

**The Results Are In:** Who Makes the Fastest Mac?...page 41

MARCH 1996 / \$3.95

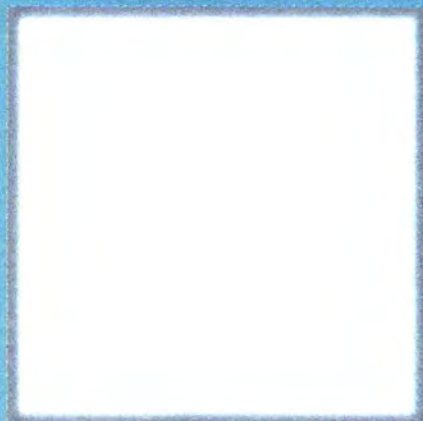
# MacUser

ZD ZIFF-DAVIS PUBLISHING COMPANY

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**101** cool places to  
shop for **BARGAINS**,  
get some **LAUGHS**,  
fall in **LOVE**, or  
order a **PIZZA!**







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You are on  
Your Power Mac™  
You are in  
Microsoft® Word 6.0.1.  
Your mind  
Is racing.  
Your fingers  
Are racing  
To keep up  
With your thoughts.

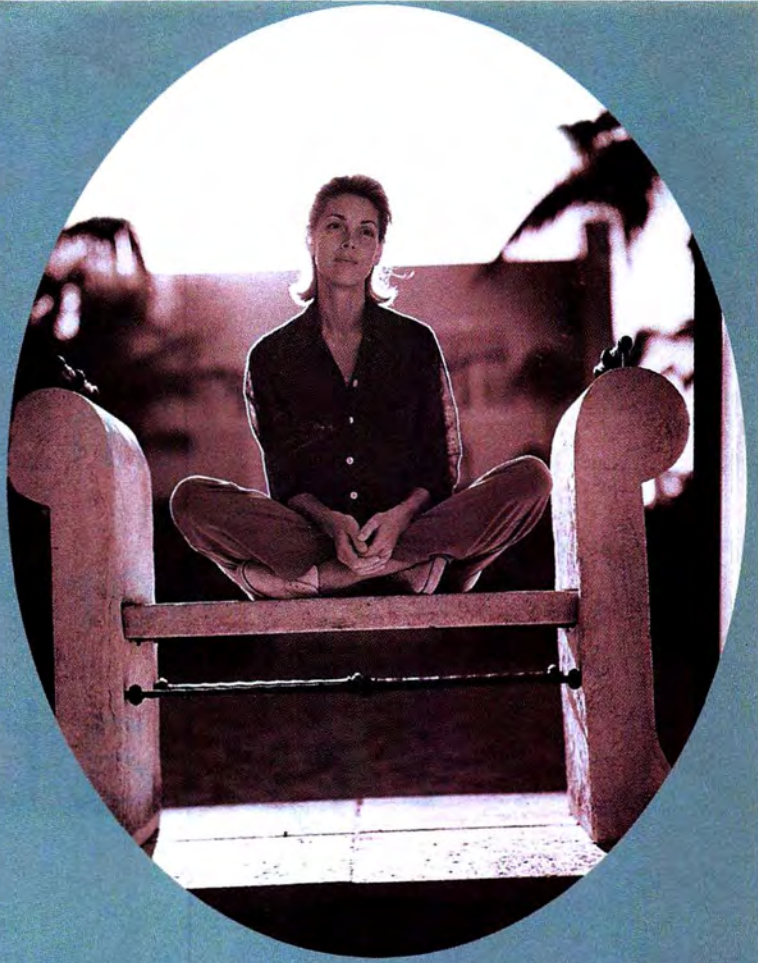
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You begin  
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With  
A lowercase letter.  
This mistake is corrected  
Automatically.

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Knowing there are  
100 levels  
Of Undo.  
And 100 levels  
Of Redo.  
Just in case.



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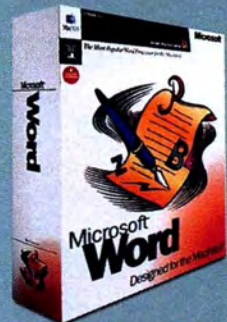
You begin a new  
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It becomes  
An entire phrase.  
Automatically.

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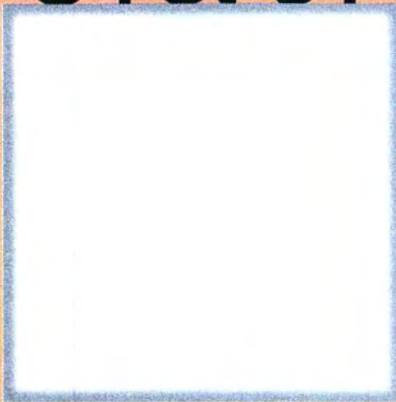
Until you have finished.  
You click AutoFormat.  
And the block of words  
Can become  
A letter.  
A proposal.  
A story.  
Automatically.  
You write. Because you can.



**Microsoft**

WHERE DO YOU WANT TO GO TODAY?™



in  
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revelations  
  
happen



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S

You are on

Your Power Mac.™

You open

Microsoft® Excel 5.0a.

You begin

With a hunch.

You begin

At zero.



1

You open a worksheet.  
You type "Jan."  
You use AutoFill  
And the rest of the months  
Are filled in for you.  
Automatically.

3

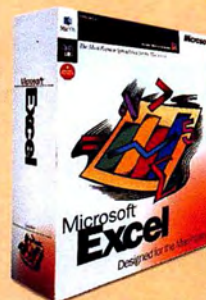
You want to slice  
And dice your numbers.  
You build a PivotTable®  
To see them  
From any perspective  
You want.

2

You enter numbers.  
You click AutoFilter  
And the data you want to see  
Rises to the top  
So you can focus on  
What you need to focus on.

4

You see  
Patterns form.  
You come  
To understand.  
You get it.



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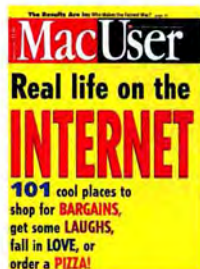
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controls. And they researched street prices and warranties. After all the results were in, the ViewSonic 17GA 17" (16.0" viewable) PerfectSound™ multimedia monitor was singled out as the "Best Buy." No wonder. An entirely new technology creates the ultimate screen image – maximum

resolution of 1,280 x 1,024, refresh rates as high as 160Hz, and razor sharp screen definition.

And listen to this. High fidelity speakers are integrated into the monitor bezel so the full, rich stereo sound envelopes you. To quote a satisfied customer, "It rocks, man!"



And the 17GA is so attractively priced, it's like getting the multimedia feature for free. Several competitive models cost as much but are not even multimedia monitors. Rather than toot our own horn, perhaps we should refer you to MacUser magazine:



mice are nice but checks are better.



**ViewSonic® 17GA**  
**\$850\***

*"A real multimedia bargain," they said, "the ViewSonic 17GA offers solid image quality, warm colors, fine-sounding audio and a slew of easy-to-use on-screen controls." So when you're ready to buy, remember this: Many 17" (various viewable) multi-media monitors come*

| +/OUTSTANDING |   | •/ACCEPTABLE |         | -/POOR        |               |
|---------------|---|--------------|---------|---------------|---------------|
| RATING        | PRODUCT   | PRICE        | SUPPORT | IMAGE QUALITY | SOUND QUALITY |
| ★★★★          | <b>ViewSonic 17GA</b>   | •            | •       | +             | •             |
|               | A real multimedia bargain, the ViewSonic 17GA (estimated street price, \$850) offers solid image quality, warm colors, fine-sounding audio, and a slew of easy-to-use on-screen controls—all at a competitive price. The stylish case will also make you the envy of your office mates. |              |         |               |               |
| ★★★★          | Apple Apple Vision 1710AV   | —            | •       | +             | +             |
| ★★★★          | IBM 17S/S   | —            | •       | •             | +             |
| ★★★★          | Nokia 447W  | •            | •       | +             | —             |
| ★★★★          | Panasonic Pana Media 17   | •            | +       | •             | •             |
| ★★★★          | Philips 17B   | •            | •       | •             | —             |
| ★★★★          | Philips Brilliance 15A  | •            | •       | •             | —             |

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\* Estimated street price per "MACUSER" magazine, December 1995.

*with mice, but only the ViewSonic 17GA has been selected as MacUser magazine's "Best Buy."*



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(So intense it usually tells us more about those who fail.)



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CIRCLE 122 ON READER SERVICE CARD



# LETTERS

## Windows 95: What Else?

I'VE FINALLY FOUND an article ("Windows 95," December '95, page 99) that compares Windows 95 to the Mac OS without throwing sticks and stones. You did a great job being honest about both products.

As your article points out (and unfortunately, as many folks seem to forget), Windows 95 and the Mac OS have good as well as bad points.

**Michael Purdy**  
via the Internet

AS AN OWNER of a Mac and a PC, I found that your excellent review gave the hard facts on Windows 95 without any of the whininess many of the other mags (both PC and Mac) did.

**Christopher Angel**  
cja124@mail.usask.ca

THANKS FOR your Windows 95 article — it helped me understand the good and the bad about this new operating system. However, I wish you had been a little less defensive in the article. I don't need to be told that my Mac is better than a Windows-based PC.

**Tom Berry**  
via the Internet

THANK YOU! My year's subscription to *MacUser* was worth it just to obtain the cover of the December issue. You can bet it will be prominently displayed both at home and at my office for the next few months!

**Tim Frankovich**  
timelf@aol.com

I WAS DISAPPOINTED that you failed to mention the hardware/software integration differences between platforms. Built-in features such as support for multiple monitors; a desktop independent of monitor size,



aspect ratio, resolution, or color depth; automatic detection and ejection of external media; power on/off from the keyboard; SCSI; sound; high-speed serial ports; and ADB support in every Mac just don't exist in the Wintel world and aren't likely to exist soon.

Ignoring these differences discounts much of the Mac advantage. The rest of the computer press ignores them too, but surely not *MacUser*!

**John Bartleson**  
via the Internet

YOUR COVER DELIVERS the exact sentiment shared by many Mac users — Windows can never equal the ease of use and power of the Mac OS, no matter how many characters you can use in a filename.

**Davin Flateau**  
via the Internet

I'M CERTAIN I heard this exact same tune about 15 years ago. Only back then the lyrics were, "VHS: So What? It's Still Not a Betamax."

**E. J. Campfield**  
via the Internet

YOU PRESENTED a convoluted "shortcut" for adding an item to the Start menu, in an effort to illustrate how "typically" difficult Windows 95 is to use. A much easier way than the one you present — even easier than adding an item to the Mac's Apple menu — is simply to drag the item to the Start menu. One step. Done.

**Paul Farrah**  
pfarrah@aimnet.com

*/ You're right. I'm wrong. I got that "shortcut" from a Windows 95 expert who's now as red-faced as I am. Let me substitute another example of a*

## OPEN FOLDER

**It's all in the marketing.** Our December '95 cover ("Windows 95: So What?") may have angered fans of Bill Gates' me-too operating system, but Mac fans seemed to be thrilled by its potential. "Your cover would make a terrific T-shirt," opined Bernard Golman. But Vladimiro Mazzotti has bigger plans: "I'd like to print your cover as a poster and put it in my showroom. Please help me to realize this dream." Sorry, guys — our sights are set a bit higher. Expect to see Maggie Canon hawking the Franklin Mint's "Windows 95: So What?" collector's plate on QVC sometime soon.

**Can we do no wrong?** Acclaim for our cover was nice, but readers even singled out interior art for praise. "On page 58, you show a sample cover of *Explorers* magazine's premiere issue as part of your review of Adobe PageMaker 6.0," wrote Larry Steuben. "Can you supply an address to get in touch with this magazine?" Really, Larry, it's flattering that you would think so highly of *Explorers* — especially since the magazine's an elaborate phony. *Explorers* was dreamed up by Executive Editor Pamela Pfiffner while she was reviewing PageMaker. The mag exists only in her mind, although if you're a venture capitalist with a hankering for the publishing business, we're sure Ms. Pfiffner will entertain offers to make *Explorers* a reality.

**Then again,** maybe our artistic judgment is better than our word choice. That's certainly the opinion of Steven L'Heureux: "I must comment on your effort to be hip by creating the word *cred*. This sort of blatant degradation of the English language serves only to lower the ability of mankind to communicate ideas with any sort of elegance." It's flattering that Steven considers us neologists of the basest sort, but *cred*, short for *credibility*, is nothing new. And many words now considered "elegant" were once attacked as "blatant degradation." It's the English language's predilection for acquiring new words that has made it the world's common tongue. You could even say that it's what gives English *cred*. Could anything be more bitchin'?

## WRITE TO LETTERS

c/o *MacUser*  
950 Tower Lane, 18th Floor  
Foster City, CA 94404  
letters@macuser.com

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*tough Windows 95 chore: You know how the Find command saves your ten previous search criteria? How do you delete one from the list? / RM*

YOU FOLKS JUST don't get it. I didn't get rid of my Mac and buy a Pentium-based PC and end a seven-year commitment to the Mac because I *enjoy* tweaking autoexec.bat and config.sys files. I did it because in my line of work, over 90 percent of businesses use PCs and PC-based programs.

Yes, Macs are more intuitive and offer a cleaner GUI, but the percentages are with the PC world.

**John Schmidt**  
jschmidt63@aol.com

ALTHOUGH I AGREE with many of the points made in your article, I strongly disagree with your overall assessment that the Mac OS remains a superior product.

As an advanced user with many years of experience using the Mac OS and PCs running Windows 3.1, Windows for Workgroups, Windows 95, and OS/2 Warp, I am convinced that Windows 95 is the best operating system of the bunch. It is more reliable, stable, crash-resistant, and flexible than the others. With Windows 95, I routinely have Microsoft Excel, Access, Word, and PowerPoint; a DOS accounting system; a DOS payroll system; a contact manager; a screen saver; and Microsoft Exchange open on the desktop at the same time. I switch among these applications frequently, effortlessly, and flawlessly. I have been using Windows 95 (including the prerelease version) for about four months, and I have yet to experience a system crash. Can any other OS claim such stability?

The tragedy of your article is that as long as influential Mac users such as yourselves continue to gloss over the Mac OS' limitations and deny the existence of truly superior alternative platforms, Apple will continue to offer only meager improvements with each OS release — witness Copland, which still won't offer full preemptive multitasking when it rolls out. It's too bad that Apple's complacency has let Microsoft justifiably claim that it now offers personal-computer users the most technologically superior operating system available.

**Darin Patrizi**  
74673.477@compuserve.com

FOR SEVERAL YEARS, I have taught middle-school and high-school computer classes. Skills on Macs as well as PCs are a regular

part of my curriculum, because this is the world in which my students will have to work.

Every time I encounter this juvenile mentality of some Mac users who think the only way to justify using the computer of their choice is to disparage the choice of others who don't agree with them, it turns me off. It will never be just a Mac world nor just a PC world. Get over it!

Macs are excellent computers. So are Windows machines. Neither are perfect. We need this diversity to drive manufacturers, developers, and users to ever improve the technology. If the Mac is your choice, great. Use it, and shut up. Nobody is forcing you to switch.

And you, Macintosh publishers, stop pandering to this juvenile mentality of some of your readers. Stop the DOS/PC/Windows-bashing.

**Phillip W. Bugg**  
via the Internet

YOUR COVER ENTIRELY missed the point. Everybody knows that a PC running Windows is not a Mac; in truth, it doesn't have to be. Windows 3.0 was maybe 50 percent like the Mac OS and captured 90 percent of the market; Windows 95 is, arguably, 90 percent like the Mac OS, and it will continue to gain market share.

The problem is that even if Windows 98 ends up being 10 percent *better* than the Mac OS, Mac owners will be too proud to recognize it.

The Mac is a beautiful, elegant product, and I want nothing else. But do we really need to slam the other products to feel good about our own?

**Mark Phillips**  
via the Internet

YOU GIVE WINDOWS 95 the edge in file-finding capabilities. Having not used Windows 95, I can't speak from experience, but the Mac's Find File in System 7.5.1 should at least match Windows 95's.

The Mac's Find File can search on any combination of more than a dozen attributes. You can choose to search only a specific drive, all local drives, or all network drives. All this, and then you can perform Finder operations on the found files.

I really can't think of any type of search I would want to do that is not covered by Find File. Please let me know what Windows 95 does better!

**Hardy Macia**  
hardy@catamount.com

*/ We agree that System 7.5's Find File is a powerful improvement over previous versions. (After all, it was based on Find Pro, a MacUser/ZMac Utility of the Month!) We gave Windows 95's Find command the edge because of its ability to save searches and to find other PCs on the network by name. / RM*

## This Explains Everything

IN YOUR WINDOWS 95 story, you cite an undiagnosed "Invalid VxD dynamic link call from ATR(01)." I'm responsible for supporting all the Intel-based machines on a primarily Mac network, so after thinking about the problem for a couple of days and accessing Microsoft's Knowledge Base, I diagnosed and cured the problem.

You installed Windows 95 over an existing installation of Windows 3.1 and Miramar Software's Personal MACLAN Connect. Unfortunately, Miramar's product is incompatible with Windows 95, and you did not deinstall it before upgrading, so commands to load the AppleTalk virtual-device drivers were still present in the SYSTEM.INI file.

The solution is simple, particularly for those who follow the instructions in the Knowledge Base about tracking down invalid VxD calls. In the [386Enh] section of SYSTEM.INI, comment out (or remove) the lines that read device=ATALK3.386 and device=ATREDIR.386. There will be no more blue screens of death on startup. The biggest clue here is the text of the error message itself: ATR(01).

**R. Kevin McLeod**  
rkmcLeod@gsi-net.com

*/ Nice catch, Kevin. How could we have missed this one? / JS*

## Power Down

AFTER READING your review of the Power Mac 7200/90 (December '95, page 55), I was scratching my head in amazement as to why anybody would buy this machine if they were after speed and power.

To bring it up to speed, your testers added 8 MB of RAM, a cache, Connectix's Speed Doubler, and 1 MB of VRAM, worth a reported total of about \$750, which brings the price up to about \$2,650. For about \$300 more, a consumer could purchase a Power Macintosh 7500/100 and get a faster processor, 500 MB more hard-disk space, and AV and videoconferencing features!

It seems to me that those in the market for



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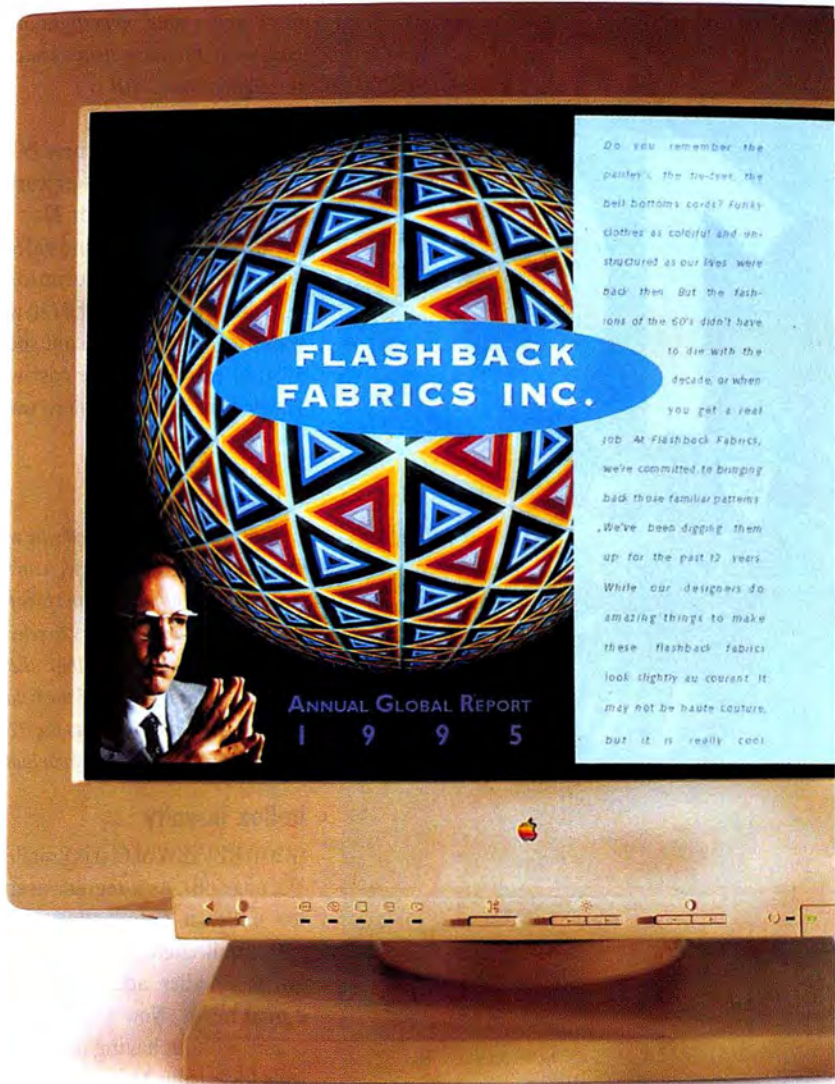


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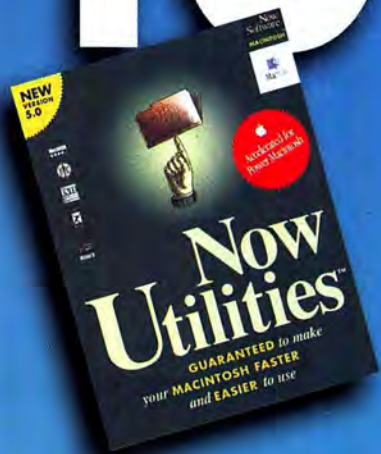


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CIRCLE 82 ON READER SERVICE CARD

## LETTERS

the 7200-series machine will sacrifice speed and power for a low bottom line. There are plenty of Mac users who fit this description. However, to buy one with the idea of immediately upgrading it as your testers did is just plain foolish.

**Anthony Lafrenz**  
catchword@aol.com

*/ The beauty of the 7200/90 is that it gives people who can't afford to spend a lot up-front a range of lower-cost choices at various points along the price/performance spectrum. You can buy in at a low price and then scale your system up from there at any time, as your requirements and your resources increase. Sure, if you get them all, you'll end up spending almost as much as if you'd bought a 7500 in the first place, but you'll have a system that's comparable in performance. No surprise there — it just shows there's some logic to Apple's pricing structure! / HN*

YOUR REVIEW of the new PCI Power Macs was seriously flawed. After warning potential buyers about the Power Mac 7200's disappointing lack of speed and video capabilities, you gave the system four mice, with the caveat that the addition of \$750 worth of hardware would give significant speed gains. But \$750 of extra hardware cost will buy you a Power Mac 7500! So where was the 7500 in your review?

**Christopher Legan**  
legan@iastate.edu

*/ Many readers wondered why we didn't review the 7500. Unfortunately, we can't review every machine that comes along the pike from Apple and the clone vendors. We do try to select a representative sampling and felt that the 8500 was a standout at the high end of the field, especially for digital videophiles, whereas the 7200 was a good low-cost option for buyers on a budget. / SJ*

### In-Box Insanity

GOOD REVIEW of Claris EMailer (December '95, page 68). As a regular user of Eudora, I too prefer it overall. But considering that AOL's mail-client software is so consistently awful, EMailer addresses all of my AOL e-mail needs. Now I can send and receive e-mail without having to wait for those horrible little icons to load, I have a file system that's far better than AOL's lack of a system, and I have an address book that is easy to add to and access. I would have left AOL in frustration if it weren't for EMailer.

**Mark Hodges**  
via the Internet

YOU DIDN'T CALL enough attention to one of the weakest points of Claris' program. The ability to use fonts, styles, and colors is a fundamental part of the Mac. AOL and eWorld have provided their users with the ability to use styled text in their e-mail. But Claris would have us communicate in the monospaced 80-column, 66-line world of the '60s. Your three-mouse rating is a bit generous.

**Jeff Dickson**  
coloneldj@aol.com

YOUR REVIEW of EMailer wrongly became a head-to-head comparison with Eudora. EMailer was designed to handle multiple mailboxes on multiple online services.

It may not be pretty, but EMailer automatically centralizes your e-mail and makes life easier. It deserves four mice simply for being the *only* product to solve the problem of multiple e-mail accounts.

**Rick Brinkman**  
dr.rick7@aol.com

*/ EMailer's Internet capabilities certainly make comparing it to Eudora fair game. And EMailer's innovative in-box-unification features are the main reason it earned a three-mouse rating. / JS*

### Serves Her Right

TOO BAD MOST of Hollywood doesn't get the fact that, as Maggie Canon points out ("We Oughta Be in Pictures," December '95, page 37), the Macintosh is the computer of choice for the good guys. In the movie *Copycat*, Sigourney Weaver's character owns three Compaq PCs and is subsequently stalked by a serial killer! Serves her right for settling for an inferior computer running a copycat operating system!

**Richard Tamesis**  
cyberdyne@eworld.com

### Imperfect

I WAS GLAD TO SEE the good rating you gave WordPerfect 3.5 (December '95, page 78). It's an impressively powerful program. However, I'm distressed to see so many small problems with the application in its current release.

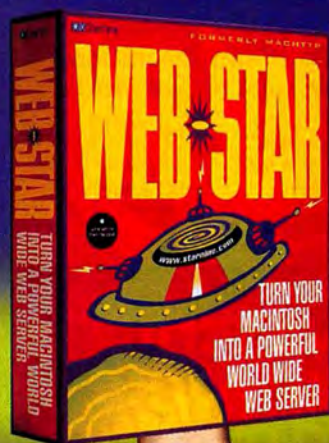
My biggest concern is the constant changes in the way WordPerfect interprets its macro language. I'm still using WordPerfect 2.1 for a set of macros I developed to automate the production of a daily document, because every release since then has brought new problems. Subsequent releases have solved some problems but have also inevitably brought new ones.

WordPerfect is a wonderful application. I





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## LETTERS

just wish it supported those who actually use some of the features its marketers have been touting for so long.

**Leif Oddson**  
via the Internet

### Double Quibble

YOU SAY THAT "Speed Doubler lives up to its name" (New on the Menu, December '95, page 49), but if you check the product package and advertising, you will notice that Speed Doubler is being targeted not just at Power Mac owners but at owners of earlier Macs as well.

For those owners, Speed Doubler is truly misnamed. I found the program to be buggy, conflicting with my other extensions and causing crashes. You should run your tests on all the machines a product is marketed for before you make any claims as to product performance.

**Wayne Clodfelter**  
troutnc@nr.infi.net

/ We reported only on the speed benefits that Power Macs got from Speed Doubler's new emulator — benefits that we thought seemed too good to be true. Clearly Speed Doubler is a product appropriate for Power Mac users only. We too experienced crashes with version 1.0, but the latest version of the software is very stable. / SJS

### HTML for the People

IT FIGURES THAT two consultants would favor Adobe Acrobat's PDF over HTML (Expert Tips, December '95, page 136). After all, with HTML anyone who has even the lowest-end machine and the software that came with it can create a useful, content-rich Web page, and most pages can be viewed easily using a 14.4-kbps modem and inexpensive hardware.

Instead your experts would rather that PDF files were used, for which you need a \$200 program just to produce the PDF file and T1 links and high-end graphics workstations just to download and view the pages in any reasonable amount of time. Once you've downloaded the pages, you'll get the same content-free, style-over-form presentation that passes for most advertising these days.

There are already enough outlets for graphic designers to show off their avant-garde designs. The World Wide Web is a place to provide a large amount of searchable content with just enough style to make it presentable. Admittedly, not every page

achieves this, but there's no reason to think that using PDFs will change that.

**Brian L. Matthews**  
via the Internet

/ It's not clear to us what consulting status has to do with recommending a document-design strategy, since we don't sell Adobe Acrobat or T1 lines (or anything else, for that matter). Nonetheless, we consider your comments sufficiently Luddite to want to respond.

You're right that it's possible to create pages with oodles of content, using very inexpensive tools. And it's true that HTML allows us to create Web documents that look reasonable and that download faster than Acrobat-based pages. However, it's also true that the restrictions imposed by HTML cause many people to look beyond it as a document-delivery strategy.

To say that "the Web is a place to provide a large amount of searchable content with just enough style to make it presentable" is to condemn the future to the technological limitations of the past. Why don't we just stick with text-only newsgroups? Plenty of content there, and who's to say that paragraph indents and capital letters don't provide that "just enough style" you're asking for?

We are not willing to discard centuries of art and typography just because the current state of network technology and modem speeds happens to make them temporarily inconvenient to use. / CW & BS

### Andy the Tearjerker

I LAUGHED SO HARD while reading Andy Ihnatko's December '95 column (page 39) that tears started flowing — which was rather embarrassing, since I was at work. Two nights previously, I had tried to fix my Performa's keyboard at home. The space bar wouldn't work properly, and I knew I could fix it easily. Of course, I ended up breaking the space bar, so now I guess I have to buy a new keyboard.

I was so pleased to read Andy's idea of what I could do with the old one! It will be so satisfying to take a sledgehammer to it.

**Cathy Arthur**  
carthur@fullerton.edu

ANDY'S COLUMN was about the funniest thing I have ever read. It's so true too. In fact, after mopping all the tears off the floor (from laughing so hard), I had to write you this letter. Andy, thanks for being so right about Karma as well as for being a hell of a good writer!

**Andre Khromov**  
topcrowd@aol.com



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# Cable Ready

**R**EAL LIFE ON THE INTERNET may be fun, but it can also be slow. All those nifty graphics on the Web have a price attached, and you pay it in time spent waiting for each page to download. That's especially true if — like most home users — you rely on a modem. And there are even more-demanding graphics on the way. If Java, Sun's multimedia-oriented language for the Web, catches on like the industry thinks it will, your favorite Internet site is going to start looking more like MTV than a collection of static graphics and text. But something's got to give, because there's no way you can stuff real-time audio and video down the current pipeline and still maintain a good user experience.

What might save the interactive day are cable modems. They're all the rage right now in the computer industry, because they bring high bandwidth to the end user. This should be particularly welcomed by home users, who don't have the luxury of the high-speed T1 network lines that many businesses rely on for fast Internet connections.

Using the broad bandwidth of the same cable infrastructure that currently brings you *The Larry Sanders Show* and *Nick at Nite*, cable modems can deliver data to the desktop at 10 million bits per second. For the sake of comparison, a T1 line can deliver data at 1.544 million bits per second, an ISDN line at 128 thousand bits per second, and most V.34 modems at 28.8 thousand bits per second. At Hybrid Networks, one of the pioneers in developing high-bandwidth cable networks, I recently saw a demo in which a 1-MB file was downloaded from a cable network in 15 seconds. A 14.4-kbps modem doing the same thing over a phone line took seven minutes. These times will vary according to the type of system you own and how many users are on the network, but cable-modem networks can make even a T1 line look poky.

Exciting, huh? Well, yes, but if you love the Internet, you may have to learn to love the cable companies (at least for a while), since they will be the first to bring cable modems

to the public. In fact they already are. There are a variety of trials going on across the country, in which cable companies and computer companies are joining forces to bring broad bandwidth to home computers through cable-modem networks. Cable companies are very interested in home-computer users, because they represent an entirely new way to grow a currently stagnant market. Best of all, the home-computer market is unregulated.

