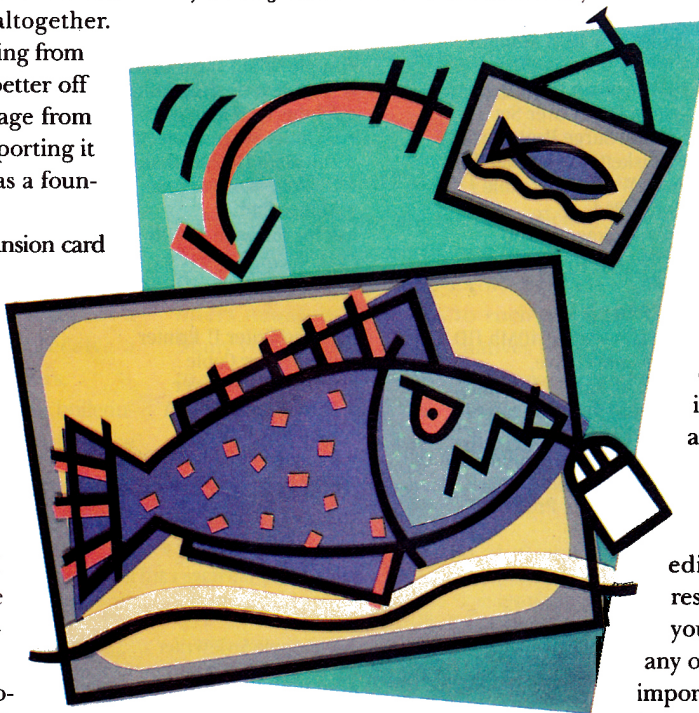
A *digitizer* is an internal expansion card that fits into one of your Apple II's peripheral slots and receives input via cable from a video source — camera, cassette recorder, camcorder, or laser-disc player. Special software accompanying the board scans the incoming video signal and converts it to digital data and then to an Apple II graphics format — in gray scale or color, depending on the abilities of the particular device you're using. Digitization programs also typically include modules for colorization of basic gray-scale images and image manipulation — shrinking, enlarging, flipping, adjustment of brightness and contrast, and so on. You can save the captured image to disk and then import it into a compatible painting or desktop-publishing program for further enhancement and printing. Examples of Apple II digitizers include **ComputerEyes/2** and

Color ComputerEyes for the GS from Digital Vision, and **Visionary GS** from New Concepts. Visionary is a "frame grabber" — it's fast and can digitize in "real time," letting you capture a mobile subject; ComputerEyes uses "slow scan" technology — your subject will have to remain stationary

enhance, and make hardcopies of images from print media, such as books, magazines, brochures, newspapers, photographs, and so on.

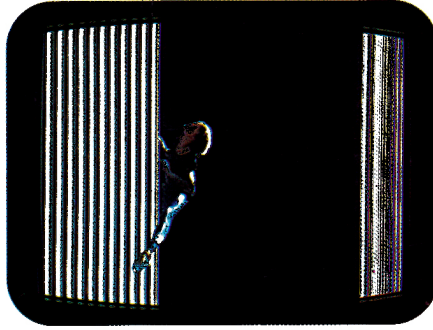
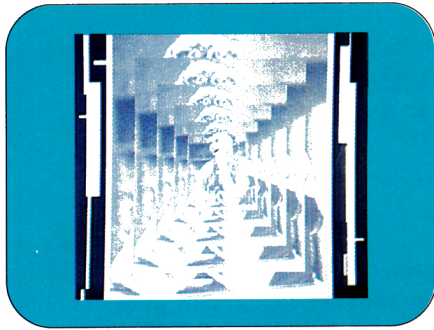
Hand-held models include Vitesse's **Quickie**, with accompanying software versions for the IIe/c/Plus/Laser 128 and the IIGS, and Thunderware's **Lightning-Scan** for the GS. As you roll the scan head over your document, light-emitting diodes on the underside project a glow that bounces off the page and is measured by a sensing device within the scanner. The hardware translates the relative brightness and location of each point into digital data, which the accompanying software then uses to reconstruct a gray-scale image on screen. Adjustable hardware and software settings control the graphic's size, resolution, and contrast. Typical editing tools include flip, rotation, resizing, and colorization functions; you can save the resulting image in any of a variety of graphics formats and import it into a compatible paint, animation, or desktop-publishing program for further enhancement and printing.

If you already own an ImageWriter printer and the material you're borrowing is in the form of loose-leaf pages you can roll through a platen, Thunderware's **ThunderScan** snap-in cartridge model is a somewhat cheaper alternative for scanning. Accompanying software offers magnification, gray-scale, colorization, and



for 6 to 12 seconds. (If you plan to digitize from videocassette tape, you'll need a recorder with an advanced freeze-frame or pause function.)

Scanners — in the form of hand-held units connected to your computer via a cable and interface card, or cartridges that snap into your ImageWriter printer in place of the ribbon — let you capture,



Digitization helps beginning artists observe and play with perspective and composition. Left, design by Helene Wilkenfeld; right, by Tom Tomlinson (St. John's University).

resolution options. You can save the image in any of several graphics formats and import it into an Apple II paint, animation, or desktop-publishing program later for further enhancement.

Now that you've got some help from the hardware, what should you capture? Once you get started, inspiration will come from everywhere — just roll 'em and shoot. If you can drag a scanner over it or see it through the eye of a camera, you can put it on screen. Street scenes, cityscapes, landscapes, your dog, paintings, family photos, maps, charts, illustrations, art postcards — you name it. What kinds of pictures do you take with your still camera? What type of magazine or ad photography appeals to you? Many artists use digitized imagery to create a collage effect; many capture a variety of textures, such as concrete, wood paneling, wool, paper, wallpaper, and so on, to use as backgrounds and surfaces in their own works. You might want to build a library of animate and inanimate subjects for both foreground and background material and store it on disk.

And now that you've got an image, what can you do with it? Your paint program is your tool from now on, and you can use its wide selection of features to produce

some dramatic effects. Crop, resize, rotate, flip, cut and paste, alter the normal colors just for fun. If you've captured a "head shot" of someone, play with the features; add glasses, a mustache, or a hat. Widen the face or slim it down; try aging it, too. If you've captured an object, create a new background: Put flowers into a vase, put the vase on a table, add some fruit.

Study your digitized images for technical purposes, too: Analyze layout design, composition (foreground/middle/background), and the use of line, space, and shape. If you're using a video digitizer, pay particular attention to the complexities of color. (The accompanying software may include an option that shows you the percentage of each color making up a particular screen region you select.) Consider, for instance, the many hues in skin tone, or the number of shades of green that result when light and shadow play on foliage.

If you're facing a blank screen, don't be afraid to borrow images from the world around you. With help from your scanner or digitizer and a good Apple II paint program, you'll soon make them your own. □

WRITE TO DEBORAH GREH AT 516 FARLEY AVENUE, SCOTCH PLAINS, NJ 07076. ENCLOSE AN SASE IF YOU'D LIKE A PERSONAL REPLY.

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When does the image you've manipulated through your paint program become yours legally? What if you've used bits and pieces from a variety of sources to create a new whole, for instance? If the pieces you've borrowed are judged too similar to the original and if that damages the commercial value of someone else's work, look out. It's a gray area, so don't take a chance — ask for permission and pay the required fee, especially if your work is for commercial use.

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FURTHER READING

"Digitize to the Max"

July 1987, p. 40

"ThunderScan"

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"ComputerEyes for the IIs"

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"Reel-World Images"

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"Speed Tool"

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"Visionary GS"

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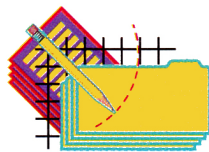
"Scanners Head to Head"

January 1991, p. 44

"On the Other Hand:

Five Affordable Mac Scanners"

January 1991, p. 55



APPLEWORKS IN ACTION

HOUSE OF CARDS

Take charge of your credit cards
with a database that keeps them organized.

By RUTH K. WITKIN

STATISTICS SAY THE TYPICAL CREDIT-card holder has seven cards. Multiply that number by a spouse and credit-worthy youngsters, and you've got a houseful of credit cards. Even though you do your level best to safeguard those cards, they can become lost or stolen, and only prompt action can get you off the hook for purchases made with them. But where do you turn?

This month you'll create a database that lets you organize, store, and retrieve instantly all the information you might need to know about your credit cards — including whom to notify in case of loss. You'll also print three reports: a tables list of certain information in every record, a labels list of all records, and a labels list of selected records.

Create a new AppleWorks database file named **CREDITCARDS**. You now see the *Change Record/Layout* screen with the cursor on *Category 1*.

The database you're going to create contains 16 categories including data and three spares, as shown in **Figure 1**. Spares are meant to hold information you omit, intentionally or otherwise, when you first create the database. All you need do is change the name of a spare category and enter your information there.

Without spares, you must insert new categories, which make any custom screen layouts and report formats vanish. You

can always re-create them, of course, but that takes time. Make it a habit to create spares from the very beginning and you won't have to do things twice. 'Nuff said.

Now press Open apple-Y (OA-Y) to erase *Category 1*. Enter the category names shown in **Table 1**, pressing Return after each one. Make sure you've entered and spelled each category correctly. If anything's amiss, correct it now. Press OA-S to store the database on disk. AppleWorks now advises that you're about to enter *Insert New Records* mode, which is just fine. Press Return and an empty Record 1 appears, awaiting your entries.

