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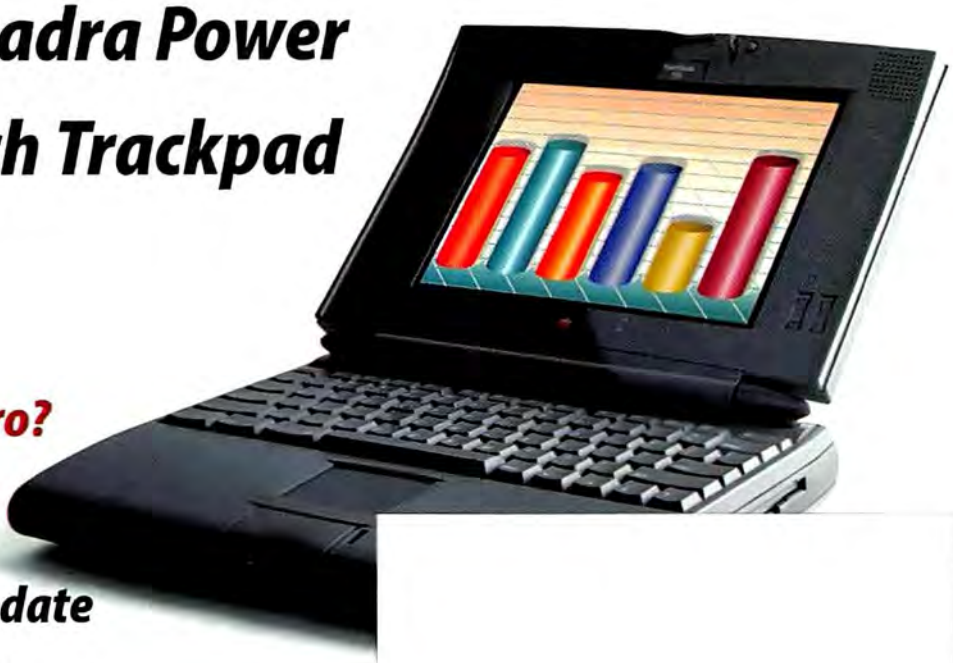

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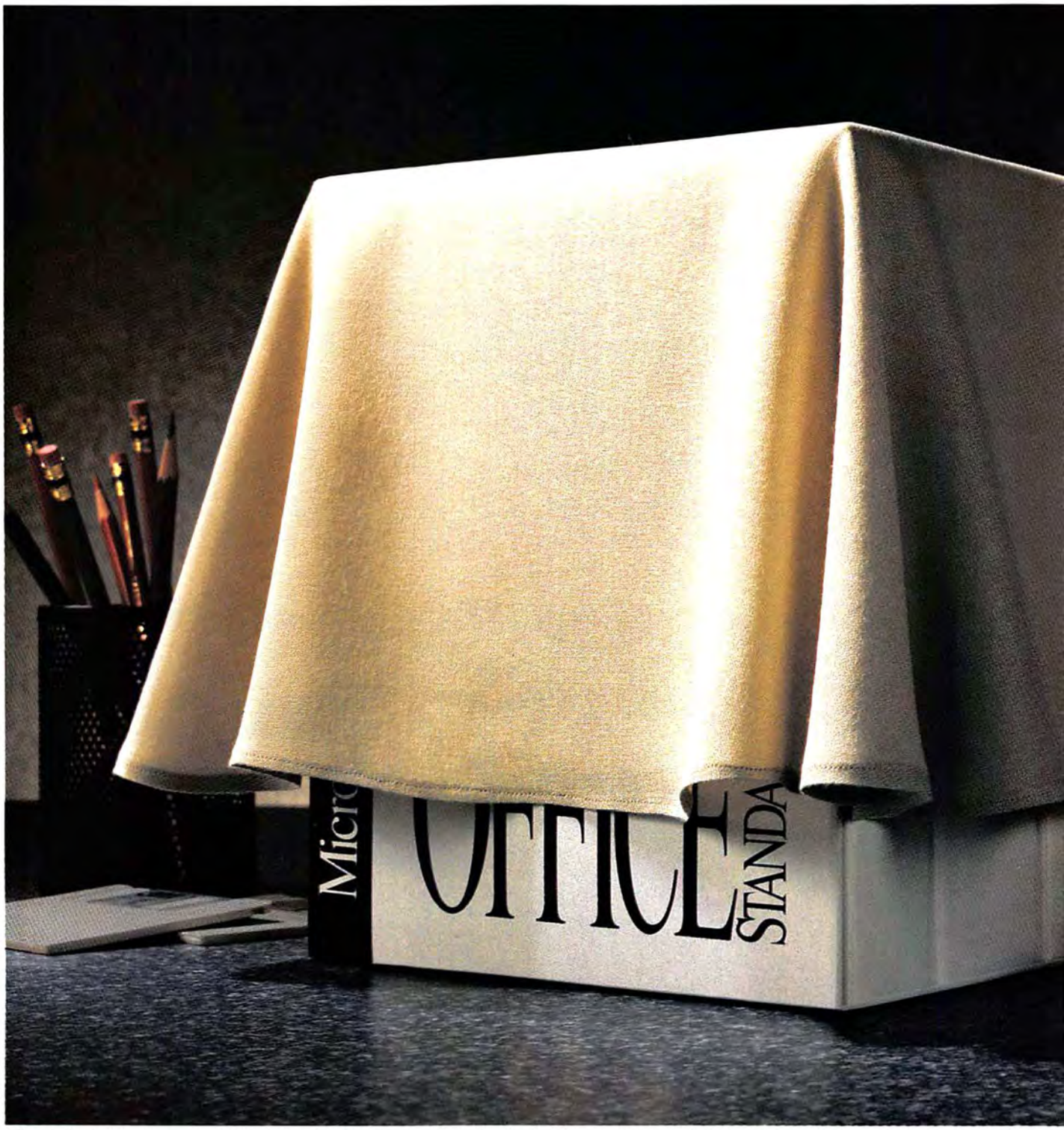

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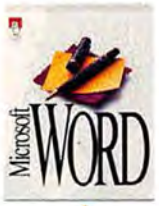

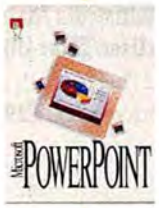

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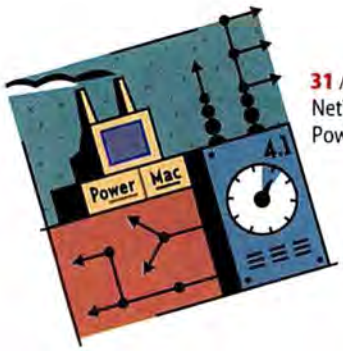

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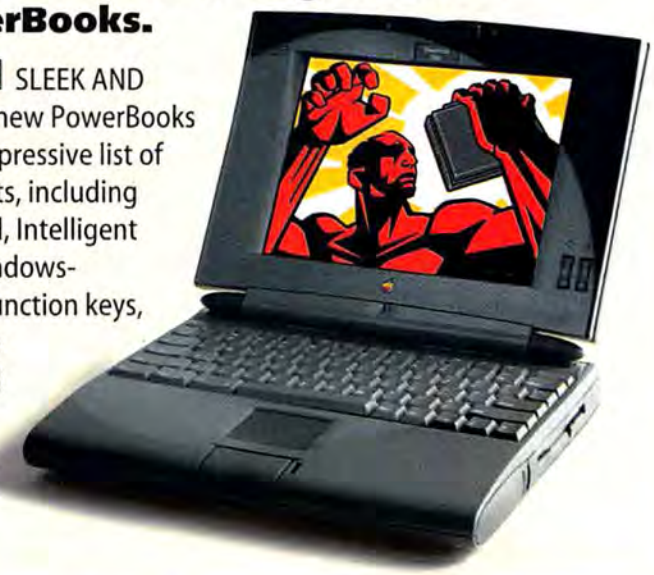

MacUserLabs SLEEK AND STYLISH, the new PowerBooks feature an impressive list of enhancements, including Quadra speed, Intelligent Batteries, Windows-compatible function keys, an innovative trackpad, and PCMCIA functionality.
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THE PROMISE OF POWERTALK is to bring the intuitiveness of the original Mac to communication. The concept — one-click communication — is an excellent one and heralds the age of seamless work flow, but the execution, according to the results from our new usability lab, falls short.
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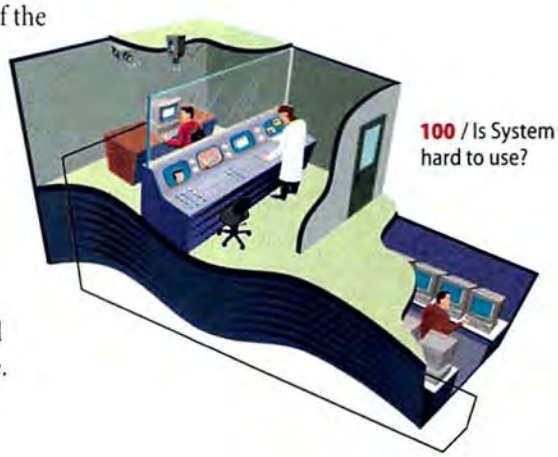

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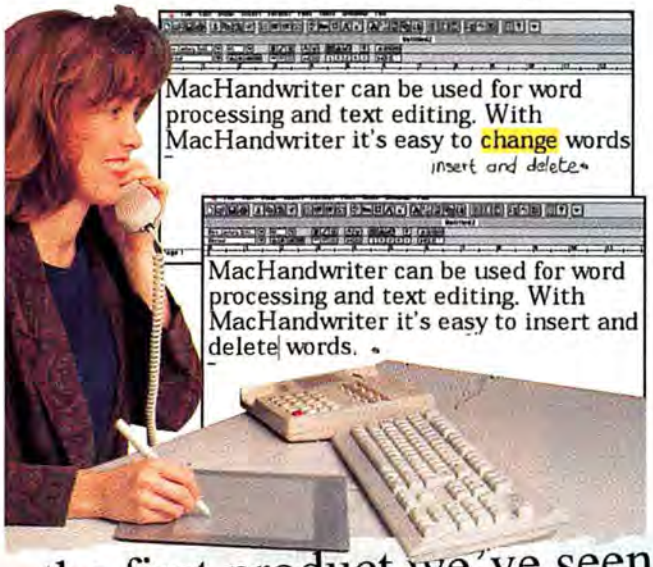

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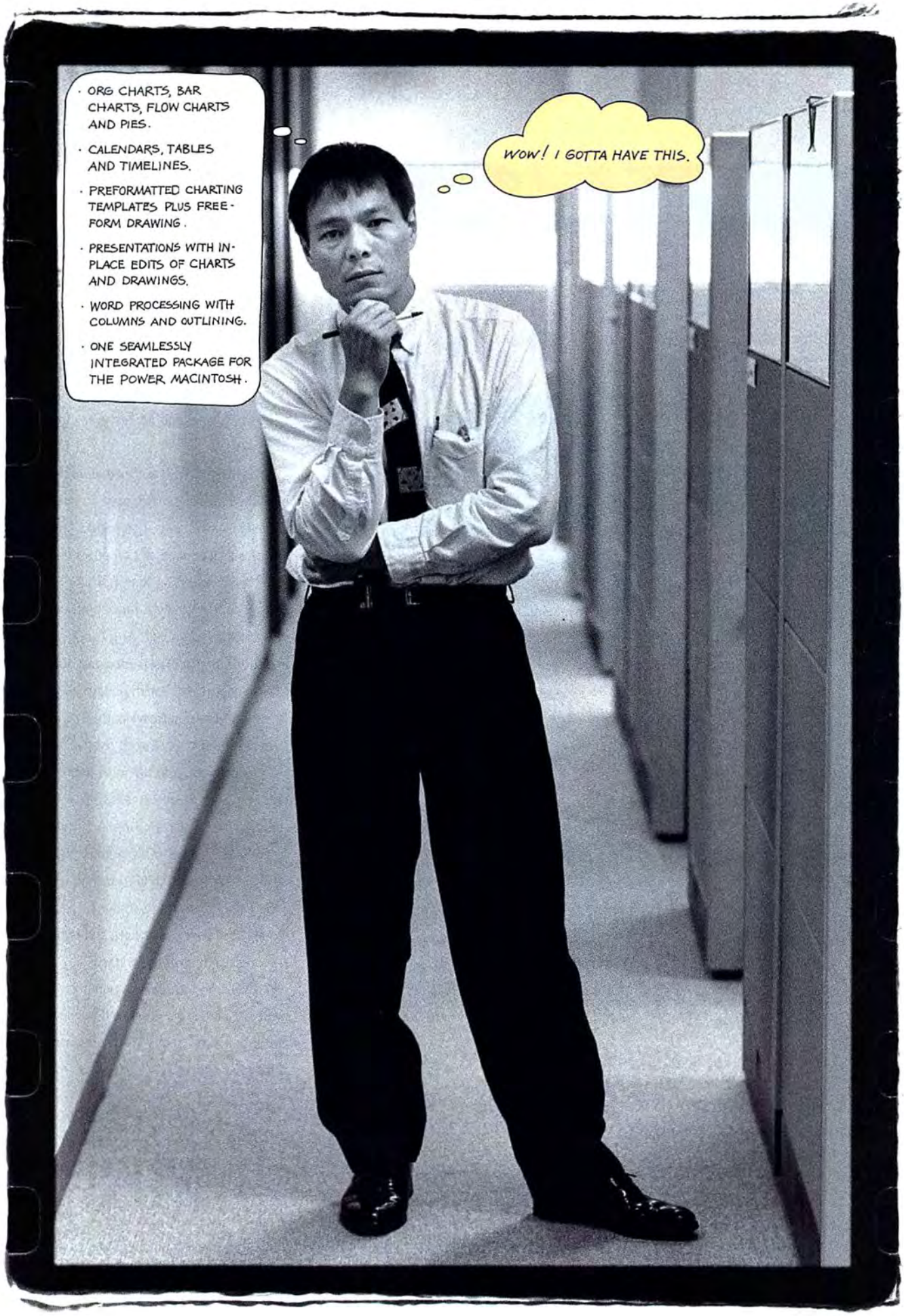
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LETTERS

Truth in Advertising

APPLE'S POLICY in promoting the PowerPC ought to be clear and simple: Tell the truth in as dramatic and compelling a manner as possible.

The crux of the issue is that the Pentium is a dead end, the ultimate performance tweaked out of an obsolete concept. There is no future for the Pentium or the obsolete CISC path it represents. By contrast, the PowerPC technology and the RISC concept are a gateway to a wonderful future of computer possibilities. Not only is the PowerPC chip far more powerful (and cheaper, cooler-running, simpler, and more dependable as well) than the Pentium but it also has enormous room for improvement in every aspect.

If Apple grasps the importance of communicating this simple concept, the PowerPC will succeed and Apple will live.

Joel Anders
Los Angeles, CA

Maxed-Out Macs?

PLEASE PRINT a comparison chart of the speeds of all the Macs Apple has released to date. I, like many Macintosh users, have little idea what the speed differences are among the various Macs. I still think of my old Mac II as being an incredibly powerful, state-of-the-art machine, because that's what it was when I bought it.

Nowadays, does the Color Classic blow the Mac II out of the water? Does the LC III? How much faster is the Quadra 660AV I have my eye on?

David S. Johnson
Durham, NC

/ We recently ran a chart comparing Quadras and the LC III to the new Power Macintosh models (May '94, pages 78 and 79). Space considerations prevent us from running a comprehensive chart, but if you're a member of ZiffNet/Mac, you can download our MacBench 1.1 utility (MACBEN.SEA, in Library 1 [Applications] of the Download & Support Forum) and use it to test your Mac yourself. MacBench includes test data from 36 Mac configurations, so you can see just how yours measures up. / JS

SO POWERPC is the wave of the future. What about those of us who own Macs that are no longer in production? I own a Mac IIsi and fear that I will have serious difficulty upgrading to PowerPC capabilities. Will I be forced to spend a small fortune to purchase a new machine, or will I be able to get an upgrade for the computer I already have? I have a great deal of time and money already invested in my computer and hate to see it all go to waste. Any suggestions?

Cynthia J. Huffstetler
Calhoun Falls, SC

/ So far, Apple hasn't announced any upgrades for the IIsi, but DayStar Digital (800-984-4511 or 404-967-2077) says it plans to make PowerPC upgrades for all color-capable desktop Macs. Bear in mind, however, that a Mac's CPU is only partly responsible for the Mac's overall performance: The Power Macs have several other design features, such as direct memory access, that make them go really fast. The only way to get the most performance out of the PowerPC technology is to buy one of the Power Macs. / SCS

Apple II Redux

I ALWAYS READ John C. Dvorak's column and sometimes even agree with his comments. "Last Rites" (April '94, page 210) was especially amusing. He finds it pathetic that other writers have devoted time and effort to report on the discontinuation of the Apple II line, while doing the same thing himself.

Write to Letters

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To send your letter electronically via MCI Mail, CompuServe, or ZiffNet/Mac (our on-line service), see "How to Reach Us," on page 4. All letters become the property of *MacUser*, and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.

OPEN FOLDER

First the PowerPC-versus-Pentium war heated up — now it's just getting *weird*. Terry Mickelson, of Duncan, British Columbia, Canada, suggests that Intel should be "given the manufacturing rights to the PowerPC chip." We'll see what we can do, Terry. And while we're at it, we'll try to get Pepsi the rights to manufacture Coke. Matthew Miller, of Riverside, California, doesn't think we humans should give *anything* to Intel, because "they're not really from the planet earth. They were sent to earth on an evil mission to drive millions of helpless people to PCs." Guess this gives new meaning to *native PowerPC software*, huh?

"H-E-L-P!" begins a letter from Richard Rice, of New Kensington, Pennsylvania, who wrote us "in urgent and immediate need of a casino baccarat program" to teach his son "fun-filled probability" on a 1983 vintage TRS-80 Model 4. Although we agree there's nothing more fun-filled than teaching youngsters how to gamble, the odds are against our having any TRS-80 programs lying around. We may have a "How to Survive Chapter 11" CD-ROM, if you're interested.

In his April '94 column, Andy Ihnatko mentioned the "famous composer of 'Cheese and Onions'." For those of us not in the know about all things cheesy, Dave Bessey, of San Francisco, California, wrote to tell us that "Cheese and Onions" was written by Neil Innes for the Rutles, a band parodying the Beatles. Can *A Hard Day's Rut* on CD-ROM be far behind?

Our proudest moment this month came when we received a letter from 13-year-old Bryan Boyer, handwritten on the front of three 3 x 5 index cards. In addition to his unique approach to stationery, Bryan referred to us editors as "MR ED., (a horse is a horse, of course, of course)" and referred to our letters section as "totally psycho." *Psycho?* We'll take that as a compliment.

The personal-computer industry *should* pay tribute to the II for starting it all. Without the II, there would never have been a Macintosh. I enjoyed seeing the Apple II mentioned so prominently one last time in a leading Mac magazine. I just hope Dvorak won't be writing a similar column about the Mac anytime soon.

Ken Watanabe
San Francisco, CA

I SOMETIMES WONDER if Dvorak thinks before he writes. His comments about the Apple II show that he has not noted the importance of that computer.

He claims that "As a business computer, the II was always laughable. It was an ALL-UPPERCASE computer." The Apple IIe, which came out a few years later, not only supported uppercase and lowercase but also gave birth to the concept of integrated software, by way of AppleWorks. In fact, Microsoft Works on the Macintosh was ported from AppleWorks code.

Dvorak complains that the II's reset button was a key on the keyboard. But check out your late-model Macs and your PCs: Many of them support the same three-finger salute that was part of the Apple II (Ctrl-Command-Power for Macs, Ctrl-Alt-Del for PCs).

The Apple II now has a smaller but still-devoted following that manages to do things with it that people say can't be done. Sure, the Apple II doesn't publish like a Mac, but not everyone spends the day formatting a newsletter.

Mark Munz
via ZiffNet/Mac

ALTHOUGH I APPLAUD Apple for creating the Mac and personally wouldn't go back to the Apple IIe, I hate to hear anyone promote advances in technology just for technology's sake. If it were not for my exposure to the Apple IIe, I would, in all likelihood, be using a DOS computer today instead of a Macintosh.

Phillip M. Jones
Martinsville, VA

Apples and Oranges

I AGREE with Maggie Canon's remarks in her April '94 column ("The Message," page 23), but I must point out a minor flaw in her argument. She states that Compaq invests only 2 to 3 percent of its revenue toward research and development whereas Apple spends 7 to 8 percent. This doesn't mean that Apple is a leader in innovation. Companies on the PC side of computing often spend much less than Apple does on R&D, but once someone comes up with a new design, it is cloned by other PC vendors. The advantage is in being the first to come out with a feature rather than always playing catch-up.

Comparing Apple's 8 percent to Compaq's 3 percent may sound good, but don't forget that the other hundred PC vendors are also spending money on R&D. Apple must eat a larger piece of its pie because it is the lone supplier of Macs.

Michael Conwell
via the Internet

Copyrights ® Us

AS AN ATTORNEY who specializes in the area of intellectual property, I found Andy Ihnatko's column in the April issue ("Monkey ©, Monkey Do," page 25) an excellent layperson's guide to copyright issues. I am writing to clarify a point.

The column states that the term of an unregistered copyright is only three years. In fact, the term of copyright, regardless of registration, is the author's lifetime plus 50 years. Registration *does* afford an advantage for suing a copyright infringer: Authors who have registered in a timely fashion are entitled to statutory damages and attorney fees upon prevailing in a lawsuit.

Kyle-Beth Hilfer
New York, NY

What a Rush

MICHAEL SWAINE has managed to construct a labored analogy between the granting of a multimedia patent and Rush Limbaugh ("Rush to Judgment," March '94, page 31). It's clear that the column was nothing more than an attempt to make known his contempt for Rush Limbaugh and his listeners. Unfortunately for Mr. Swaine, what he has revealed is his own knee-jerk leftist prejudice.

Dittoheads are not people who say "ditto" to everything Rush says or thinks but rather people who, to save time on the air, say "ditto" to signify how much they enjoy the Rush Limbaugh program. Besides being right about so much politically, Rush has been a great promoter of the Mac and of computer use and telecommunications generally. He should therefore be praised on your pages, not ridiculed.

David Bozzini
West Chester, PA

/ Mr. Bozzini may be pleased to know that several readers dittoed his letter. / PP

No Foolin'

PLEASE TELL ME that the rating of four and a half mice you gave Aldus FreeHand 4.0 (April '94, page 39) was simply an April Fool's shenanigan.

FreeHand 4.0 is fat and lethargic. It taxes hard-disk space, RAM, and screen real estate. The application now requires 105 percent more hard-disk space and 167 percent more RAM than version 3.1 required. Good luck finding your illustration under all the floating-palette clutter. The dialog boxes of FreeHand 3.1 are less cumbersome to use than the ten screen-hogging palettes of version 4.0.

FreeHand 3.1 had some valuable features. A minor tune-up was all that users needed Aldus to give them (that is, text-tab capabilities, added path operations, and more keyboard shortcuts).

My wish list is very short: Give me one big Undo command for version 4.0.

Bill Jennings
Placentia, CA

/ There are some things FreeHand 4.0 definitely still lacks, such as multicolor gradients, a wide range of zoom levels, and a way to turn all the palettes on or off.

I disagree that FreeHand 3.1 needed just a minor tune-up: It had a series of modal dialog boxes that interfered with the creative process. Thankfully, version 4.0 allows users to keep needed tools on-screen, and its drag-and-drop method for assigning color makes it much easier to use. / SJS

PowerTalk Squawk

IN "UNLOCKING POWERTALK," (April '94, page 131), Adam Engst states that "the only way to change the name on your mailbox is to delete the PowerTalk Setup Preferences file." The button in the upper-right-hand corner of the PowerTalk Key Chain lets you change it too.

I do have some problems with PowerTalk, but there are no missing features. PowerTalk is extremely useful right now, and you can get gateways to Microsoft Mail, QuickMail,

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Alexei Kosut
via the Internet

/ PowerTalk users *can* change their mailbox names as you described. However, PowerTalk is missing several features, including the ability to file messages, while retaining the e-mail attributes, and the ability to get information-card data into or out of a contact database. And although gateways are available, they don't cover commercial on-line services. PowerTalk has a long way to go before it unifies all of my mailboxes. Finally, if the 100 messages I receive each day came to my PowerTalk mailbox, I'd suffer a nervous breakdown from the frustration of dealing with PowerTalk's clumsy interface. / ACE

Light My FireWire

HENRY NORR'S news item "SCSI Gets Burned" (New on the Menu, March '94, page 40) was a good introduction to Apple's FireWire and the promise it holds. However, as someone who's been involved in the development of the IEEE standard for several years, I'd like to clarify a point.

FireWire allows connection of 63 devices in a free-form tree, not "any number . . . in a chain." A small detail, and 63 *is* essentially unlimited compared to SCSI's 7. The only real constraints are that the distance between the farthest nodes must be 16 cable hops or less and that no loops are allowed.

Alan Wetzel, Texas Instruments
via ZiffNet/Mac

Open, Says You

IN RESPONSE TO the review of our program Open Sesame! in your April issue (page 73), some vital points must be made.

There is no question that Open Sesame! will bother you in the first few days of use. Just like a new assistant in your office, it has a learning curve. After one or two weeks, however, Open Sesame! will have learned your preferences and will make observations less often.

In addition, you have control over the way Open Sesame! communicates with you. In fact, Open Sesame! doesn't have to "nag" you at all, as was suggested in the review. Instead of presenting an observation whenever it finds a pattern, you can have Open Sesame! present its observations to you only at a particular time or simply notify you by flashing an icon in the corner of your screen.

Finally, one feature went completely without mention in the review: Not only does Open Sesame! learn your repetitive patterns and offer to automate them but users also have the opportunity to create instructions themselves.

Robin L. Jones, Charles River Analytics
Cambridge, MA

What's Up, Docs?

AFTER READING the reviews of our color thermal-wax printers, the CalComp ColorMaster Plus 6603XF/PS and the 6613XF/PS ("Color, Inc.," April '94, page 76), I have to ask: On what basis is the documentation judged? Is there a list of topics to be rated, or is a less objective method used, such as the preferences of individual reviewers?

It was obvious that two different reviewers were used for our products. I do not have a problem with that, but I do have a problem with the results. One of the pros you listed for the 6603XF/PS was "good documentation." The con for the 6613XF/PS was "poorly organized manuals."

The same manuals (*User's Guide* and *Quick Start*) are used for both printers. It is difficult to understand how the opposite conclusions could be reached for the same items if an objective rating system was used.

Donna Black, Technical Editor, CalComp
Anaheim, CA

/ Our criticism of the ColorMaster Plus 6613XF/PS' documentation was the result of a clerical error. Thankfully, this did not affect the printer's mouse rating, which reflected our true appraisal of CalComp's well-designed manuals — although the 6613XF/PS we received included only the *User's Guide* and not the *Quick Start* manual. / JSA

Still Waiting . . . .

I WAS DISGUSTED to read the letter "Waiting for Gates" in April's *MacUser* (page 14). David A. Greene stated that "It's time for the Mac users who view their computer as a religion . . . to realize that their computer is a secular device."

Gates has turned Mac owners everywhere in the wrong direction. I consider my Mac a religion, because it's so fun to use.

Start up your computer. Now look at the expression on that little Mac's face. He's probably smiling, and that's because of what he is. A Mac. And Macs are fun.

John Teti, Jr., age 12
Wilmot Flat, NH

For Whom the Dell Toils

DON'T BOTHER discussing the future of the Mac, because it's here to stay. A lot of people, including Bill Gates, are comfortable with the position of Apple as the company that pioneers new technologies and ideas (I reckon they think it saves them from taking certain risks).

That's why Gates would never try to kill the Mac. He will wait for Apple to invent something, and if it works, he will copy it. Why does everybody call Gates a genius? Has he ever invented something great? Is somebody who copies Hemingway a genius?

Werner Lilie
via ZiffNet/Mac

From the Home Office in Cupertino

TOP TEN Things That Are Easier to Do on a Mac Than on a PC:

10. Hook up two or more monitors.
9. Double-click on a document to edit it.
8. Install a CD-ROM drive.
7. Delete a group of files. (Are you sure? Are you sure? Are you sure?)
6. Install a font.
5. Copy files across a network.
4. Launch an application.
3. Record and play real sounds (WAVs don't count).
2. Cut and paste with one hand on the keyboard and the other on the mouse.
1. Make fun of Bill Gates without fear of retribution.

Mitchell J. Ring
via the Internet

/ You missed one: write Top Ten lists. / JS

CORRECTIONS

On page 32 of the April '94 issue, the phone number given for Nisus was incorrect. The correct number is 619-481-1477.

On page 57 of the April '94 issue, the phone number given for Farallon Computing was incorrect. The correct number is 510-814-5000.

Because of editing errors, several product specifications in the April '94 feature story "Color, Inc." (page 76) appeared incorrectly: The RasterOps CorrectPrint 300i is PostScript Level 1-compatible and does not produce "jaggy" output, characteristic of non-PostScript printers; the QMS ColorScript 230's maximum paper size is 11 x 17 inches; and the maximum resolution of the Sony UP-D7000 is 163 dots per inch.

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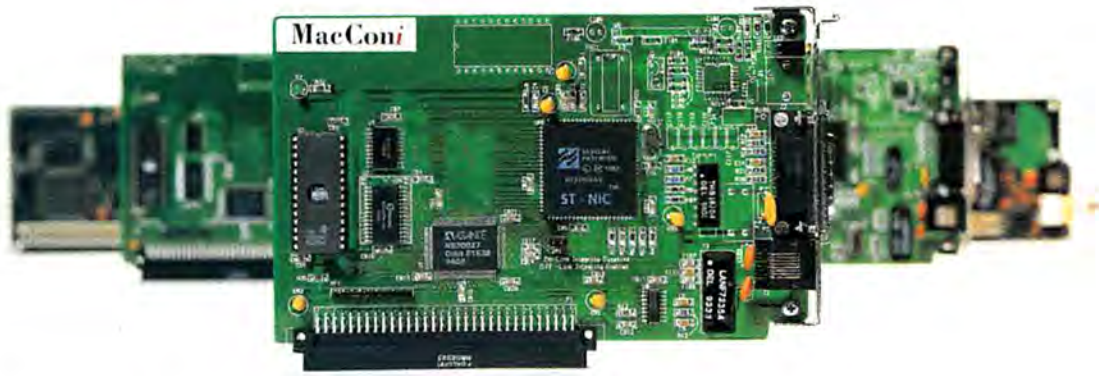

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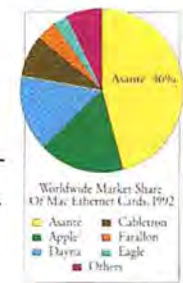

According to InfoCorp, 1993, Asanté sales account for nearly half of all Macintosh Ethernet adapter shipments.

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MAGGIE CANON

Merger Mania

KING OF BEERS. IS THAT WHAT Microsoft has become? What's happening with software these days is a classic business-school case study. As a market matures, smaller players start banding together for survival while the biggest player just gets bigger. For instance, where the U.S. once boasted thousands of independent breweries, those thousands eventually dwindled and consolidated into just a handful, with one — Anheuser-Busch — dominating the rest. These days, it's Microsoft that wants to be your Bud, as we find ourselves in the middle of the biggest acquisition-and-merger mania the software business has ever seen. Adobe and Aldus, Central Point and Symantec, Novell and WordPerfect, Brøderbund and Electronic Arts — the list keeps growing.

Don't blame it all on Microsoft, though. The software market has other pressures that are accelerating the consolidation trend. Market growth is leveling off (9-percent growth in '93, compared to 20-percent growth in '92), and profit margins are shrinking as companies cut prices to increase sales. Cutthroat product-marketing techniques such as bundling several high-end apps together and selling them for one low price or giving away Version 1 to grab market share have dramatically changed software pricing. As a result, companies are under severe financial pressure to be more efficient in development, marketing, and distribution. Merging with another company is one way to do that.

Favorite Brews

So, if you use FreeHand, MacTools, or WordPerfect, should you be worried? What if development resources for these products mysteriously dry up under the new regime? Is all of your software going to taste like Bud Light? Let's look at each case individually.

First, there's a popular wisecrack about what a merged Aldus and Adobe might call a combined Illustrator/FreeHand product: Frustrator (remember, it's a joke!). On a more serious note, though, Altsys — the company that develops FreeHand and licenses it to Aldus — has sued to get its product back. Personally, I hope Altsys wins. If Altsys can regain control of FreeHand, the merger of Adobe and Aldus makes for a big, powerful graphics giant *and* FreeHand gets to live — quite possibly at another company (are you listening, Quark, Corel, and Microsoft?). If Altsys loses, users can count on continued support, but I'd wager that most of the development dollars will go to Illustrator and PageMaker. If this merger goes through, then, FreeHand users may be out of luck.

Cutthroat product-marketing techniques have dramatically changed software pricing.

How about Central Point's MacTools utilities package, which recently shipped in a Power Mac version? Interesting case. First, the Central Point/Symantec merger hasn't even been approved, as of press time, and these companies are the two top competitors in the utilities category. Second, Symantec has a spotty track record with Macintosh products. On the other hand, the desktop-utilities market has been stagnant and Symantec has been in the process of shifting its focus to enterprise (networked computer) products such as Norton Administrator for Networks. The intended merger with Central Point may create the critical mass necessary to compete successfully in the enterprise market. This is a case of wait-and-see.

WordPerfect and Novell's intended marriage, on the other hand, shows a lot of promise. WordPerfect has already demonstrated its commitment to the Mac market, with its timely introduction of WordPerfect for the Power Mac (unlike Microsoft, which keeps dragging its feet), and Apple has an established relationship with Novell. The combined companies will develop networking products for group collaboration, with the Mac well integrated into the development specification. This is a particularly critical segment of the market, because it has not yet been dominated by Microsoft. Look for the results to be the software that makes Salt Lake City famous.

A frequent concern I hear from customers and industry pundits is that consolidation in the software industry will mean the death of innovation. I don't think so.

The long-term trend for software is that everything is going to work with everything else — Apple's OpenDoc, Microsoft's OLE, and all the groupware products promise a world in which we can get as much or as little functionality as we need. This new software paradigm is going to foster tremendous technological innovation. New user interfaces will evolve. New ways of doing business will emerge. And smaller software companies will find a way to flourish (kind of like microbreweries) alongside the Microsofts, Novells, and Adobes.

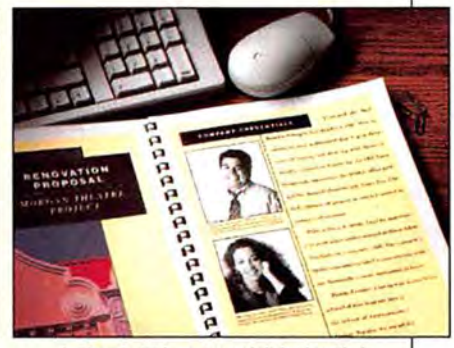
The market will always find room for innovators — as long as people keep demanding quality products. And I don't see Mac users deciding anytime soon that they want only one beverage choice.

A simple demonstration of PhotoFlash software.

(A complicated demonstration isn't possible.)

1. Find a photo. *The PhotoFlash Browser makes it easy to view and pick a photo – they're all stored here, whether you got them from a CD, scanner or digital camera.*

2. Enhance it. *Crop, rotate and resize a picture with easy-to-use tools. Dust and scratch removal is automated, too. You can instantly preview adjustments you've made.*



3. Place it. *With a point and click, PhotoFlash automatically places the picture in your work. You can also record and automate the tasks you do most often.*

You used to have to spend a lot – and then learn a lot – before you could work with photos on your computer. Now there's PhotoFlash™ software from Apple.

PhotoFlash is easy to use. It helps you organize pictures, enhance them and drop them into your work. It's fast (screamingly fast on a Power Macintosh™). It's memory efficient. And it's just $279.* Call 800-538-9696 to locate your authorized Apple reseller. You'll get the picture right away.

Apple

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ANDY IHNATKO

Dialing for Dollars

THEORY: ON-LINE SERVICES ARE organized religions. Posits: (a) The role of religion is to liberate the human spirit in preparation for higher states of being. (b) Eleven of the 17 most popular world faiths (and John Lennon too, but as I recall, he had an awful lot of hi-fi gear, so I'm not going to mention him) believe that material wealth exists as an anchor for the human spirit (source: *Oh, Boy! Religion!*, Li'l Golden Book Press, 1963). (c) The strongest link between a commercial on-line service and its users is its ability to siphon off their material wealth. (d) A commercial on-line service therefore relieves its users of a spiritual anchor, thus liberating human souls in preparation for higher states of being.

Conclusion: Your on-line service is an organized religion. Which slides us quite coolly into this month's topic, how to cut your on-line-service bills:

Claim them all as legitimate tax-deductible donations to your place of worship.

It'll work. I haven't tried it myself, but that's only because I haven't filed a return since Reagan was in office. And have *I* been caught? No! One of you will just have to step forward for the good of the group.

But as for the rest of you — and don't think I can't see you, the one with the big hair, hiding way over there in Wisconsin — give these on-line money-savers a whirl:

The Totally Obvious

But I have to mention it nonetheless: Do as much work off-line (and off the clock) as you can. CompuServe Navigator is legendary for its ability to allow you to do everything you'd normally do on CIS while the clock is running, off-line and more easily. Navigator will cut your bill at *least* in half. Although there's no direct equivalent available for America Online, AppleLink, or GEnie, there's almost always a way to use the access software for those services so that you spend as little time as possible staring dumbly at the screen while dollar bills float eerily out the window.

While you're at it, make sure you're aware of all of your service's hidden costs for extra features. Most of you know that your service has certain areas that carry extra fees, but did you also know that CompuServe, for example, charges you 15 cents for each message received via the Internet?

(Oh, and, er . . . on a completely unrelated subject, Internet mail sent to my CompuServe address [72511,204] instead of my Internet address [andyi@world.std.com] will *not* be read.)

PROBLEM:

The information superhighway is starting to seem more like a toll road.

SOLUTION:

Learn how to stay on-line without going broke.

Speed Kills

A bit less obvious is falling into the American trap of using all the technological muscle at your disposal simply because you *have* it. Before you unthinkingly log in to your on-line service's high-speed (9,600 or 14,400 bps) nodes, consider that the speed at which the service waits for you to do something is about as close to light speed as you can get in Einstein's universe. Unless you are specifically planning to download files or are using an automated off-line Navigator-type program to read messages and reply to them for you, you'll almost certainly find that logging in to one of the service's less expensive 2,400-bps access numbers will save you a pile of dough, and the lower access rate probably won't be as big an inconvenience as you thought it would be.

While on the subject of choosing a different access number . . .

Ask Your Ma (Bell)

An obscenely lame and inexcusable pun, but a nice segue. Chances are, you can access a service by using any of a dozen phone numbers within your area code. But instead of allowing the service to choose a number for you (based simply on ZIP code or your area code and exchange), get a complete list and ask your phone company which one will be cheapest to call.

This can be a big money-saver if you wind up calling your service regularly. Several of those access numbers, although technically local calls, may lie outside your immediate calling area; you can stay on-line with 768-9283 all month and still be charged your basic monthly fee, but 776-9182 will steadily eat up billable message units like PEZ and wind up costing one of your children a college education.

Leave Them Gits Alone

OK, it's balm for the soul to call someone a malodorous, cloth-eared, knee-biting, toffee-nosed heap of parrot droppings when he disagrees with your message promoting the merits of *seaQuest DSV*. But do keep in mind that at least one person on this planet has succeeded in suing the britches off someone for on-line slander. No kiddin'. All this happened in Australia, which makes it something of an impotent precedent here

in the good old U.S., but it still ought to give one pause.

Seems an anthropologist at Western Australia University was fired for "lack of productivity." After his colleagues gave him overwhelming support on a BBS that has worldwide distribution, another anthropologist called him Something Quite Nasty (trust me here) and implied that the SQN had been the reason for his dismissal. The judge was impressed and handed down a judgment of $40,000.

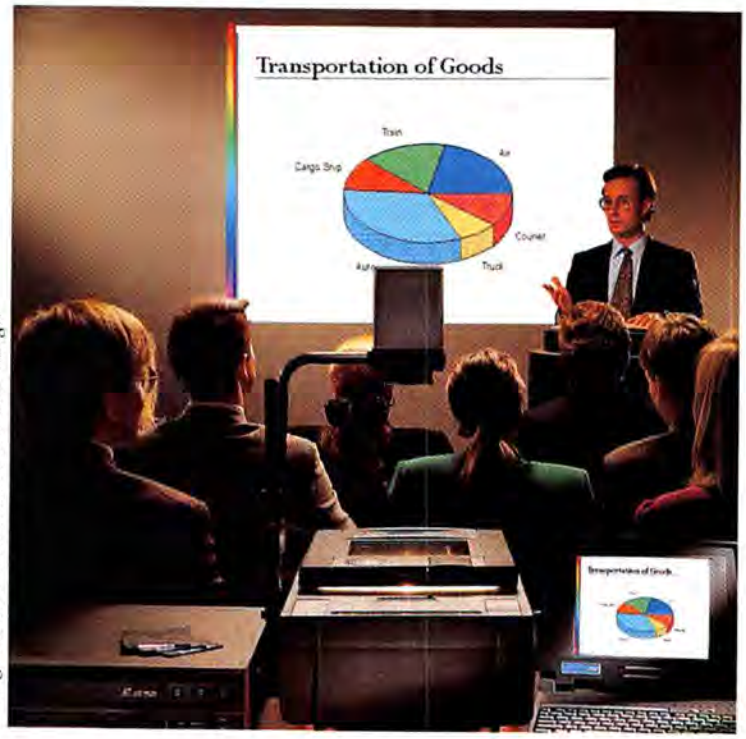
Choose Wisely

Just as The Right Service will enrich your life, The Wrong Service will bleed you dry. It's been a decade since we've been forced to use one on-line entity for all of our telecommunicating; nowadays, we can choose the cheapest on-line (or even off-line) service for the problem at hand. For instance, why pay megabucks to download software from America Online, CompuServe, or GEnie when you can download the same software for free from a local BBS? Granted, their national scope means that big services generally get the best software first, but with few exceptions, *anything* of value will soon make its way to a good bulletin board, particularly if it's run by a user group (there *are* exceptions; for instance, ZiffNet/Mac, our own beloved on-line entity, regularly commissions unique free software that can be obtained only through the service). Or why go on-line at all? For about 50 bucks, the Boston Computer Society or BMUG (my two faves) or a dozen other groups will sell you a CD-ROM containing 600 megabytes of quality shareware. BCS (617-864-1700) and BMUG (510-549-2684) update their discs at least twice a year, and I dare say that with both discs in your library, 90 percent of your shareware needs will be covered.

And, of course, the Internet can provide you with enough software to choke 11 medium-sized dogs. Unlike a free BBS, though, the Internet can provide free or almost free analogues to some of CIS' and America Online's pricier added services. Telnet into public libraries and on-line bookstores, and search their databases for free instead of searching for books via *Books in Print*. If your Internet provider subscribes to the ClariNews newsgroup, you have access to the most useful parts of the Associated Press and Reuters news feeds, organized into dozens of handy topics, plus syndicated columns by Dave Barry and others. ClariNet also includes NewsBytes, comprehensive coverage of the computer scene. As a group, ClariNet is about a thousand times more useful than the lush opportunity to read half of next week's *Time* magazine on America Online as money goes down the drain.

Lack of space prevents me from talking in any real depth about the vast, *free* informational resources available via the Internet. Trust me; somewhere there's a gopher server or a World Wide Web page containing all the info you need. I refer you to Adam Engst's neat *Internet Starter's Kit for Macintosh* as well as any of the thick Internet users' directories currently blocking the fire exits at bookstores all across America.

UNFORGETTABLE.



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CIRCLE **77** ON READER SERVICE CARD

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Desk

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optional.

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The HP DeskWriter 310 costs only $379,* yet it comes loaded with 35 scalable fonts, along with a new lightweight, multi-voltage power adapter. It prints portrait and landscape on plain paper, transparencies or labels, and it uses HP's own inkjet technology for clear, crisp output at up to three pages per minute.

If that's not enough for you, a whole family of optional accessories is available, including a color kit for just $49, and a multi-page sheet feeder for easier desktop printing.

HP has managed to fit everything you could want into a little printer package. To see for yourself, look in the Yellow Pages, or call 1-800-552-8500, Ext. 7857 for the name of the HP dealer nearest you.

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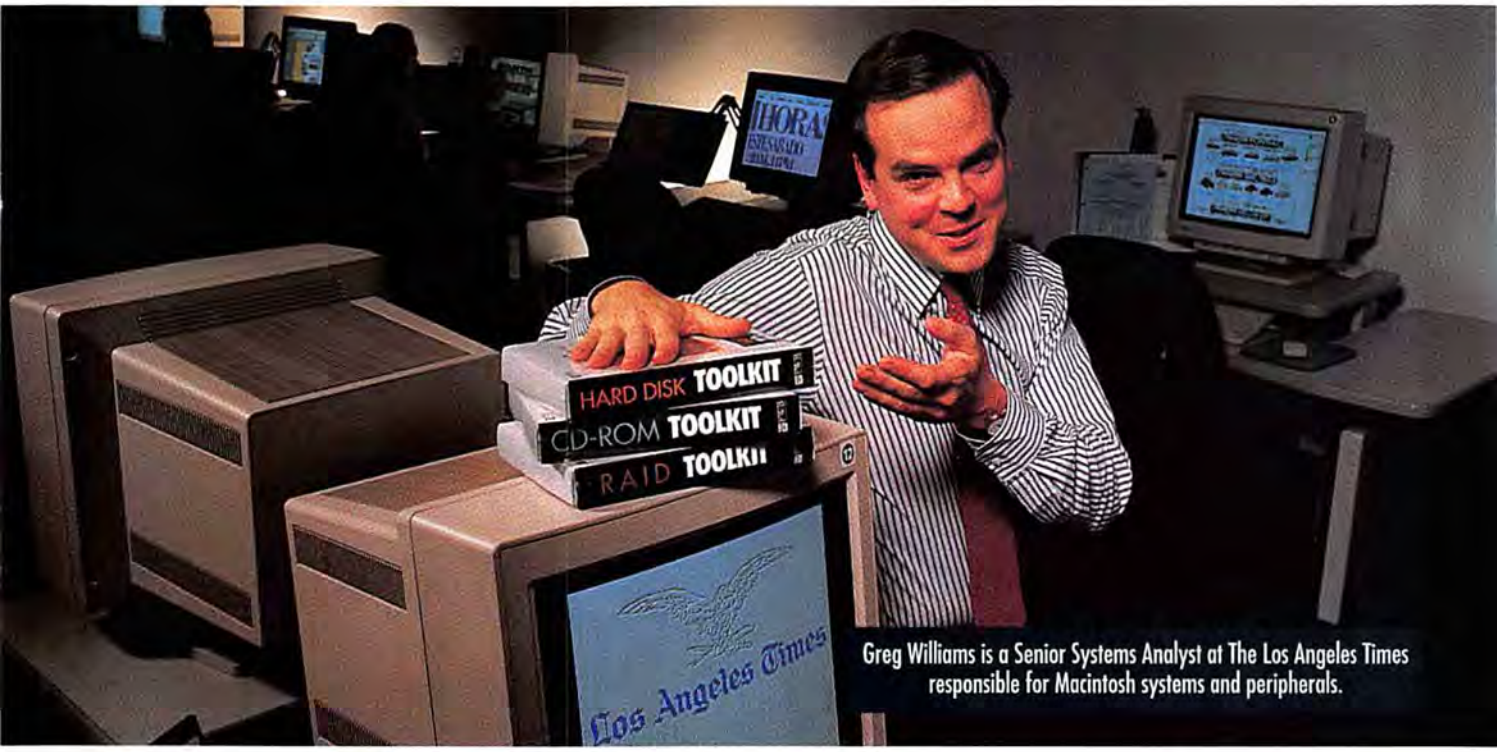
How Does The L.A. Times Manage Its Storage Jungle?



Greg Williams is a Senior Systems Analyst at The Los Angeles Times responsible for Macintosh systems and peripherals.

Open FWB's ToolKit.

Hard Disk ToolKit
1991 Best Storage Product Finalist

CD-ROM ToolKit
— MacUser Magazine

Hard Disk ToolKit
— MacUser Magazine

It's a jungle out there, particularly at the deadline-driven L.A. Times. That's why they chose FWB's ToolKit family of Disk Management Software. According to Senior Systems Analyst, Greg Williams, who manages that jungle: "It was a critical decision. We have hundreds of Macs of every kind, and hundreds of storage devices from dozens of manufacturers. They must all deliver 'round the clock, or the Times can't."

It started with FWB's Hard Disk ToolKit. Says Greg: "It has the three things we need every day. One, assured compatibility in a chaotic world of storage brands and technologies. Two, powerful tools that guarantee top drive performance and provide easy and efficient control over those drives. And three, compatibility with Apple's new Power Macintosh, because ToolKit software is fully SCSI Manager 4.3 compliant."

Greg also uses RAID ToolKit to convert his existing drives into high-speed disk arrays on a number of Quadra 950s, taking advantage of RAID 0 data striping and RAID 1 mirroring capabilities. And he just installed CD-ROM ToolKit to increase power and performance for the Times' CD-ROM drives.

Your deadline may be approaching. So whether it's one drive, or thousands, do what the L.A. Times did: *Open FWB's ToolKit.* Call 415.474.8055 for the reseller nearest you.

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CIRCLE **71** ON READER SERVICE CARD

MICHAEL SWAINE

PowerPC: Going Beyond GUI

UNLESS YOU ARE MICROSOFT, your survival in this industry is in question," my friend Tim complained to me after he got laid off. His moderate-sized company had lost a major battle in its shelf-space war with immoderate-sized Microsoft, and his job was one of the casualties.

"This business used to be about technology, but now it's about selling product," said Tim. "Personal computers have become commoditized."

Tim's lament is accurate on one level. But on a deeper level, it *can't* be true. One reason is PowerPC.

Commoditization *is* happening in the personal-computer industry. It occurred first with hardware, when customers concluded that an imitation IBM PC was just as good as the real thing. Commoditization means that products from different companies are so interchangeable that customers can base their selection on price. It's an inevitable consequence of the emergence of standards, and standards have predictable effects on an industry: When a standard technology exists, those who implement it flawlessly and cost-effectively *will* prevail over those who don't. And those who own the standard *will* make out like bandits. Companies that ignore these realities lose.

IBM established several standards back in 1981 when it entered the fledgling personal-computer industry, but IBM didn't own those standards. Intel and Microsoft did. Today we see the result: Intel and Microsoft dominate their respective industries, and IBM is being beaten by its more cost-effective imitators.

The minimum condition before a standard can be established is that the players must have some common understanding about what they are trying to do. Without at least that, there can be no standard. And without a standard, there can be no commoditization.

So to speak of the commoditization of personal computers is to assume there can be a common understanding about what personal computers are for. And this assumes that personal computers are *for* something.

This is a fundamental error.

Computers by their very nature don't fit the commodity model. A computer is a *general-purpose device.* It isn't *for* any particular purpose. Only when you run software on it does it become a functional device, with the function defined by the software.

Software is what defines the purpose of the computer. Innovations in software have radically redefined computers before and will do so again. No standardization effort can prevent some innovator from finding a new use for computers.

The next decade will deliver convincing proof of that.

The work at IBM and Apple is the future of personal computing. On the day they deliver, GUI is history.

The Next Revolution

I believe that the next decade will see radical innovations in software technology, implemented on fast processors, that will change our work habits as fundamentally as the graphical user interface did. I also believe that the PowerPC chip — which is at the heart of Apple's new Macs — will be the basic enabling technology for these innovations.

So do Apple and IBM.

IBM is hard at work on technologies for what it calls human-centered computing, a new interface model that broadens the user/computer bandwidth, giving users choices in how they work with computers, making their interaction more natural and intuitive. Human-centered computing engages human senses (sight, sound, touch) more fully in the interaction and encompasses speech and handwriting recognition, intelligent agents, full-motion video-in and -out, transparent telecommunication, and cellular links. Please understand, this is not just a laundry list of blue-sky technologies but a description of the components of a new user interface IBM is actually building.

Even though Apple's public-relations machine is talking up backward compatibility and support for the evolving Mac graphical user interface, you can figure that Apple is working on something similar.

This work at IBM and Apple *is* the future of personal computing. Sure, there are some high technical hurdles to be jumped in building such an interface. Right up until the day IBM or Apple delivers, skepticism is warranted. But on that day, GUI is history.

And the future will initially run on the PowerPC. I see no evidence that makers of Intel-based hardware platforms are going to take the lead in bringing such a revolutionary new interface to market, and I see no reason to expect Microsoft to try to do it first. Apple and IBM are committed to PowerPC, Apple irrevocably and IBM deeply and expensively. Human-centered computing will be PowerPC computing.

Of course, Intel and Microsoft will be there when it's time to commoditize it.

It's time to stop

intel inside

You've reached a crossroads in computer technology. A point where choosing between a PowerPC* or a Pentium™ processor-based PC could be a difficult decision.

The PC is not what it used to be. Everything you want to do on a Macintosh,* you can just as easily do on a PC. And now, all of the most popular Mac applications are available for PCs, including those by Aldus, Microsoft, Adobe, Quark and Broderbund.

This is a document created on an Intel-based PC.

This is a document created on a Macintosh.

With Windows,* they're just as easy to use.

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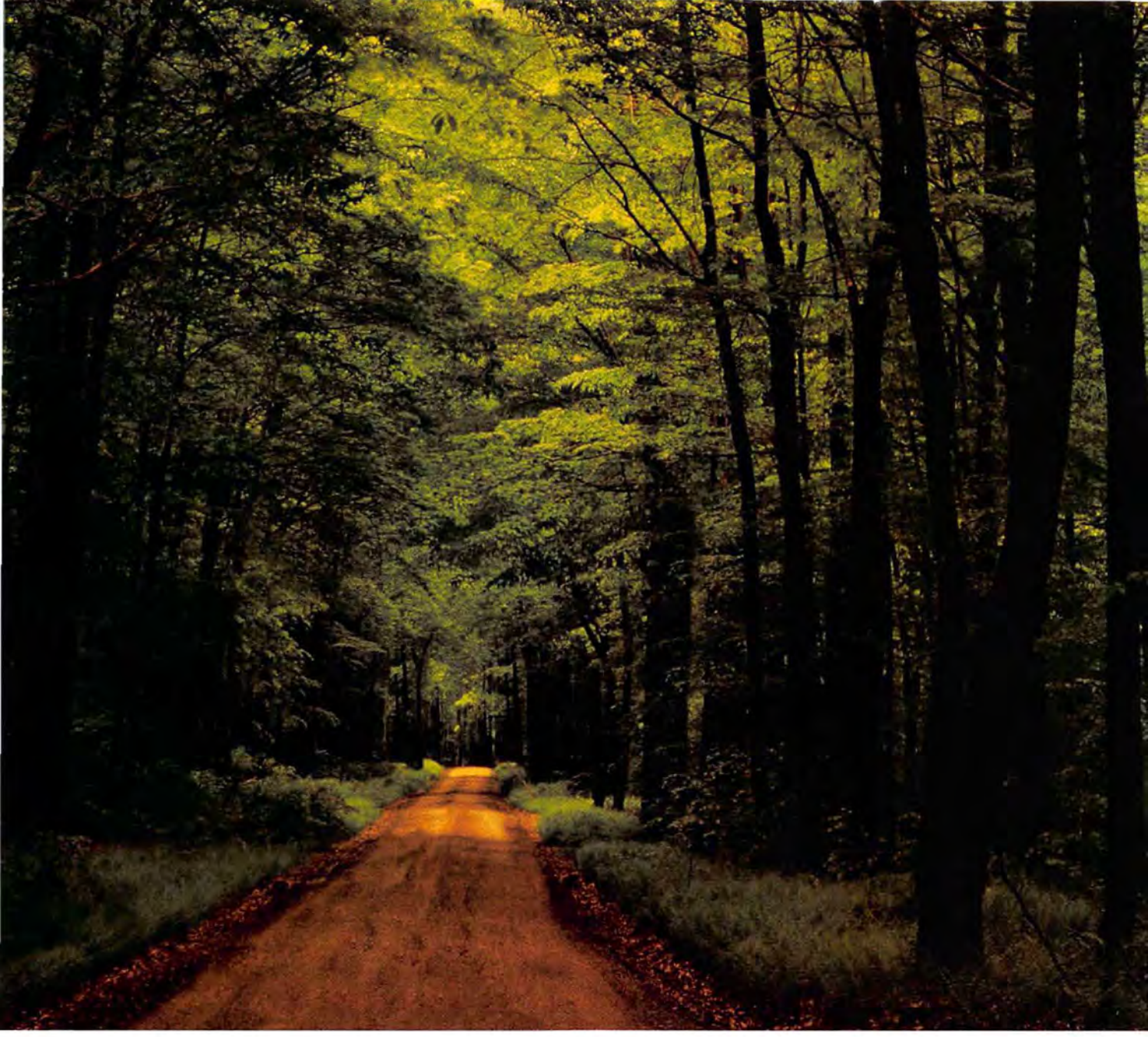

and ask directions.

perspective, Intel486™ DX2 processor-based PCs outperform the Mac Quadra* 840av, and Pentium processor-based PCs are even faster.

Best of all, you have a choice of over 100 computer vendors who now offer Pentium processor-based PCs.

These PCs give you access to some of the world's most innovative technologies. Like ProShare™ document and video conferencing. Video software using the Indeo™ format. Even future performance upgrades with the OverDrive™ processor technology.

So before you buy another Mac, stop and ask some questions. Find out where Apple is going, especially with the PowerPC. Then ask Intel about the Pentium processor. What you find out might put you on a whole new path.

To learn more about the Pentium processor and other innovative technologies, call 1-800-395-7009, Ext. 111.

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Feature	New Astound	Persuasion 3.0
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True object-oriented animation controls allow separate entrance and exit for ALL objects on slide	Yes	Not
Timelines for precise control of multimedia events	Yes	Not
Animated pictographs and charts that grow, tumble, and more	Yes	Not
Multimedia effects built into templates	Yes	Not
Main toolbar includes tools for directly adding sound, QuickTime, cell animations, and interactive buttons	Yes	Not
QuickTime and sound editors included	Yes	Not
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GOLD DISK

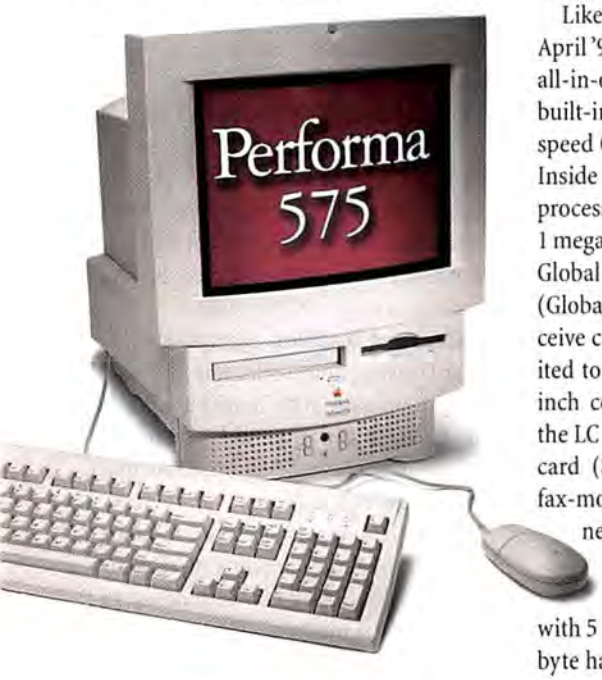
NEW ON THE MENU

CPUS /

NEW 68040 PERFORMAS COME HOME

All-in-one Macs priced at less than $2,100.

STUDENTS GET ALL THE BREAKS, you may think after seeing high-performance, low-cost Macs such as the LC 575 offered only through the education channel. But now you don't have to enroll in school to get a 68040 Mac for less than $2,100. Apple has repackaged the LC 575 for the retail market as the Performa 575, 577, and 578. The primary differences among the models are in configuration and in distribution method.



Like the LC 575 (see New on the Menu, April '94, page 34), these Performas are each all-in-one machines that include a 14-inch built-in monitor; a tray-loading, double-speed CD-ROM drive; and stereo speakers. Inside is a zippy 33-megahertz 68LC040 processor; room for 36 megabytes of RAM; 1 megabyte of VRAM, for 16-bit color; and a Global Village TelePort fax-send modem (Global Village sells an upgrade for fax-receive capability for $49). Expansion is limited to one PDS slot, and the single 2-x-6-inch communications slot (introduced in the LC 575) can be used to add an Ethernet card ($109) or a 14.4-kilobit-per-second fax-modem card ($329). Each of the three new Performas can be upgraded with a PowerPC card.

The Performa 575, which ships with 5 megabytes of RAM and a 250-megabyte hard drive, is being sold at traditional retail outlets, at an estimated price of $2,099. The Performa 577 (5 megabytes of RAM and a 320-megabyte hard drive) and the Performa 578 (8 megabytes of RAM and a 320-megabyte hard drive) are being sold at warehouse clubs, at estimated prices of $2,199 and $2,299, respectively.

The machines have a couple of new features. Apple has altered its extended keyboard for these Performa models, saving manufacturing costs in the process. The keyboard looks the same, but the cable that connects it to the Mac is hard-wired into the center back of the keyboard, near a single ADB port. The mouse cable easily switches sides, eliminating the need to reconfigure the keyboard for right- or left-handed users.

System software and 12 additional applications ship preinstalled on the Performa 575/577/578; unlike with earlier Performas, Apple is including a CD-ROM that contains backups of the software. Four other titles, including Grolier's Encyclopedia, from Software Toolworks, and Dinosaurs, from Microsoft, also ship with the new machines.

Educators need not feel put out either. The Performa 575 is included in Apple's Educator's Advantage program, which means that teachers can purchase one for home use. 800-538-9696 or 408-996-1010. / Pamela Pfiffner

Claris Unveils FileMaker Pro Server

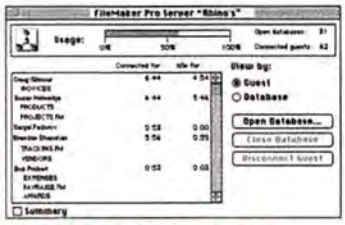
EASE OF USE has always been one of FileMaker Pro's strengths, but accessing a shared FileMaker Pro database can be slow and frustrating. With FileMaker Pro Server, Claris seeks to make FileMaker Pro more attractive to workgroups by expanding the program's network capabilities and speeding things up in the process.

Scheduled for release in July, for $1,499, FileMaker Pro Server doubles the speed at which multiuser FileMaker Pro documents can be accessed, according to Claris. The new server software takes search and index requests from FileMaker Pro users, performs those functions, and then sends the results back across the network.

With FileMaker Pro Server, as many as 100 users can access the server simultaneously and each user can open 16 databases at a time. The software lets administrators monitor users, track network traffic, close files, and disconnect users — from the server itself or from a guest computer. Currently, the server software operates over AppleTalk networks, but an NLM (NetWare Loadable Module) version that has IPX support is due later this year.

The server software works with Mac as well as Windows versions of FileMaker. A new version of FileMaker — FileMaker Pro 2.1v3 — ships with FileMaker Pro Server and can be used to update all licensed users on a network. Although FileMaker Pro isn't yet a native PowerPC application, FileMaker Pro Server runs in native mode on Power Macs. It also runs on Macs with at least a 68020 processor.

In addition, Claris is releasing the FileMaker Pro Solutions Development Kit for developers of specialty FileMaker Pro databases. Developers will be able to create FileMaker databases (for single-user or network use) and then distribute them to users as run-time applications. Users won't be able to change the database formats, but they'll be able to search the databases and enter information into them. 408-987-7000. / Jason Snell



Claris' FileMaker Pro Server software lets administrators monitor network traffic by individual user or by overall usage.

PRINTERS /

LASERJET TARGETS WORKGROUPS

HP's new 12-ppm LaserJet 4M Plus boasts better connectivity in mixed environments.

ONCE AGAIN, Hewlett-Packard seeks to raise the bar for workgroup printers by introducing a printer that tops the speed of its popular LaserJet 4M. The new 12-ppm LaserJet 4M Plus also offers improved plug-and-play connectivity, enhanced memory management, and better gray-scale printing, for $2,479 — about $100 more than the 8-ppm LaserJet 4M costs.

With a 12-ppm engine and plug-and-play networking, the LaserJet 4M Plus is designed for small workgroups.

Based on a Canon EX engine that's fueled by a 25-megahertz RISC processor, the LaserJet 4M Plus ships with 6 megabytes of RAM, expandable to 38 megabytes. Short print times are aided by the printer's memory-management schemes — for example, I/O buffering, which users can set to speed the offloading of data from the host, and job overlapping, which lets the printer begin processing the next job while the previous job is finishing.

Like its now discontinued predecessor, the LaserJet 4M Plus offers true 600-dpi resolution as well as HP's Resolution Enhancement Technology, which sharpens the edges of text and lines. New with the LaserJet 4M Plus are improved PostScript gray-scale capabilities; the printer can produce 122 shades of gray at a 106-line screen. The LaserJet 4M Plus automatically switches between PostScript Level 2 and PCL 5.

For fast printing in shared environments, the LaserJet 4M Plus ships with a new version of HP's JetDirect card that connects directly to Ethernet and LocalTalk networks. The new card supports 11 network operating systems — including AppleTalk, NetWare, and several flavors of UNIX — and four protocol stacks, and it automatically switches among protocols. The card features flash EPROM for updating software on remote printers across a network.

As for paper handling, the LaserJet 4M Plus has a 250-sheet letter-sized tray and a 100-sheet multipurpose tray. A host of options are available, including a 500-sheet bin ($349), a 75-envelope feeder ($349), a 1,000-sheet output stacker ($389), and duplex printing (price not yet set).

Other nifty HP features such as EconoMode draft printing and Energy Star compliance are standard with the new printer. 800-752-0900 or 800-387-3867 (Canada). / Pamela Pfiffner

PIMS /

Organize Yourself

ORGANIZING YOUR personal information these days is easy. Choosing a PIM (personal information manager) to replace your address book, date book, and all those hastily scribbled notes is not.

Claris Organizer, from Claris' Clear Choice division, takes care of scheduling, address keeping, and note taking. Slated for release in July at an introductory price of $49 ($99 in the fall), Organizer sports a streamlined interface — attaching a name to an appointment is a simple drag-and-drop operation. The program also makes intelligent scheduling assumptions: Enter "Lunch with Bob" on your calendar, and Organizer will prompt you with all the Bobs in your address book. Enter "Lunch with Bob from XYZ Corp.," and it shows only the Bobs who work at XYZ.

Currently Organizer is geared to individual users only. 408-987-7000.

TouchBase and DateBook, from Aldus Consumer Division, now work more efficiently as a PIM tag team. With TouchBase Pro 4.0 and DateBook Pro 4.0 (sold together for $149), you don't have to keep both apps open to use linked information.

The new versions of TouchBase and DateBook offer drag-and-drop linking of names and events. TouchBase now includes an extension that lets users pull down contact information for frequently used names without launching the application. To cater to workgroups, DateBook's new Project category lets users group a series of linked calendar items. 619-558-6000. / Jason Snell

MACUSER/ZMAC UTILITY OF THE MONTH

Smart Folder Navigation

A SEQUEL to a classic, Back2TheFolder II makes it easy to jump from one commonly used folder to another as well as to create folders from within Open and Save dialog boxes. An included configuration utility lets you control Back2TheFolder II's behavior, so you can easily manage folder items and fine-tune the utility for specific applications. Back2TheFolder II was created by Mike Throckmorton and is available exclusively to ZiffNet/Mac members, who can download Back2TheFolder II free of connect-time charges until June 25, 1994, by typing GO MACUTIL. After that, look for the file B2FOLD.SIT in Library 3 (MacUser Utilities) of the MacUser Forum (GO MACUSER). AppleLink users can find Back2TheFolder II in ZiffNet Selections:MacUser Software:Utilities. / Mark Simmons

CD-ROMS /

From Kinescopes to QuickTime

THE GOLDEN AGE OF TV comes to CD-ROM. The Honeymooners' Funniest Moments puts Ralph Kramden and Ed Norton on your Mac. MPI Multimedia's $30 disc includes 65 minutes of QuickTime clips from the kinescope recordings of the "lost episodes" of Jackie Gleason's timeless television series. Baby, they're the greatest. 708-535-1540. / JS

NOVELL NETWARE TO RUN NATIVE ON APPLE'S POWERPC SERVERS

New Apple Workgroup Servers run AppleShare under emulation for now.