The first round of cable modems will take the form of an external box that connects your computer and your cable connection via an Ethernet port. Cable companies will rent cable modems to you just as they currently do set-top cable boxes. First commercial deployment of these modems is set for this year. The next phase will be retail distribution, which will enable you to buy cable modems from a variety of companies at a store near you later this year. And in 1997, you'll find that cable modems will be integrated into desktop systems and you'll have to choose from various network carriers. Several big companies are working on developing cable modems, including Intel, HP, Motorola, and AT&T.

A lot of issues must be ironed out, however, before the commercial deployment of cable modems can be successful. One issue is two-way communications. With what is currently the most prevalent infrastructure, cable modems can only *receive* lots of data. If you want to *send* something, you'll find yourself limited to using a regular phone or ISDN line. This obviously puts a major crimp in interactivity.

Before cable modems can become ubiquitous, it's essential to have both directions of communication operating simultaneously at top speed. The other big issue is reliability. I don't know about your cable service, but mine is erratic at best. Cable companies are in the process of upgrading their current infrastructure from coaxial to fiber-optic, which should solve

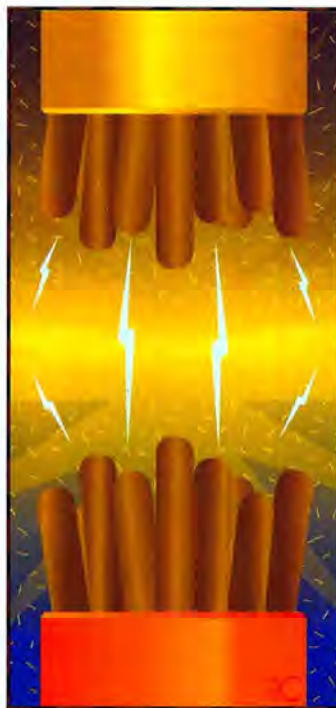
the interactivity problem, but it will probably take until the end of the century, if not longer, to rewire the entire U.S.

Speaking of wired, if you're thinking, "Why not just go wireless?" you're in good company. Many companies are investing heavily in wireless technology that promises to give you the same features as cable service but without the cable company in the middle. So, if you don't happen to be a big fan of cable companies, don't get too discouraged — you can expect the competition to be fierce as the telephone companies,

the regional Bell companies, the cable companies, and others all vie to pave a broad bandwidth road to your home.

## Signing Off

This is my last column for *MacUser*, since I am moving on to take the helm of *Computer Life*, a year-old Ziff-Davis publication aimed at consumers. I am pleased to announce that Pamela Pfiffner will be the new editor-in-chief of *MacUser*. Pam has been bringing you the News and Graphics sections of *MacUser* for the past two years and is a well-known author and graphics guru. I've enjoyed my years editing *MacUser* and will take with me to my new position my love of Mac technology. ☺





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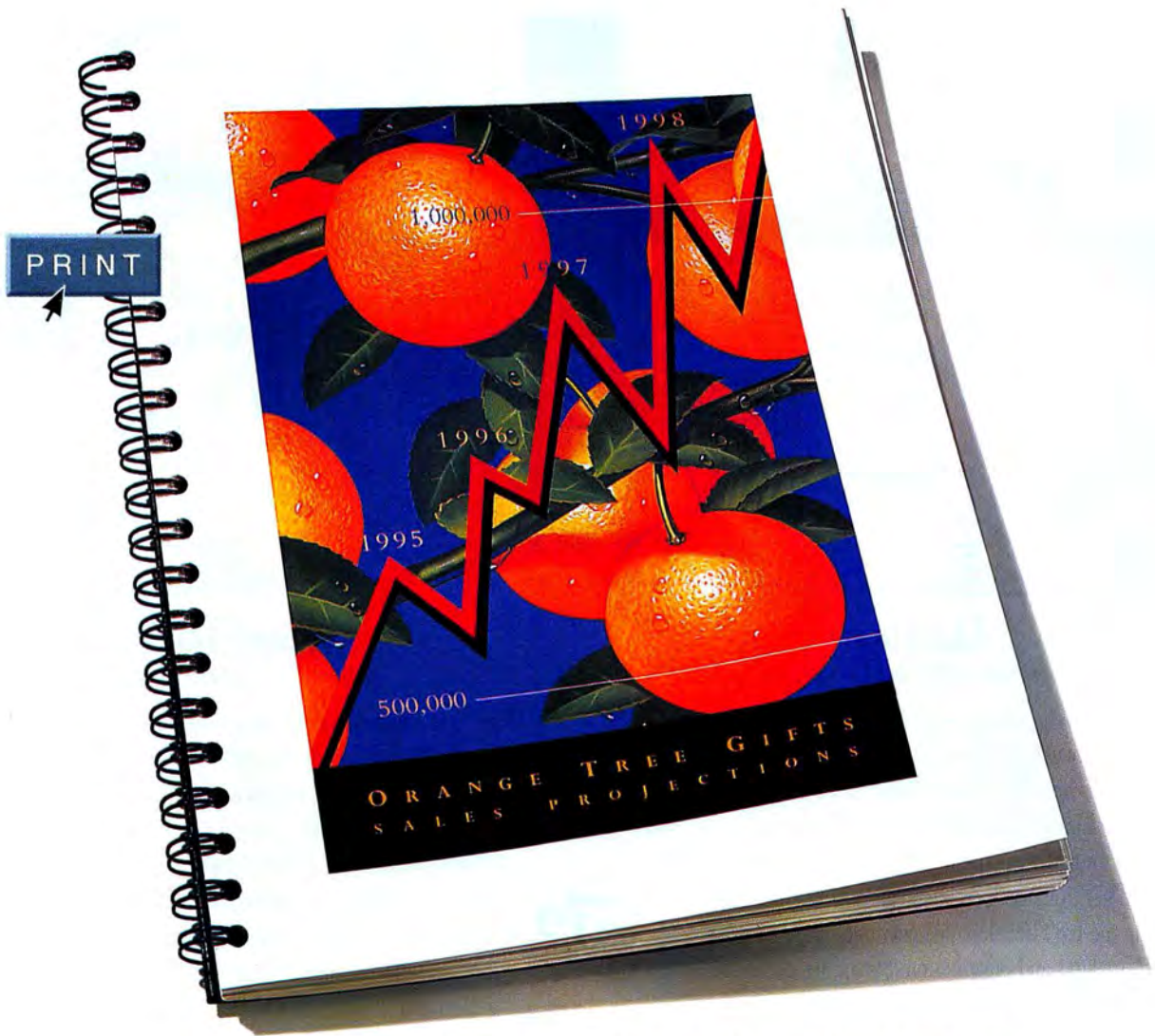
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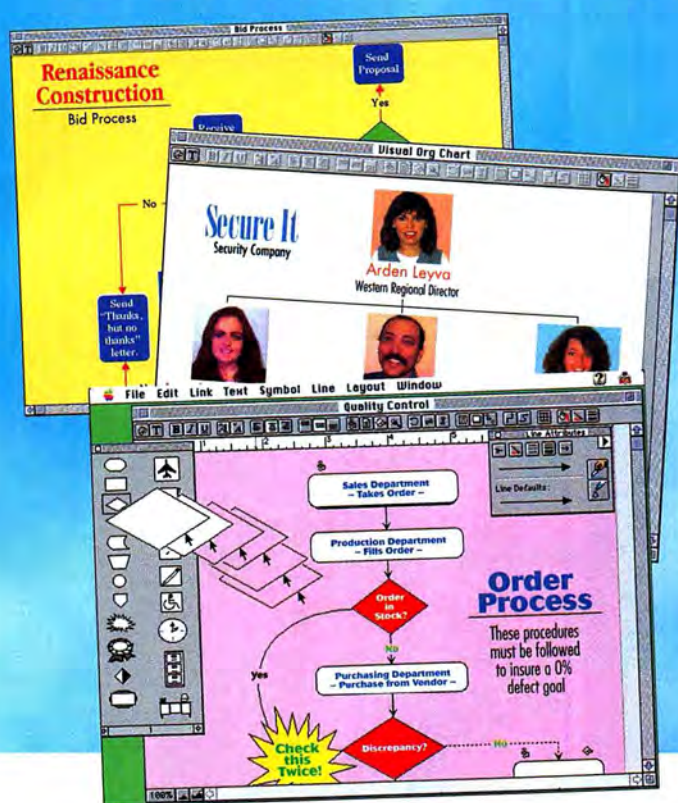
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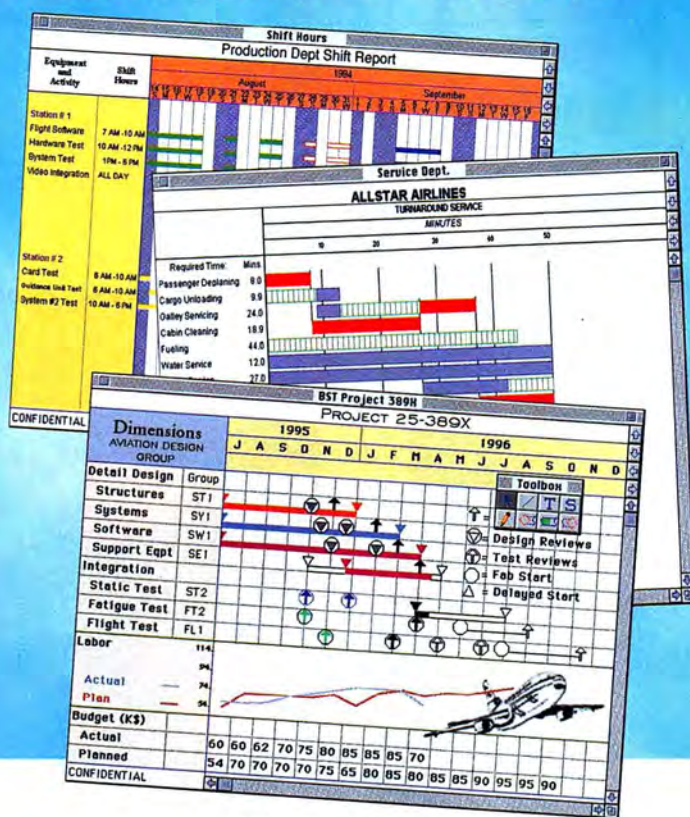
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# NEWS

## DIGITAL CAMERAS

# Affordable Filmless Photography

Chinon, Kodak, and Ricoh unveil new consumer cameras.

POINT-AND-CLICK digital cameras are now as easy to use — and almost as economical — as the automatic 35mm film cameras so popular today.

**CHINON ES-3000 AND ES-1000.** The Chinon ES-3000 Advanced 24-bit Color Digital Camera, with its 3x zoom lens, multiple resolution modes, and automatic flash, has been around since August 1995, but you can now find it for under \$1,000. The latest news from Chinon is the ES-1000 Pocket Digital Camera (not shown), a pint-sized point-and-shoot unit that's close to its film-based cousins in price, size, and convenience. Priced at \$499, the ES-1000 weighs less than 5 ounces and has a shutter-speed range from  $1/30$  of a second to  $1/4,000$  of a second.

Eight 640-x-480-pixel images can be stored in its 1 MB of internal RAM, or 2-, 4-, 8-, or 16-MB flash-memory cards can be used to expand image-storage capacity. An AC adapter and a

connection kit for downloading images directly to the Mac are sold separately.

Available this spring, the ES-1000 ships with Chinon's own image-acquisition software as well as a plug-in for Adobe Photoshop. 800-441-0222 or 310-533-0274.

### KODAK DIGITAL SCIENCE DC50.

This big brother of Kodak's popular DC40 digital camera zooms from 7mm to 21mm with a focal range of 19 inches to infinity. Shutter speeds are equivalent to  $1/16$  to  $1/500$  of a second, with aperture settings from f2.6 to f16. Weighing in at 22 ounces, the DC50 runs on four AA batteries — expect 500 shots per charge of its lithium batteries.

Priced under \$1,000, the DC50 captures images



at a resolution of 756 x 504 pixels. You can store 7 "Best," 11 "Better," or 24 "Good" images in the DC50's 1 MB of internal RAM; Type I and Type II PC Cards can also be used. Images can be downloaded via the supplied cable or with a PC Card reader. PictureWorks' image-acquisition and -editing software, PhotoEnhancer, is included. 800-235-6325 or 716-724-4000.

**RICOH RDC-1.** Taking a different approach, Ricoh's lightweight digital camera can record and play back full-motion video as well as still images — and its \$1,800 price tag reflects its versatility. It captures 24-bit images at a resolution of 768 x 480 pixels, comparable to S-VHS, and its lens zooms from 7 mm to 21 mm, comparable to a 50mm-to-150mm zoom lens on a 35mm camera.

The RDC-1 captures any combination of still images, video, and audio, including still images with audio and audio with no images. One 24-MB PC Card can hold 246 still images in standard mode, 492 stills in economy mode with JPEG compression, 4 five-second video clips with sound, or 1 hour and 40 minutes of audio. You can play back video in slow motion or frame by frame; erase images on the fly; and view images on a computer monitor, television screen, or optional attachable 2.5-inch LCD (approximately \$500). The cable for downloading images through the serial port is available separately. The 9-ounce RDC-1 operates on three NiCd batteries. 201-625-4180. / PAMELA PFIFFNER

## FUTURE TECH

# We Have Seen the Future, and It's Huge

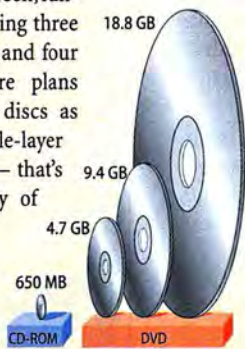
OBSOLESCENCE THREATENS your CD-ROM drive, now that industry leaders have agreed on the next standard for high-capacity, low-cost digital media — and when we say high, we're talking astronomical: DVD, which stands for *digital videodisc*, will in its first incarnation store 4.7 GB of digital information on a single-sided, single-layer disc the same size as today's CD-ROMs. With MPEG-2 compression, that's enough to contain a full-length, full-screen, full-motion feature film — including three channels of CD-quality audio and four channels of subtitles. Future plans include 9.4-GB double-layer discs as well as double-sided, double-layer discs that will store 18.8 GB — that's nearly 30 times the capacity of today's CD-ROMs.

DVD isn't a high-priced, connoisseur-only concept; it's a mainline consumer standard that's supported by

Apple, Toshiba, Sony, Philips, Time Warner, Pioneer, JVC, Hitachi, and Mitsubishi — heavyweights that recently agreed to avoid a Betamax-versus-VHS debacle and to settle on DVD as the next content-delivery standard.

The first DVD drives will appear later this year. Apple has already demonstrated a 4.6-GB title from Sumeria, and Pioneer might replace the CD-ROM drive in its only-in-Japan Mac clone with a DVD drive. Drives meant to be used with desktop computers and without MPEG-2 hardware are projected to cost \$500 or less.

Don't worry, your investment in CDs and CD-ROMs is safe: DVD drives will be able to play today's CD-ROMs (at 6x speeds) and audio CDs. DVD multimedia players and set-top boxes with MPEG-2 hardware decompression will appear later — as will shelves full of movies on DVD discs at your local video store. / RIK MYSLIEWSKI





# Untangling the Web

CE Software creates a powerful Internet-management tool.

TAKE CHARGE of your growing collection of Internet-site addresses with CE Software's WebArranger, an Internet-focused version of Arrange, the powerful contact manager CE

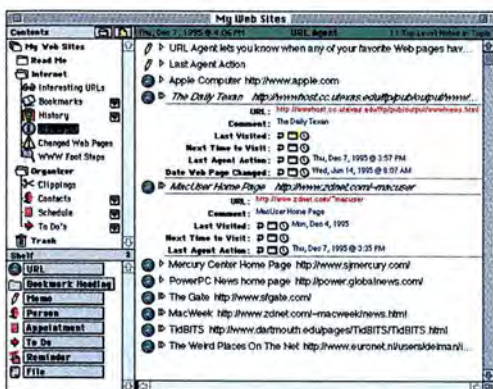
and create calendars and to-do items.

Using WebArranger is simple: After you've typed a Web-page URL, for example, you can simply double-click on it to have WebArranger launch your browser, note the time of the visit, and create a log of the action. You can also have WebArranger's URL Agent determine whether a Web page has changed since the last time you looked at it. The Web Footsteps feature lets you capture URLs in WebArranger as you surf the Web — just drag them into a WebArranger folder.

You can sort, search, and reorganize bookmarks (pointers to Web pages) in WebArranger and even import Netscape bookmark files. What's more, WebArranger isn't limited to just the World Wide Web — it also supports FTP, Gopher, mail, and newsgroup URLs as well as URLs of other, more obscure, locations.

For a limited time, WebArranger will be available free for downloading from CE Software's Web page (<http://www.cesoft.com>). After that, it will be rolled into CE Software's yet-to-be-named, includes-everything-but-the-kitchen-sink messaging and scheduling system, to be released in the spring. 800-523-7638.

/ SHELLY BRISBIN



recently acquired from Common Knowledge.

WebArranger handles addresses (also known as URLs, or Universal Resource Locators) as if they were contacts in the Arrange personal information manager. And since WebArranger retains all the contact and scheduling features of Arrange, you can associate URLs with contacts

## Image-Editing Showdown

NEW VERSIONS of Live Picture and xRes (both from new owners) are catching up to Adobe Photoshop.

**LIVE PICTURE 2.5.** Formerly published in the U.S. by MetaTools, Live Picture is now under the control of its eponymous developer. Although Live Picture remains an RGB editing program, version 2.5's support for ColorSync 2.0 helps eliminate unpleasant color-output surprises.

Thanks to Live Picture's Photoshop-plugin-in support, users can access a range of special effects without turning to Photoshop. And you can now import EPS files into a Live Picture composition and export a composition in EPS format. It even requires less RAM than before — 18 MB, compared to 24 MB. \$999. 408-464-4200.

**MACROMEDIA XRES 2.0.** Macromedia bought xRes 1.2 from Fauve Software and will deliver version 2.0 in the first quarter of 1996. The new direct-editing mode allows you to work on pixels just as you would in Photoshop.

xRes 2.0 also takes on the look and feel of Photoshop, with dockable palettes that have tabs for various features. There's also a tool bar that lets you access common functions such as copy, paste, and print. The expanded set of paint tools includes brushes for selectively adding noise and dodging or burning an image. \$699. 415-252-2000. / SEAN J. SAFREED

### MACUSER/ZMAC UTILITY OF THE MONTH

## A Control Freak's Dream

EVER WONDERED WHY preference files pay little heed to your actual preferences? Take control of your Mac, with March's MacUser Utility of the Month, ZMac's Lazy Susan. This system extension creates a handy menu in the Finder that tames your Preferences folder as well as your Control Panels folder, by letting you easily control preferences sets, desktop and monitor arrangements, and sound volume. Lazy Susan allows you to create work sets for your desktop icons and windows and helps you change preference files with ease. Tired of digging for the Sound control panel every time the phone rings or rearranging your desktop every time you plug an external monitor into your PowerBook? With Lazy Susan, these chores are easy: A little drag'll do ya.

Created by Guy Fullerton, ZMac's Lazy Susan is available exclusively from the ZD Net/Mac service on CompuServe (GO ZMC:MACUSER), the ZDNet/Mac services on eWorld (Shortcut: MacUser), and at <http://www.zdnet.com/~macuser> on the Web. / SCOTT LOVE



## Agfa's Dynamic Double-Duty DuoScan

No-compromise scanning of slides and opaque art.

FLATBED SCANNERS are more versatile than their film-scanning cousins. But if you need to scan photographs as well as slides, you face an expensive decision: Buy a second scanner or add a transparency adapter to your flatbed scanner.

Agfa's new DuoScan offers a third alternative. Thanks to Agfa's TwinPlate technology, the DuoScan can scan both reflective and transmissive art without the addition of a transparency adapter. The 36-bit-color unit offers a resolution of 1,000 x 2,000 dpi (interpolated to 4,000 dpi) and a dynamic range of 3.3 — all at an impressive price of \$5,500.

Unlike flatbed scanners equipped with transparency adapters, the DuoScan has two separate scanning beds, each with its own lamp. As with a standard CCD-based flatbed scanner, photographs and other reflective materials are placed on a top platen. As with a slide scanner, 35mm slides and negatives as well as medium- and large-format transparencies (2 1/4 x 2 1/4,

4 x 5, and 8 x 10 inches) are loaded into a holder that slides into the bottom of the unit.

Because it illuminates transparencies from the bottom and directs light upward through the emulsion layer to the lens, the DuoScan has fewer layers of glass — and thus produces less optical distortion — than conventional flatbed transparency scanners, the company says.

The DuoScan ships with Adobe Photoshop and a trio of Agfa applications: the FotoLook scanner driver, FotoTune color-management software, and FotoFlavor color-correction filters. 508-658-5600. / PAMELA PFIFFNER





## CLONE WATCH

# Power Throws Apple a Curve

The affordable PowerCurve 601/120 gives the Power Mac 7200/90 some stiff competition.

ONLY TWO MONTHS after announcing its PowerWave line of PCI-based midrange and high-end systems, Power has rolled out another Mac clone: the PowerCurve 601/120. This

601/120 and Apple's Power Mac 7200/90 (both with 8 MB of RAM) are identically priced at \$1,699, that's as far as the similarity goes.

First there's speed. As its name suggests, the PowerCurve 601/120 sports a 120-MHz PowerPC 601 processor, the fastest 601 available. Apple's 7200/90, the faster of the two 7200 models, contains a 90-MHz 601. Also contributing to the PowerCurve 601/120's zip is 256K of L2 cache; the 7200/90 ships with an empty L2-cache slot. The PowerCurve 601/120 gets the zip-factor nod by a long shot — processor speed, for example, is a full 50 percent faster than that of the 7200/90 (see charts).

Speaking of zip, you can buy a PowerCurve 601/120 with an optional internal Iomega Zip drive for an additional \$159 or with a SyQuest EZ135 for an extra \$149. The standard storage capacity of the PowerCurve 601/120 also tops the Power Mac 7200/90's: The PowerCurve includes an 850-MB

hard-disk drive, whereas the 7200/90's drive is a mere 500-MB model.

Power gets the nod on flexibility as well. The PowerCurve 601/120 is available in two designs: the traditional Power desktop model and a new low-profile model. Each is available with three PCI expansion slots. As in Power's PowerWave systems, these slots are on a "riser" card. If you opt for the PowerCurve 601/120 desktop model, you can choose a riser card with a single PCI slot and a single NuBus slot — but you'll pay a \$250 premium for the dual-bus model.

The PowerCurve 601/120 also opens another significant upgrade path that is closed to Power Mac 7200 owners. The processors in Apple's 7500, 8500, and 9500 are installed on processor cards that plug into the motherboard's processor slot — they can easily be upgraded with faster processors. Not so the 7200: To cut costs, Apple soldered the 7200's processor to the motherboard. Power Computing made sure that the PowerCurve 601/120 looks to the future: It contains a processor-card slot. / HENRY BORTMAN



economy model aims squarely at Apple's Power Macintosh 7200 systems — and despite Apple's recent price cuts on 7200s, Power's got the edge: Although base configurations of the PowerCurve



## BETTER BANG FOR THE BUCK

Although Power Computing's PowerCurve 601/120 costs the same as Apple's Power Macintosh 7200/90 — and ships with a 256K L2 cache and a larger hard drive than the 7200/90 — MacBench 3.0 shows that the PowerCurve handles most business and publishing tasks about 50 percent faster than the 7200/90. MacBench 3.0 scores are relative to those of a Power Macintosh 6100/60, which is assigned a score of 10.0 in each test.

| MACBENCH 3.0 SCORES                | PROCESSOR | FLOATING POINT | DISK MIX | PUBLISHING DISK MIX | GRAPHICS MIX (8-BIT) | PUBLISHING GRAPHICS MIX (24-BIT) |
|------------------------------------|-----------|----------------|----------|---------------------|----------------------|----------------------------------|
| Power Computing PowerCurve 601/120 | 19.3      | 20.5           | 14.1     | 12.5                | 22.6                 | 19.9                             |
| Apple Power Macintosh 7200/90      | 12.8      | 14.2           | 10.3     | 8.9                 | 14.7                 | 13.1                             |
|                                    | SCORE     | SCORE          | SCORE    | SCORE               | SCORE                | SCORE                            |
|                                    | BETTER    | BETTER         | BETTER   | BETTER              | BETTER               | BETTER                           |

## Make Way for Multiple Mac-Monitor Masterpieces

SLEEK CASES, HIGH-TECH controls, and multimedia speakers distinguish the latest crop of monitors. But manufacturers aren't neglecting the basics: Resolutions are higher, and image quality is improving.

**LG ELECTRONICS.** ▶ The GoldStar Studioworks line's top value for graphics-intensive work is the 17-inch 78i (\$1,179), capable of a maximum resolution with the Mac of 1,152 x 870 pixels. An optional \$79 speaker unit for all 17-inch Studioworks models features powerful 7-watt dome speakers.

Graphics professionals who want maximum monitor real estate should check out the 20-inch 20i (\$1,749), which offers 1,600-x-1,280-pixel support.

The GoldStar Studioworks 56m (\$589) is an inexpensive multimedia monitor with two 3-watt speakers placed beneath its 15-inch screen. Its earphone and microphone jacks are up front, and it handles resolutions up to 1,280 x 1,024 pixels.

LG Electronics' basic business offerings, the 17-inch 76i (\$979) and the 15-inch 56i (\$559), round out the Studioworks line. 201-816-2000.

**MITSUBISHI.** Aimed at graphics professionals, the Diamond Scan 17HX (\$950) supports 1,280 x 1,024 pixels at 75 Hz and has a dot pitch of .26 millimeters. The Diamond Scan 15HX (\$450) replaces the 15FS as

Mitsubishi's entry-level monitor. 800-843-2515.

**PANASONIC.** The PanaSync line undergoes a redesign with the P15 (\$549), P17 (\$1,049), and S17 (\$949). Not only are their cases new but the monitors also use on-screen icon-based controls. Both the S17 and the P17 use Panasonic's DQ-DAF gun for improved image quality. 201-348-7000.

**SAMSUNG.** The SyncMaster 21GL (\$1,999), which features a .28-millimeter dot pitch and on-screen controls that manage 19 functions, is Samsung's first-ever 21-inch graphics monitor and supports 1,152 x 870 pixels at 75 Hz. 800-933-4110. / ROMAN LOYOLA





# Modems Blast Past 28.8

There's a new speed limit on the Infobahn.

THE ULTIMATE in modem performance was supposed to have been reached when the 28.8-kbps V.34 standard was unveiled last year. However, the same folks who brought us V.34 are now tweaking the standard to allow speeds of 31.2 and 33.6 kbps — but only over high-quality telephone lines. Technically, these faster-than-28.8-kbps modems still conform to the V.34 standard, but they're quickly acquiring the nickname *V.34 plus*.

V.34 plus is not a new standard but rather a discovery by engineers at AT&T Paradyne that certain combinations of V.34's many connection tools can vault performance over the 28.8-kbps barrier. V.34 plus was first offered in AT&T Paradyne's Comsphere 3800 series (\$895 and up). Other early adopters have quickly appeared: Penril now sells the Alliance V.34bis (\$895), U.S. Robotics offers V.34 plus in both its Courier V.Everything (\$595, or free upgrade from V.34) and Sportster V.34 (\$279, or \$25 upgrade), and

Motorola has introduced the Premier 336 (\$495). Hayes and others are also working to develop V.34 plus products.

The top speed of 33.6 kbps will seldom be achieved over long-distance circuits, but V.34 plus modems should be able to zoom along on local calls — including calls to your friendly neighborhood Internet provider, should you be fortunate enough to sign up with a provider that has a V.34 plus access number.

Although V.34 plus reaches very close to the theoretical 35-kbps limit for telephone-line data transmission, it's still slower than the 64 kbps of ISDN (available today) and the 100-kbps cable modems that will begin to appear in mid-1996. However, access to ISDN and cable-modem service will always be limited to select locations, whereas modems can be used — with varying success — wherever there's a phone line.



V.34 plus modems such as the Penril Alliance V.34bis (above) and others, from AT&T Paradyne, U.S. Robotics, and Motorola, can transfer data at a blistering 33,600 bits per second.

AT&T Paradyne, 800-482-3333, ext. 402; Motorola, 800-365-6394; Penril, 800-473-6745; U.S. Robotics, 800-877-2677 or 800-342-5877. /STEPHEN SATCHEL

PHOTOGRAPHY / GIAMPIERO BENVENUTI

## INTERNET

### Server Tools Expand Net Options

INTERNET MANAGEMENT OPTIONS on the Mac continue to expand. Three new tools address different server needs.

**WEBSTAR SSL SECURITY TOOLKIT.** Companies

that use their World Wide Web sites to conduct secure transactions can add network encryption and digital IDs to WebSTAR and other World Wide Web servers with this new tool from

StarNine. The \$1,295 WebSTAR SSL Security Toolkit's server software encrypts transfers of Web pages, using the SSL (Security Sockets Layer) protocol developed by Netscape Communications. The protocol uses RSA encryption and supports public/private keys that authenticate World Wide Web servers. 510-649-4949; <http://www.starnine.com>.

**TELEFINDER 5.0.** This graphical BBS application from Spider Island Software now includes Web and POP (Post Office Protocol) mail-server software, allowing sysops to give users with BBS accounts a home page and an e-mail account. Users need only drop their HTML files into a folder, using TeleFinder client software. The mail server is MIME-compliant, making it possible to attach files to Internet messages. A TeleFinder server-software package that supports two phone lines is \$675.

TeleFinder's next version, due in early spring, will let sysops become full-fledged service providers. Callers will be able to use PPP connection software to dial the BBS and use their favorite Internet tools to surf the Net. 714-453-8095.

**INTERSERVER DNS.** InterCon Systems, which last year released an HTTP server-software package called InterServer Publisher, will add a DNS (Domain Name Server) to the product line this quarter. InterServer DNS, priced at \$295, will support caching, primary- and secondary-zone transfer, and recursive queries. 703-709-5500. /SHELLY BRISBIN

### Full NetWare Citizenship

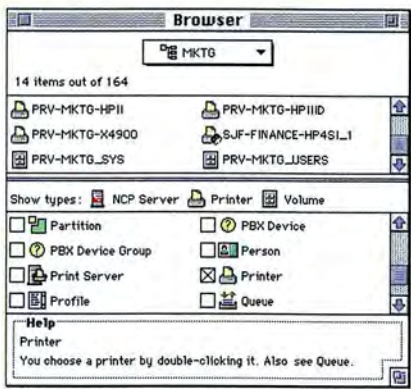
LOGGING ONTO NETWARE from a Mac no longer means second-class access to corporate information. NetWare Client for Mac OS brings users and administrators into parity with their PC-using colleagues. And it's free.

The client software begins with native IPX support: Using a new interface, the NetWare Directory Browser, Mac users can see the entire network, not just servers that have the NetWare for Macintosh NLM (NetWare Loadable Module) installed. Mac users also have access to NetWare Directory Services (NDS), which in turn allows them to connect with NetWare once, and have full access to servers, printers, and users across the network.

Other new features include the ability to manage multiple NetWare server activities from a single Mac. In the past, a DOS-console application provided the only access to user-account maintenance, printer setup, and NLM installation and removal.