Let's fill Record 1 together. The cursor is in the *ISSUER* category, so type **GUSHER OIL** and press Return. Type **Karen E. Thompson** and hit Return. Type **765A-678-53** and hit Return again. Fill in the rest of the entries in **Table 2** the same way.

Your cursor should be in the *LOSS LIMIT* category. Press OA-Down Arrow to move past it and the spares and bring up Record 2. **Figure 2** shows entries in the other records. Fill these records as you did Record 1, keeping this important exception in mind: Note that the cardholder name in Record 2 and Record 3 is the same as in Record 1. You don't have to retype the name — simply "ditto" it. When you get to the *HOLDER* category, press OA-" (don't hit the shift key when you press OA-quotation marks) and AppleWorks will enter it for you. (When you

press OA-quotation marks without hitting the shift key you actually press OA-apostrophe. We use quotation marks here, though, to symbolize the ditto function.) You can also ditto *OTHER HOLDER* from Record 1 into Record 2, *ANN FEE* from Record 1 into Records 2 and 3, and *HOLDER* from Record 4 into Records 5 and 6. Dittoing is a nice shortcut, so keep your eyes open for more places to do it.

When you finish, the cursor should be in the first spare category in Record 7. Press OA-S to store everything on disk.

If you're in single-record layout, you can get a new view of things by pressing OA-Z to switch to multiple-record layout. If you're already in multiple-record layout, just stick with it. Now press OA-1 to display all records, then OA-< (the less-than sign) to reach the *ISSUER* category. Well, things looked pretty neat in the single-record screen, but this one's a mess! Some entries need more room while others have too much.

The obvious approach is to narrow the ample and amplify the narrow: With the cursor in the *ISSUER* category, press OA-L to bring up the *Change Record/Layout* screen. Press OA-> (the greater-than sign) five times to increase the column width. Press Tab to reach the *HOLDER* category. Press OA-< seven times to reduce its width. Press Tab. In the same way, change the width of the following categories: increase *CARD NUMBER* by one character; decrease *EXPDATE* by seven characters; decrease *LIMIT* by nine characters; decrease *#C* by 12 characters; decrease *ANN FEE* by eight characters; and decrease *FIN APR* by eight characters.

That does it for now. You can adjust other category widths later on your own. Press Escape twice to return to the *Review/Add/Change* screen. Ah, that's better. Press OA-< to reach the *ISSUER* category.

Records are arranged currently in the order you entered them — by holder name. It can make sense to arrange them

File: CREDITCARDS CHANGE NAME/CATEGORY Escape: Review/Add/Change

Category names

ISSUER	NOTES	
HOLDER	SPARE	Options:
CARD NUMBER	SPARE	
EXPDATE	SPARE	Type category name
LIMIT		Up arrow Go to previous category
#C		
OTHER HOLDER		
ANN FEE		
FIN APR		
IIICOMPANY		
IFIDEPT/PERSON		
ILISTREET		
IOICITY ST ZIP		
ISIPHONE		
ITLOSS LIMIT		

Type entry or use @ commands B64K Avail.

Figure 1. Categories in credit-card database.

CATEGORY	RECORD 2	RECORD 3
CARD NAME	VISTACARD	CLARA'S DRESS SHOPPE
HOLDER	Karen E. Thompson	Karen E. Thompson
CARD NUMBER	4240 760 002 86	013-438-05
EXPDATE	Sep 92	None
LIMIT	\$2500	\$500
#C	2	1
OTHER HOLDER	Corey	None
ANN FEE	None	None
FIN APR	19.2%	12%
I COMPANY	VistaCard Credit Corp	Clara's Dress Shoppe
F DEPT/PERSON		Clara Shpolberg
L STREET	210 Main Street	2141 White Plains Road
O CITY ST ZIP	Kansas City KS 64105-1682	Abner NY 11765
S PHONE	800-555-8600	516-555-0022
T LOSS LIMIT	\$50	\$50
NOTES	Telex 816-555-2121	
CATEGORY	RECORD 4	RECORD 5
CARD NAME	ESSOIL	WOODRUFF STORES
HOLDER	Corey Thompson	Corey Thompson
CARD NUMBER	317 762 380 2	195 56 438X
EXPDATE	Jul 93	None
LIMIT	\$1000	\$750
#C	3	1
OTHER HOLDER	Karen, Caroline	None
ANN FEE	None	None
FIN APR	19.1%	17.0%
I COMPANY	Essoil Credit Services	Woodruff Credit Card Co
F DEPT/PERSON		Lost Card Division
L STREET	1357 Main Street	One Fountain Plaza
O CITY ST ZIP	Terre Haute IN 47808	Rochester NY 14203
S PHONE	1-800-555-1234	800-555-3079
T LOSS LIMIT		
NOTES	Travel Accident Ins \$25K	Notify within 2 days
CATEGORY	RECORD 6	RECORD 7
CARD NAME	NATIONAL DINERS CLUB	DANDY JEANS
HOLDER	Corey Thompson	Caroline Thompson
CARD NUMBER	372-947-556	876 908
EXPDATE	Oct 92	Apr 92
LIMIT	\$3500	\$500
#C	2	1
OTHER HOLDER	Karen	None
ANN FEE	\$25	None
FIN APR	15.4%	15.5%
I COMPANY	National Diners Club	Weller Family Stores
F DEPT/PERSON	Retail Card Service Dept	Credit Services Dept
L STREET	P.O. Box 765	1067 Rosalia Drive
O CITY ST ZIP	Oshkosh WI 54901	Los Angeles CA 90055
S PHONE	800-555-7272	213-555-1790
T LOSS LIMIT	\$25	\$0 within 24 hours
NOTES		Card for Karen pending

Figure 2. Entries in credit-card database.

by issuer, so press OA-A to start the *Arrange* command. Press Return to confirm *Category* (ISSUER), and hit Return again to confirm *From A to Z*. And there's the screen with all records arranged by issuer. Later, if you want to put records in their original order, all you

need do is arrange them on the *HOLDER* category, choosing *From Z to A*. (Place the cursor on the *HOLDER* category and press OA-A to arrange it.)

Figure 3 shows a tables report containing the first nine categories in all records.

Create this report format by pressing OA-P to bring up the *Report Menu* and pressing Return to select *Create a new "tables" format*. You now have a choice of creating a format from scratch or from the current record layout that appears on screen. The screen you just customized will look just as good on paper, so type 2 and hit Return. Type **TABLES** as the name of this report and hit Return again. You're now in the *Report Format* screen, with its array of commands and cursor movements.

Press Tab five times to move to the #C category. To see the number of credit cards you and your family hold, press OA-T to have AppleWorks include a total in the report, then press Return twice to confirm no decimal places and one blank space afterward. Ignore all the 999s that appear in the #C column after the second Return; they're simply place holders that show the format of the categories' numbers.

You need to change a few print settings before making a harcopy of this report: Press OA-O to bring up the *Printer Options* screen. Reduce the character size so that you can print more categories across: Type CI (for *Chars per Inch*) and press Return. Type 12 and hit Return again. Now use my favorite interrow spacing technique: Type LI (for *Lines per Inch*) and hit Return. Type 8 and hit Return again. This reduces the amount of space between lines. To offset the potentially cramped text, type DS (for *Double Spacing*) and hit Return again. Instead of printing standard double-spaced text, you'll get one-and-one-half line spacing, an eye-pleasing variation.

That should do it, so press Escape to return to the *Report Format* screen. Now turn on your printer. Press OA-P to bring up the *Print the Report* screen. Press Return to select the printer (or type a printer number, then Return), type the date (or, if you have a computer clock, type @ — the *at* sign — to have AppleWorks enter the date for you), and hit Return twice.

The printer whirs as AppleWorks prints the report, then returns you to the *Report Format* screen. Press OA-S, which saves the settings, then returns you to the *Review/Add/Change* screen.

Figure 4 shows the format that produces the labels report in Figure 5. A labels format is ideal when you have so many categories you can't print them all in ➤

File: CREDITCARDS Report: TABLES ISSUER	HOLDER	CARD NUMBER	EXPDATE	LIMIT	#C OTHER HOLDER	ANN FEE	FIN A
CLARA'S DRESS SHOPPE	Karen E.	013-438-05	None	\$500	1 None	None	12%
DANDY JEANS	Caroline	876 908	Apr 92	\$500	1 None	\$25	15.5%
ESSOIL	Corey Th	317 762 380 2	Jul 93	\$1000	3 Karen, Caroline	None	19.1%
GUSHER OIL	Karen E.	765A-678-53	Aug 91	\$750	2 Corey	None	12.5%
NATIONAL DINERS CLUB	Corey Th	372-947-556	Oct 92	\$3500	2 Karen	\$25	15.4%
VISTACARD	Karen E.	4240 760 002 86	Sep 92	\$2500	2 Corey	None	19.2%
WOODRUFF STORES	Corey Th	195 56 438X	None	\$750	1 None	None	17.0%

12*

Figure 3. "Tables" report of entries in first nine categories.

File: CREDITCARDS
Report: LABELS
Selection: All records

REPORT FORMAT

Escape: Report Menu

ISSUER: CLARA'S DRESS SHOPPE
HOLDER: Karen E. Thompson
CARD NUMBER: 013-438-05
EXPDATE: None
LIMIT: \$500
#C: 1
OTHER HOLDER: None
ANN FEE: None
FIN APR: 12%
NOTES:

COMPANY: Clara's Dress Shoppe
DEPT/PERSON: Clara Shpolberg
STREET: 2141 White Plains Road
CITY ST ZIP: Abner NY 11765
PHONE: 516-555-0022
LOSS LIMIT: \$50

-----Each record will print 12 lines-----

Use options shown on Help Screen
6:40 pm

Figure 4. "Labels" format, with category names identifying each entry.

tables style. To create this report, press OA-P, type 3 (to select *Create a new "labels" format*) and press Return twice. Type **LABELS** and hit Return again.