POWERPC NATIVE APPLESHARE won't be available anytime soon for the new PowerPC Apple Workgroup Servers (AWSs), but the world's leading network operating system will. NetWare 4.1 for AWS, a new native version of Novell's NetWare server software, will ship by the end of the year.

ILLUSTRATION / DOUG ROSS

According to Novell, NetWare 4.1 will look and act just like the existing NetWare 4.0 running on x86 PCs today and will support Mac as well as PC users. The new AWS version will run third-party add-ons called NetWare Loadable Modules (NLMs) that were written for NetWare 4.0 and later recompiled for the PowerPC.

Initially, Apple's three new PowerPC servers — the AWS 6150, the AWS 8150, and the AWS 9150 — can run AppleShare only in 680x0 emulation mode, so until AppleShare goes native, Apple's current AWS 95 will remain the performance leader in the lineup.

Apple's new servers include RAID software for use with AppleShare that provides disk mirroring for added data security. Standard in the AWS 8150 and AWS 9150 are 4-gigabyte DAT-2 drives.

The 60-megahertz AWS 6150 (which is expected to cost $3,000 to $5,000) is based on the Power Mac 6100, and the 80-megahertz AWS 8150 (expected to cost $5,000 to $10,000) is based on the Power Mac 8100. Each server comes with a preinstalled 256K Level 2 cache. The AWS 9150 ($8,000 to $15,000) uses an 80-megahertz PowerPC 601 in a modified Quadra 950 case. It has a 512K Level 2 cache and includes an internal CD-ROM drive, four NuBus slots and a PDS, and room for as many as five internal storage devices. Apple will offer an upgrade to the AWS 9150 for owners of Quadra 950s (pricing is not yet available). / John Rizzo

DayStar Plans Even Faster Upgrade Cards

POWERPC-UPGRADE OPTIONS from DayStar Digital continue to multiply. Just as it's filling the pipeline with its PowerPro 601 66- and 80-megahertz PowerPC upgrade cards, the company has announced an even faster version of the PowerPro 601. Based on the same design, the new card will use the 100-megahertz PowerPC 601, which is slated for release by year's end.

Available now, the 66-megahertz PowerPro 601 ($1,799) and the 80-megahertz PowerPro 601 ($2,399) install in the Quadra/Centris 650 and the Quadra 700, 800, 900, and 950. Unlike Apple's card, which contains no expansion capabilities, the DayStar cards have SIMM sockets for adding as much as 128 megabytes of RAM directly on the card. The PowerPro cards use the same 72-pin, 80-nanosecond RAM SIMMs as the Power Macs.

These two PowerPro 601 cards ship with two DayStar products: the PhotoMatic application, for batch-processing Photoshop files, and the ColorMatch software, for color-correcting images. DayStar's PowerPro 601 Photoshop Extension performs functions similar to those of Adobe's PowerPC plug-in for Photoshop.

If you're not yet ready to make the leap to PowerPC, you might want to watch for DayStar's 68060 upgrades for 68030 and 68040 desktop Macs. DayStar recently demonstrated a 68060 accelerator running in a Mac IIvx. According to the company, speed benefits will be comparable to those of PowerPC machines. Pricing should be similar to that of DayStar's PowerPro cards. 800-962-2077 or 404-967-2077. / SCS

Waiting for UNIX

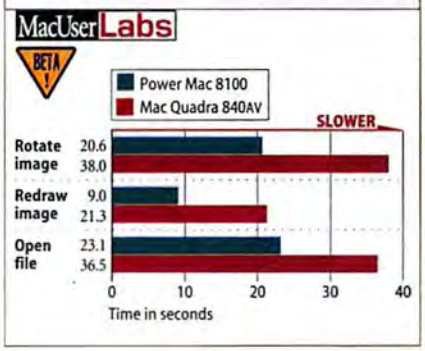
APPLE HASN'T ANNOUNCED a native version of UNIX (PowerOpen-compliant or otherwise) — at this point, it looks as if A/UX's successor will be based on AIX, IBM's version of UNIX. AIX 4.1 for Power Macs will conform to the PowerOpen specification and, according to Apple's Business Systems Division, will be available in 1995.

In the meantime, Tenon Intersystems, known for MachTen UNIX for the Macintosh, plans to release a Power Mac-compatible version of the current MachTen this quarter. Running under emulation, MachTen won't contain any features specific to the Power Macs, but in the third quarter, Tenon will release a set of cross-development tools for generating code for the PowerPC. In the fourth quarter, Tenon plans to release a native version of MachTen for Power Macs.

Tenon's Personal MachTen costs $495; the Professional MachTen package, which also includes development tools and debuggers and allows MachTen processes to use virtual memory, costs $695. Anyone buying the current version of MachTen will receive a free upgrade to the native version when it ships. 805-963-6983. / Stephan C. Somogyi

Power Mac Time Trials

TO GET AN IDEA of the speed gains possible with native software, we tested a beta version of Adobe Illustrator 5.5 on a Mac Quadra 840AV with on-board video running in 8-bit mode and on a Power Mac 8100 with its VRAM card running in 8-bit mode. Each machine was connected to an Apple 16-inch monitor. Illustrator ran in a 10-megabyte partition; the file size was 3.4 megabytes. In one test, we found that Illustrator running native on the Power Mac 8100 performed 137 percent faster than it did when running as a 680x0 application on the Quadra 840AV. / SCS



DEPARTMENTAL PRINTERS /

TYPHOON PRINTERS REACH 60 PPM

Dataproducts aims for large sites.

SHARED PRINTERS are never fast enough, especially in large departments. But Dataproducts' new Typhoon series of PostScript laser printers may speed things up. These large 30- and 60-ppm units are based on Hitachi engines with 33-megahertz RISC processors.

The 30-ppm Typhoon 30, shipping now, is intended for sites that print 200,000 pages per month. The Typhoon 30 costs $19,995; a duplex version is priced at $27,980. With its 60-ppm engine and with duplex printing standard, the Typhoon 60 targets businesses that produce 1 million pages per month. It's due to ship in August, at a list price of $95,000. The units feature PostScript (PhoenixPage) and PCL 5 emulations, and PostScript resolutions of 300 or 400 dpi, switchable through software or via the front control panel.

In its simplex configuration, the Typhoon 30 holds 750 sheets (250 ledger, 500 letter) of paper at a time, and the Typhoon 60 holds 3,000 sheets, with many paper-input and -output options available for both printers. The printers also let users add paper or toner while the units are operating, for uninterrupted printing.

An updated version of Dataproducts' VPT (Virtual Printing Technology), which configures the printer as a virtual printer for individual users, is also included. VPT 2 adds resource accounting and billing for each of 64 virtual printers. Parallel and serial ports are standard; an optional network card supports EtherTalk networks as well as Novell IPX, TCP/IP, and others. 818-887-8000. / Shelly Brisbin

A multitude of paper-handling options makes Dataproducts' new Typhoon 30 and 60 printers right for large departments.

PERIPHERALS /

Make Macs Multimedia

TURNING YOUR MAC into a multimedia powerhouse is a one-step operation with Apple's new Multimedia Kit for Macintosh. Aggressively priced at $449, the kit includes a new CD-ROM drive, external speakers, headphones, and four CD-ROM titles.

The CD-ROM drive is the new AppleCD 300e Plus, also sold separately for $349. The AppleCD 300e Plus (the same drive used in Power Macs) is a double-speed drive with a 256K cache for speedy data transfer. Unlike most other CD-ROM drives, the AppleCD 300e Plus loads CDs via a powered tray and does not require a CD caddy.

The kit's speakers are the new Apple-Design Powered Speakers II, a sleek pair of platinum-colored shielded speakers with adjustable stands. They're also sold separately — sporting a cool silver Apple logo and a slate-gray color meant to blend in with consumer appliances such as boom boxes — for $79.

In addition to the Apple headphones, the kit also includes a Compton's Interactive Encyclopedia CD-ROM and a choice of three other discs from a selection of popular titles, so you can put those speakers — and your neighbors' eardrums — to the test. 800-538-9696 or 408-996-1010. / Jason Snell

Apple's new speakers are available in platinum plastic as part of the Apple Multimedia Kit for Macintosh or in slate gray when sold separately.

VIDEO TOOLS /

Radius Pumps Up the Volume

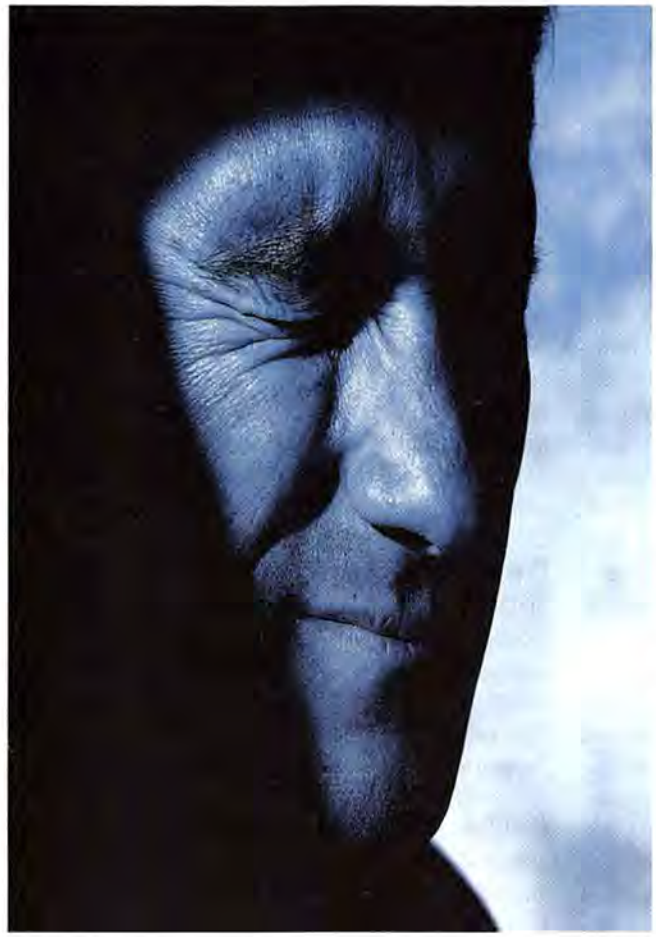
IN THE RUSH for broadcast-quality output of QuickTime videos, professional-quality audio has been lost in the mix — until now. The Radius VideoVision Telecast system, slated to ship this summer, offers 16-bit audio, extra inputs and outputs, and a host of other professional-level tools.

The Telecast system builds on Radius' VideoVision family of cards for Mac Quadras. The composite NTSC/PAL and S-video that's standard on the VideoVision Studio has been improved and brought into compliance with broadcast-video specifications. The Telecast system also boasts an array of inputs and outputs, such as RGB and YUV, that allow it to be used with high-end video gear, including the Betacam equipment that's ubiquitous in the world of professional video. High-quality 16-bit stereo audio is supported via two balanced analog inputs, four balanced analog outputs, and two digital I/O ports (AES/EBU and S/PDIF).

Other new features include a SMPTE time-code generator; GPI trigger input; and Asynchronous Sample Rate Conversion circuitry, which can translate the DAT-standard 48-kilohertz audio data stream into the 44-kilohertz CD standard on the fly.

The Telecast system consists of a 19-inch rack-mounted interface box and two NuBus cards — a VideoVision card and a NuBus card that connects to a VideoVision Studio daughtercard — and LEDs that display selected inputs and outputs. As an upgrade for the VideoVision Studio, the VideoVision Telecast system will be priced at less than $10,000. Pricing for the complete package was not set at press time. 408-434-1010. / Jeffy Milstead

IT'S GONE. AND YOU DIDN'T BACK IT UP.



FACE IT. YOU NEED to back up your files. Use Retrospect, the number one Macintosh backup software — backing up over one million Macs, at last count.

Dragging important files to floppy disks is not backing up. If you crash you'll be retyping and trying to recover files for days. And then still searching for what's missing months later. And what if there's a fire, theft, flood, or equipment breakdown?

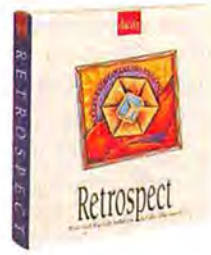
dantz

With Retrospect from Dantz you'll be backing up to the storage device of your choice in seconds — including SyQuest, Optical, Bernoulli, floppies, and file servers. And just about any Macintosh tape drive you choose. Retrospect packs more power than all the others put together.

AUTOMATIC OPERATION. Simply point and click to create a script, then schedule it to run days, nights, or weekends.

WORLD CLASS RESTORING. Every preference file, document, application, control panel, extension and font is returned to its exact location. You won't miss a beat.

SECURITY. Retrospect has security covered, with full password protection at every entry point. Even encrypt data passed over the network to prevent snooping.



SPEED. Retrospect's customized drivers and interleaved data flow operate SCSI storage devices 20%-100% faster than any other backup software — guaranteed.

Accelerated for Power Macintosh

COMPRESSION. Retrospect's built-in Lessr™ compression cuts backups down to size without compromising performance.

NETWORK OPERATION. Back up a network of Macintoshes as easily as you back up one. Just install a Remote INIT (available in Remote 10- or 50-Packs) on each of your networked Macintoshes and include them in your backup scripts.

TOP INDUSTRY AWARDS. Don't just take our word for it. Listen to what experts say about Retrospect: "Retrospect has no equal." *MacWeek*, Diamond Award. "For backing up and archiving, there's nothing better." *Macworld*. And Retrospect Remote is a *MacUser* 1993 Editor's Choice Award winner.

The price for peace of mind? Well under $200 — backed by a 30 day money back guarantee. Don't be caught off guard when disaster strikes, call your local dealer today.

Dantz Development Corp., 4 Orinda Way, Building C, Orinda CA 94563 (510)253-3000.

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NEW & NOTABLE

HARDWARE /

Microtek ScanMaker III. This 600-x-1,200-dpi color flatbed scanner boasts full 36-bit color with Dynamic Color Rendition, Microtek's color-calibration technology. Adobe Photoshop 2.5 completes the package. $3,499. 310-297-5000.

SuperMac Spigot II Tape. The successor to the VideoSpigot, this NuBus video card from SuperMac can capture moving and still images as large as full-screen size at 60 fields per second. The package includes ScreenPlay II software for video capture and editing. $999. 408-541-6100.

▼ **Panasonic SideWriter KX-P5400 M1.** Now available with AppleTalk, this 4-ppm, 300-dpi LED printer has a very small footprint (5 x 15 in.) and a side-loading paper tray. PostScript Level 2, PCL 4, and 2 MB of RAM are standard. $1,139. 201-348-7000.

NEC MultiSync 4PG. Designed for multimedia and presentations, this 27-inch NEC monitor features a flat, square screen and built-in stereo sound and supports resolutions from 320 x 200 to 1,024 x 768 pixels. $3,695. 708-860-9500.

Digital Eclipse F/33X. A do-it-yourself daughterboard upgrade for PowerBook 160s and 165s, the F/33X fulfills the need for speed by providing a 33-MHz 68030 processor and an FPU. $429. 510-547-6101.

DEClaser 5100. With built-in AppleTalk, serial and parallel interfaces, and a 20-MHz RISC processor, this 8-ppm, 600-dpi PostScript Level 2 laser printer fits into most workgroup settings. Upgrade options for the DEClaser 5100 include Ethernet, 1,200-dpi resolution, and a 128-MB hard drive. $2,199. 503-493-5111.

Spectral Innovations NuMedia². A NuBus card that allows the manipulation of 16-bit (CD-quality) digital audio on a Mac, the NuMedia² includes an AT&T DSP3210 digital-signal-processor chip and AudioShop 2.0 software. $699. 408-955-0366.

Pinnacle Micro Orray. This removable-optical-disc array uses a four-cartridge set that holds 5.2 GB of data and has a data-transfer rate as high as 8 MB per second. It also supports other popular optical-cartridge formats. Drive, $14,995; 5.2-GB cartridge set, $799. 714-727-3300.

SOFTWARE /

MicroPhone LT. Originally bundled with new modems but now sold separately, MicroPhone LT is a pared-down version of the MicroPhone communications package and is geared to novice users who need to connect with on-line services. $50. Software Ventures. 510-644-3232.

StyleScript. Users of Apple's Color StyleWriter Pro can gain compatibility with Adobe PostScript with this PostScript Level 2-interpreting printer driver. $149. GDT Softworks. 604-291-9121.

Spyglass Plot. A new member of the Spyglass family of data-analysis tools, Spyglass Plot graphically plots scientific data and works with sibling applications Transform and Dicer. $295. Spyglass. 217-355-6000.

!Trak-It HR 8. Formerly called Abra 2000 Mac, this application for human-resource management keeps data about a company's employees, including medical conditions and previous employers. $695 for 75 employees, $995 for 150 employees, and $1,695 for an unlimited number. !Trak-It Solutions (formerly Abra MacDabra). 408-737-9454.

MusicTime 2.0. This music-notation program now allows users to record notes either via the Mac keyboard or via a MIDI keyboard and then display them on-screen in standard format. Passport Designs. $149. 415-726-0280.

▼ **Colorforms Computer Fun Set.** Colorforms, the venerable stick-on toy, has entered the computer age. In the computer version, youngsters can place shapes in four different, colorful environments and then click on each shape to hear a different sound. $49. Gryphon Software. 619-536-8815.

TeamFlow 3.1. Designed to create employee flowcharts, TeamFlow displays workers' responsibilities graphically. This new version supports team-based file sharing over a network. $395. CFM. 617-275-5258.

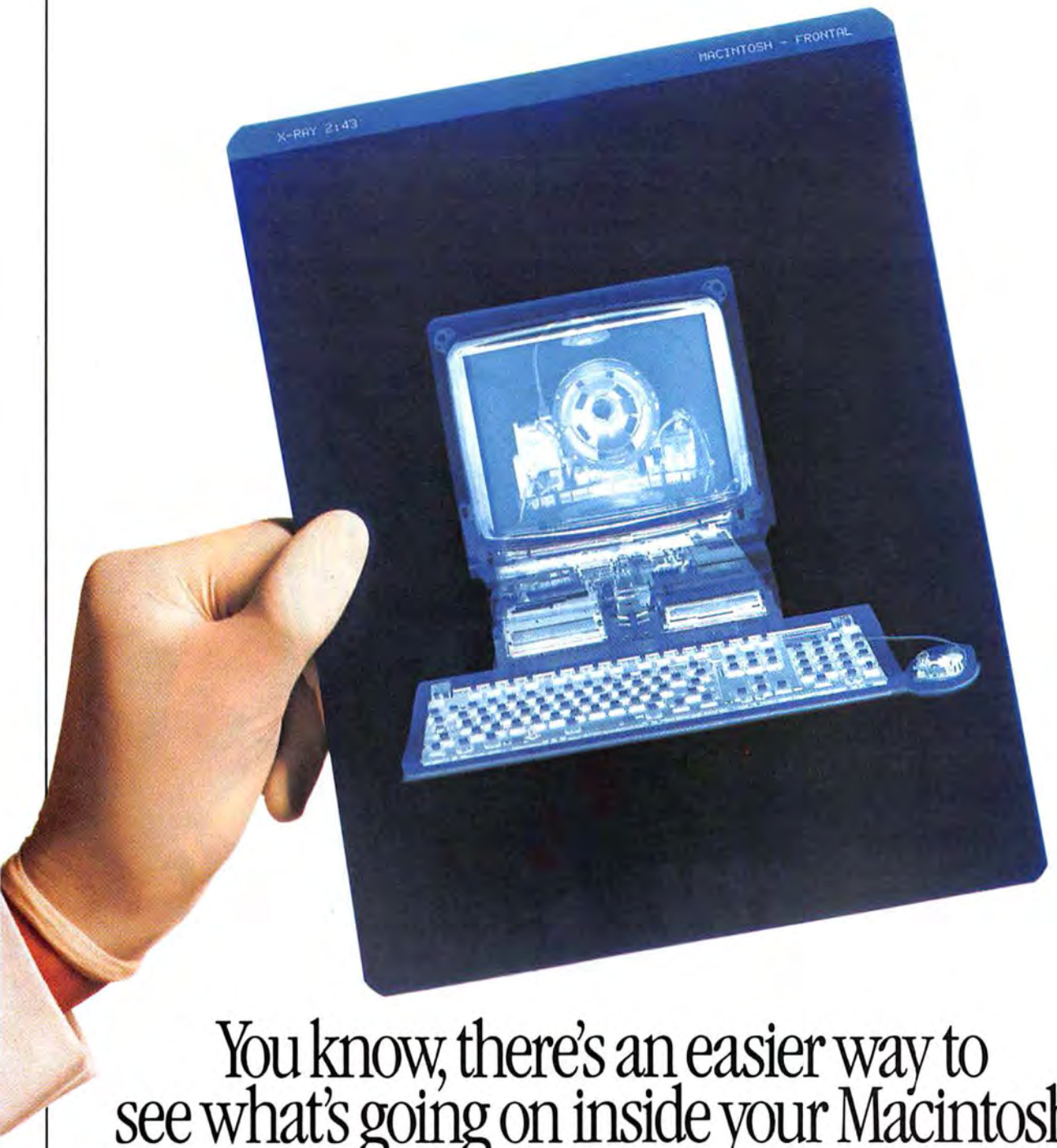
MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects average sales prices of new and used Macs as of April 6, 1994. Prices (except those for compact models) do not include a monitor or a keyboard. The United Computer Exchange is a national clearinghouse of used microcomputer equipment.

Mac Model	New	Used
Plus (1/20)	•	$275
SE (1/20)	•	$375
SE/30 (5/40)	•	$700
Classic (2/40)	•	$475
Classic II (4/40)	•	$600
Color Classic (4/80)	•	$700
LC (2/40)	•	$325
LC II (4/40)	•	$425
LC III (4/80)	•	$600
II (5/40)	•	$400
IIsi (5/40)	•	$550
IIx (5/40)	•	$700
IIcx (5/40)	•	$500
IIci (5/80)	•	$750
IIfx (8/160)	•	$1,200
IIvx (4/80)	•	$875
Centris 610 (4/80)	•	$950
Centris 650 (8/230)	•	$1,575
Centris 660AV (8/230)	•	$1,600
Quadra 605 (4/80)	$899	$725
Quadra 610 (8/230)	$1,779	$1,450
Quadra 650 (8/230)	$2,069	$1,750
Quadra 660AV (8/230)	$1,849	$1,575
Quadra 700 (8/230)	•	$1,350
Quadra 800 (8/230)	•	$1,900
Quadra 840AV (8/230)	$3,079	$2,600
Quadra 900 (8/230)	•	$1,775
Quadra 950 (8/230)	$3,599	$2,975
Portable (1/40)	•	$375
PowerBook 100 (4/20)	•	$700
PowerBook 140 (4/40)	•	$850
PowerBook 145 (4/40)	•	$975
PowerBook 145B (4/80)	$1,349	$1,050
PowerBook 160 (4/80)	•	$1,375
PowerBook 165 (4/80)	$1,699	$1,400
PowerBook 165c (4/80)	•	$1,375
PowerBook 170 (4/40)	•	$1,350
PowerBook 180 (4/80)	$2,049	$1,775
PowerBook 180c (4/80)	$2,549	$2,050
Duo 210 (4/80)	•	$1,050
Duo 230 (4/120)	$1,529	$1,200
Duo 250 (4/200)	$1,999	$1,700
Duo 270c (4/240)	$2,799	$2,450

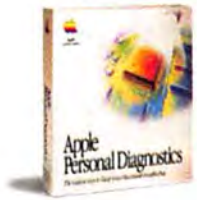
• = discontinued model

For more pricing information on these models and on configurations not listed, call 800-755-3033 or 404-955-0569 or find it on ZiffNet/Mac, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC:MACUSER), as UCEIDX.WRD (Microsoft Word format) and UCEIDX.TXT (ASCII text format); on AppleLink, look for it in ZiffNet Selections:MacUser Software:Reference.



You know, there's an easier way to see what's going on inside your Macintosh.

If you really want to keep an eye on the health of your Macintosh,® look no further than Apple® Personal Diagnostics. The most comprehensive testing and repair program ever created for the Macintosh, to help keep it running trouble free. It's incredibly easy to use, performing a multitude of tests with just a click of the mouse. From complete logic board and drive testing to in-depth system software analysis to repairing damaged disk directories, even alerting you to problems before they occur. To find out more, call 800-538-9696, ext. 250, for the Apple reseller near you. And see the power lurking beneath that mild-mannered Macintosh exterior. The power to be your best.®



Introducing Apple Personal Diagnostics for Macintosh.

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INTRODUCING DIRECTOR 4.0:
EASIER, AND A WHOLE LOT C

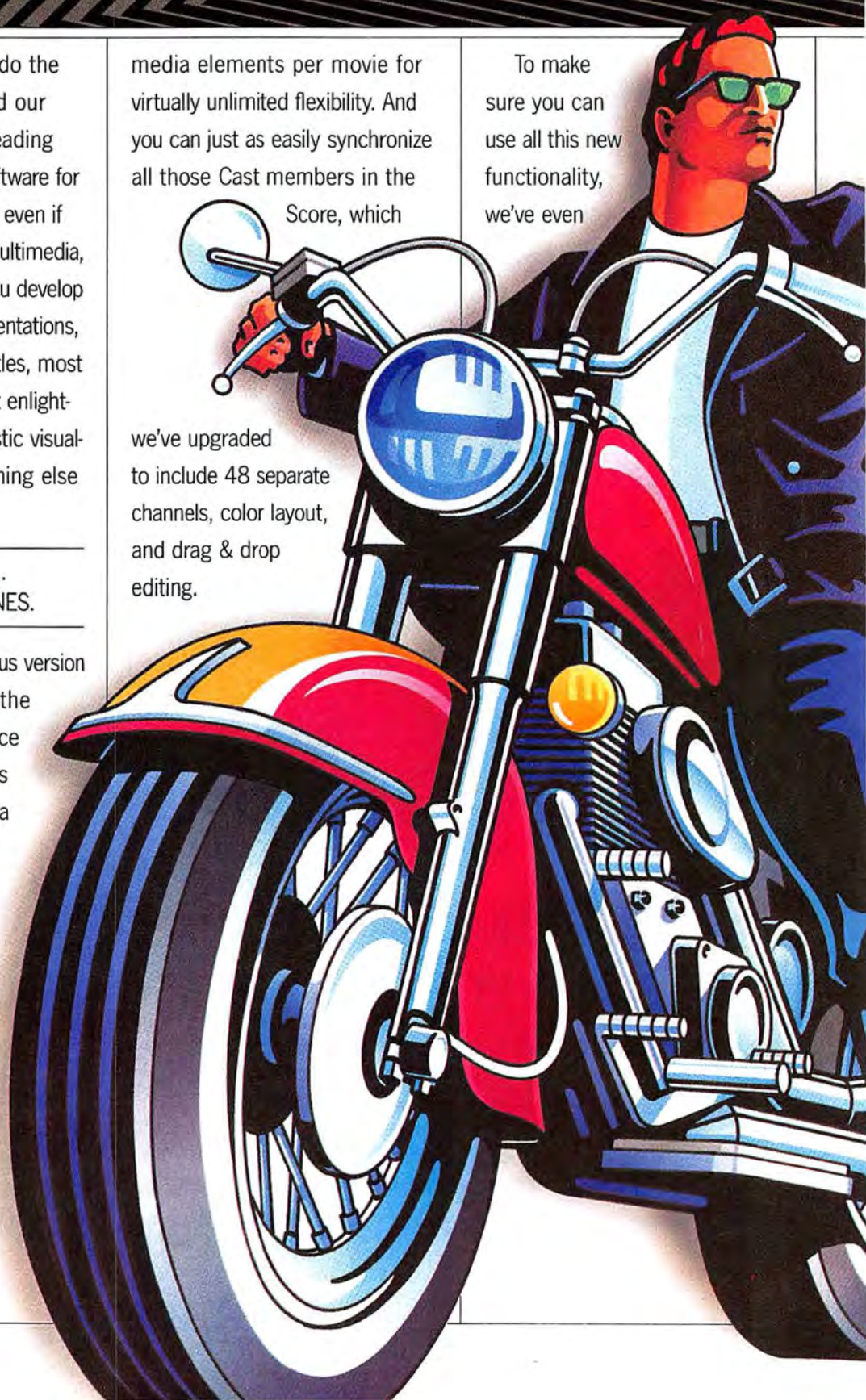
If you really want to do the cool stuff, climb aboard our newest version of the leading multimedia authoring software for the Macintosh®. Because even if you've never worked in multimedia, Director® 4.0 can help you develop the most persuasive presentations, most inspired CD-ROM titles, most entertaining kiosks, most enlightening demos, most realistic visualizations, and most anything else you have in mind.

DEVELOPERS... START YOUR ENGINES.

If you've used a previous version of Director®, you'll feel the extraordinary performance of version 4.0 as soon as you start it up. If you're a first-time user, our new and improved interface will enable you to cruise through the program like a pro.

For starters, we've made it easier to organize text, graphics, music, digital video, and sound effects in the Cast, our visual database that now stores up to 32,000 media elements per movie for virtually unlimited flexibility. And you can just as easily synchronize all those Cast members in the Score, which we've upgraded to include 48 separate channels, color layout, and drag & drop editing.

To make sure you can use all this new functionality, we've even



elim-
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16MB file size
limit. Now, Director files
are limited only by the amount
of disk space in your system.

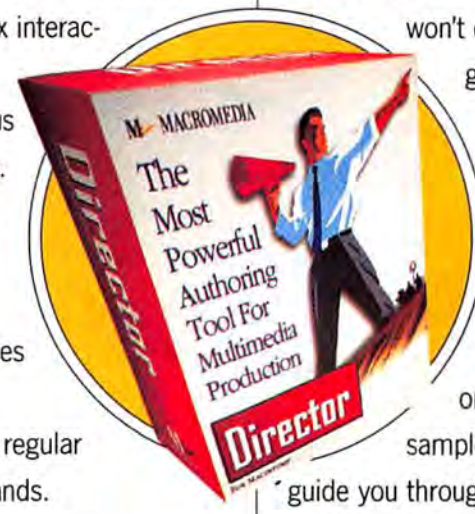
PUT YOUR PRODUCTIONS INTO HIGH GEAR.

Not only is our newest version of Director more friendly, it's also a whole lot more powerful.

All that power starts with our Lingo™ command language, which you can use to write scripts that add interactivity, create presentation frameworks, control external devices, and build logic into your productions. And since all Lingo scripts are compiled in Director 4.0, they'll run up to eight times faster!

Speaking of speed, we've actually made it possible for you to determine when individual cast members go in and out of RAM. This unique memory management feature, which we call Purge Priority, optimizes movie playback to dramatically reduce hard disk and CD-ROM access times.

What's more, our new object-oriented Lingo commands provide reusable code and simplified scripting, enabling you to add even the most complex interactivity without all that tedious programming. You can also play and manipulate Director movies within other movies using regular Lingo commands.



MOTOR FROM MAC TO WINDOWS.

Once you complete any production, Director 4.0 ensures a seamless transition to Windows™, using our new 100% binary-compatible file format with the soon-to-be-released Director for Windows. In other words, Macromedia continues to provide the industry's one-and-only set of cross-platform solutions; from Mac to Windows—plus 3DO and other popular consumer platforms—Director productions will play on your platform of choice.

We've also added high-level security features so that the code you create can't be pirated by anyone else. And that's good to know, since any production developed in Director 4.0 can be distributed royalty free to millions of users worldwide.

LEAN INTO THE (LEARNING) CURVE.

All these impressive features won't do you much good if you can't use them to their potential. That's why we've included new step-by-step tutorials, online help, and sample movies to guide you through the program.

With all that, it won't be long before you discover why the 200 professional developers who tested Director 4.0 found it to be the most exceptional authoring tool they had ever used.

If you're ready to see why, call **1-800-288-8239** for the name of the Macromedia Authorized Reseller nearest you (current Director users should call **1-800-457-1774** for the Version 4.0 Upgrade Kit).

Because you're only as cool as your next production.

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IMAGING MAGAZINE PRODUCT OF THE YEAR 93

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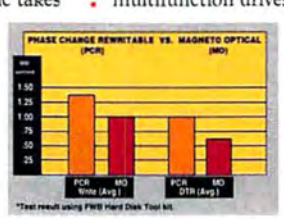

Panasonic Office Automation OA

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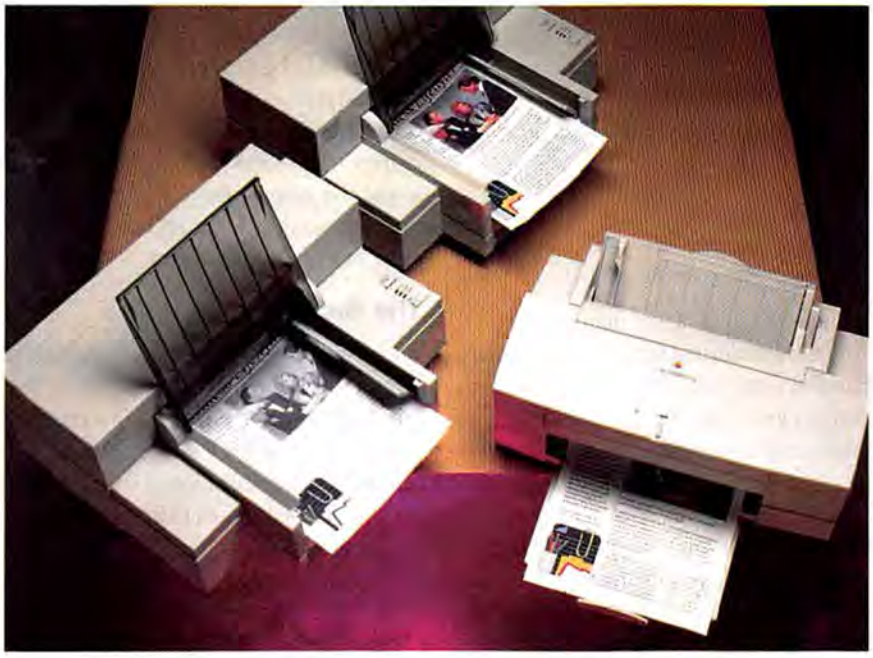
OPL-MAC

CIRCLE 11 ON READER SERVICE CARD



Apple Color StyleWriter Pro and Hewlett-Packard DeskWriter 560C and 520

Vivid color output and sharp text for cost-conscious buyers.

THE INKJET WARS aren't over yet — not with Apple and Hewlett-Packard releasing new printers hot on each other's heels.

MacUserLabs

The Apple Color StyleWriter Pro and the Hewlett-Packard DeskWriter 560C and DeskWriter 520 offer more features than previous models did, at similar low prices ($600 street, for either of the two color printers, and $300 street, for the monochrome 520), plus they provide better output on plain paper. For now, the Color StyleWriter Pro's brilliant graphics output and exceptional speed make it the winner in the battle of affordable color output. The HP printers don't break any new ground in speed, but their 600-x-300-dpi text is exceptionally crisp.

Reviews Rating Key

- ★★★★★ Outstanding
- ★★★★ Very Good
- ★★★ Acceptable
- ★★ Poor
- ★ Seriously Flawed
- ● Dangerous

Apple Color StyleWriter Pro

Apple has benched the amateurish Apple Color Printer (its first attempt at a color inkjet printer) and substituted a winner — the Apple Color StyleWriter Pro. Equipped with a new Canon engine, the Color StyleWriter Pro produces output so quickly that it leaves the old Apple Color Printer in the dust. The Color StyleWriter Pro connects to your Macintosh from its single, easy-to-reach serial port. It doesn't offer a direct connection to LocalTalk, but you can use the included Apple ColorShare software to share the printer over a network connected to its host Mac. Apple provides an adjustable sheet feeder that holds 100 sheets of plain paper, 15 envelopes, or 20 sheets of any of the following special media: coated or glossy paper, transparencies, back-print film, or labels.

Ink handling with the Color StyleWriter Pro is convenient. The four colors of ink are in individual cartridges, so you don't need to replace all of them if one color runs out, and the cartridges are transparent, so you can easily check whether you're low on ink.

A QuickDraw printer, the Color StyleWriter Pro uses the host Mac's power to process text and graphics at 360 x 360 dpi. The printer driver comes with Apple's ColorSync software, for basic color matching, using one of three options: Photographic, Business Graphics (to emphasize vibrancy over hue), and Spot Color. The driver also allows for deep blacks and a choice of two dither patterns. By default, ColorSync and Emphasize Black are turned off; turning either setting on can improve the printer's output but slows printing somewhat.

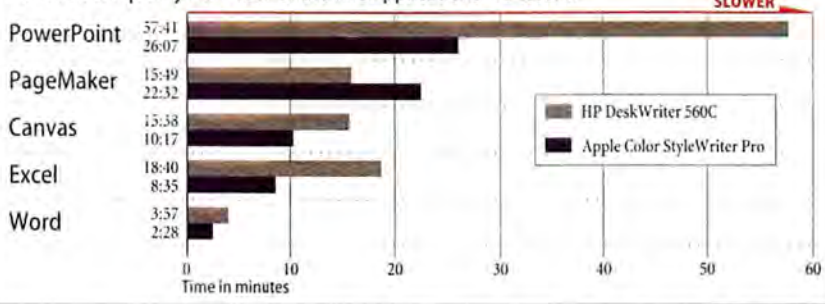
HP DeskWriter 560C

The Hewlett-Packard DeskWriter 560C is a good, capable color inkjet printer that would have been more impressive if it hadn't been released around the same time as the Apple Color StyleWriter Pro. It uses QuickDraw to print color at 300 x 300 dpi and black text at a crisp 600 x 300 dpi. The printer driver is equipped with ColorSmart, HP's software for color matching (screen to printer) and image enhancement (it decides the appropriate dither for each element on a page). The 560C also offers three special color-matching modes: Photographic, Text/Graphics, and Apple's ColorSync. In addition, the driver provides controls for intensity, halftone patterns, and bleed.

Compared to the Color StyleWriter Pro, the 560C offers more convenience in networking but less in ink handling. You can connect the 560C either to a Mac or to a LocalTalk network (the serial cable for the former connection and the LocalTalk connectors for the latter must be bought separately). For ink, the 560C uses two cartridges

Color Wars

If you want color and speed from your inkjet printer, the Apple Color StyleWriter Pro is your best choice. It was faster than the Hewlett-Packard DeskWriter 560C in printing a document at best quality from four of the five applications we tested.



with built-in print heads: one for black ink and the other for cyan, magenta, and yellow. Because each replacement cartridge comes with a new head, maintenance is minimal. However, the cartridges are not transparent; to find out if you need more ink, you must check the output — a potential waste of both time and print media.

The built-in paper tray holds as many as 100 sheets of plain paper and accepts coated or glossy paper, transparencies, and envelopes. HP doesn't recommend using adhesive labels with this printer.

Battle of the Color Inkjets

To compare the speed and output quality of the two color contenders, we created five tests that represent real-world usage. The test suite consisted of a Microsoft PowerPoint five-page presentation, an Aldus PageMaker newsletter with a photographic image, a Deneba Canvas drawing, a Microsoft Excel spreadsheet and chart, and a Microsoft Word document containing text and simple graphics. Our test platform was a Mac LC III with 8 megabytes of RAM, running System 7.1.

Since both vendors claim high-quality output on plain paper, we tested with 20-pound white copier paper. We were pleased to find the color intensity from both printers more than satisfactory. Amazingly, the Color StyleWriter Pro was able to print a large, heavily saturated graphic with only minor wrinkling from the inks (although wrinkling increased a bit when we turned on special output settings such as Emphasize Black). The same type of output from the 560C produced noticeable wrinkling. Both vendors suggest using specialized, more expensive coated paper to get the best color and to eliminate wrinkling.

When we adjusted settings to get the best possible output, the Color StyleWriter Pro's output easily beat the 560C's best output, producing vibrant, intense colors in complex graphics. Photographic images from the Color StyleWriter Pro were clean and detailed, but the 560C output often looked muddy and lacked smooth tonal changes.

The Color StyleWriter Pro was also the winner in terms of overall speed, proving twice as fast as the 560C in our Word and Excel tests in Normal mode. Even when we turned ColorSync on, the Color StyleWriter printed faster than the 560C. The 560C was faster only in our PageMaker test.

Although its color capabilities aren't as impressive as the Color StyleWriter Pro's, the 560C is the winner for pure text, using HP's Resolution Enhancement technology (REt) to print dark, clean characters. The Color StyleWriter Pro's text was much lighter, and darkening the black with either the Emphasize Black option or ColorSync produced text that bled.

For those who need better output than what QuickDraw provides but the $3,000+ cost of a color inkjet printer with PostScript is a little too much, the Color StyleWriter Pro and the HP 560C have software PostScript interpreters available. For $249, HP has an Adobe Level 2 driver package that comes with 35 PostScript fonts. StyleScript, from GDT Softworks, is a $150 Adobe PostScript Level 2 driver for the Color StyleWriter Pro.

HP DeskWriter 520

Not everyone needs color, and for those who don't, HP has replaced the monochrome 300-x-300-dpi DeskWriter 500 with the higher-resolution DeskWriter 520. The 520 uses the same engine as the 500 but prints text at 600 x 300 dpi (graphics still print at 300 x 300 dpi). The 520 uses the same driver as the 560C, except ColorSmart has been modified so that the only settings available are intensity and halftone patterns.

Thanks to HP's REt, we found the text to be of near laser-printer quality but not as dark as laser-printer output. Serifs printed cleanly, and the ink did not bleed. The graphic output, although not as impressive as the text output, due to the lower resolution, was acceptable for art that doesn't require fine gradations of gray.

The Bottom Line

Apple has finally created a color inkjet printer that keeps up with the competition. For those who need high-quality graphics as well as speed, the Color StyleWriter Pro offers a great combination of both. If you're more concerned about crisp text than high-quality graphics, opt for HP's DeskWriter 560C or the budget-priced monochrome DeskWriter 520. / Roman Victor Loyola

Apple Color StyleWriter Pro

Rating: ★★★★

List Price: $629.

Pros: Excellent graphics. Fast. Convenient ink handling.

Cons: Text bleeds when darkened. No direct LocalTalk connection.

Company: Apple Computer, Inc., Cupertino, CA; 800-538-9696 or 408-996-1010.

Reader Service: Circle #401.

Hewlett-Packard DeskWriter 560C

Rating: ★★★

List Price: $719.

Pros: Crisp, high-resolution text. LocalTalk networking capabilities.

Cons: Slow. Mediocre graphics output.

Company: Hewlett-Packard Co., Palo Alto, CA; 800-752-0900 or 800-387-3867 (Canada).

Reader Service: Circle #402.

Hewlett-Packard DeskWriter 520

Rating: ★★★½

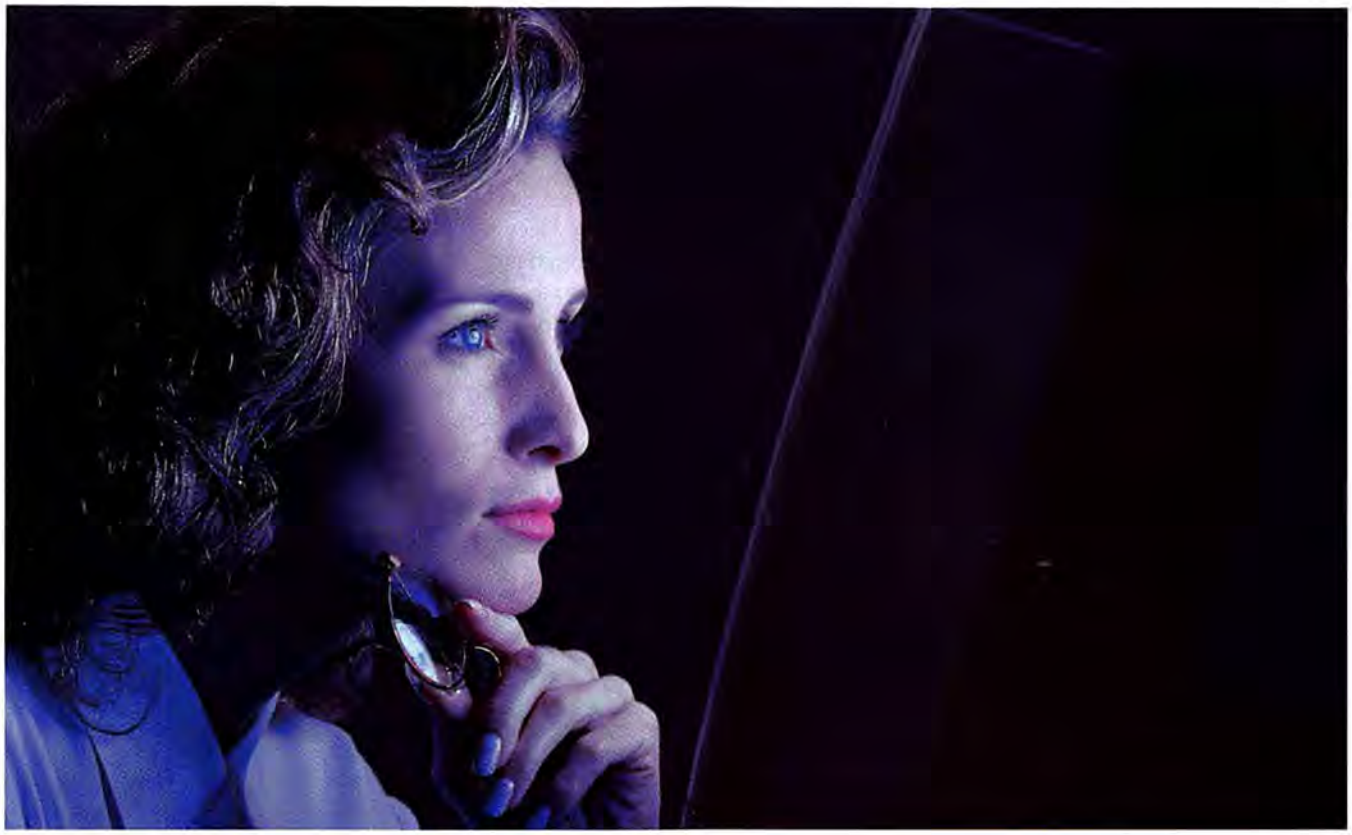
List Price: $365.

Pros: Crisp, high-resolution text. LocalTalk networking capabilities.

Cons: Mediocre gray-scale graphics.

Company: Hewlett-Packard Co., Palo Alto, CA; 800-752-0900 or 800-387-3867 (Canada).

Reader Service: Circle #403.



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Apple made it easy to use. We make it easy to do.

In fact, we'll do it for you. Introducing Open Sesame!, the world's first intelligent software assistant for the Macintosh. Open Sesame! observes how you work, *learns* your repetitive patterns, and then offers to do them for you. Automatically.

With a single click, Open Sesame! will open and close related sets of folders, documents and applications, create and manage multiple Apple Menu and Desktop items folders, and perform routine maintenance, like rebuilding your desktop...automatically. So you can do more with fewer clicks.

For example, suppose that every time you start up your Macintosh you immediately open your mail program. Open Sesame! will observe this and offer to do it for you. It will even find more efficient ways for you to use System 7.0, like making aliases and stationery automatically.

Here's what the critics say: "One that knocks my socks off is called Open Sesame! ...the simple fact is that Open Sesame! works smarter for me. It might just herald a new wave in mac smartware. ...The more you use it the better it gets." The Mac Manager, *MacWEEK*

"Macintosh users who like the flexibility of System 7 but tire of "tweaking" their desktop and Apple menu items will appreciate Charles River Analytics Inc.'s Open Sesame!" *INFOWORLD*

Open Sesame! is available at these quality resellers: MacWarehouse 800-255-6227, EGGHEAD 800-EGGHEAD, The Mac Zone 800-248-0800, ComputerWare 800-326-0092.

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CIRCLE **50** ON READER SERVICE CARD

Aldus Persuasion 3.0 / Aldus' veteran presentation-software package regains the No. 1 slot.

ALDUS PERSUASION may have taken a backseat to PowerPoint when PowerPoint 3.0 was introduced a few years back, but with its latest release, Persuasion slides confidently into the driver's seat. In addition to powerful tools for building traditional slide and on-screen presentations, Persuasion 3.0 provides a variety of multimedia features that give it a decided edge over archrival PowerPoint 3.0. However, the ease with which Persuasion exchanges files between Macs and PCs continues to fall short of PowerPoint's stellar cross-platform abilities.

Streamliner

Several of Persuasion's new features aim to streamline the process of creating presentations. Floating palettes, restructured menus, and improved navigational icons make it easier and quicker for users to get to the tools they need. OLE (Object Linking and Embedding) support saves you time by letting you use Persuasion's new Aldus Chart and Aldus Table applications from directly within Persuasion.

Persuasion also has improved color handling and enhanced rulers. And for more-precise control over text, the program provides new nudge controls and automatic kerning. Add all this to Persuasion's continued support for multiple slide masters (PowerPoint 3.0 supports only one), and you have a sophisticated yet easy-to-use tool for creating presentations.

Beyond the traditional tools, Persuasion 3.0 offers a selection of multimedia features that let you jazz up on-screen presentations. Although its features aren't nearly as comprehensive and easy to use as those of Astound, Gold Disk's multimedia-oriented presentation-software package, they are a welcome addition.

For starters, Persuasion's new AutoJump feature lets you configure on-screen hot spots that branch to another slide, presentation, or even another application when you click on them. Any object can serve as a hot spot, including the buttons that come as part of Persuasion's large clip-art collection. A specified area of the screen can also serve as a hot spot.

Persuasion 3.0 lets you create interactive presentations by configuring on-screen hot spots, such as the three buttons shown here. When you click on a hot spot, Persuasion jumps to another slide, presentation, or application.

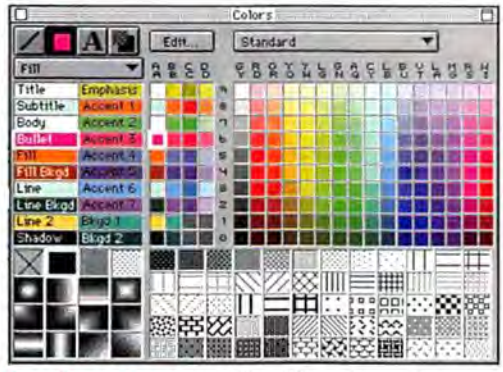
Defining hot spots is easy — you simply select an object, bring up the AutoJump dialog box, and choose from its options.

Time-based transition and sound effects are another item in Persuasion's new multimedia bag of tricks. You can add these to any of the several layers that make up a slide, just as you can add drawn or imported objects, text, and charts to layers. Using transition effects, you can have each layer enter a slide sequentially and wipe, glitter, or dissolve onto the screen. You can choose from 15 transitions, and you can augment them by attaching imported sounds.

You use the Transitions dialog box to set Transition types, sounds, and delays for each layer of a slide. We found this process rather cumbersome, because the dialog box doesn't give any indication of what objects reside on each layer. Layers are represented by numbers only, so you can't name them to help you remember what they contain as you

make transition selections. There's room for improvement here.

Also new in this version are rudimentary tools for animating text and graphics. You can set general entrance or exit direction for objects as well as their relative speed, but you can't combine animations with transition effects.



Specify patterns and fill and line colors with Persuasion's new color palette.

Slide-Making Features

For slide-making features and production conveniences, Persuasion clearly takes the lead over PowerPoint 3.0. However, despite Persuasion's overall superiority, PowerPoint bests it in a few areas. You still can't format slide text in Persuasion's outliner, as you can in PowerPoint's. In addition, Persuasion is missing a built-in color coach, such as the one found in PowerPoint, which helps you select colors that go well together. And PowerPoint's versatile shape tool for drawing perfect starbursts, arrows, and diamonds is absent in Persuasion.

But perhaps the most significant area in which Persuasion trails PowerPoint is cross-platform compatibility. Whereas PowerPoint offers seamless and nearly flawless file transfer between its Macintosh and Windows versions, transferring files between the two versions of Persuasion continues to be problematic. Until Persuasion for Windows is upgraded (Aldus is shooting for midsummer), you'll be no better off than you were with Persuasion 2.1 for Macintosh — masters, backgrounds, and certain design elements won't transfer to the Windows version, and you'll lose all of version 3.0's enhancements.

And even though the situation should improve once the Windows upgrade becomes available, there will continue to be some limitations, according to Persuasion's Mac documentation. You'll still have to save your presentation in interchange format before transferring it; you'll then have to reapply transition effects, animation specifications, and AutoJump instructions and respecify end caps and object shadows after transferring it.

The documentation also presages trouble if you want to transfer multiple backgrounds, patterned lines, and page numbers to the Windows version. Plus, you'll have to reimport PICT and EPS graphics. If you frequently need to exchange presentations containing such elements between Macs and PCs, Persuasion is probably not your best bet for a presentation-software package. If you don't have this requirement, however, you'll find that Persuasion offers several advantages over PowerPoint, including new floating palettes with text, line, tool, nudge, and color controls that give you access to more features than PowerPoint's toolbar.

Persuasion's new color palette provides convenient access to patterns and fill and line colors. Another useful color feature is the ability to specify more than one color system for a single presentation. This feature lets you output the same presentation to different devices, such as black-and-white

Aldus Chart provides Persuasion 3.0 with beefed-up charting capabilities. Controls for 3-D rotation, movement, zooming, panning, and perspective let you customize charts to your heart's content.

This used to be a Full-Page Ad.

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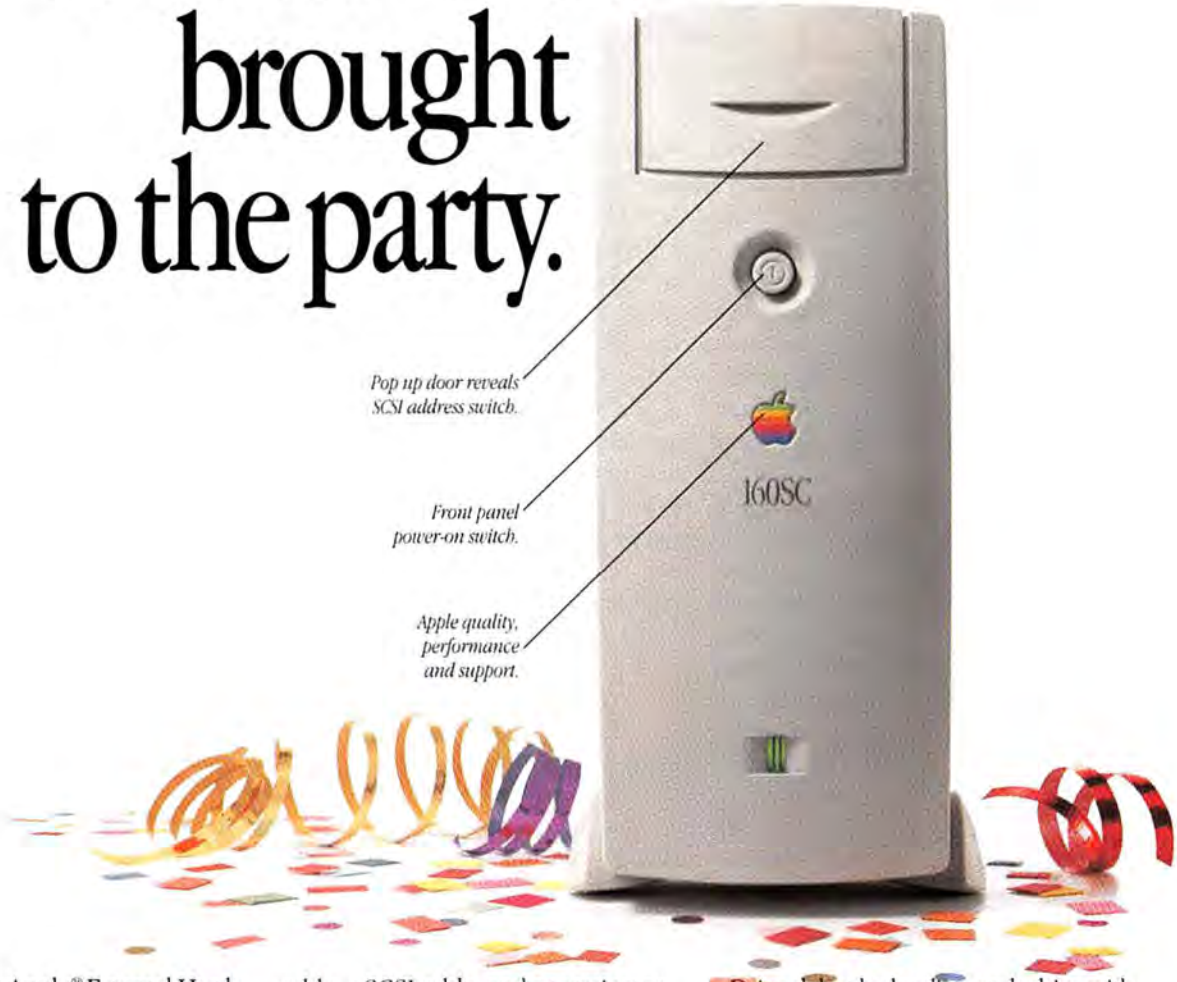

Introducing Apple® External Hard Drives. Now you can add reliable external storage to your Mac with all the quality you expect from Apple, at prices that will surprise you.

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Look for the Apple Drive at your local dealer soon. For more information and the name of a participating reseller or Quantum distributor, call La Cie.

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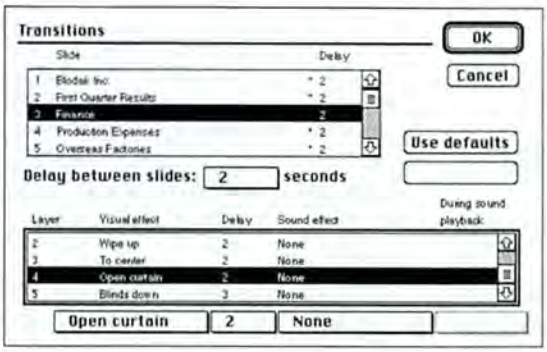
CIRCLE **41** ON READER SERVICE CARD



Basic multimedia features in Persuasion 3.0 include the ability to set transition effects for each slide layer. The one drawback is that the Transitions dialog box doesn't provide any clues to what elements reside on each layer, so choosing just the right transition effect is harder than it should be.

overheads and 35mm slides, without having to reassign colors. You can choose from RGB, gray-scale, inverse gray-scale, black-and-white, NTSC, and PAL color systems as well as create one or two custom color systems to meet the requirements of specific devices.

Charts and Tables

By clicking on a chart or table placeholder in a slide, you can launch, via OLE, Persuasion's Aldus Chart and Aldus Table applications. The powerful Aldus Chart boasts 46 chart types. In addition to standard area and bar charts, it provides a good selection of special 2-D and 3-D chart types, including radar, polar, histogram, bubble, and open/close charts. You can add custom gradient fills or graphics to chart elements and backgrounds as well as adjust the rotation, perspective, and positioning of 3-D charts. These and other superb customization options should leave you hard-pressed to come up with a chart design Aldus Chart can't handle.

Aldus Table offers fewer customization options than Aldus Chart, but its handy floating palettes let you easily format and align text as well as adjust line widths and table margins.

To make slide design and object placement easier, Persuasion 3.0 boasts enhanced rulers combined with a new nudge feature. You can set the rulers' zero point to any position on-screen and place as many as 40 ruler guides per slide. You use the dedicated nudge palette to fine-tune an element's position or to tweak the size of objects, text, and drop shadows.

Persuasion 3.0 supports a wider variety of import formats than the previous version, including EPS, Photo CD, PICT, PICT II, QuickTime, and WMF for graphic elements; ASCII for text elements; Microsoft Excel or tab-, comma-, or space-separated ASCII format for data; and AIFF and sfil for sound. Like previous versions, Persuasion 3.0 supports publish-and-subscribe.

Aldus recommends using a IIcx or more powerful Mac and System 7. You need at least 8 megabytes of RAM to take advantage of Aldus Chart and Aldus Table from within Persuasion. A full installation requires 30 megabytes of disk space, although if you skip most of the AutoTemplates and all the clip art, you can get by with 11 megabytes. Persuasion includes Mac and Windows runtime players.

The Bottom Line

If you're looking for the most fully featured tool for creating traditional slide and on-screen presentations, look no further than Persuasion 3.0. New and enhanced features, including color handling, charting, OLE, and an easy-to-use interface, combined with a modicum of multimedia features and continued support for multiple master slides, propel Persuasion ahead of archrival PowerPoint 3.0. However, if you need a program that gives you seamless exchange of presentations between Macs and PCs or the latest in whizbang multimedia effects, bear in mind that Persuasion offers far less in the way of cross-platform capabilities than PowerPoint and only a taste of the timing control, transition effects, and animation capabilities of Astound. / Shelley Cryan

Aldus Persuasion 3.0

Rating: ★★★★½

List Price: $495.

Pros: Well-designed interface. Excellent charting and color handling. Basic multimedia effects.

Cons: Limited cross-platform compatibility.

Company: Aldus Corp., Seattle, WA; 800-685-3617 or 206-628-2320.

Reader Service: Circle #404.

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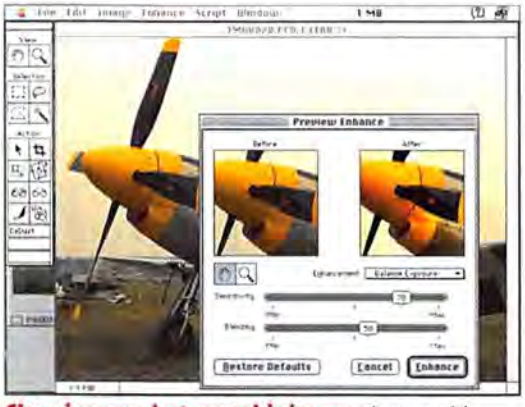
CIRCLE 31 ON READER SERVICE CARD

Apple PhotoFlash / Finding and enhancing photos and placing them in documents has never been simpler.

APPLE'S NEW retouching application has multiple personalities. First, it's not one application but two: PhotoFlash, for cleaning up photographic images, and PhotoFlash Browser, a simple image cataloger somewhat like Aldus Fetch. Second, the PhotoFlash application targets two markets. Its simple suite of image-enhancement tools is designed for nonprofessionals who have to clean images from a desktop scanner or Photo CD disc. Yet PhotoFlash's extensive support for scripted batch operations may make the application of some interest to production professionals.



Cleaning up photographic images is easy with PhotoFlash's tools and filters. The filters' dialog boxes are simple and basic, but professionals will be frustrated by the lack of sophisticated controls.

Photo Finishing

PhotoFlash's image-editing tools are well selected to help you improve photographic images. The program has no drawing and painting tools, but it does have straightforward, intuitive tools for removing dust and scratches from image selections and for moving, cropping, resizing, blurring, sharpening, rotating, and straightening images. The rotate/straighten tool is particularly helpful — it makes hand-aligning crooked images a cinch. And you don't need to draw with the blur and sharpen tools, as you do to apply them in Photoshop; you just click in a selected area. You'll also find that you can generally manipulate large images (10 megabytes or greater) more quickly with PhotoFlash than with Photoshop.

You can adjust several of the tool effects (Blur, Sharpen, DeDust, and DeScratch) in rudimentary ways by selecting them from the Enhance menu and applying them as previewable filters. The Enhance menu also provides access to filters for adjusting brightness and contrast and for balancing exposure (to brighten and enhance muddied details).

PhotoFlash's tilt toward less experienced users is particularly obvious in the controls for these filters; most have just one or two simple sliders for adjusting their effects. More-elaborate controls, such as histograms and gamma curves, are noticeably absent. Also absent are controls for even the most basic color correction, such as removing a bluish cast from an image or adjusting values separately for highlights, midranges, and shadows.

Because PhotoFlash supports Photoshop plug-ins, you can scan directly into PhotoFlash if your scanner uses a plug-in; you can also apply your favorite Photoshop plug-in filters to images in PhotoFlash.

PhotoFlash imports and exports most popular photographic-image file formats: EPS, JPEG, seven varieties of PICT, and TIFF. It also imports Photo CD files but doesn't export them; it does export in DCS (five-file EPS) format, however. You can specify a level of JPEG compression to be applied to images and, if there's an active selection, set different JPEG compression values for selected and unselected areas.

PhotoFlash's conversion options fall short in one important area. Although you can change the number of colors (the bit depth) of pictures, you cannot perform RGB-to-CMYK conversions — but you can convert CMYK to RGB.

PhotoFlash Browser can quickly generate catalogs of images in a folder or on a disk. Although Browser is handy, it's not as full-featured as other image-cataloging programs, such as Aldus Fetch. For example, you can use an AppleScript script to enter keywords for various images but you can't perform searches based on the keywords. Browser also doesn't let you keep separate files of different images. Instead, it always opens a single collection; you're limited to adding images or removing images within this collection.

A distinctive feature of PhotoFlash and PhotoFlash Browser is their support for AppleScript. The package comes with several prewritten scripts, including some for automatically placing images into QuarkXPress or PageMaker and for converting files to a given format. Moreover, PhotoFlash is completely recordable and scriptable. As you work, you can record your actions as an AppleScript script, which you can then edit in the included script editor. However, the knowledge needed to write and edit functional scripts can be daunting — these aren't tasks for the novices likely to be attracted to other features in PhotoFlash.

A 1.1 upgrade, which was expected in May, should support Apple's QuickTake camera and the Power Macs.

The Bottom Line

The simplicity of PhotoFlash's tools and filters makes the application useful for nontechnical users who want to clean up photographic images, whether from a desktop scanner (via plug-ins) or a Photo CD disc. And PhotoFlash's support for scripting lets you automate some operations if you're not intimidated by script editing. However, PhotoFlash's simplistic controls, lack of color-correction tools, and especially its inability to perform RGB-to-CMYK conversions should make most professionals look to other products, such as Light Source's Ofoto, that offer similar automation but greater power. / Eric Taub

Apple PhotoFlash

Rating: ★★★½

List Price: $279.

Pros: Simple interface. Support for wide variety of popular file formats. Batch-conversion capabilities.

Cons: No RGB-to-CMYK conversion. No color-correction capabilities. Automation via scripting can be complicated.

Company: Apple Computer, Inc., Cupertino, CA; 800-776-2333 or 408-996-1010.

Reader Service: Circle #405.

CD/Maxtet / Tower of CD-ROM power lets networked users access as many as seven CD-ROMs at a time.

WITH THE WEALTH of information becoming available on CD-ROM, many organizations are looking for a good way to share CD-ROM content over a network. Optical Access International offers a well-designed, logical solution with its CD-ROM file server, the CD/Maxtet.

MacUser Labs

The CD/Maxtet allows users on a network to access as many as seven CD-ROMs at the same time, while using only one SCSI address — leaving plenty of addresses for other peripherals such as external hard drives or tape-backup systems. Because the CD-ROMs are accessible only through a secured file server, a network administrator can make particular CD-ROMs available only to authorized users. Also, because the CD-ROMs are managed centrally, they're not likely to get damaged or misplaced.

Caching In

What really sets the CD/Maxtet apart from other CD-ROM servers is the simultaneous access it provides to multiple CD-ROMs. Commonly used jukebox servers use autochanger mechanisms to swap out CD-ROMs, so users can access only one at a time — and they must wait until previous requests from other clients have been met. The CD/Maxtet, on the other hand, uses a multiplexing controller to switch among the seven CD-ROM drives, so that information can be retrieved simultaneously from multiple CD-ROMs by many clients. Furthermore, because it caches the desktop, directory, and icon information for all the CD-ROMs to the file server's hard disk (more information than most file servers store in their RAM caches), the file server knows where to look on each CD-ROM to find the requested file quickly.

Taking It to the Max

To investigate the performance of the CD/Maxtet, we connected 20 clients (IIci's, IIsi's, and Quadra 700s) to an Ethernet network with a Quadra 950 file server running AppleShare 4.01 (the CD/Maxtet is not meant for use with LocalTalk, which can't handle CD-ROMs' high throughput demands). After easily installing the CD/Maxtet by following the manual's instructions, we subjected it to varying network-traffic conditions as more and more clients accessed the CD-ROMs.

The CD/Maxtet performed outstandingly in retrieving text and searching databases (situations in which the hard-disk caching helps greatly); access speed on graphics-based CD-ROMs was less impressive but still decent. Slide-show presentations and Photo CDs don't get cached to the file server's hard disk, because their directories are limited and basically consist of still photos. Accessing such information requires reading directly from a CD-ROM — a potential problem when several clients are using the disc. However, simultaneous access from multiple users isn't generally a problem, because users tend to spend more time viewing and editing copies of these files than they do reading the information from the CD-ROM. Thus, access speed remains acceptable to good in most real-world situations.

Intelligent caching of frequently used information lets the CD/Maxtet find content quickly on as many as seven CD-ROMs — and a multiplexing controller provides fast switching among the CD-ROM drives to serve many networked users.