The NetWare for Macintosh NLM is no longer needed in NetWare 4.1 environments, although

the new client software is compatible with NetWare 3.x servers. Users of NetWare 3.x gain little from installing the new client software, but it does allow managers to administer a server from their Macs. Best of all, NetWare Client for Mac OS is free from CompuServe (GO Netware) or Novell's Web site (<http://netware.novell.com>). You can obtain the CD-ROM version by contacting Novell at 800-873-2831; <http://www.novell.com>. /SB





# More Zip on the Way

The shortage of Zip drives and cartridges may soon be over.

THE ZIP BANDWAGON is getting crowded, as major drive and cartridge vendors scramble to meet demand for Iomega's phenomenally popular personal storage system, the Zip drive.

Iomega is no longer the sole manufacturer of Zip drives, now that Epson has begun churning out both the familiar blue model sold by Iomega and a new platinum version with an Epson nameplate. Aside from their color, the drives are identical, although Epson plans to ship its Zips with a smaller, more portable external power supply than the one provided by Iomega. At press



time, Epson had not yet finalized its software bundling and would say only that it will include Iomega's Zip Tools and other utilities "similar" to

those provided by Iomega. The first Epson Zip drives were expected to hit the stores in early February, at a price comparable to Iomega's (currently \$199).

Fuji and Maxell will also offer Zip drives, but instead of manufacturing their own — like Epson — they'll put their logos on Iomega-supplied drives. Expect to see Fuji's Zips in the first quarter of 1996 and Maxell's in the second quarter — again, with similar prices.

If Zip drives have been hard to find, Zip cartridges have been downright impossible to locate in some areas. Frustrated shoppers will be happy to know that Iomega has teamed up with MegaMedia, of Taiwan, a major international supplier of floppy disks, to increase the supply of Zip cartridges.

In fact, you'll soon find Zip cartridges from such familiar names as Sony, Epson, Fuji, and Maxell. Couple the manufacturing capacity of Iomega and MegaMedia with the distribution power of these major brands, and the Great Zip Drought of '95 may soon be just an unpleasant memory. Iomega, 800-697-8833; Epson, 800-289-3776; Fuji, 800-488-3854; Maxell, 201-794-5900. / RIK MYSLAWSKI



## Tough but Tiny

POWERBOOK OWNERS who are searching for rugged and speedy removable storage have a new and attractive option: the APS 170PB cartridge drive, based on the 2.5-inch Avatar HARDiskette mechanism, which is gaining popularity in the Wintel world.

Designed to fit into the bay for the pop-out floppy drive of the PowerBook 190 and 5300 series, the 170PB boasts low power consumption and durable, rigid-disk, low-cost media (a 170-MB cartridge should sell for under \$50 when APS ships the units in early 1996). The speed of the IDE-based drive is projected to be slightly higher than that of typical 2.5-inch hard drives and noticeably higher than that of 1.8-inch drives.

APS is looking into offering a stand-alone desktop model based on Avatar's SCSI-2 HARDiskette mechanism — but if it does decide to ship one, it won't do so until later in the year. Unfortunately, until a stand-alone version appears, you won't be able to swap HARDiskette cartridges between your PowerBook and your desktop Mac. 800-235-3707. / RM

## CD-ROMS

### The Beat Goes On

IF MAYNARD KREBS grooved to the digital scene, he'd be hip to these discs, daddy-o.

**THE BEAT EXPERIENCE.** ▼ If berets, bongos, and beards are all you associate with the Beats of the '50s, then Voyager's CD-ROM would be a great introduction to these goateed granddaddies of hippies and slackers. Produced by The Red Hot Organization, a fund-raising mechanism for AIDS groups that receive all the proceeds from



this disc, The Beat Experience lets users explore the Beat aesthetic through a series of tableaux created by contemporary artists. It's a *Howl*. \$40. 800-446-2001 or 212-431-5199.

**VUSIC.** Budding Kerouacs might dig Vusic, a "screen raver" whose *très* groovy graphics interact with the music on audio CDs. Vusic senses changes in the music and alters the speed, direction, and color with which the graphics are drawn. Pop in a copy of *Blue Trane*, select from 16 brushes, twiddle the color knob, and paint to the beat — if you can find it. \$20. 215-625-8888.

**PAUL CÉZANNE: IMPRESSIONS OF HIS LIFE AND TIMES.** For a look at a bohemian artist of an earlier era, seek out Corbis' fine-art disc about the man who inspired Picasso. Created by the producers of last year's excellent *Le Louvre*, the disc uses Cézanne's masterpiece *Les Grandes Beigneuses* as an entry point into Cézanne's world, including his personal life, 140 pieces of his art, and late-19th-century France. Beard, oui. Beret, peut-être. Bongo? *Mais non!* \$55. 800-336-2947 or 206-649-3997. / RAYMOND CORBEAU

## Cursory Micromanagement

SERIOUS MOUSE JOCKEYS will love the \$15 Precision Mousing Surface, from 3M, an ultrathin sheet with grooves that keep your mouse ball clean. If you want a fresh new — and, at \$40, inexpensive — mouse to go with your high-tech mouse pad, consider Kensington's Mouse in a Box. 3M, 800-364-3577; Kensington, 800-535-4242 or 415-572-2700. / REBECCA OLSON



PHOTOGRAPHY / GIAMPIERO BENVENUTI



## NEW &amp; NOTABLE

## HARDWARE

**nView DiaMonD D-400.** ▼ Offering an image so bright that its makers claim that it can be used in a normally lit room, this active-matrix LCD projector weighs in at 23 pounds and offers 24-bit color at 640 x 480 pixels. \$9,495. 804-873-1354.

**Matrox MGA Millennium.** This PCI graphics card offers 24-bit color at resolutions up to 1,280 x 1,024 pixels. Available with either 4 MB or 8 MB of onboard RAM (\$649 or \$999), the card also provides QuickDraw 3D acceleration. 514-969-6300.

**Primax Electronics DataPen.** Designed to be held like a pen, this 2.7-ounce scanner is designed for applying optical character recognition to text, one line at a time. \$299.

**TDK Systems GlobalNetworker 3410 and 3412.** These PC Card modems offer V.34-modem capabilities as well as Ethernet connectivity. The 3410 (\$599) supports 10BASE-T wiring, and the 3412 (\$629) supports 10BASE-2. 916-478-8421.

**MicroNet Array 2000J.** Based on Iomega's Jaz removable-storage drive, the Array 2000J combines two Jaz drives in one enclosure. Users can configure the drives as a 2-GB RAID 0 or RAID 1 array or use them as two separate 1-GB drives. 714-453-6100.

**Sonnet Technologies Presto 040.** This CPU-upgrade board fits into the PDS (processor-direct slot) on the Mac LC; LC II; and Performa 400, 405, 410, and 430 and gives them a 25-MHz 68040 processor. \$199; with FPU, \$299. 714-261-2800.

**Texas Instruments microLaser PowerPro/12 and 8.** Targeting workgroups and power users, these Adobe PostScript printers are rated at 12 pages per minute (\$1,599) and 8 pages per minute (\$1,299), respectively. Offering 600-dpi output, the printers come with 3 MB of RAM (expandable to 19 MB). A parallel port is standard, with Ethernet available as an option (\$399). 800-848-3927; 2ti@msg.ti.com.

## SOFTWARE

**Pantone ColorDrive 1.5.** An application-independent color-management system that supports Apple's ColorSync 2.0 technology, this software adds access to the complete Hexachrome color library in its latest version, as well as digital versions of 16,000 Pantone colors. \$199; upgrade from ColorDrive 1.0, \$29.95. Pantone. 800-222-1149 or 201-935-5500.

**DOS Mounter 95.** Following in the footsteps of DOS

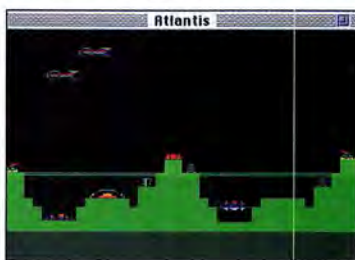
Mounter, this utility lets Macs mount DOS-formatted removable media. It automatically translates Windows 95 filenames and links files to the appropriate Mac application. Files copied from a Mac are automatically translated into DOS and Windows 3.1 style for users of those operating systems while retaining the extended filename for users of Windows 95. \$100. Software Architects. 206-487-0122; sales@softarch.com.

**WebDBC.** Webmasters can put information from SQL databases onto the Web by using this CGI application. Developer version, \$295; unlimited users, \$895. Nomad Development. 206-448-1956; http://web.ndev.com.

**Riddle of Master Lu.** Set in 1936, this CD-ROM adventure game tells the story of the deadly power struggle surrounding the ownership of a Chinese artifact. Featuring over 200 rendered rooms and more than 30 characters, this disc is based on the life of Robert Ripley, of Ripley's Believe It or Not! fame. \$60. Sanctuary Woods. 800-943-3664 or 415-286-6000.

**Cyber Patrol.** Parents and teachers can protect children from questionable content on the Internet with this utility. Users can choose which categories of material are filtered and which are viewable and can manually add or remove sites from the filtering list. The list of questionable sites is updated automatically on a weekly basis. \$50, including 6 months of site-list updates; 6-month subscription, \$20. Microsystems. 800-489-2001; http://www.microsys.com/CYBER.

**MasterCook Deluxe.** This CD-ROM offers more than 1,000 recipes — including a collection of gourmet recipes from the California Culinary Academy. Also on the disc: an e-mail program that allows users to send recipes to each other via the Internet and a built-in nutritional database.



\$45. Sierra On-Line. 206-649-9800.

**Descent.** Newly available for the Mac, this popular CD-ROM is a 3-D first-person arcade game set in the

zero-gravity world of a lunar base. Groups of players can additionally play head to head over a network. MacPlay. 714-553-3521; http://www.macplay.com.

▲ **Atari 2600 Action Pack 1 and 2.** Want the pixel-popping fun of the old Atari 2600 game system? These packages of Activision games, originally written for the Atari, let you play titles such as Kaboom!, Pitfall, Atlantis, and Ice Hockey on your Mac. \$30 each. Activision. 310-479-5644.

## MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects average sales prices of new and used Macs as of December 6, 1995. Prices (other than those for compact models, Performas, and LCs) do not include a monitor or a keyboard. The United Computer Exchange is a national clearinghouse of used microcomputer equipment.

| Mac Model                      | New     | Used    |
|--------------------------------|---------|---------|
| Classic II (4/40)              | •       | \$325   |
| LC III (4/80)                  | •       | \$350   |
| Performa 5215CD (8/1GB)        | \$2,199 | \$1,675 |
| Performa 6220CD (16/1GB)       | \$2,199 | \$1,700 |
| IIx (5/40)                     | •       | \$300   |
| IIcx (5/80)                    | •       | \$450   |
| IIfx (8/160)                   | •       | \$550   |
| Quadra 605 (4/80)              | •       | \$425   |
| Quadra 610 (8/160)             | •       | \$550   |
| Quadra 630 (4/250)             | •       | \$600   |
| Quadra 650 (8/230)             | •       | \$1,125 |
| Quadra 660AV (8/230/CD)        | •       | \$950   |
| Quadra 700 (8/230)             | •       | \$850   |
| Quadra 800 (8/230)             | •       | \$1,200 |
| Quadra 840AV (8/230/CD)        | •       | \$1,675 |
| Quadra 900 (8/230)             | •       | \$1,200 |
| Quadra 950 (8/230)             | •       | \$1,400 |
| Power Mac 6100/66 (8/350/CD)   | •       | \$1,100 |
| Power Mac 7100/80 (8/700/CD)   | •       | \$1,575 |
| Power Mac 7200/90 (8/500/CD)   | \$1,899 | \$1,400 |
| Power Mac 7500/100 (16/1GB/CD) | \$2,999 | \$2,350 |
| Power Mac 8100/100 (16/1GB/CD) | •       | \$2,250 |
| Power Mac 8100/110 (16/2GB/CD) | •       | \$2,700 |
| Power Mac 8500/120 (16/2GB/CD) | \$4,499 | \$3,800 |
| Power Mac 9500/132 (16/2GB/CD) | \$5,299 | \$4,300 |
| PowerBook 145B (4/80)          | •       | \$700   |
| PowerBook 150 (4/120)          | \$999   | \$750   |
| PowerBook 165 (4/80)           | •       | \$900   |
| PowerBook 165c (4/80)          | •       | \$900   |
| PowerBook 170 (4/40)           | •       | \$875   |
| PowerBook 180 (4/80)           | •       | \$1,250 |
| PowerBook 190cs (8/500)        | \$2,199 | \$1,700 |
| PowerBook 520 (4/160)          | •       | \$1,275 |
| PowerBook 520c (4/160)         | •       | \$1,450 |
| PowerBook 540 (4/240)          | •       | \$1,500 |
| PowerBook 540c (4/320)         | •       | \$2,600 |
| PowerBook 5300cs (8/500)       | \$2,699 | \$2,200 |
| Duo 250 (4/200)                | •       | \$1,100 |
| Duo 280 (12/240)               | •       | \$1,750 |
| Duo 280c (4/320)               | •       | \$1,900 |
| Duo 2300c (8/750)              | \$3,499 | \$3,000 |

• = discontinued model

For more pricing information on these and other models, call 800-755-3033 or 770-955-0569 or visit <http://www.uce.com>. And find it on 2D Net/Mac, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC:MACUSER). On eWorld, go to shortcut MACUSER, in MacUser Software Library:MacUser Special Files.



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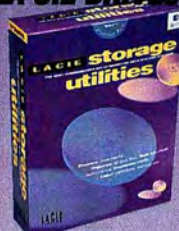
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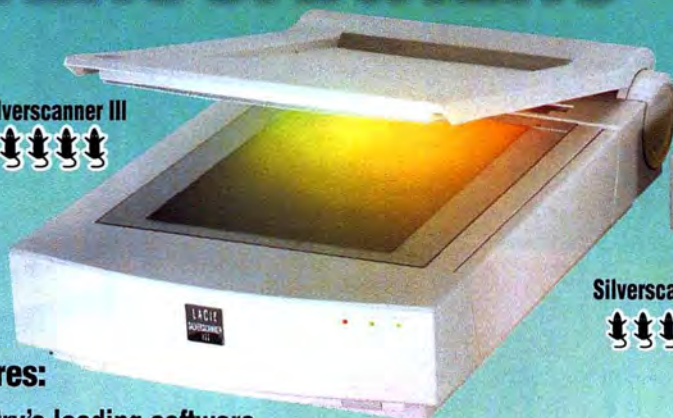
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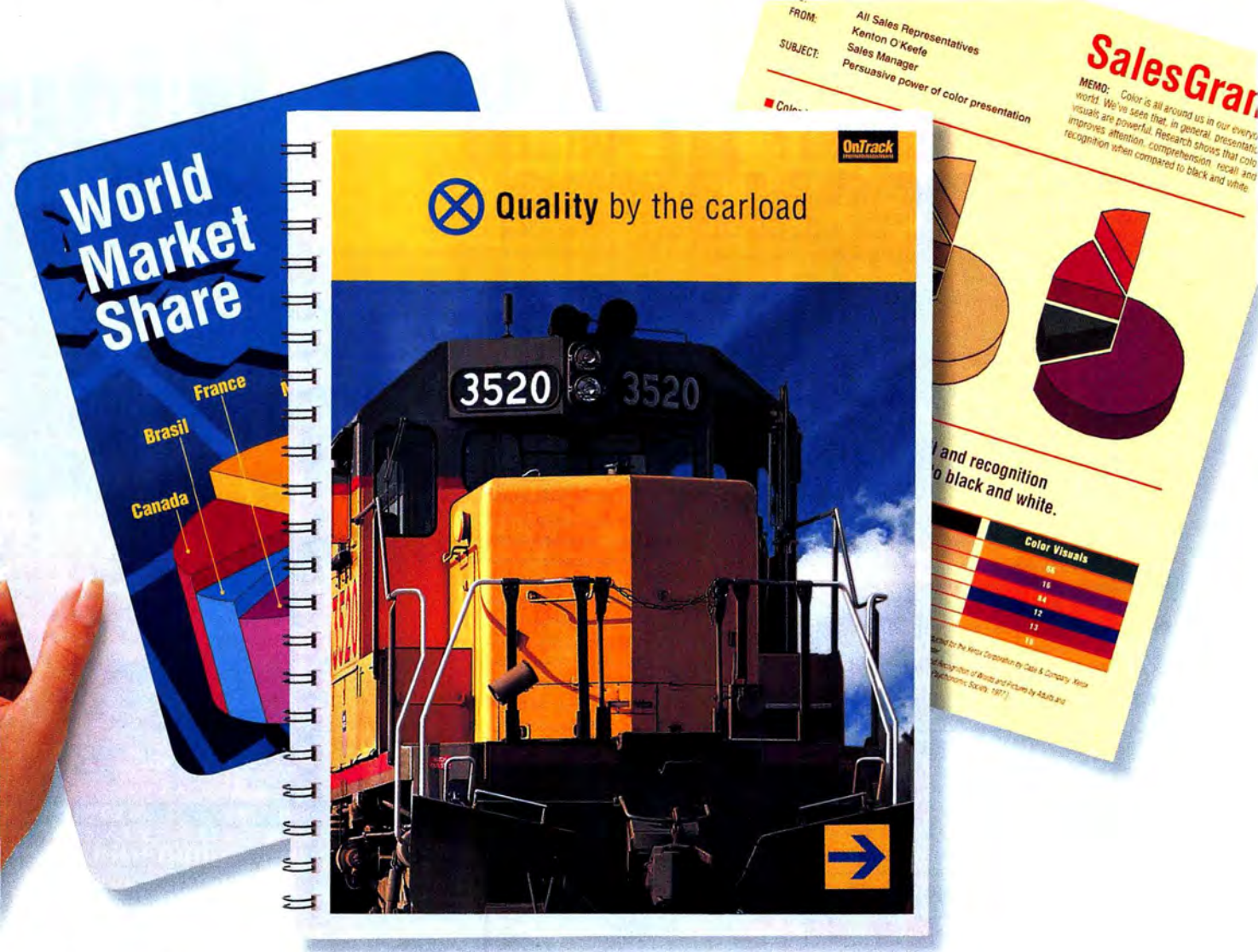
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# MacWEEK **REPORT**

## Low-cost PCI Macs due out this spring

By Joanna Pearlstein

Starting this spring, Apple will bring PCI to its consumer Power Macs with the debut of five new systems: two modular, two all-in-one, and the first tower-style Performa.

Three of the machines — code-named Instatower, Elixir and Chimera — will reportedly share a logic board sporting either a 100- or 120-MHz PowerPC 603e processor. The other two, code-named Camelot and Excalibur, will come with either a 75- or 90-MHz PowerPC 603 processor, sources said.

### A new tower design

Instatower, Apple's first tower-style CPU aimed at the consumer market, will contain



three PCI slots. The CPU's new enclosure places connectors on top, rather than in back, of the case, providing easier access to cables and allowing the machine to be placed closer to a wall. An Instatower system with 8 Mbytes of RAM, a 1.2-Gbyte Enhanced IDE (Integrated Drive Electronics) hard drive, quadruple-speed CD-ROM drive and a 15-inch monitor is expected to cost less than \$2,000, sources said.

Instatower's RAM will be expandable to 136 Mbytes; it will also include an optional Level 2 cache; a Performa 630-style communications slot; two 5.25-inch expansion bays; 1 Mbyte of dynamic RAM for video; an infrared receiver for remote-control functions; and SCSI, ADB and GeoPort connectors.

Sources said Instatower would arrive in Europe and Asia in the second quarter of 1996, making its way into the hands of U.S. customers in the fall.

### PCI Performas

One of Apple's tonics for the power-seeking consumer is Elixir, a modular CPU that will reportedly replace both the 75-MHz 603-based 6200 series and the 100-MHz 603e-based 6300. The main difference between the new system and the 6300 is the PCI slot and

See PCI Macs, next page

## Power delays PowerWave NuBus option

By David Morgenstern

Power Computing Corp. recently addressed user concerns over availability of its NuBus option for the PowerWave models.

Austin, Texas-based Power said that its \$249 mixed NuBus and PCI board for the PowerWave machines will not ship in volume until February. PowerWave models ship with a "riser" expansion daughterboard that holds up to three PCI cards. The optional mixed riser offers two NuBus and two PCI slots.



Power said the availability trouble stems from problems with StarGate, the PCI-to-NuBus bridge chip developed with support from Apple and manufactured by Toshiba Corp. According to Power, the major run of the chip was contaminated during fabrication, which resulted in the delay.

In addition, several companies reported compatibility problems between the bridge board and display, data-acquisition and video accelerator NuBus cards.

Power said it has resolved incompatibility with Radius Corp.'s Thunder graphics accelerators equipped with a digital signal processor-based daughtercard. The company is also working on compatibility with National Instruments Inc.'s GPIB (General Purpose Interface Bus) data-acquisition cards. Power said additional problems exist with Data Translation Inc.'s Media 100 system.

"PowerWave is a rock-solid product as a PCI machine," said Michael Rosenfelt, Power's director of marketing. "As we find other NuBus incompatibilities, we will work with customers to solve them."

Power said it will post a list of compatible NuBus cards to its Web site, at <http://www.powercc.com/>.

In addition, sources said that Power may not offer a bridge card for its entry-level PowerCurve models slated for introduction at San Francisco's Macworld Expo. □

## Apple prepares update to PowerBook system software

By Joanna Pearlstein

Apple is working on an update to the system software for its PowerBooks, that will include a new Finder and emulator, according to sources.

Code-named Anvil2, the update will be "strongly recommended" for users of the PowerBook 190 and PowerPC-upgraded 500 series, the PowerBook Duo 2300, and the PowerBook 5300 series, sources said. In addition to the new Finder and emulator, Anvil2

will also reportedly include new versions of the Apple Menu Options, Control Strip and PowerBook control panels; PC Card modem extension and printer drivers will also be included.

At press time, the release date was not available.

Apple declined to comment on the update.

In other news, Apple recently shipped the PowerBook 5300ce, which was announced early in 1995 but was later delayed. □



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# MacWEEK REPORT

## PCI Macs

from previous page

the accompanying architecture first introduced on last summer's Power Mac 7200, 7500, 8500 and 9500 machines. The units will be available as Performa models in the consumer market and as LC models for the education market.

Elixir, whose case resembles a Quadra 630, will come with 1 Mbyte of dynamic RAM for multisync video display; its on-board video-out will support resolutions up to 640 by 480 pixels in 16-bit color and 1,024 by 768 pixels in eight-bit color, sources said.

The all-in-one Chimera (the monster of Greek myth that had a lion's head, goat's body and serpent's tail) will replace the 75-MHz PowerPC 603-based 5200 series. Sources said Apple's newest all-in-one computers might be available only in the education market, at least to start.

Like its ancestor, the 5200, Chimera will include a built-in 15-inch shadow mask monitor with a 0.28mm dot pitch, sources said. It will display images at 640 by 480 pixels and 800 by 600 pixels in 16-bit color. Set on a tilt-and-swivel base, Chimera is also expected to have two integrated speakers and a microphone.

Expected in the second quarter of 1996, both Elixir and Chimera will reportedly include 8 Mbytes of RAM, expandable to 136 Mbytes; 1-Gbyte and larger Enhanced IDE hard drives; quadruple-speed CD-ROM drives; and slots for video-in, communications and TV/FM stereo tuner cards. Instatower, Elixir and Chimera will all include support for 16-bit sound-in and sound-out and soft power on-off from the keyboard.

Final pricing has not been set, but projected prices range from \$1,450 for a base 100-MHz modular Elixir to \$2,500 for a 120-MHz all-in-one Chimera with extra RAM, TV and video-in cards and other add-ons.

Some LC and Performa models will bundle

the Apple Video/TV System and the Apple Presentation System, which let users watch TV on their Macs, capture video and display presentations on a TV monitor. One Elixir model will come with 256 Kbytes of Level 2 cache standard. Other configurations may include the 100-MHz Intel 486-based DOS Compatibility Card and either a 14.4- or 28.8-Kbps fax modem.

### Low-cost Power Macs

Rounding out the low end of Apple's new offerings are two CPUs code-named Camelot and Excalibur, which share a logic board with either a 75- or 90-MHz PowerPC 603 processor, one 7-inch PCI slot, 8 Mbytes of built-in RAM, an 800-Mbyte IDE hard drive, and a quadruple-speed CD-ROM drive. A base modular Camelot system will cost around \$1,300, and a similar all-in-one Excalibur system will cost around \$1,625.

Slated for release this fall, the Quadra 630-style Camelot system will reportedly replace the Quadra 630 and Power Mac 6200; Excalibur will replace the all-in-one, 68040-based LC 475, 575 and 580.

Excalibur's enclosure will be similar to that of the 5200, but its logic board will include a PCI slot rather than a processor direct slot. Built into Excalibur's case will be a 15-inch shadow mask display with a 0.28mm dot pitch; the 1 Mbyte of built-in video memory will support 16-bit color.

Designed to be the lowest-cost modular and all-in-one Power Macs, Camelot and Excalibur will support up to 64 Mbytes of RAM and have a communications slot for an Ethernet card or fax modem. Both Camelot and Excalibur will support video-in and TV tuner cards, but according to sources, they will only be available as add-ons. Camelot and Excalibur will not include Level 2 caches; users will need to purchase these options separately.

Apple declined to comment. □

## Start-up to unveil fastest PPC chip yet

By Joanna Pearlstein and Henry Noss

A start-up company partly funded by Apple is completing design of a new PowerPC-compatible chip — a chip the company said will be the world's fastest microprocessor when it ships in early 1997.

Exponential Technology Inc. said the still-unnamed chip will come on a CPU daughtercard that will fit into today's PowerPC-based systems from Apple, DayStar Digital Inc. and Power Computing Corp. as well as other Mac OS clones.

Officials at the San Jose, Calif.-based

Exponential said the first chip will be three times as fast as today's fastest Pentium, but they declined to provide further details about projected performance. Other sources said the first Exponential processor will operate at a frequency of at least 300 MHz, with later versions reaching speeds as high as 600 MHz.

The design owes its speed to the use of bipolar logic, a technology previously used primarily in mainframe processors, in combination with the CMOS technology generally used in microprocessors.

The company is not the first to use such a combination, known as BiCMOS; Intel Corp. classifies the Pentium as BiCMOS. But Intel and other microprocessor makers have generally used bipolar logic only in limited ways because the technology increased power consumption, die size and cost.

Exponential officials said they have overcome these problems by using the latest in process technology, including a number of patented innovations. The chip's core logic is entirely bipolar; only its built-in 32-Kbyte Level 2 cache is based on a CMOS process.

Exponential said it developed its chip independent from IBM Corp. and Motorola Inc. but is now negotiating a license that will allow it to use the PowerPC name for its chips. Sources said the PowerPC partners have already incorporated Exponential's chips into their development road map, under the code names Dino and Boxer.

Exponential Technology Inc. of San Jose, Calif., can be reached at (408) 441-6050; fax (408) 441-6051; <http://www.exp.com>. □



### Apple's consumer lineup

| CPU                     | PROCESSOR            | STYLE      | PRICE*  |
|-------------------------|----------------------|------------|---------|
| Instatower <sup>†</sup> | 100- or 120-MHz 603e | Tower      | \$2,000 |
| Elixir                  | 100- or 120-MHz 603e | Modular    | \$1,450 |
| Chimera <sup>†</sup>    | 100- or 120-MHz 603e | All-in-one | \$1,800 |
| Camelot                 | 75- or 90-MHz 603    | Modular    | \$1,300 |
| Excalibur <sup>†</sup>  | 75- or 90-MHz 603    | All-in-one | \$1,625 |

\*All prices are for a machine with 8 Mbytes of RAM, an 800-Mbyte or 1.2-Gbyte hard drive, and a quadruple-speed CD-ROM drive.

<sup>†</sup>Price includes 15-inch monitor.



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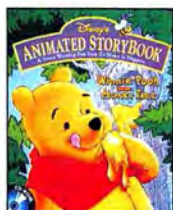
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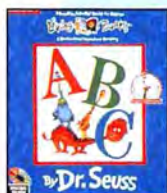
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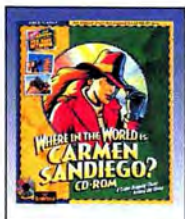
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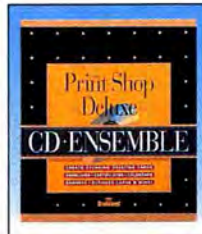
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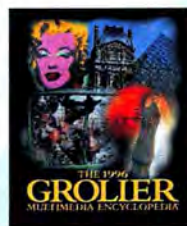
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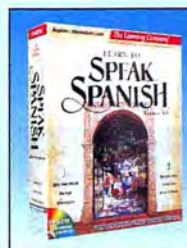
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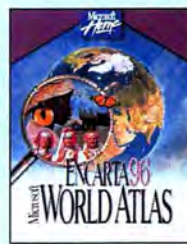
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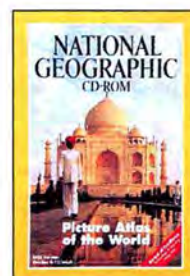
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# REVIEWS

## Power Computing PowerWave

604/120 ★★★★★

604/132 ★★★★★

604/150 ★★★★★

Speed plus a dual PCI and NuBus option put Power's new Macs in a class by themselves.

**PREMIER MAC-CLONE MAKER** Power Computing has redefined the playing field once again with its new line of aggressively priced clones. But this time around, Power's machines not only undercut Apple's Power Mac pricing but they also offer speed and configuration advantages that Apple can't currently match.

Power's new models — the PowerWave 604/120, 604/132, and 604/150 — are based on the "Tsunami" motherboard Apple uses in its Power Mac 9500. Each of the PowerWave systems comes with a fast PowerPC 604 processor and incorporates a PCI expansion bus. However, the PowerWave bus has a special twist — its three PCI slots are located on a riser card, rather than directly on the motherboard. This enables Power to offer something Apple doesn't — a \$250 optional split-bus riser card that has two PCI slots and two NuBus slots. That means if you're upgrading to a PowerWave from an older NuBus-based system, you don't have to chuck your NuBus cards. The PowerWaves also offer a speed advantage over Apple's Power Macs — the 150-MHz model is currently *the fastest* Mac OS system you can buy.

### Price/Performance Edge

Pricing for the PowerWave systems positions them head to head with Apple's PCI-based Power Mac line. But you get more muscle

with a PowerWave system than you do with its Apple counterpart. For example, Apple's Power Mac 7500/100 comes equipped with a 100-MHz 601 processor, 16 MB of RAM, a 1-GB hard drive, and a quad-speed CD-ROM drive. The price? About \$3,000. Compare that with a similarly configured PowerWave 604/120 with its 120-MHz 604 processor — it costs only about \$200 more, and it's substantially faster than the Apple machine.

In our Processor test, using MacBench 3.0 (the new version of *MacUser's* benchmark-test suite), the PowerWave 604/120's processor was 35 percent faster than the Power Mac 7500/100's. Plus, you get an *additional* speed boost with the PowerWave's ATI Xclaim GA accelerated-graphics card. In our MacBench 3.0 Graphics Mix test, the ATI card in the PowerWave 604/120 was twice as fast as the Power Mac 7500/100's built-in graphics hardware.