It'll take only a bit of work to transform this screen into the one in Figure 4. First, delete the spare categories: Hold down Right Arrow long enough to get to the first character in *NOTES*, then press Down Arrow to reach the first *SPARE*. Press OA-D to delete it. Hit Down Arrow to move to the next *SPARE* and press OA-D. Delete the last *SPARE*. (These deletions are temporary — you can always reinsert the categories by pressing OA-I to bring up the *Insert a Category* screen.)

Now move the cursor up to the *N* in *NOTES*. Hold down Open Apple and tap the down-arrow key 14 times to put *NOTES* at the bottom of the screen and out of the way. With the cursor still on *N*, press OA-V. This tells AppleWorks to print both the category name and the category entry in a report. On screen, after the

category name, AppleWorks enters a colon and the category entry in the first record. In this case, the first record lacks an entry in this category, so AppleWorks enters only the colon. Now shift categories: Use Up Arrow and Left Arrow to reach the *I* in *ISSUER*, then hold down Open Apple and tap Right Arrow 24 times to move *ISSUER* to the right. Press OA-V, and *CLARA'S DRESS SHOPPE* and a colon pop into view.

Use Down Arrow and Left Arrow to reach the *COMPANY* category in the *IF LOST* group. With the cursor on the first character in the category and referring to Figure 4, use OA-Right Arrow and OA-Up Arrow to move the category to the right column. Then press OA-V. Do the same for the five other categories in the *IF LOST* group. After you settle this group into its proper place, move *NOTES* to the left column.

Now hit Return to bring the cursor to the empty line below *NOTES*. Press OA-D three times to delete three empty lines. Then press OA-V on the *HOLDER* through

FIN APR categories to display the entries. Your screen should now look like the one in Figure 4.

View the on-screen records by pressing OA-P, selecting *The screen*, and hitting Return twice to display the first record (the same one you were using in the *Report Format* screen). Press the spacebar enough times to cycle through the other records and return to the *Report Format* screen.

All standard print settings but one are fine for this report. To change that one setting, press OA-O, type **PD**, and press Return. This toggles the option that tells AppleWorks to *Print a Dash when an entry is blank*. Press Escape to return to the *Report Format* screen. Now print this report, which takes two pages. Your printer should still be on. Press OA-P, select your printer, and hit Return three times.

Now suppose you want a report containing Karen's credit cards only. You can view and print this report in either tables or labels format. Because you're still in the labels screen, leave the cursor where it is and press OA-R. AppleWorks instantly brings up the *Select Records* screen containing every category in this database. Now type 2 to select *HOLDER* and press Return twice, the second time to confirm *equals*. Type the comparison information, **Karen E. Thompson**, and hit Return again. You have no other comparison information, so press Escape. You can now see your selection criteria in the top-left corner of the *Report Format* screen.

To see Karen's credit cards, press OA-P, select *The screen*, and hit Return twice. Press the spacebar three times to see the records and return to the *Report Format* screen. Now print the selected records. The printer should still be on. Press OA-P, select your printer, and hit Return three times. When the printer stops, press OA-R and type **Y** to return the selection to *All records*. Press OA-S to store the database on disk. That's all there is to it.

You can use the spare categories to hold information you haven't included in the database. Suppose you keep some credit cards in your wallet for instant access, but others in a desk drawer for special purchases. To keep track of where they are, from either the single- or multiple-record version of the *Review/Add/Change* screen, press OA-N to bring up the *Change*

Category Name	What Category Holds
ISSUER	Name of issuing company
HOLDER	Person in whose name card is issued
CARD NUMBER	Card number
EXPDATE	Card expiration date
LIMIT	Holder's credit limit
#C	Number of cards issued under same number
OTHER HOLDER	Names of other people holding card
ANN FEE	Annual fee, if any, charged by issuer
FIN APR	Annual percentage rate on unpaid balance
COMPANY	How to notify issuer if card is lost or stolen (read downward)
F DEPT/PERSON	
L STREET	
O CITY ST ZIP	
S PHONE	
T LOSS LIMIT	
NOTES	Memos to yourself
SPARE	Other information you may want to include later
SPARE	Same
SPARE	Same

Table 1. Category names in credit-card database.

File: CREDITCARDS Report: LABELS		Page 1
ISSUER: CLARA'S DRESS SHOPPE		
HOLDER: Karen E. Thompson	COMPANY: Clara's Dress Shoppe	
CARD NUMBER: 013-438-05	F DEPT/PERSON: Clara Shpolberg	
EXPDATE: None	L STREET: 2141 White Plains Road	
LIMIT: \$500	O CITY ST ZIP: Abner NY 11765	
#C: 1	S PHONE: 516-555-0022	
OTHER HOLDER: None	T LOSS LIMIT: \$50	
ANN FEE: None		
FIN APR: 12%		
NOTES: -		
ISSUER: DANDY JEANS		
HOLDER: Caroline Thompson	COMPANY: Weller Family Stores	
CARD NUMBER: 876 908	F DEPT/PERSON: Credit Services Dept	
EXPDATE: Apr 92	L STREET: 1067 Rosalia Drive	
LIMIT: \$500	O CITY ST ZIP: Los Angeles CA 90055	
#C: 1	S PHONE: 213-555-1790	
OTHER HOLDER: None	T LOSS LIMIT: \$0 within 24 hours	
ANN FEE: \$25		
FIN APR: 15.5%		
NOTES: Card for Karen pending		
ISSUER: ESSOIL		
HOLDER: Corey Thompson	COMPANY: Essoil Credit Services	
CARD NUMBER: 317 762 380 2	F DEPT/PERSON: -	
EXPDATE: Jul 93	L STREET: 1357 Main Street	
LIMIT: \$1000	O CITY ST ZIP: Terre Haute IN 47808	
#C: 3	S PHONE: 1-800-555-1234	
OTHER HOLDER: Karen, Caroline	T LOSS LIMIT: -	
ANN FEE: None		
FIN APR: 19.1%		
NOTES: Travel Accident Ins \$25K		
ISSUER: GUSHER OIL		
HOLDER: Karen E. Thompson	COMPANY: Gusher Oil Company	
CARD NUMBER: 765A-678-53	F DEPT/PERSON: -	
EXPDATE: Aug 91	L STREET: P.O. Box 2001	
LIMIT: \$750	O CITY ST ZIP: Sierra Blanca TX 79851	
#C: 2	S PHONE: 800-555-6100	
OTHER HOLDER: Corey	T LOSS LIMIT: -	
ANN FEE: None		
FIN APR: 12.5%		
NOTES: -		
ISSUER: NATIONAL DINERS CLUB		
HOLDER: Corey Thompson	COMPANY: American Diners Club	
CARD NUMBER: 372-947-556	F DEPT/PERSON: Retail Card Service Dept	
EXPDATE: Oct 92	L STREET: P.O.Box 765	
LIMIT: \$3500	O CITY ST ZIP: Oshkosh WI 54901	
#C: 2	S PHONE: 800-555-7272	
OTHER HOLDER: Karen	T LOSS LIMIT: \$25	
ANN FEE: \$25		
FIN APR: 15.4%		
NOTES: Insurance coverage \$250K		

Figure 5. First page of labels report, showing category names and entries.

EXPDATE	Aug 91
LIMIT	\$750
#C	2
OTHER HOLDER	Corey
ANN FEE	None
FIN APR	12.5%
COMPANY	Gusher Oil Company
F DEPT/PERSON	
L STREET	P.O. Box 2001
O CITY ST ZIP	Sierra Blanca TX 79851
S PHONE	800-555-6100

Table 2. Additional entries for Record 1.

Name/Category screen. Hit Return to enter the area containing the category names.

Press Down Arrow enough times to move the cursor to the first *SPARE*. Press OA-E to switch to the overtype cursor. Type **KEPT**, press OA-Delete (to remove the *E* left from *SPARE*), then hit Return. Press Escape to return to the *Review/Add/Change* screen. You can now type the card locations in each record, and if you lose your wallet, you'll know instantly which cards you should report lost. Be sure to save the database after making changes.

If you've deleted spare categories in a screen or report format, you won't see this renamed category until you reinsert it. To reinsert, place the cursor where you want the insertion to take place and press OA-I to bring up the *Insert a Category* screen. Select the category and hit Return.

Stay tuned next month and you'll learn to allocate your expenditures — personal or business — in a cash-distribution spreadsheet guaranteed to make life easier at (gasp) tax time. □

CONTRIBUTING EDITOR RUTH K. WITKIN IS THE CREATOR OF THE *SUCCESS WITH APPLEWORKS* TEMPLATE/HANDBOOK SERIES (PUBLISHED BY *INCIDER/A+*, IDG COMMUNICATIONS/PETERBOROUGH) AND *RUTH WITKIN'S BEST NEW APPLEWORKS TEMPLATES* (QUALITY COMPUTERS). SHE'S ALSO THE AUTHOR OF *THE BEST BOOK OF APPLEWORKS* (MACMILLAN PUBLISHING COMPANY) AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS* (JOHN WILEY & SONS). WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A REPLY.



APPLE IIgs BASICS

BATTLE OF THE LANGUAGES 2

What programming language can we name champion of the IIgs? Let's pick up on the debate.