In our tests with The New Grolier Multimedia Encyclopedia — an application that combines text, graphics, and animation — we found that animation was most affected by increased network traffic. Still, the CD/Maxtet provided acceptable access speeds in all but the heaviest traffic conditions.

Expecting Too Much

The one activity for which we don't recommend the CD/Maxtet is playing QuickTime movies. QuickTime relies on the ability to process images and sound in concert; therefore, it requires prompt delivery of a tremendous amount of data. Your network alone is likely to have trouble meeting this requirement, regardless of the CD/Maxtet's capabilities. Although we were able to play a QuickTime movie from the CD-ROM server, we often lost the sound or experienced jumpy playback as the video images struggled to catch up with the sound. Basically, those who want to watch movies from a CD-ROM should get their own CD-ROM drive.

The Bottom Line

Optical Access International's CD/Maxtet provides an elegant way to share CD-ROMs over a network. By caching the most frequently used information from each of the CD-ROMs to the file server, the CD/Maxtet allows user requests to be processed more quickly than without caching and allows clients to get information simultaneously from as many as seven CD-ROMs. Although we don't recommend the CD/Maxtet for viewing QuickTime movies, its speed in retrieving text, graphics, and animation files is acceptable to excellent, with only small degradations due to heavy network traffic. For libraries, schools, and businesses that require simultaneous access to CD-ROMs, the CD/Maxtet is a sensible buy. / Katie Barnes

CD/Maxtet

Rating: ▮▮▮▮

List Price: $6,995.

Pros: Well-implemented caching system for greater speed. Simultaneous multiuser access to as many as seven CD-ROMs. Easy to install and use.

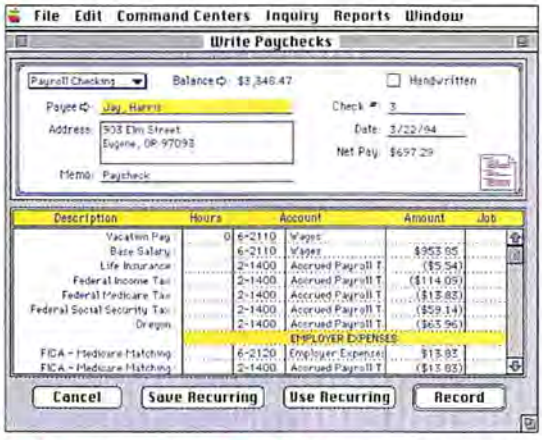
Cons: Expensive compared to a jukebox server. Not recommended for playing QuickTime movies.

Company: Optical Access International, Inc., Woburn, MA; 800-433-5133 or 617-937-3910.

Reader Service: Circle #406.

M.Y.O.B. 4.0 / Best!Ware's package may be the last word in small-business accounting.

ACCOUNTING FOR YOURSELF just got easier, with the latest release of M.Y.O.B., now the most comprehensive small-business accounting package for the Mac. The program handles everything from tracking inventory to generating customer letters. Most noteworthy in version 4.0 is the addition of an integrated payroll module — a feature conspicuously absent in previous versions. Other enhancements include improved help features and a much refined interface that makes it easier to navigate the program.



An integrated payroll module completes Best!Ware's excellent small-business accounting package.

Minding Your Own Business

M.Y.O.B. is not only more functional than before but it's also better-looking. The program's slick main interface window now boasts a row of 3-D-style buttons with color icons representing each of the program's eight Command Centers — Administration, Card File, Checkbook, General Ledger, Inventory, Payroll, Purchases, and Sales. Clicking on any of the buttons brings up a flowchart that shows the various accounting tasks the selected Command Center handles.

To perform any of the functions, you simply click on the appropriate button. M.Y.O.B. navigates to the correct window and accesses the account information you need. To move directly to a specific account, you can use the General Ledger's Chart of Accounts, which shows a categorized overview of all of your accounts.

The most significant new feature in version 4.0 is the integrated payroll module. M.Y.O.B. can now account for salaried as well as hourly employees and calculate commissions, health-insurance deductions, union fees, 401-K-plan deductions, and other payroll expenses. (If you don't require payroll functions, you can buy a nonpayroll version of M.Y.O.B. for $99.95.) When you use the Write Paychecks command, M.Y.O.B. not only writes the checks but also deducts the amounts from the appropriate accounts. At the end of the year, it even prepares a W-2 statement for each employee.

To use M.Y.O.B.'s payroll module, you must enter up-to-date tax information. M.Y.O.B then deducts the proper federal and state withholding taxes and calculates the correct payroll taxes. The program comes with one complete set of tax tables, but to keep current, you have to buy updated tax tables. Individual tax-table updates are available from Best!Ware for $49.95 each. To receive every update issued over the course of a year, you can subscribe to the company's Best!Tax Service, for $99.95 annually.

The W-2 forms you generate with the payroll module — like virtually all of M.Y.O.B.'s forms and reports — can be customized with the program's rudimentary set of drawing tools. You can change fonts and sizes and add your own design elements, such as company logos, to any form or report the program generates.

Unfortunately, you *can't* customize the fonts used in most of M.Y.O.B.'s screen displays; account information is always displayed in blue 9-point Geneva, which can be hard to read.

M.Y.O.B. 4.0 provides even more help for first-time accountants than the previous version. The manual covers the basics of traditional double-entry accounting, and you get a helpful 30-minute video showing you how to configure M.Y.O.B. and customize it for your business.

Once you're set up, you can access on-line help, and if you have a CD-ROM drive, you can use M.Y.O.B.'s Video Help. Featuring Christopher Lee, Best!Ware's president, Video Help provides useful instruction on each accounting procedure. In addition, a QuickTime movie steps you through various accounting routines mouse click by mouse click.

What to Do

Also new in version 4.0 is the to-do list, which gives you a daily list of all action items — payments to be made, bills to be collected, products to be shipped, and parts to be restocked, for example. By marking various pending items in the Action column of the list, you can tell M.Y.O.B. to batch-process them. The program automatically writes the appropriate checks and processes the required form letters, invoices, and packing slips based on your instructions, so you don't have to handle each task manually.

The Bottom Line

If you are looking for a product that offers a much broader range of accounting functions than those provided by financial-tracking programs, such as Intuit's Quicken or MECA Software's Managing Your Money, look no further than M.Y.O.B. 4.0. The program provides tools for monitoring inventory and a full-featured database for tracking customers, vendors, employees, and personal contacts. It even comes with a folder of stock form letters you can merge with your business records to create customer correspondence in response to overdue bills and bounced checks. All in all, it's the easiest-to-use accounting package available for small-business management.

/ Joseph Schorr

M.Y.O.B. 4.0

Rating: ★★★★½

List Price: $199.95; without payroll module, $99.95.

Pros: Easy-to-use interface. Integrated payroll module. Good on-line help.

Cons: Can't customize fonts in screen displays.

Company: Best!Ware, Rockaway, NJ; 201-586-2200.

Reader Service: Circle #407.

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CIRCLE 65 ON READER SERVICE CARD

Iomega 21MB Floptical Drive for the PowerBook / Low-cost backup to go.

LOOKING FOR A LOW-COST removable-storage system to team with your PowerBook? The $399 Iomega 21MB Floptical Drive for the PowerBook aims to fill the bill. Although it looks like an unassuming 3.5-inch floppy-disk drive, the 2-pound Floptical drive uses removable VHD (very high density) disks, which can hold as much as 19.2 megabytes apiece. And the Floptical drive is versatile — it can read, write, and format standard 1.4-megabyte HD (high density) SuperDrive disks as well. However, the Floptical drive's unique blend of optical and magnetic technology makes it the odd man out in the mainstream storage arena.

The Iomega 21MB Floptical Drive for the PowerBook is a backup product you can take on the road.

PowerBook-Friendly

A SCSI device with a 30-pin hard-wired cable, the Iomega 21MB Floptical Drive is compatible with all PowerBooks. A pass-through cable enables the PowerBook's AC adapter to provide power to the drive and the PowerBook 100 through 180 models. Duo and color-PowerBook owners need separate adapters for the Floptical drive and their PowerBooks.

Using a SCSI-cable adapter, you can also connect the drive to desktop Macs that have 25-pin ports. A minor drawback is that you can't change the drive's SCSI ID (4) or disable the internal termination.

A clever strap-on clip and a spare battery enable owners of PowerBook 140 through 180 models to use the drive when they don't have access to AC power. LEDs indicate AC power and battery status. That's important, because when the battery-power level drops too low, the drive stops dead, locking up the PowerBook and possibly causing data loss. Although Iomega doesn't specify how long the drive can run on batteries, we achieved a very respectable 1.5 hours of sustained use with freshly charged batteries.

The Floptical drive comes with a single VHD disk that contains the Floptical driver plus 18.8 megabytes of shareware and demo programs. You can get extra VHD disks for a street price of about $20 each — on a cost-per-megabyte basis, that's comparable to the cost of Bernoulli and SyQuest cartridges.

Once you've installed the Floptical driver, your Mac treats VHD disks exactly as it does floppy disks. The Floptical drive with a VHD disk is three times as fast as a SuperDrive with a floppy disk and about one third as fast as a typical hard drive. With a 1.4-megabyte floppy disk, its speed is identical to that of a SuperDrive.

The Floptical drive is equipped with a manual-inject/auto-eject mechanism. An LED on the front keeps you informed of disk activity. Should you mistakenly insert a double- or single-density floppy disk into the drive, it automatically ejects the disk. Conversely, if you inadvertently insert a VHD disk into a standard floppy-disk drive, you'll be prompted to initialize it, but you won't be able to, because of the reverse placement of the write-protect hole. The Floptical drive comes with a one-year warranty.

The Bottom Line

The Iomega 21MB Floptical Drive for the PowerBook delivers portable backup at an affordable price. Compared to a 1.4-megabyte floppy-disk drive with a standard disk, the Floptical drive with its special VHD disk offers 14 times the capacity and 3 times the speed. The one significant drawback is its nonstandard design — Floptical technology has yet to make its mark in the storage world. / Owen W. Linzmayer

Iomega PowerBook Floptical Drive

Rating: ❀❀❀

List Price: $399; VHD disk, $35; 5 VHD disks, $155.

Pros: Low-cost backup. Portability.

Cons: Nonstandard technology. Fixed SCSI ID. No safeguards for low battery power.

Company: Iomega Corp., Roy, UT; 800-777-6654 or 801-778-1000.

Reader Service: Circle #408.

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CIRCLE **78** ON READER SERVICE CARD

NEC Silentwriter Model 640 / NEC's printer is speedy for text-only documents but slow for complex jobs.

FEATURING A 6-PPM ENGINE and a price of about $800, the 300-dpi NEC Silentwriter Model 640 is aimed at home and small-office use. But the latest NEC laser printer faces formidable competition in the low-cost-personal-printer arena. Apple and Hewlett-Packard each offer attractive 300-dpi alternatives that outclass the Silentwriter Model 640 in two important areas: print quality and speed.

MacUser Labs

The NEC Silentwriter Model 640 makes fast work of text-only documents, but for more complex jobs, its speed and print quality can't match those of personal printers from Apple and HP.

The Good News

The Silentwriter Model 640 comes equipped with Adobe PostScript Level 2 and 17 Adobe PostScript fonts. Although the printer is slightly larger than the HP LaserJet 4ML ($975 street) and the Apple Personal LaserWriter 320 ($925 street), it's still a compact desktop companion. The Silentwriter Model 640 weighs in at 18 pounds and measures 14.6 inches long, 14.5 inches wide, and 9.3 inches high. It comes equipped with 3 megabytes of RAM. Despite its lack of a RAM-upgrade option, the Silentwriter Model 640 had no trouble processing all of our test documents — including one designed specifically to tax low-RAM printers.

One advantage the Silentwriter Model 640 offers over both the HP LaserJet 4ML and the Apple Personal LaserWriter 320 is its paper handling. The NEC printer handles legal-sized paper, using its standard paper tray. The other two printers require you to manually feed legal-sized paper. And the Silentwriter Model 640's top-loading paper tray holds 200 sheets of paper, compared to 100 apiece for the HP and Apple printers.

The Silentwriter Model 640's front panel will look familiar to any personal-printer user. Three indicator lights show you the printer's status; a single button wakes the printer from sleep mode. The Silentwriter Model 640 comes equipped with an AppleTalk port, but a parallel interface is noticeably absent. Although most Mac users won't miss the parallel connection, it does offer cross-platform flexibility in Mac/PC environments.

To see how the Silentwriter Model 640 stacks up against the 4-ppm HP LaserJet 4ML and Apple Personal LaserWriter 320, we ran a series of speed tests on the three printers. We found that for simple text-only documents with a single ROM-resident font, the Silentwriter Model 640's faster 6-ppm print engine gave the NEC printer the advantage. The Silentwriter Model 640 printed a ten-page Microsoft Word text document in 2.5 minutes, compared to more than 3 minutes each for the Apple Personal LaserWriter 320 and the HP LaserJet 4ML.

The Bad News

However, if you need to print more-complex documents, the Silentwriter Model 640's speed isn't nearly as compelling. The Apple and HP printers use the same type of Canon engine and speedy Intel i960 RISC processor, but the NEC printer relies on a Motorola 68000 chip (the chip used in the original Mac). The difference in processing power between the two chips was apparent when we printed a QuarkXPress document — the Silentwriter Model 640 took nearly twice as long to print the document as the HP LaserJet 4ML, although the Silentwriter was slightly faster than the Apple Personal LaserWriter 320. And when we compared print times for a complex graphic created with Adobe Illustrator, we found that the NEC printer took nearly three times as long as the HP LaserJet 4ML and 50 percent longer than the Apple Personal LaserWriter 320.

We were also disappointed in the Silentwriter Model 640's print quality. The Apple Personal LaserWriter 320 with its PhotoGrade option produces far better gray-scale output, although you need to spend an additional $349 for the RAM upgrade required for PhotoGrade. Moreover, the HP and Apple printers each produced text and line art superior to the NEC printer's, despite the Silentwriter Model 640's use of NEC's Sharp Edge Technology, designed to eliminate jaggies. The Silentwriter Model 640's characters looked uneven and sketchy when we compared them to output from the Apple and HP printers, and hairlines appeared rough and disconnected.

NEC provides toll-free tech support and an impressive two-year overnight-replacement warranty for the Silentwriter Model 640. The printer complies with EPA Energy Star specifications and offers a standby mode that consumes less than 30 watts.

The Bottom Line

If your printing requirements go no further than simple text-only documents that use ROM-resident fonts or you need the flexibility of printing on legal-sized paper, the NEC Silentwriter Model 640 is a good buy. Priced at about $800, the printer has a fast engine that enables it to print simple documents quickly. But if your work involves printing complex graphics, downloading fonts, and using processor-intensive applications such as QuarkXPress, you won't find the Silentwriter Model 640's speed or image quality to be on a par with that of HP's and Apple's personal-printer offerings. / Anita Epler

NEC Silentwriter Model 640

Rating: ❀❀❀

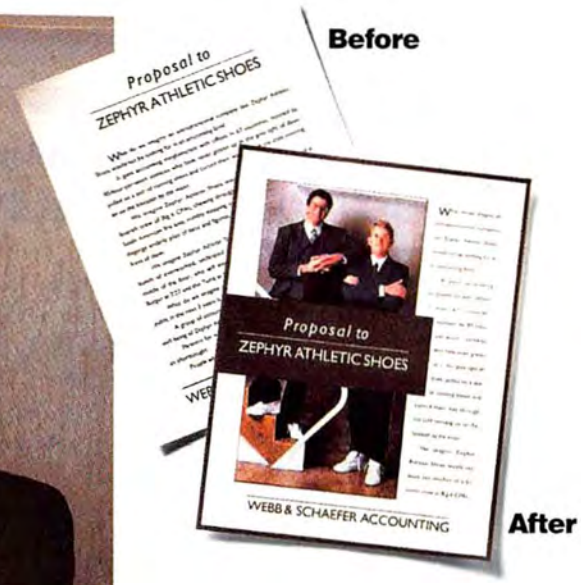
List Price: $800.

Pros: Fast engine for simple text-only documents. Paper tray handles legal-sized paper. Two-year replacement warranty.

Cons: Slow print speed for graphics and complex documents. Lackluster print quality.

Company: NEC Technologies, Inc., Boxborough, MA; 508-264-8000.

Reader Service: Circle #409.



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Timbuktu Pro for Macintosh / Remote-control software for networked Macs and PCs gets faster and more secure.

WHEN THE WORD *PRO* gets added to a name, you know the product is a seasoned veteran in its category. In the case of Timbuktu Pro for Macintosh, which succeeds Timbuktu 5.0 for the Mac (the Windows version is still at 1.1), that category can be described as remote-control software or screen-sharing software. Basically, Timbuktu lets you view or operate one Mac or Windows PC from another across a network — a convenient capability for people who provide training or need to collaborate across a network. With the Pro version for the Mac come enhancements in speed, security, and file transfer, plus support for TCP/IP networks and System 7 Pro's PowerTalk.

A Safer Mac

Because Timbuktu users designated as guests can see and potentially affect everything on the screen of a host Mac or PC, security is bound to be a concern.

With Timbuktu Pro, all users can create lists of people allowed to observe their Macs, control them, or exchange files with them. A user can set passwords for other users — or let them set their own — that expire after a designated time period. In addition, the new activity log records attempts to gain access to your machine. A companion program, Timbuktu Pro Administrators' Toolkit, lets a network administrator define users and specify the minimum security levels they can set.

Because Timbuktu sends information across a network, what can appear on guest Macs is limited. For instance, in our tests, QuickTime movies running on the host machine played at only one or two frames per second on the guest machine, with no sound. Animation in other applications didn't show up at all.

However, Farallon has improved the general screen-sharing speed of Timbuktu Pro, with a new compression scheme that reduces the amount of information sent over the network. The result is speed very close to that of the host Mac. The enhanced speed is particularly evident over an Apple Remote Access (ARA) connection (Timbuktu Pro supports ARA 2.0 as well as 1.0). Don't expect extra speed on a Power Mac just yet, though. Timbuktu Pro runs under emulation at present, with native code expected by the end of the year (current Power Macs users should make sure to get the free 1.0.3 upgrade, which fixes some Power Mac-related bugs).

Timbuktu Pro's file-transfer capabilities are improved over earlier versions. For instance, you can now send copies of a file to a group of people simultaneously. File transfer is further enhanced with drag-and-drop file sending via the desktop Timbuktu Sender icon. You can also use Timbuktu Pro from within Farallon's Replica to send Replica documents to other users.

Because Timbuktu Pro supports PowerTalk, you can easily bring up Timbuktu Pro's privilege buttons (Control, Observe, Send, and Exchange) from within a desktop catalog to control the privileges of the users of that catalog.

Timbuktu Pro's TCP/IP support lets you use the program over local- and wide-area TCP/IP links, including the Internet — assuming you already have MacTCP installed, since it isn't included with Timbuktu Pro. Unfortunately, only the Mac has a Pro version at this time, so you can't access a Windows Timbuktu machine over TCP/IP.

The Bottom Line

Anyone who trains others or collaborates across a network should look into Timbuktu Pro — it provides an elegant way to collaborate among multiple Macs or between Macs and PCs. / John Rizzo

Timbuktu Pro 1.0

Rating: ★★★★½

List Price: $199; twin pack, $299; 10 pack, $999; 30 pack, $1,099; 100 pack, $5,500.

Pros: Works over TCP/IP. Fast screen sharing. Easy file sharing. Good security features.

Cons: Poor display of animation.

Company: Farallon Computing, Alameda, CA; 510-814-5000.

Reader Service: Circle #410.

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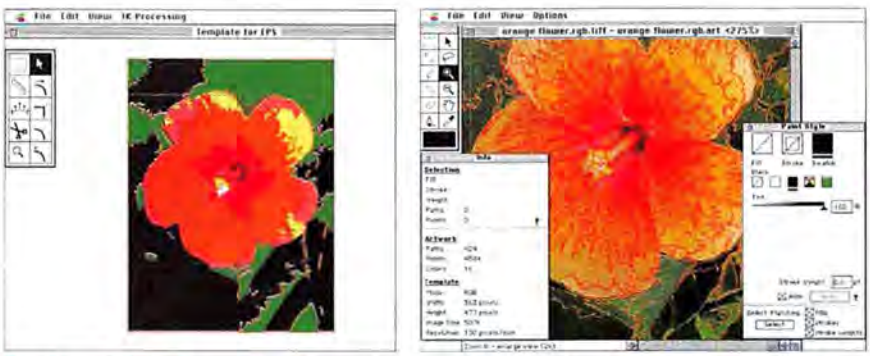
Adobe Streamline 3.0 and Linus M

Adobe's utility reigns supreme at converting color bit maps into line art.

NO MAC GRAPHICS toolbox is complete without an autotracing utility for converting bit maps into editable PostScript line art. Graphics professionals have two such tools to choose from. The long awaited update to Adobe Streamline features new support for converting color images, an enhanced interface, and improved integration with the Mac supports Photoshop plug-ins. This means that you can use your scanner plug-in to scan artwork directly into Streamline, eliminating the need to scan and save with a separate application.

To prepare an image for scanning, you can perform simple modifications, using tools similar to Adobe Photoshop's. You can



An elegant interface and excellent color conversion are hallmarks of the latest version of Adobe Streamline (right). Color bit maps converted into line art by Linus M (left) don't match the quality of those converted with Adobe Streamline.

design environment. URW's Linus M excels as a front end for digitizing typefaces, but its interface for image conversion is far less elegant than Streamline's.

Adobe Streamline 3.0

Compared with the previous version, Streamline 3.0 gives you more control over the autotracing process. The program's newly enhanced interface boasts a toolbox and palettes similar to those of Adobe Illustrator and Photoshop. Dialog boxes for conversion options (centerline or outline, tight or loose tolerance, and straight or curved lines) are interactive, with sliders for controls. Previews let you view the effects of your settings instantly. You can also name and save conversion settings for various types of images (blueprints, line art, and color photos, for example).

With the previous version, you set conversion parameters and then selected a file for conversion. Now you can open and view an image before you convert it. And Streamline 3.0 not only opens more types of bit-map files (TIFF, PICT, MacPaint, and Photoshop 2.0 and 2.5) than its predecessor but it also zoom in and out, select areas for modification, and use the eraser tool to clean up dust marks and errant pixels. The Adjust Levels command provides a histogram for modifying the brightness and tonal range of entire color and gray-scale images or selected portions of them.

Before converting color or gray-scale images, you can select posterization options that let you alter how Streamline converts them. You can specify the number of color levels (2 to 256) or gray-scale levels (2 to 16) to be used in the conversion. In general, we found that Streamline does an excellent job of identifying and isolating appropriate color values when posterizing — even posterized images with as few as 8 or 16 colors are quite serviceable.

During the posterization process, Streamline can easily create line art with thousands of points and too many complicated paths. These types of images are virtually unprintable. Fortunately, you can use the Smooth Paths command to drastically reduce the number of points on a complex path without significantly degrading its appearance.

Streamline also uses the Paint Style and Custom Color palettes, which are almost identical to Illustrator's, for modifying the color of bit maps before conversion and the strokes and fills of paths afterward. You can even tell Streamline to save posterized colors as custom colors, which you can then work with in either Streamline or Illustrator.

Just as Streamline lets you modify pictures before you convert them, it also offers some options for postconversion cleanup. You can select PostScript paths and manually remove extraneous points as well as delete paths or change their strokes and fills, but you can't move paths or edit individual points.

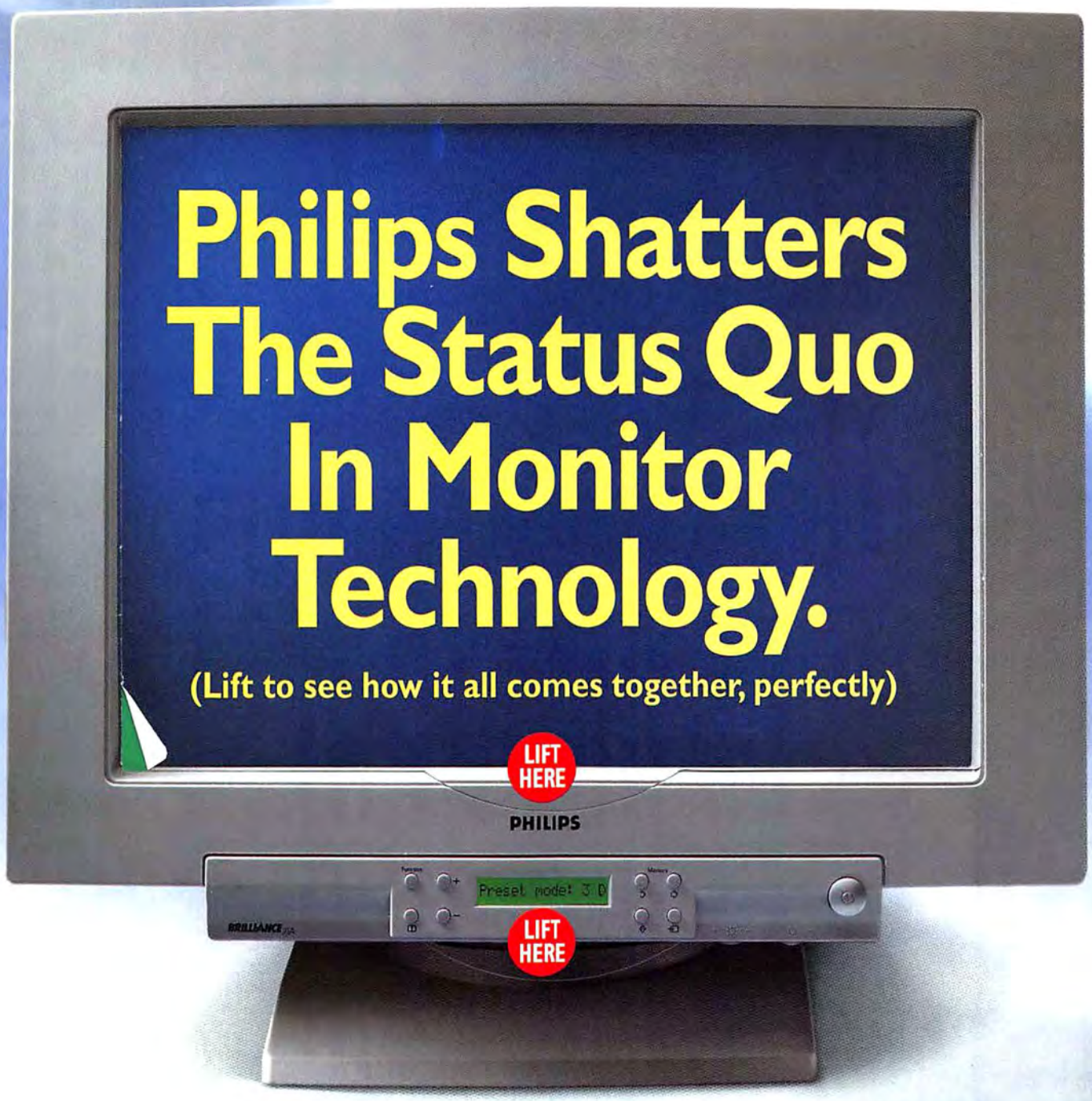
Streamline can save converted files in the following formats: Illustrator 1.1 to 5.0, PICT, Aldus FreeHand 3.0, and DXF. You can attach original bit-mapped images as templates to Illustrator and FreeHand files as well as copy selected paths to the Clipboard and paste them into Illustrator or Photoshop. Photoshop users can also copy a selection to the Clipboard from within Photoshop, bring it into Streamline for rapid conversion into paths, and then paste the resulting artwork back into Photoshop.

Linus M

A more specialized tool than Streamline, Linus M supports fewer file formats and works in a decidedly nonstandard fashion. Linus M opens and converts TIFF and PICT images as well as URW's own SCFO format, and it saves files in EPS format. If you use URW's high-end Ikarus M font-creation software, you can use Linus M as a front end for digitizing typefaces. It creates Ikarus M-format font files and lets you import and convert an image for each character in each font set.

If you don't use Ikarus M, however, you'll find Linus M's feature set less appealing than Streamline's. You can't scan an image directly into Linus M, and there are no image-correction options when you simply open a file. On the other hand, once you've converted an image, Linus M provides a fuller set of tools for creating, modifying, and deleting paths and points than Streamline does.

But don't expect to work with familiar Bézier paths and points. Linus M uses URW's proprietary format to describe curves. Although this format offers some



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interesting features — such as a tool for selecting and proportionally resizing entire curves — Mac artists brought up on Béziers will find it hard to get used to.

Moreover, Linus M's interface is much less elegant than Streamline's. The program provides several fields and dialog boxes for specifying tracing options. Although this gives you finer control over path creation than Streamline does, properly fine-tuning Linus M's settings can be daunting. And don't expect much help from the documentation, which has been awkwardly translated from the German original.

Linus M supports the conversion of color and gray-scale images, but its results and performance are inferior to Streamline's. Linus M's posterization color levels are limited to three — 8, 27, and an image's original number of colors (as long as the number is 27 or less). Streamline, on the other hand, lets you enter any value from 2 to 256. Worse, though, is that Linus M doesn't do a good job of analyzing colors and posterizing images. In fact, images posterized by Linus M to 27 colors usually have less color accuracy and detail than the same image posterized to 16 colors by Streamline.

The Bottom Line

Adobe Streamline 3.0 is a must-have for any serious graphics professional. Linus M may be of interest to those already using URW's Ikarus M font-creation program, but for most users, it can't compete with Streamline's flexibility and performance. / Eric Taub

Adobe Streamline 3.0

Rating: 4½

List Price: $195.

Pros: Well-designed interface. Direct-scanning support. Excellent color posterization.

Cons: Limited editing tools.

Company: Adobe Systems, Inc., Mountain View, CA; 800-833-6687 or 408-986-6555.

Reader Service: Circle #411.

Linus M 3.0

Rating: 2½

List Price: $349.

Pros: Good front end for digitizing typefaces.

Cons: Complex interface. Poor posterization.

Company: URW Software & Type, Nashua, NH; 800-229-8791 or 603-882-7445.

Reader Service: Circle #412.

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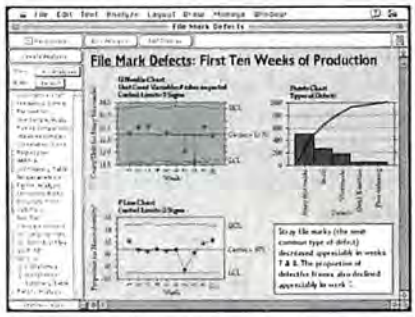

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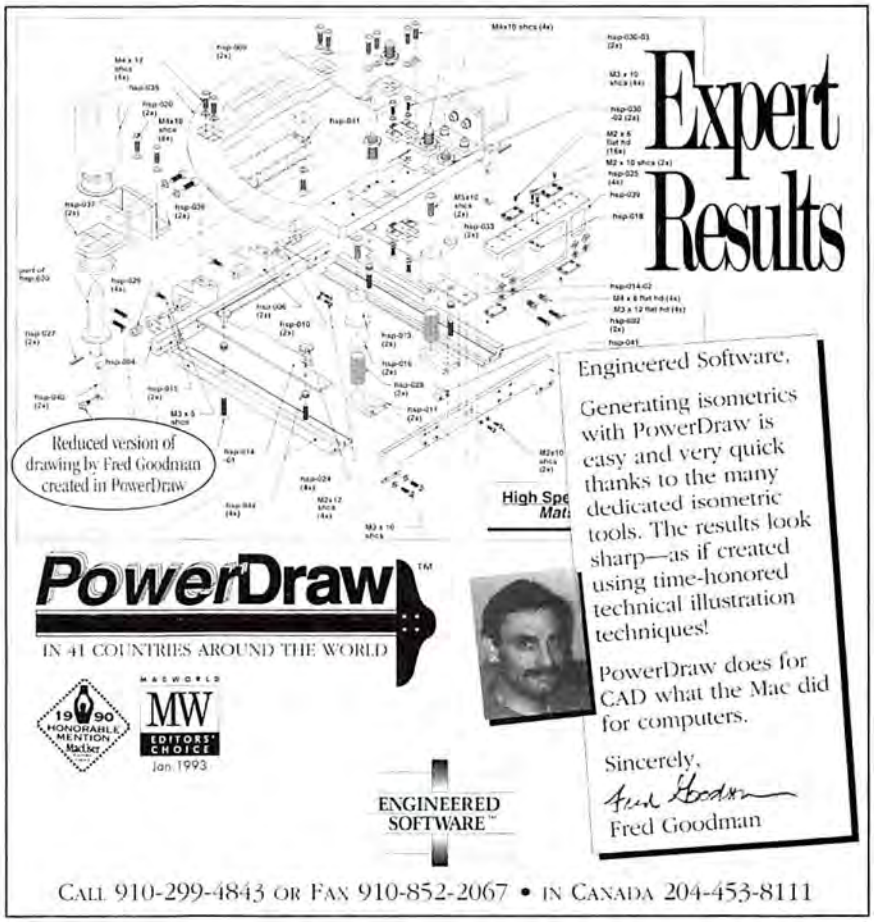


CIRCLE **73** ON READER SERVICE CARD

Informed Foundation / Shana's in fine form with its electronic-business-forms package.

THE PAPERLESS OFFICE is one step closer, with Shana's Informed Foundation. A suite of programs for creating, routing, managing, and storing electronic business forms over an AppleTalk network, Informed Foundation offers several advantages over paper-based forms processing. The latest version features AppleScript support, so users can build powerful links to database programs. Informed Foundation also supports PowerTalk and digital signatures.

Four-in-One

The $495 Informed Foundation package comprises a suite of four integrated applications: Informed Designer provides a set of well-designed tools for creating forms, Informed Manager provides the tools for filling in forms and routing them, Informed Revision Distributor ensures that users are working with the latest versions, and Informed Number Server manages the numbering scheme for forms that require unique numbers such as invoices and POs. Although a variety of electronic-forms packages are available, Informed Foundation is the only product that lets you design, as well as fill in, forms on the Mac. The other packages require you to design forms on a PC, although you can fill in forms on a Mac.

Installation is simple and straightforward, with an installer provided for each of the four applications. Informed Foundation routes forms over a network, using the services of one of three e-mail systems: System 7 Pro's PowerTalk, Microsoft Mail, or CE Software's QuickMail. As a mail-enabled product, Informed Foundation lets you send and receive forms from directly within the program, using your e-mail system. To fill in and send forms, each user on the network must be running a copy of Informed Manager, which sells for $195.

Creating good-looking forms is easy with Informed Designer's drawing tools, which include specialized tools for creating fields and tables. If you want to personalize forms with logos and the like, you can incorporate color and black-and-white PICT, EPS, and TIFF images.

A decided advantage electronic forms have over paper forms is data-entry controls. Forms designers can specify the type of data, such as picture, number, text, and date, that each field can accept. If there are several options, designers can create pop-up lists. In addition, forms can incorporate instruction boxes that appear when fields are filled out incorrectly as well as include other useful functions, such as calculation formulas.

In addition to using the built-in lookup command to link one form to another, designers can create lookups and queries of databases with Informed Designer's newly added AppleScript support. For example, you can link a name field with a database that contains customer addresses — when a user enters a name, the correct address appears automatically.

One minor drawback is that you can't attach related documents, such as letters, to forms. You can attach notes or voice messages, but the notes are small and don't print. Each form comes with a work page that can contain longer notes and other information, such as instructions, but the work page doesn't print unless you select it.

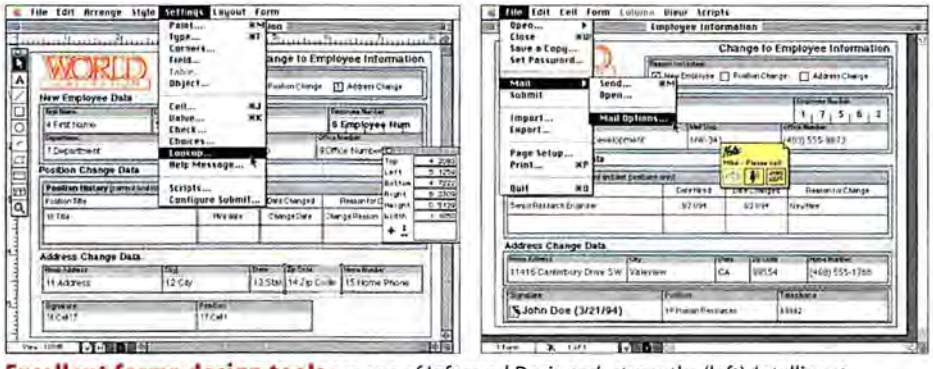
Once you've designed a form, you store it as a master on the file server. Users copy forms to their local hard disks and use Informed Manager to fill them in and route them. We were disappointed that Informed Manager lacks tracking capabilities for monitoring the progress of a form as it's routed over a network. Fortunately, Shana is working on a forms-tracking extension that may be available by the time this review appears. The product also lacks support for routing based on IF/THEN rules, a useful feature available in most PC-based forms packages.

Sign Here

One of Informed Manager's strengths is its support for System 7 Pro's PowerTalk and digital-signature technology, which enables users to incorporate digital signatures into forms. In some ways, digital signatures offer a higher level of security than written signatures. Because they use sophisticated encryption algorithms, digital signatures can be used to verify a signer's identity as well as to detect any changes made to a form's data since the form was signed. Additional security features include support for passwords that protect both the design of a form and the form's data.

Informed Manager lets you store forms in the program's internal database, but the database features are limited. You can find, update, duplicate, remove, print, and sort forms stored in the database. Informed Manager can sort the database by any field, but it can't save sorts. Fortunately, it's easy to move forms into more-robust database programs if you require more-sophisticated features. A separate extensions package lets you export data from Informed Foundation's forms to ACI US' 4th Dimension, Oracle's ORACLE, and Sybase's Open Client.

Revisions to forms are handled elegantly



Excellent forms-design tools are one of Informed Designer's strengths (left). Intelligent features, such as lookups, can be built in to forms as they're constructed. Informed Manager (right) provides tools for filling in forms and uses e-mail services to route the forms over AppleTalk.

by Informed Revision Distributor. Distribution of minor revisions is completely automated. A forms designer simply updates a master form stored on the file server. Links are maintained between the master form and the local copies stored on networked computers. Informed Manager monitors the master form, and when it detects a revision, notifies users and copies the new form to local hard disks.

Informed Foundation runs under System 7.0, but to take advantage of PowerTalk's support for digital signatures, you need System 7 Pro. The documentation is thorough and easy to read, with an especially helpful tutorial.

Informed Foundation is best suited for Mac-only workgroups, but for cross-platform environments, Shana provides translators for Delrina's two powerful forms packages for the PC: Perform Pro+ and FormFlow.

The Bottom Line

Informed Foundation's electronic forms offer several advantages over their paper-based counterparts. Built-in routines can ensure that electronic forms are filled out correctly, and electronic forms are easier to route and store than paper. Another plus is Informed Foundation's digital-signature support, which provides an added level of security.

Unfortunately, the current version is missing two key features — forms-tracking facilities and support for intelligent routing routines. These shortcomings aside, we found the Informed Foundation suite of applications generally well designed and easy to set up and use. The package's forms-design tools are especially noteworthy.
/ Kristina De Nike

Informed Foundation

Rating:

List Price: $495; additional copies of Informed Manager, $195 each.

Pros: Excellent forms-design tools. Support for PowerTalk and digital signatures. AppleScriptable.

Cons: Lacks forms-tracking facilities and support for IF/THEN routing routines. Doesn't attach related documents to forms.

Company: Shana Corp., Edmonton, AB, Canada; 403-463-3330.

Reader Service: Circle #413.

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CIRCLE 83 ON READER SERVICE CARD

LogoMotion 1.0 and Typestry 2.0 / Dazzling 3-D-shape animations

FLYING 3-D LOGOS and text — enhanced with special effects such as lights, morphing, and sparkling particles — are now much simpler to create than you might think, thanks to Specular's LogoMotion and Pixar's Typestry 2.0.

Well-Chosen Tools. LogoMotion offers almost all the tools of its high-powered sibling Infini-D in a streamlined interface with fewer elements. You get tools for creating 3-D text as well as for extruding, lathing, moving, rotating, and resizing objects in 3-D. Typestry 2.0 offers similar tools — mostly the same set as in Typestry 1.1 but made more accessible by its easier interface. A tool for skewing type is new, as is a crop tool that lets you easily restrict how much of an image you want to have rendered.

Typestry's option-rich palettes are great for those who can afford to use up lots of screen space, but those with 13-inch or smaller monitors may prefer LogoMotion's more compact interface.

Objects of Affection. Each program lets you create a rich set of objects, not just 3-D type with bevels. LogoMotion and Typestry can import EPS outlines and turn them into 3-D objects; LogoMotion offers lathing and extrusion of objects, and Typestry has some unique new object-creation features called Rubber Sheets and Tubes. Rubber Sheets lets you wrap a 2-D outline around a predefined 3-D shape, such as a cylinder or a sphere. Tubes can make any outline into a neon-tube shape. Typestry 2.0 also has expanded perforation capabilities to let you combine objects or have them intersect.

LogoMotion goes beyond simple shapes by letting you edit outlines in an area called the Workshop, but this area's interface is somewhat primitive compared to the rest of LogoMotion (there are no curve tools, for example).

Animation Aids. LogoMotion and Typestry offer helpful keyframe animation systems, with timelines, time markers, and lists of objects and groups. Animation novices will especially appreciate LogoMotion's StageHands — canned animations of lights, cameras, and props that create some nice motion and light effects. LogoMotion also includes object morphing.

Typestry lacks canned effects, but you can create some cool special effects of your own by doing a little fine-tuning. For instance, you can make objects created with Rubber Sheets appear to flap in a breeze. With particle effects, you can create floating fairy dust or exploding fireworks.

Rendering Trade-Offs. In the rendering arena, LogoMotion trades complex surfaces for speed and Typestry opts for awesome effects at a slower pace.

LogoMotion provides simple surfaces that mimic metal or plastic, with options for reflectivity (of simulated environments) and color. Each frame renders in a minute or two at good quality, but you don't get transparency effects or texture mapping.

By comparison, Typestry offers full surface detailing, including texture mapping. The rendered output is exceptional, and you can use optional motion-blur effects for extra realism. Although the program can take a long time to render each frame, a distributed-processing option and the forthcoming native PowerPC version will offer much quicker rendering.

Each program offers a wealth of animation features at a comparatively low price for 3-D-animation software. With its speedy canned effects, LogoMotion should work well for corporate users who want to create such things as flying logos quickly for presentations. Typestry, with its texture mapping and unique special effects, will give professional animators' efforts the polished look clients expect. / Sean Safreed

LogoMotion 1.0 ★★★★ / **List Price:** $149. **Company:** Specular International, Amherst, MA; 800-433-7732 or 413-253-3100. **Reader Service:** Circle #414.

Typestry 2.0 ★★★★ / **List Price:** $299 (upgrade $99). **Company:** Pixar, Richmond, CA; 510-236-4000. **Reader Service:** Circle #415.

The Cruncher / The KidPix of spreadsheets

THE CRUNCHER WILL SURPRISE people who think of spreadsheet programs as dull work applications. Its jazzy music and appealing characters provide a fun introduction to spreadsheets for everyone from ten-year-olds to spreadsheet-leery adults.

Lively Lessons. The Cruncher comes with six well-crafted tutorials that use animated cartoon characters (the drummer Shebop and her sax-player friend) and interactive written instructions to lead you through the steps for creating and editing spreadsheets. The first, "Fish Out of Water," conveys the basic concept of spreadsheet cells in an amusing, completely graphical manner (no numbers!), and the last, "Racing Slugs," soon has you applying formulas and manipulating rows with ease.

Pertinent Projects. The ten included projects help you use the program to convert recipes, plan trips, and calculate baseball and basketball statistics, for example. With these projects for templates, some people may never need to create a spreadsheet from scratch. The Cruncher, however, is quite usable as a basic spreadsheet program; it even includes advanced features such as trigonometric and logarithmic functions.

Our middle-school testers enjoyed learning the program and thought they might use it for projects such as figuring out profits from school fund-raisers. The Cruncher could be a good addition to a middle-school or high-school math program. Although the tutorials are memory-hungry — we found they needed more than the required 4 megabytes of RAM to keep the sound and images synchronized — they can easily be taken off after users have learned the program. In the meantime, you're devoting the RAM to an excellent cause — something that actually makes spreadsheets fun to learn about. / Carol Dorf

The Cruncher 1.0 ★★★★★ / **List Price:** $59.95. **Company:** Davidson & Associates, Inc., Torrance, CA; 800-545-7677 or 310-793-0600. **Reader Service:** Circle #416.

Delrina Fax PRO for Macintosh 1.5 and FAXstf 3.0

/ Fax software goes commercial

WHY SHOULD YOU BUY fax software if you get software free with your fax modem? Delrina Fax PRO for Macintosh 1.5 and FAXstf 3.0 offer some compelling reasons.

Form and Function. Each program uses a Chooser-selectable QuickDraw driver to let you fax just about anything you can print. In addition, each program's fax-management application provides windows that let you view and manage faxes waiting to be sent as well as those you've sent, received, or tried unsuccessfully to send. FAXstf also has a window for boilerplate fax documents you want to keep handy.

Delrina Fax PRO has a more inviting interface than FAXstf — it makes much cleaner use of color icons, for instance — but unlike FAXstf, it requires a separate DA to create cover pages. Delrina also doesn't include a memo field in its send-fax dialog box or let you have multiple phone books open simultaneously. However, PowerBook users who travel frequently will appreciate Delrina's separate fields for local, national, and international numbers (FAXstf has just one telephone field).

Quality Output. We found FAXstf 3.0 provided higher-quality faxes. It more accurately rendered serifs and fine lines in our test PageMaker 5.0 document and produced less banding than Delrina Fax PRO. However, both programs rendered gray-scale images well, without the blobby output of previous software.

More Bang, More Bucks. Delrina Fax PRO lists for $70 more than FAXstf but includes an OCR engine (which requires an extra 3 megabytes of RAM) for converting received faxes into editable text. How well this feature works depends on the quality of the faxes — faxes with clean, clear text convert easily; those with small type and lots of smudges are often useless. Another advantage is Delrina Fax PRO's AutoPrint option, which prints your received faxes automatically.

Help and Hindrance. We found Delrina's tech support responsive to our anonymous calls. The company's representatives freely admitted known shortcomings and provided helpful advice. STF support, on the other hand, can most kindly be described as frustrating.

You can expect these programs to spur each other on to greater improvements. For example, by the time you read this, STF will offer an $89 OCR-and-autoprint add-on, and version 1.5.1 of Delrina Fax PRO will provide a highly intelligent installer and other improvements, with better image quality on the way in version 2.0 later this year. Right now, those who seek the best image quality at a budget price should choose FAXstf, whereas those who prize helpful tech support should select Delrina Fax PRO. Given Delrina's more responsive attitude, Delrina Fax PRO could well be the better long-term buy. / Tom Petaccia

Delrina Fax PRO for Macintosh 1.5 ★★★½ / **List Price:** $129. **Company:** Delrina Corp., San Jose, CA; 800-268-6082 or 408-363-2345. **Reader Service:** Circle #417.

FAXstf 3.0 ★★★½ / **List Price:** $59. **Company:** STF Technologies, Inc., Concordia, MO; 816-463-2021. **Reader Service:** Circle #418.

Atticus Vista / File finder for removable-storage fiends

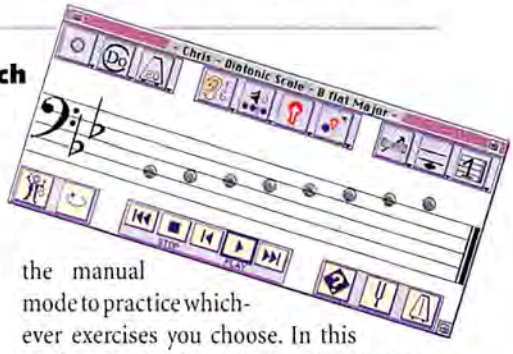
IF YOU SPEND too much time trying to find files on unmounted media, Atticus Vista can help. An application/control-panel combination, Vista scans removable media (floppy disks, cartridges, and CD-ROMs) and creates a set of aliases on your hard disk that represent the files on the removable medium — even files compacted with StuffIt or Compact Pro. Then, when you click on one of those aliases, your Mac asks you to insert the proper medium. To help you find the medium itself, Vista also prints labels on several popular Avery label sizes.

Although you could make aliases for your unmounted media without Vista — and label them by hand — Vista makes both tasks much easier. / Bob LeVitus

Atticus Vista 1.0.2 ★★★½ / **List Price:** $69.95. **Company:** Atticus Software Corp., Stamford, CT; 203-348-6100. **Reader Service:** Circle #419.

Claire / The Mac as music coach

IF THE TUNES YOU WARBLE while shampooing are off-key, your shower probably won't tell you. But your Mac can — with the help of a microphone and Claire, from Opcode Systems.



You Sing, It Corrects. Claire is an interactive music-instruction program based on solfège, a traditional system for teaching intonation and such basic music skills as sight reading and recognizing interval relationships. The program helps you develop these skills by singing scale tones to you, asking you to sing matching pitches into your 68020-or-better Mac's sound-input device, and then offering immediate feedback on how close you've come to achieving the correct pitch.

The first lessons in the automatic curriculum allow you to skate by with a passing mark on pitches that are off by as much as a quarter semitone (half the distance between one note and the next). Feedback comes from arrows that indicate tones sung sharp or flat or from circles that signify a matched pitch. If you easily triumph over the initial exercises, Claire moves quickly to new tonal territories.

Choose Your Lessons. If the automatic curriculum seems plodding, you can switch to the manual mode to practice whichever exercises you choose. In this mode, you can have Claire simply report your errors or force you to keep trying until you get it right.

Claire isn't fault-free. The character of some of its pitches is less than stellar (the woman's voice on the high B sounds like a teakettle), and their volume is variable. But these are minor annoyances. The lessons are well implemented, and the potential benefits for vocalists are obvious. Additionally, the program will be attractive to a wider range of users with the imminent release of add-on modules for violin, cello, and wind instruments. Overall, Claire is an innovative and useful tool for music students, teachers, and shower virtuosos. Now, if Apple would only release a waterproof PowerBook .... / Christopher Breen

Claire 1.0 ★★★★ / **List Price:** $129.95. **Company:** Opcode Systems, Palo Alto, CA; 800-557-2633 or 415-856-3333. **Reader Service:** Circle #420.

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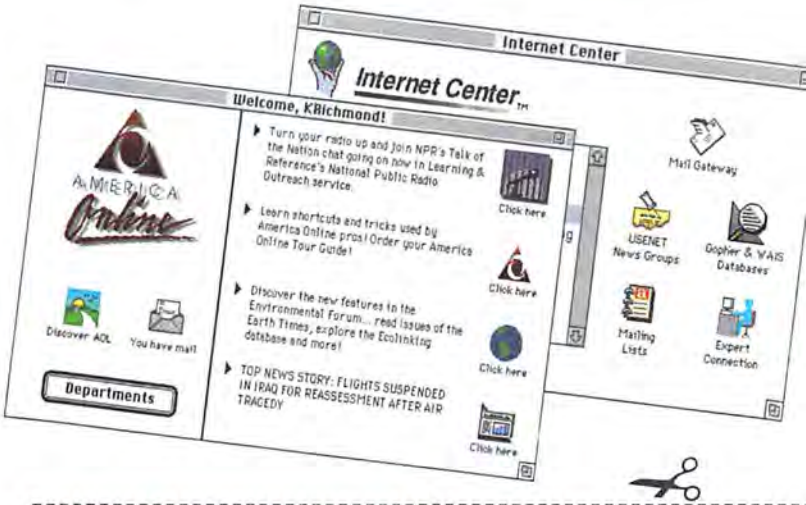

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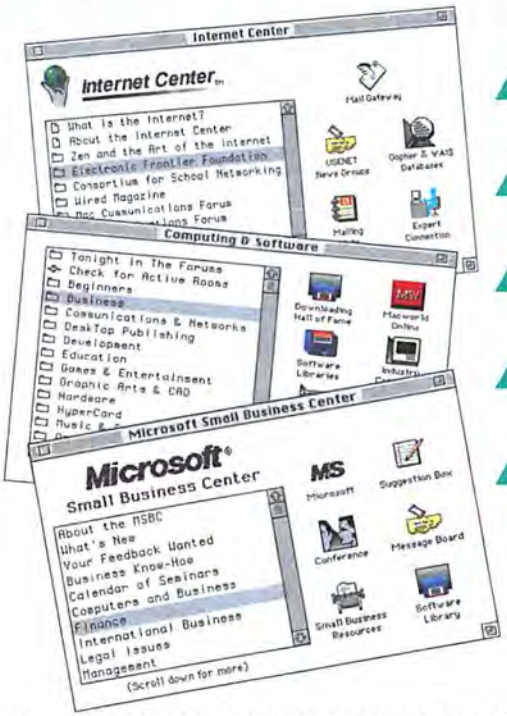

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0590/Mac

ProFiles / Deluxe file management

IF YOU FIND THE FINDER a less than optimal mechanism for your regular file-management tasks, Dayna Communications has a program for you. ProFiles makes tasks such as finding, copying, synchronizing, compressing, and expanding files faster and easier than in the Finder, particularly if you tend to work with large groups of files.

And the native PowerPC version of ProFiles, expected to be shipping by the time you read this, should make things faster still for those who have PowerPC-based Macintoshes.

Finer Finding. ProFiles is based on the concept of a *filelist*, which is a list of files that aren't typically grouped in the same folder on your disk. You create filelists by using ProFiles' elegant and comprehensive Find command or by adding files manually.

Once you've created a filelist, you can act on the files individually or collectively — to copy, move, trash, open, print, share, synchronize, or compress and expand them (ProFiles includes a copy of the StuffIt engine, and you can substitute DiskDoubler's engine if you supply it); to make aliases of them; to get information on them; or to put them away.

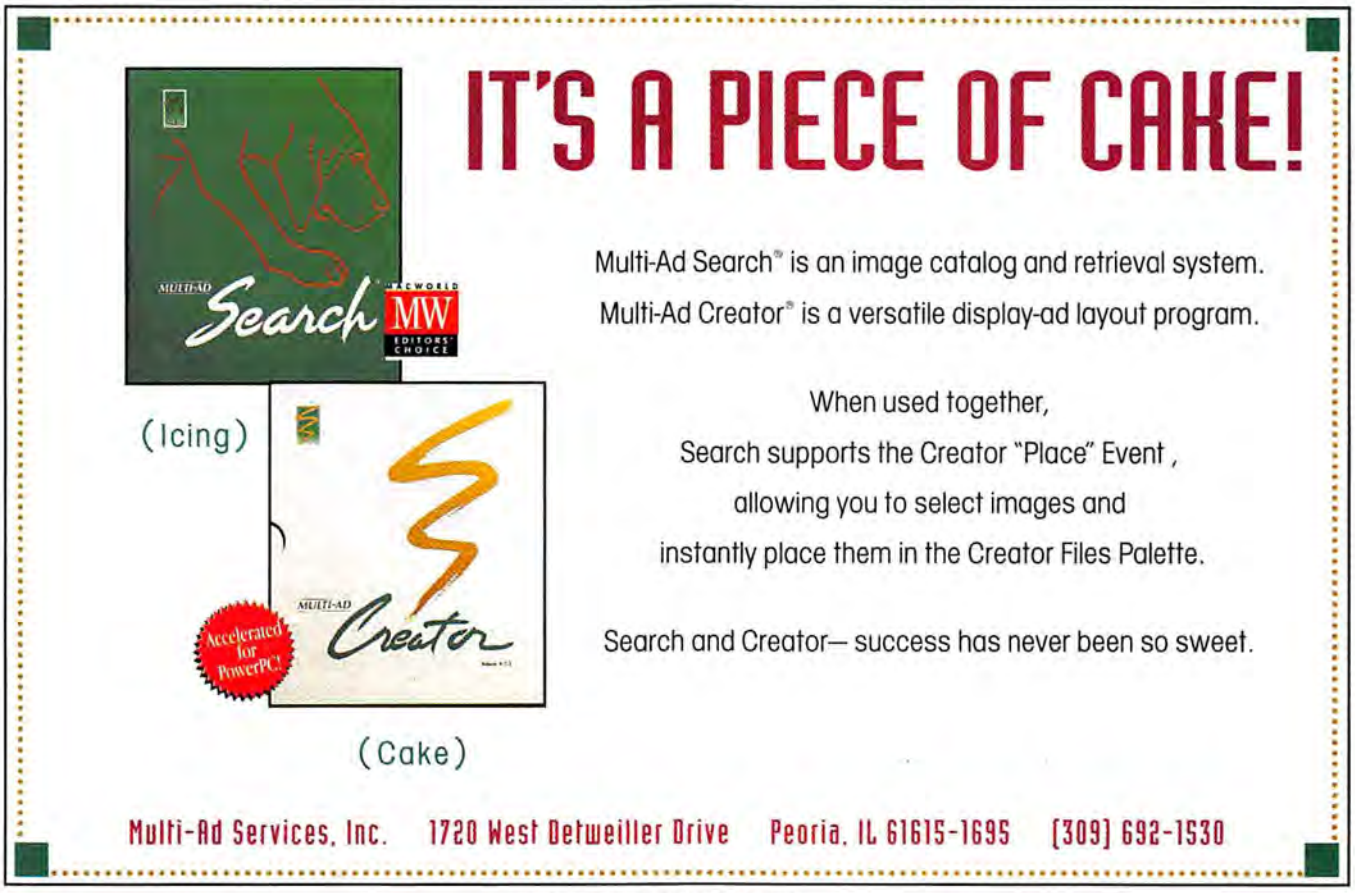
ProFiles also offers several thoughtful timesaving features, such as a list of predefined destinations for you to use with the Move and Copy commands. Once you've finished manipulating the files, you can save the filelist as a ProFiles document, which takes only a few kilobytes of disk space — and you can save your Find criteria as well.

No Network Slouch. ProFiles is designed to work well over many types of networks. It's fully functional over AppleShare and Personal File Sharing as well as over Novell NetWare, UNIX servers, and Apple Remote Access. Once a file is listed in a filelist, you can manipulate it, no matter where it resides on the network. ProFiles automatically updates the filelist if you move the original file or if you change its name.

On the Other Hand. ProFiles performs well, but at a premium price compared to its competitors. Both PrairieSoft's DiskTop and Claris Clear Choice's Retrieve It provide similar capabilities (especially file finding) for less money, as does freeware such as FindPro III, available on ZiffNet/Mac. And you can find many other programs that offer file synchronization. In addition, ProFiles requires about 700K of RAM; the other programs mentioned require significantly less.

Still, unlike these competitors, ProFiles can save its search criteria so you can reuse it easily, and the program's integrated compression and file-synchronization capabilities are another plus. If having all these features in a single program appeals to you, check out ProFiles. / Bob LeVitus

ProFiles 1.0.2 ★★★½ / **List Price:** $129. **Company:** Dayna Communications, Inc., Salt Lake City, UT; 800-531-0600 or 801-269-7200. **Reader Service:** Circle #421.



CIRCLE **70** ON READER SERVICE CARD

Animation Master / Tough-to-master animation tools

ALTHOUGH A DETERMINED artist could probably coax some useful animation from the Animation Master — the new "advanced character animation environment" from Hash Enterprises, the developer of Will Vinton's Playmation — the effort would be a frustrating one at best. Animation Master wraps an overwhelmingly powerful tool set in a convoluted mess of an interface. Unfortunately, the inadequate (and often erroneous) documentation gives little insight into how to harness any of the tools' capabilities.

Powerful but Painful. The software consists of separate applications for modeling, texture mapping, rendering, character animation, and scene design. Although these modules offer powerful controls over numerous aspects of the animation process (especially animation of character motions), the process is puzzling and sometimes unpredictable. For example, creating a simple curved line requires you to draw a line with one tool and then drag in a counterintuitive direction with another. If you want to change the curvature, you don't get Illustrator-type control handles: You must specify the changes numerically.

The separate applications offer little coherency or interconnection — not even support for publish-and-subscribe — and a variety of crash-causing bugs mar whatever power a resourceful artist might ultimately uncover. Although no one Mac program directly competes with Animation Master for character animation, we'd sooner turn to real Claymation than use this software. / David Biedny

Animation Master ★½ / **List Price:** $699. **Company:** Hash Enterprises, Inc., Vancouver, WA; 206-750-0042. **Reader Service:** Circle #422.

Dark Seed / Arty alien-universe adventure

WITHOUT A DOUBT, the most compelling feature in Dark Seed is its artwork, generated in part by H. R. Giger (the Academy Award winner for the design of the film *Alien*).

When Worlds Collide. In Dark Seed, you play Mike Dawson, a science-fiction novelist who's just moved into a mansion with a shady past. Soon, you find your way into another world — a fantastically rendered biomechanical nightmarescape whose layout parallels almost perfectly the real world you left. Actions you take in one world affect the other in bizarre ways as you try to save the planet from alien takeover.

Fabulous artwork aside, Dark Seed is only moderately interesting as a game. Its plot is weak, and its puzzles are often cabalistically difficult (the hint book costs extra). Die-hard adventurers, however, will greet Dark Seed's gloomy world with open arms. / Joe Hutsko

Dark Seed ★★★½ / **List Price:** $69.95; hint book, $9.95. **Company:** Cyberdreams, Inc., Calabasas, CA; 818-223-9990. **Reader Service:** Circle #423.

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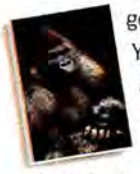

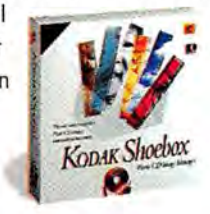

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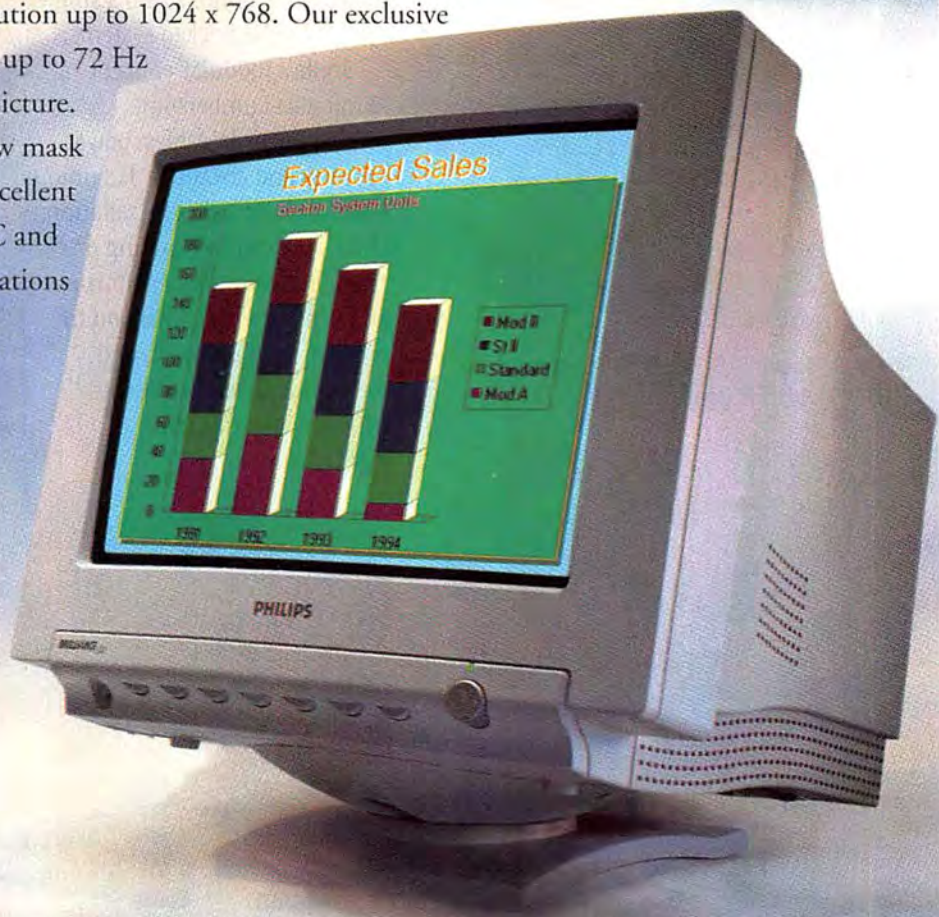

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1080MB	$859	$919
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PowerBook
540c

All-New PowerBooks

Apple's latest laptops let you take Quadra power on the road.

Notebook-computer makers have showered Apple with the sincerest form of flattery: One by one, they've adopted the features and design of the original PowerBooks — which (apart from getting faster and adding better displays) haven't changed much since they were first introduced, nearly three years ago.

Apple is finally responding. The new PowerBook 500 series — the 520, 520c, 540, and 540c — brings Apple back to the front of the pack and adds some completely new features that will send the copycats back to their drawing boards. At the same time, Apple is also introducing two flagship PowerBook Duo models — the 280 and 280c — and an improved Duo Dock.

MacUserLabs

Apple's dramatic overhaul of its all-in-one-PowerBook line is evident after just a glance at the 500-series models. PowerBooks have always been stylish, and these models are no exception. The cases have been completely redesigned, with a new, lighter-weight plastic and sleeker contours. The redesigned keyboards

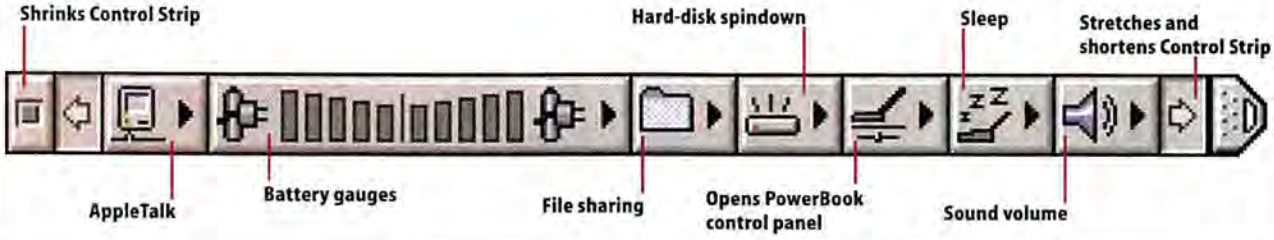
By Jim Shatz-Akin

PHOTOGRAPHY / FRED STIMSON SCREEN IMAGE / DOUGLAS FRASER

figure 1

Control Strip / convenient on-screen access to vital functions

A new Control Strip control panel comes with all the new PowerBooks. The "arrowhead" (far right) of the strip hugs the margin of your desktop; click on the arrowhead, and the strip extends across your screen, revealing the individual controls. Each of the component controls is stored in the Control Strip Modules folder in your System Folder, so they are easy to add, update, or remove.



on these PowerBooks even have function keys, an essential addition if you're planning to run DOS or Windows software on your Mac.

But the most striking feature of the new 500 series is the absence of the trademark trackball, which had become one of the most imitated features of the original PowerBooks. In its place is what Apple calls a *trackpad*, a slightly recessed rectangle of black composite material (see figure 2). By tracing on the trackpad with your finger, you can guide the cursor with remarkable precision.

The trackpad achieves its accuracy by detecting minute changes in electrical capacitance as your finger touches it. The pad contains two overlapping layers of electrodes in checkerboard patterns of 250 x 250 per square inch. The trackpad continually monitors the capacitance at each electrode "intersection."

The trackpad is velocity-sensitive, so a quick flick scoots the cursor across the entire screen whereas a slow trace allows you to make very small, delicate cursor movements. All the *MacUser* editors who tried the pad found it at least as convenient as a trackball, and most liked it more.

Easy Expansion

With the new design of the 500 series comes modularity and ease of expansion. Removing two screws allows you to pop the keyboard off for easy access to the hard drive and the RAM-expansion slots.

Each 500-series PowerBook comes with not one but *two* battery compartments — instantly doubling the potential battery life — but you don't have to use them both for batteries. Concealed inside the left battery compartment is a PDS (processor-direct slot). Although the slot is compatible with existing LC-class PDS cards, those cards will need to be redesigned to fit within the compartment. Third-party vendors are working on a wireless AppleTalk-networking module, a card for capturing video from broadcasts and videotape, and a card that lets you display Mac video on a TV set, although none will be available at the PowerBooks' launch.

PCMCIA at Last

To be available soon after the launch is a most intriguing PowerBook PDS card: the PowerBook Expansion Module ($199), an adapter that lets the 500-series PowerBooks accept PCMCIA cards. PCMCIA cards let you add storage (flash memory or tiny hard drives), modems, or other hardware by plugging a card the size of a credit card in to an industry-standard slot. Initially, however, PowerBook users will be able to use only a handful of these cards, which are already popular for PDAs and PC subnotebooks.