Moving to the high end of the system scale, you can buy an Apple Power Mac 9500/132 equipped with 16 MB of RAM, a 512K L2 cache, a 1-GB hard drive, a quad-speed CD-ROM drive, and an ATI Xclaim GA card for slightly less than \$5,100 from MacMall. An identically configured PowerWave 604/150 from the

same source costs several hundred dollars less. And our MacBench 3.0 Processor test showed the PowerWave 604/150's processor to be 18 percent faster than the Power Mac 9500/132's.

We encountered some curious results, however, in our tests with the ATI accelerated-graphics card. Using the MacBench 3.0 Graphics Mix test to measure graphics performance for common business tasks, we determined that the PowerWave 604/132's ATI accelerated-graphics card is about 13 percent slower than its supposedly identical counterpart in a Power Mac 9500/120. At first, we suspected that these results were due to Power's implementation of the PCI expansion bus, but when we took the ATI card out of the 9500/120, installed it in the PowerWave 604/132, and conducted the tests again, our results showed that Apple's version of the card was faster than the ATI card provided with the PowerWave system. At press time, Power and ATI were aware of the

problem and planned to have it fixed by the time you read this.

### Mixed Blessing

Bang for the buck is not the only advantage offered by the PowerWave systems. The \$250 PCI-and-NuBus



### REVIEWS RATING KEY

|       |                  |
|-------|------------------|
| ★★★★★ | OUTSTANDING      |
| ★★★★  | VERY GOOD        |
| ★★★   | ACCEPTABLE       |
| ★★    | POOR             |
| ★     | SERIOUSLY FLAWED |
| ●     | DANGEROUS        |



riser card lets you opt for two PCI and two NuBus slots in place of the base model's three PCI slots. If you've shelled out big bucks in the past for NuBus accelerated-graphics, Fast-and-Wide SCSI, and video-digitizing cards, you'll like being able to hold onto your investment. Or maybe a PCI version of your favorite card doesn't even exist yet.

Still, the picture isn't entirely rosy with respect to Power's dual-bus option, as we found out when we tested several popular NuBus cards in a dual-bus-equipped PowerWave 604/132. To implement the dual bus, Power created a special bus-bridging chip, called StarGate. It works like a traffic cop, monitoring and routing the signals coming from the NuBus and PCI cards and making sure all the data keeps flowing. It's a tricky job.

Some of the NuBus cards we tested worked just fine. The RasterOps PaintBoard Prism GT accelerated-graphics card, for example, worked without a hitch. Same deal with the RasterOps Targa 2000 NuBus card — it captured and played back digital video with no problem. Digidesign's two-card Pro Tools digital-audio-editing system performed as expected, as did ATTO's SiliconExpress IV SCSI card. However, the RAID software that came with the ATTO card did *not* work.

We also ran into trouble with the popular Radius Thunder IV GX-1360 accelerated-graphics card. Its DSP daughtercard accelerates many time-consuming Photoshop functions. But although we were able to get the accelerated-graphics portion of the Radius card to work just fine, the software required for the daughtercard wouldn't load. Remember that the PowerWaves already come with PCI-based accelerated-graphics capability, so owners of the Radius card are mainly going to want to continue taking advantage

of its Photoshop acceleration. To buy a PCI card with Photoshop-acceleration capabilities equivalent to the Thunder IV GX's, you'll have to spend about \$2,000.

We also tested the system with a National Instruments GPIB NuBus card, which you'll need if you want to drive some older Sharp and Howtek scanners. Although the card's drivers loaded, the card was unable to communicate with our scanner. National provided us with a utility for troubleshooting the card, but even with the utility, we couldn't get the card working with the scanner.

In light of these problems, you could argue that these cards were never designed to run on what is essentially a PCI-based system with NuBus cobbled onto it. Or you could say that if Power is advertising NuBus as a PowerWave option, any card that works in a NuBus-based Power Mac 6100, 7100, or 8100 should work in a PowerWave. We take the latter view. We highly recommend that you check with Power on the compatibility of your specific NuBus card with the PowerWave system before you buy.

## Bundle Up

Speed and dual-bus technology aside, Power offers one more advantage over Apple — a better "extras" bundle. PowerWave systems come with a keyboard and a mouse as well as several hundred dollars' worth of productivity software, including ClarisWorks, Now Utilities, Now Up-to-Date, Now Contact, hundreds of Bitstream fonts, and a variety of CD-ROM titles. Apple doesn't provide a keyboard, and it offers a software bundle only with its Performa systems.

To be fair, however, you get some great features with several Apple systems that you don't get with those from Power. One feature

that makes Apple's Power Macintosh 7500 and 8500 so attractive is built-in digital-video input. The 8500 provides digital-video output as well. Although the video isn't exactly broadcast quality, it's quite adequate for home use and even for some in-house industrial projects. The comparably priced PowerWave 640/120 has no digital-video capabilities. In fact, Power currently offers nothing whatsoever in the digital-video department for any of its machines, although we expect to see that change in the near future.

Apple also has the edge in telephony. The Power Mac 7500 and 8500 each come with GeoPort fax and telephony software as well as Cypress Research's MegaPhone. By adding the \$129 GeoPort adapter to the mix, you can turn your Mac into a digital speakerphone and answering machine.

## The Bottom Line

Power has done it again. The company has designed and brought to market another powerful, less expensive alternative to Apple's Power Macs. But the new PowerWaves aren't for everyone. If what you need is maximum PCI expansion, you're better off with an Apple Power Mac — PowerWave systems have only three PCI slots, whereas Apple's Power Macintosh 9500 has six. An Apple Power Mac is also a better choice if you need maximum RAM expansion — the Power Mac 9500 has 12 DIMM slots, compared with 8 for the PowerWave systems. If you're in the market for basic digital-video capability, the Apple Power Macintosh 7500 and 8500 are your best bets. And although the PowerWave dual-bus option is an impressive offering, we recommend that you check with Power Computing *before* you buy, to ensure your favorite NuBus card will work with a PowerWave.

These issues aside, for those considering a high-end PCI-based system, there's no doubt that your money will go further with a PowerWave than with one of Apple's Power Mac models. And if you're looking for the ultimate in speed, don't look to Apple — for now, the PowerWave 604/150 is the absolute fastest game in town. / Henry Bortman

**Price:** PowerWave 604/120, \$3,199; PowerWave 604/132, \$3,699; PowerWave 604/150, \$4,718 (direct). **Company:** Power Computing, Austin, TX; 512-258-1350. **Reader Service:** Circle #401.



## TWO-TIMING MACS

**Does the PowerWave's split-bus system slow it down when you have both a NuBus and a PCI card installed?** To find out, we tested various combinations of PCI and NuBus cards — specifically, accelerated-graphics and SCSI RAID cards — in a PowerWave 604/132 and compared the results with those of an Apple Power Macintosh 8100/100 and 9500/132. The 8100/100 was equipped with two NuBus cards and the 9500/132 had two PCI cards installed. Our tests consisted of two Photoshop operations — opening an image and scrolling — that strain both cards simultaneously. As you can see, the PowerWave system handily outpaced both the Apple Power Mac 8100/100 and the 9500/132.

|   | PHOTOSHOP OPEN FILE | PHOTOSHOP CMYK SCROLL |
|---|---------------------|-----------------------|
| PowerPowerWave 604/132 with NuBus graphics card* and PCI SCSI card <sup>†</sup>             | 55                  | 17                    |
| Apple Power Mac 8100/100 with NuBus graphics card* and NuBus SCSI card <sup>‡</sup>         | 65                  | 23                    |
| PowerPowerWave 604/132 with PCI graphics card <sup>§</sup> and NuBus SCSI card <sup>§</sup> | 71                  | 28                    |
| Apple Power Mac 9500/132 with PCI graphics card <sup>§</sup> and PCI SCSI card <sup>¶</sup> | 74                  | 29                    |

\* Radius Thunder IV GX † ATTO ExpressPCI ‡ ATTO SiliconExpress IV § ATI Xclaim GA ¶



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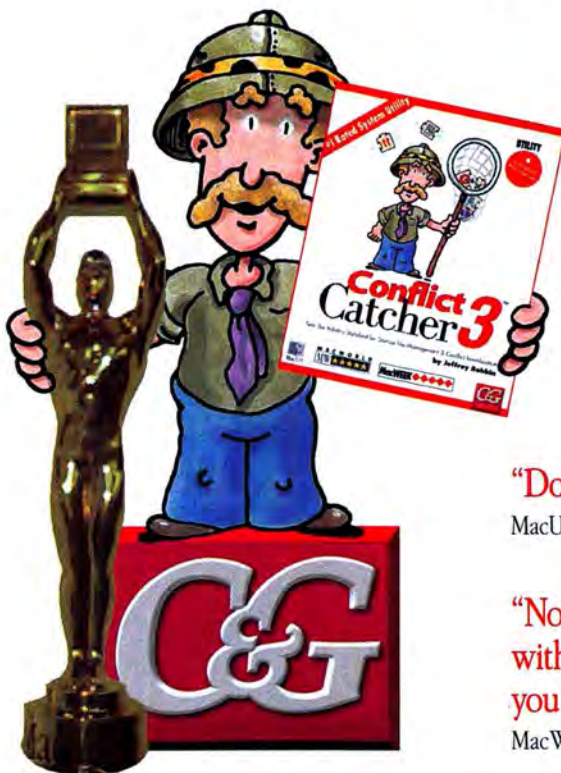
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As the only Mac utility to ever receive a 5 Star rating from Macworld, a 5 Diamonds from MacWEEK and the Eddy Award from MacUser for Best New Utility, Conflict Catcher<sup>3</sup> sets the industry standard for startup file management and conflict identification. The editors say you need Conflict Catcher<sup>3</sup> — we know it will save you time and money!

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**MERISE L.**



# Adobe PageMill 1.0



Spin your own Web page without a string of HTML.

**CREATING WORLD WIDE WEB** pages just got a lot easier, thanks to Adobe PageMill, which lets you create Web pages without having to master the ins and outs of the HyperText Markup Language (HTML). Even Web experts will find PageMill a useful addition to their authoring toolboxes, since it simplifies and streamlines Web-page-building tasks that are difficult to do with raw HTML.

## Web Processor

In its edit mode, PageMill looks like a word processor specifically geared to the creation of Web pages. You can type, drag, or paste text into PageMill's window and, using the menu bar or the floating Attributes Inspector palette, apply a variety of HTML-supported styles to selected text. You don't have to use — or even see — the ugly HTML style tags you'd use if you were creating your Web page with raw HTML.

To create a hypertext link, you simply select the text for the link, press the Enter key on your keyboard, and type or paste in a URL (Uniform Resource Locator). Linking to HTML documents on your hard disk is even easier: Drag and drop a page's document icon onto the selected text, and PageMill automatically creates the hypertext link.

PageMill can work with graphics in Web-standard GIF and JPEG formats and will automatically convert PICT images you place in its documents to GIF format. Double-clicking on a placed image opens another window, in which you can make your image's background transparent, save the image in interlaced format so it will appear more quickly on-screen, and even create hot spots and embed hypertext links within the image. You'd have to use several applications to match PageMill's functionality.

Creating text-entry fields, pop-up menus, and other interactive features for a Web page can be quite complicated if you use raw HTML, but it's easy with PageMill. The buttons on PageMill's button bar allow you to place editable interactive fields and buttons

anywhere in your document. Keep in mind that putting interactive fields and buttons into a Web page is just a first step: You also have to set up your Web server to process the information that the fields collect, a complex task with which PageMill can't help you.

You can see how your HTML document will look as a Web page by clicking a large button in the upper right corner of the PageMill window. In this preview mode, clicking on hypertext links will take you to other HTML documents on your hard disk.

## By One Browser Alone

The look of a Web page can vary widely, depending on which Web browser your Web-page visitors are using. So although PageMill's graphical nature might lead you to

HTML tags in PageMill's functions. As a way around this limitation, PageMill does let you use the Raw HTML style, which lets you write HTML tags when its own functions fall short. Even so, you have to be careful, because PageMill strips out certain HTML tags every time it opens an HTML document it didn't create. For instance, it removes tags that wrap text around images and replaces the commonly used paragraph tag with a pair of line-break tags. As a result, you can't easily use PageMill to edit HTML documents that contain these types of tags. If you have HTML documents with such tags or if you're just picky in general about which tags you use, you'll have to do some editing in a text editor.

In addition, PageMill doesn't support HTML tables, a design feature that's gaining

popularity but that's difficult to create. Web authors desperately need a table-creation tool, but PageMill can't help them.

Unfortunately, PageMill lacks even the most rudimentary text-handling features, such as search-and-replace. Furthermore, the application's pasteboard, from which you can drag items for use later, is all but unusable because of its own screen-redraw problems.

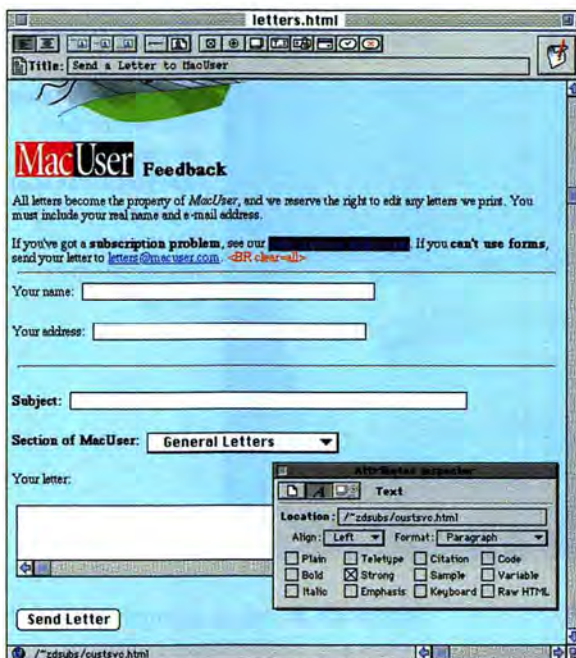
Another shortcoming is that PageMill does not provide you with a way of uploading finished HTML documents to a Web server via FTP. If your Web server is not on a local network, you'll still have to upload all your HTML documents by using an FTP-client

program such as Anarchie or Fetch.

## The Bottom Line

PageMill is a wonderful authoring tool for those who want to create and publish Web pages but who don't have the time necessary to become well versed in HTML. Despite its lack of support for some HTML tags and basic text-handling features, even expert Web authors will find PageMill a powerful tool for streamlining Web-page design. / Jason Snell

**Price:** \$99 (list). **Company:** Adobe Systems, Mountain View, CA; 800-623-2320 or 415-961-4400. **Reader Service:** Circle #402.



**Setting up hypertext links** to other Web pages within Adobe PageMill is extraordinarily easy, as is creating interactive fields, such as pop-up menus or Submit buttons.

believe that what you see is the same as what your visitors will see, that isn't necessarily the case. PageMill utilizes some Netscape Navigator-specific tags that aren't supported by other Web browsers. As a result, although your Web pages might look fine when viewed with Navigator, they could look entirely different when viewed with TradeWave's MacWeb or America Online's Web client software.

With HTML itself changing as quickly as Web browsers become more sophisticated, it's not surprising that PageMill doesn't support many commonly used HTML tags. It's too bad you can't configure or redefine the



# Visioneer PaperPort Vx



Feed paper documents into your Mac quickly and easily.

**BY OFFERING AN ELEGANT,** integrated way to get information on paper into your Mac, the PaperPort, Visioneer's compact desktop scanning system, took the Mac market by storm last year. This year's version, the PaperPort Vx, adds a host of features while retaining what was best about the original, including the price. Unfortunately, it also has the same limitations as before, as well as some new incompatibilities.



**A one-stop scanning** shop, the compact and inexpensive PaperPort Vx can scan single sheets of paper in black-and-white or grayscale up to 400 dpi.

## Classic Styling, Modern Skills

The Vx looks exactly like its predecessor. It's still small enough to fit even on a crowded desk. Basic operations haven't changed either: When you insert a sheet of paper, the device automatically switches on, scans the document, and launches the PaperPort application. You can clean up the image and add annotations, and then file, print, e-mail, or (if you have a fax modem) fax the result. You can also convert the scanned words into editable text by using the included OCR (optical character recognition) software.

Surface similarities mask important improvements. The original PaperPort scanned only in black-and-white at 200 dpi (with optional interpolation to 400 dpi); the new model is able to distinguish up to 256 shades of gray at 100 dpi or scan in black-and-white mode at 200, 300, or 400 dpi, without

interpolation. A new chip Visioneer developed for the Vx scanner makes text printed on colored backgrounds more readable and accelerates several functions.

The new Vx software is Power Mac-native. It also supports Macintosh Drag and Drop, so you can file scanned documents simply by dragging icons from the PaperPort application to Finder folders. The built-in OCR software is now Caere's OmniPage LITE, successor to the Calera WordScan package that came with the original PaperPort.

In addition, a feature that previously cost extra — software enabling you to mail scans directly from the PaperPort application — comes standard with the Vx. So do two new add-ons: Corex Technologies' CardScan SE, a business-card OCR program, and Picture-Works Copier, an application that gives you additional options for printing PaperPort

documents, including adding headers and footers and using automatic collation.

Visioneer says that the PaperPort's new software requires 2 MB of free RAM but recommends 6 MB. Realistically, to scan graphics or complex pages or to use the OCR programs, you'll need 16 MB.

Scanning a simple one-page fax in the default black-and-white 200-dpi mode, the fastest one, took 17 seconds on a Power Mac 7500 and almost 45 seconds on a 68030-based Duo 250. Using the OCR software adds more time: about 25 seconds per page on the 7500 and more than 2 minutes per page on older machines. The Mac is completely tied up during the process.

You'll need still more time to correct recognition errors, which in our tests occurred frequently. When we scanned a fax from Visioneer, OmniPage LITE misinterpreted

44 of 365 words. The business-card OCR software is even worse — 48 percent of the fields in a random sample of cards required correction. For those willing to spring for alternate OCR programs, you can replace the bundled OCR software with Xerox Imaging Systems' TextBridge or Caere's OmniPage Pro, both of which can link into the PaperPort application.

## Connection Conundrums

Visioneer is developing a \$99 adapter that will let you connect the Vx to your Mac via SCSI, but for now, it still connects only through a serial port. If your printer and modem ports are already in use, that's a problem. The cheapest solution is to buy a \$20+ manual A/B switch, but you'll have to remember to flip it every time you want to use a different serial-port device. Momentum's Port Juggler promises automatic switching, but for the Vx, you'll have to get Momentum (a company known for ignoring customers) to send you version 3.2 of its software, and even that won't work with PCI-bus Macs. Visioneer says that Creative Solutions' serial-port cards don't work at all with the Vx.

A problem with the serial port on the Performa and LC 5200 reduces scanning speed to a crawl. And in Visioneer's online forums, users have reported several conflicts involving the PaperPort extension, particularly with Connectix' Speed Doubler.

One other annoyance: The manual says that you'll find a freely distributable viewer — an application enabling other users to read documents scanned with the Vx — in the box, but you won't. You can, however, pick up the viewer online.

## The Bottom Line

The PaperPort Vx offers a convenient, one-stop way to convert paper documents into digital form, edit them, and file or send them — once you've found a port for the scanner, satisfied the software's appetite for RAM, and learned to live with the disappointing OCR capabilities. Even so, the PaperPort Vx won't work in color and it can't scan books, magazines, or slick, glossy pages. If any of these limitations is a significant issue for you, you might forgo the space-saving PaperPort Vx for a more expensive flatbed scanner. / Henry Norr

**Price:** \$369 (estimated street). **Company:** Visioneer, Palo Alto, CA; 800-787-7007 or 415-812-6400. **Reader Service:** Circle #403.



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# Kai's Power Tools 3.0



KPT's revamped interface delivers more control with less confusion.

**CREATING NOVEL EFFECTS** with Kai's Power Tools (KPT) has always been easy, but in earlier versions, the program's interface often left you confused if you wanted a specific result. MetaTools' latest iteration of its acclaimed Adobe Photoshop filters has a new interface that is still unconventional, but it's much easier to get used to than that of previous versions. Plus, the new interface gives you much more control over effects.

## Lens-Filtered

KPT 3's Lens *f/x* filters are undoubtedly the most innovative addition. When you select any KPT filter with *f/x* in its name, a lens that looks like a photographer's magnification loupe appears on your desktop. You can slide the lens over your image and see the results — in real time, if you have a PowerPC computer — of the effects you apply. Around the lens, you'll find various settings for adjusting the effects. One setting lets you select the *f/x* filter of your choice: KPT Noise *f/x*, KPT Gaussian *f/x*, KPT Find Edges *f/x*, KPT Intensity *f/x*, KPT Smudge *f/x*, KPT Twirl *f/x*, or KPT Glass Lens *f/x*. Each of these Lens *f/x* filters has Apply Mode controls, such as Darken and Multiply, that work like many of the similar alpha-channel operations in Photoshop; previously these controls were present only in the Gradient Designer and Texture Explorer filters. The settings for effect opacity and intensity, which run along the edge of the lens, range from 1 to 100; previously settings ranged only from 1 to 10.

Another completely new feature is KPT Spheroid Designer, which lets you create 3-D rendered spheres to embed in an image. It includes several controls you'd expect to see only in 3-D programs, such as the ability to apply bump maps, use multiple lights, use colored lights, and adjust the sphere curvature. It also has the more esoteric adjustments you would expect to find in a MetaTools product, such as the ability to randomly mutate the spheres. You can even animate groups of spheres, using the built-in

animation engine. We found Spheroid Designer useful for creating amazing backgrounds, although it doesn't work in CMYK images.

The redesigned Gradient Designer and Texture Explorer filters now tell you which option you're using by providing instant feedback in a left-hand window. Both filters have preview windows that are four times larger than in previous versions, and each of the options has its own small preview window as well. New to both filters are built-in hue, saturation, brightness, and contrast controls for tuning the colors in gradients and textures just as you would with Photoshop's built-in color-correction tools. Other controls, such as ones for blurring an image or squeezing it to one side of the screen, which used to be buried in pop-up menus, are now easily accessible via buttons in the preview window.

As with previous versions, you can save settings you like, but unlike before, you don't have to scroll through long pop-up menus to find them. You can view presets — those that come with KPT 3 and those you've created and saved — in a series of thumbnails that appear 16 to a screen within Gradient Designer and Texture Explorer.

The Texture Explorer engine doesn't create infinitely tilable textures anymore, but the control you get over the look of textures is much more precise than in earlier versions. For instance, you can now zoom into or out of a texture, which makes it easier to add and subtract detail. And the improved controls overall make creating just the right texture less of a hit-or-miss affair than in KPT 2.

## Background Movement

You can now animate the textures you create with KPT 3, thanks to the new Interform filter. It combines two textures of your choice and actively blends them on-screen, using a motion you've selected. The motions can

mimic movements found in nature, such as an earthquake. The results are always interesting, and we wouldn't be surprised to see such backgrounds end up in music videos or avant-garde multimedia titles.

The other KPT 3 filters — KPT 3D Stereo Noise, KPT Page Curl, KPT Planar Tiling, KPT Seamless Welder, KPT Twirl, KPT Video Feedback, and KPT Vortex Tiling — have improved their interfaces as well. For example, the Page Curl filter previously had controls only for amount and direction; now it has interactive buttons for curling, transparency, and Apply Mode method.

Most important — especially for dabblers — KPT 3 filters have 35 levels of undo. The manual is a bit too brief, but the CD-ROM and online help have all the information you



The new and innovative KPT Lens *f/x* interface in KPT 3 is a virtual photographer's loupe, within which you can view and create various special effects.

need. If you still haven't upgraded to a PowerPC computer, you'll find that the filters, especially the Spheroid Designer filter, are fairly slow on Quadras. KPT 3 sometimes behaved erratically on a Quadra 700, and MetaTools promised a bug fix; on a Power Mac 8100/80, we saw no problems.

## The Bottom Line

The unique KPT interface may take some getting used to, but at least in this version, it's more efficient. Overall, given the breadth and depth of KPT 3, we wholeheartedly recommend it to anyone looking to create cool effects. / Sean J. Safreed

**Price:** \$199 (list). **Company:** MetaTools, Carpinteria, CA; 805-566-6200. **Reader Service:** Circle #406.



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# Big Business 1.0



One-stop shopping for small-business management.

**WHEN DOES BIG** really mean small? When you consider Big Business, a powerful new program from Automatic Software. Big Business is really a management tool for *small* businesses. It provides features for managing the four key business areas — sales, marketing, inventory, and accounting — in one integrated product. In short, Big Business includes almost all the software you need to run a small business, with the exception of a word processor and a spreadsheet program.

## Good Relations

At the core of Big Business is a relational database constructed with ACI's 4D. The advantage of this underlying architecture is that information for Big Business' four main areas — sales, marketing, inventory, and accounting — is all interrelated, so you can readily see how activity in one area is likely to affect another.

Salespeople, for example, can generate quotes, process orders, transfer quotes to invoices, print invoices, and track back-ordered items for each customer. Marketing personnel can then use the order data generated by the sales department to create customer reports and target specific segments

of a company's customer base (such as all customers with total purchases that exceeded \$2,500 during a holiday season) with special mailings or follow-up calls.

Filled orders automatically effect inventory. Inventory handlers can create vendor records, generate purchase orders, track back orders, determine price markups, and create custom price lists that reflect the buying patterns of a specific subset of the customer base. And accounting personnel will find all the standard features of a dedicated accounting package: accounts receivable and payable, general journal, and full reporting capabilities for a wide variety of financial statements and charts.

Big Business is a client/server application, so you can set it up as a multiuser system running on an EtherTalk network. Depending on how you set up access privileges, a user working in one of Big Business' four main areas can have full access to the records and data generated by one or all of the other areas. In fact, Big Business is designed to serve as a workgroup application. It even has a notes feature that works like e-mail. You can create messages (stand-alone or attached to Big Business records), reminders, and schedules and send them to other users on the network. Messages can include attached documents you've created in other applications.

To manage your mail, you can set message priorities, create folders for notes you've sent and received, and use the QuickSearch function to find specific notes. An address book

The screenshot displays the 'Invoice' window of the Big Business 1.0 software. The interface includes a menu bar (File, Edit, Toolbar, Tools, Windows) and a toolbar with various icons. The main area is divided into sections for customer information, invoice details, and a line items table.

| CUSTOMER NAME   |                         | BILL TO:   |               | SHIP TO:  |               |
|-----------------|-------------------------|--|---------------|---|---------------|
| Big City Sweets |                         | Big City Sweets<br>Accounts Payable<br>PO Box 1234<br>San Carlos, CA 94111 |               | Big City Sweets<br>Attn: Shipping & Receiving<br>54321 El Camino Real<br>San Carlos, CA 94111 |               |
| INVOICE #       | CUSTOMER PO #           | DATE   | FROM ORDER #  | DEPARTMENT  | SALESPERSON   |
| 100015          | BCS4241                 | 10/11/95   | 50015         |   | Kehoe, Philip |
|                 |                         | SHIP METHOD  | TERMS         |   |               |
|                 |                         | Our Truck  | 2% 10, Net 30 |   |               |
| LINE ITEMS      |                         |  |               |   |               |
| ITEM CODE       | PROD. NAME              | DESC./MFR.   | QTY           | PRICE   | EXT. PRICE    |
| PKG-1020        | Glass Decanter          | 2 lb. capacity   | 1,000         | 2.28  | 2,280.00      |
| PROD-0008       | Chocolate Jilly Jellies | 8 oz. bag, JCO   | 1,000         | 2.20  | 2,200.00      |
| PROD-0005       | Amaretto Jilly Jellies  | 8 oz. bag, JCO   | 1,000         | 2.20  | 2,200.00      |
| PROD-0004       | Coffee Jilly Jellies    | 8 oz. bag, JCO   | 1,000         | 1.99  | 1,990.00      |
| PROD-0009       | Mint Jilly Jellies      | 8 oz. bag, JCO   | 1,000         | 1.39  | 1,390.00      |
| PAID            |                         |  | BALANCE       |   |               |
| 0.00            |                         |  | 10,110.00     |   |               |
| SUBTOTAL        |                         |  | TAX %         |   |               |
| 10,060.00       |                         |  | 0.00          |   |               |
| FREIGHT         |                         |  | TOTAL         |   |               |
| 50.00           |                         |  | 10,110.00     |   |               |

A thoughtfully designed interface makes Big Business accessible and easy to navigate, despite the wide scope of its functions.



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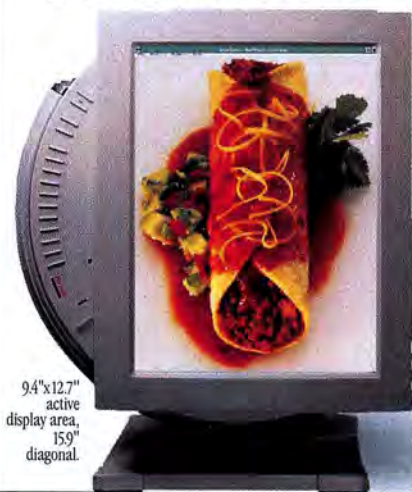
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## MacUser COMING SOON: 96 MAY

### COLOR PRINTERS

Color printers are cropping up in more offices all the time. And it's no wonder. Today's business color printers have made big strides in image quality and affordability. Meet this new generation of printers in the May issue of MacUser when our editors review, mouse-rate and labs-test 20 business color printers. Get a close look at why these printers are looking better than ever.

### THE POWERPC PLATFORM

The May issue of MacUser looks into the future...and sees the PowerPC Platform. Apple, IBM and Motorola have joined forces to develop a computer that could give the user total flexibility in choosing an operating system. How close are they to achieving this? Will one of the future IBM/Mac clones be in your future? MacUser gives you a glimpse of things to come.

### STRIKING GOLD ON THE WEB

Everyone knows the digital Gold Rush is on. The real question is: how do you improve your chances of striking gold on the Internet? First, you read the May issue of MacUser, a veritable gold mine of savvy information for using the Internet to your advantage. You'll find strategies for buying, selling and advertising products on the Internet; advice on creating and managing mailing lists; and other smart tips. Required reading for cyber-prospectors.

**MAY AD CLOSE:**

**TUESDAY,**

**FEBRUARY 20, 1996**

## REVIEWS

lets you send messages and copies to recipients with just a few mouse clicks.

What really impressed us about Big Business, in addition to its comprehensive feature set, was the program's interface. It's surprisingly clean and intuitive for a program that performs so many functions. To avoid cluttering the desktop with multiple windows, Big Business uses tabs to organize its data-entry areas, including ones for customers, items, vendors, and banking. That means users are working with one compact window at a time. A tool bar lets you move easily among the four main Big Business areas and access the tools available to each. The program also uses its own convenient drag-and-drop implementation. To schedule an automatic vendor payment, for example, you can simply drag the payment transaction from a list to a date in a calendar view.

At \$999 for a two-user license, Big Business is pricey. But when you consider that it can handle the tasks of several separate applications, its price tag begins to seem more reasonable. As a 4D application, Big Business also has a hefty appetite for system resources. For optimal speed, you need at least a Power Mac with 16 MB of RAM and 40 MB of free hard-disk space. We found the program unacceptably sluggish on 68040 Macs.