By RON LICHTY

"CHOOSING THE RIGHT PROGRAMMING language for the IIgs is a controversial subject." At least that's what you must be thinking after reading the first part of the debate among four preeminent language developers at the May and September 1989 AppleFests. (See "Battle of the Languages," May 1991, p. 78.)

Each language has its strengths and weaknesses: Apple II programming pioneer and Merlin assembler publisher Roger Wagner argued the merits of assembly language, ORCA languages publisher Mike Westerfield supported Pascal, APW languages product manager Tim Swihart made the case for C, and BASIC book author and *A2-Central* newsletter publisher Tom Weishaar defended BASIC. So sit back, relax, and let's see where the second half of the debate takes us as the panelists open the floor for questions.

Which is the best language if you want to learn how to use the desktop?

Mike Westerfield: That's easy — C, Pascal, or assembly language.

Roger, Tom Weishaar watched you program in BASIC. Why are you defending assembly language? [See "Battle of the Languages," p. 82.]

Roger Wagner: There are commercial programs written in BASIC that are doing quite well. But programmers who're trying to maximize the machine's performance to create the latest neat arcade stuff, plus top-quality graphics and sound, have to work at the assembly-language level. On the other hand, if I'm going to write a checkbook-balancing program and I want it to run on five different machines, I'd probably pick C. I guess I'm shedding my cause here completely. Let's just say something good about everybody.

Tim Swihart: See what assembly does to your mind?

Roger Wagner: If I were writing a checkbook-balancing program, I probably wouldn't start it in assembly language. I suspect most spreadsheet programs were written in assembly language, though, because of the volume of operations. There's probably some rule of thumb of computer cycles per second. The lower the number of cycles needed, the less the compulsion to use assembly language.

It should be obvious to everybody by now that the choice of language isn't an absolute. It's directly dependent on the size of the project you're undertaking, how many people will use it, and how much time you want to spend doing it. It comes down to finding the right tool for the job.

Mike, could you delve a little bit deeper into why you favor Pascal over C?

Mike Westerfield: Pascal and C are different tools for different purposes. Pascal is the tool when you want to get the program done, you want it done accurately, and you want it to be reasonably efficient. Pascal protects you.

On the other hand, C is much more expressive. It has more operators and more ways of dealing with an expression. C is really good when you have to deal with hardware — or if you're writing operating systems or very low-level utilities for operating systems. How many people are really doing that? My objection is that C is overused. I think Pascal is the right tool for the job more often than not.

Are there versions of BASIC that interface to GS/OS and the Toolbox?

Ron Lichty: There's **TML BASIC** [now called **Complete BASIC**], **Micol BASIC**, **AC/BASIC** from Absoft . . .

Roger Wagner: So What Software's **Call Box** interfaces Applesoft to GS/OS. That company's on the leading edge of using GS features from Applesoft BASIC.

Oh, I just realized how I can promote assembly language. A neat way of accessing the toolbox from BASIC is to write little assembly-language nuggets, commonly called *ampersand routines*, that you can plug into Applesoft BASIC programs to do all sorts of amazing things. You'll find that basically all the languages mentioned here must resort to jumping into assembly language eventually.

Ron Lichty: Tom, BASIC is criticized for the way programmers generate "spaghetti" code. Can you explain what spaghetti code is and respond to this criticism?

Tom Weishaar: I'd be happy to. Spaghetti

code is difficult to follow because it involves writing programs that jump around. They run fine until you want to go back and modify something. If the code jumps from one point to another to another to another to another, figuring out what the program is doing is often difficult.

BASIC gets the rap that programs written in it always use this spaghetti technique. In fact, there's nothing about BASIC that requires you to write spaghetti code. You can write a structured program in BASIC. It's just that these other languages don't let you do it any other way — BASIC gives you a choice. It gives you freedom of programming.

Mike Westerfield: Actually that's true. In fact, that's one of the reasons Pascal is a very popular language.

Tom Weishaar: Ah, forget it.

Mike Westerfield: I can write spaghetti code in any language, including Pascal. But Pascal encourages you to write structured code. More importantly, because Pascal was written as an educational language, the books that teach Pascal are all designed to teach good programming practices.

Actually, a cult evolves around any language. The Pascal cult is to teach you to program well. The C cult is to teach you to program portably. The assembly-language cult is to teach you to program efficiently. And the BASIC cult is to teach you to program something, anything. One of the reasons I always recommend learning Pascal is because it's going to teach you a lot about programming.

Ron Lichty: Tim, it's been said that programming in C is like handling a loaded gun: It's as easy to shoot yourself in the foot as to shoot the problem in the head.

Tim Swihart: That's true, but any seasoned hunter knows the difference between the problem's head and his own foot. It's like playing an adventure game — you get a little tired of typing "go north" and "go south," for example. Pascal programmers are in the same boat. When they get tired of the verbosity of the language — having to spell out everything and being unable to

do simple arithmetic — they want to move to a language like C that lets them get the job done in a timely manner.

As far as shooting yourself in the foot goes, the ANSI standard for C puts a safety on the gun. So if you do point it at your foot and pull the trigger, there's a good

chance it won't go off. It marries the best features of Pascal, but it leaves your mother-in-law in the living room watching TV.

Ron Lichty: One of the reasons I like assembly language is for the opportunity ⇨

THE PEOPLE BEHIND THE IDEAS

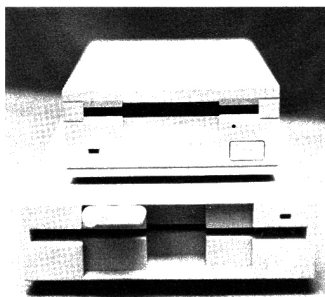
Roger Wagner was teaching school when he bought his first Apple II in 1978. Since then, he's been a regular columnist for one or another of the Apple II magazines for almost a decade (currently he appears in *Nibble*), and he wrote *Assembly Lines* and *Apple IIgs Machine Language for Beginners*. His company, Roger Wagner Publishing, Inc., has published BASIC language add-ons, the popular assembler Merlin, the word processor MouseWrite, and the runaway best-seller HyperStudio.

Mike Westerfield learned BASIC in high school and ALGOL in college, but didn't intend a career in programming until the Air Force ignored his master's degree in physics and sent him to mainframe assembly-language school in Denver. Not long after, he sold his car to buy an Apple II. When Apple needed a development system for the IIgs, it called on Mike and his company, The Byte Works, to turn his ORCA development environment into APW, the Apple IIgs programmer's workshop that supports assembly, C, and Pascal. The Byte Works produces ORCA-environment assembly, C, and Pascal language translators. Mike was a regular columnist for the late *Call-A.P.P.L.E.* and *8/16* magazines, and has developed beginning programming classes for America Online. He also writes talking children's-software books.

Tim Swihart first learned FORTRAN on a mainframe, which he describes as "kind of like hacking pebbles with a very large bulldozer." He then learned BASIC, but says, "I was able to recover through the therapy of assembly language and later C." Tim was working for a Texas defense contractor when Apple Computer wooed him away to product-manage APW, as well as Apple's own Macintosh-to-IIgs (MPW IIgs) cross-development system. He had already made a name for himself in the Apple IIgs world as Apple II Languages Forum sysop for GENie, as a writer for *Call-A.P.P.L.E.*, and as a developer of the shareware and freeware programs Two Apples and a C cross-reference utility. He has since written extensive desk-accessory programming tutorials for magazines and on-line services.

Tom Weishaar first learned BASIC on an Apple II in 1980, and followed that with assembly language. But, he says, "I've never been smart enough to learn how to program in C or Pascal, which is why they let me talk about BASIC." He founded the major Apple II newsletter *A2-Central* (originally *Open-Apple*), after writing a magazine column and several computer books, including *Your Best Interest: A Money Book for the Computer Age*, *The DOSTalk Scrapbook*, and *ProDOS Inside and Out*. He also runs the Apple II areas on GENie. *A2-Central* sponsors the A2-Central Summer Conference for Apple II developers (nicknamed KansasFest), "where developers come and actually duke it out in shorts in Kansas in the summertime!"

Ron Lichty, the panel's moderator, started programming in 1980 for fun, and taught himself BASIC, then assembly language, from books. He spent the next seven years writing programs to run electronic door locks; word-process and spell-check on the Apple II, IBM PC, and Macintosh; and run the Apple IIgs sales demo. In his free time, he co-authored *Programming the 65816* and *Programming the Apple IIgs in Assembly Language*. (For copies visit your local bookstore or send \$32 to Ron Lichty, P.O. Box 27262, San Francisco, CA 94127.) Three years ago, he moved to Apple to manage the Apple II development-tools product group, then the Macintosh object-oriented tools product-marketing group, before becoming lead engineer on the Apple IIgs Finder in December 1989.



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to climb right down into the processor and listen to the gates open and close. Would any of you like to tell us where you find your joy in programming?

Tim Swihart: I get a little tired of hearing the gates creak when I want to do things such as floating-point arithmetic, nice neat loops, and some of the more complicated things. So I like to step up just one level, which is why I find C so attractive. The mindset of programming in C brings you close to the architecture of the machine — much as assembly does, but you've got far more-readable code than when you have MVNs, JMLs, and JSRs in there. You can still hear the gates open and close, but you can have a compiler open and close them for you.