The PowerBook PCMCIA expansion module will accommodate the two most popular PCMCIA-card types: the 10.5-millimeter-thick Type III cards, which include hard drives and wireless messaging systems, and the 5-millimeter-thick Type II cards, which include modems and flash memory. Although the PCMCIA expansion module is designed to accept one Type III or two Type II cards, system-software limitations will initially restrict PowerBook PCMCIA support to only one card at a time.

Apple plans a two-phase rollout of PCMCIA support for the 500-series PowerBooks. At the PowerBooks' introduction, only a handful of PCMCIA modem, flash-memory, and hard-drive cards will be supported and their drivers will be configurable only with control-panel software. In the second phase, scheduled to begin this fall, Apple will incorporate PCMCIA functionality into the PowerBook operating system, allowing PCMCIA-device icons to appear on the desktop or their names to show up in the Chooser and enabling the simultaneous use of two Type II cards. Apple is working closely with PCMCIA-card vendors to help them write Mac drivers for their products, and it expects many cards to be available in the fall.

Two of the most-popular uses of PCMCIA cards for PC notebook computers — Ethernet and modem connections — are already available for 500-series PowerBooks. Ethernet is standard in all, and Global Village's PowerPort/Mercury 19.2-kilobit-per-second data/fax modem (along with 12 megabytes of RAM) is included in some 500-series configurations.

Unfortunately, if you already own an internal PowerBook modem, you may not be able to transfer it to your new 500-series PowerBook — the new PowerBooks accept only Duo-style modems. The good news is that Apple claims that it has addressed the shortcomings of the Duo's original Express Modem in the new 14.4-kilobit-per-second data/fax Express Modem II, which comes with version 1.5 of the modem software. The Express Modem II will be bundled with the 540s in Europe and Asia and is also available bundled with the Duo 280 and 280c in North America.

Image-Conscious

The 540c and the Duo 280c have active-matrix screens, which you can switch between 16-bit color (thousands of colors) at a resolution of 640 x 400 pixels and 8-bit color (256 colors) at 640 x 480 pixels. The

active-matrix 540 offers 64 grays at 640 x 480 pixels, and the Duo 280, also active-matrix, offers 16 grays at 640 x 400 pixels.

The passive-matrix color 520c has a new twist: a dual-scan screen. Its top and bottom halves are redrawn simultaneously, which produces higher contrast and shorter response times than ordinary passive-matrix screens. Like the 540c and the Duo 280c, the 520c supports two color resolutions. The 520 offers a conventional 16-level gray-scale display at 640 x 480 pixels.

The 540c and the Duo 280c are the first PowerBooks with the ability to switch built-in screen resolutions on the fly, without restarting, as can all six new PowerBooks when they're driving external monitors. All six can also deliver 256 colors on external monitors as large as 17 inches (with a resolution as high as 832 x 624 pixels). In addition, the 500-series PowerBooks "remember" the external monitor's bit depth and resolution settings.

Batteries Included

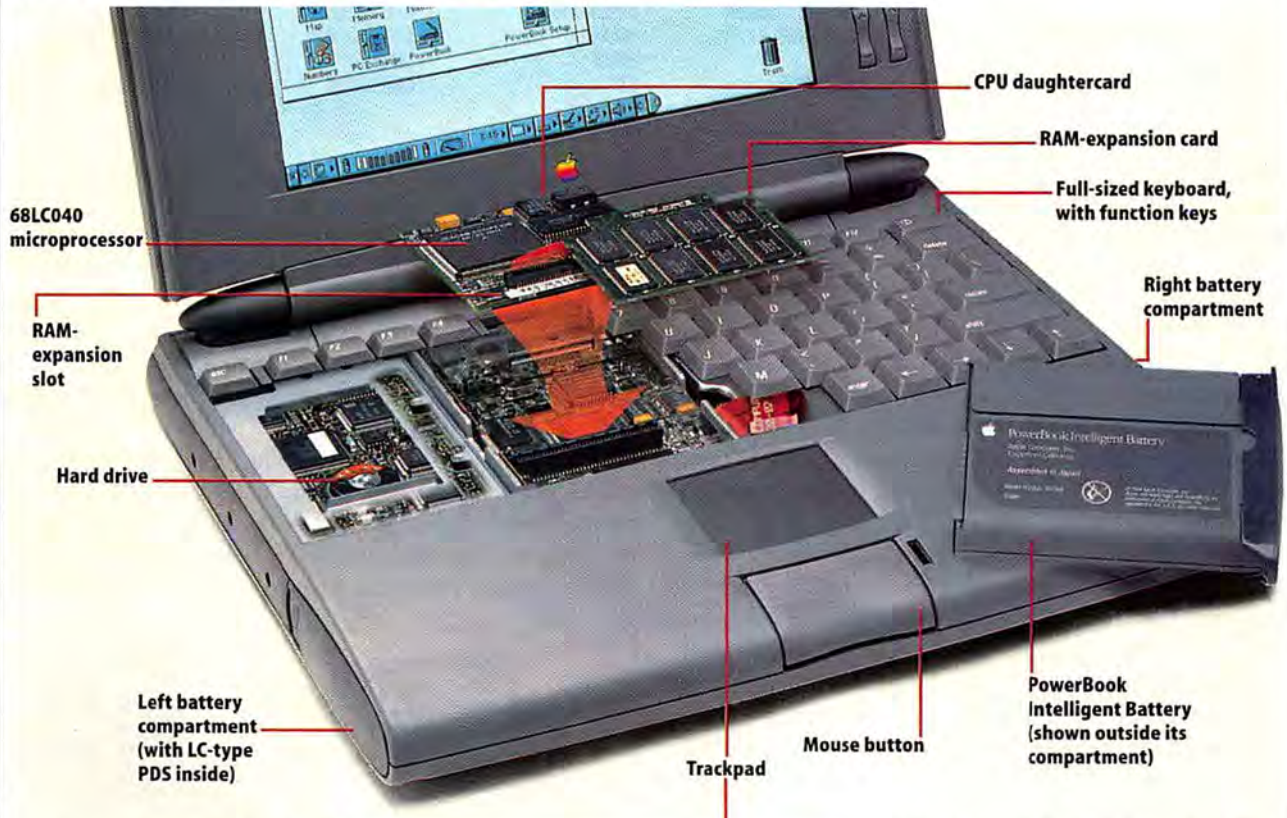
To power all these enhancements, Apple is introducing a new generation of PowerBook batteries. For the Duo line, there's the new Type III NiMH (nickel metal hydride) battery, which will initially

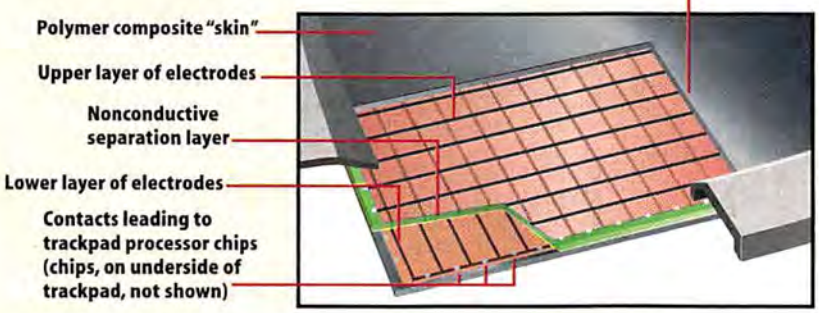
figure 2

Modular Design / easy upgrade access

The new 500-series PowerBooks have a modular design that enables flexible configuration and simplifies hardware upgrades. Removing two screws lets you lift the keyboard to expose the hard-disk drive and a daughtercard that houses the RAM, ROM, and microprocessor. Apple hopes to provide a PowerPC upgrade that will require a simple daughtercard swap, rather than a full logic-board replacement.

For additional customization, a PDS (processor-direct slot) inside the left battery compartment will accommodate Apple's soon-to-be-released PowerBook PCMCIA expansion module as well as third-party expansion cards.



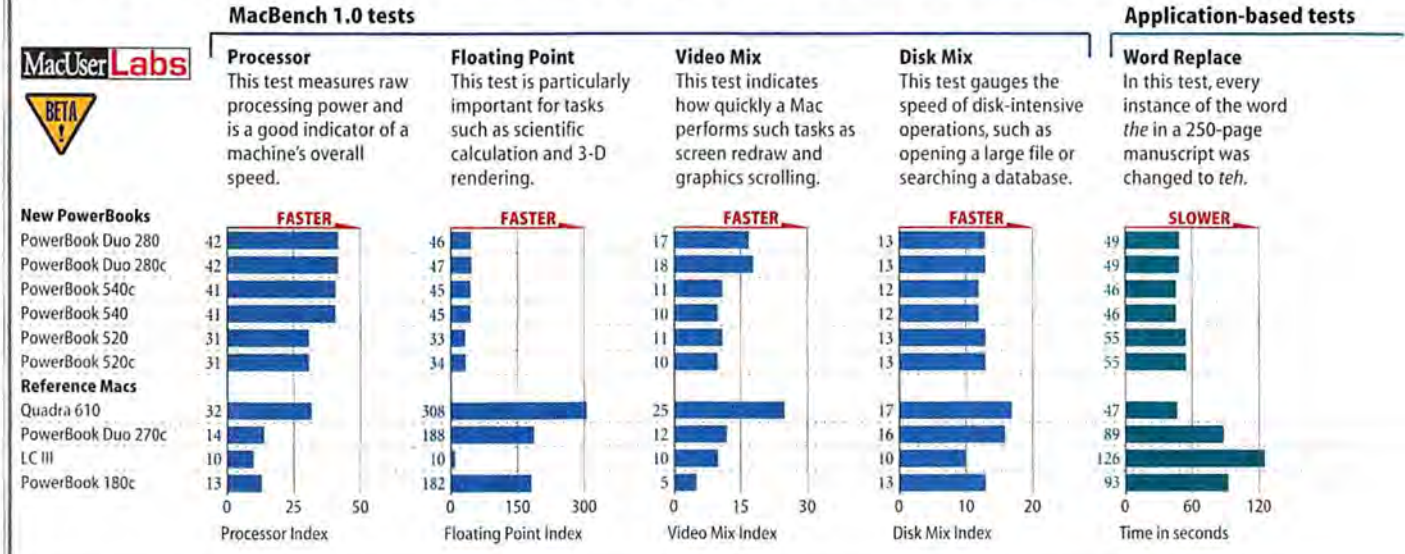


The new trackpad pointing device replaces the familiar trackball. When your finger moves across the trackpad's surface, it alters the capacitance along two layers of ultrathin electrodes; the PowerBook analyzes the speed and direction of these electrical changes and moves the cursor accordingly. A polymer skin seals the trackpad, making it invulnerable to dust and — according to Apple — spilled coffee.

figure 3

PowerBook Power / six new PowerBooks provide Quadra-level speed

To compare the speed of the new PowerBook models with several other Macintosh portable and desktop systems, we employed MacBench 1.0 to obtain a snapshot of the speed of four important subsystems of each one. We additionally timed each Macintosh as it performed a variety of tasks in Microsoft Word 5.1, Microsoft Excel 4.0, and Aldus Persuasion 2.1. The test machines were each equipped with 12 megabytes of RAM, and each had the largest Quantum hard-disk drive that Apple ships with it. All the color-capable PowerBooks and



ship with only the Duo 280c. Apple says that the Type III battery provides a 15-percent-longer battery life than the Type II battery that ships with current Duos and with the Duo 280. Type III batteries will be available separately for the entire Duo line ($99 to $149) and will ship with a system enabler that lets them work with older Duos.

For the 500 series, Apple has come up with a completely new power source: the PowerBook Intelligent Battery. This multicelled NiMH power pack has a built-in microprocessor that tracks power usage and "instructs" the PowerBook on the way to manage and preserve power.

The chip in the new Intelligent Battery also provides the PowerBook's system software with highly accurate information about the battery's remaining power during each use cycle. Apple estimates you'll get two to four hours' life from each PowerBook Intelligent Battery, depending on your work habits and how carefully you conserve power with screen dimming, use of a RAM disk, and so on. You can double the time between charges (or battery switching) in the PowerBook 500s if you load two batteries at once. Two Intelligent Batteries are included with each PowerBook 540 and 540c; if you buy a 520 or 520c, you'll get only one; an additional one will cost about $115.

A new 40-watt AC power supply directs 20 watts of power to each Intelligent Battery, so you can do a full recharge of the two batteries simultaneously in about two hours. Apple has not announced any plans for an external charger for the Intelligent Battery.

How Fast Is Fast?

Thanks to the 68LC040 processors that power them, the new PowerBooks are plenty fast. The 68LC040 is a lower-cost, low-power version of the 68040 that lacks an integrated floating-point unit. The 520 and the 520c use the zippy 25-megahertz version, whereas the 540 and the 540c and the Duo 280 and 280c boast the faster 33-megahertz 68LC040.

We tested final-candidate versions of the new models and compared them with existing desktop and portable Macs (see figure 3). When we ran our MacBench 1.0 subsystem-speed tests, they did quite well, with the notable exception of performance on floating-point math — hardly a surprise, seeing that the 68LC040 has no floating-point unit. Fortunately, you aren't likely to use floating-point-intensive applications such as those for 3-D modeling and rendering on a PowerBook in any case. In the event that you *do* require that kind of power from a notebook computer, there's always

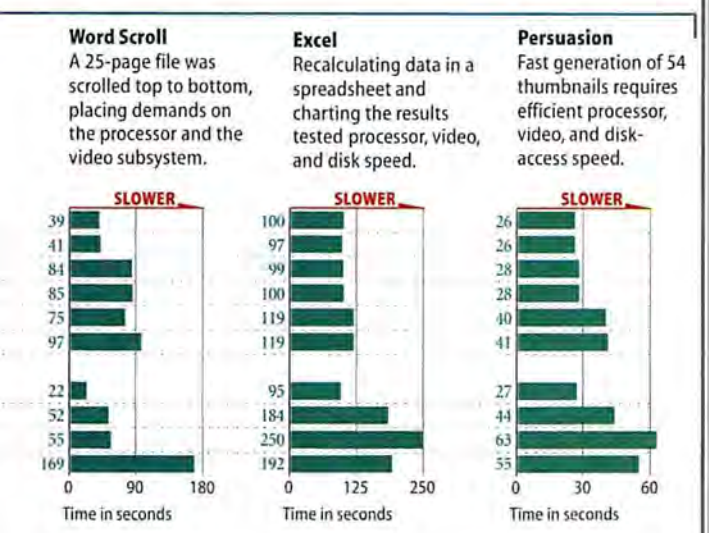
PowerBook Duo 280

Price Range: $2,599 – $2,699 (4/240); $3,099 – $3,199 (12/240/14.4-kbps modem).
CPU: 33-MHz 68LC040.
RAM: 4 – 40 MB.
Display: Active-matrix gray-scale; 16 grays at 640 x 400.
Weight: 4.2 lb.
Size (L x W x H): 8.5 x 10.9 x 1.4 in.
Battery: 1 Type II NiMH.

PowerBook Duo 280c

Price Range: $3,699 – $3,799 (4/320); $4,249 – $4,349 (12/320/14.4-kbps modem).
CPU: 33-MHz 68LC040.
RAM: 4 – 40 MB.
Display: Active-matrix color; 32,768 colors at 640 x 400, 256 colors at 640 x 480.
Weight: 4.8 lb.
Size (L x W x H): 8.5 x 10.9 x 1.5 in.
Battery: 1 Type III NiMH.

desktop Macintoshes were set to 8-bit color, and the gray-scale PowerBooks were set to the highest level of grays of which they were capable. The ranking within each of the groups is in descending order of overall speed.



the PowerPC option — more information on that later.

In our application-based tests, the PowerBook 540 and 540c and Duo 280 and 280c generally performed comparably to a Quadra 610 desktop system — even though all four contain a 33-megahertz 68LC040 and the Quadra a less powerful 25-megahertz version of the full 68040 processor. The Quadra's advantage stems from its *interleaved* memory architecture, not shared by the PowerBooks, which gives it about a 20-percent speed boost. The PowerBook 520 and 520c, with their 25-megahertz 68LC040s, were slightly slower. In these tests, with the exception of the Word-scroll test, all the new PowerBooks outperformed the 68030 PowerBook 180, Duo 270c, and LC III desktop systems.

PowerPC PowerBooks

All six new PowerBook models hold the promise of even *faster* speed with PowerPC-upgrade options that may be available when PowerPC notebook computers ship next year. For the 500-series PowerBooks, Apple hopes to deliver these upgrades on small, snap-in daughtercards. PowerPC upgrades have been announced for the Duo 250, 270c, 280, and 280c, and 68LC040 upgrades are available for the Duo 250 and 270c ($899 to $999). Apple has no price estimates for PowerPC PowerBook upgrades, and the company has not yet decided whether a 68LC040 upgrade will be a prerequisite to Duo 250 and 270c PowerPC upgrades.

Apple has also announced the Duo Dock II ($849 to $949), which improves on the original Duo Dock with the addition of an Ethernet interface, support for 21-inch monitors, and a 68882 floating-point unit that will be available for 68030 Duo machines. A logic-board upgrade ($349 to $499) to the Duo Dock II is available for Duo Dock owners.

Regaining the Lead

The new PowerBook 500 series is Apple's answer to critics who have complained that the original PowerBook series has passed its prime. The 68LC040 processors in the four 500-series PowerBooks and the two new Duos make them among the fastest notebook computers on the market. And the modular design of the 500-series PowerBooks should make it easy for them to jump to warp speed when upgrades to the PowerPC 603 become available, sometime early next year. They have built-in Ethernet, built-in fax modems (on some models), a PCMCIA expansion option, longer battery life — and an industrial design that would look right at home in the Bat Cave. The trackpad is pretty cool too.

It's unlikely you'll see these features "cloned" any time soon — and not just because Apple holds multiple patents on the trackpad or because the Intelligent Batteries use a proprietary chip. While PC vendors are still trying to agree on how to define *plug-and-play*, Apple is pushing the concept to new limits.

Associate editor Jim Shatz-Akin wonders how Apple will avoid clumsy naming conventions for PowerPC PowerBooks.

PowerBook 520

Price Range: $2,249 – $2,349 (4/160).
CPU: 25-MHz 68LC040.
RAM: 4 – 36 MB.
Display: Passive-matrix gray-scale; 16 grays at 640 x 480.
Weight: 6.3 lb.
Size (L x W x H): 11.5 x 9.65 x 2.25 in.
Battery: 1 Intelligent Battery (NiMH).

PowerBook 520c

Price Range: $2,799 – $2,899 (4/160).
CPU: 25-MHz 68LC040.
RAM: 4 – 36 MB.
Display: Dual-scan passive-matrix color; 32,768 colors at 640 x 400, 256 colors at 640 x 480.
Weight: 6.5 lb.
Size (L x W x H): 11.5 x 9.65 x 2.25 in.
Battery: 1 Intelligent Battery (NiMH).

PowerBook 540

Price Range: $3,149 – $3,249 (4/240); $3,849 – $3,949 (12/240/19.2-kbps modem).
CPU: 33-MHz 68LC040.
RAM: 4 – 36 MB.
Display: Active-matrix gray-scale; 64 grays at 640 x 480.
Weight: 6.9 lb.
Size (L x W x H): 11.5 x 9.65 x 2.25 in.
Battery: 2 Intelligent Batteries (NiMH).

PowerBook 540c

Price Range: $4,799 – $4,899 (4/320); $5,499 – $5,599 (12/320/19.2-kbps modem).
CPU: 33-MHz 68LC040.
RAM: 4 – 36 MB.
Display: Active-matrix color; 32,768 colors at 640 x 400, 256 colors at 640 x 480.
Weight: 7.3 lb.
Size (L x W x H): 11.5 x 9.65 x 2.25 in.
Battery: 2 Intelligent Batteries (NiMH).

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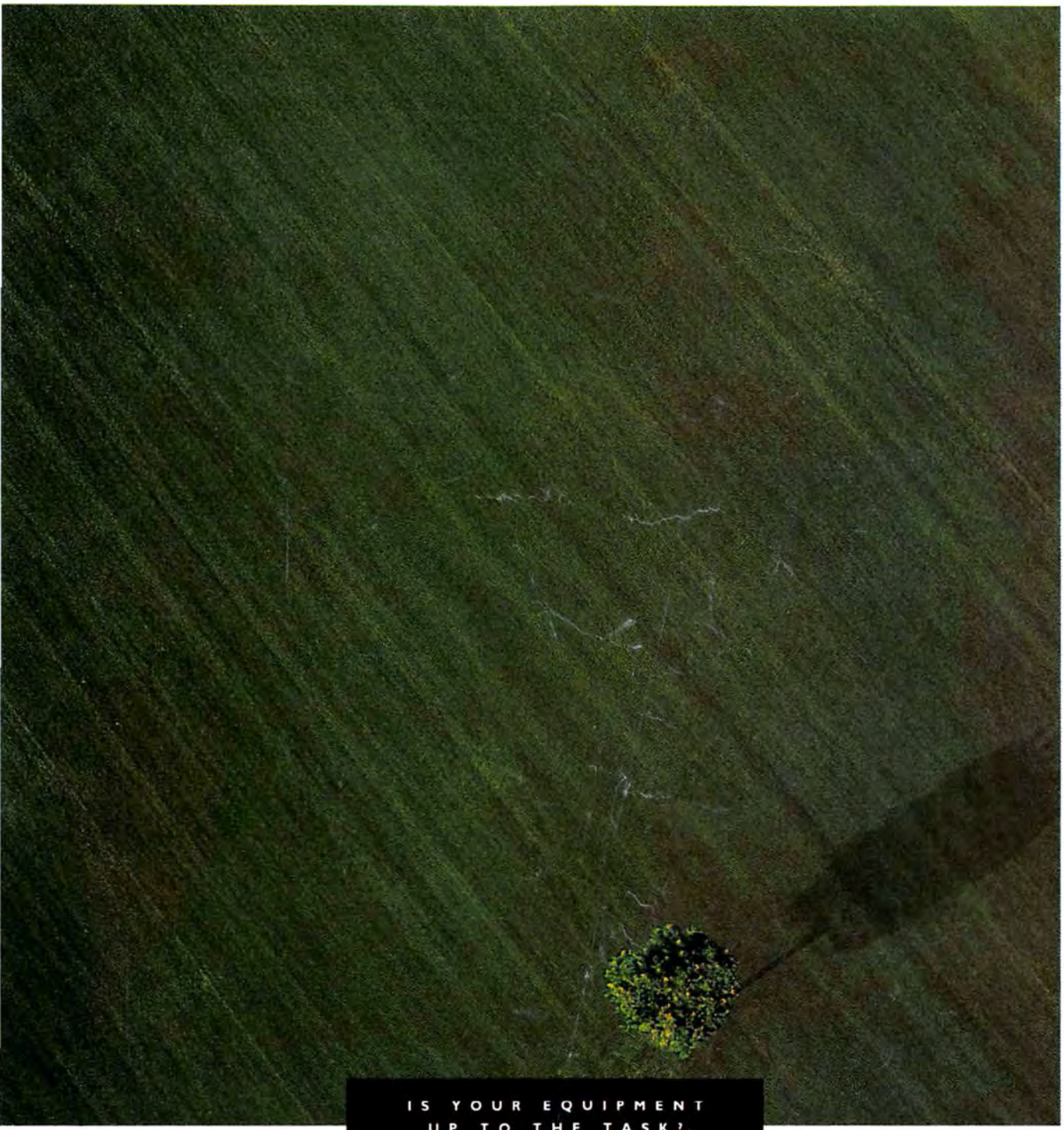

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CIRCLE **76** ON READER SERVICE CARD

Choosing the Right Mac

A complete guide to buying the perfect desktop Mac.

By Drew J. Cronk

THERE'S AN OLD, RAGGED-EDGED piece of cardboard hanging in the employee lounge at *MacUser*. At the top, scribbled in felt-tip pen, are the words *Questions for the Gods*. Not surprisingly, "Which Mac, O Great One?" is first on the list.

This cry for divine guidance is not without cause. The past few years have been confusing, frustrating, and unsettling for Mac buyers.

A rapid increase in buyer anxiety is directly proportional to the rapid increase in the number — and type — of new Macs that have appeared. The figures alone are enough to make Detroit blush — from 1991 through 1993, Apple introduced 52 Mac models. That only 32 of these models have eluded Apple's draconian discontinuance ax offers little comfort. The March release of the long-awaited Power Macs threw first-time buyers deeper into the Mac maelstrom — and further bolstered pre-PowerPC Mac owners' fears of model abandonment.

Apple's bouts of marketing-strategy changes have muddied the decision-making waters even more. With the introduction of the outlet-specific Performas, the question "Which Mac should I buy?" was joined by "And where should I buy it? K mart or Circuit City?" To make matters more confusing, identical Performas bundled with different software have different model names.

To get an LC, you need to show your student or faculty ID at your university or file a purchase order from your kid's school. The mainstream Macs — Quadras and Power Macs — are available through Apple's Business Direct program as well as from Ye Olde Authorized Macintosh Dealer. It wouldn't surprise us if, before too long, you're able to order a natural-fiber Mac (with or without heated trackball) from Eddie Bauer.

On the following pages, we iron out the wrinkles, clear the waters, and assuage the fears often associated with putting together a complete Mac system. In short, we apply a Command-Z to the confusion that has haunted Mac buyers for far too long. Oh, yeah. That piece of cardboard in the lounge? No. 1 on the "Questions for the Gods" list is now, "Why Bill Gates and not me, O Lord?"

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The Educational Mac 94

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Getting Down to Specifics 98

The Nine-to-Five Mac

THE REQUIREMENTS

- ✓ **1. Competitive pricing.**
- **2. Faster-than-average processor speed.**
- **3. Support for 8-bit color on large monitors.**
- **4. 8 megabytes of RAM.**
- **5. 160-megabyte hard drive.**
- **6. Expandable.**
- **7. 680x0 Mac upgradable to Power Mac.**

THE OPTIONS

- **1. AV technologies.**
- **2. Modem.**
- **3. Ethernet.**
- **4. CD-ROM drive.**
- **5. Fast/Wide SCSI board.**

FROM A BUSINESSPERSON'S standpoint, Apple's original marketing slogan for the Mac, "the computer for the rest of us," served only to support the contention that the Mac had no place in the DOS-dominated corporate world. Early on, "the rest of us" were perceived as either marginal artisans or juvenile delinquents. And the Mac was characterized as either a revolutionary graphic-design tool or a cosmetically seductive but computationally useless child's toy.

But in the following years, Apple changed how it responded to the demands of business. Most recently, the Quadra 610, DOS Compatible, and the inclusion of Insignia Solutions' SoftWindows with aggressively priced Power Macs are raising eyebrows everywhere. DOS devotees aren't just standing up and taking notice; some are actually sitting down and putting these new Macs to work.

Any Mac used for business should offer faster-than-average processor speed — after all, time is money. Network file transfers should also be fast. Whether you're trying to get documents out to other Macs or to the printer, using Ethernet offers a quick, more efficient way to do it.

A large monitor (color or black-and-white) will further increase your productivity. They don't call them "spreadsheets" for nothing — the more spread you can see at one time, the better. Likewise with word processing. No matter how you fold it, a full page of text simply won't fit on a 14-inch display. Add a calendar, a couple of applications, and the perpetually open to-do list, and it's easy to see why folks using small displays start the day grumpy. Power Macs offer an advantage here — they have built-in support for running two monitors at once. If you work only with text-based data, such as memos and spreadsheets, you should consider buying a large monochrome monitor; monochrome monitors cost less than color monitors and provide a sharper image.

For a Mac to be cost-effective, it must be priced competitively with IBM PCs and clones. And, because a business is rarely static, its computers must serve current and future needs. When in doubt, buy a machine that is expandable and upgradable. It's a lot easier to pop in additional RAM, VRAM, drives — or even a Power Mac upgrade — than it is to buy a whole new Mac each time your business grows.

AV technologies — including telephony, video, and speech — serve specialized needs. The original Quadra AV Macs and the Power Macs equipped with AV cards can answer phones, respond to voice commands, integrate video into documents, and output presentations to videotape. The Power Macs without AV cards provide speech recognition and telephony but no video.

THE ADMINISTRATOR

Quadra 610 ($1,439)
Configuration: 8/160
What's Cool: Low cost. Good processor speed. Expandable to 16-bit color on 16-inch monitors. Logic-board upgrade to Power Mac 6100/60. Built-in Ethernet. DOS Compatible version available for around $200 extra.
What's Not: Limited internal expansion.

THE MONEY HANDLER

Power Mac 6100/60 ($1,819)
Configuration: 8/160
What's Cool: Aggressive price. Excellent speed for native applications. Excellent built-in video support. Built-in Ethernet. Software fax modem with the addition of an optional GeoPort Telecom Adapter. SoftWindows version available.
What's Not: Limited internal expansion. Some 680x0 software may run more slowly than on a Quadra or may be incompatible.

THE PRESENTATION GIVER

Quadra 660AV ($2,159)
Configuration: 8/230CD
What's Cool: Excellent value. Support for 16-bit color on 16-inch monitors. Logic-board upgrade to Power Mac 6100/60. 16-bit stereo sound. Excellent video-in and -out capabilities. Software fax modem with the addition of an optional GeoPort Telecom Adapter.
What's Not: Limited internal expansion.

THE EXECUTIVE

Power Mac 7100/66 ($3,179)
Configuration: 8/250CD
What's Cool: Aggressive price. Excellent speed for native applications. Excellent built-in video support. Built-in Ethernet. Software fax modem with the addition of an optional GeoPort Telecom Adapter. SoftWindows version available.
What's Not: Some 680x0 software may run more slowly than on a Quadra or may be incompatible.

How We Made Our Choices / wading through the options

WE STARTED THIS ENDEAVOR by defining various types of users — business professionals, graphic or multimedia artists, home users, and students and teachers. We then put together a list of requirements that can be applied to any Mac to figure out if it fits the real-life needs of each type of user. We've placed a ✓ next to the requirement we feel is most important in each category. For each category we also make recommendations on system price, CPU speed, monitor size and color level, amount of RAM, and hard-drive capacity. Other requirements vary according to category.

We also listed options for each category. For some people, options may be necessities — if you need to transfer files to a remote Mac, for example, a modem's a necessity, not an option. For others, an optional peripheral — say, a CD-ROM drive — may be handy and fun but the money might be better spent on additional RAM or a second hard drive.

After a few lively debates about which items were truly requirements and which were merely options, we compared our list with the lineup of currently shipping desktop Macs. We ended up with a register of Macs that should serve users well for some time to come. (Did you really think, having seen the things we've seen, that we'd commit ourselves to a specific time frame? Not likely.)

In each of the categories, we recommend a range of products, from low-cost, average performers to higher-cost, better performers. We also recommend the exact configuration that we think you should purchase for each Mac model. For detailed specifications on each of the recommended products, see the "Getting Down to Specifics" features table. For specifications for each Mac product Apple has ever offered — shipping or not — see the Mac Catalog on ZiffNet/Mac. The Mac Catalog is available in Library 9 (ZMac Exclusives) of the Download & Support Forum as a FileMaker Pro database, filename DBMACS.SEA, or as a QuickTime movie, filename SVMACS.SEA.

Of course, if you're Bill Gates (or just a billionaire) you can afford the fastest, most expensive Mac system — one you can enjoy while sipping the finest wine from a Tiffany glass. Most of us, however, appreciate practical recommendations for Macs that can grow comfortably with us and won't make us feel guilty when we don't use all of their features or power.

But what if Apple changes it product line or its prices by the time you read this? What if one of the products we recommend isn't in stock the day you go shopping? What if you are a perfect candidate for a Power Mac but find out that your favorite application or the software drivers for your peripherals won't be available in a native PowerPC version for some time to come?

Just to ease your mind, here's a list of some alternative Macs you should consider if Apple changes the picture. These are sideways options — at current prices, they cost about the same as the recommended Mac but they have slightly different features.

RECOMMENDED MAC	ALTERNATIVE MAC
Performa 550/560	Performa 475/476
LC 475	Performa 466/467
LC 575	Performa 550/560
Quadra 610	Power Mac 6100/60
Quadra 650	Quadra 610
Quadra 660AV	Power Mac 6100/60
Power Mac 6100/60	Quadra 610 or Quadra 650
Power Mac 7100/66	Quadra 650 or Quadra 660AV
Power Mac 8100/80	Quadra 840AV

The Artistic Mac

THE REQUIREMENTS

1. **Competitive pricing.**
2. ✓ **Fast processor speed.**
3. **Support for 8-bit color on large monitors.**
4. **16 megabytes of RAM.**
5. **230-megabyte hard drive.**
6. **Expandable.**
7. **680x0 Mac upgradable to Power Mac.**
8. **CD-ROM drive.**

THE OPTIONS

1. **24-bit color.**
2. **Ethernet.**
3. **Fast/Wide SCSI board and matching hard drives.**
4. **AV technologies.**

OTHER THAN DEATH and taxes, one thing is certain — graphic artists require the biggest, the most, and the best of everything. Fortunately, many of today's Macs are equipped to meet the needs of designers, artists, and desktop publishers.

The first rule when it comes to choosing a Mac for color desktop publishing is "think big." Really big. Color files can reach titanic proportions. Those who simply want to publish a local newsletter in their spare time should consider at least a 230-megabyte hard drive. Serious designers and multimedia artists should start with a 1-gigabyte drive and work their way up.

A CD-ROM drive is a must — many stock photos and clip-art files are available only on CD-ROM. If you plan to transport your work (say, to a service bureau), add a SyQuest, Bernoulli, or magneto-optical drive to your collection of storage devices. For archiving large files, tape drives offer the lowest cost per megabyte.

Processing color files also requires tremendous amounts of RAM. Unfortunately, Apple is miserly about how much RAM it includes. As with sales tax, you should figure the cost of additional RAM into the final cost of the system. (To calculate the cost, you need to know how much total RAM you want, how much you have already, and how many RAM expansion slots your Mac has. The fewer RAM expansion slots you have and the more total RAM you want, the more you'll pay, because you'll need to buy costly high-capacity RAM SIMMs.)

How much RAM is enough RAM? That can't be quantified. Buy as much as you can afford — and then start saving for more.

Moving big files around also requires a lot of horsepower — both on-screen (via color QuickDraw) and between the processor and your drive (via the SCSI bus). Combining a fast processor, a fast video card, and a fast SCSI bus and matching hard drive can make the difference between a job out the door and a missed deadline. And if you work with Photoshop filters, 3-D-modeling and -rendering programs, CAD programs, or scientific programs, you shouldn't settle for anything less than a Mac equipped with a PowerPC processor.

Finally, don't be a wimp when choosing a monitor. The more of your work you can see at once, the better. Consider the size of your finished products, and choose a display accordingly. Also, although many designers can get by with 256 on-screen colors, you'll need thousands or even millions for more-complex jobs.

If you're working strictly with black-and-white documents, the need for speed and storage decreases dramatically. The need to see your work, however, does not. Consider using two monitors: a large gray-scale monitor for design projects and a smaller color one to make your day-to-day business activities a little less mundane.

THE DOODLER

Quadra 650 ($2,479)
Configuration: 8/230CD
What's Cool: Good price/performance. Support for 16-bit color on 16-inch monitors. Logic-board upgrade to Power Mac 7100/66. Built-in Ethernet. Built-in CD-ROM drive. Expandable.
What's Not: Additional RAM needed.

THE DESIGNER

Power Mac 7100/66 ($3,179)
Configuration: 8/250CD
What's Cool: Aggressive price. Excellent speed for native applications. Excellent built-in video support. Built-in Ethernet. Software fax modem with the addition of an optional GeoPort Telecom Adapter. Built-in CD-ROM drive. Optional AV configuration for multimedia producers.
What's Not: Some 680x0 software may run more slowly than on a Quadra or may be incompatible. Additional RAM needed. Higher-capacity hard drive needed.

THE PRODUCTION ARTIST

Power Mac 8100/80 ($6,159)
Configuration: 16/1,000CD
What's Cool: Excellent speed for native applications. Excellent built-in video support. Built-in Ethernet. Software fax modem with the addition of an optional GeoPort Telecom Adapter. Built-in CD-ROM drive. Optional AV configuration for multimedia producers.
What's Not: Most expensive Mac. Some 680x0 software may run more slowly than on a Quadra or may be incompatible. Additional RAM needed.

The Home-Based Mac

IT'S NICE TO HAVE A MAC around the house, but there are far too many to choose from — Apple has stacked the shelves of retail America to the roof with consumer-targeted Macs. To make matters worse, popular warehouse-type stores such as Fred's Appliances, Macs, and Building-Sized Blocks of Cheese are often manned by undertrained and overworked salespeople who know more about Maytags than Macs. Seeing that the home contains the most diverse pack of users imaginable, it's no wonder that choosing a domestic Mac can be so dispiriting.

Although we know only the basics about washers, dryers, microwaves, and cheese (5 quarters, 2 quarters, 6 minutes for a potato, and don't buy it if it's blue), we know a lot about Macs. That's why we can offer helpful advice for home-computer buyers.

A home computer has to be inexpensive. It's neither a viable income producer nor a great tax write-off. Its sole purpose is to make your life easier and more fun — not to take food off the table. Buy the best machine you can, but stay within your means.

Color and reasonable processor speed are cheap these days. Forget any wild ideas you might have about buying Uncle Jonah's Cold War-era Mac Plus — especially if he says he'll give it to you for what he paid for it in '86 ($2,599). And, although 14-inch monitors have long been the accepted standard for home users, the cost of midsized displays has plummeted; you should take a second look at 16- and 17-inch monitors. Also note that the price difference between two Macs that have similar configurations but different processor speeds is negligible at best. Consider the minor speed boost as the prize in the Cracker Jack box — so what if you pay an extra 3 cents for the box with the cool Dick Tracy ring?

We consider a CD-ROM drive a necessity for anyone with a Mac at home. Parents especially will appreciate that the list of educational titles available on CD-ROM is expanding at nearly the same rate as the list of educational titles in *Books in Print*. But only those who plan to use a CD-ROM drive for accessing family snapshots via Photo CD will want to upgrade to 24-bit color.

One final word of advice: If you can't find the Mac you want at a local mass marketer, don't hesitate to go elsewhere. Contrary to what you might believe, computer stores do not want to see an Official Computer Nerd ID at the door — and mail-order vendors ask only for a credit-card number. A little research and a little knowledge go a long way. Armed with both, it's you (ultimately) who decides which Mac to leave with — and which ones to just leave.

THE REQUIREMENTS

1. **Low cost.**
2. **Reasonable processor speed.**
3. **Support for 8-bit color on small monitors.**
4. **8 megabytes of RAM.**
5. **160-megabyte hard drive.**
6. ✓ **Easy to set up and use.**
7. **CD-ROM drive.**

THE OPTIONS

1. **680x0 Mac upgradable to Power Mac.**
2. **24-bit color.**
3. **Stereo speakers.**
4. **Modem.**

THE FAMILY

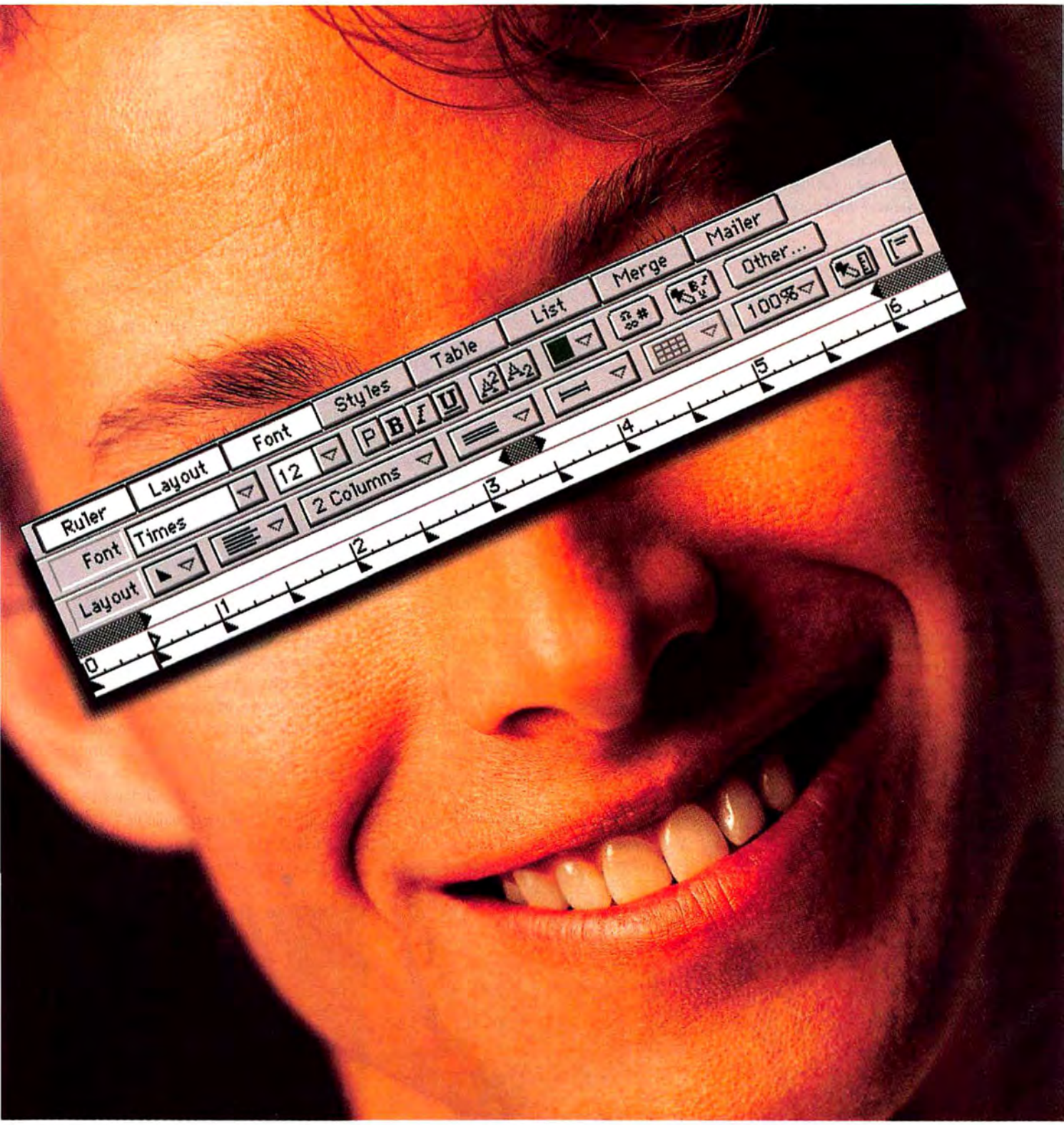
Performa 550 ($2,000)
Configuration: 5/160CD
What's Cool: Low cost. Lots of features. Includes applications (the Performa 560, which costs $200 more, includes additional software). Good processor speed. Built-in monitor. Built-in CD-ROM drive that does not require a caddy. Modem included. Speakers included. Easy to set up and use. In-home service provided by Apple.
What's Not: Comes with only 5 megabytes of RAM. Limited internal expansion.

THE HOBBYIST

Quadra 660AV ($2,159)
Configuration: 8/230CD
What's Cool: Excellent value. Support for 16-bit color on 16-inch monitors. Logicboard upgrade to Power Mac 6100/60. 16-bit stereo sound. Excellent video-in and -out capabilities. Software fax modem with the addition of an optional GeoPort Telecom Adapter. Built-in CD-ROM drive.
What's Not: Limited internal expansion.

THE HOME-OFFICE WORKER

Power Mac 6100/60 ($2,289)
Configuration: 8/250CD
What's Cool: Aggressive price. Excellent speed for native applications. Excellent built-in video support. Built-in Ethernet. Software fax modem with the addition of an optional GeoPort Telecom Adapter. Built-in CD-ROM drive. SoftWindows version available. AV version available.
What's Not: Limited internal expansion. Some 680x0 software may run more slowly than on a Quadra or may be incompatible.



*Suggested retail price. Reseller prices may vary. You must own a competing word processor with a suggested retail price of $249 or more.
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The Educational Mac

THE REQUIREMENTS

✓1. **Low cost.**
2. **Reasonable processor speed.**
3. **Support for 16-bit color on small monitors.**
4. **8 megabytes of RAM.**
5. **160-megabyte hard drive.**

THE OPTIONS

1. **680x0 Mac upgradable to Power Mac.**
2. **CD-ROM drive.**
3. **Modem.**
4. **24-bit color.**

IN 1993, APPLE FINALLY took a long, hard look at the education market. The result was a much needed expansion of the LC line and the long overdue abandonment of the Apple II. This strategy has proved to make good fiscal sense for both Apple and students. Realizing that college students have limited budgets, limited desk space, and education-specific needs, Apple now offers Macs that are affordable and space-conserving and provide all the trimmings students demand — 16-bit color on small, easy-to-lift monitors; reasonable processor speed; and access to information via CD-ROM. (Note that our recommendations work for K – 12 pupils as well as for college students.)

For students, we also recommend a buying strategy that we don't for other types of users: Search out cheap used Macs. Used Macs are plentiful these days, and shopping around can yield some great bargains. Of course, you'll be buying a computer that's already obsolete, but if you make sure to get a Mac (such as a IIci or IIsi) that has at least a 68030 processor and at least one expansion slot, it should be sufficient for another three or four years. You can even upgrade a discontinued Mac IIvx or Performa 600 to a Power Mac 7100/66 by getting a $1,500 Apple logic board. One caveat: Before you rush out and buy a used Mac, be sure to check out the discounted prices on Macs at your college bookstore (or through Apple if you are the buyer for a K – 12 school).

No matter whether you buy a new or a used Mac, you need to figure in the cost of peripherals. Not just the purchase price but the cost of actually using the peripheral. For instance, modems are inexpensive these days. But despite recent price drops, the charges for accessing on-line services add up. You need to factor the cost of on-line services in to your budget, just as you do for your phone bills. Likewise, if you purchase a CD-ROM drive, consider how much you'll spend on titles, just as you add up the cost of books. And, of course, there's software — be sure to allot some money for a game or two among all those serious math and chemistry applications.

Although the rising cost of tuition, books, and housing can make an already struggling student become familiar with existential angst, it's nice to see that Apple continues to keep student computing costs at a realistic level. Perhaps we're being overly optimistic, but it's starting to look as if college students can afford a Mac — and still attend the university of their choice, rather than being reduced to taking night classes at the local community college.

Drew J. Cronk is a free-lance writer, technical editor, and digital artist who eagerly awaits the inevitable call from Billy G.'s attorneys.

THE STARVING STUDENT

LC 475 ($1,193)
Configuration: 8/160
What's Cool: Good processor speed. Built-in video support. Small and light. A 4/80 system can cost less than $1,000. Sold through dealers as the Quadra 605 and through retail stores as the Performa 475.
What's Not: Limited internal expansion.

THE PARTIAL SCHOLARSHIP

LC 575 ($1,799)
Configuration: 8/160CD
What's Cool: Low cost. Good processor speed. Built-in monitor with support for 16-bit video. Built-in CD-ROM drive that does not require a caddy. Two stereo speakers included. All-in-one design for easy portability. Easy to set up and use.
What's Not: Limited internal expansion.

THE FULL SCHOLARSHIP

Power Mac 6100/60 ($2,289)
Configuration: 8/250CD
What's Cool: Aggressive price. Excellent speed for native applications. Excellent built-in video support. Uses state-of-the-art technology. Built-in Ethernet. Built-in CD-ROM drive.
What's Not: Limited internal expansion. Some 680x0 software may run more slowly than on a Quadra or may be incompatible.

continues ►

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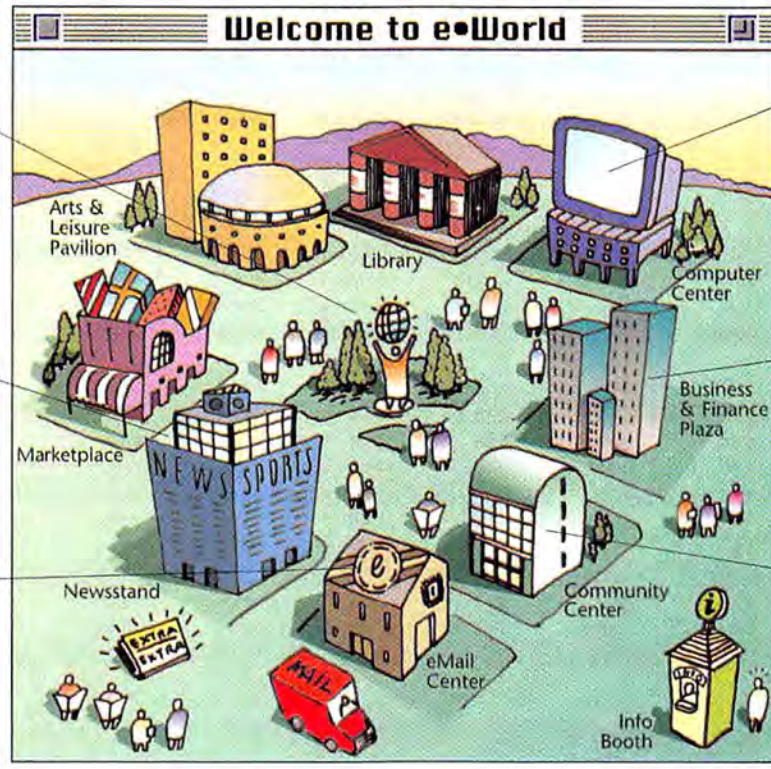

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eWorld puts you in touch with a global community of Macintosh users and with people on other electronic mail services, including the Internet. It's also the best place to get the most in-depth Apple product and support information. And whether you want to access key business information or conduct on-line meetings from anywhere, eWorld is the right place to be.

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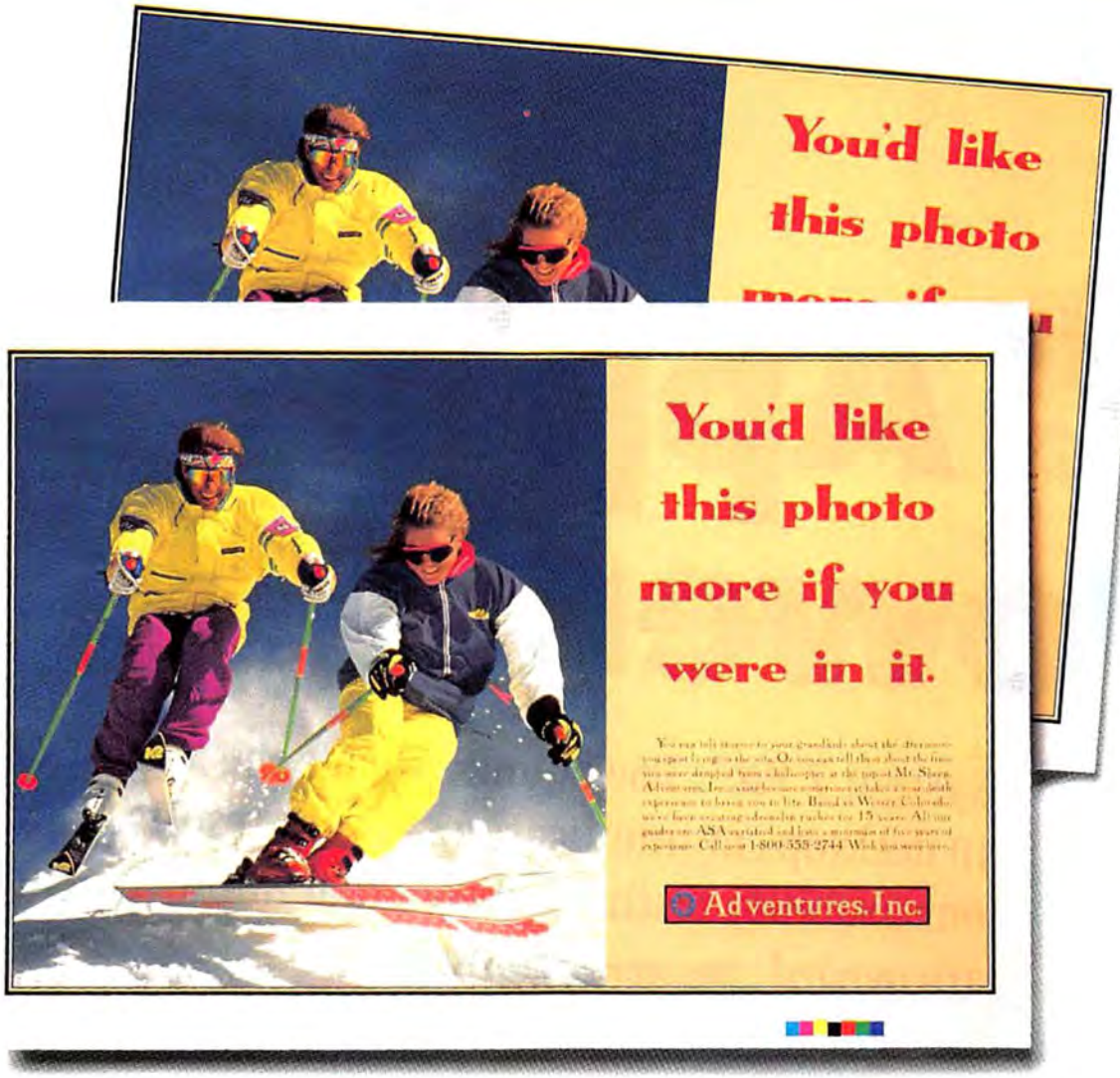
Getting Down to Specifics / how the Macs stack up

	Performa 550	LC 475	LC 575	Quadra 610	Quadra 650	Quadra 660AV	Power Mac 6100/60	Power Mac 7100/66	Power Mac 8100/80
Ideal use									
Business				✓		✓	✓	✓	
Graphics					✓			✓	✓
Home	✓					✓	✓		
Education		✓	✓				✓		
Estimated price (configuration)	$2,000 (5/160CD)	$936 (4/80)	$1,691 (5/160CD)	$1,439 (8/160)	$2,129 (8/230)	$1,879 (8/230)	$1,819 (8/160)	$2,899 (8/250)	$4,249 (8/250)
Estimated price (configuration)		$1,193 (8/160)	$1,799 (8/160CD)	$1,819 (8/230)	$2,479 (8/230CD)	$2,159 (8/230CD)	$2,289 (8/250CD)	$3,179 (8/250CD)	$4,519 (8/250CD)
Estimated price (configuration)				$2,159 (8/230CD)	$3,069 (8/500CD)	$2,759 (8/500CD)	$2,599 (8/250CD/AV)	$3,989 (8/500CD/AV)	$5,659 (16/500CD/AV)
Estimated price (configuration)							$2,519 (16/250)*	$3,379 (16/250)*	$6,159 (16/1,000CD)
Estimated price (configuration)									$5,309 (16/500)*
Processor	68030	68LC040	68LC040	68040	68040	68040	PowerPC 601	PowerPC 601	PowerPC 601
CPU clock speed	33 MHz	25 MHz	33 MHz	25 MHz	33 MHz	25 MHz	60 MHz	66 MHz	80 MHz
FPU	optional	none	none	built-in	built-in	built-in	built-in	built-in	built-in
Max. RAM	36 MB	36 MB	36 MB	68 MB	136 MB	68 MB	72 MB	136 MB	264 MB
SIMM slots	1	1	1	2	4	2	2	4	8
Installed VRAM	768K	512K	1 MB	512K	512K	1 MB	DRAM video	1 MB	2 MB
14" support	16-bit	8-bit	16-bit	8-bit	8-bit	16-bit	16-bit	16-bit	24-bit
16" support	none	8-bit	none	8-bit	8-bit	16-bit	8-bit	16-bit	24-bit
19" support	none	4-bit	none	4-bit	4-bit	none	none	8-bit	16-bit
21" support	none	4-bit	none	4-bit	4-bit	none	none	8-bit	16-bit
Max. VRAM	768K	1 MB	1 MB	1 MB	1 MB	1 MB	2 MB†	2 MB	4 MB§
14" support	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	24-bit	24-bit	24-bit
16" support	none	16-bit	none	16-bit	16-bit	16-bit	24-bit	24-bit	24-bit
19" support	none	8-bit	none	8-bit	8-bit	none	16-bit	16-bit	24-bit
21" support	none	8-bit	none	8-bit	8-bit	none	16-bit	16-bit	24-bit
Hard-drive bays	none	none	none	1	1	1	1	1	3
Expansion slots									
PDS slots	1	1	1	1	1	1	1	1	1
NuBus slots	none	none	none	1◊	3	1◊	1◊	3	3
Built-in Ethernet			optional	✓	✓	✓	✓	✓	✓
Keyboard	✓								
Modem	✓					✓**	✓**	✓**	✓**
Microphone	✓					✓			
Built-in monitor	✓		✓						
Type of audio-in	mono	mono	mono	mono	mono	stereo	stereo	stereo	stereo
Type of audio-out	stereo	stereo	stereo	stereo	stereo	stereo	stereo	stereo	stereo
Type of video-in									
NTSC						✓	✓†	✓†	✓†
PAL						✓	✓†	✓†	✓†
SECAM						✓	✓†	✓†	✓†
Type of video-out									
NTSC						✓	✓†	✓†	✓†
PAL						✓	✓†	✓†	✓†
Composite-video port						✓	✓†	✓†	✓†
S-video port						✓	✓†	✓†	✓†
Power Mac upgrades									
Apple logic board				✓††	✓§§	✓††			
Apple upgrade card				✓	✓				
DayStar PowerPro card					✓				

*Includes SoftWindows.
†With the AV configuration only.
§With the VRAM card only (with the AV configuration, you get a maximum of 2 MB of VRAM).
◊With Apple's NuBus adapter, you can replace the PDS slot with a 7-inch NuBus slot.
**With optional GeoPort Telecom Adapter.
††Full logic-board upgrade to Power Mac 6100/60.
§§Full logic-board upgrade to Power Mac 7100/66.



One of these is a color proof and one is output from our new printer. We forgot which is which.

We paid $70 and waited three days for one of these. The other popped out of our new Tektronix Phaser™ 480 in minutes. Pull out your loupe and start guessing. And while you're down there staring, note our output's phenomenal color. PANTONE®-approved, it's perfect for matching those tricky product colors, logos and skin tones. You might also notice the full 11" x 17" print area. Yes, Virginia, there are tabloid-sized full bleeds. And it shares easily: the Phaser 480 is a work group printer for Macs, PCs or workstations. Plus, it boasts a powerful RISC processor and true Adobe® PostScript™ Level 2. Spread-sized bleeds? Reprint quality comps? Pre-film proofing right at your desk? Welcome to preproduction heaven.

So head down to your nearest Tektronix dealer to see for yourself. And by the way, our guess is that the one on the bottom is our print. Well, then again ...

Tektronix

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CIRCLE **122** ON READER SERVICE CARD

Apple's PowerTalk

System 7 Pro's PowerTalk extends the Mac's lead in desktop communications — but results from our usability testing indicate that improvements are needed. **By Henry Bortman**

STRICTLY SPEAKING, the graphical user interface — GUI, for short — wasn't invented by Apple. However, there's no question that Apple deserves all the credit for popularizing it. Without the Mac, we all might enter the new millennium still staring at a DOS C> prompt.

Apple didn't just create and market the Mac's user interface; it made a near religion of it. It published user-interface guidelines and chastised developers who failed to follow them. Users came to expect that when they double-clicked on something, it behaved in one way and that when they dragged it from here to there on the screen, it behaved in another. Thanks to Apple's vigilance, the Mac's interface has remained consistent and predictable.

But nothing stands still. Apple keeps adding new capabilities to the Mac's system software. And with those new capabilities come new interface elements — and new possibilities for confusion. Take System 7, for example: publish-and-subscribe, file sharing, Balloon Help. Even when Macintosh users found these features valuable, many had trouble learning to use them — did the GUI guard go to lunch and forget to come back?

Now we have System 7 Pro, which, in the form of PowerTalk — one of the best-kept secrets of the Mac system software — for the first time makes Apple's collaboration services available to Mac users.

We're not talking lightweight stuff here. PowerTalk holds the promise that in the near future, you will be able to mail any document, while you're working on it, directly to another Mac user with a single mouse click. Also, you'll be able to digitally "sign" documents with an uncrackable key to ensure that when you send people an electronic message, they can verify that you were the person who sent it and that no one has tampered with its contents. What's more, when used in conjunction with Apple's PowerShare Collaboration Servers (see the "PowerShare" sidebar) and AppleScript, PowerTalk will make it possible for you to automate office work-flow systems, using off-the-shelf applications and without requiring hundreds of hours of custom programming time.

But is PowerTalk easy to use? If it isn't, it may join publish-and-subscribe, Balloon Help, and many other

PHOTOGRAPHY / CHRISTOPHER IRION

perfectly nice ideas that didn't quite make it. Being curious types, we decided to test PowerTalk's ease of use — in the lab.

A New Kind of Testing

Conducting usability testing is new for us. We've read reams about it, and we've toured the usability labs that major software publishers and hardware manufacturers use to test products under development and talked with their test-development experts. But with the exception of testing done by some of *MacUser*'s sister publications — most notably *PC/Computing* — usability testing has rarely been applied to evaluating software *after* it's been released.

Typically, software is evaluated by a single reviewer who has a great deal of expertise with a particular product or category of products — a method that offers a well-informed, expert view of an application's features and foibles. But the very familiarity that makes a reviewer an expert can make it difficult for that person to experience the software as a novice user would. Usability testing can help overcome this limitation by having a group of users, carefully screened to provide a range of background and experience, each perform a similar set of tasks and then report on their level of satisfaction — or frustration.

Of course, different individuals may have different reactions to various features of the software — one tester may rave about the same feature or interface component that another will curse. We found, however, that in testing some of the basic functions of PowerTalk, clear patterns emerged.

Six-Step Program

All of our usability testers first had half an hour to look over Apple's PowerTalk documentation. We then sat them down in front of Macs on which PowerTalk was installed and told them to imagine they had come to work one morning and found updated software on their machines, along with a note from the network administrator asking them to log on and begin using PowerTalk's new features.

We had our testers perform six common tasks that exercised a range of PowerTalk's functions. We watched

figure 1

In the Usability Lab / real users give real results

Usability testing always requires extensive resources, and testing the usability of network-based software such as PowerTalk requires even more. For our testing of PowerTalk, we connected the ZD/Mac Usability Lab with the MacUser NetWorkShop, a floor below, to create a 13-client network. The test Macintosh was connected over Ethernet to 12 clients simulating 12 PowerTalk users residing on a two-zone AppleTalk network.

We advertised for Mac-literate users who use e-mail daily. Out of this pool of applicants, we established a final group of testers composed of users from novice to expert. Over a period of two weeks, the testers each spent a day in the ZD/Mac Usability Lab performing six PowerTalk tasks and discussing their reactions with our usability observer. Video cameras captured the images on the testers' screens, along with the testers' actions, facial expressions, and comments. The usability observer also logged noteworthy events, such as when any of the testers attempted to use an incorrect method to perform a task or had to consult the software documentation.

(and videotaped) them as they worked. We noted whether or not they were able to complete a task within an allotted time. How many times did they try something that didn't work? How often did they consult the manuals? And how many times did they ask for help? (We gave them a "tech support" number to call when they got really stuck; it rang in the control room from which the technician conducting the tests was observing them.)

After they had tackled each task, we had all the testers record a satisfaction rating for different aspects of performing the task. We also asked the testers to write down comments describing what was easy and what was difficult about the task and what they liked and disliked about the PowerTalk interface. Finally, when each tester had completed all six tasks, we conducted a detailed interview with each, asking for more information on their satisfaction scores and comments. We then used all this information to calculate PowerTalk-usability ratings for each of the following six tasks:

1. Setting Up the Key Chain / Usability: Poor

For their first task, we asked our testers to log on to PowerTalk's Key Chain. The Key Chain is a new element of the Finder, one of three new icons PowerTalk puts on the Mac desktop. The idea behind it is that you add various keys to the chain — one for your PowerTalk mailbox, another for each file server you commonly log on to, and others for other network services — supplying the appropriate password for each key as you add it. Having done this once, you can subsequently access all these services simply by logging on to the Key Chain — you no longer have to provide a separate log-on password for each service.

Seems like a good idea. But our testers had serious problems slogging through the steps necessary to make this feature work. Most of them tripped up while logging on and complained that neither the software nor the documentation clearly explained what they were supposed to do or why. When asked to add a file server to the Key Chain, they had difficulty navigating PowerTalk's AppleTalk catalog to access the server.

2. Copying a File, Using a Catalog / Usability: Acceptable

Another icon PowerTalk places on the desktop is Catalogs. You can think of a PowerTalk catalog as a cross between a directory that lists network addresses and a minidatabase that lets you store personal information about people, such as names, addresses, phone numbers, birthdays, and so on. The Catalogs icon behaves somewhat like a folder icon: When you open it, you see a list of catalogs; when you open a catalog, you see a list of that catalog's contents.

When you first install PowerTalk, the only catalog you are able to access via the Catalogs icon is the AppleTalk catalog; other catalogs appear when additional PowerTalk services — such as a PowerShare server — are added to your network. The AppleTalk catalog lists two types of network entities: active PowerTalk users, to whom you can mail electronic documents, and available file servers — an

ILLUSTRATION / LIN WILSON

alternative to using the Chooser for accessing file servers.

When we asked our testers to use the Catalogs system to copy a file to a server, they got lost. First, as with the previous task, they had trouble finding the server to which they were supposed to copy the file. And second, when they found the server icon and tried to copy a file to it by dragging the file onto the server icon, it didn't work. No warning, no explanation: just failure.

All of them eventually figured out that they had to double-click on the server icon to display a dialog box showing the server's *volumes*, to which they could then successfully copy a file. But the failure of the system to provide an alert explaining the problem made discovering the solution take much longer than it should have. Overall, most of our testers thought that although file copying had a steep learning curve, it would be straightforward in day-to-day use.

3. Sending an Information Card / Usability: Poor

In addition to providing the Catalogs icon on the desktop, PowerTalk installs the Personal Catalog option on the Apple menu. You can create multiple personal catalogs. Like the desktop Catalogs icon, a personal catalog is folderlike: When you select one, it displays a list of icons, some representing users' network addresses and others representing file servers. But, unlike catalogs accessed via the Catalogs icon, a personal catalog can also store *information cards*, which are similar to screens typical of a personal information manager. Information cards contain fields in which you can enter information about yourself or other users, including names, companies, addresses, and electronic addresses. You can then send messages to other users by dragging the messages onto their information cards.

We asked our testers to set up an information card containing information about themselves, including their PowerTalk e-mail address, and then to send that card to other PowerTalk users. Big problems. Most of the testers got hopelessly confused trying to include their e-mail address in the information card — they ended up taking several minutes to do something that could have been accomplished with a single drag-and-drop of an icon from the desktop catalog onto the information card.

And when they tried to send their information card to other users, they did the natural thing: They dragged their card onto icons representing the other users' information cards. But, no! — PowerTalk told them that they weren't allowed to do that; they first had to copy the information card *onto the desktop* and only *then* could they drag it onto other users' information-card icons to send it. This did not sit well with any of the testers.

4. Sending a Message / Usability: Outstanding

When our testers used the e-mail system built in to PowerTalk, however, things got decidedly better. We asked them to perform three mail-system tasks. In the first, they used AppleMail, a simple application supplied with System 7 Pro that lets users send text messages to other PowerTalk users. An AppleMail document contains the standard PowerTalk Mailer, a header that gets prepended to a document and allows users to send it directly to other users. (Although we used AppleMail for this task, we could just as easily have used WordPerfect or any of a growing number of third-party applications that support the PowerTalk Mailer.) Although our testers had minor complaints about using the Mailer to address and send a document

PowerShare / office collaboration

POWERTALK MAKES IT EASIER for Mac users to work together by providing a basic set of new *collaboration services*. These include point-to-point e-mail, directory services, and digital signatures (which let recipients of an electronic document verify the identity of its sender and the integrity of its contents).

But PowerTalk, which began shipping in October 1993 as part of System 7 Pro, is only the first part of Apple's strategy for providing Mac users with a comprehensive set of collaboration services (known collectively as the Apple Open Collaboration Environment, or AOCE). You don't need a server to use the new functions in PowerTalk, and it may suffice for small groups of people who have limited collaboration needs. But for larger networks or more-intricate collaboration schemes, PowerTalk lacks the necessary horsepower.

Enter PowerShare Collaboration Servers (PowerShare, for short), Apple's $999 industrial-strength AOCE-based software, which began shipping in January 1994.

PowerShare Collaboration Servers consists of two server-software applications: PowerShare Mail Server and PowerShare Catalog Server. Mail Server behaves as you would expect it to: When installed on a network server, it stores mail from one PowerTalk user and forwards it to another user (or to another, interim, mail server). This store-and-forward approach, typical of mail packages such as CE Software's QuickMail and Microsoft Mail, makes it possible for two users to exchange mail when they're not connected to the network at the same time.