Big Business' documentation is well-organized and -illustrated. Online help is also available, but the program doesn't support System 7.5 features such as AppleScript and Apple Guide. A Windows 95 version is in the works for introduction later this year.

### The Bottom Line

What makes Big Business stand out among small-business applications is its ability to track the status of a transaction from beginning to end — from initial sales contact and correspondence, to job quote, to final invoice and payment. It's an amazingly versatile program that can serve as a contact manager, inventory database, basic e-mail system, and accounting application. The program's well-integrated modules simplify and speed work flow and collaboration among various departments. Automatic Software plans to make Big Business even bigger by incorporating a variety of add-on features, such as point-of-sale-peripheral support and electronic banking. / Gregory Wasson

**Price:** Two users, \$999; ten users, \$2,499 (list).

**Company:** Automatic Software, Cupertino, CA; 408-725-7200. **Reader Service:** Circle #407.



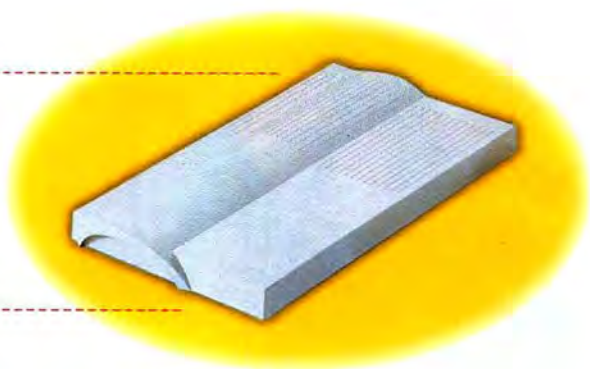
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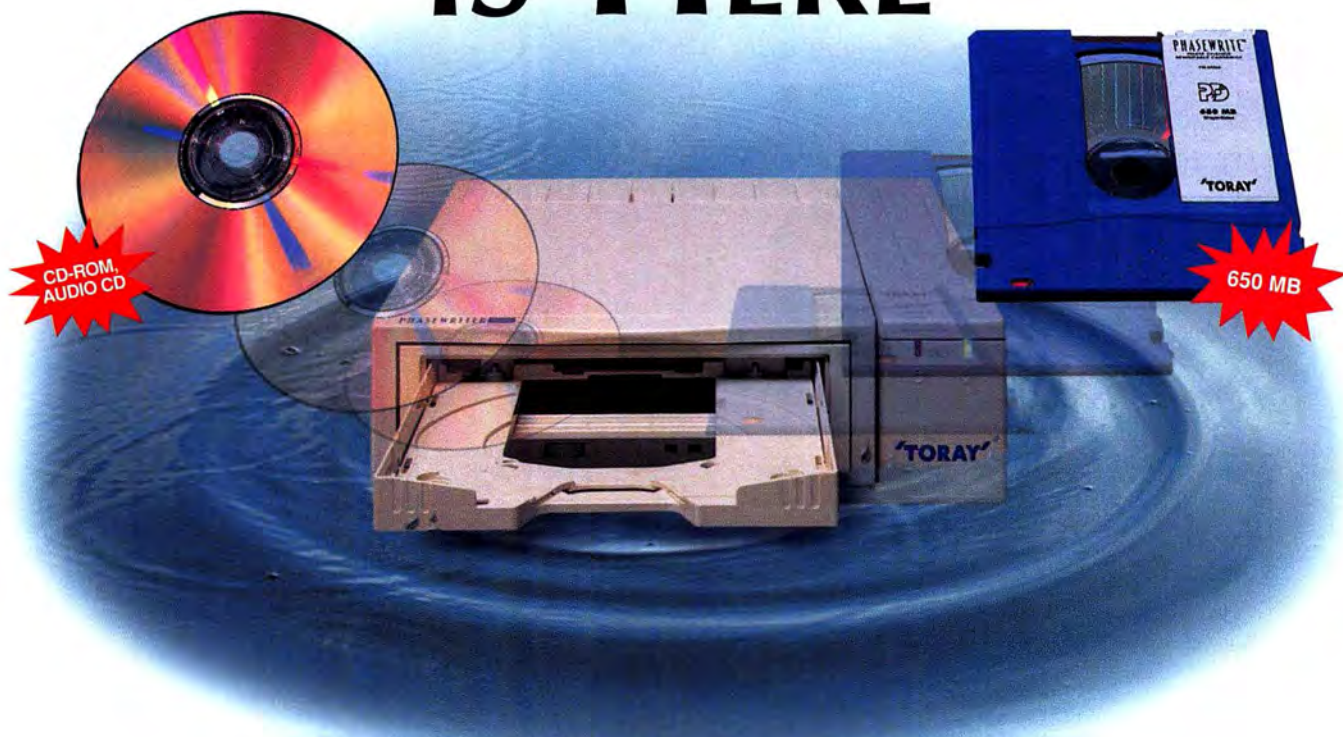


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## HP DeskJet 850C



## HP DeskJet 340



Desktop model outclasses the competition, but portable printer falls short.

**THE BATTLE OF THE INKJET** printers continues, with the latest salvo coming from Hewlett-Packard. Two new low-cost color printers fortify the company's inkjet line — the DeskJet 850C is a top-notch performer that's sure to win applause from home and small-business users, and the DeskJet 340 is a somewhat lackluster upgrade to the company's older portable printer, the DeskWriter 320C.

### HP DeskJet 850C

HP's latest desktop color inkjet printer impressed us not only with its bargain price — it's street-priced at about \$500 — but also with its speed and output quality. Even documents printed on plain paper look good. The DeskJet 850C resembles its more expensive sibling, the DeskJet 1600CM, but it's a QuickDraw printer rather than a PostScript device. It prints at 600 dpi for black text and line art and at 300 dpi for grayscale and color images. The printer handles plain, coated, and glossy paper as well as transparencies.

Setup is a snap. Lift the printer's front cover, and snap the two high-capacity ink cartridges into the carriage. One cartridge contains a separate reservoir each for cyan, magenta, and yellow; the other cartridge contains black. An installer places all the printer software in the right locations on your hard disk. Two buttons on the front of the printer make operation simple — one

turns the power on and off, and the other resumes printing after an interruption.

The DeskJet 850C prints either over a LocalTalk connection — for network use — or via a serial connection. It's also equipped with a parallel port, which means you can connect both a Mac and a PC to the printer simultaneously. For setting print quality, you can choose one of three print modes (Econofast, Normal, and Best) with the software. HP's ColorSmart technology is an added plus — it lets the printer make smart decisions about color and dithering based on each element on a page — text, graphics, and photographic images.

### HP DeskJet 340

For on-the-road printing, the portable DeskJet 340 — street-priced at about \$300 — is



**Good-looking text** and color images are hallmarks of HP's new low-cost color inkjet printer, the DeskJet 850C (left). The portable DeskJet 340 is less impressive — type comes out a muddy brown when you're printing documents that contain both black text and color graphics.

light and compact, but it can't match the print quality and speed of its chief rival, the \$400 portable Apple Color StyleWriter 2200. For starters, the HP printer comes with a black cartridge, but to print color, you must buy a separate \$49 color cartridge that contains cyan, magenta, and yellow inks. And unlike the Apple printer, the HP printer can't accommodate both the black and the color cartridge. This becomes a problem if you want to print a document that contains both black text and color graphics. To do so, you have to use the color cartridge, which creates a composite black, using all three colors, that's muddy-looking at best. The printer's lackluster speed results are due to its lack of a PowerPC-native driver.



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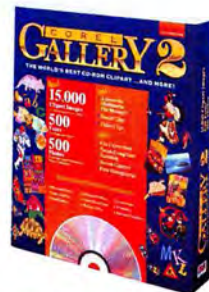
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## INKJET DERBY / HP printers versus Apple rivals

|                              | 10-PAGE WORD<br>TEXT DOCUMENT | 1-PAGE WORD TEXT/<br>GRAPHICS DOCUMENT | 5-PAGE POWERPOINT<br>DOCUMENT | 1-PAGE FREEHAND<br>DOCUMENT |
|------------------------------|-------------------------------|--|-------------------------------|-----------------------------|
| HP DeskJet 850C              | 2:46                          | 1:44                                   | 16:29                         | 40:32                       |
| Apple Color StyleWriter 2400 | 4:42                          | 1:58                                   | 16:05                         | 9:40                        |
| HP DeskJet 340               | 5:22                          | 2:55                                   | 27:08                         | 16:23                       |
| Apple Color StyleWriter 2200 | 4:00                          | 1:54                                   | 15:38                         | 9:15                        |
|                              | MINUTES SLOWER                | MINUTES SLOWER                         | MINUTES SLOWER                | MINUTES SLOWER              |

In addition to the black cartridge, the DeskJet 340 comes with a portable 30-sheet paper feeder, software, a power adapter, and a rechargeable battery. Because it's equipped with only a parallel port, Mac users will also need to buy a \$39 Mac Adapter Kit.

HP touts the DeskJet 340's infrared capabilities for wireless printing, but unfortunately, Mac users are left out in the cold when it comes to this hot feature. Apple's new infrared-equipped PowerBooks aren't yet compliant with the IRDA standard, which is what HP uses.

### Color Wars

To see how the new HP printers measure up to the competition in terms of print quality and speed, we printed several types of documents at various print settings. We compared the DeskJet 850C results with those of Apple's low-cost desktop inkjet printer, the \$400 Apple Color StyleWriter 2400, and the DeskJet 340 results with those of Apple's \$400 portable Color StyleWriter 2200. We connected our test platform, a Power Mac 6100/60 running System 7.5.1, to each printer's serial port.

For both color and black text quality, the DeskJet 850C was the hands-down winner over all the other printers we tested. It produced fine, clean text — even when printing subtle serifs — as well as vibrant saturated color business graphics. But the DeskJet 850C, with its use of HP's proprietary Color Resolution Enhancement Technology, really shines at printing color photographic images. HP's technology allows the printer to produce fine dots, resulting in crisp, sharp details.

The DeskJet 340 was better at printing text than the Apple portable printer when we used its black cartridge, but for color documents, the DeskJet's text quality suffered from the use of composite black. The DeskJet also fell short of the Apple printer for color documents — grays and blacks suffered

from a blue cast, again due to the use of composite black, that affected the overall quality of the images.

The DeskJet 850C bested its rival in two out of four of our speed tests. It was much faster at printing black text than the Apple desktop printer, taking less than three minutes to print our ten-page Word document, compared to almost five minutes for the Color StyleWriter 2400. Printing a one-page Word document that incorporated text and color graphics, the HP printer edged out its rival by just 14 seconds, producing the document in under two minutes.

With the exception of the DeskJet 340, all of the printers had similar times — about 16 minutes — for printing our five-page color PowerPoint presentation. The DeskJet 340 equipped with the color cartridge took almost twice as long to print the same file.

The one test in which Apple's desktop printer *really* outperformed the DeskJet 850C was in printing our one-page FreeHand document, which contained a photographic PICT image, small type, and lots of color. The Color StyleWriter 2400 finished printing the document in just under ten minutes, whereas the DeskJet 850C took 40 minutes. We suspect that the speed hit is the price you pay for HP's Color Resolution Enhancement Technology. For portable printing, the Color StyleWriter 2200 bested the DeskJet 340 in all of our speed tests by a wide margin.

### The Bottom Line

You can't go wrong with HP's affordable DeskJet 850C — it's a great color printer for the home or small office. The DeskJet 340, on the other hand, isn't much of an improvement over its predecessors. For those who are looking for a portable printer, the Apple Color StyleWriter 2200 is still the best bet.

/ Tony A. Bojorquez

**Price:** HP DeskJet 850C, \$658; HP DeskJet 340, \$345 (list). **Company:** Hewlett-Packard, Santa Clara, CA; 800-752-0900. **Reader Service:** Circle #408.



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# NEC MultiSpin 4Xc



How low can you go on the price of a quad-speed CD-ROM changer?



**YOU CAN'T BEAT** the price or convenience of NEC's new quad-speed CD-ROM changer, the MultiSpin 4Xc. Street-priced at about \$349, it is half the price of Pioneer's quad-speed CD-ROM changer and costs about the same as a single quad-speed CD-ROM drive. If you like to juggle multiple CD-ROM titles, you'll like the ability to mount seven discs on your desktop at once and switch from one title to another with a click of the mouse.

## One Better

NEC's CD-ROM changer builds on the 2X Nakamichi MBR-7 mechanism. NEC's version boasts a faster spindle and improved signal processors. It's not the absolute fastest 4X CD-ROM changer you can buy, but it offers the best price/performance ratio. Seven retractable trays hold CD-ROM or audio-CD discs.

To give the system an added speed boost, the MultiSpin 4Xc comes with Casa Blanca Works' caching software. The default cache size for each disc is 32K, but if you want more, you can adjust it. The SpeedyCD control panel provides an additional layer of caching that eliminates a problem common to some other CD-ROM changers. The SpeedyCD software caches directory information for each CD-ROM disc. Without this

information, Apple's system software can cause the changer to begin switching discs when you're working with unrelated tasks in the Finder. Your Mac will need a few minutes to build the SpeedyCD file during startup, but once all your titles are loaded, the system works without a hitch.

The MultiSpin 4Xc has only one drive mechanism, which means that although you can see icons on your desktop for all seven of the discs in the changer, you can play only one disc at a time, which makes the changer impractical for sharing over a network.

A disappointment was the audio-CD software. It displays a window for each of the changer's seven trays, whether they contain a disc or not. You can close the windows for trays you're not using, but to switch from one audio CD to another, you must have both windows open. A one-window approach would be more practical and easier to use. We also missed the ability to build a playlist from multiple CDs. Another feature that's vexing is the MultiSpin 4Xc's use of DIP switches for setting the SCSI ID and termination.

## The Bottom Line

The NEC MultiSpin 4Xc offers respectable speed at an aggressive price. A plus is the SpeedyCD software, which eliminates the annoying disc-switching problem that can occur with some other CD-ROM changers. The changer's case design could use some improvements, but overall, the system makes sense for users who need quick and easy access to multiple titles. / Kristina De Nike

**Price:** \$349 (estimated street); **Company:** NEC, Wood Dale, IL; 800-632-4636 or 708-860-9500. **Reader Service:** Circle #409.

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# Adobe After Effects 3.0



Pack more postproduction panache into your videos for less money.

**FILM, MUSIC-VIDEO,** television-show, and ad special effects you've seen recently may well have been created on a Mac running Adobe After Effects. This digital-video-production program's popularity has grown dramatically among video professionals over the past few years. And for good reason: After Effects supports resolutions as high as 4,000 x 4,000 pixels, and it can combine any number of still images, movie clips, and sounds with no generational loss of quality. However, After Effects' \$2,000 price, reasonable for video professionals who could otherwise end up paying \$75,000 for comparable software packages, was frequently too steep for independent designers, students, and digital-video hobbyists.

But now that Adobe owns After Effects, even nonprofessionals have a crack at affording it, since After Effects 3.0 comes in a retail version that costs \$995 (about the same as Adobe's other top-notch digital-video program, Premiere). And everyone is sure to be

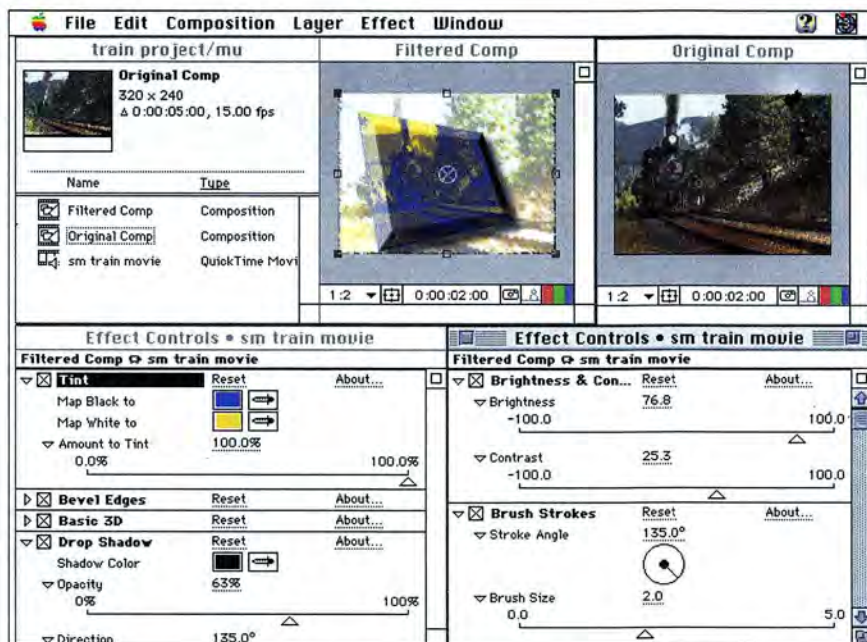
pleased with Adobe's improvements. The company has made it easier to use images from Adobe's other visual-arts programs, such as Photoshop and Illustrator, in After Effects movies and has streamlined the production process to boot.

## From Photoshop to Film

As with After Effects 2.0, you can layer images on top of one another and apply effects separately to each layer. In previous versions, if you wanted to import a layered Photoshop 3.0 image, you had to separate alpha channels from your source image and import each layer separately. Now when you import a Photoshop 3.0 document, each layer maintains its alpha-channel mode, masking attributes, and transparency. You can now also import Illustrator art directly into After Effects, without having to rasterize it first. The artwork you end up with in After Effects is resolution-independent, which means you can enlarge it without a loss of quality. After Effects can also pull in PICT and Electric Image IMAGE graphics-format files, PICS animation-format files, QuickTime movie-format files, and AIFF-format sound files.

The \$1,995 Production Bundle includes advanced keying effects as good as those found in \$5,000+ SGI video-editing programs, such as the ability to multiply bluescreen effects together and use several alpha levels; motion-control scripts, which

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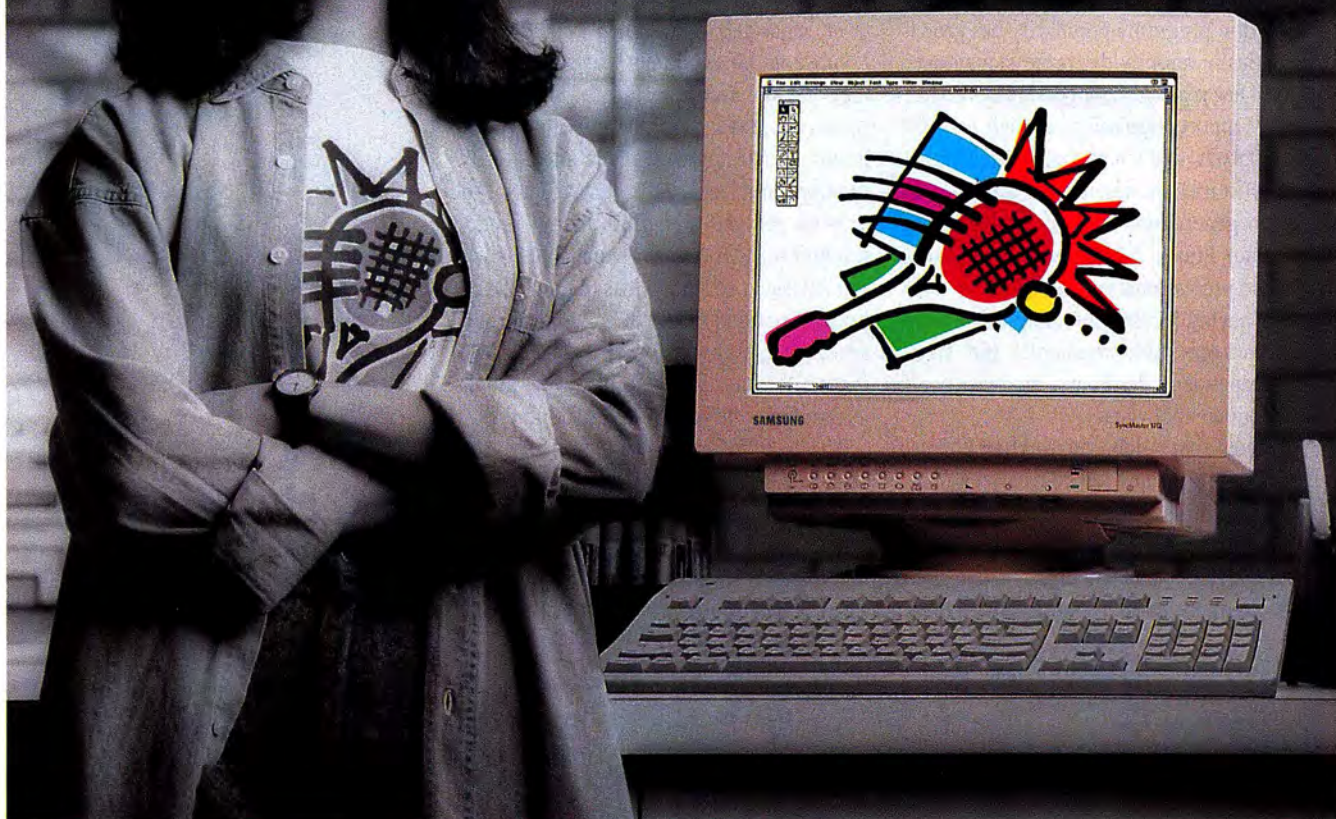


**You're the maestro** of your own video compositions with After Effects 3.0, which lets you combine any number of images, sounds, and effects. In addition to the \$1,995 Production Bundle for postproduction work, Adobe now offers a retail version for \$995.





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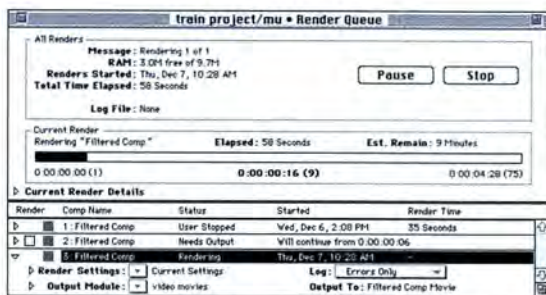
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**Tired of waiting** for one movie to finish rendering so you can start on another? With After Effects 3.0's new rendering queue, you can set up the program to render all your projects automatically overnight.

let you, for instance, create a motion path in real time with your mouse; and unique distortion-effects filters such as a bulge filter and a displacement-map filter. It also includes device-control plug-ins for driving digital disk recorders. If you don't work in the video-postproduction industry, chances are you won't miss the Production Bundle features or its hardware copy-protection dongle and you will enjoy the \$1,000 you save.

## In the Queue

After Effects 3.0 renders a movie it creates into a QuickTime movie (or if you prefer, a PICS file or a sequence of PICT or IMAGE documents) much faster than previous versions. Much of this speed boost is due to a new rendering scheme. Instead of applying filters or key-framed motion to objects and images in a movie instantly, After Effects now applies them only when you create a preview or a final movie. You can now set up multiple projects to render overnight with the new rendering-queue feature. After Effects now even lets rendered digital movies spill over onto a second or third hard disk once the first one is filled.

Motion in After Effects movies, which has always been smooth, is now even smoother, because the program handles timing separately from the physical shape of the motion path. As a result, objects retain smooth acceleration and deceleration, even along a complex motion path.

As with earlier versions, you can combine motion and effects you've created in one composition window containing one or more layers with those in another composition window. For instance, if you want to create a cartoon of a helicopter, you can program a rotating helicopter blade in one composition window and nest it inside another composition window that has a helicopter body. You

can then move the helicopter body along a motion path, and the blade, still rotating, will remain attached. In previous versions, you could use only one effect in each layer, which meant you *had* to nest composition windows if you wanted to use several effects at once. Now you can apply multiple effects to each layer, sparing you from having to put together complex hierarchies of layers and effects. But this can still be con-

fusing at times, since each layer now has its own Effects Control window and it's easy to inadvertently add a filter to the wrong layer if you're working with several layers at once.

We had a small frustration with After Effects' Illustrator support. The layer containing the Illustrator image can rasterize only if no effects or masks have been applied to it. Since applying filters and masks is one of the main reasons for using After Effects, this limitation is annoying. Still, the benefit of being able to import Illustrator graphics without having to rasterize them first is worth the bother of having to work around this problem.

After Effects has often been compared to Premiere, even though the two programs complement each other more than they compete. Premiere has superior video-capture capabilities and better sound support. After Effects is better at image editing, adding special-effects filters, and layering all the elements in a movie together. If you have to choose between the two, Premiere is better if your digital-video work requires you to capture video, work with sound, and do nonlinear editing; After Effects is better if you have to import and manipulate graphics or animate objects.

## The Bottom Line

You can't buy another video-editing program with as many professional video-postproduction features as After Effects 3.0 for as little as you'll pay for it. Any Mac user who creates movies that require image editing and animation of video and stills will benefit by adding this exceptional program to their software collection. / Lynda Weinman

**Price:** Retail version, \$995; Production Bundle, \$1,995 (list). **Company:** Adobe Systems, Mountain View, CA; 800-628-2320 or 415-961-4400. **Reader Service:** Circle #410.

# You Even Paid \$200 To Connect To The Internet.





# Fargo FotoFUN!



Little dye-sublimation printer creates big photo opportunities, inexpensively.

**INEXPENSIVE AND FUN** is usually not how you'd describe a dye-sublimation color printer — until now. The Fargo FotoFUN! Digital Color Photo Printer costs about the same as a good inkjet printer, but its dye-sublimation color prints look like photos. And if that isn't enough to make you smile, you can also print images, permanently, onto postcards, adhesive labels, and coffee mugs.

## No-Fade Photos

Dye-sublimation printing requires its own special media, and each of the FotoFUN!'s media packs are sold separately. With the most practical of the packs, the Print Film Kit, you can print pictures as large as 4 x 6 inches on 4-x-7.7-inch paper. The printer ribbon included with each pack contains cyan, magenta, and yellow dyes as well as a special laminate that coats the printed image and protects it from fading caused by UV light, fingerprints, and spills.

The FotoFUN! connects to the Mac through the serial port, which may cause some problems. First, you have to turn off AppleTalk in order to print, which means you can't print while you're connected to a network. Second, if you don't have a fast, clean serial connection, all but an eighth-inch strip of your image will be faded. You need to have a 68040 Mac or Power Mac, for a serial connection that's fast enough, and 8 MB of RAM. And even so, Fargo had to give us updated software for the printer — including a new driver and Apple's SerialDMA extension, for ironing out serial-port transmission inconsistencies — before we could create consistently good prints. The serial printer cable also didn't work, and we had to replace it with one of our own.

Once we'd worked through these setup problems, the FotoFUN! worked flawlessly. The printer's driver lets you adjust the saturation and lightness of each print, orient the picture, and turn off the laminate. We were able to get good color-matching results fairly quickly using only trial and error. Fargo also

says that a ColorSync profile, which should help you optimize colors from within a graphics application, is in the works for the printer.

Most dye-sublimation printers have a maximum resolution of 300 dpi, which makes the FotoFUN!'s 203-dpi resolution seem low; however, the difference between 203 dpi and 300 dpi is rather subtle in dye-sublimation printers. The FotoFUN! prints were slightly blurred, but we could easily correct the problem by applying the Unsharp Mask filter to our images in Adobe Photoshop before we printed. We noticed occasional streaks in large areas of flat color, a



**Fun, small, and — best of all — inexpensive**, the Fargo FotoFUN! Digital Color Photo Printer creates photolike dye-sublimation color prints.

common problem among dye-sublimation printers. Dust specks sometimes also caused color to lump in the print. However, in general, we were pleased by the quality of the output — it was better than that of prints created with Fargo's hybrid thermal-wax/dye-sublimation printers, such as the Primera Pro. As with any dye-sublimation printer, you have to wait for results: On average, we had to wait about three minutes for each print.

## Nonstop Fun

The special media packs provide most of the fun in FotoFUN!. The Postcard Film Kit has 36 postcards that have the FotoFUN! dye-sublimation printer paper on one side. You can print any image on the postcard and then write a message on the reverse, stamp the card, and mail it. The postcards we created survived the rigors of the U.S. Postal Service with pictures intact and unfaded. The FotoLabel kit lets you create photo-realistic

labels, which you can then cut and affix to wine bottles, ID badges, your car bumper, or anything else that needs a colorful picture.

The FotoMug kits, however, are the most ingenious of all. The starter pack includes four mugs that have a special coating for absorbing the printed image, some masking tape for positioning the image, and a clamp for clamping the image to the mug. You print your image for the mug reversed from left to right, using a standard ribbon but with the lamination option turned off in the driver. Then you tape the image to the mug with the masking tape and clamp the image to the mug's surface. You place the mug upside

down in a 375-degree oven for 15 minutes and then carefully remove the mug from the oven and place it in warm water to cool off. When you remove the clamp and peel off the paper, the image is baked into the mug's surface. Our first attempts were disappointing, because positioning the clamp correctly is tricky, but once we'd mastered the technique, our results looked great.

## The Bottom Line

The FotoFUN! is a terrific little printer that gives you quality dye-sublimation color prints for a great little price. It's the perfect companion for low-end and midrange digital cameras, but anyone who wants to print photographic images from the Mac should check it out. / Bruce Fraser

**Price:** \$499.95; 36-picture Print Film Kit, \$34.95; 36-postcard Postcard Film Kit, \$39.95; 36-label FotoLabel Kit, \$39.95; four-mug FotoMug Starter Kit, \$29.95 (list). **Company:** Fargo Electronics, Eden Prairie, MN; 800-327-4622 or 612-941-9470. **Reader Service:** Circle #411.



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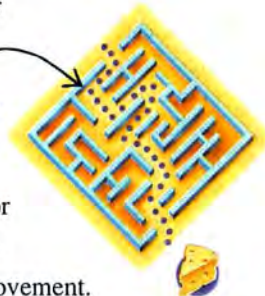
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# Working Model 3.0

★★★★½

Realistic motion simulation lets you test your designs in a virtual environment.

**WORKING MODEL APPLIES** the laws of physics to computer-based motion simulation so accurately that it's become a trusted tool in accident reconstruction and product-liability lawsuits as well as in design engineering and analysis. The latest version gives you more flexibility by adding a programming language. This version also has improved speed, ease of use, and compatibility with other programs and file types.

## Joint Cooperation

You create the objects for your simulation, such as cars or an engine, by dragging and dropping basic shapes from the tool palette into the main window. Then you connect the shapes with rotating, sliding, or fixed joints, which you also pick from the tool palette.

When you click on an object, a Properties window appears, in which you assign physical properties — such as mass, elasticity, and static friction — to objects.

Once your objects have real-world properties, you set up your motion simulation. You can give objects their own velocity and trajectory by either drawing velocity vectors or selecting any one of a variety of forces, including directed and twisting forces against or between bodies, from the tool bar. You can set environmental variables such as air resistance and gravity with menu commands. Last of all, you decide how fast you want your simulation to run and how you want to display the variables your simulation calculates. Working Model automatically takes into account your object's properties, the forces you're using, and the environment when it creates a simulation.

Setting up simulations isn't considerably different in Working Model 3.0 than in earlier versions. However, Working Model 3.0 includes Working Model Basic (WM Basic), a complete object-oriented programming language that's similar to Microsoft's Visual Basic. You don't have to use WM Basic in order to create simulations in Working Model,

which is fortunate, since the language is difficult to master without previous programming experience.