I don't always like stepping up into the really high-level languages like Pascal, because you get into a lot of additional typing when you want to do simple things. If I want to open a new subroutine, I have to type BEGIN and END (sometimes with a semicolon or a period after END). In C, you just hit a curly brace and close it with the other curly brace. It's a lot more intuitive. For the novice, verbose languages are nice, but once you've started learning your way around the adventure game of programming, you'll want to turn on brief mode and get right to the heart of the problem.

Mike Westerfield: Well, when I'm programming for the fun of it, I go into Pascal. I usually want to concentrate on what I'm writing, not on how to write it. With C, you have to watch yourself extremely carefully to avoid crashing the machine or destroying a disk. With Pascal, you've got your mother-in-law looking over your shoulder saying, "No. You don't really want to do that." And occasionally, it's nice to have someone look after you a little bit.

Tim Swihart: Thanks, Mom.

Mike Westerfield: A programmer once said that Pascal is a voluntarily worn straightjacket. The reason you strap it on is to prevent yourself from doing a lot of damage. So I generally write in Pascal. If it turns out to be too slow, I'll translate a few

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Reader Service	Page	Reader Service	Page
40 Abracadata	70	35 PC Globe	66
103 Alltech Electronics Co. Inc.	68	59 Perfect Solutions	76
* Applied Engineering	CV4,9,43	* Preferred Computing	20,21
87 Bible Research Systems	75	105 Price Busters	67
151 Big Red Apple	23	128 Programs Plus	12,13
9 CDA Comp Sales	55	269 Public Domain Exchange	65
21 Co-Du-Co	75	136 Quality Computers	2,3
14 Complete Technology	77	165 Quality Computers	5
288 Computer Friends	71	155 Quality Computers	4
19 Computer Tooter Pals	18	7 Ramco Computer Supplies	76
80 Dandam Software	75	90 Roger Coats	49
134 Dayton Computer Supply	76	29 Shreve Systems	77
184 Digital Vision	18	291 Softdisk	1
220 Educational Resources	6	127 Softspoken, Inc.	76
94 Fantasyworks Software	76	23 Software of the Month Club	77
85 Fas-Track Computer Prods	29	18 Sports Software Assoc.	75
31 FrankSoft Publishing	76	60/3 Springbranch Software, Inc.	76
24 Frog Systems	77	36 Sun Remarketing	77
67 FYI Publishing	77	56 TMS Peripherals, inc.	CV3
* inCider		231 Tulin Corp.	73
Appleworks Productivity Paks	79	297 USA Micro	69
44 LRO Computer Sales	19	290 Vizi Flex Seels	75
* Macworld expo Boston	31,32,33	17 VMC Marketing	75
248 Memory Plus Distribution	64	189 Zip Technology	CV2
55 National AW User Group	75		
173 New Science Prospects	75		
71 Nite Owl Productions	75		
16 OEM Corporation	77		

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of the subroutines into assembly. But I go to C only when I truly have to.

I've used BASIC a lot because it's a fun little language to sit down and play around with. It's sort of like the skateboard of programming. It's easy to get out of the closet and roll around the block. But if you're going to do anything serious like drive across town, you probably want to put it back in the closet and get a real language.

Tom, why do you say Applesoft has limitations?

Tom Weishaar: Applesoft's strength is programs under 100 lines. Applesoft's problem is that only the first two letters of each variable name mean anything. If you get into long programs you run out of meaningful variables quickly. So Applesoft is best for short programs. But the advantage is that real people can learn how to use it in their spare time.

When you use Applesoft and try to call tools in the Apple IIcs Toolbox — where the tool call requires you to pass data that's in a variety of formats — you'll run into problems. Applesoft has no structure to handle that. It's an inappropriate language for manipulating the toolbox directly.

Can I ask a question? These guys have been on this panel twice and they've about convinced me to learn either Pascal or C.

Tim Swihart: C.

Tom Weishaar: For a person like me, who knows Applesoft and assembly language but would like to learn Pascal or C, could you recommend the best way to proceed, and tell me how long learning it would take?

Tim Swihart: It doesn't take very long to come up to speed on C, or actually any language, once you've taught yourself the concepts of programming. All you need to do is figure out the syntax and new features. You're not learning the language from scratch — you're learning the difference between the language you know and the new one.

Pick carefully and really find the language that fits you best. As Mike said, he's used them all and he likes Pascal. I've used them all, and like C. There's kind of a mindset with each language. Find the one that fits your personality best.

For C, use *The C Programming Language, Second Edition*, by Kernighan and Ritchie and published by Prentice Hall (Englewood Cliffs, NJ). They're the guys who defined the language. It's filled with examples, but it's thin, so you're not overwhelmed by it. By the time you get to the end, you'll understand all the concepts in the language and you'll have a library of example programs.

Mike Westerfield: For someone who knows C and is learning Pascal, or knows Pascal and is learning C, I think Tim described it fairly well. But for someone who knows assembly language and BASIC, and has never learned C or Pascal, I'd have to disagree. Both C and Pascal have a lot more to the language than do BASIC or assembly — you've got about twice as much to learn.

One of the problems with learning to program on the IIcs is that few of the books on the subject were written specifically for the GS. But the courses on GENie and America Online University that teach C, Pascal, and assembly are really good

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places to learn. The reason is that you're sitting there trying to learn a computer language in the middle of nowhere. When you've got a question, it's kind of tough to get some help. With the on-line services, you find people from all over the world who are possibly trying to do the same thing.

Is there a book or program that can help me individualize BASIC instruction for exceptional students?

Tom Weishaar: Let me start at the beginning. In the box with new Apple computers is a little book called *A Touch of Applesoft BASIC*. It's probably not suitable for the classroom, but it's a great place for new users to get started programming. The next books I recommend are Apple's *The Applesoft Tutorial* and *The Applesoft Reference Manual*, published by Addison-Wesley (Reading, MA). Once your students learn the fundamentals of BASIC itself and figure out how to deal with numbers and text, you should get them *BASIC Programming with ProDOS* to teach them to handle files on disk.

Ron Lichty: We have time for just one more question.

Roger, isn't your HyperStudio a form of programming?

Roger Wagner: Actually, because I'm constrained to assembly language in this forum, I can't talk about HyperStudio in good conscience. The purpose of a language, however, is to communicate your thoughts to the computer. The most successful programs, whether VisiCalc or desktop publishing, always have the element of programmability.

I love people who say, "Oh, I don't program. I just use a spreadsheet." And then you start talking to them and they say, "Well, yes, I just type in $A1 = 3 \times 2 +$ the sine of this and I've got a new version that does searches, sorts, and if-then analyses." And I say, "Boy, I'm sure glad you're not doing any programming!" □

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REVIEWS

Continued from p. 35

on GS Sauce. In their place is one bank of four DIP switches — arrgh! But wait! There's nothing to fear. The documentation is a two-sheet pamphlet with detailed, comprehensible instructions and diagrams that illustrate every possible switch combination. In brief, a trained poodle could handle this installation.

As for some miscellaneous details, the card is DMA (direct memory access) compatible and is as reliable as anything we've

ever put in our IIGs. We left it on for a week of standard usage with a copy of Dr. Ken Franklin's shareware game Milestone 2000 on a RAM disk, and all the digitized sounds came out as crisp on Monday as they had the week before.

WEIGHING IN

How does GS Sauce stack up for cost? It depends on how much memory you want. If you're just looking for an extra meg, the prices are pretty comparable. But if

you want the whole 4-megabyte hog, GS Sauce can save you \$50 to \$100, depending on where you go. Add the fact that Harris Labs ships all its products with a lifetime warranty, and we dub GS Sauce "Spud Webb" — small and tough to beat.

Cameron Crotty
Associate Editor

PROSEL-16

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ProSel is one of the premier program selectors and utility packages for 8- and 16-bit Apple IIs. The author of ProSel-16, Glen Bredon, is widely known for his high-quality software, and version 8.2 of ProSel-16 is no exception. It comes on a 3.5-inch floppy with a well-written 139-page manual. While beginners may find the package intimidating, power users will be delighted by its versatility.

BREAD AND BUTTER

ProSel-16 has four main parts: program selector, disk-management utilities, text editor, and "bells and whistles" — the software's *Appointment Calendar* classic desk accessory and *Number Cruncher* calculator.

The ProSel-16 program launcher provides many of the same functions as the Apple IIGs Finder, but if you're used to folders and icons, ProSel may throw you at first. The display is "pseudo-text" on a super-hi-res screen. (Pressing Open apple-Tab will toggle a text screen.) But what the program lacks in visual amenities, it more than makes up in flexibility.

The screen editor lets you set menu text position and color, pathnames, and launch preferences, including accelerator-card settings. The program selector can launch SYS, S16 (GS/OS), and EXE files directly, and BAS files through BASIC.SYSTEM. Select NDAs from a ProSel-16 screen by pressing Open apple-* (asterisk).

Here's another extra: If you install ProSel-16 as your hard-disk startup program, a virus-check and -elimination utility runs automatically at bootup.

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ProSel-16's disk-management aids include low-level tools such as the following:

- *Utilities* (file copy, lock and unlock, delete, rename, verify, create a directory, type file, format, exhume, hide and unhide, and dump file)
- *File Finder* (locates a file by name or text string, then types, dumps, or runs it)
- *Command-line processor*, or *Shell* (runs EXE programs — many are included on the ProSel disk — or creates executable batch files)
- on-line help

You can also warm- and cold-boot the program and display the current prefix from the main menu.

POWER TOOLS

ProSel-16's high-level utilities — *Information Desk*, *Volume Repair*, *Volume Copy* (in the *Utilities* menu), *Optimizer*, and *Zap* — are powerful and useful, and can be dangerous because they let you operate directly on program file structures.