Catalog Server is a more interesting beast: It puts the power in PowerShare. When Catalog Server is installed on a network server, it stores a database of PowerTalk user information that can be as extensive as users (or network administrators) like. You can store such data as job titles, signature authorities, spending limits — any information you like, really. This information can then be used, in conjunction with PowerShare-capable applications and AppleScript, to devise complex and highly efficient document-routing systems.

A simple example: Suppose your network administrator developed an electronic version of your company's expense-report form, complete with fields for attaching a supervisor's and a business manager's signature. (Shana's Informed products can be used to create such documents.) To submit an expense report, you would fill out this form and when you were ready to send it off, you would simply select Send from the Mail menu and off it would go to the PowerShare mail server. AppleTalk scripts, using information stored on the catalog server, would figure out which supervisor to send it to and route it automatically. It would show up in that supervisor's PowerTalk In Tray, and she would be able to access and approve it, even when on the road.

The supervisor would attach her digital signature to the form and send it off again. The server would then automatically route it to the business manager, who would "sign" it and send it on to the accounting department at the corporate headquarters. Such an approach might allow your expense report to make its way through the system in hours — much more quickly than the days or weeks it typically takes to send paper forms from office to office.

Futuristic? Perhaps. But this is precisely the type of work flow Apple's AOCE technology is designed to automate. And many companies are already finding that by using this technology, they can gain a significant advantage — in processing orders or responding to insurance claims, for example — over their competitors.

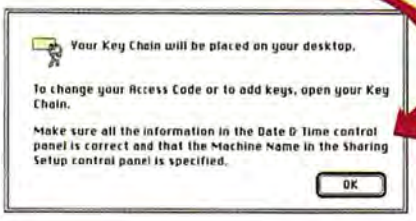
figure 2

PowerTalk on the Desktop / a confusing interface

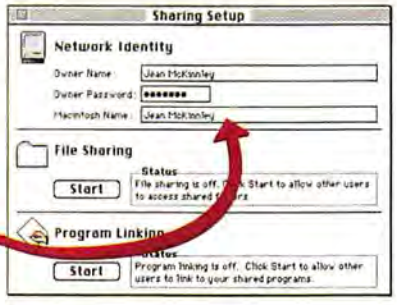
We observed our testers as they tried to perform a few simple PowerTalk tasks and then asked them what they thought of its interface. They found little to praise.

WHAT THEY DID:

The PowerTalk Key Chain confuses users. When we asked our testers to log on to their PowerTalk Key Chain — the required first step for using PowerTalk's functions — most of them misinterpreted this cautionary note . . .



. . . and failed to fill in this information properly, which caused serious problems later on.



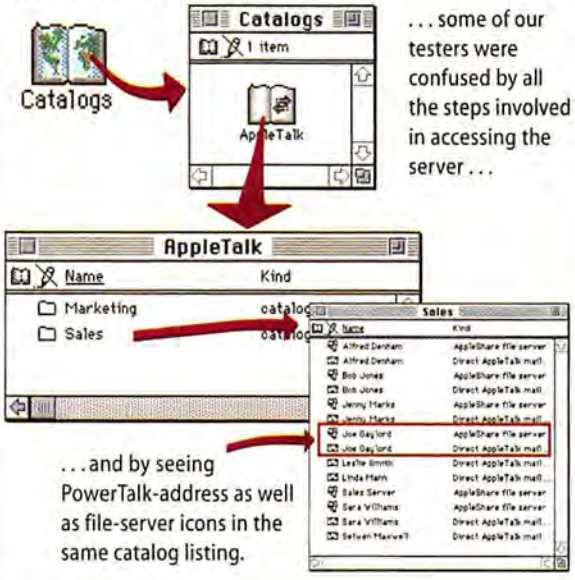
WHAT THEY SAID:

*"**I think somebody** took* key chain *a little too literally and decided you have to go through a whole chain of things to get something done."*

*"**I didn't feel** the software led me through what I needed to do, and the manual didn't describe what the reason was for doing this stuff and what would be the result when I got done."*

WHAT THEY DID:

When trying to copy a file to a server, using PowerTalk's AppleTalk catalog . . .



. . . some of our testers were confused by all the steps involved in accessing the server . . .

. . . and by seeing PowerTalk-address as well as file-server icons in the same catalog listing.

WHAT THEY SAID:

*"**The documentation** didn't explain what a catalog was. It said it was a 'collection of information,' in that sort of soft Apple way, but I was like, 'So? What the hell do I use it for?'"*

*"**Every time I'd click** on something, here comes another dialog box, and pretty soon you wind up three or four dialogs deep and you're not really sure where you are or what you're doing."*

*"**It looked like** something I would expect a network administrator to see."*

— the most common request was for more power-user automation features — on the whole they found this task intuitive and easy to learn.

5. Receiving an Enclosure / Usability: Outstanding

One of PowerTalk's best features is the use of drag-and-drop technology for attaching enclosures to a document. Although, to some extent, the need for enclosures will be eliminated by the ability to mail all types of documents directly, there will still be times when you want to send more than one document at a time. Apple has implemented a very simple way of enclosing a document. You go to the desktop, find the icon of the file you want to enclose, and drag it into the Enclosures section of a PowerTalk Mailer. It's enclosed.

On the receiving end, users can access an enclosed document either by double-clicking on its icon in the Mailer or by dragging the icon to the desktop. We asked our testers to perform the latter task. Although some testers voiced concerns that the drag-and-drop method would be difficult for users with small screens, on the whole, all the testers found the drag-and-drop metaphor simple and intuitive.

6. Replying to a Message / Usability: Outstanding

The final mail-system task we asked our testers to perform was to reply to the message they had received in the previous task. There were no surprises here. As with other functions of the Mailer, all of our testers found the interface for replying to messages easy to learn and use.

Apple provides several types of letterheads for replying to messages. Some testers thought PowerTalk's designers could have done a better job of designing and naming these. But this was not a major objection — and, besides, creating your own letterheads is as easy as pasting in a PICT.

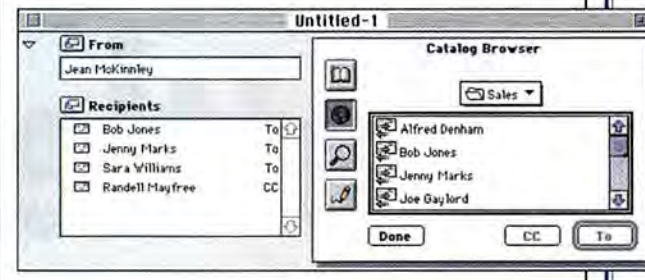
figure 3

PowerTalk Mail / intuitive messaging

All of our testers had prior experience with e-mail — experience that may have helped them understand PowerTalk's mail interface more easily but which also may have made them more discriminating. In any case, PowerTalk's easy-to-use mail system won their approval.

WHAT THEY DID:

PowerTalk's mail interface is superior to that of its desktop functions. When we asked our testers to exercise the basic mail and messaging functions — sending, receiving, and replying to messages — they found the PowerTalk Mailer convenient and intuitive.



WHAT THEY SAID:

***"It was easy** to get it up, it was easy to use, it was intuitive and straightforward. For release 1.0 of something, it was a pretty good-looking piece of software."*

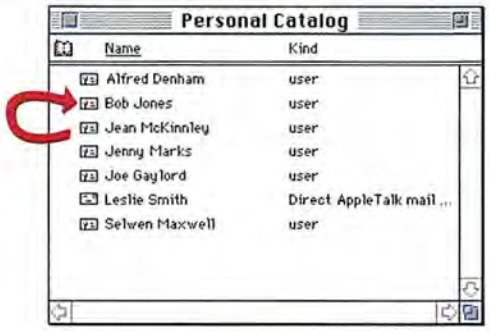
***"This was an effective** combination of standard Mac drag-and-drop operations with a mail application."*

"Small learning curve."

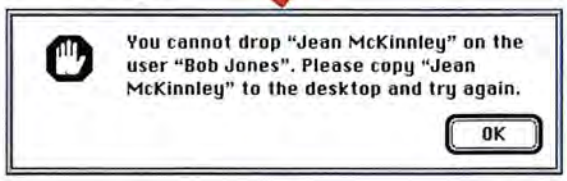
***"Very intuitive design.** Worthy of Apple."*

WHAT THEY DID:

After our testers had created a personal information card in their personal catalog, we asked them to send it to other users on the network. They tried to drag their information cards directly onto the addresses in the catalog . . .



. . . and then got confused about what to do when presented with this dialog box.



WHAT THEY SAID:

***"Totally foreign** to the way the Mac works. You're not supposed to have to drag things out on the desktop to deal with them."*

"Confusing!!"

***"The documentation** gave almost no clue about what I was supposed to do to send my address to others."*

Good Ideas, Poor Execution

PowerTalk is the first commercial release of software based on Apple's grand-vision Apple Open Collaboration Environment, or AOCE. It's always difficult to design a simple interface that gives users access to such a complex and powerful set of technologies while hiding the complexity from them. Based on our usability tests, we feel that Apple has only partially succeeded in this attempt.

On the one hand, our usability testers gave Apple high marks for PowerTalk's e-mail system. Apple has clearly hit the mark with this effort. But other aspects of the PowerTalk interface did not fare so well. Does this mean that Apple has lost its interface edge? Not necessarily. PowerTalk is only one part of a larger system-software-enhancement effort taking place in Cupertino. And even PowerTalk is still young, with plenty of opportunity for improvement.

But if Apple is smart, it will take our testers' concerns seriously: System 7.5, due this summer, will make PowerTalk part of the standard Mac OS. And it's clear that some of the additions Apple has made to the Finder with PowerTalk are indications of Apple's increasing tendency to clutter up the Finder with more and more icons. For example, QuickDraw GX, also due this summer as part of System 7.5, will incorporate a drag-and-drop interface for accessing printers, adding even more new icons to the desktop.

Apple has an opportunity to make some astounding breakthroughs in user-interface technology over the next few years, particularly with the processing muscle of PowerPC. When designing interfaces, if you don't get the basics right, you'll never make it to the next level. For the Mac's system software, the basics are simplicity, simplicity, simplicity. Making the difficult appear easy is a challenging task. Let's hope the system-software magicians succeed.

Henry Bortman is *MacUser*'s technical director. Sean J. Safreed, a *MacUser* project leader, managed the testing for this report.

MacUser Labs

Breaking Network Bottlenecks

STEP UP TO THE SPEED and convenience of Ethernet: Add a fast, flexible router to your LocalTalk network. **By John Rizzo**

IT TAKES A TRUE NETWORK ENTHUSIAST to get excited about a new router. But anyone who has experienced the sluggish performance of a busy, overcrowded network can easily be convinced that installing a router is worth some serious thought. A router is like a traffic cop. It stands at the junction of two or more networks, directing data along the most efficient path from source to destination. When networks are connected in this way, the combination is called an *internet*. If your internet includes LocalTalk, Ethernet, and/or other types of connectivity technology, a router may also pass along *protocols* — the rules and standards networks use for communicating with each other — so that, for example, your LocalTalk Mac can talk to a corporate server or mainframe on Ethernet.

Many AppleTalk-compatible routers are available, some of which are designed to support large, enterprise-wide networks and have prices to match. Such heavy-duty products, however, rarely have Mac management software and often require a lot of know-how to get them up and running. For this report, we tested 11 LocalTalk-to-Ethernet routers designed for small-to-medium-sized offices, none costing more than $3,000 on the street.

Networks grow and, as with roads, the best way to relieve congestion is to move traffic onto another path. Routers let you split your network into two or more segments, with the routers acting as traffic cops. On an unsegmented network, data is broadcast everywhere, slowing things down for all users.

With some planning, splitting your network can benefit everyone. For example, a router can isolate your art department, its color printer, and its network-clogging multimegabyte Photoshop files onto one segment. Its file transfers and print jobs then won't slow e-mail for your accountants on the next floor.

Network segments separated by a router can all use LocalTalk *media* — the cable, connectors, and other hardware paraphernalia that physically connect all the devices on a network. For optimum performance, however, you may choose to link a workgroup on a LocalTalk network with a larger Ethernet network or join multiple LocalTalk segments via an Ethernet backbone. Hooking up to a larger Ethernet network links your organization's Macs, PCs, servers, and corporate machines; linking LocalTalk segments via an Ethernet backbone speeds communications among the LocalTalk segments. Whatever your network arrangement may be, picking the

ILLUSTRATION / JOHN CORBITT

Welcome to Advertising
Welcome to Graphics
EAT AT JOE'S
Ethernet Router
Maintenance
Accounting
Graphics
Editorial
Advertising

right router involves attention to your network's growth patterns, an understanding of your feature choices, and a comparative look at performance.

On a large, complex internet that has many routers, each router will find the shortest path along which to send a packet of information, delivering it to the next router along this path and eventually to its destination. Routers do this by communicating with each other and trading and storing network-segment identification numbers and zone names, which you type in when you set up each router.

For each port, you also enter the *seeding* information: whether the router dictates or asks for the network numbers of segments connected to its ports. A router can be *hard-seeding*, *soft-seeding*, or *nonseeding*. A hard-seeding router dictates network ID information to other routers, and these settings cannot be overridden by them. A soft-seeding router tries to mediate network conflicts by comparing the information it has with that of the other routers on the internet and directing traffic accordingly. A nonseeding router gets all of its network information from seeding routers. The best routers can be set to operate in any one of these three modes. (For a more in-depth discussion of seeding and how to set up a router, see "Expanding Your AppleTalk Net," March '94, page 133.)

The Bottom Line

THE REAL CHALLENGE you face when choosing a LocalTalk-to-Ethernet router is finding the right combination of features and performance. We evaluated each router's price/performance, customer service (technical support and warranty), configuration software, and features.

⊕ = OUTSTANDING
● = ACCEPTABLE
⊖ = POOR

	PRICE/ PERFORMANCE	CUSTOMER SERVICE	SOFTWARE	FEATURES
4½ **Farallon InterRoute/5**	⊕	●	⊕	●

You can't go wrong with the InterRoute/5 ($3,499 list, $2,580 street), a four-port winner with lots of features, well-designed configuration software, and a respectable price per port.

4 **Transware EtherWay**	●	●	⊕	●

Graphically pleasing software and good performance make the EtherWay ($1,499 list, $1,325 street) an excellent single-port-router choice for those whose network budgets are tight or whose need for LocalTalk is limited.

4 **APT ComTalk HF**	⊕	●	●	●
4 **Farallon StarRouter**	●	●	⊕	●
4 **Webster MultiPort/LT**	●	●	●	●
3½ **Compatible Ether•Route/ TCP II**	●	●	●	●
3½ **Dayna PathFinder**	●	⊕	●	⊖
3½ **Shiva FastPath 5R**	●	●	⊖	●
3 **Compatible RISC•Router 3000E**	⊖	●	●	●
3 **Tigan MultiRoute**	●	●	●	⊖
2½ **NetSpan MultiRouter EN/LT**	●	●	●	⊖

Listing is alphabetical within groups of equal mouse ratings.

Of the routers we tested, some have one LocalTalk port and others have as many as eight. In fact, vendors often express router prices as a cost per LocalTalk port, because each port on a router represents one network connection. If your office still has lots of LocalTalk devices, putting your Macs on multiple network segments may improve performance for everyone. If your conversion to Ethernet is in full swing or has already been completed, a single-port LocalTalk-to-Ethernet router may be just the thing for PowerBook, compact-Mac, and printer connections.

The routers we tested vary widely in their cost per LocalTalk port, from a low of $375 for the $2,995 eight-port Tigan MultiRoute to a high of $2,280 for the Farallon StarRouter, a one-port product. Comparing the cost per port is a useful way to judge routers, but it can also be deceiving — for example, the StarRouter has more management features than the MultiRoute. The StarRouter is also a 12-port LocalTalk hub. At $1,995 ($499 for each of its four LocalTalk ports), the Webster MultiPort/LT, one of the least expensive on a per-port basis, has a feature set that's closer to the one-port StarRouter's than to that of the multiport MultiRoute.

Managing Your Router

The challenge for novices is management. These devices come with software and management features (see figure 1) that enable you to implement a network design and keep it running smoothly. One of these features is device *hiding* — the ability to hide zones, printers, or other network resources from certain users or workgroups. Another important management feature is support for the industry-standard SNMP (Simple Network Management Protocol), which lets you gather statistics about the router from SNMP-standard software running on just about any type of computer. SNMP software has a long way to go on the Macintosh, but a router's ability to give an SNMP-aware application the data it needs makes that router a good choice for large networks on which administrators may not use Macintoshes.

The best management feature sets are those of the Compatible Systems Ether•Route/TCP II, the Shiva FastPath 5R, and both Farallon routers, in that order. Farallon's software lets you restart all Farallon routers on an internet, a very handy feature for bringing networks back on-line after maintenance. The Dayna PathFinder and the Tigan MultiRoute each have few management features.

Once you've set up your initial configuration, you use the router's software to troubleshoot the network and gather statistics about it. With information on the amount of traffic crossing the router, you can find out if your network design is optimal or if it's time to relieve the strain with a new router.

The quality of the software bundled with the products we tested varied widely. We particularly liked Transware Manager, which comes with the Transware EtherWay. It has a graphical interface depicting the LocalTalk and Ethernet ports, along with the network-address numbers you need for locating Macs, printers, and other devices on a network. Unfortunately, you can't set the seeding of the ports independently of each other. The Farallon InterRoute/5 and StarRouter come with software that is well organized and has a convenient interface. The Webster MultiPort/LT also has easy-to-use management software and straightforward configuration options.

On the other hand, the Shiva FastPath 5R router may be rich in

figure 1

Features of LocalTalk-to-Ethernet Routers / the right router for your network

Choosing a router means knowing your network. If you want to connect a few Macs to the wider world of TCP/IP and other foreign-protocol networks, you'll want a router that speaks their language. Management features are important too, particularly if you have a lot of routers. The more flexibility the router provides, the easier it will be for you to expand your network.

	APT ComTalk HF	Compatible Ether•Route/TCP II	Compatible RISC•Router 3000E	Dayna PathFinder	✓ Farallon InterRoute/5	Farallon StarRouter	NetSpan MultiRouter EN/LT	Shiva FastPath 5R	Tigan MultiRoute	✓ Transware EtherWay	Webster MultiPort/LT
LocalTalk repeater						●					
Concentrator option					●	●					
DECnet support		●	●					●		●	●
IP tunneling	●	●	●		●	●		●			●
IP encapsulation	●	●	●		●	●		●		●	●
IPX support			●								
ARA support											●
SNMP support	●	●	●		●	●		●			●
In-band management	●	●	●	●	●	●	●	●	●	●	●
Out-of-band management					●	●					●*
Password protection	●	●	●		●	●	●	●		●	●
Network monitoring	●	●	●	●	●	●	●		●	●	●

✓ MacUser RECOMMENDS

*Capable of partial out-of-band management only.

features but it comes with software that is complicated and non-intuitive, requiring even experienced network managers to make frequent trips to the manual.

More Protocols, Please

All routers transfer data among network types (such as LocalTalk and Ethernet). Most of those we tested also include support for network protocols (such as AppleTalk). This capability is becoming more important, because networks with Macs, PCs, and other computers on the same wire are becoming more commonplace. Among the most common network protocols are DECnet; TCP/IP (Transmission Control Protocol/Internet Protocol), used on UNIX systems and even on Mac Ethernet networks; and IPX (Internetwork Packet Exchange), Novell's network protocol. Although a few Macintosh applications (such as Claris' FileMaker Pro and ON Technology's Meeting Maker XP) can be used by Macs on an unrouted network, most Mac communications with TCP/IP and IPX networks require a router.

Several routers support *IP tunneling*, which lets you send AppleTalk data over a TCP/IP network, usually a *wide-area network* (WAN). The routers on each side of the WAN must use the same tunneling protocol — and there are several. Although most routers support the old Cayman-style IP tunneling, Farallon's routers support Apple's newer AURP (Apple Update-based Routing Protocol). The Shiva FastPath 5R supports the so-called Dr. Pepper routing protocol, which Shiva calls TunnelTalk.

APT ComTalk HF

Rating: ♦♦♦♦
List Price: $1,500.
Street Price: Vendor declined to provide dealer information.
Pros: Good performance. Powerful software.
Cons: Complex software interface.
LocalTalk: 3 mini DIN-8 ports.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Devices, networks, zones.
Warranty: 2 years.
Company: APT Communications, Inc., Ijamsville, MD; 800-842-0626 or 301-831-1182; 301-874-5255 (fax).

Compatible Ether•Route/TCP II

Rating: ♦♦♦½
List Price: $1,895.
Street Price: $1,300.
Pros: Easy to configure. Good management features.
Cons: Poor performance.
LocalTalk: 2 mini DIN-8 ports.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Devices, networks, zones.
Warranty: 1 year.
Company: Compatible Systems Corp., Boulder, CO; 800-356-0283 or 303-444-9532; 303-444-9595 (fax).

Compatible RISC•Router 3000E

Rating: ♦♦♦
List Price: $3,495.
Street Price: $2,375.
Pros: Good security features. Good software.
Cons: Poor price/performance.
LocalTalk: 2 mini DIN-8 ports.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Devices, networks, zones.
Warranty: 1 year.
Company: Compatible Systems Corp., Boulder, CO; 800-356-0283 or 303-444-9532; 303-444-9595 (fax).

figure 2

Router Performance / all things being equal . . .

LocalTalk, not the routers themselves, is the bottleneck in router performance. Only minor differences in router performance surfaced when we conducted single-port file-transfer tests with and without background traffic. Seven routers had two or more LocalTalk ports. The widest variances among routers occurred in the multiport test. Eight products can route IP and did so with almost equal speed.

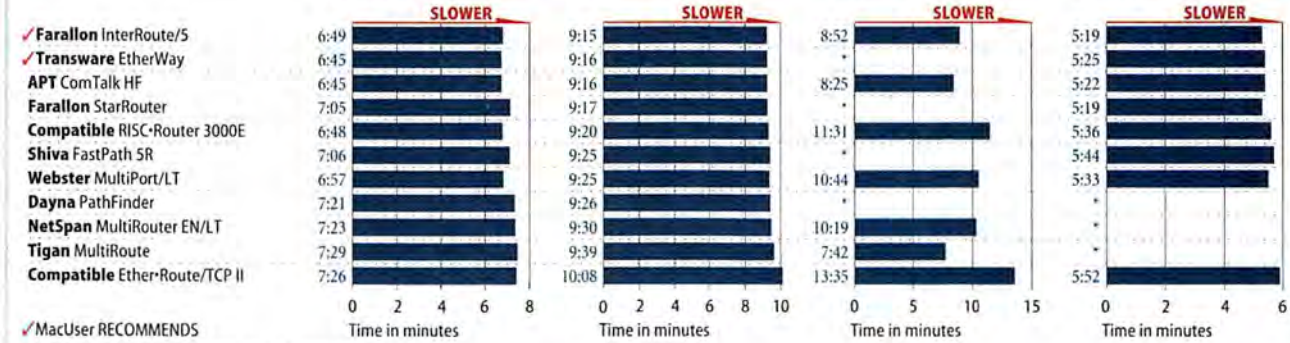
MacUser Labs

Quiet Network
With no background traffic on the internet, we copied files between a LocalTalk Mac and a NetWare server on Ethernet and opened a 1-megabyte Excel spreadsheet on the server from the Mac and saved it back to the server.

Busy Network
We copied, opened, and saved files across the router, using a LocalTalk Mac and a NetWare server on Ethernet. To provide background traffic, two pairs of Macs exchanged files on either side of the router.

Multiple Ports
To evaluate the speed of routers that have two or more LocalTalk network connections, we split a constant workload over multiple ports and copied files to and from the NetWare server and clients on LocalTalk networks.

IP Routing
With the routers that support the IP protocol, we used Fetch — an ftp client application — to time the transfer of a 5-megabyte file from an NFS NetWare server on Ethernet to a LocalTalk Mac across each router.



*Did not have the features necessary to conduct this test.

The Compatible Systems RISC•Router 3000E can filter IP tunnels to limit access. Tunnel filters can exclude certain AppleTalk network segments from tunneling (you specify which segments by network number). This feature can be used to prevent outsiders from getting in or to prevent users on the specified segments from accessing a tunnel.

Among the routers we tested, only the RISC•Router 3000E can route IPX; other AppleTalk-to-IPX routers exist, but they don't support LocalTalk.

It's Not Their Fault

If you're looking for a way to speed up data transfer on a LocalTalk network, a router can help. But, like most strategies that use LocalTalk, a LocalTalk router's effectiveness is limited by network constraints. You can't squeeze much traffic through a channel that tops out at 230 kbps (kilobits per second). We found that all the routers' test times were within 10 percent of one another (see figure 2), although the winners consistently came out on top. Both Farallon

Dayna PathFinder

Rating: ★★★½
List Price: $759.
Street Price: $625.
Pros: Very inexpensive. Good first router. Lifetime warranty.
Cons: Few features.
LocalTalk: 1 mini DIN-8 port.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non.
Hiding: None.
Warranty: Lifetime.
Company: Dayna Communications, Inc., Salt Lake City, UT; 801-269-7200; 801-269-7363 (fax).

Farallon InterRoute/5

Rating: ★★★★½
List Price: $3,499.
Street Price: $2,580.
Pros: Good performance. Good software. Many features.
Cons: Requires patch panel.
LocalTalk: 4 RJ-21 ports.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Networks.
Warranty: 1 year.
Company: Farallon Computing, Alameda, CA; 510-814-5000; 510-814-5023 (fax).

Farallon StarRouter

Rating: ★★★★
List Price: $3,299.
Street Price: $2,280.
Pros: Good performance. Good software. Many features. Hub-connection option.
Cons: Requires patch panel.
LocalTalk: 1 RJ-21 port.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Networks.
Warranty: 1 year.
Company: Farallon Computing, Alameda, CA; 510-814-5000; 510-814-5023 (fax).

NetSpan MultiRouter EN/LT

Rating: ★★½
List Price: $1,595.
Street Price: $1,320.
Pros: Easy-to-use management software.
Cons: Poor performance.
LocalTalk: 2 mini DIN-8 ports.
Ethernet: AAUI/AUI port.
Seeding: Hard, non, soft.
Hiding: Networks, zones.
Warranty: 2 years.
Company: NetSpan Corp., Richardson, TX; 214-690-8844; 214-690-8840 (fax).

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Powerful options. *Add the Apple Macintosh® Display Card 24AC to your computer, and you'll bring 24-bit color to either Multiple Scan Display. You'll also enjoy QuickDraw™ acceleration up to 30 times faster than with unaccelerated video cards.*

Energy-saving. *We meet EPA Energy Star standards. With our unique Energy Saver software, you decide how long the screen is idle before going into power-saving mode. You'll cut your power costs by up to 70% and extend the life of your picture tube at the same time.*

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*Apple Price as of 4/1/94. Actual retail prices may vary depending on location. **As of 4/1/94, the SuperMac 20-T XL is $2,399 (MSRP) and the Radius Intellicolor 20I is $3,199 (MSRP). © 1994 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Mac and Macintosh are registered trademarks and Power Macintosh

It costs less.

Surprise, surprise. *At $2,149,* the Apple Multiple Scan 20 Display actually costs less than other 20-inch displays, such as the SuperMac 20•T XL and the Radius Intellicolor 20T.** Considering that the Multiple Scan 20 has more unique, built-in features, that is a surprise.*

The economical new Apple Multiple Scan 20 Display.

Apple

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How We Tested

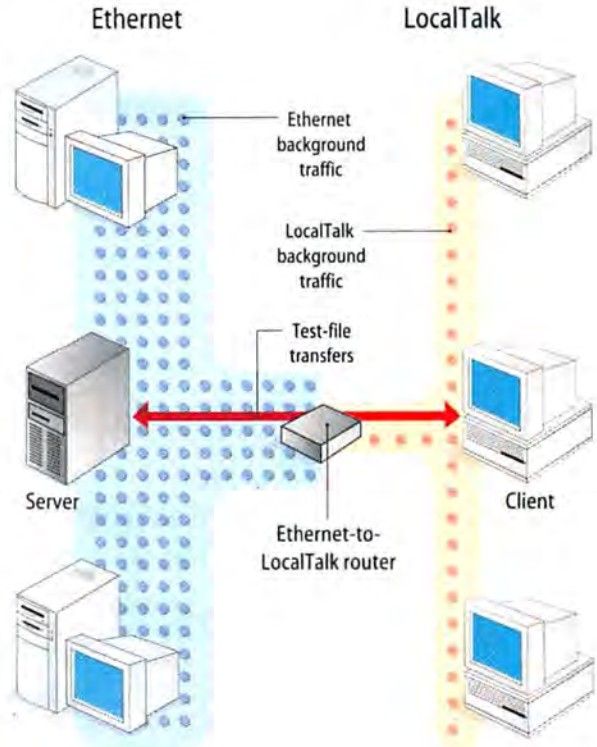
TO TEST ROUTER SPEED, we created a LocalTalk network by daisy-chaining five Mac IIci's. We also created an Ethernet network, using an Asanté hub to connect two Quadra 950s and a Novell NetWare server. We joined the two networks with a test router. We chose to use NetWare, because it doesn't slow a network down, as does AppleShare.

With no other activity on the network, we copied large files and folders between one of the LocalTalk Macs and the NetWare server. We also opened a 1-megabyte Microsoft Excel document on the server from the LocalTalk machine and performed a Save As back to the server. We repeated each of our tests five times to ensure accuracy.

For a more realistic network environment, we used three LocalTalk Macs and added network background traffic (see illustration).

Our multiport-router testing had two goals: to find out whether splitting a constant workload over multiple network segments increased the speed of data transfer and to compare the speed of routers with the same number of ports. We arranged four of the LocalTalk Macs as evenly as possible on separate LocalTalk network segments and then repeated our tests.

Most routers we tested can route IP and other network protocols among networks. To test IP speed, we configured a Mac on a LocalTalk network with Apple's MacTCP TCP/IP protocol stack and set up NFS (Network File System) server software on a NetWare file server. Each IP-capable router was then configured for Mac IP transfer, and a 5-megabyte file was transferred via ftp (file-transfer protocol) from the server to the Mac, across each router. / J. W. Davis



routers performed well, as did the Transware EtherWay and the APT ComTalk HF. The Compatible Systems Ether•Route/TCP II had the most trouble keeping up with the pack, coming in last in our tests.

Route Now

If your network is overcrowded, a router may be just what the network doctor ordered. Finding the right LocalTalk-to-Ethernet router is a matter of fit: with your network, budget, and desire for management control. A router's performance needs to be balanced with management and routing features, ease of setup and use, number of ports, and price per LocalTalk port. Expandability and compatibility with other types of networks are also important.

Technical editor John Rizzo is the author of *MacUser Guide to Connectivity* and *How Macs Work*, both published by Ziff-Davis Press. J. W. Davis, a senior project leader at ZD Labs, managed the testing for this report.

Shiva FastPath 5R

Rating: ★★★½
List Price: $1,999.
Street Price: $1,850.
Pros: Good management features.
Cons: Confusing software. Difficult to configure.
LocalTalk: 1 mini DIN-8 port.
Ethernet: AAUI/AUI, BNC, RJ-45 ports.
Seeding: Hard, soft.
Hiding: Devices, networks, zones.
Warranty: 1 year.
Company: Shiva Corp., Burlington, MA; 800-458-3550 or 508-788-3061; 508-788-0301 (fax).

Tigan MultiRoute

Rating: ★★★
List Price: $2,995 (direct).
Pros: Low price per LocalTalk port.
Cons: Poor performance. Minimal features.
LocalTalk: 8 mini DIN-8 ports.
Ethernet: AUI, BNC ports.
Seeding: Hard, non.
Hiding: None.
Warranty: 1 year.
Company: Tigan Communications, Inc., Mountain View, CA; 800-833-3397 or 415-968-0216; 415-968-4759 (fax).

Transware EtherWay

Rating: ★★★★
List Price: $1,499.
Street Price: $1,325.
Pros: Good software. Good performance.
Cons: No IP tunneling.
LocalTalk: 1 mini DIN-8 port.
Ethernet: AAUI, AUI/BNC port.
Seeding: Hard, soft.
Hiding: Devices, zones.
Warranty: 1 year.
Company: International Transware, Mountain View, CA; 800-999-6387 or 415-903-2300; 415-903-9544 (fax).

Webster MultiPort/LT

Rating: ★★★★
List Price: $1,995 (direct).
Pros: Intuitive software. Low price per LocalTalk port.
Cons: Minor software bugs.
LocalTalk: 4 mini DIN-8 ports.
Ethernet: AUI, BNC, RJ-45 ports.
Seeding: Hard, non, soft.
Hiding: Devices, zones.
Warranty: 1 year.
Company: Webster Computer Corp., San Jose, CA; 800-457-0903 or 408-954-8054; 408-954-1832 (fax).

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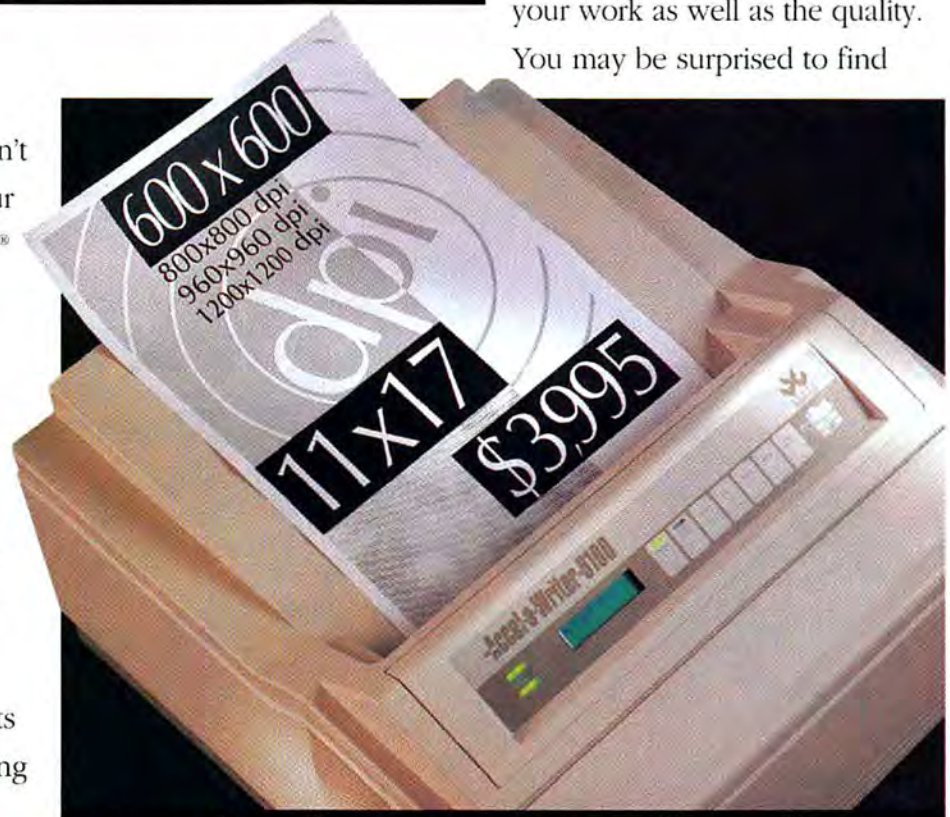

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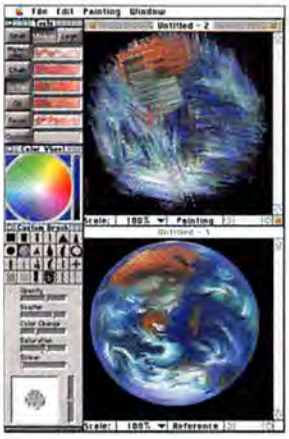
HANDS ON Desktop Publishing

COLOR PAINT PROGRAMS /

CHEAP AND EASY ART

REMEMBER WHEN DOODLING around on the Mac was easy and fun? That sentiment runs through two new $59 programs from Delta Tao Software, the merry band of programmers behind Color MacCheese and other low-cost paint programs.

With its learn-as-you-go philosophy, Apprentice is for beginners. Open a reference picture, select Automatic Colors, choose your media and your brush shape, and create an impressionistic portrait. Brushes can be varied according to color change, which slightly alters the hue with each stroke; opacity; scatter; saturation; and smear. Each session is recorded for automatic playback, and you can save images with brush-stroke information attached.



Prism is more robust, offering graduated blends, several color and pattern palettes, text editing, and a host of paint and selection tools. It includes cool brushes for making snowflakes and trees and has some wacky tools, such as the transmogrifier (which scatters colors) and the rake (which scatters pixels).

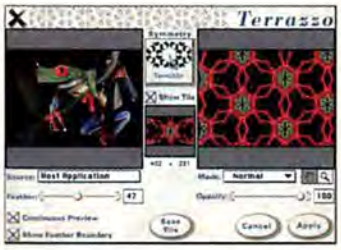
To underscore the programs' ease of use, the manual for each program states, "This manual was designed to be useless." For Apprentice that's fine, but Prism begs a tad more detail — still, it's no big whoop. 800-827-9316 or 408-730-9336. / Pamela Pfiffner

HOW COLORS WORK

THE INTERACTION OF COLOR, a 1963 book by artist and educator Josef Albers, has proven key to understanding color relationships and human perception. Now Yale University Press has transferred this seminal work onto an interactive CD-ROM. The 150 color plates and all the original text are reproduced, and the electronic version adds text annotation and tools for experimenting with color palettes and graphic shapes, although you can't view the descriptive text and the visual studies on-screen at the same time. Anyone who works with color should read Albers' findings, period. $125. 203-432-0912. / PP

MAKE TILES WITH TERRAZZO

A SLEW OF PATTERN GENERATORS has appeared recently. What sets Xaos Tools' Terrazzo plug-in apart is its use of symmetry to create elegant, tiled patterns. Terrazzo ($195) transforms a small section of any Photoshop image into mirror reflections, crazy-quilt patterns, or kaleidoscopes. And Terrazzo provides a feathering option that ensures tilability by smoothing pattern edges. After a tile has been created, it can be saved as a PICT file for use with other programs. 415-487-7000. / Jason Snell



3-D GRAPHICS /

EXPLORE NEW WORLDS

ESTABLISHING A SENSE OF PLACE is important in graphic design, but it's not always possible to find the right landscape to match your vision. Two new programs let you create your own 3-D worlds — as fantastic or naturalistic as you like.

KPT Bryce, from HSC Software, allows you to generate 3-D virtual worlds on the fly, using preset palettes for earth, air, and water or using palettes you create from scratch. Written by Eric Wenger, with an interface by graphics wiz Kai Krause, KPT Bryce renders scenes of virtual worlds — complete with simulations of canyons, clouds, and rivers or other bodies of water and with attributes for surface textures, translucency, humidity, cloud altitudes, and so on. The program's built-in engine allows you to save scenes as screen savers as well. KPT Bryce employs a proprietary 3-D-rendering technique that produces scenes of striking realism. $199. 310-392-8441.

Scenery Animator, from Natural Graphics, allows you to fly through replicas of actual areas of the United States. For instance, you are able to soar above the Grand Canyon or dive into Yosemite Valley, thanks to data from the United States Geographic Survey. Scenery Animator smoothly renders such features as clouds, snow, and vegetation — even oak and redwood trees.

You're not limited to existing worlds, either: Scenery Animator can also create synthetic landscapes from scratch, using its built-in fractal generator. Even though the synthetic-landscape renderings may not be quite as visually sumptuous as those of KPT Bryce, Scenery Animator also provides the ability to go where many have gone before. $149. 916-624-1436. / Sean J. Safreed

Should the New MiniCad 5 be your CAD Program?

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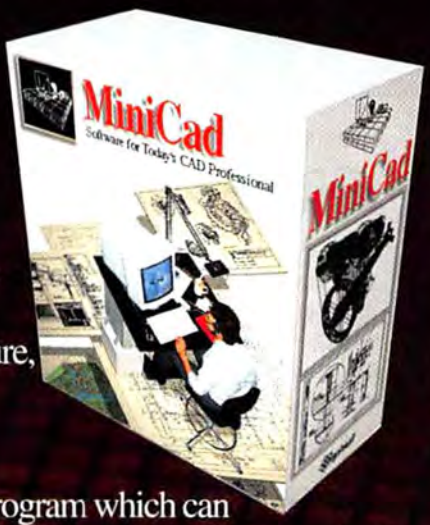

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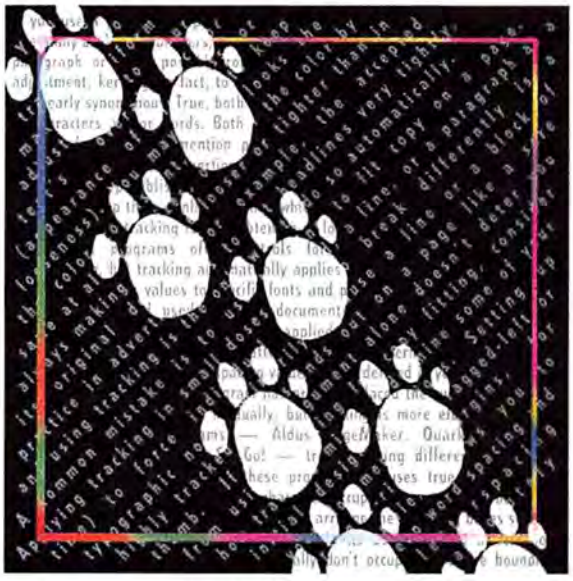
Making Tracks

Tracking is an option in any page-layout program. But are you using this typographic adjustment wisely? An expert shows you how. BY PHIL GASKILL

IF YOU USE A PAGE-LAYOUT program, you've encountered tracking. And if you're like many desktop publishers, you've used tracking to squeeze more words into a paragraph or quite possibly confused it with another type of typographic adjustment, kerning. In fact, to many desktop publishers, *tracking* and *kerning* are nearly synonymous. True, both refer to adjustments in the horizontal spacing of characters. Both are somewhat advanced concepts that most Mac products don't address at all. And both functions require special tools — either built in (as in certain desktop-publishing programs) or as stand-alone utilities. But the similarities stop there.

Unlike kerning, which fixes problems in the fit of specific character pairs, tracking is for tightening or loosening an entire range of text. Page-layout programs offer controls for adjusting word spacing and letterspacing, but tracking *automatically* applies word spacing and letterspacing by linking numeric values to specific fonts and point sizes. Tracking values can also be saved and used in other documents, whereas word-spacing and letterspacing adjustments must be reapplied manually or imported from a template. And to further confuse matters, tracking and kerning values are added to the word-spacing and letterspacing values you've defined in your document.

Anyone with a page-layout program has probably placed the cursor between *W* and *o* to kern those letters manually, but tracking is more elusive. Even the major page-layout programs — Aldus PageMaker, QuarkXPress, and Manhattan Graphics' Ready,Set, Go! — treat tracking differently (see the sidebars), and at least one of these programs confuses true tracking with another capability.



What Tracking Is

Every electronic character occupies a rectangular *bounding box*. When composing text, programs simply arrange the bounding boxes so they abut one another. Where a character sits in its bounding box affects how characters look together (characters usually don't occupy the entire bounding box, and they're often not centered in it). Because characters come in diverse shapes, some characters simply don't fit together well without intervention. Kerning adds or subtracts space in specific sets of characters, such as *T* and *o* or *f* and *i*.

Tracking, on the other hand, uniformly increases or decreases word spacing and letterspacing over a range of text. When you set a tracking value, you're telling the program to add a specific amount to or subtract it from the width of the bounding box of *all* characters (including the invisible character that's used for space) in a font. That amount is always tied to the point size in some way. In Aldus PageMaker, QuarkXPress, and Ready,Set,Go! the amount is proportional to the point size. Proportional tracking compensates for changes in point size by making larger-sized text appear to have the same spacing as smaller-sized text — without it, as the point size increased, the spacing might appear too loose in contrast with the spacing of the smaller-sized type.

Why Apply Tracking?

You use tracking to make uniform adjustments to your text's overall *color* (appearance of tightness or looseness). You may want to keep the color consistent, so it looks the same at all type sizes, or alter the color by always making the type looser or tighter than in its original design. For example, the accepted practice in advertising is to set headlines very tightly, and using tracking

GOOD

Normal Track Tight Track Very Tight Track Loose Track Very Loose Track

BAD

NormalTrack TightTrack VeryTightTrack Loose Track Very Loose Track

Aldus PageMaker allows five levels of tracking that, when applied correctly, give type consistent color over a range of text.

is the only way to do so automatically.

A common mistake is to use tracking to fit copy on a page. Applying tracking in small doses (a word, a line, or a paragraph at a time) to force individual lines to break differently is a typographic no-no primarily because a line or a block of highly tracked text stands out on a page like a sore thumb.

If that argument alone doesn't deter you from using tracking for copy fitting, consider how tracking might undermine some of your initial design decisions. Setting up your document with ragged-left or ragged-right margins, for example, allows you to keep word spacing and letterspacing absolutely constant, thereby increasing readability. If that's the effect you want, it's contradictory to further change the spacing just to fit more words on a page. And if your text is set with *justified* margins, you've already specified the minimum and maximum spacing adjustments.

The bottom line? Track all of your text equally, or track none of it.

How Tracking Works

To set up tracking in your page-layout program, you plot adjustment-value and point-size data on a graph. Typically, the graph's horizontal axis represents the font's point size and the vertical axis represents the desired adjustment, based on an em space (the width of the em space varies from program to program, however). Each font has its own tracking graph.

The program automatically tracks a font by reading your data points on the appropriate graph — and interpolating, if necessary — and applying the resulting spacing adjustment. (Interpolation works this way: If 10-point type has, for example, a data point indicating an adjustment of –2 and if 20-point type has a data point of –4, the adjustment for 15-point type will be –3.)

The basis, or starting point, for a graph is a *no-track* state, a straight horizontal line at 0 on the vertical axis, indicating no adjustment for any point size. But where do you go from there? Because type designers craft fonts with specific spacing in mind, the best way to start is by looking at the font at the size at which it was originally designed. Its overall spacing, or color, at this size is the effect to strive for throughout. The design size for most text fonts is 12 points, so that's what I use as my starting point — 12 is the 0 value on my Normal track.

A typical track appears as a sloped line, starting with a positive adjustment at the small point sizes, crossing the 0-adjustment axis at 12 points and indicating increasingly negative adjustment values as the point size gets larger. In programs that permit multiple tracks, additional tracks should be parallel and evenly spaced.

If your program allows it, you'll want to insert intermediate data points between the smallest and largest point-size values so that your line actually begins to curve rather than remain straight. I call these intermediate data points "break points," because they are the points at which the slope of the graph changes.

Page-layout programs allow you to set data points for a range of sizes. For sizes that fall beyond the first or last plotted data point, the adjustment values are equal to the value of the closest data point. For example, QuarkXPress' tracking graph extends to a maximum of 250-point type. Any type larger than that uses the tracking value assigned to the nearest data point.

Once you've set up tracks for fonts, you don't have to bother with the graphs ever again: Your tracking settings become menu choices. QuarkXPress, however, employs some confusing terminology. It assigns the

ALDUS PAGEMAKER / *Times Roman tracking values*

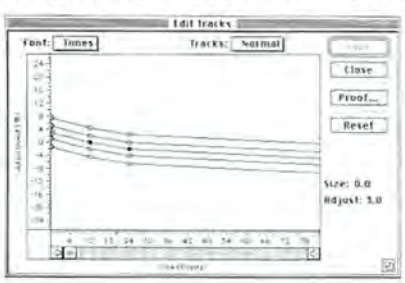
ALDUS PAGEMAKER 5.0 allows five tracks per font, with 256 data points per track for sizes from 0 to 650 points (PageMaker allows type in point sizes from 4 to 650). The tracking values are in units of 1/100 em, where an em equals the point size of the type.

PageMaker, like QuarkXPress, limits the stylistic variations for which you can have separate tracks. If you have a merged font family — in other words, if you see only one name (Times, for example) on your Font menu rather than four names (such as B Times Bold, I Times Italic, and so on) — you will also see only the one name in the list of fonts available for tracking. The track you set for that font, however, will apply to all members of the family.

I began my Normal track with a tracking value of 0 for 12-point type (pay no attention to PageMaker's track names — you can use any track for any purpose). After experimentation, I arrived at four values for key point sizes, shown in the chart (you have to scroll to see the data points for the 132- and 650-point sizes). Although this plot doesn't use many of PageMaker's potential data points, it's all I need: These break points give my track just the curvature I want. You can add more data points to smooth out your curve if you like.

In calculating the other four tracks, I kept all my tracks two or three percentage points apart. The Loose track's values are 2 percent looser than Normal and Very Loose 4.5 percent looser than Normal, with the Tight and Very Tight tracks correspondingly tighter than Normal.

One possible variation on the theme of evenly spaced tracks would be if you wanted, for example, to automate the process of setting very loosely spaced display type by setting the desired values as your Very Loose track. In such a case, make your tracks any distance apart that works for you.



	Point Size				
	0	12	24	132	650
Track					
Very Loose	+7.5	+4.5	+2.5	–2.5	–3.5
Loose	+5	+2	0	–5	–6
Normal	+3	0	–2	–7	–8
Tight	+1	–2	–4	–9	–10
Very Tight	–1.5	–4.5	–6.5	–11.5	–12.5

QUARKXPRESS / *Times Roman tracking values*

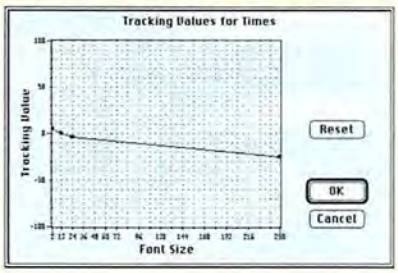
QUARKXPRESS 3.2 allows one track per font, with four data points per track for sizes from 2 to 250 points (QuarkXPress allows type in point sizes from 2 to 720). The values are 1/200 em; an em equals the width of two 0s in the point size of the type.

Like PageMaker, QuarkXPress limits the stylistic variations for which you can have separate tracks.

I began my track with the usual 0 value for 12-point type and attempted to follow my PageMaker Normal track as closely as possible. Because the conversion from PageMaker's values (1/100 em) to QuarkXPress' (1/200 em) is a 2:1 ratio, this should have been an easy track to build. The only problem was that with only four data points possible, I had to omit one of my PageMaker data points. I chose to omit the one at 132 points, because the change in the plotting curve is the smallest there.

You'll notice that these tracks use only a narrow range of the +100 to –100 tracking values available in QuarkXPress. (Using values on the outer limits of QuarkXPress' excessively wide range of tracking values would result in some strange and unusual effects, such as overprinting characters.)

The value for 250-point type is larger than the interpolation of the PageMaker 132 and 650 numbers (which is about –18). I don't know why, but I had to fudge this one to get it to work properly. This value (–25 at 250) works fine for type as large as 72 points, which is the largest size at which I conducted exhaustive testing.



	Point Size			
	2	12	24	250
Track				
Custom	+5	0	–4	–25

term *tracking* to two different functions, one of which does not compensate for changes in point size. (This feature is called *range kerning* in PageMaker; an acceptable alternative term might be *manual tracking.*) If you apply tracking to a range of text in QuarkXPress by entering a number in the Measurements palette or in the Track Amount or Character Attributes dialog box — or by using corresponding keyboard shortcuts — you're actually using range kerning. The only way to use *true* tracking in QuarkXPress is to create a track for the font and make sure automatic pair kerning is turned on (in the Typographic Preferences dialog box) for the point size you're using, because tracking is linked to QuarkXPress' pair kerning.

Tracking is obviously useful, but if inexpertly used or inappropriately applied, it can end up doing more damage than good. Remember, use tracking only to maintain a consistent color over all size ranges or, alternatively, to give all instances of a typeface a tighter or looser look than the designer intended. But *don't* use tracking to make a small amount of text fit where it wouldn't fit before.

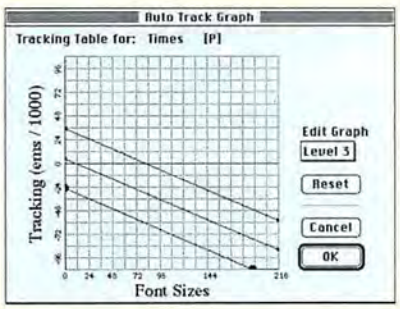
Phil Gaskill was the engineering writer for Aldus PageMaker 5.0 before moving to New York to work for Hearst magazines. He is currently the electronic-production manager for *Cosmopolitan*, where he uses QuarkXPress.

READY,SET,GO! / *Times Roman tracking values*

MANHATTAN GRAPHICS' READY,SET,GO! 6.0 allows three tracks per font, with two data points per track for sizes from 0 to 216 points (Ready,Set,Go! allows type in point sizes from 1 to 327); the values are 1/1,000 em, where an em equals the point size of the type.

Unlike PageMaker and QuarkXPress, Ready,Set,Go! enables you to set a tracking table for each stylistic variation you use (such as italic, bold, bold italic, and so on) for each of the fonts in a document (and *only* for those).

Setting my values for the middle track (Level 2) should have been easy, because Ready,Set,Go!'s values (1/1,000 em) are exactly ten times my PageMaker values (1/100 em). But the limitation of only two data points per track makes curvature impossible. I decided to get the endpoints of the graph as correct as possible, with the Level 2 line crossing the 12-point mark at 0. I also made the two outside tracks roughly as far from the main track (Level 2) as I made PageMaker's Tight and Loose tracks.



	Point Size		
	0	[12]	216
Track			
Level 1	+.035	[+.030]	–.058
Level 2	+.005	[0]	–.088
Level 3	–.025	[–.030]	*

*The minimum tracking value possible is –.108. I wanted to make the value for 216-point type –.118, so I put the actual data point for the –108 adjustment value at the 190-point mark, which gave me a line that looked parallel with the other tracks. (Note that a horizontal line extends off the right side of the graph from this point.)

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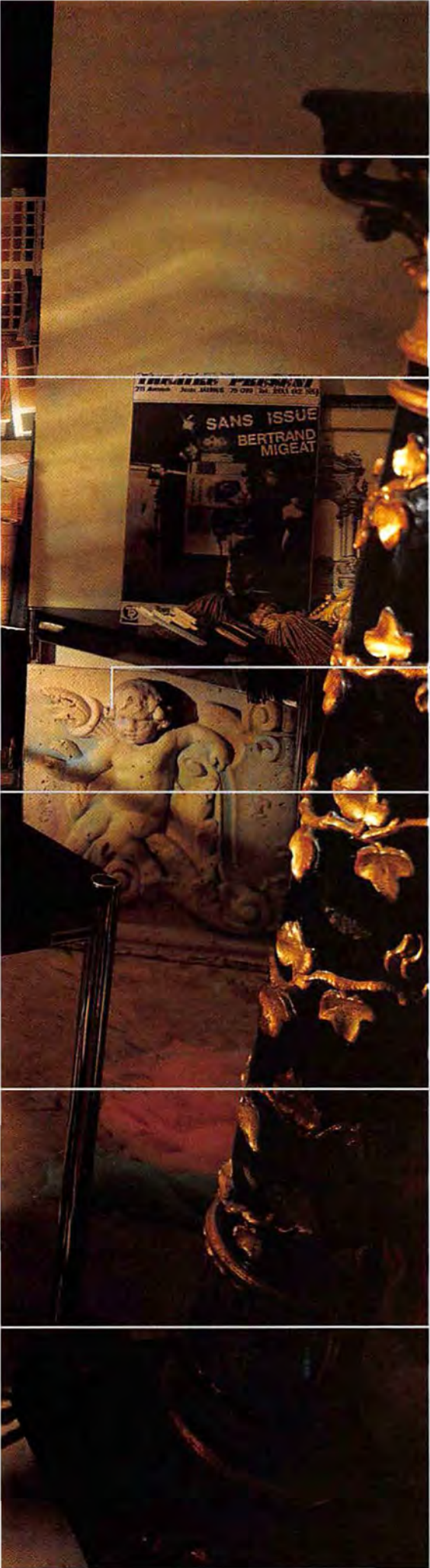

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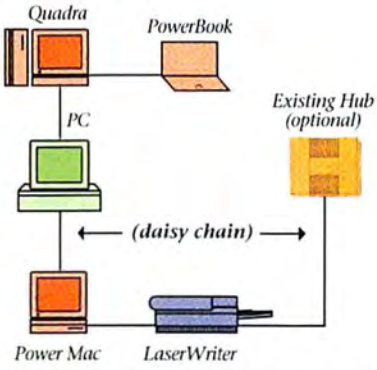

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PCWEEKLABS Product of the Week
(PC/ISA Card)

Hardware Product of the Year

Best New Network Hardware

MacWEEK

MacWeek

MacUser

(Transciever)

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HANDS ON Bridges

REMOTE LAN ACCESS /
THE NEXT GENERATION ARRIVES

THEY MAY NOT HAVE warp speed, but the latest Ethernet ARA (Apple Remote Access) servers are light-years ahead of older hardware. The new multiprotocol models use built-in modem modules to eliminate multiplying modem driver files and a rat's nest of modem cables.

The most innovative of the new generation is the DaynaLINK ($2,999), from Dayna Communications (800-531-0600 or 801-269-7200), which has eight PCMCIA slots for standard credit-card-sized modems from Dayna and third-party vendors. It also has two PCMCIA slots that can be used for firmware upgrades, peripherals, token-ring upgrades, or extra RAM. The DaynaLINK's ease of use extends to its management software, which not only tells you which modems are installed but also automatically configures them.

But wait, there's more: The DaynaLINK is also a speedy server, containing an AMD 29000 RISC processor and 256K of fast static RAM. The version that was to ship in June supports ARA 1.0; a version expected to ship in July will support ARA 2.0 as well. Support for IPX (the protocol used by PCs on Novell NetWare networks) is expected before the end of the year.

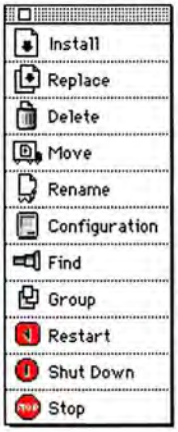
The LanRover/Plus ($6,499 for a server with four modems), from Shiva (800-458-3550 or 508-788-3061), is a rack-mounted unit that has eight slots for internal-modem cards, which you must purchase from Shiva. You have the choice of V.32 modems or high-speed (115-kbps) async serial cards. Mac and PC users can dial in simultaneously, using AppleTalk, IPX, or IP network protocols (each port can recognize the protocol being used, so you don't have to configure each port for a specific protocol).

The OneWorld Remote Access server ($1,899 with two PowerPort/Mercury modems), from Global Village (415-390-8200), is another remote-access server that has internal modems. Although a OneWorld server can contain only two Global Village modem cards, you can connect three servers. The OneWorld server is compatible with both ARA 1.0 and ARA 2.0. / John Rizzo

NET MANAGEMENT /
SAME SOFTWARE, NEW FEATURES

SYMANTEC, WHICH ACQUIRED NetDistributor Pro from Trik last year, has released the first version of the software-distribution application under the Symantec name. The company has also released Installer Pro, a product that was in the works when Symantec acquired the Trik line.

NetDistributor Pro 2.0 lets network administrators create software packages that automatically install applications, system files (such as control panels, extensions, and fonts), and documents onto users' Macs. The packages can be distributed via disk or network and use a rule-based scripting scheme to find out whether files should be updated, replaced, or left alone during installation.



Version 2.0 adds new rules that ease the creation of custom packages. The new stop-install rule lets a user abort all or part of an automatic package installation. The enhanced restart rule lets the package recipient save open files before the Mac is restarted.

NetDistributor Pro costs $235 for a 10-user license. Packages for 50 and 100 users are also available. Upgrades for registered users range from $175 to $243. Installer Pro's pricing is identical to that of NetDistributor Pro. Current NetDistributor Pro owners can buy Installer Pro for $141 for 10 users and $1,260 for 100. / Shelly Brisbin

DOS ON MAC / POWER WINDOWS

POWER WINDOWS USERS who find the Quadra 610 with DOS or the Power Mac with SoftWindows too poky should check out Orange Micro's OrangePC Series 200 coprocessors ($999 and up). These NuBus cards use a 33-megahertz 486SX, a 66-megahertz 486DX2, or a 100-megahertz 486DX4 to let your Mac run DOS and Windows programs faster than most PCs (according to *PC Magazine*, the 486DX4/100 runs almost twice as fast as the 486DX2/66). And the power doesn't stop with high-end Intel chips: The most powerful card also gives you parallel and serial ports, a PCMCIA slot, SuperVGA graphics, a 128K cache, and as much as 64 megabytes of RAM. 714-779-2772. / JR

SPEAK LIKE A NATIVE

YO, BABE! Don't do Windows? Steve Lipson's *Windows as a Second Language* (Sybex, $17.99) gives Mac users just the info they need when grappling with the other side of computing. (See page 245 if you really want to speak like a native.) 510-523-8233. / JR

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Talking to UNIX

Now that Macs and UNIX machines can learn each other's languages, exchanging files and e-mail between the two types of systems is almost a breeze. BY JIM PERSKY

Only a few years ago, sharing files and exchanging mail with UNIX users meant using a program that turned your Mac into a dumb terminal. You had to leave behind the familiar Macintosh interface and navigate UNIX command lines, learning to use such mysterious-sounding utilities as *ftp, uucp,* and *mailx.* Today, however, there are ways to share files and exchange e-mail that let Mac and UNIX users communicate freely while maintaining their familiar interfaces.

Before the computers can communicate, however, you must establish a common language, or *protocol set,* for them to use. Macs and UNIX machines use different protocols, so the first task is to teach one of them to speak the other's language. Whether you teach your Macs to speak UNIX or vice versa depends on the types and numbers of UNIX machines and Macs you have. Here are the pros, cons, and costs of each approach.

Macs handle file-server access with the AppleTalk Filing Protocol (AFP), used in AppleShare and System 7 file sharing. UNIX uses Sun Microsystems' Network File System (NFS), which is incompatible with AFP. The most popular way around this incompatibility is to use a UNIX file server and add the AppleTalk protocol stack (and thus AFP support) to it. AFP on UNIX is ideal for Mac-based workgroups — to the Mac users, the UNIX server appears as just another AppleShare server that can be accessed via the Chooser and mounted on the desktop.

Among products that let a UNIX machine function as an AppleShare server are KAShare ($595 for 2 Mac users), from XINET (510-845-0555); uShare ($295 for a single user, $1,395 for unlimited users), from Information Presentation Technologies (805-541-3000); and EtherShare ($4,300 for 20 users), which Helios USA (408-864-0690) claims is the fastest AFP server software available for a UNIX-based server.

Adding AFP support to UNIX has its drawbacks. To add the necessary AppleTalk support, the UNIX *kernel,* or core of the operating system, must be modified. Because kernel conflicts can bring down the system, UNIX administrators tend to distrust any product that tampers with the kernel. Fortunately, kernel conflicts with AFP server software are rare.

E-MAIL ALTERNATIVES / *keeping the Mac interface*

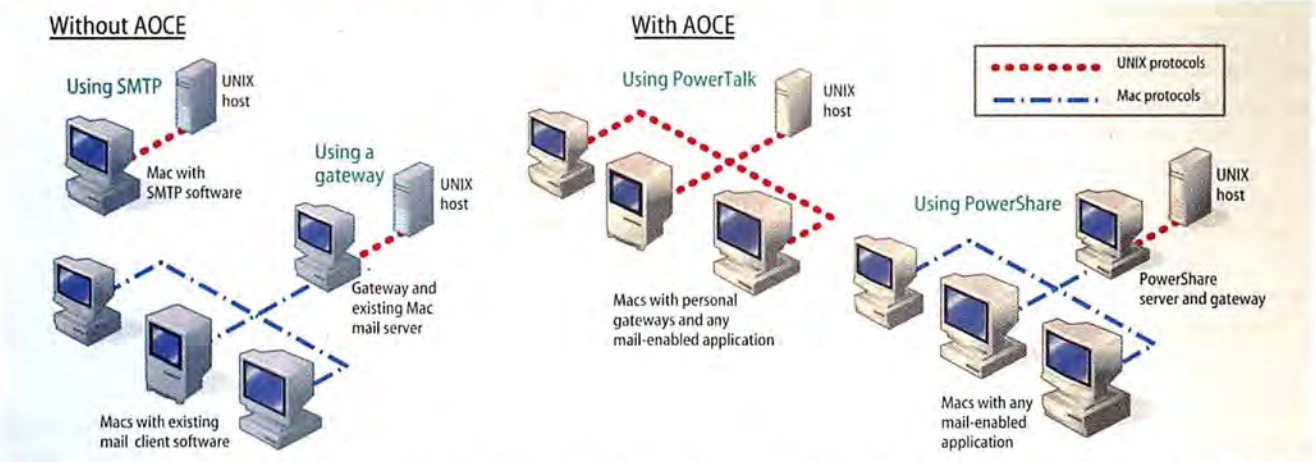

ILLUSTRATION / PEGGY SMITH

Without AOCE. For those with a small number of Macs, a program such as Qualcomm's Eudora is a low-cost method of exchanging messages with UNIX users. Eudora adds the UNIX mail protocol SMTP to your Mac. A more cost-effective method for a large number of Macs is to use a mail gateway. Gateways let an entire network of Macs use their existing mail system to exchange e-mail with UNIX users.

With AOCE. The Apple Open Collaboration Environment (AOCE), built in to System 7 Pro, lets you use any mail-enabled application you like to send mail to UNIX machines. A personal PowerTalk gateway lets a single user send mail from a mail-enabled application such as AppleMail or WordPerfect 3.0. PowerShare with a gateway gives the entire network a mail connection to UNIX users.

Another concern is that different versions of UNIX or even different releases of the *same* version aren't always compatible. This means that if you upgrade your UNIX software or buy a new machine, you may also have to upgrade your AFP-compliant server software — or buy new AFP server software altogether.

File Sharing à la UNIX

Despite its advantages for Mac users, AFP on UNIX isn't always the right choice. If you access a variety of UNIX machines, for example, or have a few Macs in a predominantly UNIX installation, consider buying a Mac application that can access NFS servers, such as NFS/Share, from InterCon Systems (800-468-7266 or 703-709-5500), or Client NFS, from The Wollongong Group (415-962-7100). Each program costs $295 for a single-user license.

Because NFS uses TCP/IP (Transmission Control Protocol/Internet Protocol) instead of the AppleTalk protocol stack, you also have to add MacTCP to every Macintosh that needs to access UNIX servers. Although installing MacTCP is a fairly easy process, configuring it is best left to a UNIX administrator who is familiar with domain names and IP addressing.

One benefit of using NFS on the Mac is that you don't have to add software or kernel modules to the UNIX system. Just be sure the UNIX system is running an *authentication daemon* (a UNIX maintenance utility that runs in the background) such as Sun's Network Information Service (NIS), Beame and Whiteside's NFS Daemon (BWNFSD), or the public-domain Personal Computer NFS Daemon (PCNFSD). These daemons are included with UNIX or with a vendor's NFS product.

Another advantage of NFS on the Mac is that it gives you broad compatibility with a wide range of UNIX machines. NFS is the standard on virtually every UNIX system, so there's no need to worry about obsolete server software.

Special Deliveries

The problems that exist when you're establishing file sharing between Macs and UNIX machines are similar to those that exist when you're trying to establish e-mail connections between the two platforms. Mac-based e-mail programs, such as Microsoft Mail and CE Software's QuickMail, often use proprietary transport mechanisms to deliver messages. UNIX-based e-mail systems, however, all use a standard transport mechanism, the Simple Mail Transfer Protocol (SMTP).

There are two ways Mac users can exchange mail with UNIX users while maintaining the Mac interface. The first method is to use an SMTP *gateway*, or software that translates between Mac and UNIX e-mail systems. The second method is to use an application that gives the Mac direct access to UNIX mail services.

If you are currently using a Mac mail system, an e-mail gateway may be your best bet. Many Mac mail providers sell UNIX gateways, and there are also third-party gateways, such as InterCon's Dispatcher/SMTP ($995 per administrator) and Mail*Link/SMTP ($595 for ten users), from StarNine Technologies (510-649-4949).

A gateway can run on a Mac concurrently with e-mail server or administrator software. And you don't have to do anything to the UNIX machines, other than configure a few files to tell UNIX the address of the Mac mail accounts.

A gateway gives users a single interface to multiple mail systems, but it can be expensive — sometimes exceeding the cost of the original e-mail product. In addition, gateways don't necessarily transfer all information in both directions. Some may not forward or translate enclosures or handle graphics and sound.

Directory Services

If you are using a gateway to access UNIX mail services, consider adding directory-service software (which provides a list of the mail users on all systems) so that Macintosh users can find addresses on the various e-mail systems they'll be accessing. Otherwise, they may have to know the exact account name and path to send a message over a UNIX network. You get double-clickable access to UNIX users from within QuickMail and Microsoft Mail with StarNine's Mail*Link Directory Services ($2,995), which accesses systems running X.500-standard and other directories. This gateway requires you to make some minor adjustments to the UNIX host.