But if you put in the effort to learn the language, it can be invaluable. You can write a WM program to automate the testing process. For instance, you can run a long series of simulations that test how varying a parameter, such as speed or elasticity, affects the results and then log the results to a file. You can create simulations and build a shell for them, so that a user who's unfamiliar with Working Model can still explore the laws of physics just by clicking in a few dialog boxes or changing a parameter. WM Basic also makes it possible for developers of other programs to create and sell Working Model add-ons to link their products with Working Model. For instance, with such a program, you could assign Working Model physical properties to objects while you designed them in a CAD program.

## Information Exchange

Thanks to WM Basic's Apple-events support, other applications can query Working Model for a simulation's results. This means you can also write a complex program that processes

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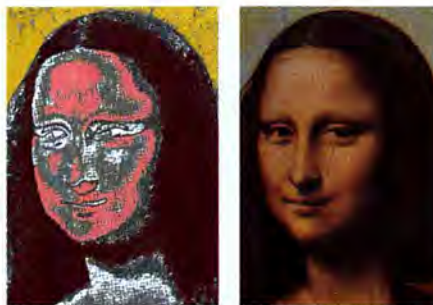


Think about this the next time you're "backing up" by dragging: Retrospect can scan 200 files a second to see which files have changed. Can you?

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data from real-time user input or a spreadsheet and pump the values into a Working Model simulation.

### Smart and Smarter

Even without WM Basic, you have more control over your simulations in this version. You can now position or reposition an object by typing in its x and y coordinates in the Properties window.

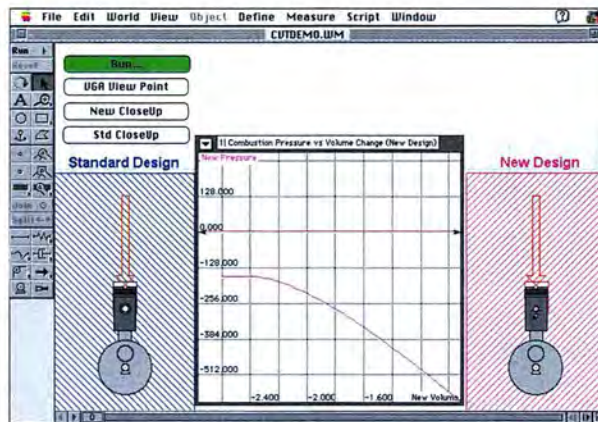
The Smart Editor keeps objects linked together correctly during the course of a simulation. In Working Model 3.0, the Smart Editor also adjusts the joints and keeps them in their proper place when you resize an object.

Some real productivity-enhancing improvements are the use of point- and geometry-based parametrics. For any object, Working Model allows you to use point-based information, such as position, velocity, and acceleration, and geometry-based information, such as width, height, and centerpoint, in formulas. The ability to use these parametrics tightens up the control you have — for instance, now you can keep the endpoint of a spring tight against the midpoint of a rectangle as you enlarge the rectangle.

Working Model is now also more consistent with CAD-program standards. This version features a new center-of-mass symbol, and you can snap objects to geometric points such as centers and endpoints.

Working Model 3.0 reads files from Addison-Wesley's Student Edition and any previous Working Model version. You can also save Working Model 3.0 files as Student Edition or Working Model 2.0 files. However, since geometry-based parametrics don't exist in those versions, the parametrics are converted to numeric constants.

Overall, Working Model 3.0 is faster — which almost makes up for the lack of a PowerPC-native version. The speed boost is due in part to the faster — and more accurate — Kutta-Merson integration technique, which Working Model now uses in calculating simulations.



**Thanks to a new** embedded programming language, Working Model lets you link its motion-simulation capabilities to CAD programs, scientific input hardware, and more, so you can streamline your testing process.

### The Bottom Line

The addition of Working Model Basic adds so much power and functionality to Working Model that it's practically a new product to those who can take advantage of the language. And version 3.0's improved speed and flexibility are added pluses. / Michael Swaine

**Price:** \$2,495 (list). **Company:** Knowledge Revolution, San Mateo, CA; 800-766-6615 or 415-574-7777. **Reader Service:** Circle #412.

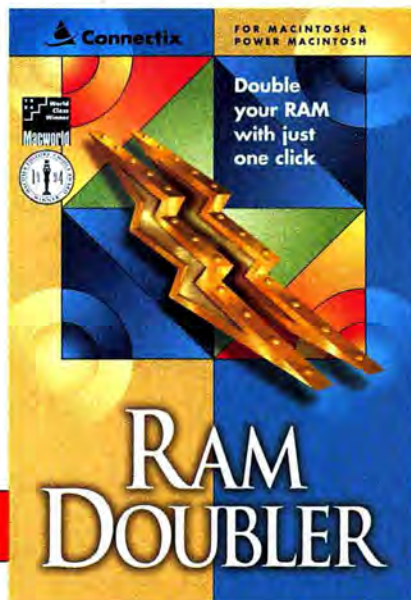
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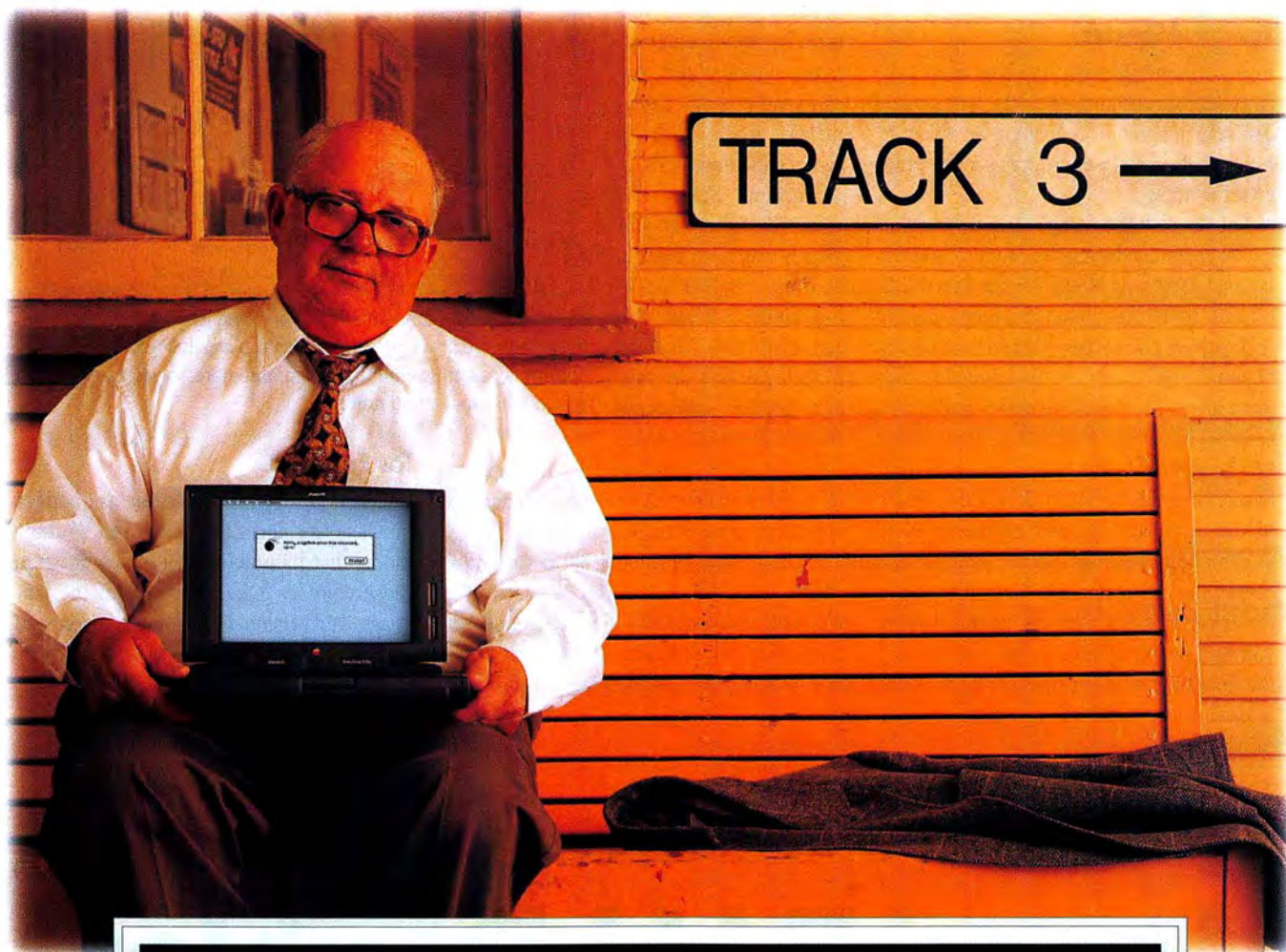
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# SoftWindows 2.0 for Power Macintosh



Any program that runs on a 486 now runs on your Mac in software-only emulation.

**MORE WINDOWS PROGRAMS** will now run on your Power Mac, thanks to Insignia Solutions' upgrade to its SoftWindows software. SoftWindows now emulates a 486 processor and is able to run Enhanced-mode Windows programs. SoftWindows 2.0 is also compatible with more PC networking protocols, including several, such as NetBEUI and DECnet, that most DOS cards for the Mac don't support.

However, the new version of SoftWindows doesn't come close to emulating the speed of a 486 processor; in fact, emulating the more complex 486 processor in software slows down SoftWindows. In benchmarking tests,

we found that Windows applications ran slower in SoftWindows 2.0 than in the previous version, 1.5.

## The Windows Window

Interfacewise, SoftWindows 2.0 isn't considerably different from SoftWindows 1.5. When you install SoftWindows, it creates a PC disk file on your Mac hard disk. When you launch SoftWindows, it gives you a DOS 6.22/Windows 3.11 environment in a Mac window in the Finder. You can access DOS and Windows files in a Mac folder from within SoftWindows as well as read DOS floppies and CD-ROMs on your Mac desktop. You can even cut and paste between Mac and Windows applications.

That SoftWindows 2.0 installs Windows 3.1 rather than Windows 95 is somewhat of a disappointment. You can buy Windows 95 and try running it with SoftWindows 2.0, but Insignia doesn't guarantee that it will run well. Insignia does, however, plan to release a version of SoftWindows 2.0 early this year that will work with Windows 95.

With Windows 3.1, SoftWindows 2.0 is solid and had no trouble running Novell's Quattro Pro and Corel's Ventura Publisher,

neither of which worked under older versions of SoftWindows. We also had no trouble testing SoftWindows 2.0's speed using the Winstone 95 benchmark test, which runs 13 popular Windows applications, including Microsoft Access, CorelDraw, Borland Paradox, WordPerfect, and the Microsoft Office suite.

On a Power Mac 6100/60 with 16 MB of RAM, applications ran, on average, about 36 percent slower under SoftWindows than on Winstone's reference machine, a 25-MHz Compaq DeskPro 386DX. On a faster Power Mac 9500/132, SoftWindows was considerably speedier: Applications ran almost twice as fast as on the 386 machine, but they ran 41 percent slower than on a 33-MHz 486DX Compaq DeskPro.

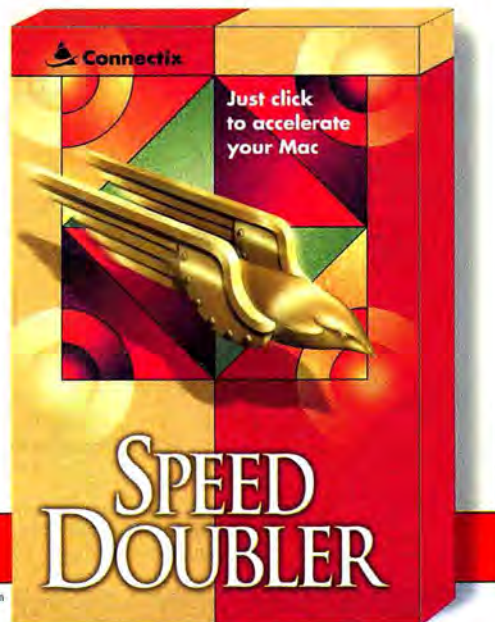
Not every task, however, is slower in SoftWindows' PC emulation than on a midrange 486 computer. For instance, system-level tasks, such as copying and moving files, are actually faster in SoftWindows 2.0 on both the Power Mac 6100/66 and the Power Mac 9500/132 than on the 486DX Compaq DeskPro. Nonetheless, SoftWindows 2.0 is generally slower than its predecessor: When we tested SoftWindows 1.5 on a Power Mac

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6100/60, using Winstone 95, applications ran almost as fast as they would on a 486 machine.

### The PC Connection

SoftWindows 2.0 supports more networking protocols than earlier versions did and actually supports more networking protocols than the software that comes with most DOS cards for the Mac. Besides supporting IPX and the IPX-based Novell NetWare, as it did in earlier versions, SoftWindows 2.0 comes with installable files for accessing servers using TCP/IP, NetBEUI, Banyan VINES-IP, or DECnet. Even more impressive is SoftWindows' ability to run Mac TCP/IP as well as WinSock TCP/IP networking sessions, using the Mac's MacTCP driver. Similarly, you can simultaneously run Mac and PC IPX applications, such as NetWare client software, using the MacIPX driver. You can also run PC IPX sessions through Insignia's PC ODI (Open DataLink Interface) driver. For Windows network applications that require Microsoft's NDIS (Network Driver Interface Specification) driver, SoftWindows 2.0 includes an NDIS-to-ODI translator.

Another edge SoftWindows has over 486

coprocessor cards is its AppleScript support, which you can use to automate common and repetitive tasks in Windows and DOS. You can write an AppleScript script and include any DOS/Windows keystroke and execute the script within SoftWindows. SoftWindows has also added Apple Guide, which gives you online help for using Windows.

SoftWindows 2.0 includes Windows Sound Support, so you can play and record sound files with your Mac speakers and microphone in most Windows business and multimedia applications. However, SoftWindows still can't emulate Sound Blaster-compatible cards, which means you can't play sound in most DOS games.

Running both the Mac and Windows operating systems on your PowerPC computer, whether you do so by using a DOS card or in software emulation, requires a lot of RAM. Either a DOS card or SoftWindows requires you to have at least 16 MB in your Mac. With a DOS card, at least 8 MB of the 16 should be installed on the card itself—and you won't be able to use that RAM for Mac applications.

### SPEED-TESTING SOFTWINDOWS 2.0

Using the Winstone 95 benchmark test, we compared the speed of Windows applications running under SoftWindows 2.0 on a Power Mac with the speed of the same applications running on a 386 and a 486 PC computer. Results are relative to those of a Compaq DeskPro 386DX/25, which has a score of 10.

| WINSTONE 95                             |        |
|---|--------|
| SoftWindows 2.0 on a Power Mac 9500/132 | 18.8   |
| SoftWindows 2.0 on a Power Mac 6100/60  | 6.4    |
| Compaq DeskPro 486DX/33                 | 32.0   |
| Compaq DeskPro 386DX/25                 | 10.0   |
| SCORE                                   | BETTER |

### The Bottom Line

SoftWindows costs a lot less than DOS cards and supports most major PC networking protocols. But if you need to work in Windows frequently, especially with processor-intensive programs, you'll find SoftWindows far too slow. If you only occasionally need to run PC software that's not available in Mac format, it will suit you well. / John Rizzo

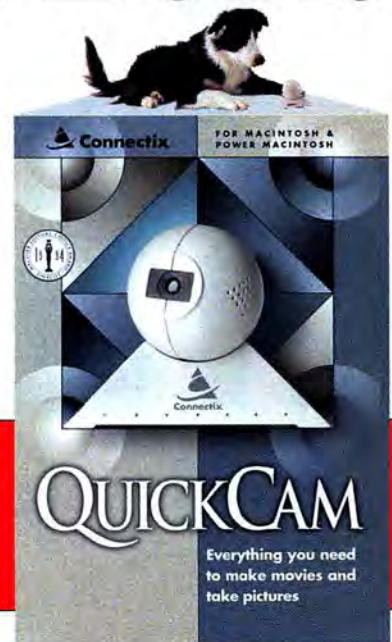
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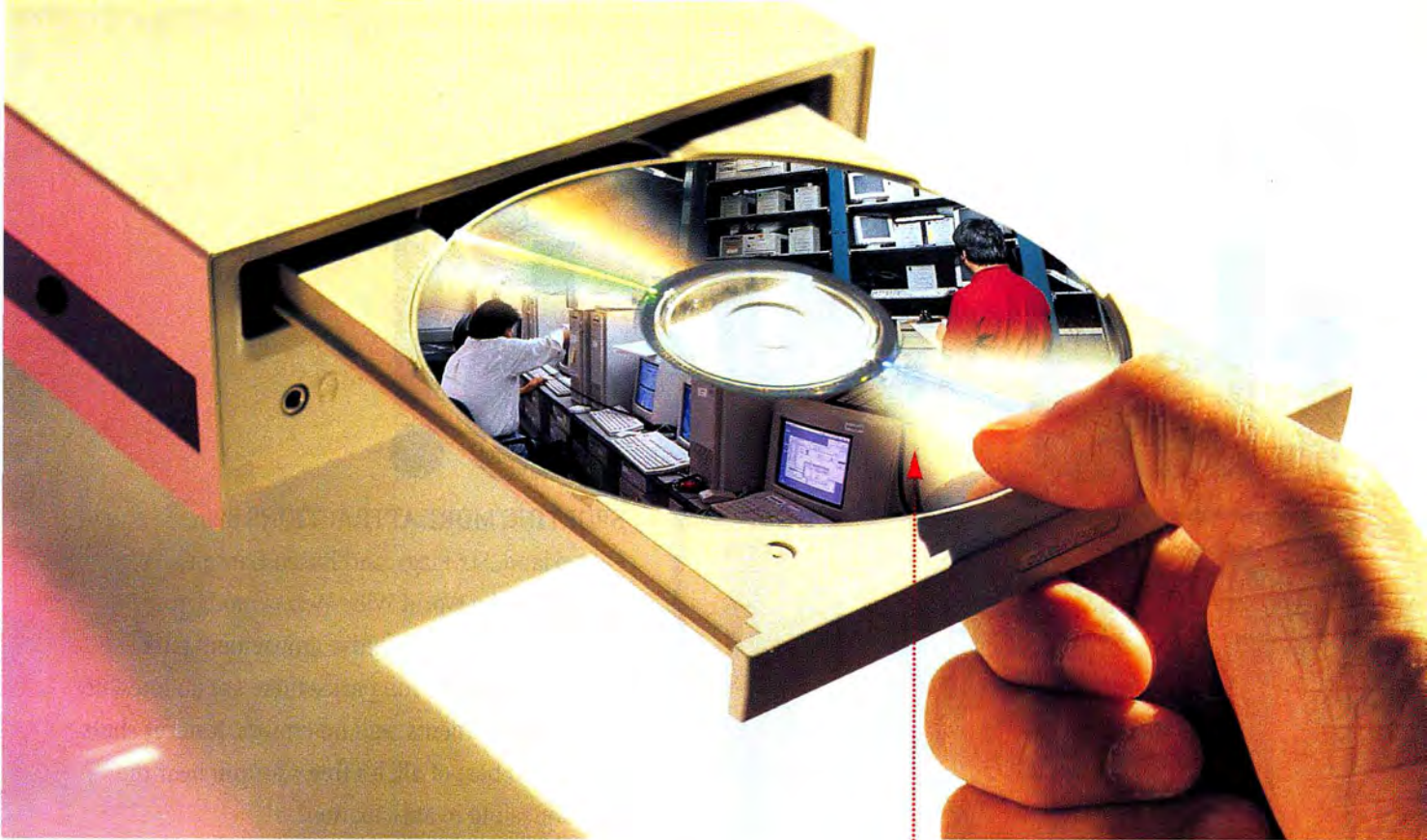
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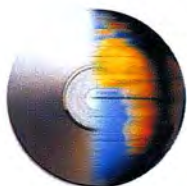




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# Welcome to the Web!

## 101 must-see SITES

— because it's  
not a small  
world, after  
all.

SPORTING MORE ATTRACTIONS than Disneyland, Six Flags, and Busch Gardens combined, the World Wide Web is modern technology's most inventive amusement park. Unlike in ordinary fun parks, there are no lines, no height requirements, and no crowds. It never shuts down. And best of all, it's free. Can you hear the kids squealing in anticipation?

But it's easy to get lost on the Web. With so much to see and do, you could wander for hours and still miss the grand parade. So, we gathered together our experts — the information addicts with season passes who visit the Web daily — and compiled a list of the 101 hottest sites out there. To ensure your comfort and convenience, we've organized our favorite attractions by theme — just like at Disney, but sans the talking mice.

Now, we advise you to please remain seated throughout the duration of the ride, keep your hand near the mouse at all times, and remain in your seat until your computer has come to a complete halt. We hope you enjoy browsing through our suggestions and ask you to please enjoy the rest of your stay here at the World Wide Web.





# WHEN THE CABLE GOES OUT

**1. Patrick G. Kenny's TV Bytes: WWW TV Themes Home Page** (<http://themes.parkhere.com/themes>)

Craving the soothing sound of the "Coke Is It!" jingle? This home page has hundreds of sound files of jingles and TV theme songs from your most fondly remembered sitcoms, westerns, and cartoons.

**2. Late Show with David Letterman** (<http://www.cbs.com/lateshow/tlist.html>)

Not only can you read the Top Ten List from last night's *Late Show* but you can also perform advanced searches on the archive of Letterman's lists.

**3. Musi-Cal** (<http://www.calendar.com/concerts>)

Find out who's heating up the stage in your downtown, or browse through your favorite artist's tour schedule. Also use the system to link to artists, venues, and the CDWorld shopping service.

**4. The Ultimate Band List** (<http://american.recordings.com/wwwofmusic/ubl/ubl.shtml>)

Probably the largest list of music links on the Web, this site sounds off with every band you've ever heard of and lots of bands you haven't.

**5. The Internet Underground Music Archive** (<http://www.iuma.com>)

The IUMA will rock your world, with its searchable indexes of signed and independent acts as well as music publications and music archives.

**6. The Internet Movie Database** (<http://www.msstate.edu/Movies>)

Microsoft's Cinemania is great, but does it keep up-to-date with the latest hot movies? Does it let you add your own knowledge about films to the database? The Internet Movie Database does all that and more.

**7. TV Net** (<http://www.tvnet.com>)

If you're a fan of a show you're *sure* nobody remembers, this is where you'll find six Web sites devoted to it.

**8. Mr. Showbiz** (<http://web3.starwave.com/showbiz>)

Mr. Showbiz offers interviews, gossip, news, and more on all things showbiz — stage, screen, radio, or TV.

**9. The Lurker's Guide to Babylon 5** (<http://www.hyperion.com/lurk/lurker.html>)

View loads of information about the TV series, from several perspectives: a

behind-the-scenes look, a synopsis of the *Babylon 5* universe, and an episode-by-episode guide.

**10. tarantino world** (<http://bird.taponline.com/tarantinoworld>)

If you've ever wondered what was in that much-desired briefcase in *Pulp Fiction*, this site's for you. Covering all things related to hip director Quentin Tarantino, tarantino world features discussion areas, sounds, pictures, and links to other Tarantino-fan sites.



**11. Anime Web Turnpike** (<http://soyokaze.biosci.ohio-state.edu/~jei/anipike>)

Anime is the animation arm of the popular Japanese drawing style Manga. There are hundreds of Anime and Manga sites scattered across the Web, and the Anime Web Turnpike is a good starting point.

**12. The Calvin and Hobbes Jumpstation** (<http://www.csd.uu.se/~d94her/calvin/jumpstation.html>)

Delve into the psyches of an obnoxious boy, his tiger, and the man who made it all happen, with this collection of cartoons and links to related archives, FTP sites, newsgroups, and home pages devoted to the nation's most adored brat.

**13. The Dilbert Zone** (<http://www.unitedmedia.com/comics/dilbert>)

Don't bother reading *Fortune*, *The Wall Street Journal*, or *Barrons*. If you want to know what's really going on behind the scenes in corporate America, Scott Adams' hilarious comic strip is the only source you need.

**14. The Dysfunctional Family Circus** (<http://www.thoughtport.com/spinnwebe/cgi-bin/dfc.cgi>)

If you require a strong dose of insulin after reading Bil Keane's overtly wholesome comic strip, this site is for you. Single-panel cartoons featuring the zany "Circus" crew are presented without the original caption — you fill in the blanks. Contributed text is invariably tasteless and, for those with the proper wit, a laugh riot.

**15. European Comics on the Net** (<http://grid.let.rug.nl/~erik/.Comics/welcome.html>)

Comics fans bored by Blondie and her Sunday-paper cohorts should check out this collection of links to comics from the Continent and learn why Europeans are having the last laugh.



## WHEN YOUR CrEATiVE LiCENSE HAS EXPIRED

**16. Kai's Power Tips and Tricks** (<http://the-tech.mit.edu/KPT>)

Tips and tricks for artists from fans of MetaTool's hot plug-in. Discussion groups, pointers to other graphics sites, plus a digital gallery make this a great place to start if you're thinking about working with Photoshop.

**17. Image Soup** (<http://www.emedia.net/imagesoup>)

This quarterly online publication from New York offers how-to advice for applications such as Photoshop and Director.

**18. Internet Font Archives** (<http://josper.ora.com/comp.fonts/Internet-Font-Archive/index.html>)

Fonts, fonts, and more fonts can be found in this search-

able index of PostScript fonts that are available online and from type foundries such as Adobe and Bitstream.

**19. Multimedia Authoring Web** (<http://www.mcli.dist.maricopa.edu/authoring>)

Your one-stop shop for links and information on multimedia-development resources for CD-ROMs, video, animation, online publishing, and more.

**20. DTP Internet Jumplist** (<http://www.cs.purdue.edu/homes/gwp/dtp/dtp.html>)

This DTP way station links you to graphics resources across the Internet, including pointers to FAQs, clip art, and discussion groups.

**21. ArtSource** (<http://www.uky.edu/Artsource/artsourcehome.html>)

Don't expect to find any amateurish doodlings among this selective collection of links to high-caliber online art and architecture.

**22. The Web Museum** (<http://sunsite.unc.edu/louvre>)

Based in Paris and dedicated to bringing fine art to the Internet, The Web Museum features an extensive image collection that includes 20th-century art; medieval works; and famous works from such respected artists as Cézanne, El Greco, Renoir, O'Keefe, Dali, and countless others.

**23. Photo Perspectives** ([http://www.i3tele.com/photo\\_perspectives\\_museum/faces/perspectives.home.html](http://www.i3tele.com/photo_perspectives_museum/faces/perspectives.home.html))

This site showcases photography exhibits that focus on cultural, sociopolitical, and educational issues. You'll also find videos of photo sessions and interviews with artists.

**24. Asian Arts** (<http://www.webart.com/asianart/index.html>)

A wide variety of exhibitions and articles on Asian art, gallery information, and reader feedback, all set in an elegant online design.





# blinded by SCIENCE

## 25. Cool NASA Site of the Week (<http://www.jsc.nasa.gov/~mccoy/nasa/Cool.html>)

The best way to visit space, short of hopping onto the shuttle. Tune into a new NASA site each week, and get in touch with your universe.

## 26. The Nine Planets (<http://seds.lpl.arizona.edu/nineplanets/nineplanets/nineplanets.html>)

Cuddle up to your computer and get intimate with our own little corner of the galaxy by surfing out to The Nine Planets, where text, pictures, sounds, and movies transport you all the way to the moon and beyond.

## 27. The U.C. Berkeley Museum of Paleontology (<http://ucmp1.berkeley.edu>)

Paleontology is the study of dinosaurs, right? Not quite! Paleontology is the study of *all* fossilized remains, of which dinosaurs are only a small part. This virtual museum has exhibits on geological time, evolutionary topics, and fossil records as well as (of course) the famous hall of dinosaurs.

## 28. The Seven Wonders of the Ancient World (<http://ce.ecn.purdue.edu/~ashmavy/7WW>)

Everyone's heard of the Seven Wonders, but how much do you know about them? This detailed guide has images, information, speculation, and extensive historical data on the Seven Wonders, plus links to other archaeological resources.

## 29. Ocean Planet ([http://seawifs.gsfc.nasa.gov/ocean\\_planet.html](http://seawifs.gsfc.nasa.gov/ocean_planet.html))

A traveling exhibition by the Smithsonian Institution, featuring information on biodiversity and the environment. This elaborate online science project also confronts ocean issues, undersea vents, and recent watery discoveries.

# An Apple a Day

## 37. INFO-MAC HyperArchive ROOT (<http://hyperarchive.lcs.mit.edu/HyperArchive/HyperArchive.html>)

A volunteer effort by Mac users the world over, the Info-Mac archive is one of the biggest and best Internet collections of Mac software and information. File descriptions and downloads are one click away.

## 38. Apple Software Updates (<http://www.info.apple.com/cgi-bin/lister.pl?Apple.Support.Area/Apple.Software.Updates>)

This hypertext front end to Apple's FTP site contains the latest system-software updates and Apple utilities, along with older system software you might have a hard time tracking down elsewhere.

## 39. QuickTime VR (<http://qtvr.quicktime.apple.com>)

Offering the QuickTime VR player as well as

downloadable 3-D landscapes and objects, Apple Computer's QuickTime VR Web site opens the gateway to virtual worlds.

## 40. University of Texas Mac Archive (<http://www.host.uts.utexas.edu/mac/main.html>)

This comprehensive archive includes descriptions of all the latest cool software available on the Internet.

## 41. Macintosh Shopping Directory (<http://www.wincorp.com/windata/msd/msd.html>)

You can't actually buy Mac products at this site, but it does offer a wealth of contact info for every Mac company willing to take your money.

## 42. Apple Computer (<http://www.apple.com>)

If you want the scoop on anything Apple-related, such as product and pricing information, go to the source. It's a heck of a lot quicker than getting through to the company on the phone.

## 43. The MacInTouch Home Page (<http://www.ultranet.com/~ricford>)

The Web home of Ric Ford's *MacWEEK* column,

# Just the **STATS**, Ma'am

## 30. SEC EDGAR Database (<http://www.sec.gov/edgarhp.htm>)

Search the Securities and Exchange Commission's EDGAR (Electronic Data Gathering, Analysis, and Retrieval) database to get the scoop on all U.S. public companies.

## 31. NETworth (<http://network.galt.com/www/home/network.html>)

Galt Technologies' attractive site provides all sorts of information for individual investors. Learn about insurance, retirement planning, taxes, and more.

## 32. FINWeb (<http://www.finweb.com>)

FINWeb contains a comprehensive collection of pointers to financial and economic information, including business- as well as academic-oriented sites.

## 33. STAT•USA (<http://www.stat-usa.gov>)

Get your hot little hands on business and economic statistics the U.S. Department of Commerce has gathered from more than 50 federal agencies. But be prepared to pay — STAT•USA is a subscription-based service.

## 34. Project Vote Smart (<http://www.vote-smart.org/index.html>)

Learn about political candidates *before* you vote. Project Vote Smart sends out questionnaires to federal and state office seekers, to get their opinions on key campaign issues. What it gets back is what you see.