- *Information Desk* provides data about your storage devices. A tree-structured catalog, a list of block usage by files, file usage by blocks, a volume bit map, a directory tree, a graphic map of block usage, a graphic bit map, and a fragmentation count are all available.
- *Volume Repair* has directory test and fix modes, a bad-block scan, a main-directory repair mode, and a disk-test utility that provides disk-access timing statistics.
- *Volume Copy* is a fast copy utility, but it also has options that let you re-create all blocks or ignore damaged blocks on a 3.5-inch disk, letting you recover damaged disks or files.
- *Optimizer* speeds disk access by copying scattered file blocks on a volume to continuous areas of the disk.
- *Zap*, the last of the high-level utilities, is a block editor that lets you modify individual program blocks on a disk. Use this utility to recover files, repair bad blocks, and copy programs with "hard-wired" pathnames to a hard disk.

You'll probably spend most of your time playing with the program selector and disk utilities, but the text editor is too

useful to ignore. It can load text, AppleWorks word-processor, and program source files, and it includes keyboard macro and page-setup capability and creates printer alias files (special generic printer commands).

BELLS AND WHISTLES

Number Cruncher and Appointment Calendar put finishing touches on an already impressive package. Number

Cruncher is an RPN (*reverse Polish notation*, or *postfix notation*) scientific calculator with programmable and function plotting capabilities. You can plot both curves and surfaces and save them as screen graphics files. Number Cruncher will also use Innovative Systems' Floating Point Engine numeric coprocessor board, if it's installed.

ProSel's Appointment Calendar is a classic desk accessory, and once you've

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installed it, it's available at any time. The calendar handles up to 127 special events, displays a warning on the day of an appointment, and makes calendar printouts.

ProSel-16 is an extremely powerful program launcher and utility package, but with that power comes a learning curve. The manual and on-line help go a long way toward easing the transition, but be prepared to spend some time settling in.

HOW DO I GET MINE?

Glen Bredon offers downloadable encrypted upgrades of ProSel-16 on GEnie, CompuServe and America Online, or you can order them directly from Charlie's Apple Seeds. If you're a hard-disk owner or someone who needs a first-rate utility package, ProSel-16 will fill the bill nicely.

Garry Howard

Calgary, Alberta, Canada

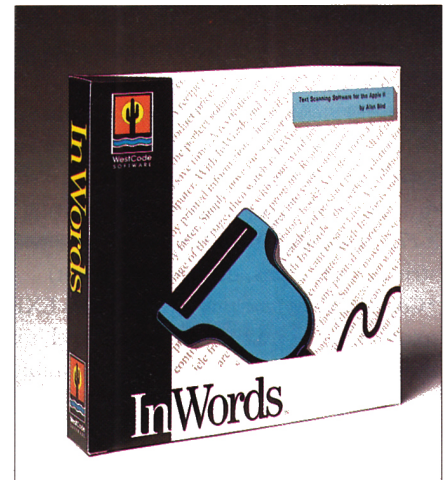
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If you think wine's the only thing that improves with age, guess again. That Apple II of yours, given the right hardware and software, can do things today that you never dreamed possible when you bought it years ago. Take Beagle Bros' TimeOut series of AppleWorks enhancements, for example. These add-ons bring new capabilities to an already existing feature-laden product. Still not convinced that your machine's got some more tricks hidden behind that familiar interface? Do you need to see it in writing? Then check out InWords and see for yourself.



InWords: a new way to scan.

Team up this optical character-recognition (OCR) program with your LightningScan or Quickie hand-held scanner and you can capture text for the software's word processor-like editor, then save it to disk as an ASCII (*American Standard Code for Information Exchange*) text file or as an AppleWorks word-processing document. Copy a newspaper story, textbook page, or even your favorite poem.

Using InWords is easy. It has an AppleWorks-style file-card interface and several sophisticated scan options. *Standard* mode is suitable for text that's narrower than the scanner's 4-inch head. If you choose *Merge* mode you can scan text wider than 4 inches. (You scan the left side of the text first, then the right. InWords combines the two scans into a single document.) In *Column* mode, InWords ignores all text except the column directly under the center of the scan head, so you can capture material from newspapers.

FINE PRINT

But can the program recognize print from all types of publications? Even though every periodical or book is printed in a particular style (typeface) and size of type, called a *font*, InWords can handle it. Not only can the program read a variety of typefaces, but you can "train" it to recognize those it doesn't know. InWords operates by comparing the characters it scans to font tables stored on disk. A number of pretrained font tables cover popular magazines such as *Time*, *Newsweek*, *US News*, *Forbes*, and *Money*, and the Apple II

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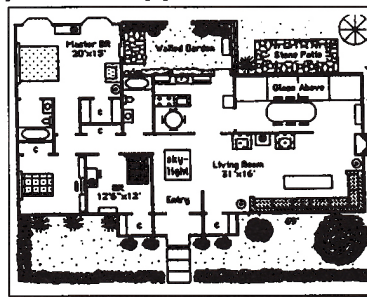


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publications *A2-Central* and the *National AppleWorks User Group Journal*; the software also includes a standard font table you can adapt to a variety of typefaces.

Before you begin scanning, set the *Letter/Photo* switch to *Letter*, and the dots-per-inch switch to *400 DPI* (for small-sized text), *300 DPI* (for medium-sized text), or *100 or 200 DPI* (for headline-sized text). For most text, *300 DPI* works just fine. The light/dark thumbwheel requires a bit of experimentation. If you set it too light, InWords won't be able to read the text. If it's too dark, letters will run together.

Now choose one of the font tables and the appropriate scan mode, and run the scanner over the text. InWords can read approximately 3000 characters, or 500 words, per minute, so roll the head over the text at about 1 inch per second. Just like scanning graphics images, you'll get audio and visual feedback. The program will alert you if you scan too fast; just issue an open apple-R command to redo the scan from scratch.

Once you've completed the scan, InWords presents a graphics image of the text on screen. Zoom in to see if the alignment is correct. Although InWords can compensate for some skewing, it works best if you're careful to bring the scanner straight down when you capture text. If all appears fine, press Return and InWords will analyze the text.

FONT TABLES

If you're using one of the predefined font tables, InWords will analyze the graphics image and convert it to a text file. If any characters are unrecognizable (perhaps your original print wasn't perfectly clear) a tilde (~) will appear in their places.

After you import the text into a word-processing file you can correct the words with a spelling checker. (If your spelling checker doesn't recognize a tilde, change the default setting to an uppercase Z, X, or any other letter that will flag the spelling mistake.)

The procedure is a little different if you're scanning a typeface for the first time, because you need to use InWords in font-training mode. Even when InWords encounters a brand new typeface, it can

recognize some letters with no training. It displays unknown characters on screen, and prompts you to type the actual letters or numbers. That's how InWords learns. If you're scanning a new typeface, it's best to capture the same text several times. OCR is an extremely complex task, and the more often a character appears in a font table, the less confused InWords will be when it encounters that character again.

Training InWords to learn a new typeface can take several hours. If you look closely, you'll notice that a newspaper contains not only a number of different typefaces, but several variations of the same typeface, including boldface and headline-sized fonts. So, by scanning the same newspaper over and over again, InWords will create a font table that includes all possible typeface variations. Again, the more often a character is represented in a font table, the fewer unrecognized characters will appear.

Although InWords is efficient, it isn't always 100 percent correct. It's common

for the program to transpose zeros into uppercase Os or Ds, and uppercase Ses sometimes appear as 5s. On occasion InWords will hang up when it encounters an unknown symbol or a horizontal line. Round dots, often referred to as *bullets*, stop InWords cold. But if you run into this kind of problem, pressing Control-Reset will bring you back to the main options menu. Given the complexity of OCR technology, it's remarkable just how well InWords works. (WestCode plans to update and enhance the product, so make sure you send in your product registration card.)

EXPAND YOUR REPERTOIRE

InWords is sophisticated and elegantly implemented. If you're capturing graphics images with a LightningScan or Quickie scanner, you're going to be pleased with the added capabilities InWords gives you. And if you don't already own a hand-held scanner, what are you waiting for? □

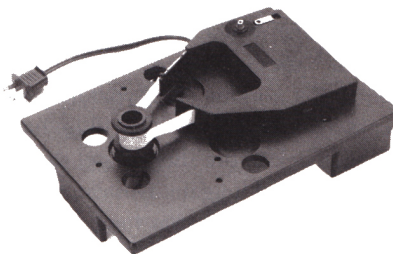
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MEMORY VS. STORAGE

Just unpacked that computer? Still can't tell DIN from RCA from VCR? Used your manuals for kindling? Forgotten those computer classes you took for science credit so you wouldn't have to take Physics 101 with Mr. Spock? This section is for you! Every month we'll explain a basic computing term or concept. This month let's look at memory vs. storage.

If you don't understand why you keep getting *Out of Memory* errors when you still have 10 megabytes available on your hard drive, you're confusing memory and storage. The difference between these two terms troubles many people, especially with the proliferation of internal hard drives. We often hear, "It's all in the same box, so what's the difference?"

Like so many difficult-to-visualize computer concepts, this one is best explained by analogy. Imagine a person named Gus in the center of a library that's filled with shelves of how-to books. Gus is your Apple II or Macintosh, Gus' brain is your computer's memory, and the library is the computer's storage (the hard or floppy-disk drive).