For those already using System 7 Pro's PowerTalk client software and PowerShare server software, each of which has built-in directory services, the good news is that StarNine's Mail*Link series includes SMTP messaging in versions for PowerTalk and PowerShare. PowerTalk and PowerShare modules are also available for Mail*Link Directory Services. Using these tools, you can receive UNIX e-mail messages in your Macintosh's PowerTalk desktop mailbox and select UNIX mail users from the desktop catalog.

Direct E-Mail

If you are not a PowerTalk user and don't have an e-mail program, you can use an application that adds SMTP directly to the Mac (see the "E-Mail Alternatives" sidebar). Eudora ($65 for a single user), from Qualcomm (619-587-1121), and InterCon's TCP/Connect II ($495 for a single user) extend the UNIX mail-delivery system to Mac clients. Neither product requires a gateway, using instead a mixed client/server approach. Unlike terminal emulation, in which the host provides a character-based front end to UNIX mail services, here Macs provide the user interface and use SMTP to access the host directly. The host acts as the mail server and performs much of the mail processing.

Each Mac must have a copy of the SMTP client software, which you must configure with information about the UNIX host. The UNIX host requires Post Office Protocol (POP), a standard UNIX protocol for the storage and retrieval of e-mail, in order to send mail to the Mac. With POP, mail addressed to you stays on the UNIX machine until your Mac connects to the host, either over a network or through a serial modem connection — for example, PowerBook users can compose mail while on the road and then connect to a UNIX machine to send and download new messages.

The key to choosing the appropriate mail and file-sharing strategy for your Macs and UNIX machines depends on many factors, including the numbers of each type of machine, the levels of skill in your organization, and your expected future needs. Fortunately, the variety of available solutions can bring Mac and UNIX users together in most situations.

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And E-Mail for All

A cross-platform e-mail system can integrate Macs and PCs better than almost any other product, but it's not always easy to implement. Here are a few options to consider. BY JOHN RIZZO

EVERYBODY NEEDS electronic mail: Not being hooked up to your company's e-mail system is like attending a meeting but being stuck outside the conference room, and not even *having* an e-mail system is like not having a conference room at all. But when it comes to selecting an e-mail system that supports every computer user in your organization, it may be easier just to build a conference room.

Why? You can get e-mail systems for PCs, Macs, UNIX workstations, or mainframes, but they are often mutually incompatible. It's not unusual for a large organization to use several e-mail systems but not be able to send a message from one to another. There are a couple of ways to get everyone communicating, however: Either install a cross-platform mail system whose client software offers good features for Macs *and* PCs, or keep your various mail systems and connect them via gateways or a mail backbone.

Which method is best for your company? It depends. Cross-platform e-mail systems are easier to administer but may be costly to set up; gateways will keep users happy (they won't notice anything different, except that they can send and receive mail from all of their colleagues) but can be a nightmare to administer.

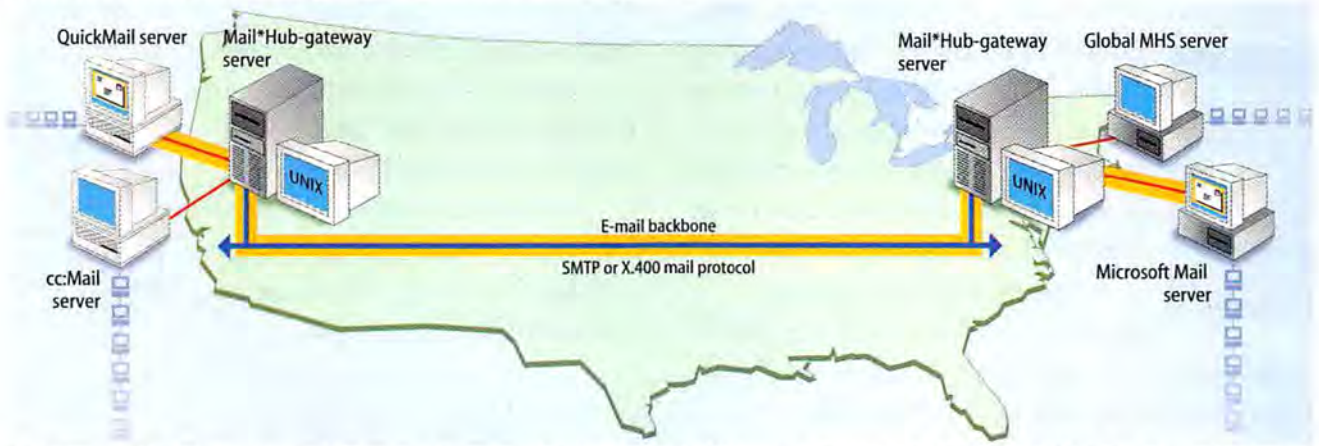
The X-Platform Mail Menu

If you go for a stand-alone e-mail system whose server software runs on a personal computer, you have five packages to choose from: cc:Mail, from Lotus (617-577-8500); QuickMail, from CE Software (515-221-1801); First Class, from SoftArc (416-299-4723); WordPerfect Office, from WordPerfect (801-225-5000); and Microsoft Mail, from Microsoft (206-882-8080).

Cross-Platform Leaders. A good first choice for a Mac/PC mail system is cc:Mail (server software, $495 each for Macs and Windows-based machines; ten-user client pack, $396). Although it doesn't have as many features as the Mac's most popular e-mail package, QuickMail (server software plus ten-user client pack, $649), cc:Mail offers both platforms an easy-to-use interface that includes drag-and-drop enclosure and automatic file translation.

Another good choice is First Class (server software, $95; ten-user client pack, $595), which provides Mac and Windows users

E-MAIL BACKBONES / *mix-and-match systems*



DON'T WANT TO INSTALL a cross-platform e-mail program? An e-mail backbone can deliver messages among multiple e-mail systems located in different places. One such product is Control Data's Mail*Hub, UNIX-based gateway server software that translates e-mail messages to the backbone e-mail protocols (SMTP or X.400). On the receiving end, Mail*Hub directs the message to the appropriate local server. Mail*Hub uses the X.500 protocol to share directory information among local servers and provide users with an enterprisewide list of e-mail users.

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with some of the features pioneered by QuickMail (including the indispensable Unsend command) and features QuickMail doesn't have, such as links to SQL databases. First Class is one of the few e-mail packages that can handle multiple modems — as many as 22 per server. SoftArc claims you can install as many as 10,000 users per First Class server and have 100 people logged on to a single server at once. We haven't tested these claims, but if they're true, it makes First Class unique among e-mail systems.

Up-and-Coming. WordPerfect Office (server software plus five-user client pack, $495) provides to-do-list capabilities, calendaring, and full-blown group scheduling. Earlier this year, we said that the Mac client software was immature (see review, January '94, page 46), but many bugs have been fixed and version 4.1 (due out before the end of summer) addresses some of the product's previous interface problems.

One of the highlights of WordPerfect Office for Mac 4.1 will be a remote client that links to your desktop Mac via either a telephone line or a network (the First Class client software has this feature too). PowerBook users will be able to automatically download messages based on type, size, date, user, and other parameters and will be able to automatically upload mail, appointments, and to-do lists.

Down-and-Out . . . for Now. Microsoft Mail for Macintosh (PC server software plus ten-user PC client pack, $695; Mac server software, $395; five-user Mac client pack, $395) has fallen behind the Windows version in terms of features, since Microsoft has halted development of its Mac server software for Microsoft Mail. Microsoft is still selling Microsoft Mail for Macintosh 3.1d but plans to release completely new Mac and Windows client software by the end of the year. These new versions will be able to access not only Microsoft Mail for PC networks but also a new Windows NT server, code-named EMS. The new EMS product will support Apple's PowerTalk client software and PowerShare server software. (Until now, QuickMail has been the only mail product to directly support PowerTalk and PowerShare.)

Going for Gateways

A single e-mail system is relatively easy to maintain, but it may not be practical in companies that already have large mail systems

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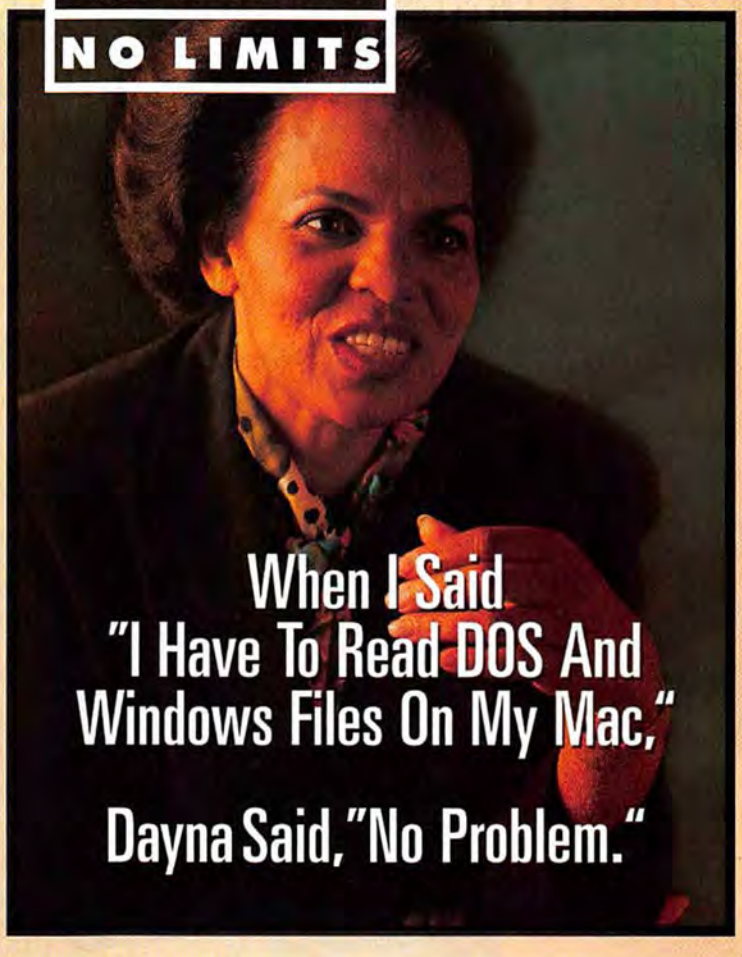

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spread over several sites. One solution is to install a server with gateway software that can translate e-mail messages to and from various systems. All the major e-mail vendors offer some gateway software, and you can buy gateways from third-party vendors such as StarNine (510-649-4949).

Another option is to use a *mail backbone* to connect various mail systems (see the "E-Mail Backbones" sidebar). A mail backbone uses a single standard mail protocol to carry all messages. The backbone standard might be X.400; the UNIX Simple Mail Transfer Protocol (SMTP); or Novell's Message Handling System (MHS), which is used by cc:Mail, WordPerfect Office, and other PC mail systems.

Novell and Banyan each have a mail-backbone strategy based on their respective network operating systems. Novell Global MHS lets users of SMTP, MHS-based, and other mail systems communicate over Global MHS. Banyan's Enterprise Network Services (ENS) is not exactly an industry standard, but it does let Macs, PCs, and UNIX workstations share e-mail and the company's StreetTalk software lets users share directory (user-list) information.

Another approach is to use Mail*Hub, from Control Data (612-482-6736). This UNIX-based mail-backbone software, running X.400 or SMTP, connects most major mail and directory systems on Macs, PCs, UNIX workstations, and various mainframes. Control Data offers Mail*Hub gateways for QuickMail, cc:Mail, Microsoft Mail for Macintosh, Global MHS, and PROFS (which runs on IBM mainframes).

All the mail systems connected to a Mail*Hub server can use a shared X.500 directory, which can be synchronized with the directories of the linked e-mail systems. Users can access the enterprisewide directory from any e-mail system in the organization or in Control Data's aXess500, a database that keeps lists of users, along with their e-mail address and additional information such as phone and fax numbers and street addresses.

Because you can set up a similar but Mac-only directory system with PowerShare, it would be nice to be able to use Mail*Hub's X.500 directory service with PowerShare and PowerTalk. Unfortunately, there's no direct X.500 gateway for PowerShare yet. You can set up StarNine's Mail*Link/SMTP gateway in order to connect PowerTalk to Control Data's mail backbone, but you also need StarNine's Mail*Link Directory Services running on a Mac server in order to give the Control Data Mail*Hub system access to PowerTalk and PowerShare directories. Considering that X.500 directories are not plug-and-play, it's easier to use Control Data's aXess500 software.

Whether you go for a single mail system or a gateway approach, the benefits will be countless. Nothing's better than e-mail for bringing users of Macs, PCs, and UNIX workstations together as a team.

MacUser technical editor John Rizzo is the author of *MacUser Guide to Connectivity* and *How Macs Work* (Ziff-Davis Press).

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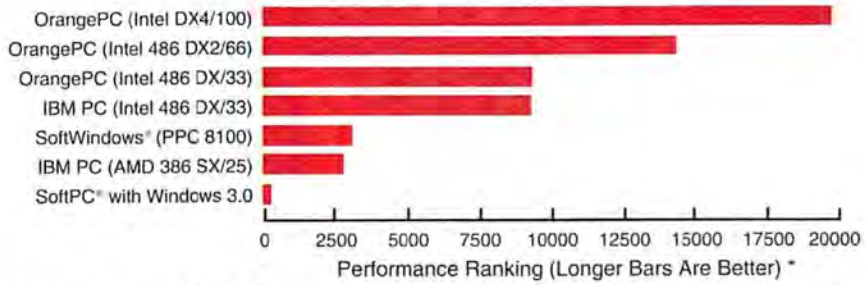

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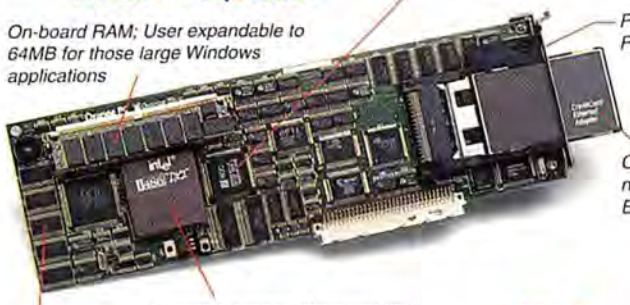

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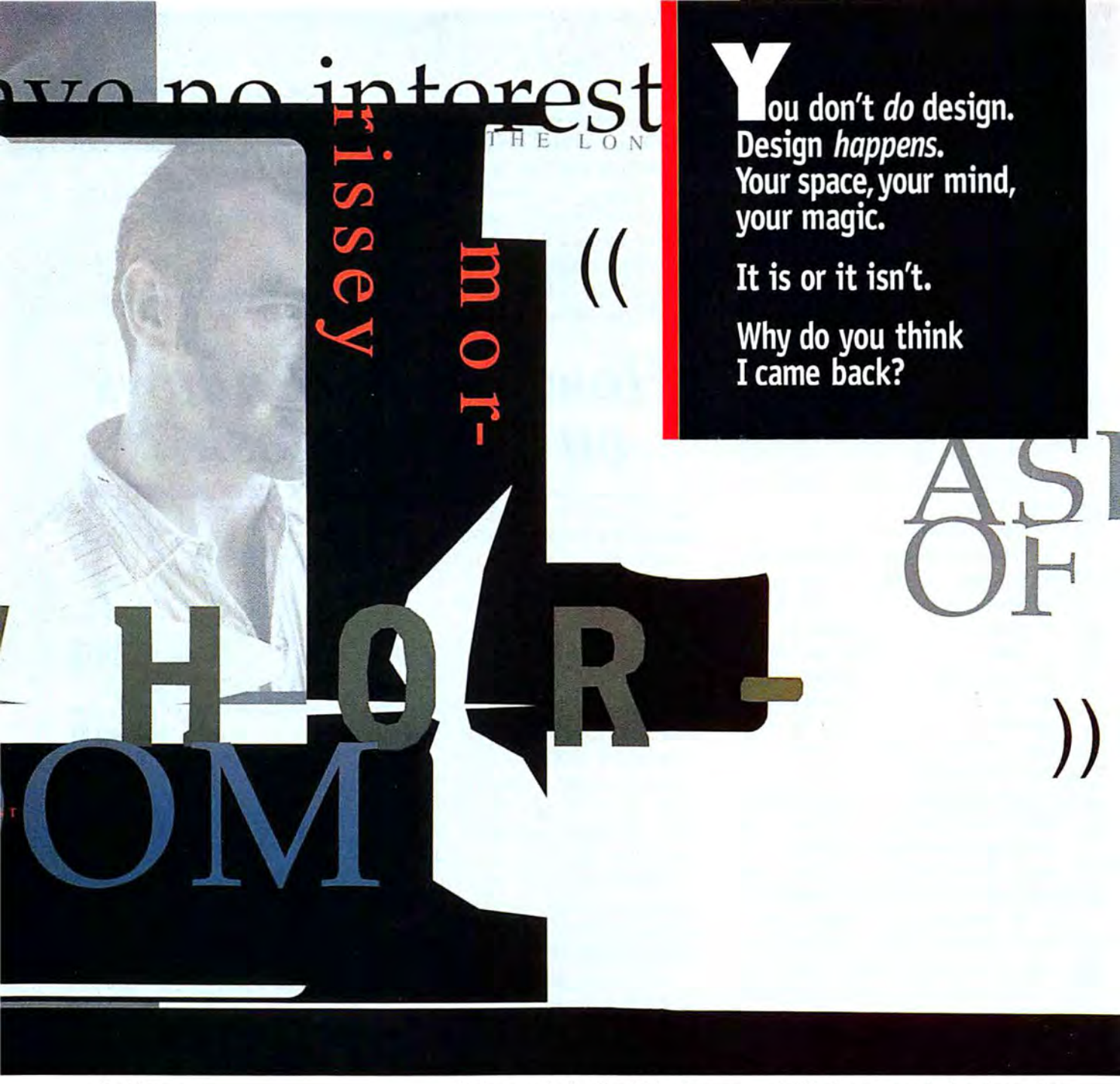

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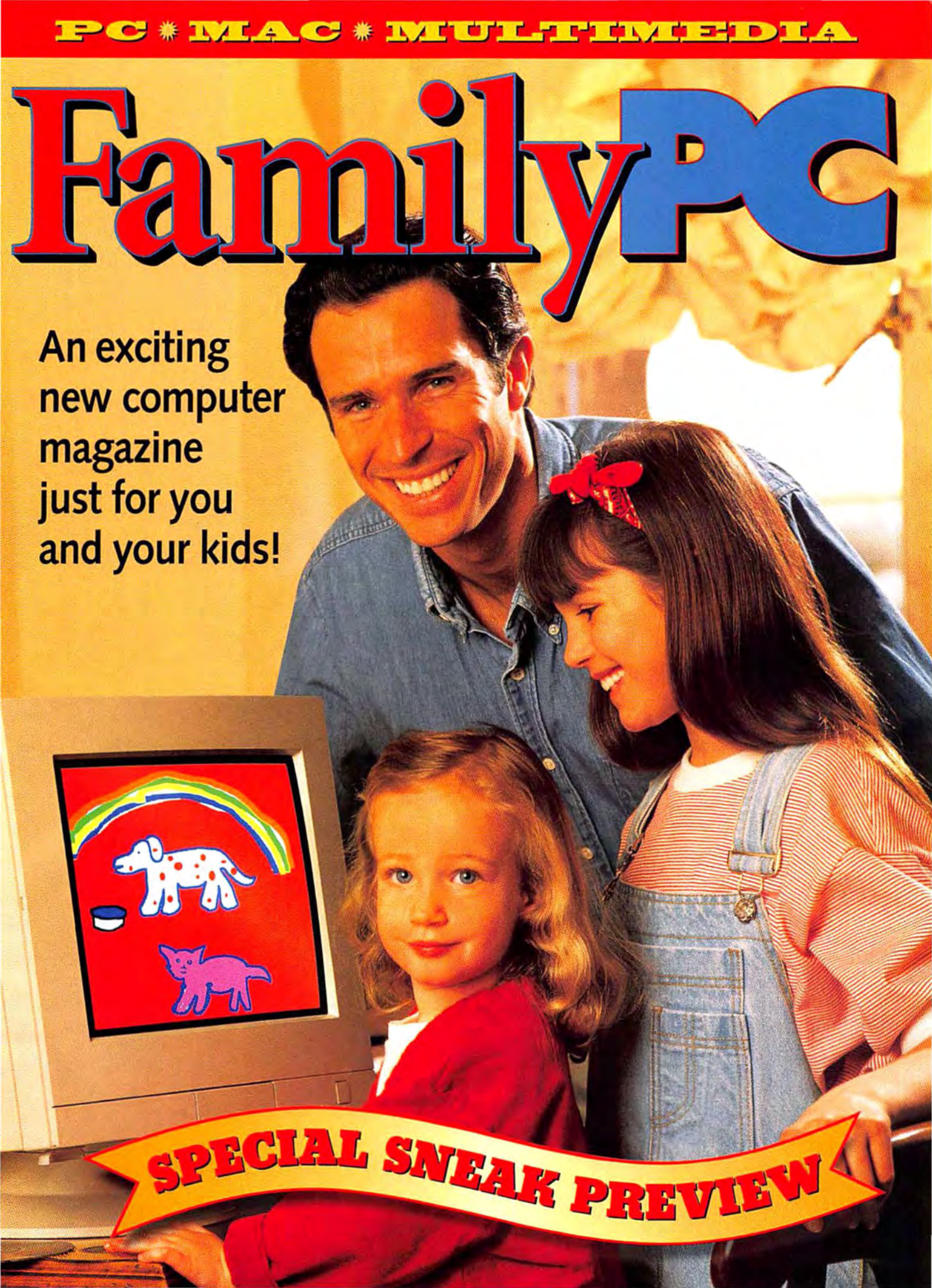

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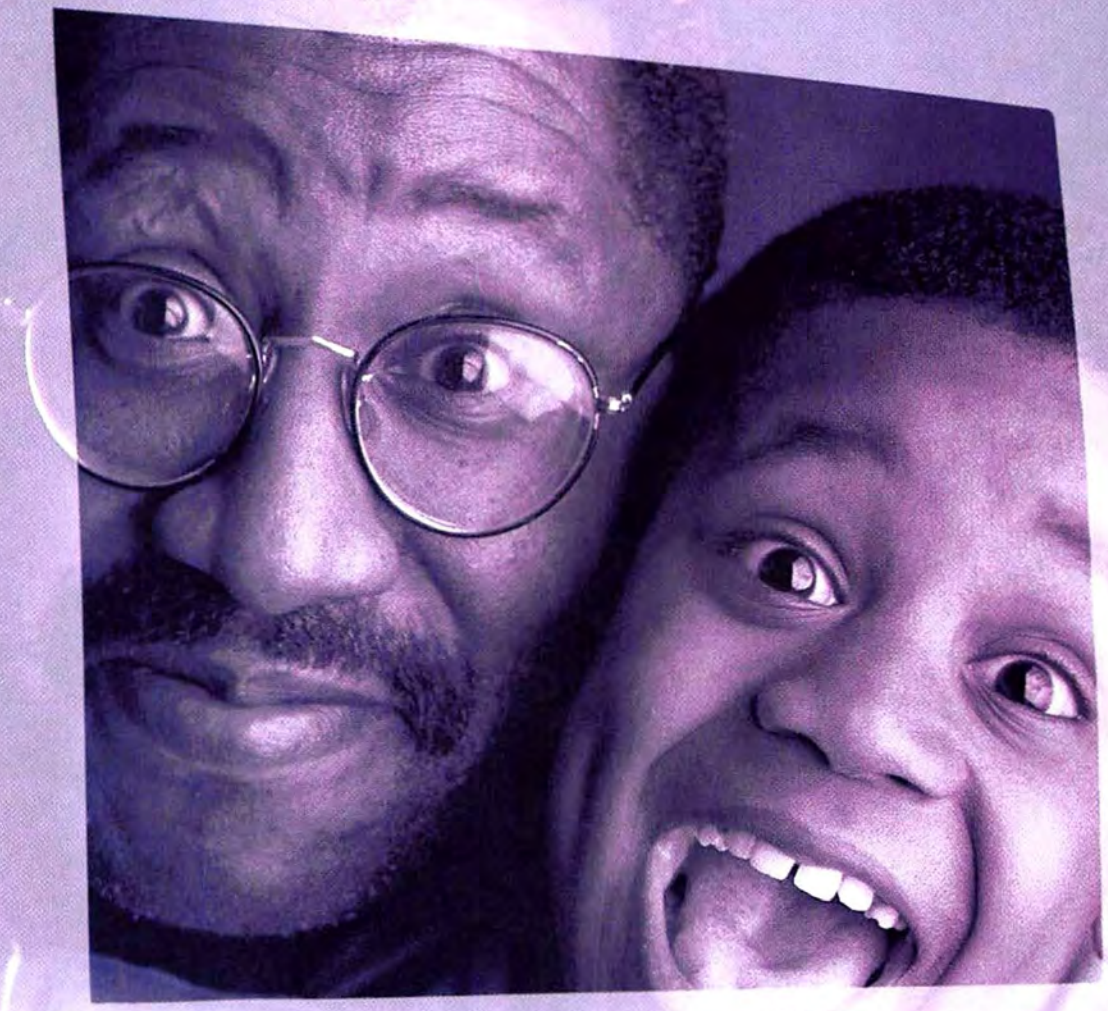

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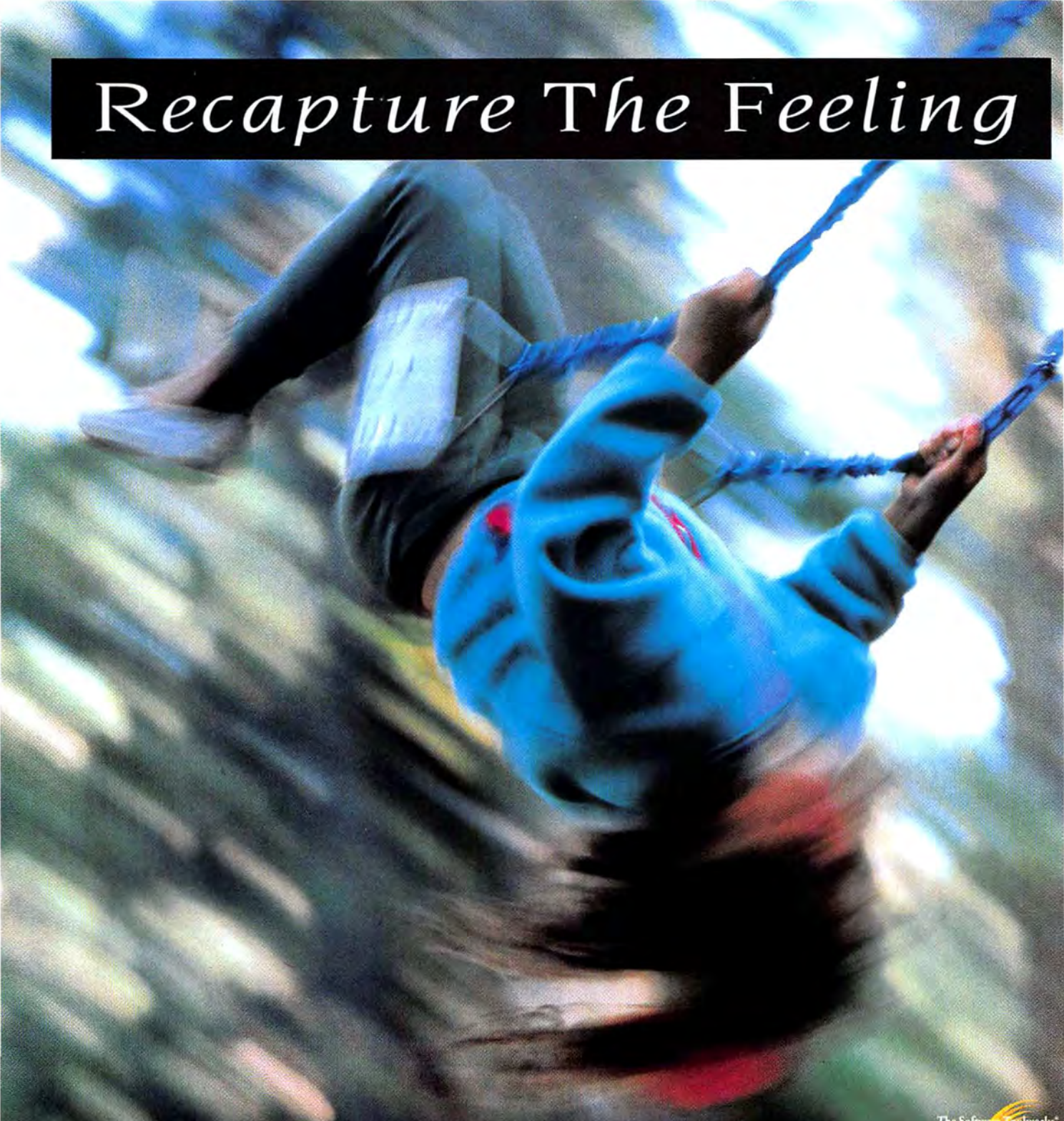

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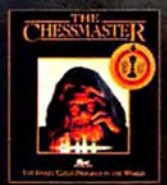

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From the Editor

FamilyPC Sneak Preview

IT'S LATE, and I'm going through the time crunch experienced by every working parent. My daughter, Jenna, has just gone to sleep. Luckily, I've got a computer at home to write this column because it's due in the morning.

A few hours ago, Jenna and I wrote a bedtime story on this same computer. She sat in my lap and dictated a wonderful, nonsensical story about her teddy bear — the kind that only a three-year-old could conceive. With a couple clicks of the mouse, she illustrated "Dodo's Story" with houses, flowerpots, little girls, and assorted bears, and she printed it out. My wife, Cindy, laughed with her as they reread Jenna's new bedtime story together.

Whether you're managing your family's finances after the kids go to bed, helping your grade-schooler spell-check a research paper, or playing a great family game, today's desktop computer is the most versatile, powerful, and entertaining machine ever to make its way into our homes.

Realistically, though, it's also one of the most complicated and frustrating devices. I need help, and I figure there are many other parents like me out there. That's why we've created an entirely new kind of computer magazine — one written by parents.

You're holding a sneak preview of *FamilyPC* in your hands. Our mission is simple. *FamilyPC* was created to help you select the right computer and software and to ensure that you and your kids get the most from them. To publish this magazine, we've created a unique joint venture between the Walt Disney Company, the publisher of *FamilyFun*, the leading family magazine, and Ziff-Davis, the world's leading publisher of computer magazines.

You won't have to struggle with confusing jargon and technical terms with *FamilyPC*. We've worked hard to make the magazine easy to read, practical, and, most of all, lots of fun. But take a look at the articles that follow and see for yourself.

If you like what you read, please fill out and send in one of the enclosed *FamilyPC* subscription cards. We will mail your family a free trial copy of *FamilyPC*'s premier issue in August. It will be filled with many more wonderful features. I'm confident you and your kids will find dozens of great ideas and a wealth of useful information throughout.

—JAKE WINEBAUM
Editor & Publisher

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A Pirate's Birthday Bash: Eye patches, pirate loot, hungry sharks, and a treasure hunt — all created on your computer — make this a party to remember.

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Good-bye TV, Hello Multimedia PC: In the market for a new computer? Be sure and check out our FamilyTested reviews of three hot multimedia machines.

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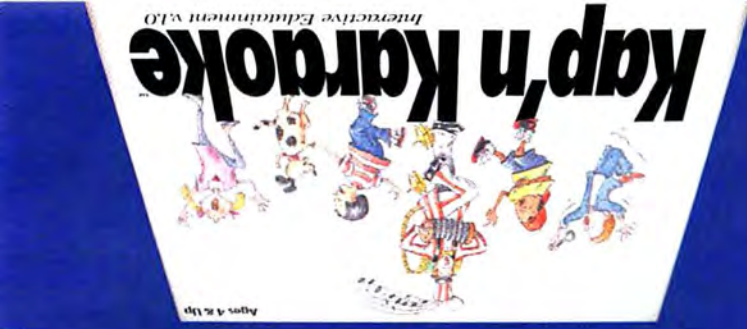
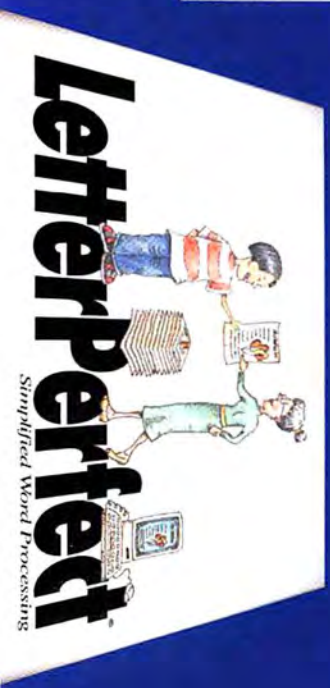
Read All About It: Our expert panel of kids, parents, and teachers take a look at children's reading programs and give top FamilyTested marks to two favorites.

COVER / EDITOR'S NOTE PHOTOGRAPHS BY AUGUSTUS BUTERA





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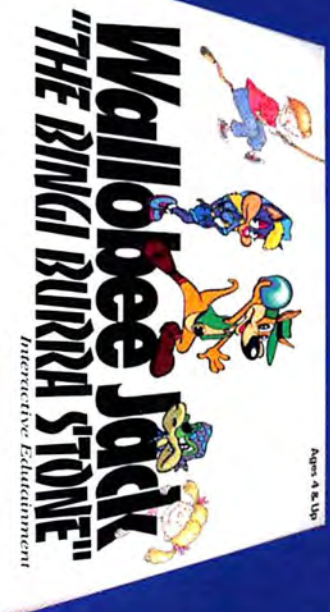

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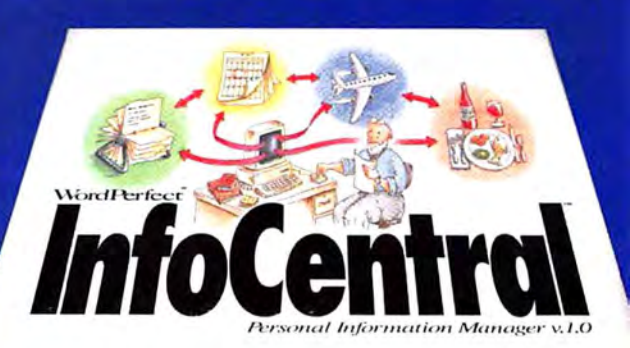

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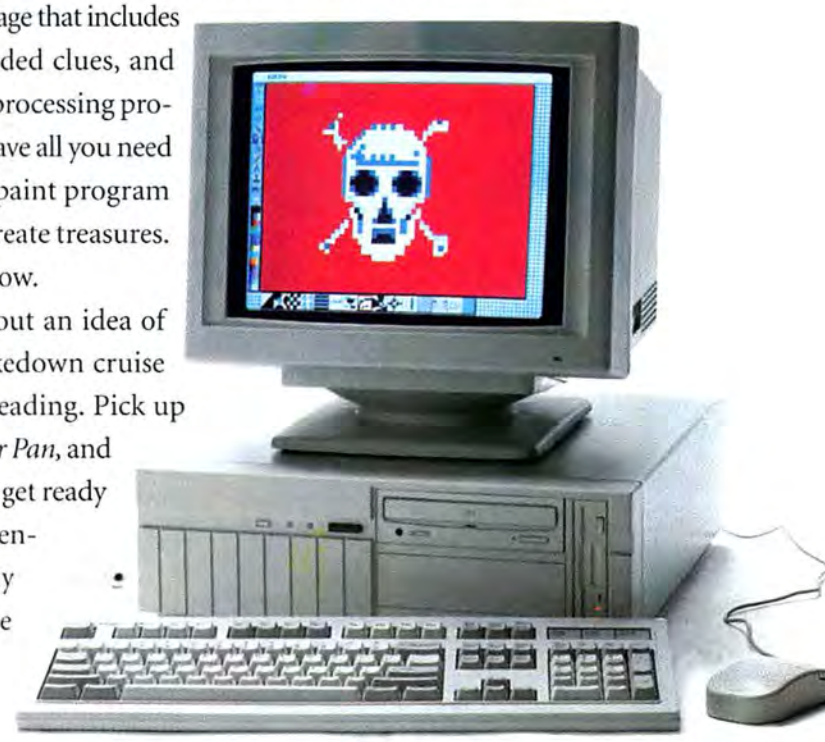
A Pirate's BIRTHDAY BASH

Ship ahoy! Here's a party plan for computer-age buccaneers.

By Steve and Ruth Bennett

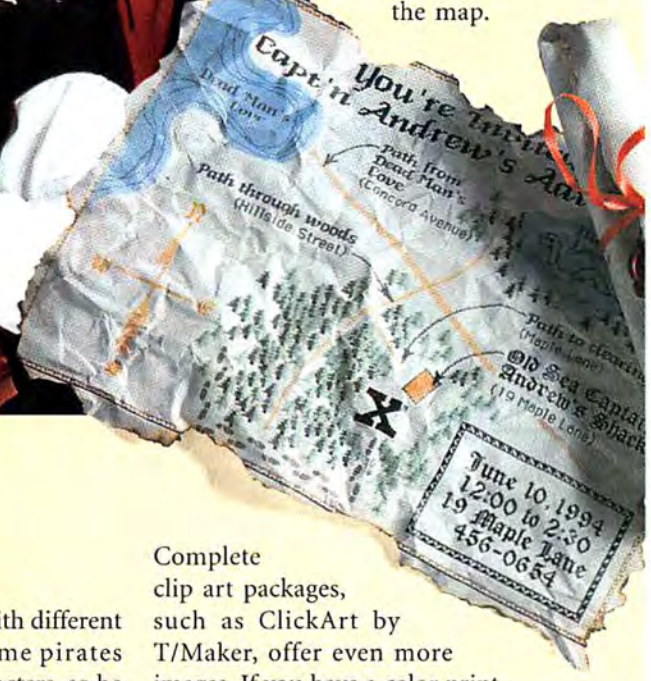
IF THE ASPIRING swashbuckler in your household is about to celebrate a birthday, your ship has arrived. You, your kids, and your computer can embark on a voyage that includes pirate maps, loot, coded clues, and buried treasure. If you have a word-processing program and a dot-matrix printer, you have all you need for a rollicking party. If you have a paint program or a color printer, you can literally create treasures. This party planner will show you how.



But no captain ever set sail without an idea of where he was going. So take a shakedown cruise to the library for fun preliminary reading. Pick up a copy of *Swiss Family Robinson, Peter Pan,* and *Treasure Island* for inspiration. Then get ready to cast off the lines. When this adventure is through, your birthday party will be a classic tale, not soon to be forgotten.

imprints of little feet to show where to go. You can also add a serpent, a ship, or a mermaid for decoration. Once the map is complete, take your special paper to a color copy service and make enough for the whole crew.

If you have a drawing program, you can use your drawing tool to create the features of the map as well as the text (see FamilyPC Tip on page 10). Some drawing programs, such as Kid Pix and Kid Pix Companion by Brøderbund, include "stamps" that can be placed anywhere on the map.



CREATING YOUR OWN INVITATION

SINCE YOUR INVITATION sets the tone for the entire event, base it on a pirate's most valued possession: a treasure map. Using your word-processing or drawing program, type in the important information — the birthday child's name, the party date and time, and your address and telephone number. Set up the page (see "page setup" for Macintosh or "print setup" for Windows) so that the image will print out in a wide (landscape) format, like treasure maps of old. Position the party information in the bottom, right-hand corner similar to a legend on a map, and where no map details will need to appear. Experiment with different typefaces — remember, some pirates wrote with long, flowing characters, so be flamboyant.

The Map: If you are using only a word-processing program, print out a master copy and then draw in the map with crayons, colored pencils, or markers. Use silver and gold pens and glitter for special highlights. This map, which leads to your home, should be inspiring: designate your house with a colorful "X"; name a nearby park "Never-Never Land" or a familiar hill "Blind Man's Bluff." Exaggerate backyard features such as a tree house, and draw the

What you'll need

Software:
Word-processing or drawing program

Other Materials:
Crayons, colored pencils, or markers, off-white paper, red ribbon, sealing wax

Complete clip art packages, such as ClickArt by T/Maker, offer even more images. If you have a color printer, add colors to the background and the map details.

Finishing Touches: Give the invitations an authentic appearance by carefully singeing the edges (this should be done by the parent only). Just hold the edge of the invitation briefly over a burning candle. For an aged look, lightly brush the paper with tea or coffee. After they've dried, roll the invitations up and neatly tie red ribbons around them for hand delivery. If you are going to mail them, fold the invitations in thirds. The final touch is applying a wax seal to either the roll or the letter, just like Captain Kidd might have, hundreds of years ago.

Photographs by Michael Carroll

MINTING LOTTERY-SIZED LOOT

While eye patches, hooks, and swords are sure to delight any pirate, what really shivers their timbers is riches: cold hard currency, and fistfuls of it. Minting pirate loot on your computer is a real pleasure because it is so easy to make so many different kinds of money. Before the party, create big money checks for the crew, drawn on such venerable institutions as the "Salty Dog Trust Company." The checks should be redeemable for amounts such as a million doubloons. Make dollar bills of large denominations as well.

Using a word-processing or drawing program, design the checks and dollar bills so that two or three can be printed on a single piece of letter-sized paper. It is especially quick when you make a master design, and copy and paste it into the two empty spaces on the same page. Then save the finished forms as templates — that way you can customize the bills and checks without having to redraw them each time you want to make a change.

If you are doing the project on your word-processing program, make master copies of your money, then add artistic images with a marker before taking them to a copy shop. If you are using a drawing program, add zany images of parrots, desert islands, or sailing ships with either clip art or hand-drawn pictures to your templates. To make extra special money, draw an oval-shaped space on the master copies, and paste on a fun picture of the birthday child. Beneath the mug shot, emblazon your child's pirate name. Make multiple photocopies.

Using brightly colored or fluorescent paper, print or copy enough loot so that each member of the crew gets a healthy wad.

What you'll need

Software:
Paint, drawing, or word-processing program

Optional Software:
Clip art

Other Materials:
Crayons, colored pencils, markers

DESIGNING PROPER PIRATE ATTIRE

There is no better way of getting your young partygoers into a swashbuckling mood than by having them dress up in proper pirate attire. As guests arrive, invite them to shed their shoes and socks and select paraphernalia you have stashed in a trunk by the door. Here are some ideas.

Any pirate worth his or her salt will want to wear an eye patch. A drawing program such as Kid Pix is perfect for this project. Start off with a large triangle with circular corners, then add clip art — Kid Pix Companion features a great skull and crossbones stamp. Copy and paste the patch several times on the page. Personalize each patch by adding each guest's name with a pirate nickname, such as "Terrible Tom."

What you'll need

Software:
Drawing program

Optional Software:
Clip art

Other Materials:
Glue or double-stick tape, card stock, elastic thread, bandannas

Print the eye patches and affix or copy them on card stock. Make a small hole at the top on either side of the patch, then reinforce the holes with transparent tape. Finally, feed an elastic thread through the holes and tie a knot, taping the thread in place.

You can recreate Captain Hook's iron appendage by using an empty yogurt container with an aluminum foil hook fed through a hole in the bottom. (Use the part of the hook that passes through the hole as a handle.) Don't forget thick belts slung over shoulders (for holding swords), vests, and knickers (long shorts). Bandannas tied at the back of the head top off the outfit.

On the big day, help them don their pirate head gear and other costume apparel and organize an impromptu pirate parade through the house.

CREATING A TREASURE OF A TREASURE HUNT

Next to blowing out the candles and opening presents, the treasure hunt is the main event of the party. Kids of all ages love the hunt, and your computer can add a new twist to this all-star activity. You'll want to do the preparation part alone, though, so your child can participate in the fun.

For this hunt, you make up clues written in code that will lead to the treasure. To create a code, type out all the letters of the alphabet in a row, leaving a space between each character. Next, directly underneath the first row, type out a row of letters, numbers, or symbols, so that each letter in the top line is "assigned" a new character. (You can also set up the characters in two columns.) For variation, try substituting symbols from fonts such as Zapf Dingbats or special typographical characters supplied with your word-processing program. Print up enough "translation" sheets for everyone.

Now devise five or six clues that the pirate crew can follow as a group, and translate them according to the code so that they are unreadable. Try using riddles such as: "Look under the sleeping giant that serves us regularly, has four legs, but can't walk" (Answer: A table). Once the party starts, pass out the first clues and translation sheets, and explain how the treasure hunt works. Let the kids know that this is a group activity in which they all have to solve the clues to get to the treasure. When the group finally makes its way to the last clue, it should be displayed in code on the computer screen. You might want to have the clue waiting "behind" a screen saver, buried in the "trash," or among files on the desktop.

What you'll need
Software:
Word-processing program

This riddle will lead to the treasure: an overflowing treasure chest (or a beautifully decorated cardboard box). If possible, "bury" it by stashing it among some plants. Stuff the chest with gold foil-covered chocolate coins, fun party favors and little toys, and perhaps a few more million-dollar bills for good measure. When the treasure is finally found, make sure everyone gets a fair share, just the way real pirates used to divide the spoils.

To spice up the hunt, you might want to set a timer and see if the treasure hunters can make their way to the treasure within twenty minutes. Suggest a pirate's bonus (a candy necklace) as special incentive for finishing the hunt within the time period. Scatter pirate paraphernalia, such as chocolate coins, near hidden clues to make treasure hunting easy and fun.

ON-SCREEN ACTIVITIES FOR YOUR CREW

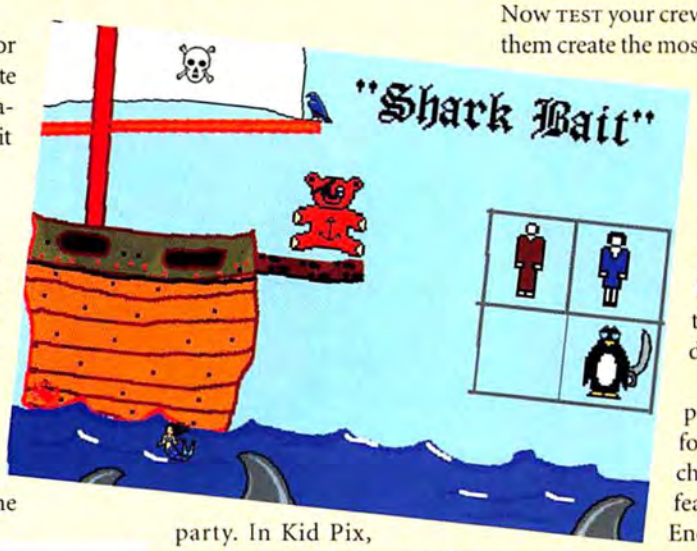
THESE TWO activities, which call for daring and a cool hand, keep pirate spirits high. Shark Bait is a variation on an old favorite. Blackbeard's Portrait is an artistic collaborative effort.

Shark Bait

THIS ACTIVITY is the modern pirate's version of "Pin the Tail on the Donkey," so call all hands around the computer and form teams. Using the mouse, blindfolded buccaneers take turns trying to rescue their team's mascot as it walks an on-screen plank.

To set up this activity, draw a ship, a plank, and a shark-infested sea before the party. In Kid Pix, create mascots using stamps and customize them with the drawing tool or other stamps. For instance, a penguin can be given sunglasses and a sword. For added fun, use the "Wacky TV" mode to insert an animation of a shark fin in the water, complete with scary music.

The game is played by blindfolding one player, who uses the mouse (use the "moving van" tool in Kid Pix to move the character) to rescue his mascot from becoming shark bait. The blindfolded player's team instructs him how to get to safety, which is marked by a grid drawn in the top, right-hand corner of the screen. Set up a ten-second timer to make the rescue even more suspenseful. If characters are not dragged to safety in time, it's *"Bon appétit, Monsieur Shark!"*



What you'll need

Software:
Kid Pix with Companion by Brøderbund or other drawing program

Blackbeard's Portrait

NOW TEST your crew's artistic mettle: Have them create the most ruthless pirate ever to roam the high seas. What did that infamous rogue Blackbeard really look like? Besides being very tall, he had a long, black, bushy beard, and his hair smoked during battles. Your pirates can draw the rest.

Start by having one person draw a big oval for his face. Then, each child takes a turn adding features to the portrait. Encourage everyone to be inventive, adding a pirate hat, tattoos, a scar or two, or chipped front teeth. Of course, don't forget to add the beard and his unusual hair. When you're done, print out copies for everyone to take home. If you have some time, break out the crayons or markers.

FamilyPC Tip

Typing with Kid Pix *To turn Kid Pix into a mini-word-processing program, press the Option key (Mac) or Control key (DOS) while clicking on the text icon. Then select the type on the bottom tool bar, and click anywhere on the screen.*

MAKING HEARTY, HIGH-SEAS GROG MUG LABELS

ONE OF THE BEST PARTS of any birthday party is when it's time for cake and punch, especially when you can toast the birthday boy or girl with a hearty, "Yo, ho, ho and a pitcher of grog!" Making customized grog mugs is a breeze. The key to a great label is to make the letters and images big. If you're only equipped with a word-processing program, type the name, experiment with the type size until it looks good, print the label out, and then add artistic decorations by hand.

If you have clip art or a drawing program, find an image that you like or create one for all of the grog labels. Perhaps the most effective image is four or five Xs in a row, denoting very potent grog, indeed. Make sure the alignment of the labels is centered, then above and below the Xs (or other image), type the words "Grog" or "Old Sailor's Brew," along with the birthday child's pirate name.

To attach the labels, use clear packing tape or clear contact paper cut slightly larger than the label size so that all sides are sealed. (It helps to keep the ink on the labels from running if the toasting gets a bit rowdy.)

Parade the crew into the kitchen where the captain's feast is set out, complete with party place mats (invitations sandwiched between oversized sheets of clear contact paper), pirate punch (pink lemonade and a spot of ginger ale), and all sorts of tasty treats.

Pass out the grog mugs so that they can be used when the pirates begin their wild toasts: "Here's to Greenbeard, the rottenest pirate on the planet" and "To the surliest treasure hunter of the seven seas." Suggest other rules of disorder as well: No utensils are allowed, and each request must be made in as raucous a manner as possible. "More grog, landlubber!"

After the birthday cake, ice cream sandwiches (a neat solution to the no utensils rule), candles, and presents, pass out any remaining party favors and treasure sacks (lunch bags will do). There can be no greater satisfaction for a party-weary pirate than to stow away his or her richly deserved booty and head off into the sunset in search of more adventure.

What you'll need

Software:
Word-processing or drawing program

Optional Software:
Clip art

Other Materials:
Large plastic cups, crayons, colored pencils, markers, clear contact paper

Steve and Ruth Bennett *are the authors of numerous family activity books, including* 365 TV-Free Activities You Can Do With Your Child *and* The Official Kid Pix Activity Book.

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NEC

Hardware

Good-bye TV, Hello Multimedia PC

What kid could resist hunting with dinosaurs? Treat your family to a multimedia PC. We "family test" three of the best.

By Frederic E. Davis

THE FIRST DAY our multimedia PC arrived, my ten-year-old son heard Mark Twain speak to him. Suddenly, history came to life, and the drudgery of working on a school report vanished.

Exploring what a multimedia computer can do is irresistible. In no time at all, my wife was combing a desert island for a missing person in a mystery game, my son was using crop rotation to make a simulated farm prosper, and we jammed together in a virtual rock-and-roll band. The fact that my wife and I manage all our finances on our computer fades a little by comparison, but it's no less important. We use our multimedia PC for everything.

And multimedia computers hold their own against television with the kids. A few clicks of the mouse and they're transported to a virtual zoo, around the world with Carmen Sandiego, or to the Oregon Trail, where they learn math while exploring the Old West. Your kids will be learning without even knowing it.

These PCs provide built-in high-fidelity sound with external speakers, a high-resolution display, and a fast CD-ROM drive. They also come outfitted with a software selection: along with educational and entertainment programs, you get reference works, home finance software, word-processing programs, and spreadsheets. Much of this software comes on CD-ROM discs — close cousins to the audio compact disc. Each CD-ROM can hold as much information as a bookshelf six feet tall and three feet wide!

FamilyTested

Several leading manufacturers build family computers with all the right stuff. Choose well, and your kids will be engrossed in a CD-ROM educational game half an hour after you bring home the box. But there are literally hundreds of "multimedia PCs" for sale, and it's buyer beware. Some are under-

SPECIAL PREVIEW

Three hot new multimedia computers go head to head in this preview issue of FamilyPC. For the complete multimedia PC roundup, pick up FamilyPC's premier issue this September!

JOHN RUSSELL / TEAM RUSSELL (LEFT)

Photographs by Lightworks Photographic

Sing-A-Long: Frere Jacques
REWIND
STOP
PLAY
Fre - re Jac - ques, fre - re Jac - ques,
START

REPORT CARD

Multimedia Personal Computer

To assess multimedia computers, **FamilyPC** rigorously tests and evaluates each model on seven criteria: Out-of-Box Experience, Software Bundle, Multimedia Power, System Performance, Design Quality, Warranty and Support, and Comparative Value. A score of 5 is excellent, while a score of 1 is poor. Relative Importance represents the degree of weight, or significance, given each criterion in the Overall Score.

The Overall Score quantifies all the test results, evaluation criteria, and judgments about individual models. The best possible score is 100.

			TOP-RATED	
Relative Importance	**Evaluation Criteria**	**Acer Acros 4581G**	**Apple Macintosh Performa 550**	**Compaq Presario 633 CDS 200F**
10%	Out-of-Box Experience	4	**5**	4
15%	Software Bundle	4	**5**	3
15%	Multimedia Power	4	4	3
15%	System Performance	**5**	4	4
10%	Design Quality	4	**5**	4
15%	Warranty & Support	4	3	**5**
20%	Comparative Value	**5**	**5**	4
OVERALL SCORE		**87**	**91**	**82**

powered, or even missing essential pieces.

Since what's fun about multimedia personal computers is using them, not choosing them, *FamilyPC* takes the guesswork out by family-testing popular models. To arrive at our recommendations, we put each product through a rigorous evaluation program run by expert parents and kids, as well as through sophisticated laboratory tests.

For this preview issue, we tested three popular multimedia computers to find out which of them were best for families. The three systems — the Acer Acros 4581G, Apple Macintosh Performa 550, and the Compaq Presario 633 CDS Model 200F — sell in the range of $1,900 to $2,400 and include absolutely everything you need.

Computers are a bit like cars: models that look alike can have a bewildering array of options. But ordering a computer in an upgraded configuration is much simpler than ordering a car with power windows but no air conditioning. We recommend that you buy a multimedia computer with at least 8 megabytes (MB) of random access memory (RAM). Make sure that an IBM PC compatible has at least a 200MB hard drive or that a Macintosh has at least a 160MB drive.

FamilyPC starts with a minimum system configuration that takes into account the hardware your computer will need to properly run CD-ROM education, entertainment, and reference software, personal productivity programs (such as personal finance programs), and the business application tasks you might bring home from work. (For more on this, see "Buyers' Pocket Guide," on page 17.) Here are the criteria we use to evaluate each computer:

Out-of-Box Experience

Just how easy is it to take a multimedia PC out of its box and assemble it? You're not alone if you're anxious about this part of the computer experience. You're a parent, not a technician. Some companies make it far easier than others. They place the unpacking and setup instructions on top where you'll find them when you first open the box. The instructions have pictures and don't require a degree in engineering to decipher. Cables and sockets with pictograms help you plug things into the right place. Setting up your new computer should be fun.

Software Bundle

Most computers marketed for families come with a bundle of CD-ROM and original software that usually includes educational, entertainment, and personal productivity programs. Since all software bundles aren't created equally, we compare the number of programs, the value of each program to families, and the estimated dollar value if you had to buy them separately. You're buying a computer, but it pays to keep in mind that you're also buying a money-saving software starter kit.

Multimedia Power

Until you get it home, it's hard to tell how well a multimedia computer will play sound and music, record your voice, and render video, animation, and graphics, particularly those on the new CD-ROM titles. For that, you need expert advice. *FamilyPC* evaluates multimedia software compatibility and the performance of the CD-ROM drive, sound system, and monitor.

System Performance

The true test of a multimedia machine is how well it runs software — after all, that's the reason you are buying it. What makes software go is a great combination of the processor chip, the hard drive, the memory, and the video circuitry. To find out how well our review models perform, *FamilyPC* uses benchmarks that test every major component of a computer.

INTRODUCING THE NEW COMPUTER MAGAZINE CREATED FOR THE ENTIRE FAMILY!

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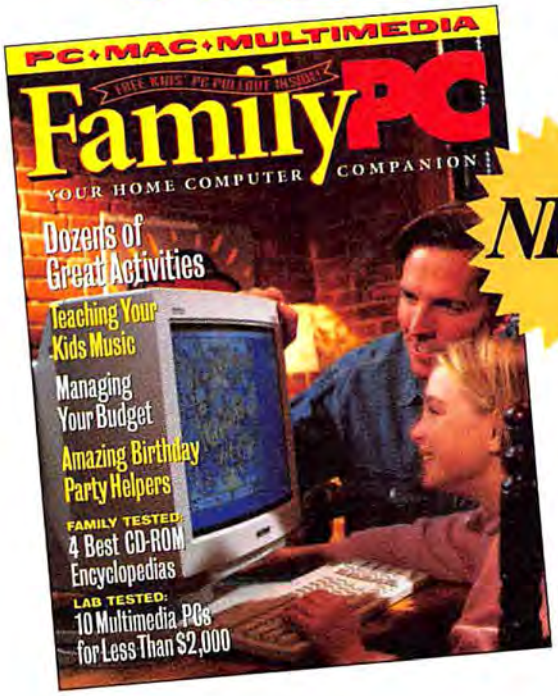

At last! A family computer magazine that takes the confusion out of choosing and using computers — and shows you how to have more fun!

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- ratings on the best computers, software, on-line services, games and gear
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- great bargains and deals
- a mini magazine created just for kids
- practical tips, problem–solving advice and more — see reverse side for further details!

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OPTIONAL: CHILDREN'S BIRTHDATES

☐ We own a computer ☐ We plan to buy a computer
☐ Macintosh ☐ IBM or PC-compatible ☐ Other

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CGZ5AAA

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8 REASONS WHY YOU'LL LOVE FamilyPC

1. WE'LL SHOW YOU HOW TO CHOOSE THE RIGHT COMPUTER FOR YOUR FAMILY.
We'll help you find the computer that fits your whole family's needs — one that's compatible with work and school, has the right bells and whistles, and falls within your budget.

2. WE'LL HELP YOU GET THE MOST OUT OF YOUR FAMILY'S COMPUTER.
FamilyPC is filled with new ways for parents to use computers — from managing family finances to working out of your home. And you'll find the best education-related and entertainment programs and software for kids.

3. WE'LL BRING YOU DOZENS OF CREATIVE PROJECTS FOR THE WHOLE FAMILY.
From creating amazing birthday party invitations to writing hip-hop songs, FamilyPC is packed with imaginative art, music, writing, science, crafts and hobby projects you can do together!

4. WE'LL TELL YOU ABOUT GREAT DEALS AND DISCOUNTS.
We'll help you get more value for your money by showcasing the top bargains in mail order and retail. Whether you're buying new software or upgrading to a multi-media PC, we'll tell you where to get the best possible deal.

5. WE'LL TEST AND RATE THE BEST COMPUTERS, SOFTWARE, ON-LINE SERVICES, GAMES AND GEAR.
Every month our team of kids, parents and educators test the latest computer products and services to give you their top picks on everything from electronic encylopedias to voice software and CD-ROMs.

6. IT'S READER-FRIENDLY.
FamilyPC will make your whole family computer-literate — without using computer jargon and confusing technical terms. Every issue will be easy to understand and truly enjoyable to read.

7. THERE'S A MINI MAGAZINE JUST FOR KIDS IN EVERY ISSUE.
Created by kids, for kids, it's a place where your kids can submit their own computer art work, stories, gaming tips, silly computer tricks and more.

8. THE PREMIERE ISSUE IS YOURS FREE!
FamilyPC will help you and your family get more value, use and fun from your home computer. And the Premiere issue is yours FREE! But only a limited number of issues will be printed. So act now!

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PO BOX 400449
DES MOINES IA 50347-0449

FamilyTested Hardware

We also test with three well-known applications — Intuit's Quicken, a personal finance program; Microsoft Word, a word-processing program; and Fractal Design's Painter, a paint and image-manipulation package — to see how fast they load and run.

Design Quality

Known as "ergonomics," the look and feel of a computer, the placement of the controls, the response of the keyboard, the fit of the mouse in your palm (and your child's), are important to how successfully your family will adapt to the new machine. Can you adjust the screen angle to suit your child? Will it fit on your desk, or is it a behemoth imposing on your home? Are all the controls and switches easy to reach and readily understandable? The system should also be easily expandable, so you can choose to upgrade it later with more RAM, a bigger hard drive, or a larger display.

Warranty and Support

When your computer breaks, or you can't get it to work, it's nice to know just how well the manufacturer stands behind it. A one-year parts and labor warranty is common, and you shouldn't buy a computer whose warranty period is less. Some manufacturers offer longer warranties. And when you need technical support, it's important to know that the company is there with a toll-free number, evening hours, and lots of helpful technicians available to field your calls.

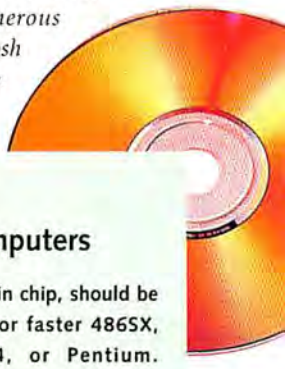
Comparative Value

FamilyPC also rates machines by comparing everything you get in the package with how much they cost on average when you buy them discounted in a computer store. Our rating takes into account performance, the quality and estimated value of the bundled software, and specifications such as the CPU type, monitor, hard drive capacity, and amount of RAM, which carry a huge significance in assessing value. (See "Buyers' Pocket Guide" below for more specifics on CPUs.)

Overall Score

To arrive at *FamilyPC*'s Overall Scores, we assess each computer on all of these points, giving greater emphasis to such important areas as the software bundle, performance, and comparative value. That way, you can be confident that a Family-Tested and recommended computer will be a welcome addition to your home.

Fred Davis *and his family live in the San Francisco area. He is a well-known author of numerous Windows and Macintosh articles, as well as* The Windows 3.1 Bible.



BUYERS' POCKET GUIDE

Minimum Specifications for Multimedia Computers

Since buying a multimedia computer can be almost as intimidating as shopping for a new car, we've gone to great lengths to make it easier for you. When your family is shopping for a multimedia computer, you can use this Minimum Specifications chart as your guide. Just ask the salesperson to verify whether models you're considering have what's shown on the list.

To be truly useful to your family, a multimedia computer should have 8 megabytes (MB) or more of random access memory (RAM), at least a 200MB hard drive on IBM PC compatibles or at least a 160MB drive on Macs, a "double-speed" CD-ROM drive, a 16-bit SoundBlaster or SoundBlaster-compatible sound card (Macs come with built-in sound, so sound cards aren't an issue), two speakers, and a barrel of great software. A microphone is also handy.

In IBM PC compatibles, the central processing unit (CPU), or main chip, should be a 33-megahertz (MHz) or faster 486SX, 486DX, 486DX2, DX4, or Pentium. Macintoshes should have at least a 33-MHz Motorola 68030, a 25-MHz or faster Motorola 68040, or any PowerPC CPU. The megahertz rating is an indication of how fast the computer runs, so higher numbers are better. The CPU numbers are the processor model names, and higher numbers usually indicate newer, more powerful chips. Pentium and DX4 are the most powerful IBM PC-compatible CPUs, and PowerPC is the fastest Macintosh CPU.

Double-speed CD-ROM drives are rated to transfer data from the disc to your computer at twice the rate of their predecessors. Large, over-200MB hard drives are a bit faster than small hard drives, but the real advantage is in the extra storage space they provide.

—Scot Finnie

	IBM PC COMPATIBLES	APPLE MACINTOSHES
RAM	8MB	8MB
CPU (Processer/MHz)	486SX/33 or DX2/50	68030/33 or 68040/25
Hard Drive Size	200MB	160MB
CD-ROM drive	Double-speed	Double-speed
Sound	SoundBlaster 16 or compatible	Built-in
Speakers	Two speakers	Two speakers
Software Bundle	At least five applications of interest to your family	At least five applications of interest to your family
System Software	DOS 6.2 and Windows 3.11 or Windows for Workgroups 3.11	System 7.1 or higher

Out-of-Box Experience: ... 4
Software Bundle: ... 4
Multimedia Power: ... 4
System Performance: ... 5
Design Quality: ... 4
Warranty & Support: ... 4
Comparative Value: ... 5

Average street price (with 8MB of RAM):

$2,300

Basic Specifications:
CPU: *486DX2/50*
Hard drive: *420MB*
RAM: *4MB (upgrade to 8MB for $175)*
Display: *14-inch*
CD-ROM drive: *Double-speed*
Sound: *16-bit*

Acer Acros 4581G
Acer America Corp.
2641 Orchard Parkway
San Jose, CA 95134
800-733-2237 or 408-432-6200

PROS:
- Blazing 486DX2/50 processor
- Big hard disk
- Extra horsepower

Snap-apart case

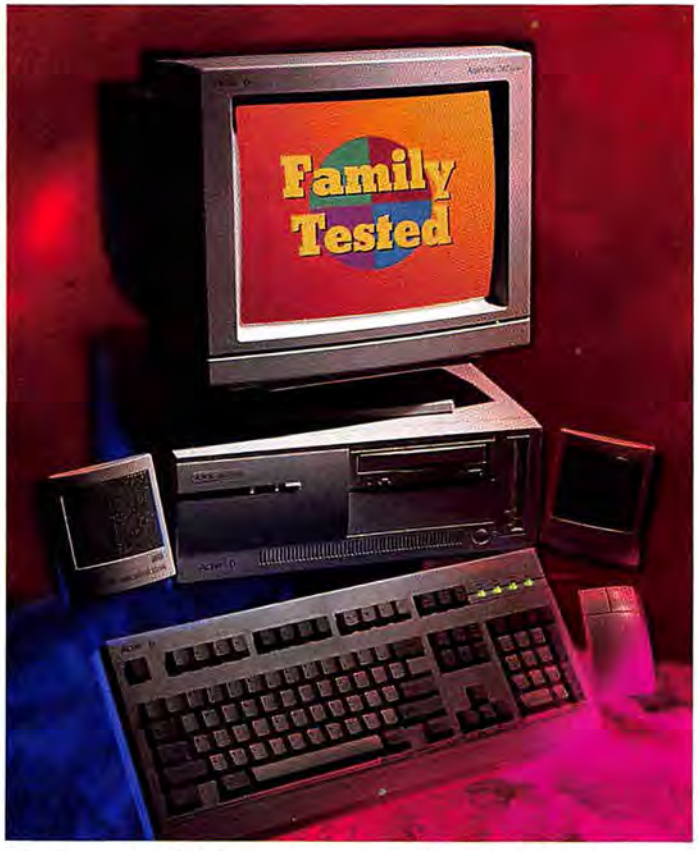
CONS:
- Tiny, tinny speakers
- Skimpy instructions
- Hard to find at local stores

Acer Acros 4581G

It's an all-around amazing multimedia PC value: The Acer Acros

The Acer flies past the other models in most of our performance tests, showing off its multimedia power

The Acer Acros 4581G is one of the best multimedia computer values we've seen. It has an attractively styled case and monitor, and if you ever need to install options, you just push aside four tabs and off pops the top. The Acros is easy to set up and comes with all its disk-based software preinstalled, although its setup instructions presume some familiarity with computers.



The Acer Acros 4581G is an impressive multimedia PC value and comes with a generous 420MB drive

The Acer was noticeably faster than the other systems, scoring fastest on all but a couple of our performance tests. Its muscle comes from its 50-megahertz (MHz) 486DX2 processor, a real powerhouse that can tackle any computing task. Helping to make the Acros a great value is its generous 420MB hard disk, more than twice the size of the drives offered with the other models. Since the CD-ROM drive doesn't require a disc caddy, younger children will have an easier time inserting discs.

The Acros comes with a great selection of software, including Microsoft's Multimedia Works, an integrated software package that provides word processing, spreadsheet, and graphics. You also get the Microsoft Encarta Multimedia Encyclopedia CD-ROM and Microsoft's superb Cinemania movie review. There's also some other fun stuff from Microsoft: Sound Bits, Golf, and the Entertainment Pack. Intuit's Quicken for Windows rounds out the bundle. Acer includes an internal fax modem with fax software from Phoenix Technologies and starter kits for America Online and Prodigy.