## 35. THOMAS: Legislative Information on the Internet (<http://thomas.loc.gov>)

Check up on Congress — search the Congressional Record, find out the status of a bill, or share a piece of your mind with that special someone on Capitol Hill.

## 36. The Jefferson Project (<http://www.stardot.com/jefferson>)

Plow through the dark recesses of American politics, using this fascinating array of political links that deal with controversial issues, political parties, and even humor.



MacInTouch (the best source of up-to-the-minute Macintosh info in print) doesn't contain the actual column but goes it one better by being even *more* current.

## 44. The Well Connected Mac (<http://www.macfaq.com>)

The Well Connected Mac acts as Information Central for almost everything Mac-related. Hook up to more than 1,400 Mac vendors, hundreds of Mac FTP sites, a huge index of software and hardware reviews, and the Buying and Selling Macs FAQ.

## 45. The Internet Starter Kit for Macintosh (<http://www.mcp.com/hayden/iskm/iskm3/index.html>)

A terrific guide to getting up and running on the Net, The Internet Starter Kit is now available in its entirety on the Web. Its hot links to sites across the Web make turning pages seem passé.

## 46. Cyberian Outpost (<http://www.cybout.com/cyberian.html>)

Whether you're in the market for a Performa 6200 or a Beavis & Butt-head screen saver, you'll find it all at the Cyberian Outpost. This colorful online computer store offers detailed product information, reviews, and photos of an extensive Mac selection that rivals that of the biggest superstore. Order online or by phone.



# WHEN YOU'VE FORGOTTEN THE NUMBER FOR 911

## 47. MedWeb (<http://www.cc.emory.edu/WHSC/medweb.html#toc>)

This long list from Emory University includes Web sites, newsgroups, and mailing lists covering a wide range of medical areas — from AIDS to virtual reality in medicine.

## 48. Health and Human Services (<http://www.os.dhhs.gov>)

The HHS site has links to other health-related government sites, in addition to much consumer and policy information. Technical terms are linked to definitions in the National Library of Medicine's Entrez glossary.

## 49. Centers for Disease Control (<http://www.cdc.gov>)

This government site offers a heap of consumer and policy information on health matters plus links to a slew of health statistics.

## 50. University of Pittsburgh's Alternative Medicine Homepage (<http://www.pitt.edu/~cbw/alm.html>)

This medicine page links you to other alternative-medicine sites as well as to clinical studies and National Institute of Health research on alternative methods. It's also the best place to get the straight dope on medical marijuana.

## 51. ChronicIll Net (<http://www.calypte.com>)

An excellent collection of resources, news, and research on a wide variety of illnesses and medical conditions, including cancer, heart disease, AIDS, neurological diseases, and much more.



# When TACO BELL Is No Longer the Answer

## 52. Julie's Low&Fat-Free Resources List (<http://www.eskimo.com/~baubo/lowfat.html>)

You want the skinny on fat? Julie's is where it's at. You'll find links to the low-fat and fat-free Usenet newsgroups and FAQs as well as links to more than a dozen sites containing low- and no-fat recipes. Julie's list also has links to suppliers of some of the more hard-to-find health snacks.

## 53. Welcome to Pizza Hut! (<http://www.pizzahut.com>)

Unfortunately, even with the fastest modem, there's still no way a hot pizza can be delivered over the Internet. But if you live in Santa Cruz, California, you can pop onto the Web to order a pizza from Pizza Hut's electronic storefront. Place your order online, and a pizza will be delivered by the usual analog methods.

## 54. Web Compendium of Alcohol Beverages (<http://www.interlog.com/eye/Food-drink/Drinks/tudor.htm>)

If it has any appreciable alcohol in it and isn't intended for medicinal or industrial purposes, it's likely to be on this comprehensive page, which is compiled by Dean Tudor. Wine drinkers are sure to take drunken delight in the more than 100 wine-related links, covering every aspect of the fermented grape. Hopsheads will additionally be impressed with links to sites featuring home-brew societies, beer FAQs, breweries — even an entire page devoted to that zimpily zickening beverage Zima.

## 55. Dining Out on the Web (<http://www.ird.net/diningout.html>)

Dining Out on the Web contains a general list of pointers to other dining resources as well as numerous direct links to restaurants across the United States. The sites are organized by city and state, and several of them include reproductions of menus.

## Smart Browsing

- You're trapped on a page that has no buttons or text to help you return to the home page. What do you do? Well, you can try changing the address. Modify the URL to end with `index.html` — often the title of a directory's default document. For example, if you find yourself at <http://www.netbeep.net/~joholmes/bogus.html>, try changing it to <http://www.netbeep.net/~joholmes/index.html>.

- Another tactic for ferreting out the home page is to delete all the text that follows the final slash in the address. For example, from <http://www.netbeep.net/~joholmes/files/bogus.html>, delete `bogus.html`. You'll wind up with either the site's default document or a list of all the files in that directory.

- A friend told you about a cool Web site you're dying to check out, but you lost the URL on a crumpled cocktail napkin. Now what? Try using keywords on any of the following free Internet search engines to track it down:

- Netscape Communications (<http://home.netscape.com/home/internet-search.html>)

- W3 Search Engines (<http://cuiwww.unige.ch/meta-index.html>)

- All-in-One Search Page (<http://www.albany.net/~wccross/all1srch.html>)

- And for really comprehensive searches, check out SavvySearch (<http://www.cs.colostate.edu/~dreiling/smartform.html>). It plugs your keywords into several of the best search engines and returns results from all of them.

- Don't forget Yahoo (<http://www.yahoo.com>), which includes some search capabilities but is chiefly a hierarchical index to thousands of sites, arranged by subject. It's terrific for finding major sites, but it doesn't list every little home page.

- When you have no idea what a company's URL is, just guess! Try <http://www.XXX.com>, substituting the company's name for the Xs. You can find Radius, for instance, at <http://www.radius.com>.

- Make use of your browser's Go menu — it keeps a chronological list of all the places you've visited during the current session. Using it is much faster than repeatedly clicking on the Back button.

- Remember that you don't have to wait for pictures to finish loading in order to move on to another page. You can scroll down to read text at any time.

- A download doesn't have to equal downtime. When downloading a file in Netscape, you can't simply click on a pointer to swap pages without ending the download. But you can scroll around within the page without stopping traffic or just open a new window from Netscape's File menu and keep browsing. / Joseph O. Holmes





# ALL PLAY and no work

## 56. Games Domain (<http://www.gamesdomain.co.uk>)

If there's a more complete computer-games Web site on the Net, we haven't found it. This page contains links to hundreds of games-related home pages; dozens of commercial pages; and oodles of FAQs, walk-thrus, game patches, hints, FTP sites, and online magazines.



## 57. Zarf's List of Interactive Games on the Web (<http://www.cs.cmu.edu/afs/andrew/org/kgb/www/zarf/games.html>)

Zarf's list of games is like a fully loaded toy box without the mess. Hot links connect you to interactive games, ranging from Netpoker to Name That Tune, as well as interactive toys, old and new.

## 58. The MUD Resource

Collection (<http://www.cis.upenn.edu/~lwl/mudinfo.html>)

If you don't know your MUSH from your MOO, this is a

good place to begin your explorations. MUDs (multiuser dimensions/domains/dialogs/dungeons) are online multiplayer fantasy games whose themes range from the social to the sociopathic.

## 59. Universal Access Blackjack Server (<http://www.ua.com/blackjack/bj.html>)

Care to practice your blackjack skills prior to playing for "keepsies" in Vegas or Atlantic City? No need for a partner when you can log onto this blackjack site.

## 60. SpeedNet (<http://www.stornews.com/speednet>)

From the point leaders on the NASCAR circuit to the budding political career of Richard Petty, this site's complete coverage of auto racing will keep any fanatic in the pole position.

## 61. The Basketball Server (<http://www4.nando.net/SportServer/basketball>)

Do ya love the game? Then you'll love the site. Game summaries, box scores, divisional races, and more will have any basketball fan spending more than three seconds here.

## 62. Fastball (<http://www.fastball.com>)

The best general-purpose baseball page around, with enough links to stories and stats to satisfy all but the most hard-core baseball fan.

## 63. NFL Game Day (<http://nflhome.com>)

It may be a predictable pick, but NFL Game Day, the official Web page of the (insert echo effects) National... Football... League, really is the best all-around information center for football.

## 64. The NHL OPEN NET (<http://www.nhl.com>)

The National Hockey League's site has everything you need to know about the coolest game in town: news, game schedules, rules, rosters, statistics, and lots more. There's additionally a Web version of NHL This Week, the league's official newsletter. The NHL OPEN NET even schedules live chats with popular players such as Pat LaFontaine, of the Buffalo Sabers.



# DO IT YOURSELF

## 65. Security APL Quote Server (<http://qs.secapl.com:81/cgi-bin/qsx>)

Stock quotes come one at a time, but they're free and you don't have to register to get them. The quote server can also link you to Securities and Exchange Commission filings for the companies you select.

## 66. The Outpost Network (<http://www.outpost.net/ISSUES/INDEX.HTM>)

Who needs stamps anymore? Using Outpost's forms, you can vent via e-mail to politicians, corporations, activist organizations, and the media at large.

## 67. Firefly (<http://www.agents-inc.com>)

Meet your match with this personalized music service. Firefly recommends artists or albums for you based on your ratings of preselected artists and sound samples.

## 68. The San Francisco Exploratorium (<http://www.exploratorium.edu>)

Even if you don't live in the Bay Area, the Exploratorium's Web-based Learning Studio brings scientific experimentation to your Mac.

## 69. Madlib! (<http://www.mit.edu:8001/madlib>)

Submit a couple of silly adjectives, some verbs ending in -ed, and a noun or two, and you've got an online Madlib masterpiece that will spark as many giggles as its paper-based predecessor.



## 70. Confession Booth (<http://another.learning.cs.cmu.edu/priest.html>)

In this hurly-burly world, it's tough enough just to get to the market before closing, much less take time out for Higher Purposes. If the guilt of past actions weighs heavily upon your soul, take a few moments to visit the Confession Booth.

## 71. Foreign Languages for Travelers (<http://insti.physics.sunysb.edu/~mmartin/languages/languages.html>)

For those of us who endured five years of Spanish classes only to recall the single phrase *¡Albóndigas, no te dije!*, this site is a godsend. Download sound files of the most helpful phrases in 19 languages. For those who still find themselves struggling with a language, the site also includes links to other phrase pages and to online translation dictionaries.

## 72. WEB Personals (<http://www.webpersonals.com>)

If you're looking for love or just a good laugh, hook up to this swinging social scene.

Ads are categorized by the kind of relationship desired and then grouped by country and state. As is the case with printed personals, it's a seller's market for heterosexual women: When we checked, 481 women were seeking relationships with men, whereas 2,703 men sought female companionship.



## 73. Build a Card (<http://buildacard.com>)

Uh-oh. You're on a business trip, and you forgot that today is your anniversary. It may be too late for flowers but not for a personalized electronic greeting card.

## 74. KidPub (<http://www.en-garde.com/kidpub>)

This site's Webmeister started KidPub to give his nine-year-old daughter an outlet for her stories, and now he hosts hundreds of stories and poems, many of them illustrated, by kids aged roughly 4 to 15. A handy form lets your child submit stories.

## 75. The Cyrano Server (<http://www.nando.net/toys/cyrano.html>)

If a sincere love letter is beyond your capabilities, let Cyrano do the work for you. Merely fill in a few blanks, and the server will compose a love letter in any of seven distinct styles. Also available: personalized Dear John letters.



# Have You LOST Your Mind?

## 76. Space Age Bachelor Pad Music (<http://www.interport.net/~joholmes/index.html>)

Remove the lounge lizard from the endangered species list! This homage to Juan Esquivel and space-age pop symbolizes a revival of '50s glamour that practically reeks of smoking jackets and cheesy music. If you start craving cocktails, hot links to various online lounges will have you sipping screwdrivers and humming along with the Muzak in no time.



Amy Fisher

## 77. The Blue Dot (<http://www.razorfish.com/bluedot/>)

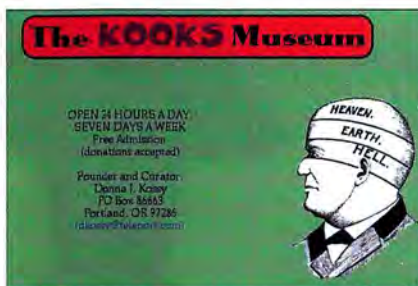
This warped art gallery dishes up a smorgasbord including a ghastly gargoyle hunt, a sardonic stamp collection featuring such trashy '90s icons as Tonya Harding and Amy Fisher, and a freedom-fighting Rabbit Rat.

## 78. The Foolproof Guide to Making Any Woman Your Platonic Friend (<http://www.phantom.com/~joelgon/platonic.html>)

Both genders will appreciate this exploration of the most painful words in any language: "I just want to be friends" and "I don't want to risk our friendship." Especially fun is the Dear Abby-ish advice to guys: One poor fellow was jilted by a woman who explained, "I like you too much." Yeah, right.

## 79. The KOOKS Museum (<http://www.teleport.com:80/~dkossy>)

The KOOKS Museum is Donna J. Kossy's look at world-class conspiracy nuts, quacks, and hatemongers — those wacky folks who make walking down a city street a little bit like a trip through the secure wing of your local hospital. Kossy is a serious student of crackpotology, and her sites offer gems such as the excerpts from a letter written by George Dahl, who makes a convincing case that a New York blackout was staged solely to observe and control him. Don't forget to stop by the Kooks Museum Gift Shoppe on your way out.



## 80. The Unusual or Deep Site of the Day (<http://www.com/adsint/freehand/deepsite>)

Ride the Web into a new, deep, and deranged destination every day, with this guide to choice oddities.

## 81. Captain James T. Kirk Sing-Along Page (<http://www.ama.caltech.edu/users/mrm/kirk.html>)

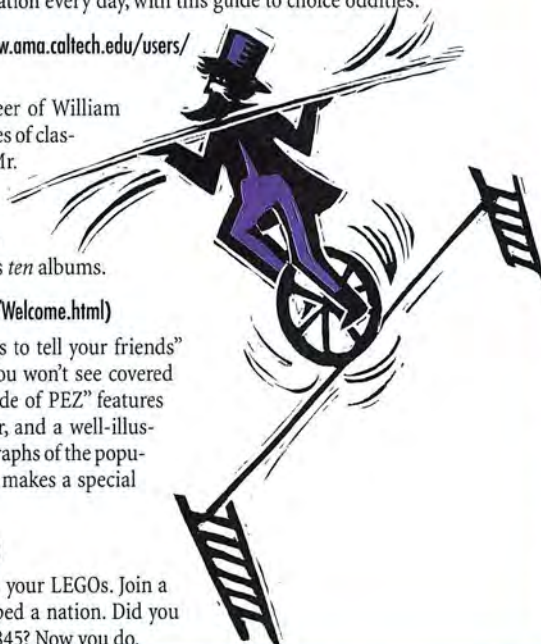
Celebrate the short-lived but horrible singing career of William Shatner, with seven sound clips from Shatner remakes of classics such as "Lucy in the Sky with Diamonds" and "Mr. Tambourine Man." Or steel yourself against the siren sounds of Nichelle Nichols' (*Star Trek's* Lieutenant Uhura) one album sample before pointing your ears toward tracks from any one of Leonard Nimoy's *ten* albums.

## 82. Solid Space (<http://redwood.northcoast.com/~shojo/Welcom.html>)

"Your source for important information and things to tell your friends" focuses on obscure baby-boomer-era topics that you won't see covered anywhere else. A photo essay entitled "The Dark Side of PEZ" features illustrations of the 1970s skull-head PEZ dispenser, and a well-illustrated history of GAF View-Masters includes photographs of the popular stereo viewers from 1945. TV personality Mr. T. makes a special guest appearance.

## 83. LEGO Information (<http://legowww.homepages.com>)

Read about LEGOs. Sing about LEGOs. Be one with your LEGOs. Join a man in his passion for the colored bricks that shaped a nation. Did you know that there are 14 black 1" x 2" bricks in set #1845? Now you do.



## WORLD WIDE WONDERS / the Web finds its voice

IT WAS NOT SO terribly long ago that the Internet consisted almost entirely of plain text crawling up the screen. Luckily, times have changed. Perk up your ears to hear how quickly online technology is advancing.

### • RealAudio

RealAudio (<http://www.realaudio.com>) is, in a phrase, Internet radio. Music and speech get piped live directly into your Mac — no more waiting minutes to download sound files.

Tune in to the RealAudio site for pointers to news broadcasts by ABC Radio and National Public Radio, and rebroadcasts of archived speeches and music. But don't expect stereo sound — version 1.0 is not even up to AM quality, but it does deliver live voice-quality audio. Version 2.0, soon to be released, promises to improve the quality to at least the level of monaural FM. You can get the RealAudio client software for free (<http://www2.realaudio.com/release/mac.download.html>). Once you've installed the application, check out the chatter on AudioNet's talk radio (<http://www.audionet.com>).

### • Streamworks

At press time, Xing Technology (<http://www.xingtech.com>) was testing a similar application, Streamworks, which promises to include video as well as audio. Could this foreshadow the end of network television as we know it? We hope so. Visit the site to download a free copy.

### • NetPhone

Want to even the score with Ma Bell? Electric Magic Company's NetPhone (<http://www.emagic.com>) allows you to dial long-distance at virtually no cost.

NetPhone is a \$60 software package that turns your Mac into a telephone and the Internet into a long-distance provider. That's right: You can make long-distance phone calls, even overseas calls, for the cost of a local call and your normal Internet connection. Any Mac with a microphone and a direct Internet connection can call any other similarly equipped Mac running NetPhone.

One drawback is that you'll need to tweak NetPhone to eliminate sound drop-outs, and some Macs, notably DuoS, have a hardware limitation that makes them operate more like walkie-talkies than like telephones.

The sound isn't quite up to telephone quality, but the price is right. NetPhone is the first full-duplex telephone application for the Mac, and several companies are promising similar tricks in the not too distant future. Check Trel's Commercial Internet Products site ([http://www.lpac.ac.uk/Trel/1Phone\\_products.html](http://www.lpac.ac.uk/Trel/1Phone_products.html)) for a list of other Internet telephone products. / Joseph O. Holmes



# WHEN YOU'VE *misplaced* YOUR LIBRARY CARD

## 84. The World Factbook (<http://www.odci.gov/cia/publications/95fact/index.html>)

Published by the Central Intelligence Agency, this wonderful resource contains maps and vital statistics about countries around the world. If you want to learn about the terrain of Bolivia, this is the place to go.

## 85. The Library of Congress (<http://www.loc.gov>)

Search the nation's library without leaving your desk or dealing with any ill-tempered librarians. Perfect for building book lists, but you'll have to take a D.C. detour if you want to really browse.

## 86. The Internet Public Library (<http://ip1.sils.umich.edu>)

Like a real public library, this site organizes books and reference collections into rooms and stacks. Click on the image maps for reference, youth, literature, and so on, and you'll find lots of useful links to searchable indexes and downloadable texts.

## 87. Webster's English Dictionary (<http://c.gp.cs.cmu.edu:5103/prog/webster>)

If you enter a word, Webster's will define it. If you don't know the spelling, give it your best shot and the program will offer alternatives.

## 88. Roget's Thesaurus ([http://humanities.uchicago.edu/forms\\_unrest/ROGET.html](http://humanities.uchicago.edu/forms_unrest/ROGET.html))

Tired of using the same word day after day? Spice up your vocabulary with synonyms from Roget's online thesaurus.



## 89. The ETEXT Archives (<http://www.etext.org>)

Tap into electronic texts all over the Internet, including the Gutenberg electronic-books archive and a plethora of independent electronic publications and magazines.

## 90. Lonely Planet (<http://www.lonelyplanet.com.au/lp.htm>)

Lonely Planet publishes some of the finest printed travel guides on earth, and its invaluable insights are available online as well. You get the lowdown on the customs, culture, currency, climate, and cuisine of just about any destination that comes to mind.

## 91. Banned Books On-Line (<http://www.cs.cmu.edu/Web/People/spok/banned-books.html>)

From *Ulysses* to *Huckleberry Finn*, this is the place to go to read books that somebody, somewhere, sometime, thought shouldn't be read by anyone. For those of you who are shocked by the logic behind this literary cleansing, links to activist sites allow you to speak out.

## 92. The Works of the Bard (<http://www.gh.cs.usyd.edu.au/~matty/Shakespeare/index.html>)

"To be or not to be?" Find out the answer to that question and more.

## 93. Fiction Page (<http://english-www.hss.cmu.edu/fiction.html>)

Catch up on all the classics you didn't get around to reading in high school, with this concise compilation of links to the literary elite.

# If Your SUBSCRIPTION Has Run Out

## 94. electronic Gourmet Guide (<http://www.2way.com/food/egg/index.html>)



The electronic Gourmet Guide is a monthly e-zine devoted to food and

cooking. In addition to more than a dozen recipes, ranging from soup to nuts, each edition contains cooking tips, hints for finding more gastronomic information on the Net, and feature stories.

## 95. George (<http://www.georgemag.com>)

The electronic version of John F. Kennedy, Jr.'s, new political vehicle packs a good sampling of the magazine's "not just politics as usual" content as well as a bulletin board and fun interactive features such as the "Political Trivia Quiz."

## 96. Guitar World (<http://www.guitarworld.com>)

Part of the problem with writing about music is...you're

writing about music. When a *Guitar World* article on the Web gives an example of a hot riff, you can actually hear it played.

## 97. Entertainment Weekly (<http://www.pathfinder.com/ew>)

Time Warner's magazines are all well represented on the Web. *Entertainment Weekly* is typical, with a bulletin board, the major features from each issue, and movie and multimedia ratings.

## 98. The Utne Lense (<http://www.utne.com>)

The Lense is based on *The Utne Reader*, an eclectic *Reader's Digest* of the alternative press. Like its print counterpart, The Utne Lense is smart and stylish and doesn't descend to gratuitously hip posturing.

## 99. HotWired (<http://www.hotwired.com/login/index.html>)

No one on the Web covers the spectrum of pop culture

with the abandon and zeal of HotWired, the online doppelgänger of *Wired* magazine. HotWired covers music, art, travel, and the like, but with a postmodern digital zing.

## 100. Tripod (<http://www.tripod.com>)

A unisex lifestyle e-zine for 20-somethings who give a damn.

## 101. MacUser (<http://www.zdnet.com/~macuser>)

Well, really, what did you expect? Visit our online home to access key articles and even more hot links to some very cool sites. While you're there, get the inside scoop on all the extra info we didn't have room for in the magazine. ☺

Rik Myslewski, Shelly Brisbin, and Jason Snell are editors at *MacUser*; Michael Swaine and Christopher Breen are contributing editors; and Geoff Duncan and Joseph O. Holmes are freelance authors.



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Using a Mac to create dynamite graphics is a really cool way to get the job done. In fact, there are some ideas that you can't "get down on paper" any other way. But big ideas are hard to capture on a slow machine.

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CIRCLE 149 ON READER SERVICE CARD



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Winner of 1995  
Eddy for Best 3D  
Application**



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CIRCLE 67 ON READER SERVICE CARD



# The **ELEVENTH** **ANNUAL** **EDITORS' CHOICE** **AWARDS**

Our editors pick the best products of 1995.

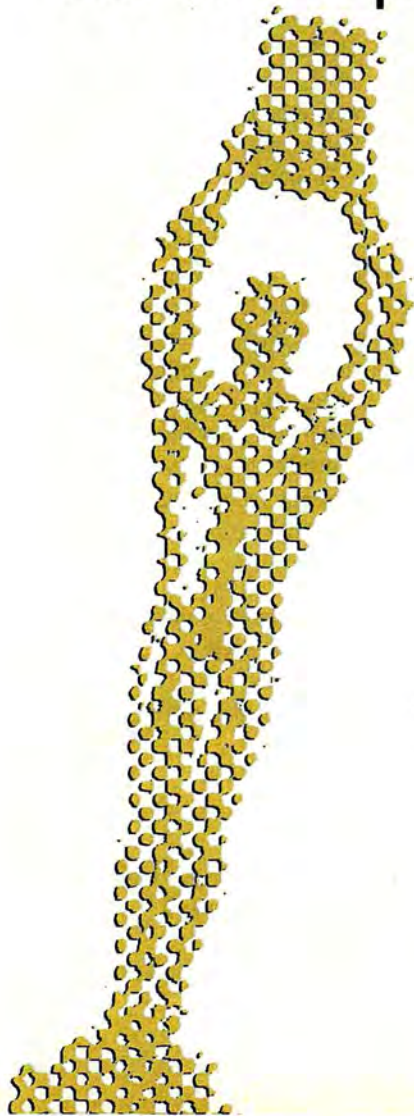
BY RIK MYSLEWSKI AND THE EDITORS OF *MACUSER*

It was a hell of a year. Clones. PCI. Cyberspace. Apple was up; Apple was down; Apple was up again. Turbulence in the boardrooms. Innovation in the labs. But how will 1995 be best remembered? As the year that . . .

- Apple regained its status as America's largest-selling personal-computer manufacturer.
- Power Computing proved there's demand for low-cost, high-quality Mac-compatibles.
- Microsoft's much ballyhooed Windows 95 failed to unseat the Mac OS as the world's most user-friendly operating system.
- The runaway success of Apple's Performa series caused an avalanche of games, kids' software, and personal peripherals.
- A new generation of professional tools solidified the Mac's preeminent role in publishing and multimedia development.
- We all survived the incessant media frenzy over the Internet! The Internet! The Internet!

**BUT PERHAPS MOST IMPORTANTLY** — and quietly, away from the hype and the headlines — thousands of products appeared, many with power and sophistication unimaginable only a few years ago. Throughout the year, we at *MacUser* sift through all the new products, pointing you toward the best and warning you of the worst. Then, as the year staggers to an end, we repeatedly meet to discuss, debate, harangue, cajole, and otherwise inflict our opinionated selves upon each other in preparation for the editors-only vote that results in our annual *MacUser* Editors' Choice Awards.

**HERE ARE THE RESULTS OF THAT VOTE:** the top Mac products of the year. (Also check out our Web site at <http://www.zdnet.com/~macuser/eddy95/> for more information, demos, and reviews of this year's finalists, as well as exclusive audio commentaries from *MacUser* editors.) Although we've grouped the products by settings — business, desktop publishing and graphics, multimedia, and personal — we don't intend to pigeonhole products into just one type of workplace. Most successful Mac products can take on a variety of jobs. Some of us might argue that Marathon's alien slaughterfest is the ideal corporate training tool for customer-service reps.





# BUSINESS

## products with a competitive advantage

It's never easy to run a business, but this year's Editors' Choice Award candidates provide powerful ammunition for your competitive arsenal. For example, no small-business owner could find a better information manager than Big Business. In addition to being a multiuser accounting system, Big Business lets you track your

customers — and their orders — from initial contact to final invoice. You'll still need a word processor to compose that winning proposal, however — and you can't do better than using WordPerfect 3.5. This latest version of the Mac's best all-around word processor now includes Web-page-creation tools and 80 document templates.

And for viewing all your business information, hook up your monitor to the Radius Thunder 30/1600 graphics card: This card enables your monitor to display as many as 1,600 x 1,200 pixels at 24 bits, and it offers speedy hardware pan and zoom. It's also a great choice for publishing professionals.

When you're ready to print your proposal, fire up your LaserJet 5MP. Its superb output quality will impress your customers, and it's fast enough to print all your documents in time for you to catch the 9 A.M. shuttle. While on the road, use the color-capable, pint-sized portable Apple Color StyleWriter 2200 — you can print up to 200 pages on one battery charge.

When you finally get to your destination, wow your audience with a presentation you've created in Astound 2.0 — when people see the animated 3-D effects, they'll think you have an entire creative department backing you up. If you're going to give that presentation on someone else's Mac, take along a copy of Conflict Catcher 3. Every Mac-User editor swears by it — using

it is the best way to diagnose and treat those infuriating extension conflicts.

A little tip: Be nice to your IS staff — they're the keepers of your link to the office when you're away. To help them keep your office's remote-access abilities up and running, approve their purchase order for a Tribe-Link 2. Not only is it so easy to manage that they could probably teach you to handle it, but it does double duty as a router as well. If you and your IS staff have decided it's time for your business to claim its turf on the World Wide Web, just get a copy of Web-STAR 1.2.1 and dedicate a Mac as a Web server, and you're on your way to becoming a full-fledged Web-meister.

Finally, for fast connections to the Internet, pick up a BitSURFR ISDN Terminal Adapter. Inexpensive and easy to configure, BitSURFR lets you take advantage of ISDN's speed. Plus it includes both a terminal adapter and an NT1 — don't worry, your IS staff will know what those are and how they'll save you both time and money. And that's just what your business needs, right?



The pint-sized Apple Color StyleWriter 2200 makes a handy traveling companion for PowerBook users, whether they need to print in black-and-white or color.

### ACCOUNTING APPLICATION **Big Business 1.0.2**

AUTOMATIC SOFTWARE

Powerful all-in-one tool for small-business management.

#### Finalists

**Peachtree Accounting for Macintosh Release 2.5**

PEACHTREE SOFTWARE

Easy and inexpensive multiuser accounting.

**QuickBooks Pro**

INTUIT

Versatile single-user, double-entry accounting program.

### WORD-PROCESSING APPLICATION **WordPerfect 3.5**

NOVELL

The Mac's best word processor just got even better.

#### Finalists

**Nisus Writer 4.1**

NISUS SOFTWARE

Powerful features include great foreign-language support.

**TextBridge 3.0 for Macintosh**

XEROX DESKTOP DOCUMENT SYSTEMS

Low-priced, high-powered OCR program.

### DISPLAY CARD **Thunder 30/1600**

RADIUS

Fast, accurate, high-resolution color.

#### Finalists

**ThunderColor 30/1600**

RADIUS

A Thunder 30/1600 card with snappy Photoshop acceleration.

**Xclaim GA**

ATI TECHNOLOGIES

Great PCI performance at an unbeatable price.

### MONOCHROME PRINTER **LaserJet 5MP**

HEWLETT-PACKARD

Fast personal printer with outstanding output quality.

#### Finalists

**Typhoon 16**

DATAPRODUCTS

Speedy, versatile workgroup workhorse.

**LaserWriter 4/600 PS**

APPLE COMPUTER

Compact, inexpensive personal printer.



**PORTABLE-COMPUTING  
PRODUCT**

**Apple Color StyleWriter  
2200**

APPLE COMPUTER

The best on-the-road color printer.

**Finalists**

**AirDock**

FARALLON COMPUTING

Stylish infrared network-access port for new PowerBooks.

**DeskJet 340**

HEWLETT-PACKARD

Lightweight inkjet printer with convenient sheet feeder.

**BUSINESS-COMMUNICATION  
APPLICATION**

**Astound 2.0**

GOLD DISK

Sophisticated but easy-to-use presentation creator.

**Finalists**

**ClarisWorks 4.0**

CLARIS

The best integrated-software package, bar none.

**StatView 4.5**

ABACUS CONCEPTS

Powerful data-analysis tool with broad-based appeal.

**UTILITY**

**Conflict Catcher 3**

CASADY & GREENE

The essential extension-management utility.

**Finalists**

**FaceSpan 2.0**

SOFTWARE DESIGNS UNLIMITED

Tap the power of AppleScript the easy way.