Gus has to fix a sink and build a cabinet, but he has a couple of problems. First, he doesn't know how to do either of these jobs. He has the proper tools, but not the knowledge. Second, owing to overindul-

gence in controlled substances during the late '60s, Gus is limited in the amount of information he can remember. So Gus looks through his library, finds a book titled *How to Fix a Sink*, reads it, and fixes his sink.

But now his mind is filled, and he can't learn anything else without forgetting how to fix a sink. So he puts the sink book back on the shelf and gets one titled *How to Build a Cabinet*, reads it, and builds his cabinet. Now Gus knows how to build a cabinet, but nothing else. What if his sink breaks again? No problem. All he has to do is go back to the shelves, get the sink book, and read it again. Gus can only do one job at a time, but as long as he has his library of how-to books, he's fine.

Your computer's memory is just like Gus' brain, and your disk drive (storage) is like his library. Your computer can do many things, but it can do only one task at a time — and when you turn it off, it forgets everything it knows. When a computer needs a program (a how-to book) it reads the data from the disk drive (the library) and keeps it in its random-access memory (RAM) until it doesn't need it anymore.

Now let's think about what happens when you want to write a letter. Your computer reads the word-processing program (how-to book) from the disk drive (the library) and then you type your letter. But wait! Before you can print it, the electric company calls and tells you that

because you haven't been paying your bills, it's going to turn off your electricity. When the power goes off, your computer will forget everything, including your letter! What can you do?

What would Gus do if he knew he was going to forget something? He'd write it down and file it in his library so that he could find it again when he wanted. When you tell your computer to save a document, you're telling it to write it down, and file it on a disk drive (library) so that you can find it again.

If you get an *Out of Memory* message, it refers to RAM, not disk storage. In terms of the analogy that means Gus can't finish reading his how-to book because his brain's not big enough. Too bad Gus can't buy a special add-on card to expand his gray matter like the one you can add to your computer to increase its RAM. Next time, we'll talk about operating systems, the Finder, and ROM (read-only memory), your computer's special internal library. — C.C.

COLUMN-WIDTH MACROS

Macros are AppleWorks Classic enhancements that automate and speed routine tasks. AppleWorks users can write their own custom macros or use hundreds of available routines and macro programs written by others.

To kick off this new section, I've contributed one of my macro routines that I find useful when working with spreadsheets. This macro resets column widths to readable form after you've used the AppleWorks Clipboard to transfer data into the spreadsheet from the database or another spreadsheet. (You'll avoid much of the tedious work of changing each column width individually and manually.) It requires AppleWorks 3.0 and Beagle Bros' TimeOut UltraMacros version 3.1.

Here's how to use this macro:

- Type the macros into a word-processing file exactly as shown. The comments enclosed in the curly brackets are optional,

but they'll help you review the syntax later.

- Save the file to disk and compile the macros with your *Macros Compiler*, which should be on your TimeOut menu. Your UltraMacros manual provides simple instructions for compiling macros files.

- Load your existing AppleWorks database or spreadsheet to the desktop. Press Open apple-C (OA-C) or OA-M to copy or move all or a portion of your source file to the Clipboard. Create a new spreadsheet from the *Add files* menu and move the data on the Clipboard to your new spreadsheet.

- With your new spreadsheet on the screen, start the macros routine by pressing Solid apple-W. Press no other keys until the action stops. You'll see the macro go into action by first collapsing your new spreadsheet into one-character-wide columns. The cursor will then go to the

last row of the last column and check each cell in the spreadsheet, making column width adjustments as appropriate. The macro will stop when the cursor arrives at cell A1 at the top right-hand corner of your file.

- After running the macro routine you may need to make some minor adjustments, especially where it's transferred repeated labels such as horizontal or vertical lines. Otherwise the data in the destination spreadsheet will display much like that in the source document.

— Dave Gair,

AppleWorks Programmers Association

IF YOU'VE GOT SOME MACROS TO SHARE, SEND THEM TO *INCIDER/A+*, ATTN: MACROS, 80 ELM STREET, PETERBOROUGH, NH 03458. PLEASE INCLUDE ANNOTATION OF YOUR MACROS AND ADEQUATE DOCUMENTATION. SUBMISSIONS MUST BE ORIGINAL MATERIAL COMPOSED BY THE AUTHOR.

```
start { "start" must be on a line by itself followed by a carriage return }
W:<asp : oa-1 first : { Get to top left of spreadsheet } :
  oa-l>C<last rtn>C<x=0 : { Narrow all columns - set variable } :
  begin : oa-left : { start loop - narrow by one character } :
  x = x + 1 : { count loops } :
  if x = 12 then rtn exit : { end if 12 loops complete } :
  endif : rpt : { or repeat loop } :
  oa-9 : last : { go to bottom right of spreadsheet } :
  begin : { start main loop } :
  x = peek #worktype : { find type of cell under cursor } :
  if x > 32 and x < 58 or x = 0 : { skip blank or repeating label cells } :
  then ba-1 up rpt : endif : { redirect cursor and repeat main loop } :
  posn x,y : $0 = cell : { present cell position and contents } :
  z = len $0 : { get length of contents in cell } :
  w = peek #ccwidth : { check current column width } :
  t = z + 1 : { temporary variable - length + 1 } :
  if t < w then up exit : endif : { test - narrow only if desired } :
  if z = 1 then : z = z : endif : { leave 1 character columns alone - } :
  ifnot z = 1 : z = z + 1 : endif : { or set to length + 1 character } :
  w = #colwidths + x : poke w,z : { Poke new column width } :
  display #off : { avoid unnecessary screen flashing } :
  oa-q display #on : rtn : { re-draw screen with new column width } :
  exit : rpt : { Trick for the 'exit' tokens to direct } :
  { control past the 'rpt' token - the } :
  { 'rpt' token is never actually used. } :
  ba-1 : { call subroutine } :
  up : rpt>! { go to next cell and repeat main loop } :
```

Subroutine to redirect cursor or end macro.

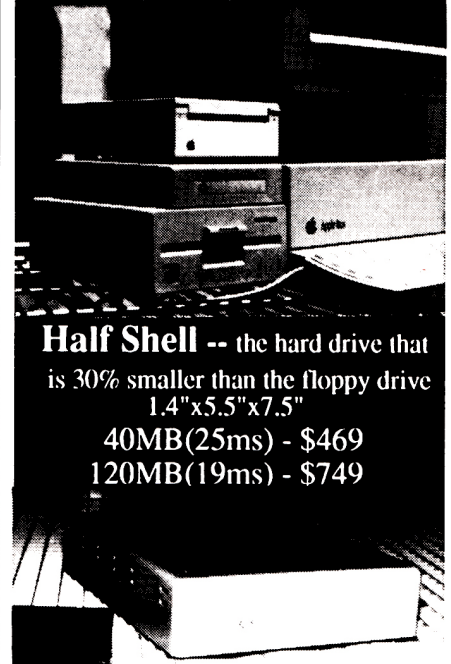
```
<ba-1>:<asn posn x,y : { check cursor position } :
  if x = 1 and y = 1 : { if in cell A1 - } :
  then stop : endif : { then stop macro activity. } :
  if y = 1 : { if in row 1 but not column 1 - } :
  then left oa-9 down : endif>! { then set up for next column } :
```

Safety macro — If display freezes press Solid apple-Control-D.

```
<ctrl-d>:<all oa-q display #on : rtn>!
```

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By DAVID D. THORNBURG, Ph.D.

Ironically enough, when it comes to educational technology, our homes seem better equipped than our schools. According to an EIA (Electronic Industry Association) report on consumer electronics, at the beginning of 1990 more than 90 percent of American homes had a telephone and color television; more than 50 percent had a VCR with cable access; and about 25 percent had personal-computer systems, CD players, and other technologies. The report also stated that about 5 percent of the homes had more



exotic technologies, such as satellite antennas, large-screen monitors, and fax machines.

This point raises an important question. Do children need to go to school to get a good education? According to Chuck House, once a part-time instructor at Stanford University and now vice-president of engineering at Hewlett-Packard, Stanford offered some of its courses in two formats — actual attendance at lectures and remote attendance through watching videotapes on television hookups. The students who watched the videotaped lectures received, on average, higher grades than those who

were present in the classroom. Some of this improved performance was a result, no doubt, of the students' ability to play the videotape over again if they missed a point.

If we extend the videotape model, another advantage of the medium shows up: Students can have access to experts in any field of study. We see this happening already through the Public Broadcasting System and the Discovery Channel. If we

wanted to, we could easily expand this programming to include the core subject matter of K-12 and college curricula.

The passive medium of TV, which teaches through telling, is inadequate by itself — it's one of the weakest (if most common) models of instruction. Here's where the personal computer comes in: 25 percent of our children already have access to an Apple II, Mac, or other type of computer at home (as opposed to about 5 percent at school). For these children, a wealth of educational software from companies such as MECC, Broderbund, and The Learning Company, plus on-line encyclopedias and databases, means that they have a world of knowledge at their fingertips. In addition, CD-ROM (compact-disc read-only memory) and laser discs support a more natural way of learning — one that specifies a topic, but supports more than one perspective.

But if classroom-based instruction is going to be the model in this country — and it certainly will be for years to come — what aspects of home-based education can we bring to classroom-based students? To tap students' intrinsic love of learning, school systems must keep pace with time — and with technology. Bring the exciting technology of VCRs, personal computers, and CD-ROM into classrooms, and students become participants in their own education.