There are only a few shortcomings to the Acros. Its speakers offer poor sound quality and are awkward to adjust. You'd be better off plugging the machine into your stereo system or investing in a better set of accessory speakers (about $100 and up). It lacks a microphone, an item the other two models offer as standard equipment (about $25). And, although you can buy the Acros directly by phone from Acer, the company's products can be very difficult to find. (Call Acer to order directly or for a dealer near you.) All in all, though, this IBM PC-compatible model is a great find and worth searching for.

Apple Macintosh Performa 550

Top-rated Mac Performa 550 does everything well and costs less, too

The Performa is easy to set up, offers up a software landslide, and looks great in your family room

Out-of-Box Experience: 5
Software Bundle: 5
Multimedia Power: 4
System Performance: 4
Design Quality: 5
Warranty & Support: 3
Comparative Value: 5

Average street price (with 8MB of RAM):

$1,950

Basic Specifications:
CPU: *68030/33*
Hard drive: *160MB*
RAM: *5MB (upgrade to 8MB for $150)*
Display: *14-inch*
CD-ROM drive: *Double-speed*
Sound: *8-bit*

Macintosh Performa 550
Apple Computer, Inc.
20525 Mariani Blvd.
Cupertino, CA 95014
800-776-2333 or 408-996-1010

THE PERFORMA 550 holds its own against the Compaq, and it actually outperforms the zippy Acer on a few graphics-intensive tasks.

The Mac Performa 550 is the least expensive model of the three reviewed here. It's cheaper in part because it stints on hard disk capacity—it comes with only a 160MB hard drive. But that's less skimpy than it sounds. Since Mac software takes up less space on the hard drive than Windows software, a 160MB hard drive on the Mac is about comparable to a 200MB drive on an IBM PC-compatible machine.

True to Apple's renowned reputation for ease of use, the Performa is a breeze to set up, far and away the easiest of the tested models. When you open the box, the first thing you find is a placemat-size card with understandable instructions and useful illustrations that provide a cribsheet for system setup.

Another advantage of the Performa is its small size and pleasing one-piece design. It's not going to crowd your home office or family room. The integral 14-inch monitor provides the most crisp graphics display. And the speakers and microphone are built right into the case itself.

There's a downside to the compact one-piece design, however. If you decide to upgrade to a larger monitor, you'll wind up with two displays—one in your Mac, and one next to it.

Despite its name, the Performa 550 is a competent, not stellar, performer. It's roughly equivalent to the Compaq Presario 633 on most tests and is the fastest overall at loading applications. Even so, the Performa's 33-megahertz (MHz) 68030 processor represents older technology that's been optimized in this model for multimedia. So it beats the Compaq at multimedia performance, but it's no speed demon when running business software such as word-processing programs and spreadsheets.

The Performa 550 comes with the longest list of bundled software titles (see "The Fine Print on Multimedia Computers" on page 21), and more education and entertainment programs than the other systems. We estimate the value of this bundle to be $1,500. The friendliness, ease of use, great software bundle, and very reasonable price add up to a system that's sure to be a family pleaser.

The Macintosh Performa 550 delivers Apple's famous ease-of-use, and its all-in-one design makes it easiest to move from room to room

PROS:
- Easiest machine to set up and use
- A ton of great software
- Inexpensive

Built-in speakers

CONS:
- Processor not fast for business tasks
- Limited expansion with one-piece design
- CD-ROM caddy tough for kids to handle

Out-of-Box Experience 4
Software Bundle 3
Multimedia Power 3
System Performance: 4
Design Quality: 4
Warranty & Support: 5
Comparative Value: 4

Average street price (with 8MB of RAM):

$2,365

Basic Specifications:
CPU: *486SX/33*
Hard drive: *200MB*
RAM: *4MB (upgrade to 8MB for $215)*
Display: *14-inch*
CD-ROM drive: *Double-speed*
Sound: *16-bit*

Presario 633 CDS
Model 200F
Compaq Computer Corp.
20555 S.H. 249
Houston TX 77070
800-345-1518 or 713-370-0670

PROS:
- Excellent support and 3-year warranty
- Good resale value
- Superior speakers and a microphone

CD-ROM bumps keyboard

CONS:
- Limited software selection
- A little more expensive
- CD-ROM drive too close to keyboard

Compaq Presario 633

The Presario's hallmarks are a great warranty and easy setup

You'll pay a bit more for the Presario 633, but it's tough to put a price tag on peace of mind

AN AVERAGE performer, the Compaq is on par with the Performa for general use, but lags behind on tougher multimedia chores.

The Presario 633 is backed by the best support policies of any of the computers we tested. Compaq's three-year warranty means fewer headaches if the computer breaks down. Plus, unlike the Acer, the Presario's speakers offer excellent sound quality, and it includes a microphone. The Presario comes with clear instructions and is easy to assemble.

Even so, you can't just turn the Presario on and start enjoying the software. Although the process is automatic, you must wait through a forty-five-minute setup of Windows and the bundled software. Family computers should come with all their software fully configured and ready to go. Another annoyance was the placement of the CD-ROM drive, which is located at the bottom front of the case. If you place the keyboard directly in front of the computer, the CD-ROM disc drawer will bump into the keyboard when it opens.

Performance also hurt the Presario in our evaluations. Powered by a 33-megahertz (MHz) 486SX processor, it's significantly slower than the 50-MHz 486DX2 chip in the Acer Acros, and about on par with the Performa 550 on most tests, except more demanding multimedia operations. Even so, it's fast enough to run your software properly.

The Compaq Presario gives one of the best warranties in the business and easy-to-understand setup instructions

The Presario comes with a good on-screen tutorial and help system. The modest selection of bundled software does not include a multimedia encyclopedia, which the Apple and Acer do. We estimate the bundle's value to be only $300.

Athough it's a popular model from a well-known company, the Presario offers a bit less value for your money than the other two. On the other hand, Compaq dealers are everywhere, and the company's support policies are unequaled. If you're not much concerned with extra oomph for CD-ROM software and the resale potential of a name-brand computer is a plus, then the Presario 633 is a worthy choice.

THE FINE PRINT ON MULTIMEDIA COMPUTERS

Real-world pricing, the estimated value of bundled software, and all the trimmings

The three models tested here are admirable multimedia computers that will run the latest educational and multimedia titles. They each provide a 14-inch monitor and a double-speed CD-ROM drive. The similarities end there, though. Here's how they differ:

	ACER ACROS 4581G	APPLE MACINTOSH PERFORMA 550	COMPAQ PRESARIO 633 CDS 200F
Manufacturer	**Acer America**	**Apple Computer**	**Compaq Computer**
Phone number	(800) 733-2237	(800) 776-2333	(800) 345-1518
Case design	Desktop case with separate monitor and speakers	One-piece unit with built-in monitor, speakers, and microphone	Desktop case with separate monitor and speakers
Availability	Direct mail and retail stores	Retail stores	Retail stores
List price	$2,125	$1,999	Not Available
Average street price	$2,125	$1,800	$2,150
Standard RAM	4MB	5MB	4MB
Cost to upgrade to 8MB	$175	$150	$215
Standard hard disk drive	420MB	160MB	200MB
Processor chip (CPU)	Intel 50-MHz 486DX2	Motorola 33-MHz 68030	Intel 33-MHz 486SX
Software bundle	Microsoft's Multimedia Works, Entertainment Pack, Productivity Pack, Encarta, Cinemania, Multimedia Golf, and Sound Bits; Intuit's Quicken; Phoenix Technologies' MicroFax; America Online and Prodigy starter kits	ClarisWorks, Intuit's Quicken, Apple's PC Exchange and At Ease, Paradigm's Best of Homework Template, T/Maker's ClickArt Performa Collection, Global Village's Teleport Global Fax, WordStar's American Heritage Dictionary, Interplay's Mario Teaches Typing, Velocity's Spectre Challenger, MECC's Super Munchers, Grolier's Encyclopedia, Compact Publishing's 1993 Time Magazine Almanac, Software Toolworks' The San Diego Zoo Presents the Animals!, Discis's Tales of Benjamin Bunny	Microsoft Works and Entertainment Pack, Delrina's WinFax Lite, Intuit's Quicken, Interactive Ventures' Mayo Clinic Family Health Book, Compaq Tabworks, America Online and Prodigy starter kits
Estimated value of software	$800	$1,500	$300
Mouse type	Acer, two-button	Apple, one-button	Compaq, two-button
Microphone	No	Built-in	Yes
Fax modem speed (bps)	2,400 data/9,600 fax	2,400 data/9,600 fax (send only)	2,400 data/9,600 fax
Caddyless CD-ROM	Yes	No	Yes
Sound card type	SoundBlaster 16	Apple, built-in sound	SoundBlaster 16
Toll-free Support	24 hours, 7 days a week	6-6 M-F; 8-6 Sat.; 8-5 Sun. PST	24 hours, 7 days a week
On-line support	Acer BBS, America Online, Prodigy, CompuServe	America Online	Compaq BBS, CompuServe, Prodigy
Warranty	One year, on-site parts and labor	One year, on-site parts and labor	Three years parts and labor, one year on-site

WEATHER *Smarts*

This forecast calls for fun! Three cool computer projects that teach your family all about the weather.

By Peter Scisco

WHEN EARLY SUMMER brings thunderstorms to our area of North Carolina, my two oldest boys go out to the front porch swing and watch the black clouds roll in. To them, the flash of lightning against slate-gray sky, and the ensuing flood of rain, is an experience not to be missed. They want to know everything, from what clouds are to whether people can actually be blown to the Land of Oz.

Learning about weather is an irresistible and fascinating family activity, especially when you use your trusty PC — a veritable weather station. Just like professional weather forecasters, you can easily chart the telltale changes in conditions, create colorful forecasts for your family, and, using a modem, follow weather systems as they move across the country. Meteorology may be a science, but to your kids, it will seem like magic. So step right up and turn on your computer — the greatest show on earth is about to get even better.

ELEMENTS *and their roles*

Temperature *is the measure of how hot or cold something is. When hot air masses meet cold air masses, they create wind. Temperature also influences evaporation and condensation.*

Precipitation *is rain, sleet, snow, or hail, and it can have a warming or cooling effect, altering weather. Dew and frost, also precipitation, don't fall from clouds, but occur when moist air comes in contact with colder objects on the ground.*

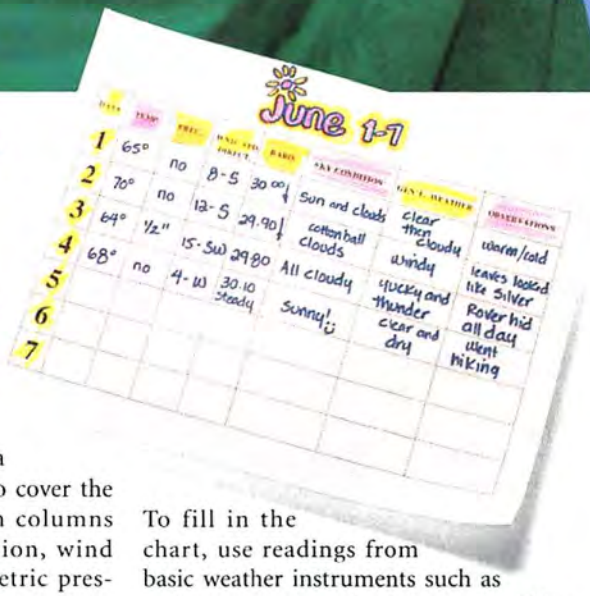
Wind *carries particles and moisture from one part of the sky to another. Jet streams (at 10,000 to 40,000 feet) can move at around 300 mph and have a profound influence on the weather.*

Relative Humidity *refers to the amount of water in the air at a given temperature.*

Barometric Pressure *is the force that air exerts on the earth. Falling pressure indicates a cool air mass moving into an area, which will bring storms when it meets warmer air. Rising pressure indicates clearing weather.*

WEATHER DIARY

Understanding the basic elements



WEATHER is a constantly evolving phenomenon that can wash out a Little League game or provide the perfect backdrop for a family picnic. Since so many factors affect weather, extended forecasting is far from simple. However, by understanding the basic elements, making one- or two-day weather predictions is a cinch.

Elements such as temperature, wind speed, and barometric pressure are the building blocks of all weather conditions and the key to accurate forecasting. One great way to learn how the elements affect the weather is to chart local conditions on a daily basis. Using a word-processing program with table-making capabilities, you and your kids can create a weather diary. (You can also do this in a spreadsheet program, which is wonderful for creating charts.) Set up a table that has enough rows to cover the days of a week and enough columns for temperature, precipitation, wind speed and direction, barometric pressure, sky conditions, a general weather description, and special observations.

This last column is where you note odd happenings, such as the time your dog acted strangely just before a big thunderstorm or the type of clouds that were in the sky before unsettled weather (see "Cloud Types" on page 25).

To fill in the chart, use readings from basic weather instruments such as a thermometer and a barometer (The Weather Tracker's Kit from Running Press features gauges for wind speed and direction, temperature, and rainfall and sells for about $18) or consult local forecasts. Eventually, you'll see that the elements and their changes move in fairly predictable patterns. You'll even start to anticipate the type of weather that will occur, and you may realize that your dog is a four-legged, flea-scratching, tail-wagging storm detector!

What you'll need

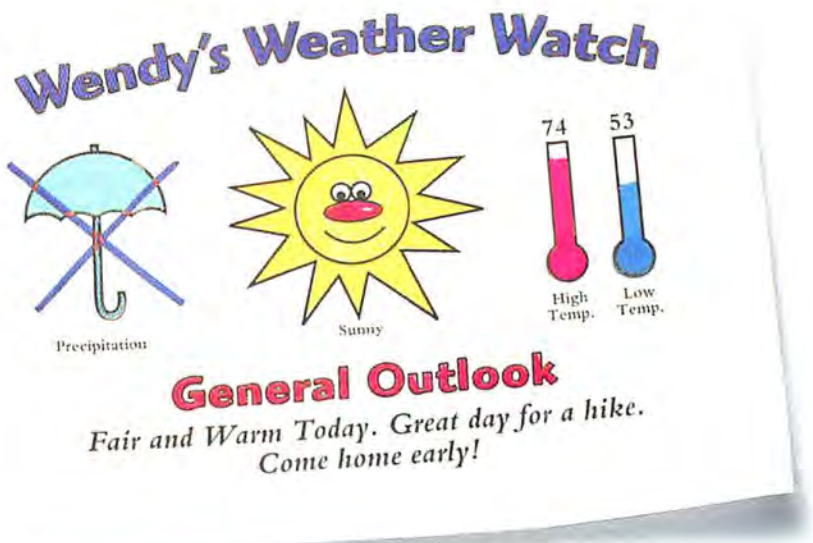
Software:
Word-processing or spreadsheet program

Computer Skills:
Basic table-making or spreadsheet knowledge

Additional Materials:
Pens, markers, or crayons; simple weather instruments or weather reports

Photographs by Jim Gipe

THE WEATHER TRACKER'S KIT AND CLOUDBOARD PROVIDED BY THE SCIENCE AND LEARNING STORE OF NORTHAMPTON, MA



FAMILY FORECASTER

Keeping your family informed about weather on the horizon

What you'll need

Software: *Drawing or word-processing program*

Computer Skills: *Basic drawing*

Additional Materials: *Pens, markers, or crayons; weather reports*

Not every parent has the time to watch the weather on the evening news, and you don't have to when your young weather enthusiast provides your family with a personalized weather advisory, complete with fun tips, neatly packaged and delivered to your pillow just before bedtime. A personal forecast is a rewarding activity for your child because she can present the important information she has gathered in an expressive way — one that combines crisp graphics and distinctive fonts on a single sheet of paper.

With your child, design the daily forecast's template (a form that allows you to input entries without having to create a new chart every day) using either a drawing program or a word-processing program. To start the project, create a neat title. Think of weather words that go with your child's name ("Wendy's Weather Watch"). The next step is adding the four basic elements to your forecast: precipitation, sky conditions, temperature, and general outlook. To do this, use your drawing program and create symbols to represent the first three elements. For the last part, general outlook, use text to describe the information: "Sunny and warm with little sign of change."

For precipitation, create an umbrella and include drops for rain and flakes for snow. (Add lightning or hail if it's in the forecast.) If the weather has no precipitation, put an X through the umbrella. Labels for sky conditions might include Sunny, Partly Cloudy, and Cloudy. The weather section in your newspaper or the television news is a good source for symbol designs that you can adapt for your forecast. Have fun with them — give your sun some sunglasses and a smile; just make sure the symbols are clear enough to express types of weather.

If you have a color printer, you can color your pictures on the screen. Otherwise, leave your drawings in outline form, print them in black and white, and apply color with markers, crayons, pens, or other craft supplies. (Glitter makes great-looking snow.)

Some tips about other symbols: a thermometer is an excellent symbol for temperature. Create one by making a circle for the thermometer's bulb, then use the rectangle or straight line tool to draw the sides. Draw two thermometers (just copy and paste your first one) to indicate the day's high and low temperatures. Consider using red for the high temperature and blue for the low. Type in the temperatures below the thermometers.

For the general outlook section, type in a short prediction for the next day's weather, which your child can get from observing the weather or from television, newspaper, or radio weather reports. Encourage her to describe the weather outlook with witty phrases. Hot and sticky summer weather could be dubbed "a bad hair day." (For this activity to work using only a word-processing program, design a layout, type in the necessary information, and manually draw in the graphic elements on the daily printouts.)

A few trials with your program will help your child develop a design that shows off her work, or you can use the one pictured here as a model. Just remember: no matter how beautiful the report, weather can be fickle to forecast. So double-check her work with a peek out the window. It might keep "a bad hair day" from getting worse.

HEAVY WEATHER HEADQUARTERS

Going on-line for up-to-the-minute weather information

NEWS FLASH: "Tropical storm Ethel has just passed the Caribbean's Leeward Islands and is building in strength. A Hurricane Warning has been issued for the coastal region of the entire Gulf of Mexico. . . ." A hurricane, one of the most dramatic and devastating meteorological forms, is just one weather phenomenon you can track with your computer. Using a modem, you can access this information from a number of on-line services. You can find out if the sun is shining in California or what a storm heading over the Great Lakes looks like. Here's a sampling of what's available on the major services and how to get to the information.

America Online

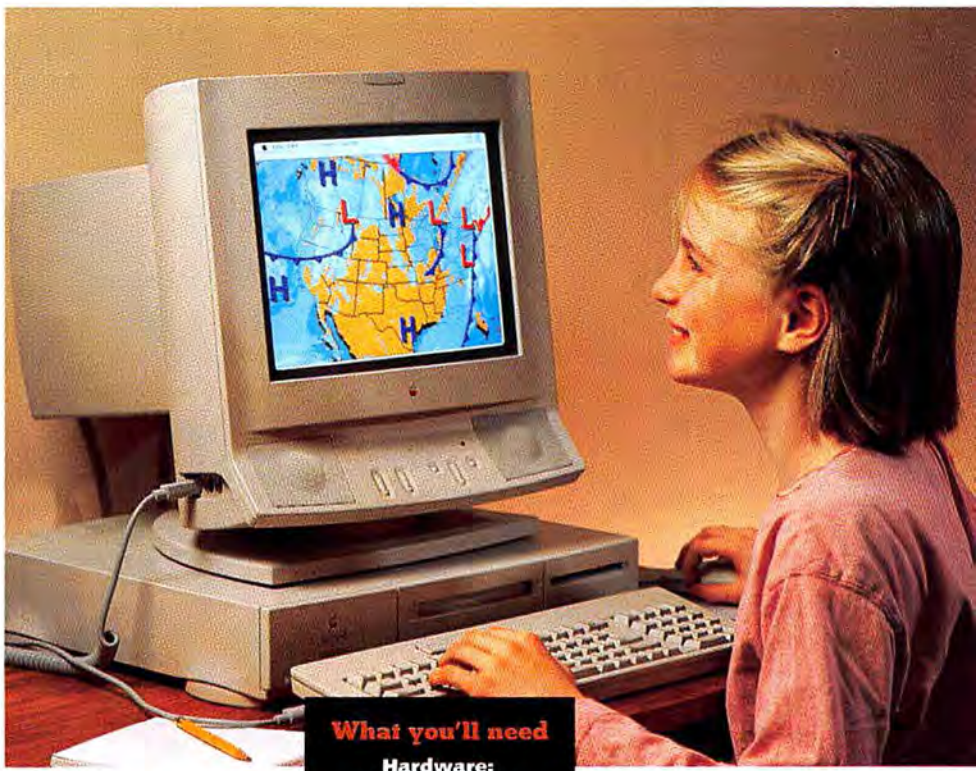
Finding weather conditions on America Online can be a bit tricky, but once you click on the News & Finance icon, you've struck weather gold. In this section, you can view Ski Reports, read Weather News for major U.S. and foreign cities, or download color Weather Maps. Unfortunately, you can't see these maps without special software. There is, however, a Weather Discussion Board where people talk on-line about the weather. This forum can be particularly useful if you're planning a trip and want to know from someone who lives there what recent weather has been like.

CompuServe

While America Online and Prodigy have forecasts for larger cities, only CompuServe gives you the weather outlook for your hometown and the surrounding areas. If you are a CompuServe subscriber, type GO WEATHER (or select the Weather icon if you're using CompuServe Information Manager software). CompuServe also offers options for viewing or downloading a variety of maps.

Prodigy

Prodigy also offers weather information and maps, but its resources are more limited than those on CompuServe or America Online. By clicking on the Weather/News button on the Prodigy welcome screen (or typing Jump Weather), you can view a variety of U.S. weather maps, as well as read the forecasts for sections of the United States and major U.S. and international cities. Although Prodigy lets you type in the name of the city you are interested in, your choice of cities is limited. Also, you can only view weather maps on screen.



What you'll need

Hardware: *Modem (2,400-bps minimum suggested)*

Software: *Communications software, an account with an on-line service*

Computer Skills: *Familiarity with on-line services*

CLOUD TYPES

Clouds are weather messengers. The shape, altitude, speed, and direction of a cloud all say something about approaching weather. Below are some common clouds, along with the weather they forecast.

Cumulus
Fair weather

Cirrus
Fair weather, but precipitation may follow

Cumulonimbus
Thunderstorms

Nimbostratus
Long period of rain, snow, or both

Peter Scisco, *the father of three boys, writes about the creative use of personal computers and software from his home in High Point, North Carolina.*

Our children will grow up in a world we can only begin to imagine. They will have jobs that have not been invented yet. The child who is an 'information navigator,' who can wend his way around the computer, is the child who is best prepared to succeed in this exciting new world."

— Robin Raskin, "Parents, Kids, and Computers"

Because you want your children to have every advantage, help them become information navigators. Put a **Family PC**™ from Gateway 2000® in your home. The **Family PC** is the *affordable* multimedia personal computer that is totally equipped for navigation on the information highway. Although this "highway" is little more than a dirt road now, today's explorations will make your children seasoned travelers on the superhighway of tomorrow.

The **Family PC** comes with awesome software, a fast CD-ROM drive and a high-quality sound system so you can run the best programs and games with sound, pictures, animation and video. You can even play all your favorite music CDs on the **Family PC** with super stereo sound. You get a modem, too, and everything you need to connect with other computer users all over the world. Once you are connected, there's no limit to what you and your children can learn and do.

Perhaps best of all, the **Family PC** is from Gateway 2000. We're a Fortune 500 company and the nation's leading direct market manufacturer of personal computers. Located in South Dakota, Gateway 2000 is known for great prices on quality computers with friendly, down-home service.

You'll be surprised how easy it is to own a **Family PC**. We accept most major credit cards, or you can apply for a Gateway 2000 DuoLine™ MasterCard® Card. Give us a call!

GATEWAY2000 FamilyPC

4DX2-66

- Intel® 66MHz 486DX2 Processor (upgradable to the Pentium™ OverDrive™ Processor)
- 8MB RAM, 128KB Cache
- 340MB Hard Drive
- Local Bus Graphics with 1MB
- Double-Speed CD-ROM, 16-Bit Sound Card & Speakers
- 2400/9600 Data/Fax Modem
- 3.5" Diskette Drive
- 14" Color SVGA Monitor
- 101-Key Keyboard, Microsoft® Mouse & Joystick
- MS-DOS® & Windows™
- Choice of Family PC Software
- EPA Energy Star Compliant
- Excellent Service & Support

$1995 *(Other models start as low as $1495)*

GATEWAY2000

"You've got a friend in the business."®

800-846-4508

610 Gateway Drive • North Sioux City, SD • 57049-2000

Sales Hours: 7am-10pm Weekdays, 9am-4pm Saturdays (CDT)

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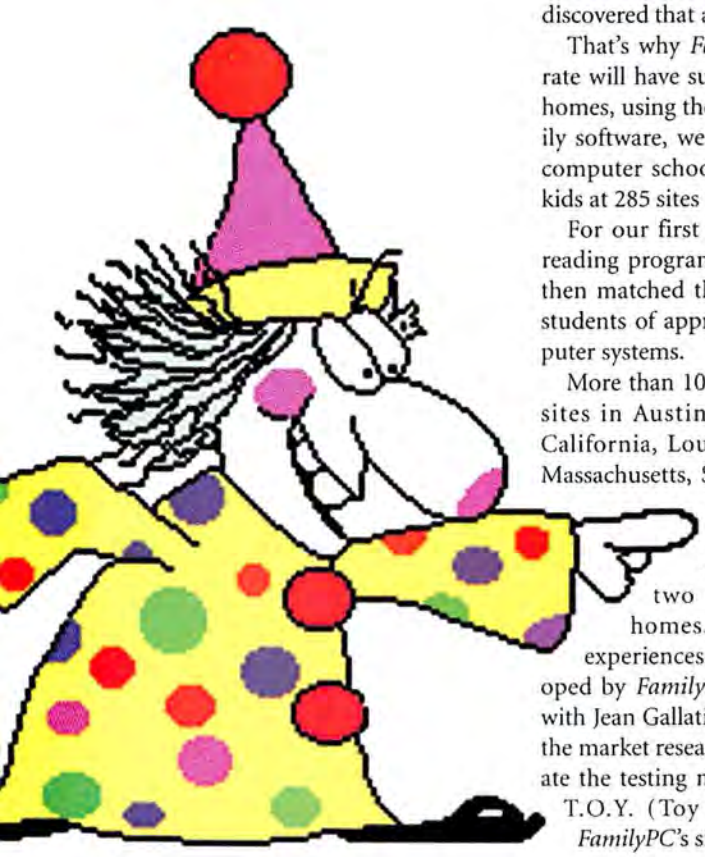
Software

Read All About It

Kids, parents, and teachers choose their favorite reading programs



Been to your neighborhood computer store lately in search of software for your favorite computer user? You probably found hundreds, maybe even thousands, of different titles and had no way of knowing which was most appropriate for your kid. Most software reviews, if you can find them, are written by adults who can't anticipate what kids really like. And, like other parents, you've probably discovered that an expensive program is worth little if your child uses it just once.

That's why *FamilyPC* has developed FamilyTested reviews. Each software title we rate will have survived the scrutiny of real kids (and their real parents), in their own homes, using their own computer equipment. To get the inside scoop on the best family software, we have enlisted the help of FutureKids, the world's largest franchised computer school. FutureKids' network of families includes 22,000 computer-savvy kids at 285 sites throughout the world.

For our first FamilyTested reviews, *FamilyPC* editors selected more than twenty reading programs for kids from among a profusion of packages on the market. We then matched the software with FutureKids students of appropriate age and home computer systems.

More than 100 testers — from FutureKids sites in Austin, Texas, Pacific Palisades, California, Louisville, Kentucky, Norwell, Massachusetts, Shrewsbury, New Jersey, and Exton, Pennsylvania — loaded, launched, and clicked their way through two programs each in their homes. They then reported their experiences on evaluation forms developed by *FamilyPC*'s editors in consultation with Jean Gallati, president of Youth Insights, the market research company that helped create the testing methodology for the popular T.O.Y. (Toy of the Year) Awards for *FamilyPC*'s sister publication, *FamilyFun*.

SPECIAL PREVIEW

These are the first FamilyPC FamilyTested reviews — software rated by real users based on real home experiences. In FamilyPC's September premier issue, FamilyTested will review reading and writing programs, the latest multimedia CD-ROM encyclopedias, and more.

This happy gang of FutureKids students from Louisville, Kentucky, was part of our expert panel of FamilyTested reviewers

Rating the Software

While individual evaluations provide valuable insights, it's not until we analyze the collective results that we come up with FamilyTested scores for distinct categories. These scores are then combined to determine a program's overall score. A score of 100 is top — nearly impossible to achieve. An overall score greater than 90 signifies an exceptional program.

FamilyTested rating criteria will vary according to the category of software we test. The educational software featured in this issue is rated on the following:

Fun As you might expect, this score — based on how enjoyable and captivating a program is — holds a lot of weight in a program's overall value.

Graphics This score rates the quality and appeal of a program's visuals, including photos, drawings, animations, video, and on-screen letters.

Sound Music, sound effects, and speech are the three main components of this score. Testers rate the quality and clarity of a program's sounds and how fun they are to listen to.

Ease of Use How well a user — especially a young child or an adult just learning to use a computer — can interact with a program is an important part of its overall value. This category considers a program's interface (including its points of entry, navigational tools, and feature controls) and its intuitiveness (how easy it is to get started and then figure out the next step).

Help This score represents the support resources available to you. The clarity of instructions in the program's documentation and on-line help, the company's technical support, and the complexity of the installation process are all factors.

Replay Value A program's lifespan is not necessarily related to how much fun it is to use at first pass. Only by looking at software over a length of time can you assess its long-term value — as any parent who has spent $40 on a CD-ROM that gathers dust after two weeks can attest.

Learning Value We turn to FutureKids teachers to rate a program's educational value. Components include a program's curriculum design, age-appropriateness, and long-term learning value.

The two titles presented here — Edmark's Bailey's Book House and Brøderbund's Arthur's Teacher Trouble — were the top choices in the pre-K to first-grade and the first- to third-grade age groups, respectively. In *FamilyPC*'s September premier issue we'll review more reading and writing programs, as well as multimedia CD-ROM encyclopedias.

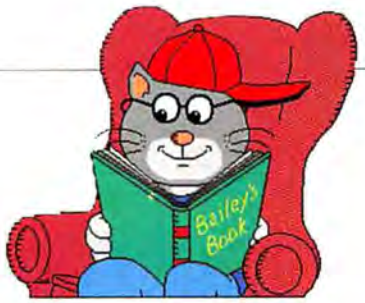
So keep your eye on FamilyTested. With help from our nationwide panel, *FamilyPC* will pinpoint the very best software titles available — wholeheartedly recommended by families like yours.

— Kurt Carlson and Bob Domine

JOHN LAIR & ASSOCIATES, INC.

Ages 3 to 6

Bailey's Book House



Delightful wackiness entices early readers to explore words and storytelling

Fun: 95
Graphics: 91
Sound: 88
Ease of Use: 87
Help: 86
Replay Value: 93
Learning Value: 91

$49.95
Platform: *Mac or PC*
Format: *Disk or CD-ROM*

Minimum PC requirements:
CPU: *IBM PC or compatible*
O/S: *DOS 3.1*
RAM: *640K*
Disk: *9.1MB or CD-ROM*
Monitor: *VGA or EGA*
Sound Card: *Required for enhanced speech*
Mouse

Minimum Mac requirements:
CPU: *Mac Plus*
O/S: *System 6.0.7*
RAM: *1.5MB (for color)*
Disk: *5.5MB or CD-ROM*
Monitor: *Color or monochrome*

Edmark Corp.
800-426-0856 or 206-556-8400

BAILEY is a cool cat who lives in a fun-filled house that is designed to charm your three- through six-year-old into exploring the mysteries and joys of reading. Judging by the responses from the kids, parents, and teachers in our FamilyTested network, Bailey's plan is a resounding success. This is shown by the scores they gave the program in the Fun, Replay Value, and Learning Value categories.

"I liked everything about this program," said five-year-old Jennifer Isaacson from Santa Monica, California. Kyle Mangione, four, of Austin, Texas, was more specific in her affection for Bailey's place: "I learned how to make a story," she announced.

Kyle achieved this milestone in Make-A-Story, one of Bailey's five Book House activities. Bailey's delightfully wacky sense of humor shines through in this activity, in which kids create a four-sentence story by choosing a subject, mode of transportation, destination, and activity to perform upon arrival. The program animates the screen and reads the story out loud in children's voices as kids create each sentence.

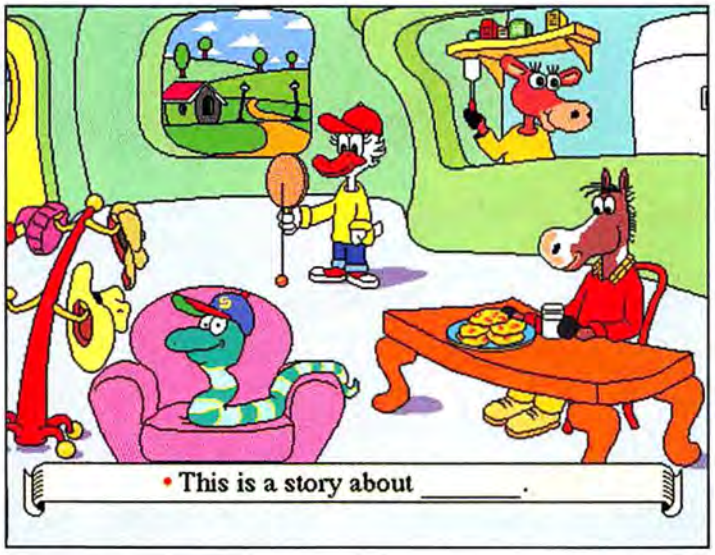
Bailey also teaches kids that words on a computer can be mixed with pictures and then printed. This aspect of Bailey's Book House, which is featured in the Kid Cards activity, drew the loudest applause from our testers. In Kid Cards children can design twenty-one different cards — using supplied clip art and phrases — and print out their final creations.

Although Bailey's shortcomings are slight, the FamilyTested reviewers gave it a score of 86 for Help, a category that includes installation, documentation, on-line help, and technical support.

Some testers had trouble printing from Macintosh machines. A call to Edmark technical support solved the problem. The solution is to turn off Background Printing by clicking a button in the Chooser. (A simple mention in the next Book House manual would save future buyers a technical support toll call.)

Bailey's simple point-and-click interface makes navigating the program a breeze for kids and adults alike. "I really appreciate the adult prompt key — what a great idea!" said Marion Douglas, mother of five-year-old Joseph Delarosa of Austin, Texas. Douglas was referring to the keyboard shortcut that calls up help screens and options for customizing Bailey's Book House, such as turning printing on or off or changing the keyboard layout.

Linda McElvenny, a teacher in Exton, Pennsylvania, summed up the general response of our testers to the program: "It's educational, age-appropriate, and fun!"

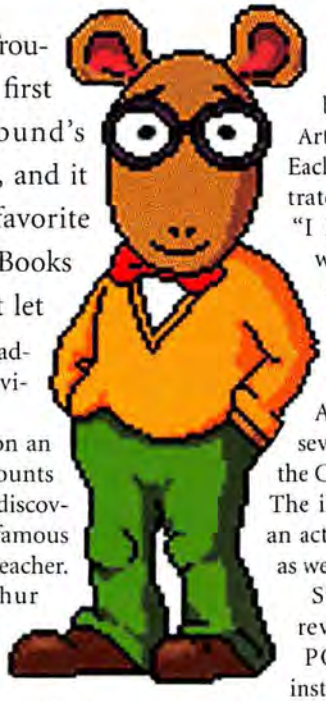


Bailey's Make-A-Story activity was a big favorite among our youngest group of testers

Ages 4 to 10

Arthur's Teacher Trouble

Inventive graphics and mischievous wordplay make this school a favorite



ARTHUR'S TEACHER TROUBLE was one of the first titles in Brøderbund's Living Books series, and it continues to be an all-time favorite among young readers. Living Books are interactive CD-ROMs that let children four through ten explore reading in an engaging and familiar environment: the storybook.

Arthur's Teacher Trouble, based on an original book by Marc Brown, recounts the story of Arthur the mouse who discovers that he has "The Rat"— the infamous Mr. Ratburn — for his third-grade teacher. Then, on top of everything, Arthur finds himself representing his class in the schoolwide spell-a-thon. If he can't spell a certain eleven-letter word correctly, he'll be in big T-R-O-U-B-L-E.

The plot tells only half the story of this classic CD-ROM title. As Jessica Manson, eight, of Austin, Texas, discovered, "There are all kinds of neat things to click on!"

Arthur screens are filled with hot spots that encourage point-and-click exploration. Click on the school bell and it rings. Click on Mr. Ratburn's staid green jacket and it changes into a succession of outrageous designs. Click on two cans on the back of a stove and they do the can-can. A soaring Graphics score shows how much kids liked this part of the program.

Your child can click on the text, too, and it is pronounced in either English or Spanish. Valerie Battcher, a teacher in Louisville, Kentucky, thought the story "read a little slow," but overall she felt Arthur could "provide hours of learning and entertainment."

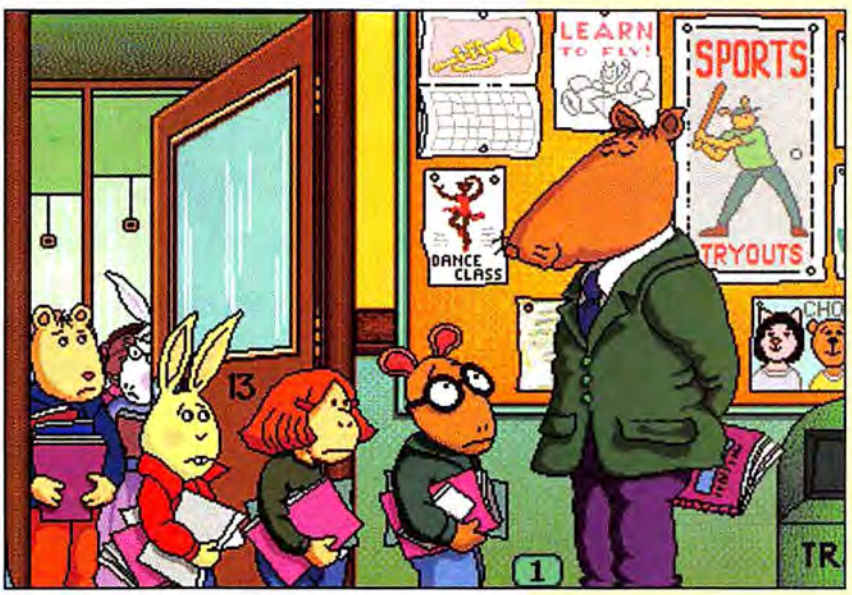
Joshua Hurwitz, aged six, of Los Angeles, liked the program's ease of use, as did nearly all of the home testers. "I can use it without help," he remarked with pride.

A pleasant dose of skills-based learning comes when Arthur studies for his spelling bee. Each word is spelled out and illustrated with an animated graphic. "I learned how to spell some words I didn't know before," said Teresa Grasso, eight, of Exton, Pennsylvania.

Pleased for another reason was Louis Swaab of Austin, Texas, father of Hannah, seven. "Including the book with the CD is an excellent idea," he said. The illustrated paperback provides an activity away from the computer, as well as a link to it.

Swaab was one of the few reviewers, most of them using PCs, who ran into trouble installing Arthur. Swaab said that once he freed up memory using the Windows SmartDrive function, installation was easy.

Philip Bishop, *who compiled these reviews, is a writer and graphic designer who lives with his wife and four children in Narragansett, Rhode Island.*



Arthur's Teacher Trouble combines a twenty-four-screen storybook with more animated hot spots than you can shake a mouse at

Fun: 90
Graphics: 97
Sound: 94
Ease of Use: 97
Help: 86
Replay Value: 92
Learning Value: 83

$40.00
Platform: *Mac or PC*
Format: *CD-ROM*

Minimum PC requirements:
CPU: *IBM PC 386SX or compatible*
O/S: *Windows 3.0 with Multimedia Extensions, MS/PC-DOS 3.3*
RAM: *4MB*
Disk: *CD-ROM*
Monitor: *SuperVGA*
Sound Card: *Sound Blaster or compatible, ProAudio Spectrum/16, ThunderBoard, Tandy MPC Sound*
Mouse

Minimum Mac requirements:
CPU: *LCII series*
O/S: *System 6.0.7*
RAM: *4MB*
Disk: *CD-ROM*
Monitor: *256-color*

Brøderbund:
800-521-6263 or 415-382-4567

WHO STARRED IN THAT MOVIE THUMBS UP OR THUMBS DOWN DID IT WIN AN OSCAR HE SURE LOOK

THIS LETTER STANDS OUT NOW NEW LOGO USE THE DATABASE GET THE SPREADSHEETS TOGETHER THESE GRAPHICS ARE EASY

Inactive

Why let your kids veg out in front of the tube when there's a whole lot more than rock & roll inside every AcerAcros multimedia PC.

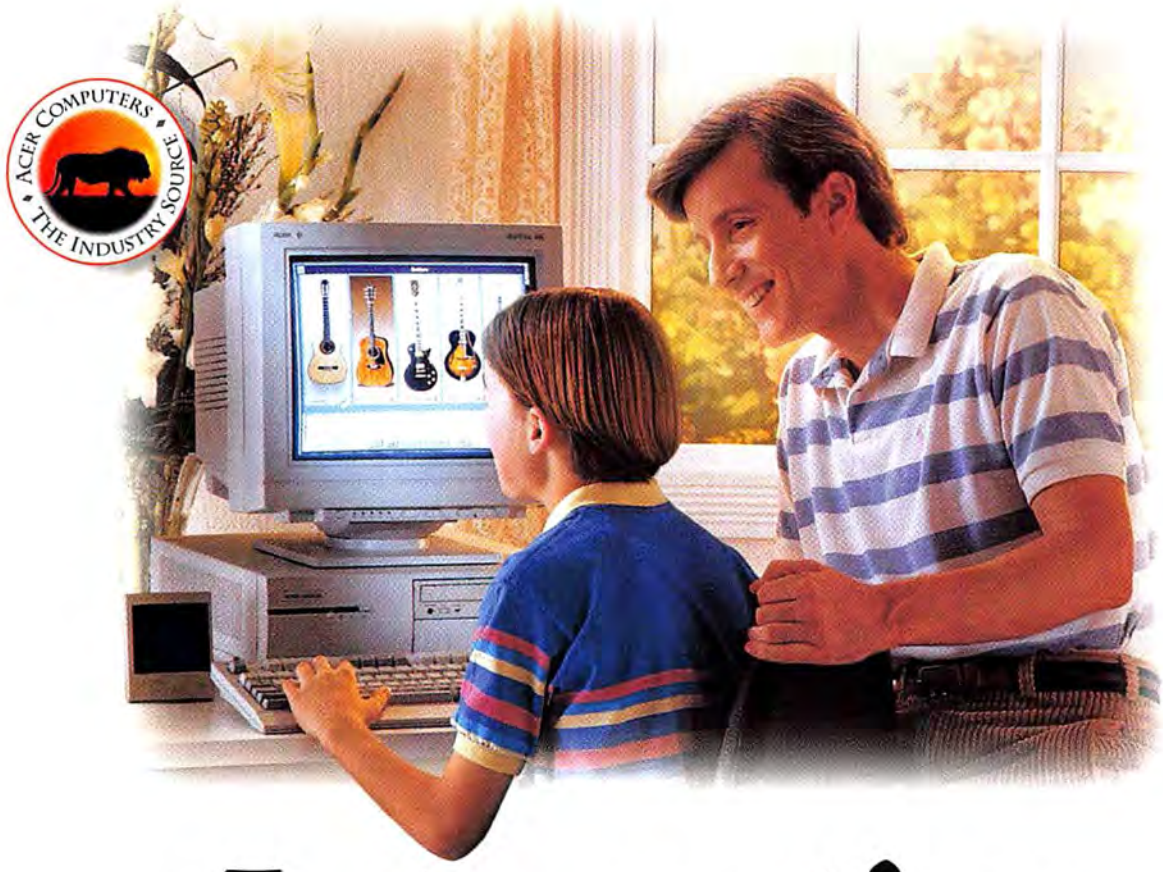
Electronic Entertainment chose the AcerAcros as the clear price/performance leader... "When it comes to bang for the buck, the AcerAcros has what it takes."

SEVEN WONDERS OF ANCIENT CIVILIZATIONS DOES MYTHOLOGY RELATE TODAY HOW DO YOU SA

'OUNG HOUSTON DIRECTED THAT ONE LOVE THOSE WESTERNS WHAT A GREAT LINE MAKE MY DAY

ELECTRIC GUITAR STARTUP COOL NOW BALALAIKA FOR OPENING APPLICATIONS DIDGERIDOO BYE BYE BEEPS REAL MUSIC TO MY EARS

T IN URDU WHY ARE AUSTRALIAN ANIMALS SO DIFFERENT IS THE UNIVERSE REALLY EXPANDING



Interactive

Smart Kids Need Smart Tools.

With the AcerAcros 4000G, you get a fast 486-based system with CD-ROM drive, stereo speakers and plenty of room to store all your stuff. You also get Encarta,™ the world's best-selling on-line encyclopedia, and SoundBits,™ Cinemania,™ Golf, and more cool software.

ACER INTRODUCES THE HOME PC THAT STRETCHES YOUR MIND, NOT YOUR BUDGET.

Packed with software that comes to life through sight and sound, the AcerAcros 4000G multimedia PCs give your kids the advantage they need to stay ahead of the curve. And you'll love how all the great software will help you with the grown-up stuff too!

No one else offers such a complete package at such an affordable price. When it comes to value and quality, you can't beat Acer.

Acer®

To order an Acer system or for a retailer near you, call 1-800-556-ACER

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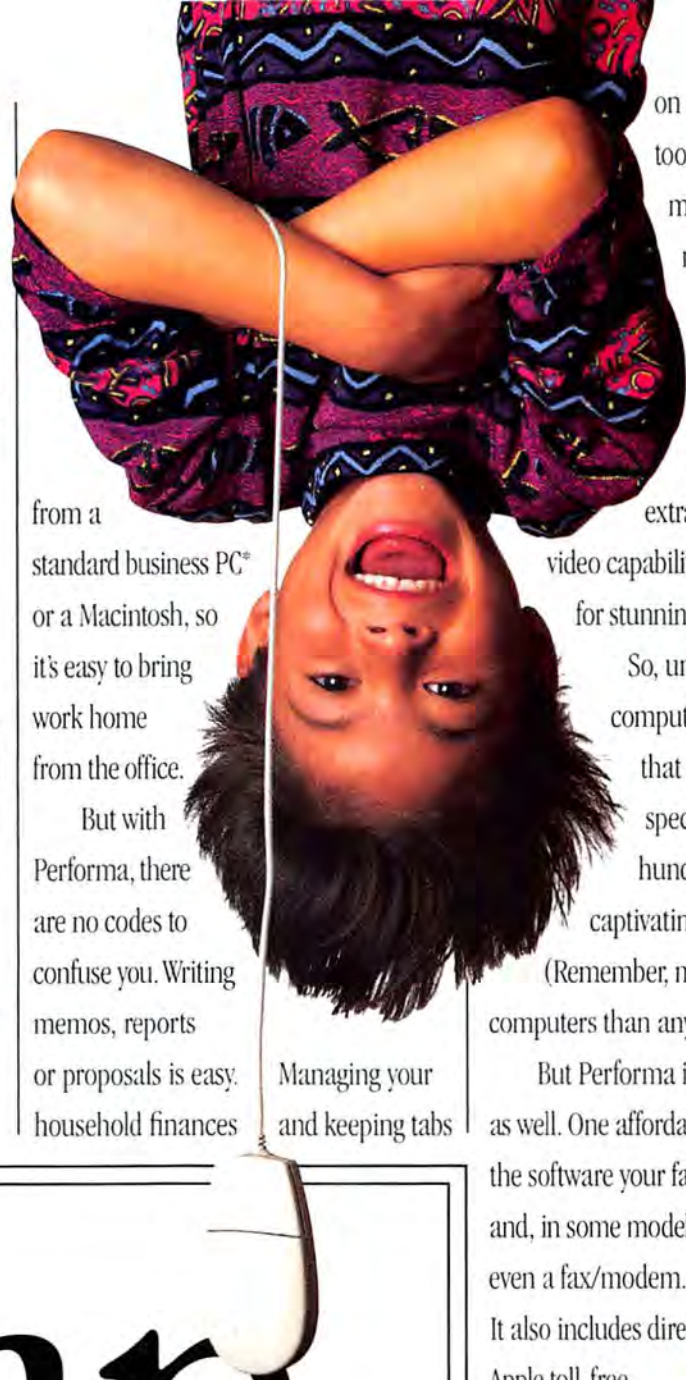


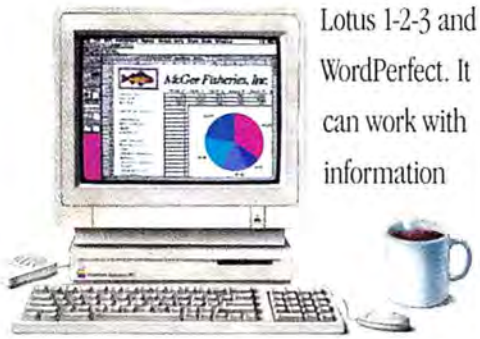
The typical business PC requires at least some knowledge of complicated computer codes. Serious? Yes. Fun? Hardly.

All it takes is a path command error or an AUTOEXEC.BAT file to send you or your kids back to reruns on TV.

The typical business computer simply wasn't designed for families to use — so Apple went ahead and invented one that is: Apple® Macintosh® Performa.™

It's a serious business computer.

Performa has all the power to run thousands of business programs, such as Lotus 1-2-3 and WordPerfect. It can work with information from a standard business PC* or a Macintosh, so it's easy to bring work home from the office.



Performa runs serious business software like Lotus 1-2-3, so you can get serious work done in the comfort of your home.

But with Performa, there are no codes to confuse you. Writing memos, reports or proposals is easy. Managing your household finances and keeping tabs on the stock market are, too. In fact, Performa makes it easier to get more done, and that's serious business.

It's a serious fun computer.

Performa comes with extraordinary sound and video capabilities, as well as a talent for stunning graphics.

So, unlike boring business computers, it can play games that are nothing less than spectacular. It also runs hundreds of thoroughly captivating learning programs. (Remember, more schools use Apple computers than any other kind.)

But Performa is a tremendous value as well. One affordable price includes all the software your family is likely to need and, in some models, even a fax/modem. It also includes direct Apple toll-free phone support and a full year of in-home service.*

Plug in an AppleCD™ 300 drive, and your family can use the latest multimedia learning software. Add the AppleDesign™ Powered Speakers for even better sound quality.

So with Performa, your whole family is sure to get the most enjoyable power on earth. The power to be your best.®

Can a serious business computer be fun to use?

Performa

The Family Macintosh

*Performa is available at Best Buy, BizMart, BrandsMart, Campo/Sound Trek, Circuit City, Dayton's and Hudson's, Incredible Universe, Lechmere, Nobody beats the WIZ, Office Depot, OfficeMax, Sdo, Staples, Tops, WORKplace and select The Good Guys!, Montgomery Ward and U.S. Sears locations. *With Macintosh PC Exchange™ or SoftPC software. ®Support and service cover Apple computers and peripherals, but not third party software (which usually has its own support policy). ©1993 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Macintosh and "The power to be your best" are registered trademarks and AppleCD, AppleDesign, Macintosh PC Exchange and Performa are trademarks of Apple Computer, Inc. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. SoftPC is a registered trademark of Insignia Solutions Inc. WordPerfect is a registered trademark of WordPerfect Corporation.*

HANDS ON Mobile Office

NEWTON SOFTWARE /

MINI MONEY MANAGER

KEEPING TABS on your personal and business expenses seems a natural for the Newton MessagePad. So no surprise that several vendors have developed Newtonian expense-tracking apps. The one that most intrigues us is ExpensePlus, from State of the Art (714-753-1222), maker of accounting software for Macs and PCs.

ExpensePlus ($139.95 on disk, $159.95 on PCMCIA) has several outstanding features. First, it's designed so you don't have to rely on handwriting recognition. Once you've entered the names of the people you usually lunch with, your favorite restaurants, and the hotels you frequent, you can access the information simply by tapping — a great time-saver. Second, if you're in a hurry, you can jot down an expense in the Newton's Notepad — for example, "taxi $13" — and use the Assist button later to automatically enter the information into ExpensePlus.

But its best feature, unique for programs in this category, is that in addition to the Newton software, ExpensePlus provides a "receiver" application you install on your Mac for downloading expense data from your MessagePad. Using AppleScript, you can then enter the data directly into an electronic expense-report form in Excel, FileMaker Pro, or Informed Manager. State of the Art ships several basic expense-report forms designed in these applications, along with the AppleScript scripts required to drive them. If your company requires a custom electronic form, you can modify one of the scripts to suit your needs. / Henry Bortman

MESSAGEPAD BATTERY /

KITCHEN SINK NOT INCLUDED

NEED A BATTERY boost for your Newton? Need a case too? The X-Pack, from BTI, is a $119.95 long-lasting, rechargeable battery with a protective leather case that's big enough to hold not only the battery, the charging unit, and the MessagePad but also PCMCIA cards, credit cards, and your wallet. BTI says the battery provides as much as 15 uninterrupted hours of operating time and takes 8 hours to recharge. 213-728-7874. / Victoria von Biel

TOUCHPAD DECALS /

TATTOO YOU

APPLE'S 520 and 540 PowerBooks could mark the beginning of the end for trackballs in notebook computers — the new machines feature technologically superior touchpads. But what about the thriving cottage industry that provides colorful replacements for those drab gray balls? It had better start looking at the Intel-notebook market: For PowerBook users, it's time to get tattooed.

APS Technologies, which has a bit of experience with frivolous (PowerBalls) and not-so-frivolous (hard drives) PowerBook accessories, is issuing a set of commemorative (frivolous) Blackbird Tattoos (a reference to the code name for the new PowerBooks). Although what exactly is being commemorated is vague, the tattoos themselves are extremely thin plastic overlays for the otherwise featureless touchpad. Unlike the art you find on, say, the Red Hot Chili Peppers, these are easily removed. Designs include skulls and crossbones, pixie devils, and the ever-popular Mom. Tattoos come in packages of 20 for $10, with part of the proceeds going to Habitat for Humanity, the nonprofit organization that builds homes for low-income families. 800-483-6100 or 816-483-6100. / James Bradbury

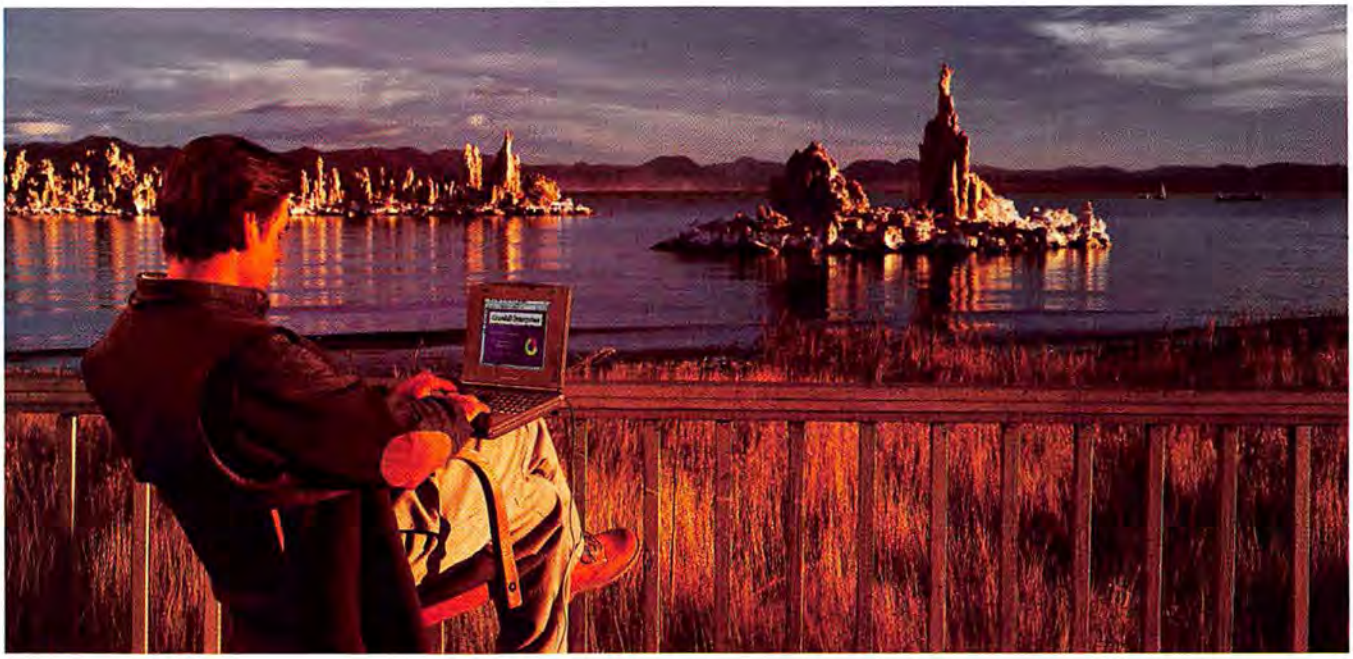
POWERBOOK BATTERIES /

MO' BETTER BATTERIES

MORE LEAD-ACID PowerBook batteries have hit the superstores: BTI (213-728-7874) now offers the SlimPack battery, which the company claims provides a charge that lasts as much as four times as long as that of Apple's internal battery. The SlimPack for PowerBooks costs $169.95; the model for Duos costs $299.95. You can attach a SlimPack to the bottom of your PowerBook with the included connectors or, for a more secure connection, with a $19.95 mounting kit.

Lind Electronic Design (612-927-6303) also has introduced a line of lead-acid batteries: The APP-102 ($199.95) is designed for the all-in-one PowerBooks, and the APP-202 ($229.95) works with PowerBook Duos. Serious road warriors can charge the APP-102 by using a Lind Automobile Power Adapter. / VvB

Now you can access your office from anywhere you happen to be. Bummer.



Under normal circumstances, the last thing you want to think about when you're away from the office is the office. Then again, when was the last time you operated under normal circumstances?

What you really want is the power to control the way you work. To turn wherever you are at the moment into the most productive place on earth. Unrestricted by walls, time sheets and bad coffee.

What you really want, in other words, is freedom. The freedom that comes with the Apple® Remote Access family of Client, Personal Server and Multiport Server products.

With Apple Remote Access, Macintosh® and PowerBook® users can easily dial into office computers, servers and networks from virtually anywhere they happen to be. Anytime they happen to be there.

Once connected, it's just like being in the office. You can retrieve files. Collaborate with colleagues. Send and receive electronic mail. Or even print documents. All from the most remote locations.

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PowerBook Tips

From making your battery last longer to keeping your screen clean, these tips from experienced PowerBook users will keep you on the move. BY JOSEPH O. HOLMES

Taming Power Hogs

For the longest battery life, be aware of the status of such energy hogs as AppleTalk, your internal modem, and your processor. Some commercial utilities keep you apprised of these details, but for those who don't have such a utility, Mike Caputo's PowerStrip 3.0 displays modem status, processor speed, AppleTalk status, and other information in a small strip you can place across the top or bottom of your screen. It takes up only a little RAM, and best of all, it's free.

Liz Manning
Bronx, NY

[*PowerStrip 3.0 is available on* MacUser's *on-line service, ZiffNet/Mac. Look for the filename PSTRIP.SIT in Library 1 of the Download & Support Forum. — Ed.*]

A Cleaner Screen

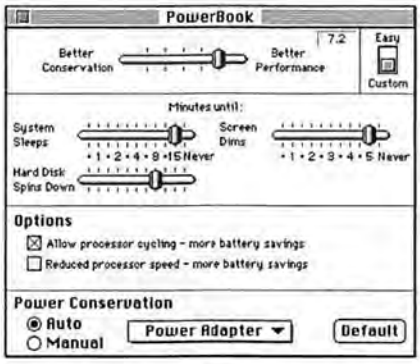
To keep my PowerBook screen clean, I use a cleaning cloth made of a special material that, according to the label, is safe for plastic eyeglass lenses and coated camera lenses. The cloth is not treated with any chemicals and can be washed with no ill effects. It takes the greasy fingerprints and dust off my screen perfectly. Breathe on the screen to fog it, and wipe the screen with the cloth.

Bill Steinberg
New York, NY

Write to PowerBook Tips

c/o *MacUser*
950 Tower Lane
18th Floor
Foster City, CA 94404

You can also send your tip to Joseph Holmes (72241,731) on ZiffNet/Mac, *MacUser*'s on-line service (include a daytime phone number). We pay $25 for every undocumented tip we print, and the Tip of the Month earns $100; see page 4 for more details.



Better Game Playing

PowerBooks use a processor-cycling mode, which kicks in after the processor has been idle for two seconds and which helps conserve battery life. Unfortunately, it also slows down screen savers (which are commonly used when a PowerBook is hooked up to an external monitor) and slows down game animation.

To turn off processor cycling, open the PowerBook control panel, hold down Option, and click on the Options button (if you're using version 7.2 of the PowerBook control panel, hold down Option and click on the Custom switch). You can then uncheck the appropriate box. Just don't forget to turn processor cycling back on when you're on the road.

George Pytlik
Vancouver, BC, Canada

[*It's not always a good idea to turn off processor cycling when your PowerBook is connected to an external monitor — the battery may not charge, and your PowerBook may overheat. — Ed.*]

Airplane Screen Tactics

You can reduce battery drain when traveling by airplane by turning the screen brightness all the way down so the backlight is off. Aim the airplane's reading light directly at the screen, and you should have adequate light.

John Daley
Monterey, CA

TIP OF THE MONTH

Apple Communications Toolbox

If you use CIM (CompuServe Information Manager) 2.2 (which supports Apple's Communications Toolbox) or later, you can store multiple CompuServe local-access phone numbers and select the one you need. First put version 1.1.1 or later of the Apple Modem Tool extension into the Extensions folder. Then use any word processor to create a text file listing the name of each location and its phone number, separated by a tab. Press Return after each phone number. Title the document Apple Modem Tool Phone Numbers, and put it into the Preferences folder inside your System Folder.

From the Settings submenu of the CIM Special menu, choose Connection. In the Primary Connection box, click on the Port pop-up menu and select Apple Modem Tool. Click on the Configure button, and you'll find that the Dial Phone Number text box has a pop-up menu listing all of your phone numbers. If you have Apple Modem Tool 1.5, you can edit this list from within CIM by selecting Modify This Menu from the phone pop-up menu.

Martin Fenner
Providence, RI

[*Apple Modem Tool 1.5 is included in a demo version of Communicate Lite, which is available on ZiffNet/Mac. Look for the filename COMLIT.SIT in Library 13 of the Download & Support Forum. — Ed.*]

AOL Unstuffs Files

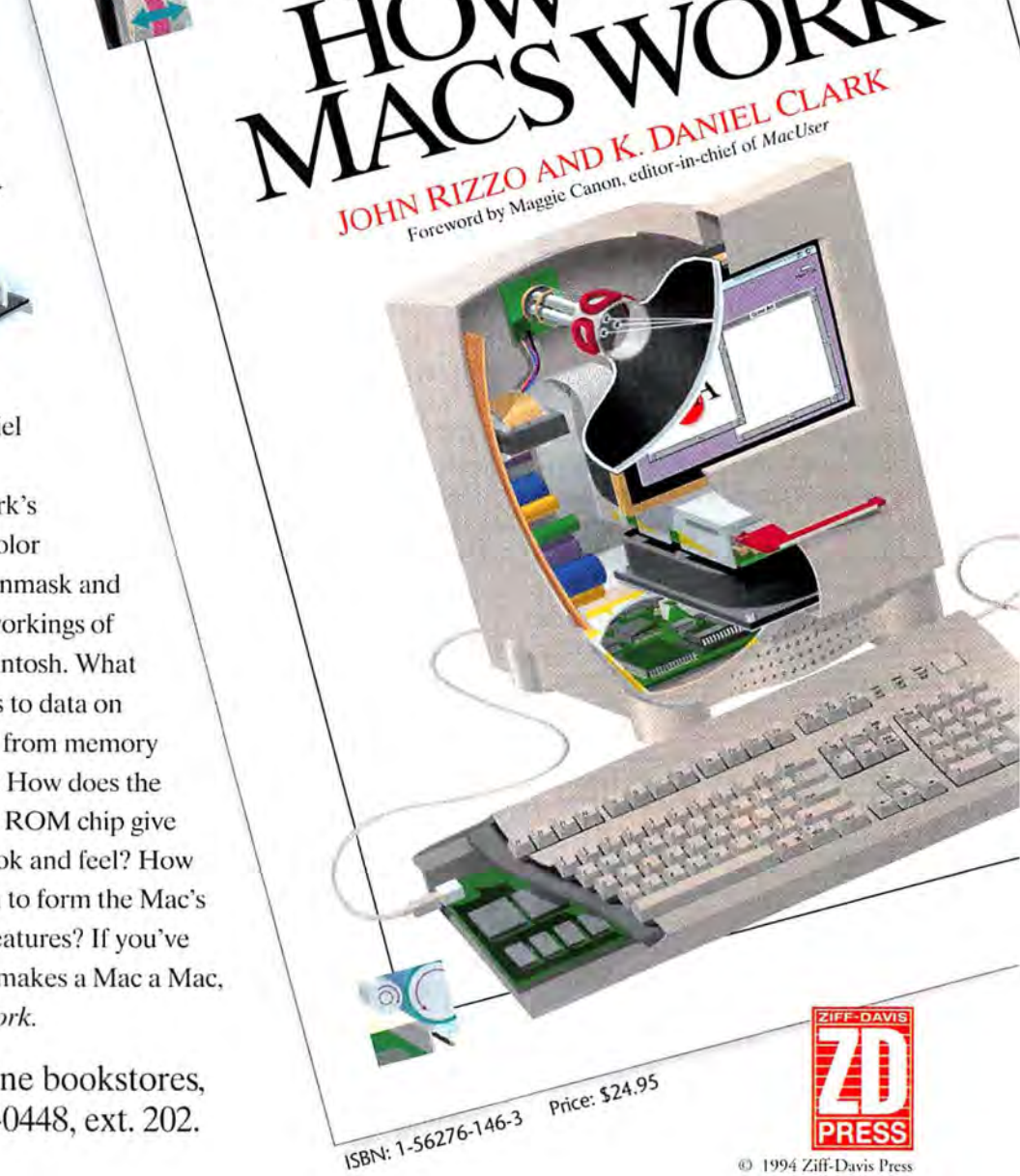
If you have a file compressed with StuffIt or StuffIt Deluxe but don't have a copy of StuffIt or StuffIt Expander handy, you can unstuff the file by using the America Online application. Simply launch America Online, select Open from the File menu, and open the file.

Jon Davies
Downey, CA

Meet the brains behind the beauty.

To the outside world, the Apple Macintosh presents the world's most graceful computing environment. But on the inside, the Mac is layer after layer of stunningly intricate technology and design. If you've ever wondered how it all fits together, read *How Macs Work*, an all-new book inspired by the popular "How It Works" series that appeared in *MacUser* magazine, written by *MacUser* technical editor John Rizzo, and brilliantly illustrated by K. Daniel Clark. Rizzo's lucid explanations and Clark's highly detailed, full-color illustrations artfully unmask and demystify the inner workings of the Macintosh. What happens to data on the way from memory to storage? How does the closely guarded Mac ROM chip give the Mac its unique look and feel? How do technologies mesh to form the Mac's built-in networking features? If you've ever wondered what makes a Mac a Mac, turn to *How Macs Work*.

Available at all fine bookstores, or call 1-800-688-0448, ext. 202.



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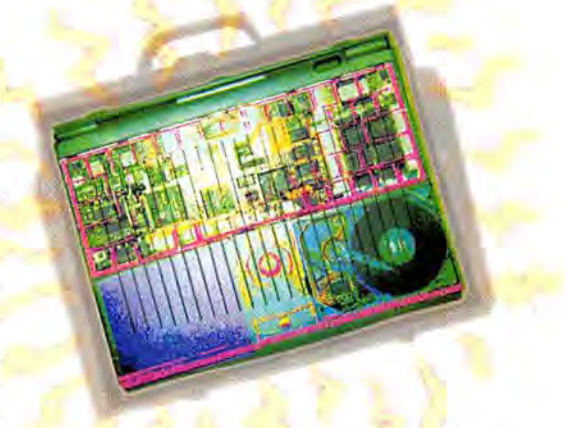
Traveling Safe

The X rays that zap your PowerBook; the perils of letting your PowerBook sleep in transit; and other hotbeds of controversy, traveling myths, and nonsense. BY SHARON ZARDETTO AKER

THERE ARE TWO controversial issues when it comes to PowerBooks and air travel: what you should (or should not) do at check-in and what you can (and cannot) do during the flight.

Let's start with that hotbed of controversy: running your PowerBook through the security X ray. As the sneaker ad says, just do it! X rays are a form of light. They're not going to hurt anything in your PowerBook — not the circuits, not the contents of the hard disk. The only time light can hurt your PowerBook is if you get really, really, *really* close to the sun — at which point, you'll be melting too. In an effort to prove how harmless X rays are to PowerBooks, when Rich Wolfson and I were working on *The PowerBook Companion*, we X-rayed both of our PowerBooks at a friend's medical office and printed the X rays in the book. (For some reason, Rich insisted on X-raying *my* machine first.)



And what about that other precaution — that you should avoid the magnetic field emitted by the conveyor belt's motor? The standard warning is simply to place your PowerBook as close as possible to the entrance of the X-ray area, because that's the farthest point from the motor. But you know what? You can put the PowerBook right on top of that motor, and there still won't be enough of a magnetic field present to harm the data on the hard disk. There's a greater chance of damage to your PowerBook if you have it hand-inspected by careless hands that might bang or drop it on a busy day.

Security and Sleep

Let's say you're just not comfortable with the laws of physics and want to avoid that X-ray machine at all costs. If you go the hand-inspection route, you will be asked to turn on the PowerBook to prove it's not a cleverly disguised bomb. How long does it take your PowerBook to go through a startup sequence and get to the desktop? A minute is a very long time when you're heading for the gate — and even longer when there are impatient travelers in line behind you. You should prepare for this episode ahead of time by putting your PowerBook to sleep instead of shutting it down, so a single key press will instantly light up the screen and

POWERBOOK SECRETS / *make your own phone adapter*

WHEN YOU'RE IN AN OLDER HOTEL or any other building that doesn't have modular phone plugs, you can connect your modem to the phone line by using an RJ-11 clip adapter. This adapter gives you the RJ-11 connector for the modem on one end and alligator clips on the other to attach to the all-important telephone wires — usually the red and green ones. These wires may be easily accessible behind a wall plate. If they're not, loosen the screws on the bottom of the phone, open the phone cover, follow the phone wires to their terminals, and attach the clips to the terminals (usually labeled L1 and L2).

You can make your own RJ-11 clip adapter for less than $5. Just drop by your local electronics or hardware store, and pick up an RJ-11 spade adapter, two insulated alligator clips, and a piece of heat-shrink tubing. Cut off two of the four wires from the spade adapter, leaving the red and green ones. Cut the spade clips from the remaining wires, and strip about half an inch of the wires. Slide a small piece of tubing onto the main wire of the spade adapter, and slide the clips' insulating covers onto the two branches. Attach the alligator clips (solder the connection if you can) to the ends of the branches, and slide the covers back over the clips; then slide the tubing up to where the wires branch, and hold a match under it for a few seconds to heat-shrink it into place. / Richard Wolfson

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CIRCLE **24** ON READER SERVICE CARD

prove that the PowerBook is harmless.

But what about that warning in the manual? The one about not traveling with a sleeping PowerBook? That's based on the remote possibility that a bouncy journey might jiggle a key just enough for the PowerBook to interpret it as a key press; you wouldn't know the PowerBook was awake because it's closed and, presumably, securely tucked away in a padded case. First, the chance of this happening is so remote that it's almost embarrassing to explain the reasoning behind the official warning. I don't think my PowerBook has ever traveled in anything *but* Sleep mode — including a few thousand miles of bumpy car rides that would certainly be more likely to trigger a key jiggle than being carried through an airport would. Second, isn't your PowerBook set to go back to sleep anyway? What does it matter if it wakes momentarily, unbeknownst to you, and then dozes off again?

Oh, before we go on to the next subject, let's have a word on the "airport module" you find in some PowerBook-utility collections. The word is *nonsense*. Such a module is supposed to save you time when you're starting up the PowerBook: Hold down a designated key at startup, and you get a screen that says something like *This is so-and-so's PowerBook. An innocent computer.* Even if you don't want to carry around the PowerBook while it's sleeping, just in case (you probably don't step on sidewalk cracks either, just in case), you already have a built-in quick-startup capability: Hold down the Shift key to bypass your extensions. To be fair, I'll admit that an airport module can be a little faster overall than an extensionless startup, chiefly because it provides one-key instant shutdown whereas the normal shutdown requires a trip to the Special menu. But in saving those extra three seconds or so, you also saddle yourself with an altered System file, because an airport module works by changing the boot blocks in the System file so it can take over at startup.

Look! Up in the Air!

Now, on to that other favorite topic for PowerBook air travelers: using the PowerBook while in flight. You've got your basic minor problems, such as getting a battery to last for a cross-country flight and trying not to yell at the person in front of you who changes the angle of your screen by leaning back. But the real issue is whether or not you'll be allowed to use the PowerBook at all.

There are some very explicit rules about what kinds of devices you're allowed to use on an airplane; you can't, for instance, just whip out your radio and try to tune in to National Public Radio. But FAA regulations don't include any specific references to computers, so it's up to individual airlines to make their own rules. I called half a dozen domestic airlines, and all had the same policy: Passengers are not allowed to use computers during takeoff and landing or at altitudes below 10,000 feet — which amounts to pretty much the same thing. This shouldn't feel at all restrictive to even the most enthusiastic PowerBook user, because the tray tables should be up and potential projectiles stowed beneath seats at these times, anyway.

What's the big problem about laptops on airplanes? The concern is that they'll interfere with the instrumentation in the cockpit, because they emit radio waves. Yet I clearly recall a picture that appeared on the front page of *MacWEEK* when the 165c was introduced, showing a PowerBook, a pilot, and a cockpit. I've since met Vernon Huang, that pilot (a Navy flight surgeon attached to a Marine F/A-18 squadron), and asked him what he thought about the PowerBook/instrumentation problem. He replied that although he is not supposed to use the PowerBook in a Navy aircraft, if it were up to him, he'd have no concerns about running it right in the cockpit. (He also said that he runs the PowerBook through X-ray machines; he travels with it in Sleep mode; and he's tested it in an altitude chamber depressurized to altitudes higher than the 10,000-foot maximum specified in the PowerBook manual, without any problems.) Lurking around the Aviation forum on CompuServe, I found the same attitude expressed by all the pilots who dropped in.

Facts and fears aside, you'll have to abide by the rules of the airline you're flying — rules airline captains can overrule as they see fit, by the way.

So what's the bottom line? My own philosophy of safe travel is, *Don't worry* and *Do what you're told.*

Sharon Zardetto Aker is the coauthor, with Richard Wolfson, of the second edition of *The PowerBook Companion.*

PHOTOGRAPHY / LEON

Tough Enough?

WE MAILED 'EM, cooked 'em, froze 'em, dropped 'em, and magnetized 'em — and these removable cartridges came back for more. BY MARK FROST

We got your cartridge, but when we put it in our drive, we got an error message. We think it's dead. Can you send another?" That's the last thing you want to hear after sending someone a cartridge containing your precious data.

The best way to protect your hard work is to use the most-rugged cartridges you can buy — and, of course, back up all of your work. But how do you tell a rugged cartridge from a wimpy one?

MacUser Labs

Warning labels on most cartridges advise against rough handling, magnetic fields, and extremes of temperature and humidity. To assess the relative destructive power of each of these supposed dangers, MacUser Labs and ZD Labs torture-tested ten of each type of cartridge — 45- and 90-megabyte Bernoulli cartridges; 44- and 88-megabyte Nomai and SyQuest cartridges; 105-megabyte SyQuest cartridges; and 128-megabyte, 3.5-inch optical cartridges.

To make sure we were starting with a level playing field, we used FWB's Hard Disk ToolKit 1.3.1 to format each cartridge (except for the Bernoulli cartridges, which require the use of their own driver software). We then examined them with the shareware utility SCSI Info — available in Library 3 (Extensions) of ZiffNet/Mac's Download & Support Forum — to find the number of *factory* and *user* defects — bad sectors that either are a result of the manufacturing process (factory) or develop through use or abuse (user). We then copied the contents of our test hard disk onto each cartridge, running SCSI Info afterward to check for any new user defects.

Ham-Handed Handling

We sent each cartridge from California to New York and back via first-class mail. When the cartridges returned, we checked for any change in the number of user defects and then read some files from the cartridges and wrote some new ones to them to ensure that data could still be read from and written to each one.

Despite the distance they'd traveled and the number of hands they'd passed through, all the cartridges survived.

Next, we froze, roasted, and steamed each cartridge in an environmental chamber at ZD Labs to see how well it held up in extremes of temperature and humidity. We cooled the cartridges to 14 degrees Fahrenheit, 10-percent relative humidity; heated them to 122 degrees Fahrenheit, 10-percent humidity; and finally, gave them the full steam-room treatment at 122 degrees Fahrenheit, 90-percent humidity. Between tests, we again examined each cartridge.

Finally we began to see some effect — but only a slight one. Some of the 3.5-inch optical cartridges showed a small increase in the number of user defects after the high-humidity, high-heat test, but not enough to affect the cartridges' capacity. Other than that, no other cartridge suffered any effect.

Few of us freeze or cook cartridges during a normal day, but we do drop them. So to test the effects of common clumsiness, we conducted two drop tests — one onto carpet, the other onto linoleum-covered concrete. Each drop was from 3 feet, with the cartridges landing in the worst possible way: on the edge with the shutter opening.

Again, the results were inconclusive. The damage that resulted was limited to some minor chipping of some of the SyQuest cartridges' cases. The Nomai cases seem to be made of a slightly more resilient plastic — none of them chipped. None of the cartridges suffered any data loss, however.

Fatal Attraction?

Optical cartridges have gained the reputation of being impervious to magnetic fields, whereas the magnetic media in Bernoulli, Nomai, and SyQuest cartridges have the reputation of losing their data in the presence of everyday magnetic hazards. To find out how sensitive each cartridge was to external magnetic fields, we placed it on top of an activated degaussing ring — a type of electromagnet — for five seconds. Even though the degaussing ring zapped each cartridge with a magnetic field far more intense than what most people would ever expose a cartridge to, none failed. Another bogeyman bit the dust.

So if all the cartridges are equally tough, does it matter which kind you buy? When deciding among cartridges based on different technologies, examine your budget and your speed and capacity requirements. Don't worry about ruggedness — modern removable cartridges can take care of themselves quite well, thank you.

In most cases, optical *drives* are more expensive than Bernoulli or SyQuest drives, but optical *media* are much cheaper. However, Bernoulli and SyQuest drives are almost always faster than optical ones of similar capacity (see "Choosing the Right Removable," Nov. '93, page 106).

Despite our test results, though, cartridges die daily. We didn't test the two Ds of Destruction: Dirt and Drivers. Dirt (and dust) can contaminate any type of cartridge — especially a magnetic cartridge, in which the clearance between the disk and the drive's read/write head is minuscule. (To address this problem, APS [800-235-2753 or 816-483-6100] recently introduced the SyGuard, an $8.99 plastic guard that fits over SyQuest 44, 88, and 88C drive openings to lock out dust and other contaminants.) Driver software, which tells your Mac how to deal with a cartridge drive, brings with it a whole panoply of compatibility questions (see the "Blame It on the Driver" sidebar). Aside from these two dangers, take heart: Today's removable cartridges will take a lot of abuse before they crumble — and take your data with them.

Mark Frost is a *MacUser* senior editor. James Hong managed the testing for this report.

Pay Now or Later

There's a simple rule when you're budgeting for a removable-cartridge drive: Optical drives are expensive but use inexpensive media; magnetic-cartridge drives are inexpensive but use expensive media. If you don't expect to use many cartridges, then a magnetic drive will save you money; if you plan to go through plenty of cartridges, think optical.

Cartridge Type	Drive Cost	Cartridge Cost
Bernoulli 45	NA	$99
Bernoulli 90	$485	$102
Bernoulli 150	$589	$99
Nomai 44	NA	$60
Nomai 88	NA	$90
SyQuest 44	$309	$59
SyQuest 88C	$478	$93
SyQuest 105	$511	$61
3.5-inch optical 128	$846	$33

Prices shown are averages of those obtained from a *MacUser* survey completed in February 1994.

Blame It on the Driver

BECAUSE APPLE HAS NEVER DESCRIBED a uniform way of dealing with removable-media storage devices, there are a variety of incompatible third-party drivers for the various cartridge drives.

Driver incompatibility makes it difficult to consistently mount all cartridges and, in some cases, can result in corrupted cartridges. Fortunately, some driver developers, such as FWB and Charismac, have chosen to have their driver load from the Mac's System Folder at startup and stay in memory at all times, taking priority over whatever driver is on a cartridge you put into your drive. This approach almost completely eliminates incompatibility problems.

Last year SyQuest introduced a specification for drivers — SyQuest Approved — which the company claims eliminates compatibility problems. This specification requires that each cartridge's driver remove itself from your Mac's memory when the cartridge is ejected, an arrangement that can cause several problems. First, if you frequently swap cartridges, your Mac's system memory will become fragmented. Second, if you insert an old cartridge containing a driver that is not System 7-compatible or that does not comply with Apple's partitioning specification described in *Inside Macintosh, Volume V* (or later), your chances of mounting the cartridge will be slim, and you may even lose your data. And third, a SyQuest Approved driver can be a problem if you use an optical drive. Optical-drive manufacturers store cache and write-verification settings in different ways (the driver for a Sony optical drive may not set write verification correctly for an Olympus one, for example), so if you insert a cartridge formatted on an optical drive that's a different brand from yours, you may never know if your drive's cache or write verification is turned on or off.

For the best results, avoid SyQuest Approved drivers and install an up-to-date version of either FWB's or Charismac's driver on your Mac and on all of your cartridges.

Help Folder

The power of VRAM and the best way to transfer a lot of files from one Mac to another. BY ANDY IHNATKO AND BOB LEVITUS / TIPS COMPILED BY GREGORY WASSON

16 Bits' Worth

Q. When I increased the amount of VRAM (video RAM) in my LC from 256K to 768K, I noticed that the Monitors control panel had a new listing, for thousands of colors. I chose it, but no new colors were evident on my puny 12-inch monitor.

I thought it might be easier to see all these colors on a larger monitor, but to my dismay, the Monitors control panel didn't list an option for thousands of colors when I connected my 14-inch monitor. Why did the choice disappear?

J. P. Grauerholz
Golden, CO

BOB: Because an LC with 768K of VRAM supports thousands of colors on a 12-inch monitor but only 256 colors on a 14-inch one.

You had thousands of colors available when you were using the smaller monitor, but you just didn't notice them. To see the difference, open any graphics program that supports 24-bit color, create a gradient fill from black to white, and look at the difference when you set your monitor to 256 colors as opposed to thousands of colors. You should also be able to see the difference with color images.

The only way to get your 14-inch monitor to display thousands of colors when it's connected to an LC is to add a video card, such as the LapisColor 16 ($299), from Focus Enhancements (800-538-8862 or 617-938-8088). But cheer up. Even though you lost the thousands-of-colors option when you went to a larger monitor, you're still ahead because of all that VRAM you added. If you had only the 256K of VRAM you started with, you couldn't get more than 16 colors on your 14-inch monitor.

ANDY: Before you invest in a video card for your LC, be aware that displaying thousands of colors on a 14-inch monitor slows down screen redraws significantly. That means you have to wait longer every time you do such ordinary tasks as scrolling through a document or clicking on a new window. You're probably better off being satisfied with the 256 colors you've got now.

No More Jaggies?

Q. Even though my HP DeskWriter is a non-PostScript printer, is there a way to get clean, smooth results when I print EPS graphics? Will ColorArt's Freedom of Press help?

John McManus
via ZiffNet/Mac

ANDY: It ought to help, since it's designed to reproduce PostScript graphics accurately on non-PostScript printers. But I recommend using Adobe Photoshop to convert the EPS (encapsulated PostScript) graphic into a high-resolution bit map. Photoshop can process the EPS code exactly as a PostScript printer's rasterizer does, resulting in a you-can-paste-it-in-any-application PICT bit map, which will print flawlessly on any printer, whether QuickDraw or PostScript. When you convert a graphic to a bit map, just set the resolution of the converted image to the maximum resolution of the target printer to get the highest possible quality.

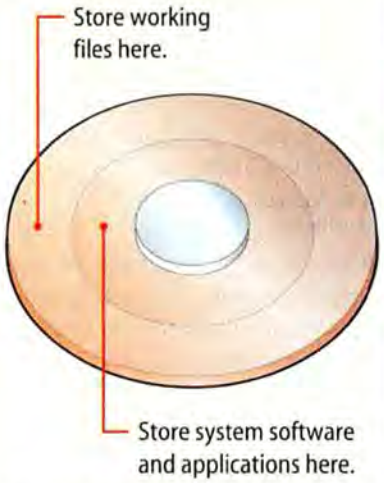
The results can be even better than with PostScript, if you use the program to tweak

Write to Help Folder/Tips

c/o *MacUser*
950 Tower Lane
18th Floor
Foster City, CA 94404

Don't want to wait for an answer? Post your question on ZiffNet/Mac, *MacUser*'s on-line service, and get a reply from Bob (76004, 2076) or Andy (72511,204). We pay $25 – $100 for any undocumented tips we publish. Send them to Christopher Breen (72241,1036).

TIPS / Hardware



HARD-DISK PARTITIONING

Maximize your Mac's hard-drive speed by repartitioning your disk wisely. When you initialize your hard disk and install applications, your Mac writes to the outside portion of the platters, which is the fastest portion to access. Instead of wasting that portion on system software and applications, repartition the disk and make an inner partition the boot volume. Keep your working files on an outer partition so you spend less time waiting for files to open or save.

Mark Frost
Senior editor, *MacUser*

MICROPHONES AND HEADPHONES

If you don't have a microphone for your Mac, you can use earphones to record sound. Simply plug some earphones, such as the ones you use with a Walkman or Discman, in to your Mac's microphone jack and speak into one of the earpieces or record whatever sound you want. You have to experiment to figure out which earpiece — right or left — to use.

Alex Rampell
Palm Beach, FL

the image with anti-aliasing and halftone screens before you convert it to a 1-bit bit map.

[*The $800 Photoshop makes an expensive printing utility if you don't already own the program. Hewlett-Packard's PostScript Software for the DeskWriter ($249) lets you print EPS files to the DeskWriter 520, 550c, and 560c. Unlike Freedom of Press, which provides a slower emulation, HP's driver does real PostScript rasterization on your Macintosh — and you don't have to learn to use Photoshop. — Ed.*]

Multifile Transfer

Q. What's the best way to transfer files from my SE to a new Mac, which comes with newer system software? Should I back up everything except the System Folder and transfer it to the new Mac?

Mary M. Ausman
Scottsdale, AZ

BOB: Even though you're getting new system software, back up the SE's entire hard disk, System Folder and all. Now go to the new Mac and copy everything over to it, including the System Folder. Shut down, and then boot from the Disk Tools disk, delete the System and Finder files you've just copied, restart with the Install 1 disk in your floppy drive, and proceed to install System 7.1 from the Apple Installer disks.

This procedure — deleting the old System Folder and Finder before beginning your installation — ensures a *clean* install of the new system software, which is the easiest method.

ANDY: That's certainly the fastest and easiest solution, but I'd do more than a clean install, I'd do a "sterile" install — initialize your new hard disk and install all of your applications from the original, locked master disks, which you've stored in a 14-gallon Coleman Air-Lite insulated cooler buried in a secret location in the mighty Berkshires.

Because of the mysterious ways of the Mac, applications and support files can become corrupted without your knowledge. Doing a complete install is the surest way to avoid the problems those corruptions can cause, such as random crashes. You also benefit from periodically performing this procedure on your Mac, because it defragments the disk, improving your Mac's speed.

BOB: A sterile restore isn't a bad idea, but it's a mite time-consuming. If you back up regularly and use Apple's Disk First Aid and Central Point Software's MacTools 3.0 for data recovery, virus protection, and disk optimization, you shouldn't have any problems with your hard disk.

Formatter for the '90s

Q. My new Quadra doesn't like my old Ehman SyQuest 44-megabyte drive. How can I get a formatter/driver that's compatible with both?

"Bill367"
via America Online

BOB: All you need to do is install new formatting software. Out here at Rancho del LeVitus, we use Hard Disk ToolKit (HDT), from FWB (415-474-8055), and Drive7, from Casa Blanca Works (415-461-2227). One or the other should solve your problem.

For most people, Drive7 is the best, because of its simplicity. It has all the features most users need for formatting disks but leaves out all the confusing choices HDT has. It also costs less than HDT — $79.95 as opposed to $199.

HDT is most appropriate for those power users who want to perform gear-head tasks

TIPS / Utilities

NOW MENUS

Adding the names of recently used documents to submenus is automatic with Now Menus, but how do you remove a name once you've trashed the document?

The process is simple: Choose the deleted document's name from the submenu it's on. In the resulting dialog box, open a document that's also listed in the submenu, and Now Menus will remove the name of the deleted document.

Diane Hamilton
Dedham, MA

PROFILES

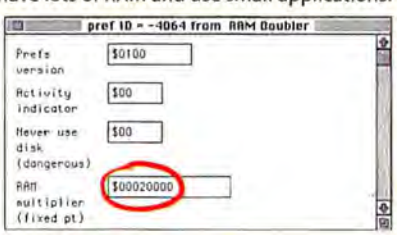
- Invoke instant Balloon Help for a tool button in Dayna's ProFiles simply by holding down the Shift and Control keys and pointing to the button in the tool bar. It's easier than turning Balloon Help on and off.
- An easy way to access a file's information, such as the type, creator, modification date, creation date, and backup date, from a filelist is to hold down the Command key, move the cursor in front of the file's kind, and hold down the mouse button. This makes a pop-up menu appear that displays the file information.
- To quickly see the path to a particular file, put your cursor in front of the file's name, hold down the Command key, and click on the pop-up menu that appears. You can select any intermediate folder in this menu, and ProFiles will open that folder within the Finder.
- The Drag & Drop extension that comes with ProFiles lets you drag files from the Finder directly into a ProFiles filelist. Many people don't use this extension, however, because they think you can use it only with System 7 Pro. That's not true. You can use it with other system software if you have Apple's PowerBook File Assistant ($49). It contains everything you need — Finder 7.1.3, Finder Help 7.1.3, and Network Extension 7.1.3 — and is less expensive than System 7 Pro ($149).

Tom Bonacci, Technical Support
Dayna Communications, Salt Lake City, UT

RAM DOUBLER

You can triple your RAM by using ResEdit to doctor Connectix's RAM Doubler. Make a backup of your RAM Doubler installation disk. Insert the backup disk, and open the RAM Doubler extension from that disk, using ResEdit. Open the resource called prefs, and find the RAM Multiplier field, which contains a number consisting of 0s and the number 2 (see figure below). If you change the 2 to 3, close the window, save your change, and then run the installer again, you'll find that your RAM has tripled!

This works best if you have lots of RAM and use small applications. Tripling RAM may degrade performance if you use software, such as image-processing apps, that requires big chunks of RAM.



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TIPS / Word Processing

WRITENOW 4.0

You can create endnotes in WriteNow, even though the program doesn't officially support them. Create your document, using footnotes. After you've finished, save a copy as a MacWrite file and then open that copy in WriteNow. This procedure magically converts footnotes to endnotes.

Elliotte Rusty Harold
Newark, NJ

WORD 4.0 AND LATER

Your tip on sorting in Microsoft Word, in the April '94 Tip Sheet (page 135), is wrong! As described in Word's own documentation, you can sort *any* column of tabbed information by lining up all the tabs and then selecting the column you want to sort on while holding down the Option key. When you sort the information, it sorts based on the selected column, whether it's on the left, center, or right side of the page.

Dave Martucci
Washington, ME

such as customizing hard-disk microcode parameters and benchmarking multiple drives to compare their speed. It comes with other bells and whistles Drive7 lacks, such as 15 disk-diagnostic tests and an excellent manual with a killer discussion of SCSI (Small Computer System Interface, a standard for connecting devices to your Mac).

ANDY: When it comes to basic formatting and maintenance, Drive7 is just as good as HDT, and it's better at handling removable media. Also, its volume-mounting control panel gives you more control than HDT's over mounting volumes.

Finding Fonts

Q. Where should I put my fonts? I know that the Finder wants to copy them into the Fonts folder, but someone told me that the System file is a better place to keep them.

Todd Arliss
Ridgeview, SD

ANDY: There's no real advantage to putting fonts into your System file. The only practical difference between a font in the System file and one in the Fonts folder is that your system will "see" the System-file font first. That can be a bummer if, for instance, your Mac overlooks the PostScript Helvetica outline files in your Fonts folder in favor of the set of bit maps in your System file.

I say move everything except Chicago, Geneva, and Monaco from your System file to the Fonts folder to keep the System file uncluttered. With everything in the Fonts folder, you can save precious memory by using Ricardo Batista's free Extensions Manager control panel to control which fonts load at startup (on ZiffNet/Mac, it's located in Library 14 [Apple Software] of the Download & Support Forum; filename EXTMAN.SIT).

Even better for font management are commercial packages such as Suitcase ($79), from Symantec (800-441-7234 or 503-334-6054), and MasterJuggler ($49), from Alsoft (800-257-6381 or 713-353-4090). These programs let you use fonts whenever you need them, no matter where they're located — say, on a removable cartridge, an external hard disk, or even a remote network volume.

BOB: Font managers are useful, but only if you have a large collection of fonts and want

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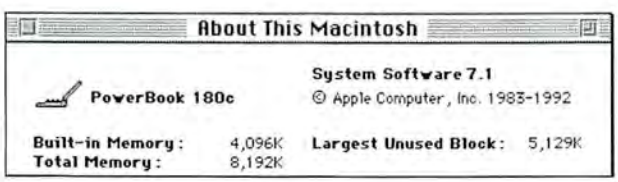

RAM Doubler is an extension that works by reclaiming memory not being used. MacWEEK says "RAM Doubler couldn't be easier to use." It is the latest from Connectix, the Macintosh memory experts and makers of the award-winning CPU and MODE32.

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MACWORLD MW EDITORS' CHOICE

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CIRCLE 62 ON READER SERVICE CARD

to be able to install and deinstall them quickly. Don't bother getting a font manager unless you own more than, say, 50 third-party fonts. It's easier to just toss 'em all into the Fonts folder and load all of them all the time.

Excel Nested Macros

Q. In a space battle, which would win: a *Star Wars*-type Super Star Destroyer or a Borg ship from *Star Trek: The Next Generation?*

John Gruber
via the Internet

ANDY: Oh, the Borg, definitely. The Super Star Destroyer can neither track, sense, nor fire on ships in warp, so basically all the Borg has to do is warp in and boom, Kobayashi Maru. Plus, you can take out a Super Star Destroyer just by crashing another ship into it whereas a Borg ship's massively distributed architecture means that if you don't blow the whole thing up with one shot, you lose. Now, if Vader were on the Super Star Destroyer, then you'd have a good fight; Vader *and* Ditka, and you'd have a blowout.

(Sorry about the header, folks, but I had to get this past the editors somehow.)

TIPS / Page Layout and Graphics

PAGEMAKER 5.0

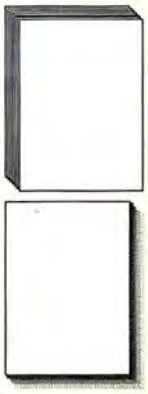
Here's how to create an attractive rectangle with a gradient shadow in Aldus PageMaker:

1. Create a rectangle, and set Fill, on the Element menu, to Paper.

2. Copy the rectangle, and choose Multiple Paste from the Edit menu.

3. Enter 6 for the number of copies and 0.02 inches for the two offsets. Click on OK.

4. Set Line, on the Element menu, to None and Fill to 80%. Send the rectangle to the back.



5. Repeat this process for each of the copied rectangles, moving from bottom to top, setting Fill to the next-lower percentage listed in the Fill submenu.

6. To avoid deleting rectangles, group them by selecting them all, going to the Utilities menu, and applying the PS Group It Aldus Addition (install it from your master disks if it isn't on the Aldus Additions submenu).

Our PageMaker script on ZiffNet/Mac will do this for you. It's in Library 5 (Programming/Scripts) of the Download & Support Forum; filename PMBOX.TXT.

Gregory Wasson
Contributing editor, *MacUser*

FRAMEMAKER 4.0

You can retrieve clip art, without having to rummage through buried folders, by using FrameMaker's Help system.

With FrameMaker open, choose Help from the Apple menu and click on Samples and Clip Art in the Main Menu of the Help window. In the next window, click on any one of the 12 category names to view the clip-art file of your choice. Now all you have to do is copy and paste the image you want.

If you want to add your own categories of clip art to the FrameMaker Help file, download our instructions from ZiffNet/Mac, Library 7 (Reference) of the Download & Support Forum; filename FMCLIP.TXT.

Gregory Wasson
Contributing editor, *MacUser*

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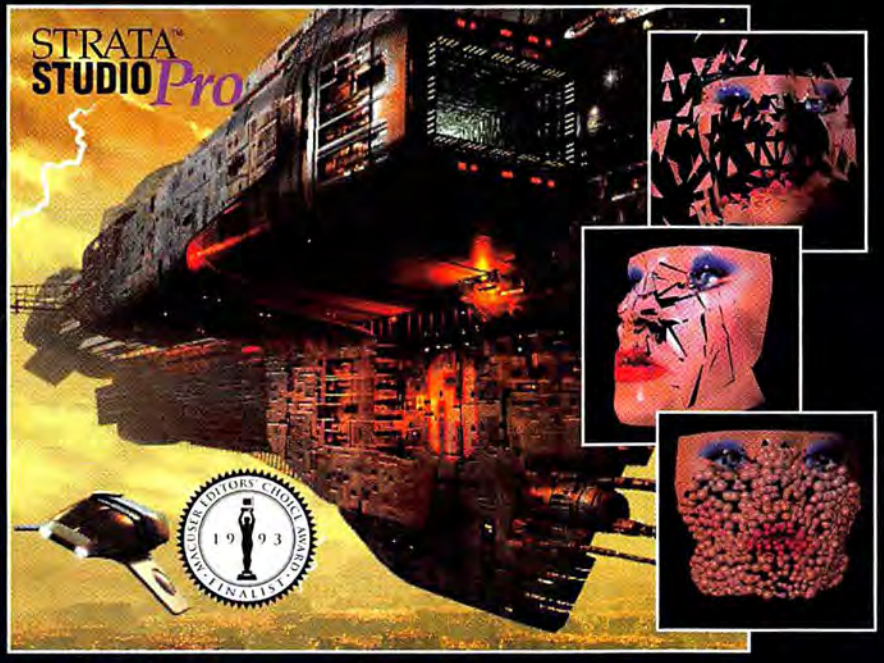

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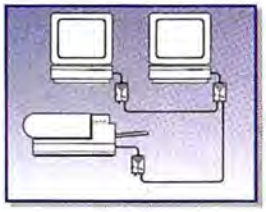

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Direct Line MAIL ORDER SECTION

For many of you, mail-order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section. Direct Line offers a convenient place to quickly find the products you need from the vendors you want to buy from. But before you shop by phone, look for the mail-order company that is best for you. Here are a few tips to help you get the most out of your buying experience.

How to Buy Mail Order Products

Research The Company
Well-established companies tend to be reliable, but if you're not sure how well established a company is, it pays to do a little research and ask a few questions.

Know What You Want
Know exactly what you want before you call. Magazines, on-line forums, and user groups are all good places to seek advice.

Check Compatibility
To avoid having to return merchandise, find out whether the product you're interested in is compatible with your system.

Pay With Credit
Whenever possible, use a credit card. Some credit card companies do such things as double your warranty or give you a refund if you find a lower price elsewhere. If you have a problem, your credit card company will deal with the mail order company.

Confirm Prices
Confirm the price when you place your order, including delivery charges. Some companies will waive the delivery charge.

Delivery Methods
Ask about delivery methods — find out what carriers are used, how fast they are, and how much each one costs. Record delivery information.

Return Policies
Because you're buying sight unseen, make sure the company has a return policy you're comfortable with. Find out if you're responsible for paying shipping charges on returned goods and whether you'll be charged a restocking fee.

Check Packing Slips
Before you use your new merchandise, make sure it's exactly what you ordered — the correct model or version number, for example. It's easier to return goods before they've been unpacked.

Repair/Replacement Services
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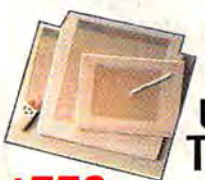
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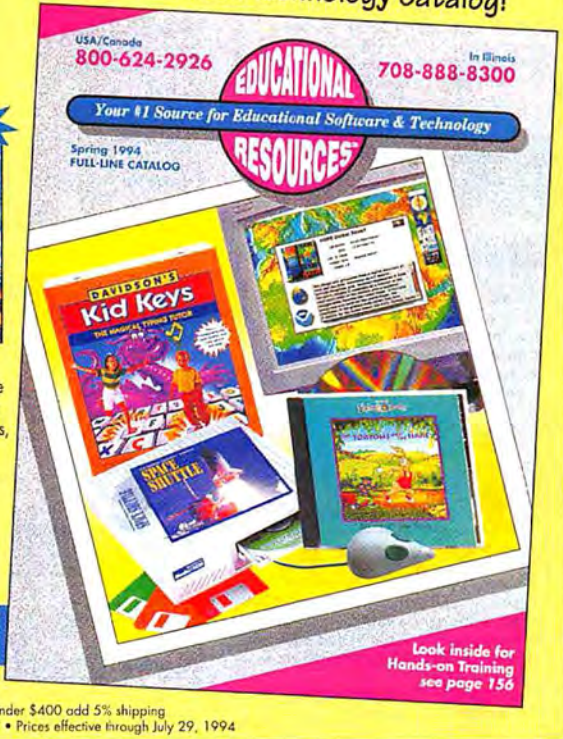

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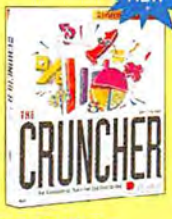

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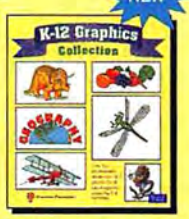

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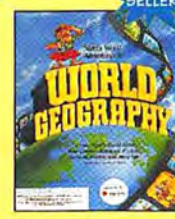

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Capacity	Speed	RPM	Buffer	Brand	Warranty	Internal	External
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240MB	14ms	4500	256K	Fujitsu	1 Year	$309 (2.5" for Powerbook)	
270MB	12ms	4500	128K	Quantum	2 Years	$238	$298
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1750MB	10ms	5400	256K	Micropolis	5 Years	$999	$1059
1800MB	10ms	4500	512K	Quantum	5 Years	$969	$1029
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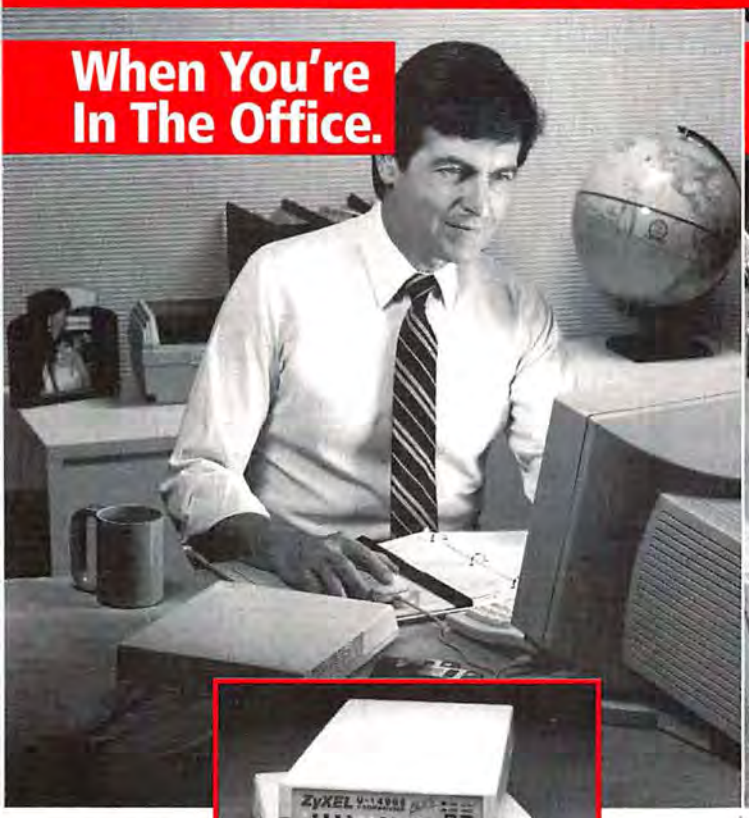

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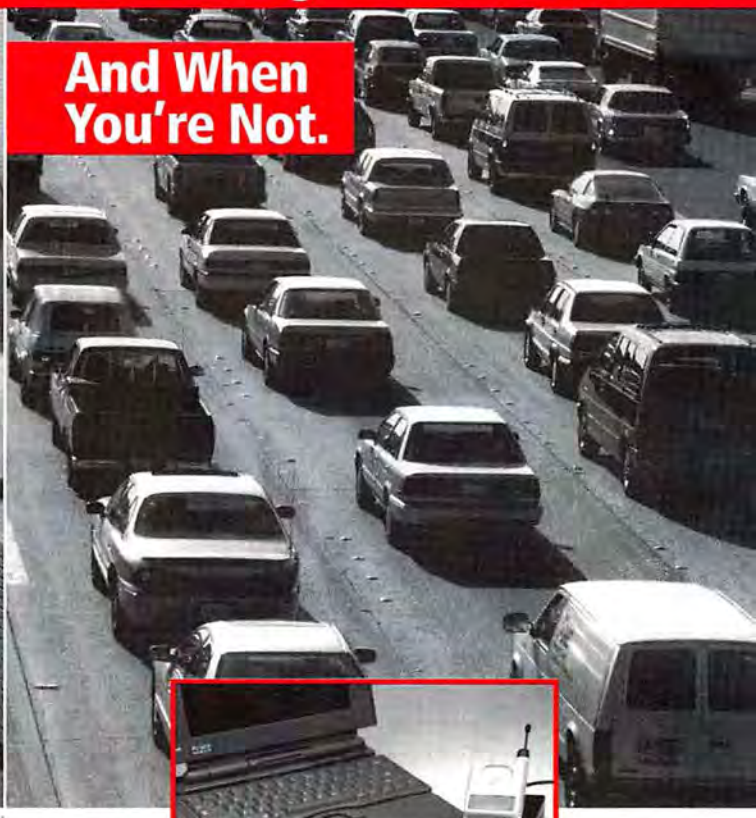

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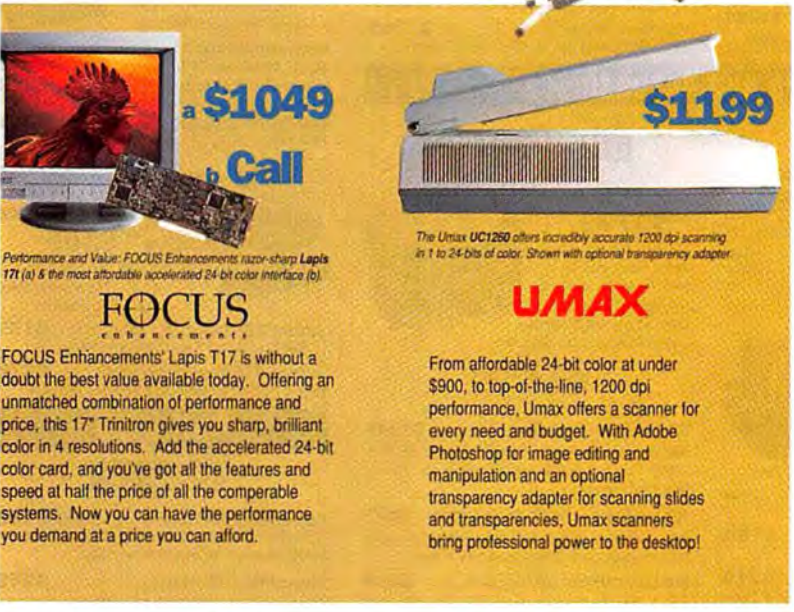

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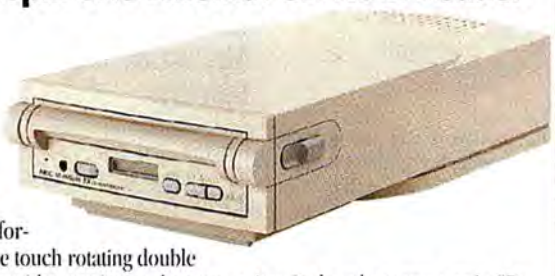

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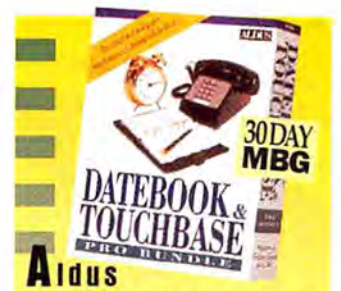

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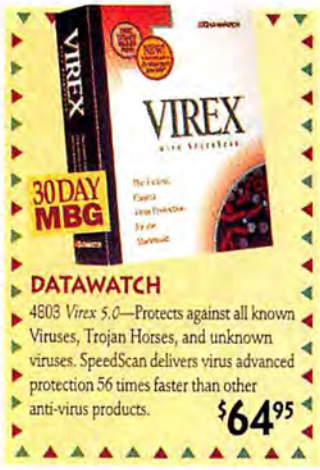

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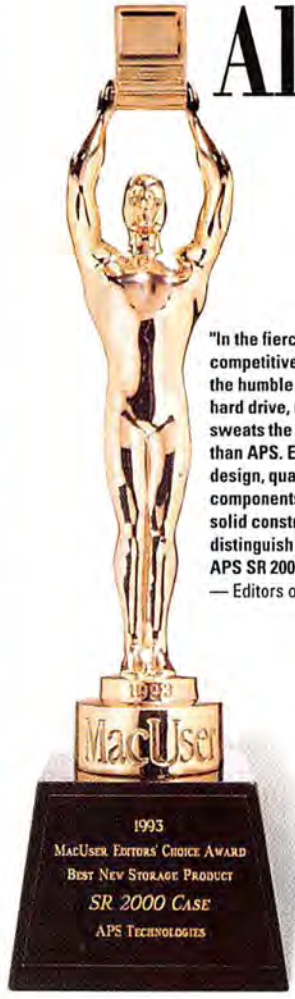

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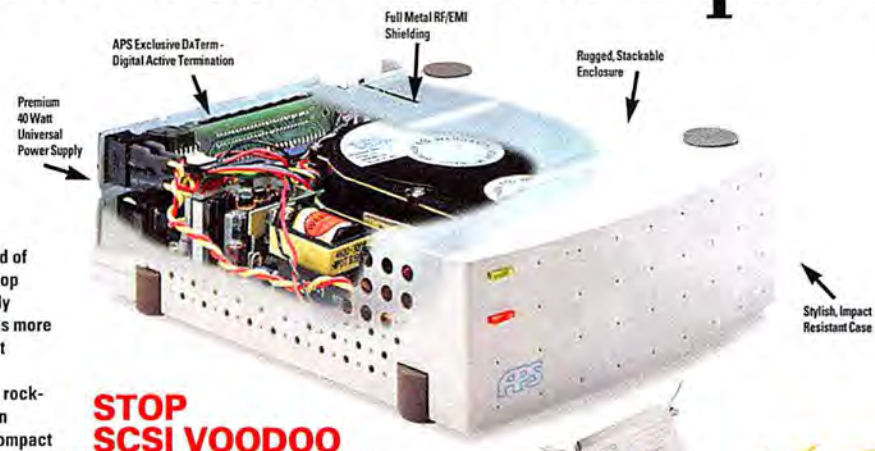

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For your Mac or Power Mac

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APS MX 290[2] Maxtor 7290 mechanism	276MB	299	389
APS MX 345[2] Maxtor 7345 mechanism	324MB	339	429
APS 340[2] 340 mechanism	327MB	429	519
APS Q 540[2] Quantum 540 mechanism	516MB	399	499
APS MS1.2AV[5] Micropolis 2210AV mechanism	965MB	949	1039
APS MS1.2[5] Micropolis 2210 mechanism	1001MB	899	989
APS MS4110[5] Micropolis 2210 mechanism	1002MB	889	979
APS Q 1080[2] Quantum 1080S mechanism	1029MB	749	849
APS ST 1.6[5] Seagate ST11950 Barracuda mech.	1611MB	1499	1589

Model	Capacity	Internal	SR2000
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APS MS 1.7AV[5] Micropolis 2217AV mechanism	1612MB	$1279	$1369
APS MS 1.7[5] Micropolis 2217S mechanism	1682MB	1199	1289
APS ST 2.0[5] Seagate ST 125500N Barracuda mech.	2040MB	1799	1889
APS MS 2.4G[5] Micropolis 1926 mechanism	2100MB	1499	✞1599
APS MS 3.0G[5] Micropolis 1936 mechanism	2845MB	2149	✞2249

1-5 Denotes length of manufacturer's warranty
✞ External Case is Special Full Height Only

Internal drives for Quadra 800 and Centris 610 available.
DATerm patent pending
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POWERBOOK DRIVES

Model	Capacity	LW Pro 630	Internal	Companion II AC/DC
APS PB 85[1]	80MB	$249	—	—
APS PB 170[1]	160MB	349	$299	$439
APS T 213[1]	202MB	349	299	439
APS PB 250[1]	240MB	449	399	539
APS T 340[1]	324MB	579	529	669
APS T 520[1]	500MB	949	899	1039

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APS DAT

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DAT

Model	Capacity*	Internal	SR 2000
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APS HyperDAT[1]	8-10G on 120m tape	1349	1399

**Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.*
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90 meter DAT Tape – $16, 10 Pack – $130
120 meter DAT Tape – $35, 10 Pack – $300
All APS DAT Drives Include Retrospect by Dantz & 1 FREE DAT Tape

MACWORLD MW EDITORS' CHOICE

CD ROM

Model	SR 2000
APS T 4101	$299
APS T 3401	399

MAGNETO OPTICAL

Model	Internal*	SR 2000
APS 128MB MO[1]	$769	$799

Mechanism is Epson Magneto-Optical OMD-5010

All MO Drives Include 1 FREE Cartridge
128 MO cartridge — $49 unformatted, $55 formatted

APS 44MB SQ 555 $269

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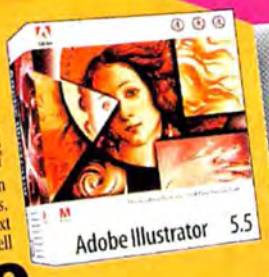

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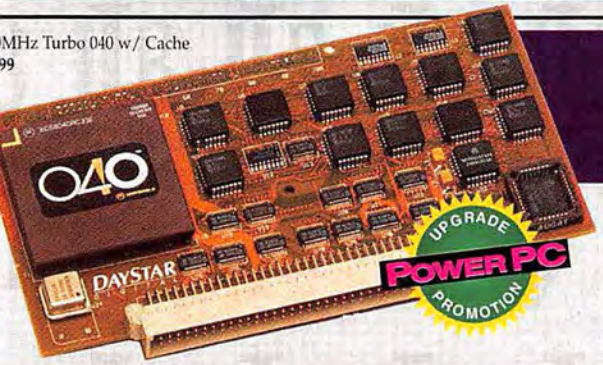

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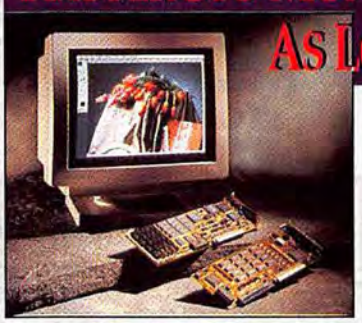

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1. For how many micro computers do you buy products? (check one)
☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)
☐ 01) Administrative/ General Management
☐ 02) MIS/DP, Communications Systems, Programming
☐ 03) Engineering/R&D
☐ 04) Finance/Accounting
☐ 05) Marketing/Sales
☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE:	Q3	Q4
Accounting	☐ 01	☐ 01
Spreadsheets/Financial Planners	☐ 02	☐ 02
Project Managers/Planners	☐ 03	☐ 03
Word Processors	☐ 04	☐ 04
Database Managers	☐ 05	☐ 05
Graphics/Presentation Software	☐ 06	☐ 06
Integrated Software	☐ 07	☐ 07
Communications	☐ 08	☐ 08
Utilities	☐ 09	☐ 09

HARDWARE:	Q3	Q4
Modems	☐ 10	☐ 10
Scanners	☐ 11	☐ 11
Microcomputers	☐ 12	☐ 12
Printers/Plotters	☐ 13	☐ 13
Monitors/Displays	☐ 14	☐ 14
Storage	☐ 15	☐ 15
Add-in Boards	☐ 16	☐ 16
Networking	☐ 17	☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)
☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)
☐ 01) over $5 million
☐ 02) $1 - 5 million
☐ 03) $500,000 - $999,999
☐ 04) $100,000 - $499,999
☐ 05) $50,000 - $99,999
☐ 06) $10,000 - $49,999
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1. For how many micro computers do you buy products? (check one)
☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)
☐ 01) Administrative/ General Management
☐ 02) MIS/DP, Communications Systems, Programming
☐ 03) Engineering/R&D
☐ 04) Finance/Accounting
☐ 05) Marketing/Sales
☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE:	Q3	Q4
Accounting	☐ 01	☐ 01
Spreadsheets/Financial Planners	☐ 02	☐ 02
Project Managers/Planners	☐ 03	☐ 03
Word Processors	☐ 04	☐ 04
Database Managers	☐ 05	☐ 05
Graphics/Presentation Software	☐ 06	☐ 06
Integrated Software	☐ 07	☐ 07
Communications	☐ 08	☐ 08
Utilities	☐ 09	☐ 09

HARDWARE:	Q3	Q4
Modems	☐ 10	☐ 10
Scanners	☐ 11	☐ 11
Microcomputers	☐ 12	☐ 12
Printers/Plotters	☐ 13	☐ 13
Monitors/Displays	☐ 14	☐ 14
Storage	☐ 15	☐ 15
Add-in Boards	☐ 16	☐ 16
Networking	☐ 17	☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)
☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)
☐ 01) over $5 million
☐ 02) $1 - 5 million
☐ 03) $500,000 - $999,999
☐ 04) $100,000 - $499,999
☐ 05) $50,000 - $99,999
☐ 06) $10,000 - $49,999
☐ 07) under $10,000

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216-217

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Bar Coding	189	196
Boards/Components/Chips		196
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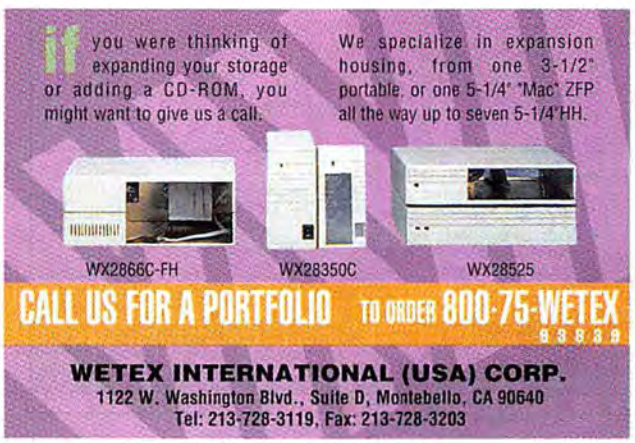

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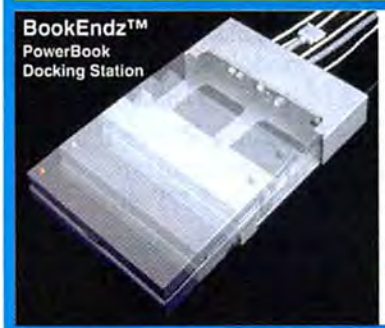

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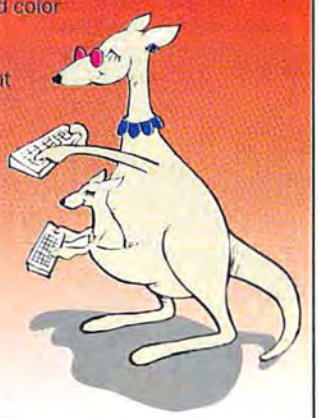

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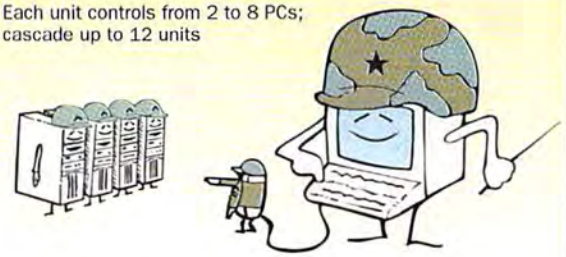

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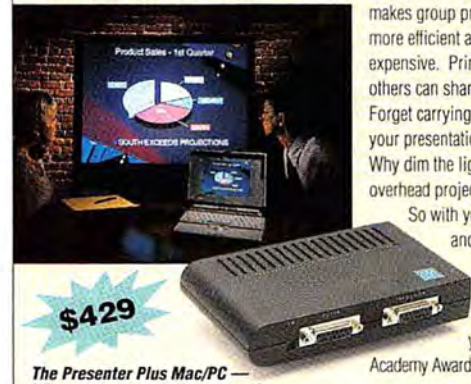

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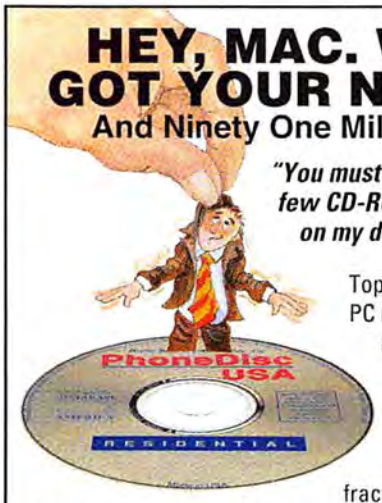

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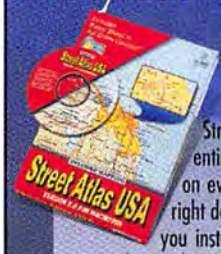

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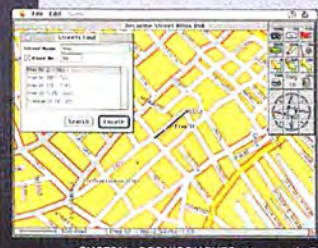

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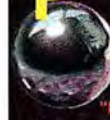

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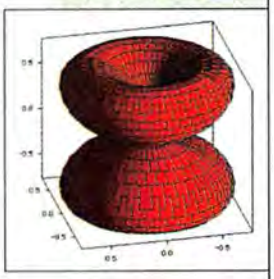

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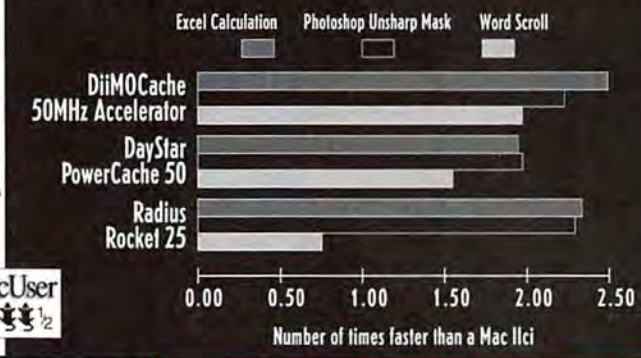

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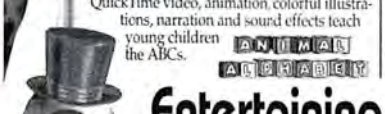

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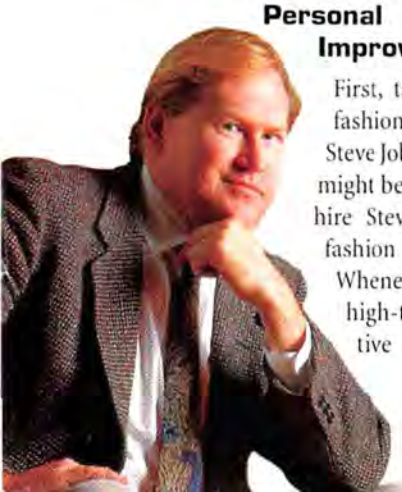
Spindler's List

WHERE IS STEVE Jobs when we need him? I watched the rollout of the Power Macs: B-O-R-I-N-G. I used to think Sculley was dull compared to Jobs, but Spindler — who describes himself as a "meat and potatoes" man — needs a personality transplant.

Companies have personalities, and the overall corporate personality tends to trickle down from the top. When Steve Jobs was in control, Apple had lots of flash and bravado. That's when the snarky business cards with weird titles such as Software Wizard evolved. Sculley, with his more neutral personality, admired the Jobs panache and was slow to turn away from it. Gradually, things started becoming more conservative. It wasn't yet a mad rush toward dullness, though. Under Spindler, Apple is racing to turn itself into IBM.

IBM is peopled with uninspired dullards who are nonplussed by almost any new technology that comes out of the R&D labs. The excitement level for something jazzy is close to nil. The word *blasé* comes to mind. This "who needs it, anyway?" attitude is not the way to promote technology to today's buyers. You have to up the ante, which seems beyond the meat-and-potatoes Spindler.

I can help. Here's Spindler's list of things to do:



Personal Improvement

First, take a little fashion hint from Steve Jobs. In fact, it might be wise to rehire Steve, as your fashion consultant. Whenever I see a high-tech-executive type who's wearing what seems to be a Brooks Brothers suit from the mid-'60s, I cringe. If you managed to see the Power Mac rollout, you can imagine how much jazzier the whole thing would have been had everyone worn tuxedos (my recommendation). It was a "formal" announcement, after all.

Product Design

With a six-month sales backlog for the Power Macs, it's kind of hard to suggest product improvement. But has anyone noticed that the line of Power Mac machines looks similar to the old line of 68040 machines? Did I say similar? How about identical!?!? What kind of marketing is this? "Yes, Mrs. Jenkins, I know the new Buick looks exactly like the 1973 model. But the engine is so much better we didn't think you'd notice."

Here is a perfect opportunity to blow everyone away with a great-looking new box, and Apple trots out the same boring design? Whatever happened to Apple's reputation for aggressive, good-looking, futuristic designs? Did the company have a lot of leftover covers and cases? Seriously, this baffles me. Doesn't Apple realize that people like to show off their Macs? What's there to show off with a Power Macintosh? "Hey, take a look at my Power Mac!" "Gee, Fred, it looks just like my old Mac. What's so special about it?"

How difficult would it be, I ask, to merely paint the machine a different color? A steel blue-gray would be nice — or perhaps a designer green. Anything! Apple simply can't afford not to keep its machines and its image distinctive.

And while we're reviewing the product line, how about dropping the Newton? It's still riotous to watch the videotape of Sculley going on about the Newton becoming a multitrillion-dollar business. Did he use a Newton to make the calculation? Although I admire the effort that goes into this technology, I think it would be better spent elsewhere. Devices such as the Newton will be perfected by the miniaturization-crazed Japanese and sold on street corners for $19.95. How many of those would you have to make to equal the profits made by selling a couple of Quadra 950s? And how often would you get people to buy a new one? Seldom is my guess.

Developer Support

When Apple was a $1 billion company, its developer support was praised by everyone as the best in the industry. As the company grew bigger, it pulled back from giving that kind of support. Hot lines and support staffs aren't as responsive as they once were.

Meanwhile, Microsoft rules the day, when it comes to supporting developers. Most Mac developers are flocking to Windows. Products that used to come out first on the Mac now come out first in the Windows environment. And the Mac nutballs enamored of the speed of the Power Macs have to realize that the same chip will soon be in the PC world. Apple has to be more aggressive about this decaying situation. Unfortunately, the executives look at the raw numbers and think they must be doing something right. They are, but supporting the third-party developers isn't one of them.

Mr. Spindler, the ball is in your court.

ILLUSTRATION / ROBERT ZIMMERMAN

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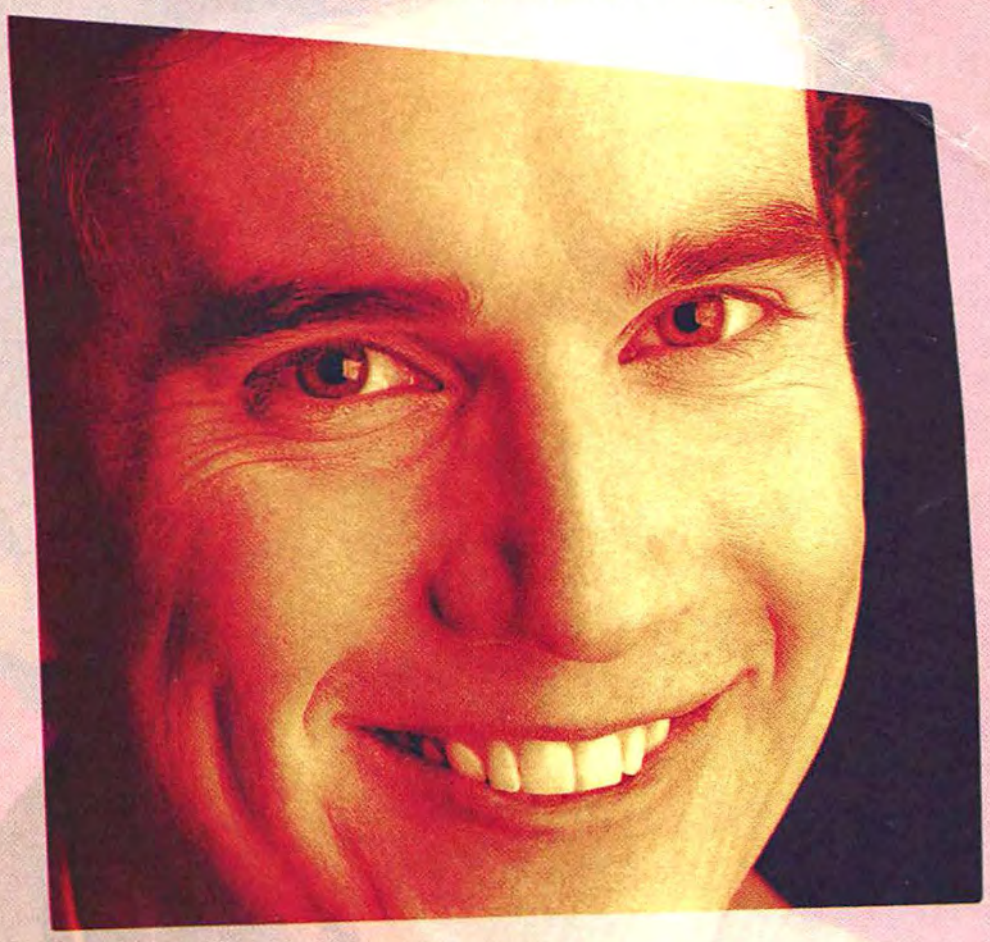

Fifteen hours today.
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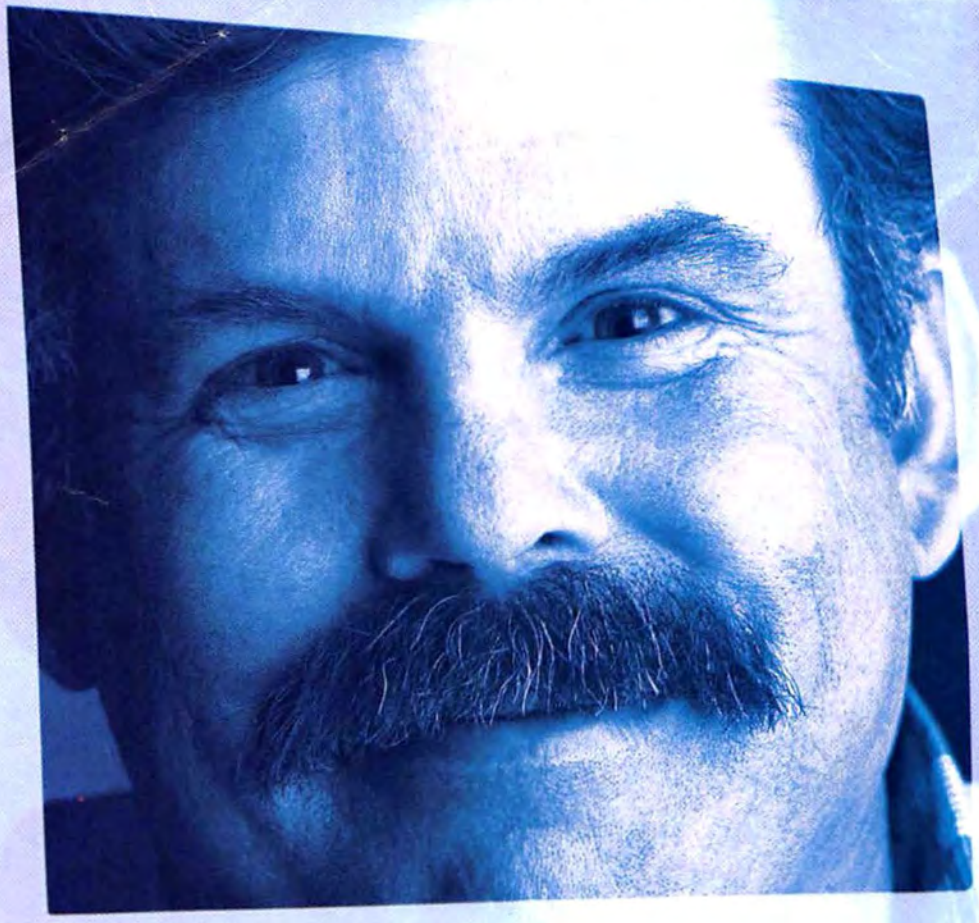

Ten hours per day.
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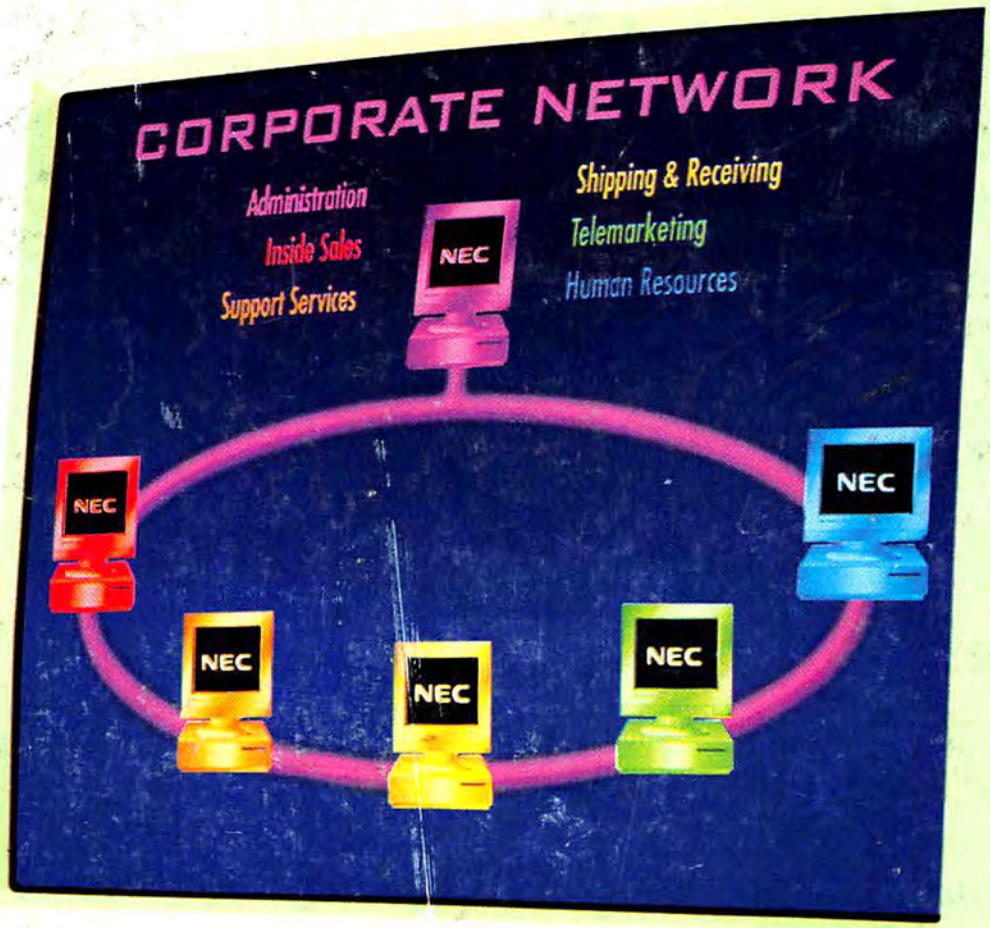

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