Of course all this takes money — and that's the nub of the problem. It's time for teachers to insist that we fund technology in the classroom properly. We must refuse to tolerate the fact that according to the California State Superintendent of Education, Bill Honig, each professional in industry is supported by more than \$20,000 in capital equipment, while each teacher is supported by only \$1000. It's time to demand parity: If industry and homes are filled with the technological tools of the information age, our classrooms should be as well. After all, children are our investment in the future. □

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All sorts of computers, boards, and software have tried the trick of playing two games at once. When CP/M was the operating system of choice, cards holding 8088 microprocessors were stuffed into Apple IIs. Then II in a Mac,

Apple II emulation software for the Mac, ran II programs in a tiny mono-

chrome window. The PC Transporter board, which put a new microprocessor into your II, and Soft PC, software for the Mac, brought MS-DOS compatibility to Apples. But MS-DOS clones are so cheap that most customers who want to run MS-DOS software buy one.

The computer that truly excels in two operating systems is the Apple IIGS, which has as its heart a microprocessor designed for two sports: The Apple IIGS knows GS/OS; the Apple IIGS knows ProDOS. But the Apple IIe Card is something a little different. It's not a 65C02

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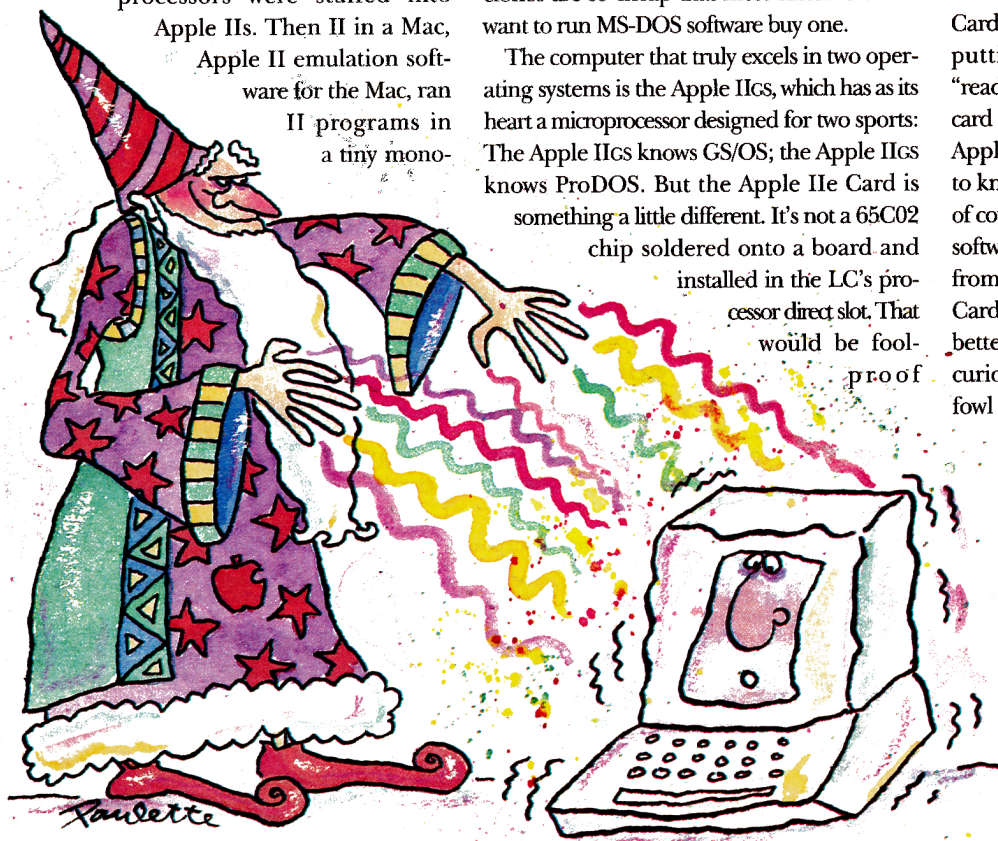
emulation (it would more or less cut power to your Mac and turn on the IIe) costing considerably more than \$199. But the IIe Card is also not just software — a translator that converts every line of II code to Mac code. That would be cheap, but you'd have to *Enter today's date* twice when running AppleWorks: first on the day you started loading the program, and again on the day you finished.

What Apple's engineers have concocted is an ingenious brew of hardware — custom integrated circuits on a card — and Mac software that's fast and inexpensive. A major savings is that the IIe in the Mac LC thinks it has a video display, printer port, modem port, disk drives, keyboard, and mouse — but it's all really the LC's property. What amazes us about the Apple IIe Card is that what it does so well — transforming Apple's low-priced Mac LC into an Apple II clone — would be remarkable even if done badly. But the Apple IIe Card is a little marvel of design.

Is it perfect? No. The Apple IIe Card lacks support for an AppleShare-based network. It doesn't let you set aside part of your hard-disk drive as a partition for Apple II programs, either. And why we can't we install the IIe Card ourselves? We Apple II users have been putting cards into slots since 1979. The "reader-friendly" manual that comes with the card also seems to assume, as too many recent Apple publications do, that you'll be satisfied to know your card works as if by magic. And, of course, the IIe Card doesn't run Apple IIGS software — but there's nothing to stop Apple from creating a GS emulation card. The IIe Card teaches this lesson, if no other: Apple is better able than anybody else to evolve these curious hybrids that try to be both fish and fowl — and very nearly do the trick.

It must have been a lot of fun to create this rough little beast. "Sir," Dr. Johnson might have said, one computer acting like two is "like a dog's walking on its hinder legs. It is not done well; but you are surprised to find it done at all." □

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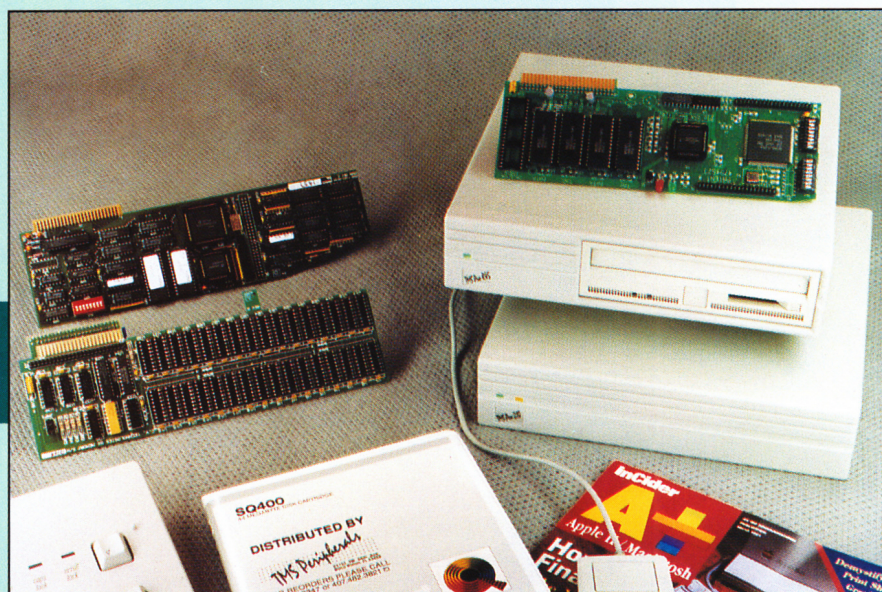
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AE DataLink 2400 w/MNPS	\$185
AE ReadyLink	\$57
AE Conserver	\$77
AE Power Supply GS	\$78

VITESSE

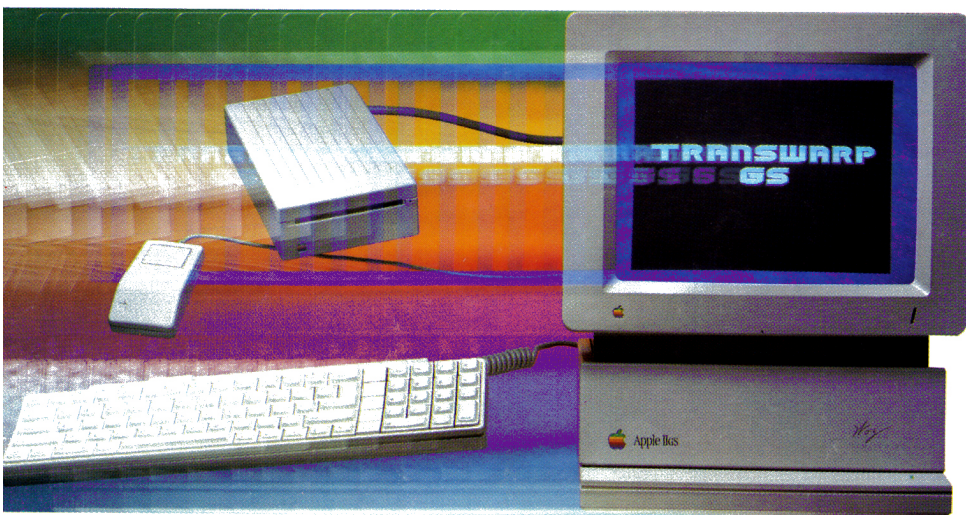
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Bakcup, Renaissance, or Deliverance	\$28
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Wings	\$46
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Quickie	\$195

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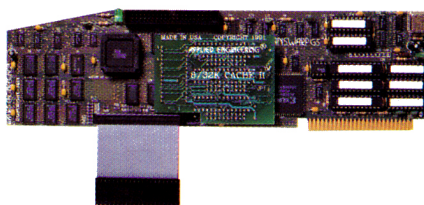
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