**Speed Doubler 1.0.2**

CONNECTIX

Every Power Mac will benefit from this speed booster.

**CONNECTIVITY PRODUCT**

**TribeLink 2**

TRIBE COMPUTER WORKS

User-friendly remote-access server and router.

**Finalists**

**DirectRoute Remote RO-1**

SYMPLEX COMMUNICATIONS

Easy-to-configure ISDN router for the small office.

**Retrospect 3.0**

DANTZ DEVELOPMENT

The undisputed champion of network-backup packages.

**INTERNET-ACCESS PRODUCT**

**WebSTAR 1.2.1**

STARNINE TECHNOLOGIES

The ultimate Web server software.

**Finalists**

**ListSTAR 1.0**

STARNINE TECHNOLOGIES

Fast, customizable mailing-list manager.

**Netscape Navigator 1.12**

NETSCAPE COMMUNICATIONS

The Internet revolution wouldn't have happened without this browser.

**COMMUNICATIONS PRODUCT**

**BitSURFR ISDN Terminal  
Adapter**

MOTOROLA

Inexpensive ISDN modem includes NT1 and a terminal adapter.

**Finalists**

**MegaPhone 1.0.2**

CYPRESS RESEARCH

Makes your Mac a full-featured phone and answering machine.

**Courier V.Everything with V.34**

US ROBOTICS

The best modem for telecommunicators.

**HARDWARE PRODUCT OF THE YEAR**

**IOMEGA ZIP DRIVE**

When we first saw the Zip drive, we knew Iomega had a hit — maybe even a home run. But we didn't know that it'd be a grand slam, a towering blast into the upper deck.

This simple, unassuming removable-cartridge storage system is the answer to most users' long-standing need for an inexpensive, reliable, easy-to-manage way to infinitely expand their storage capacity. For a dollar below the magic \$200 barrier, and with a 100-MB-cartridge price hovering around 20 bucks, the Zip is a no-brainer buy. When Zip drives are everywhere, we'll remember 1995 as the year they were introduced.



**MAC SYSTEM OF THE YEAR**

**APPLE MACINTOSH PERFORMA 5215CD**

As we begin our second decade of *MacUser* Editors' Choice Awards, we inaugurate our newest honor: the Mac System of the Year award. Why do we have this new award? With the advent of Mac OS-compatibles, it's time to recognize excellence in this critical product area. After vigorous debate, we have given the first Mac System of the Year Award to Apple's Macintosh Performa 5215CD. By returning to the Mac's original concept of an all-in-one design, this elegantly engineered Mac seamlessly harmonizes a broad array of features into the perfect truly personal multimedia computer.

**Finalists**

**DayStar Digital Genesis MP**

**Power Computing Power 120**

DayStar's muscular Genesis MP and Power Computing's groundbreaking Power 120 also deserve recognition. Power Computing almost single-handedly created the Mac OS-compatible market with its Power 80, 100, and 120 models, and DayStar brought it to dizzying performance levels with the Genesis MP's multiprocessor technology. These events augur well for next year's competition — and for the future of Mac OS systems.





# DESKTOP PUBLISHING & the year of the time-savers

The less time you wait for your Mac to complete a graphics chore, the more time you have to explore and create. Many of this year's award recipients will save you hefty chunks of time. For example, Live Picture 2.0 allows you to quickly composite multi-megabyte color images — with minimal fuss.

Acquiring images is also becoming faster and easier, thanks to digital cameras and advanced scanners. Our favorite digital camera, the Kodak Professional DCS 460 Digital Camera, is equally at home in the studio and in the field. For traditional scanning, we like the Saphir flatbed scanner. It produces beautiful scans and includes software that was formerly available only with Linotype-Hell's megabuck scanners.

Print your images on a ChromaxPro dye-sub printer. Its full-bleed tabloid-sized prints are so color-accurate that you may no longer need to use a service bureau to create Matchprints. And — speaking of service bureaus — put FlightCheck on your shortlist of time-savers. This handy program analyzes prepress files for problems such as missing fonts, unused spot colors, and poorly set traps.

For real time savings, invest in top-notch hardware. For high-speed storage, use a dual-SCSI-bus RAID 0 card, specifically an ExpressPCI-MC. Hook up two fast hard drives to the card, configure your favorite RAID 0 driver software, and you're off to the races. For displaying color images accurately, you can't beat the PressView 17 SR, a professional color-display system, complete with a neutral gray



Publishing's not just for paper anymore. With Adobe PageMill 1.0, you can easily launch your creativity onto the World Wide Web.

case, ProSense calibrator, and ColorMatch files for Photoshop. Next, add Wacom's handy ArtZ II

drawing tablet, with its erasing stylus, 16 customizable buttons, and pressure-sensitivity adjustments. Team all this up with the PowerShop Accelerator for Macintosh, a superfast Photoshop accelerator, and you are the pilot of an image-processing workstation of unparalleled power.

What to do with all this hot hardware? For jazzing up an image, we like Kai's Power Tools 3, a set of Photoshop filters that let you warp, twist, highlight, and texturize images in every way imaginable. If you need intriguing images to manipulate, check out The PhotoDisc Object Series,

a CD-ROM full of beautifully scanned images of cultural relics and household items. If you prefer to start creating on a blank screen, try sketching your ideas with SmartSketch, which makes creating complex illustrations as easy as drawing on paper.

Publishing doesn't mean only paper anymore, though. Adobe has acknowledged this by turning Ceneca Communications' PageMill into Adobe PageMill 1.0, the first WYSIWYG, drag-and-drop Web-page creator. PageMill is a giant leap forward for paperless publishing. A lot of trees will sleep better tonight.

## IMAGE-EDITING APPLICATION

### Live Picture 2.0

METATOOLS

The fastest product for compositing multimegabyte images.

#### Finalists

### PhotoFix 2.8.8

MICROSPOT

Affordable, top-notch image editing and color correction.

### xRes 1.2

MACROMEDIA (FAUVE SOFTWARE)

Professional painting and image editing in one package.

## DIGITAL CAMERA

### Kodak Professional DCS 460 Digital Camera

EASTMAN KODAK

Exceptionally high-quality imaging for both studio and field.

#### Finalists

### Leaf DCB II

LEAF SYSTEMS

A solid successor to Leaf's pioneering Digital Camera Back.

### Fujix 515/Nikon E2s

### Digital Still Camera

FUJI PHOTO FILM USA/NIKON

Identical-twin field cameras that take top-quality images.

## SCANNER

### Saphir

LINOTYPE-HELL

Professional flatbed scanner with exceptional image quality.

#### Finalists

### Nikon LS-1000 SuperCoolscan

NIKON

Fast, compact, easy-to-use slide scanner.

### ScanMate 11000

SCANVIEW

High-end, 11,000-dpi drum scanning in an elegant desktop unit.

## COLOR PRINTER

### ChromaxPro

NEWGEN SYSTEMS

The most-accurate color we've ever seen from a desktop printer.

#### Finalists

### Color LaserWriter 12/600 PS

APPLE COMPUTER

The best color laser printer.

### Phaser 340

TEKTRONIX

Affordable high-speed color business printing.

## PREPRESS APPLICATION

### FlightCheck

MARKZWARE

Save time and money during the preflight process.

#### Finalists

### Download Mechanic 1.6

ACQUIRED KNOWLEDGE

There's no better product for troubleshooting PostScript files.

### Transverter Pro 3.0.1

TECHPOOL SOFTWARE

Versatile, powerful vector-art translator.

## PROFESSIONAL-STORAGE

### PRODUCT

### ExpressPCI-MC

ATTO TECHNOLOGY

Two high-speed SCSI ports on one PCI card.

#### Finalists

### APS DLT40

APS TECHNOLOGIES

The speediest backup system for servers and workstations.

### Digital PhotoAlbum for

### Macintosh

MICROTECH INTERNATIONAL

Reliable PC Card reader — a must for digital-camera users.



# GRAPHICS

**ELEVENTH  
ANNUAL  
EDITORS' CHOICE  
AWARDS**



## DISPLAY

### PressView 17 SR

RADIUS

The clear choice for color-critical work.

#### Finalists

### AppleVision 1710av

APPLE COMPUTER

Simply the best multimedia monitor.

### ELP-3000/LitePro 580

EPSON/IN FOCUS SYSTEMS

Compact, easy-to-use LCD projector.

## INPUT DEVICE

### ArtZ II

WACOM TECHNOLOGY

Versatile tablet with a realistic pen.

#### Finalists

### PaperPort Vx

VISIONEER

Elegant essential for well-organized offices.

### QV-10

CASIO

Affordable digital camera with a unique LCD viewing panel.

## ACCELERATOR

### PowerShop Accelerator for Macintosh

ADAPTIVE SOLUTIONS

The smartest \$2,000 a Photoshop user can spend.

#### Finalists

### Turbo 601

DAYSTAR DIGITAL

Add PowerPC punch to your Mac IIci.

### YARC Screamer

YARC SYSTEMS

High-powered 2-D and 3-D accelerator.

## GRAPHICS UTILITY

### Kai's Power Tools 3

METATOOLS

Fabulous filters, innovative interface.

#### Finalists

### Series 3 Screens

ANDROMEDA SOFTWARE

Elegant effects for Photoshop images.

### XPert Tools Volume 1

A LOWLY APPRENTICE PRODUCTION

Productivity-enhancing QuarkXTensions.

## GRAPHICS RESOURCE

### The PhotoDisc Object Series

PHOTODISC

Beautiful — and wonderfully quirky — images of everyday objects.

#### Finalists

### Art Parts CD-ROM 2.0

ART PARTS

Weird but wonderful images of people, activities, and things.

### Classic PIO Library

CLASSIC PIO PARTNERS

Retro spot art, including classic Hollywood props.

## DRAW/PAINT APPLICATION

### SmartSketch

FUTUREWAVE SOFTWARE

Easy-but-powerful draw program with intuitive interface.

#### Finalists

### Fractal Design Dabbler 2.0

FRACTAL DESIGN

Sophisticated painting tools with accessible tutorials.

### FreeHand 5.5

MACROMEDIA

A top professional draw program becomes even more refined.

## PAGE-DESIGN PRODUCT

### Adobe PageMill 1.0

ADOBE SYSTEMS

Drag-and-drop WYSIWYG Web-page creator.

#### Finalists

### Adobe PageMaker 6.0

ADOBE SYSTEMS

Perennial favorite adds important features.

### FrameMaker 5.0

ADOBE SYSTEMS (FRAME TECHNOLOGY)

Powerful, multiplatform book-production tool.

## BREAKTHROUGH TECHNOLOGY OF THE YEAR

### APPLE QUICKDRAW 3D

When Apple gets it right, it gets it very, very right. QuickDraw 3D is a perfect example of what Apple does better than anyone: create plug-and-play software that enhances every user's experience.

QuickDraw 3D has four main components: a fast 24-bit interactive renderer, system-level handling of 3-D components, a new 3-D-file-format standard called 3DMF, and user-interface guidelines for developers. Simply drop a few extensions into your Power Mac's System Folder and fire up a QuickDraw 3D-savvy application, and you'll be able to fluidly manipulate fully rendered 3-D objects and drag and drop 3-D objects to and from the Scrapbook or other applications, just as you would a PICT file, text, or sound.

#### Finalists

Apple ColorSync 2.0

DayStar Digital's Multiprocessing API

Still, QuickDraw 3D had some stiff competition: Apple ColorSync 2.0 is the most robust color-management system available on any computer, and DayStar Digital's Multiprocessing API enables application developers to harness the power of two or more PowerPC processors, thus bringing workstation-class performance to the desktop.

## SOFTWARE PRODUCT OF THE YEAR

### STARNINE TECHNOLOGIES' WEBSTAR 1.2.1



Having started life as a humble shareware program called MacHTTP, WebSTAR has grown to become the dominant reason for the Mac's popularity as a Web server. Apple, which manages its own Web sites with WebSTAR, has even made it the centerpiece of its Internet-server bundle. WebSTAR is simple and secure and provides Web managers with all the advantages of the Mac OS interface — a real blessing when you consider its UNIX and Windows NT alternatives. It supports full-fledged applications as well as simple AppleScript scripts. The ability to create custom Web interfaces is now easily within the reach of nonprogrammers.



# MULTIMEDIA

## hollywood on the mac

The Mac means multimedia — and not only to Mac users but also to the artists and developers who create multimedia titles for all platforms, including your TV. The impressive range of tools available to multimedia creators can be seen in this year's Eddies.

SuperCard 2.5 provides users with an affordable and easy way to enter into the world of multimedia creation — but don't let that fool you: SuperCard lets you

create some impressive titles. Likewise, Infini-D 3.01 is deceptively easy to navigate, but you can do things with it that will impress Hollywood's pickiest art directors. And — speaking of Hollywood — crisply edited footage from the Media 100 2.5 and flawless direct-to-disk audio recordings captured by Studio Vision Pro 3.0 are winning Southern California converts by the score.

If you've turned on your TV or

nibbled popcorn in a movie theater sometime during 1995, you've probably seen an animated title sequence created with ElectricImage Animation System 2.5. It's professionally powerful — and professionally priced, at well over \$7,000. On the other hand, Adobe After Effects 3.0, another indispensable tool for professional animators, is almost an impulse buy, at a mere \$995. Both, however, are worth every penny.

### MULTIMEDIA-AUTHORING APPLICATION

#### SuperCard 2.5

ALLEGIANTE TECHNOLOGIES

A host of powerful features in one affordable package.

#### Finalists

#### Authorware 3.0

MACROMEDIA

A powerful authoring tool with an improved interface.

#### mTropolis DR1

MFACTORY

Object-oriented structure provides unique capabilities.

### 3-D APPLICATION

#### Infini-D 3.01

SPECULAR INTERNATIONAL

Easy to use, easy to learn — but plenty powerful.

#### Finalists

#### form-Z Renderzone 2.7.5

AUTODESSYS

New rendering capability improves a top modeling program.

#### Fractal Design Poser 1.0

FRACAL DESIGN

A unique tool that specializes in creating human forms.

### DESKTOP-VIDEO PRODUCT

#### Media 100 2.5

DATA TRANSLATION

The Mac's top digital-video-editing system.

#### Finalists

#### Targa 2000

TRUEVISION

Low-cost but rock-solid video editing.

#### VideoVision Telecast

RADIUS

An all-in-one QuickTime-editing package.

### MUSIC/SOUND PRODUCT

#### Studio Vision Pro 3.0

OPCODE SYSTEMS

The most full-featured digital-audio software.

#### Finalists

#### Alchemy 3.0

PASSPORT DESIGNS

A powerful tool for working with sampled sounds.

#### Session Software 2.0

DIGIDESIGN

Direct-to-disk recording has never been so easy.

### ANIMATION APPLICATION

#### ElectricImage Animation System 2.5

ELECTRIC IMAGE

Feature-film-quality special effects and titles.

#### Finalists

#### Infini-D 3.01

SPECULAR

Professional results from an easy-to-master interface.

#### Pixel Putty Solo 1.5.2

THE VALIS GROUP

Exceptionally powerful shape manipulator.

### SPECIAL-EFFECTS APPLICATION

#### Adobe After Effects 3.0

ADOBE SYSTEMS

The top tool for video compositing and special effects.

#### Finalists

#### MediaPaint 1.1

STRATA

Versatile set of tools for professional rotoscoping.

#### Flo' 2.0

THE VALIS GROUP

An elegant interface makes shape modification easy.

## JOHN J. ANDERSON DISTINGUISHED ACHIEVEMENT AWARD

### BILL DUVALL

Back in 1969, when Bill Duvall wrote the software that sent the first packet across the Internet, even he could not have imagined the far-ranging impact of that accomplishment. In retrospect, his importance to the Mac community began even before there was a Mac.

Later, Bill founded Consulair and created the Mac's first development environment, MacC, a 1985

MacUser Eddy Award winner. He next became Director of HyperCard development at Claris and then went on to head the software-development team at 3DO.

Today, Bill's the founder, president, and lead engineer of SurfWatch, a company whose namesake product blocks access to sexually explicit Internet sites. Both Bill and his wife, Ann, devote considerable time to testifying in Washington, D.C., using SurfWatch to demonstrate that there are alternatives to government regulation for protecting our children. From helping launch the Internet to fighting to keep it free from censorship, Bill's career has enriched — and continues to enrich — the life of every Mac user.





# PERSONAL MAC

**ELEVENTH  
ANNUAL  
EDITORS' CHOICE  
AWARDS**



## relaxing with your mac

**Y**ou've finally made it home after a tough day at the office. Now it's time to kick back, pop open a brewski, and get ready for some quality personal time — with your Mac.

But first come the chores — such as making sure that you can retire, as planned, at age 45. Quicken Deluxe 6 CD-ROM for Macintosh, the personal-finance champion, will not only help you plan your retirement strategies but it'll also take care of such mundane matters as balancing your checkbook. You keep your financial records safely stored on a Zip cartridge — the rugged

100-MB complement to the convenient, low-cost Zip drive.

Chores done, you flip through your CD-ROMs to choose this evening's relaxation: Should you waste a few hundred aliens in Marathon, the fast-paced find-'em-and-kill-'em game? How about something a bit less visceral, such as You Don't Know Jack, the funny, hip quiz-show game? It's a kick, but you don't feel like taxing your brain tonight — and, besides, Jack's more fun with friends.

How about raising your spiritual horizons above your steadily warming beer by perusing the

Microsoft Wine Guide? Nahhh — tonight's blankness is definitely not Sauvignon. Browsing through Passage to Vietnam's striking images could easily fill an hour or more. But not tonight.

No. Tonight — alone, with no one watching — you're going to indulge in an hour or two of Thinkin' Things Collection 3. Sure, it's supposed to be for 7- to 13-year-olds, but, hey, you still haven't got the Fripple House brainteaser right the first time, and maybe the Stocktopus trading game will provide some tips on how to move that retirement date a little bit closer.

### **DOCUMENTARY PRODUCT Passage to Vietnam**

AGAINST ALL ODDS/INTERVAL RESEARCH  
Striking images enriched by photographers' insights.

#### Finalists

**Bob Dylan: Highway 61**

**Interactive**

GRAPHIX ZONE

A behind-the-scenes look at the rock poet's creative process.

**A Passion for Art: Renoir, Cézanne, Matisse, and Dr. Barnes**

CORBIS PUBLISHING

Gorgeous artwork and the intriguing story of their collector.

### **CHILDREN'S SOFTWARE**

#### **Thinkin' Things Collection 3**

EDMARK

Creativity and critical thinking can be a blast.

#### Finalists

**Elroy Goes Bugzerk**

HEADBONE INTERACTIVE

A determined kid and a wisecracking dog stalk the wily Techniplantera.

**Hollywood**

THEATRIX INTERACTIVE

Animated actors speak and perform kid-written scripts.

### **PERSONAL ORGANIZER**

#### **Quicken Deluxe 6 CD-ROM for Macintosh**

INTUIT

The personal-finance leader adds a wealth of new features.

#### Finalists

**Claris Mailer 1.0v2**

CLARIS

Conveniently consolidates messaging from multiple sources.

**Now Up-to-Date & Contact 3.5**

NOW SOFTWARE

The quickest, easiest product for getting organized.

### **ACTION GAME**

#### **Marathon**

BUNGIE SOFTWARE

The best networkable alien slaughterfest.

#### Finalists

**Doom II**

ID SOFTWARE/GT INTERACTIVE SOFTWARE

Kill it if it moves — it's probably a hell-spawned mutant.

**Power Pete**

MACPLAY

No blood, no guts — just humor and a fast-paced rescue game.

### **STRATEGY GAME**

#### **You Don't Know Jack**

BERKELEY SYSTEMS

A fast-paced, sardonically hip game show.

#### Finalists

**Full Throttle**

LUCASARTS

A clever script enlivened by tricky puzzles and brutish biker brawls.

**Buried in Time:**

**The Journeyman Project 2**

SANCTUARY WOODS MULTIMEDIA

Hopscotch through history in this rich, complex whodunit.

### **REFERENCE PRODUCT**

#### **Microsoft Wine Guide**

MICROSOFT

Oz Clarke's entertaining guide to the pleasures of wine.

#### Finalists

**Microsoft Cinemania 95**

MICROSOFT

Stills, clips, and sound bites from films of every era.

**Picture Atlas of the World**

THE NATIONAL GEOGRAPHIC SOCIETY

A tour-de-force tour of the world.

### **DEREK VAN ALSTYNE RISING STAR AWARD**

#### **JÖRG BROWN**

It's astonishing that one young engineer has had as much impact as Jörg Brown. Jörg graduated from Colorado State University at the age of 17 and then headed off to Symantec, where he created programming tools for the THINK C and THINK Pascal teams.

Jörg then joined Now Software, where he was a key contributor to Now Utilities and Now Contact. Currently, he's at Connectix, where he has been the lead engineer on RAM Doubler and Speed Doubler, extensions that give the Mac capabilities beyond those developed by Apple's gifted engineers. Not bad for a guy of 27.



### **PERSONAL STORAGE PRODUCT Zip drive**

IOMEGA

100 MB per cartridge of rugged convenience.

#### Finalists

**Joule Portable**

LA CIE

Low-priced family of elegant portable hard drives.

**Panasonic PD**

PANASONIC COMMUNICATIONS AND SYSTEMS

A 4x CD-ROM drive and a 650-MB optical drive in one.



# DIRECTORY

## how to find the best products of 1995

**ELEVENTH ANNUAL EDITORS' CHOICE AWARDS**

ABACUS CONCEPTS  
Berkeley, CA  
800-666-7828  
510-540-0260 (fax)  
**StarView 4.5**, \$595

ACQUIRED KNOWLEDGE  
San Diego, CA  
800-482-1252  
619-587-4669 (fax)  
**Download Mechanic 1.6**, \$249

ADAPTIVE SOLUTIONS  
Beaverton, OR  
800-482-6277  
503-690-1249 (fax)  
**PowerShop Accelerator for Macintosh**, \$1,999

ADOBE SYSTEMS  
Mountain View, CA  
415-961-4400  
415-961-3769 (fax)  
**Adobe After Effects 3.0**, \$995  
**Adobe PageMaker 6.0**, \$895  
**Adobe PageMill 1.0**, \$99  
**FrameMaker 5.0**, \$895

AGAINST ALL ODDS/  
INTERVAL RESEARCH  
Sausalito, CA  
800-558-3388  
415-331-9400 (fax)  
**Passage to Vietnam**, \$40

ALLEGIANTE TECHNOLOGIES  
San Diego, CA  
619-587-0500  
619-587-1314 (fax)  
**SuperCard 2.5**, \$695

ANDROMEDA SOFTWARE  
Thousand Oaks, CA  
800-547-0055  
805-379-5253 (fax)  
**Series 3 Screens**, \$109

APPLE COMPUTER  
Cupertino, CA  
800-538-9696  
800-462-4396 (fax)  
**Apple Color StyleWriter 2200**, \$419  
**Apple Macintosh Performa 5215CD**, \$1,999  
**AppleVision 1710av**, \$1,159  
**Color LaserWriter 12/600 PS**, \$6,989  
**LaserWriter 4/600 PS**, \$929

APS TECHNOLOGIES  
Kansas City, MO  
800-235-2753  
816-483-3077 (fax)  
**APS DLT40**, \$599

ART PARTS  
Orange, CA  
714-771-6754  
714-633-9617 (fax)  
**Art Parts CD-ROM 2.0**, \$279

ATI TECHNOLOGIES  
Thornhill, ON  
Canada  
905-882-2600  
905-882-0546 (fax)  
**Xclaim GA**, \$649

ATTO TECHNOLOGY  
Amherst, NY  
716-691-1999  
716-691-9353 (fax)  
**ExpressPCI-MC**, \$895

AUTODESSYS  
Columbus, OH  
614-488-9777  
614-488-0848 (fax)  
**form+Z Renderzone 2.7.5**, \$1,999

AUTOMATIC SOFTWARE  
Los Altos, CA  
800-970-0022  
415-919-0205 (fax)  
**Big Business 1.0.2**, \$399

BERKELEY SYSTEMS  
Berkeley, CA  
800-344-5541  
510-549-3978 (fax)  
**You Don't Know Jack**, \$30

BUNGIE SOFTWARE  
Chicago, IL  
800-295-0060  
312-563-0545 (fax)  
**Marathon**, \$37

CASADY & GREENE  
Salinas, CA  
800-359-4920  
408-484-9218 (fax)  
**Conflict Catcher 3**, \$70

CASIO  
Dover, NJ  
800-962-2746  
201-361-3819 (fax)  
**QV-10**, \$799

CLARIS  
Santa Clara, CA  
800-544-8554  
408-987-3900 (fax)  
**Claris Emailer 1.0v2**, \$59  
**ClarisWorks 4.0**, \$129

CLASSIC PIO PARTNERS  
Pasadena, CA  
800-370-2746  
818-564-8554 (fax)  
**Classic PIO Library**, \$70

CONNECTIX  
San Mateo, CA  
800-950-5880  
415-571-5195 (fax)  
**Speed Doubler 1.0.2**, \$99

CORBIS PUBLISHING  
Bellevue, WA  
800-246-2065  
206-746-1618 (fax)  
**A Passion for Art: Renoir, Cézanne, Matisse, and Dr. Barnes**, \$50

CYPRESS RESEARCH  
Sunnyvale, CA  
408-752-2700  
408-752-2735 (fax)  
**MegaPhone 1.0.2**, \$49

DANITZ DEVELOPMENT  
Orinda, CA  
800-225-4880  
510-253-9099 (fax)  
**Retrospect 3.0**, \$249

DATA TRANSLATION  
Marlboro, MA  
508-460-1600  
**Media 100 2.5**, \$10,995

DATAPRODUCTS  
Woodland Hills, CA  
800-980-0374  
703-860-8064 (fax)  
**Typhoon 16**, \$3,299

DAYSTAR DIGITAL  
Flower Branch, GA  
800-962-2077  
770-967-3018 (fax)  
**Genesis MP**, \$14,999+  
**Turbo 601**, \$1,199

DIGIDESIGN  
Menlo Park, CA  
415-688-0600  
**Session Software 2.0**, \$199

EASTMAN KODAK  
Rochester, NY  
800-235-6325  
800-508-1531 (fax)  
**Kodak Professional DCS 460 Digital Camera**, \$27,995

EDMARK  
Redmond, WA  
206-556-8484  
**Thinkin' Things Collection 3**, \$45

ELECTRIC IMAGE  
Pasadena, CA  
818-577-1627  
818-577-2426 (fax)  
**ElectricImage Animation System 2.5**, \$7,495

EPSON  
Torrance, CA  
800-289-3776  
800-922-8911 (fax)  
**ELP-3000**, \$9,599

FARALLON COMPUTING  
Alameda, CA  
510-814-5000  
510-814-5025 (fax)  
**AirDock**, \$69

FRACAL DESIGN  
Aptos, CA  
800-297-2665  
408-688-8836 (fax)  
**Fractal Design Dabbler 2.0**, \$69  
**Fractal Design Poser 1.0**, \$199

FUJI PHOTO FILM USA  
Elmsford, NY  
800-378-3854  
914-789-8295 (fax)  
**Fujifilm 515**, \$16,020

FUTUREWAVE SOFTWARE  
San Diego, CA  
800-619-6193  
619-637-9032 (fax)  
**SmartSketch**, \$69

GOLD DISK  
Santa Clara, CA  
800-982-8888  
408-986-0628 (fax)  
**Astound 2.0**, \$249

GRAPHIX ZONE  
Irvine, CA  
800-828-3838  
714-833-3990 (fax)  
**Bob Dylan: Highway 61 Interactive**, \$60

HEADBONE INTERACTIVE  
Seattle, WA  
800-267-4709  
206-323-0188 (fax)  
**Elroy Goes Bugz**, \$35

HEWLETT-PACKARD  
Palo Alto, CA  
800-472-9025  
800-333-1917 (fax)  
**DeskJet 340**, \$365  
**LaserJet 5MP**, \$1,299

ID SOFTWARE/  
GT INTERACTIVE SOFTWARE  
New York, NY  
800-610-4847  
212-679-3064 (fax)  
**Doom II**, \$50

IN FOCUS SYSTEMS  
Wilsonville, OR  
800-294-6400  
503-685-8631 (fax)  
**LitePro 580**, \$9,999

INTUIT  
Menlo Park, CA  
800-624-8742  
520-295-3014 (fax)  
**QuickBooks Pro**, \$189  
**Quicken Deluxe 6 CD-ROM for Macintosh**, \$70

IOMEGA  
Roy, UT  
800-697-8833  
801-778-5763 (fax)  
**Zip drive**, \$199

LA CIE  
Beaverton, OR  
800-999-0143  
503-520-9100 (fax)  
**Joule Portable**, \$279+

LEAF SYSTEMS  
Westboro, MA  
800-456-0203  
508-836-5599 (fax)  
**Leaf DCB II**, \$27,900

LINOTYPE-HELL  
Hauppauge, NY  
800-842-9721  
516-434-2706 (fax)  
**Saphir**, \$4,199

A LOWLY APPRENTICE  
PRODUCTION  
Carlsbad, CA  
619-438-5790  
**XPert Tools Volume 1**, \$99

LUCASARTS  
San Rafael, CA  
800-985-8227  
415-444-8240 (fax)  
**Full Throttle**, \$45

MACPLAY  
Irvine, CA  
800-462-2752  
714-252-2820 (fax)  
**Power Pete**, \$30

MACROMEDIA  
San Francisco, CA  
800-326-2128  
415-626-0554 (fax)  
**Authorware 3.0**, \$4,995  
**FreeHand 5.5**, \$599  
**xRes 1.2**, \$799

NOVELL  
Orem, UT  
800-451-5151  
801-429-3239 (fax)  
**WordPerfect 3.5**, \$119

MARKZWARE  
Santa Ana, CA  
800-300-3532  
714-241-3874 (fax)  
**FlightCheck**, \$399

METATOOLS  
Carpinteria, CA  
800-472-9025  
805-566-6385 (fax)  
**Kai's Power Tools 3**, \$199  
**Live Picture 2.0**, \$995

MFACTORY  
Burlingame, CA  
415-548-0600  
415-548-9249 (fax)  
**mTropolis DR1**, \$4,995

MICROSOFT  
Redmond, WA  
800-426-9400  
**Microsoft Cinemania 95**, \$60  
**Microsoft Wine Guide**, \$35

MICROSPOT  
Saratoga, CA  
800-622-7568  
408-253-2055 (fax)  
**PhotoFix 2.8.8**, \$249

MICROTECH INTERNATIONAL  
East Haven, CT  
800-626-4276  
203-468-6466 (fax)  
**Digital PhotoAlbum for Macintosh**, \$769

MOTOROLA  
Huntsville, AL  
800-365-6456  
205-830-5657 (fax)  
**BitSURFR ISDN Terminal Adapter**, \$375

THE NATIONAL GEOGRAPHIC  
SOCIETY  
Washington, D.C.  
800-647-5463  
301-921-1575 (fax)  
**Picture Atlas of the World**, \$60

NETSCAPE COMMUNICATIONS  
Mountain View, CA  
415-528-2555  
415-528-4140 (fax)  
**Netscape Navigator 1.1.2**, \$39

NEWGEN SYSTEMS  
Costa Mesa, CA  
800-756-0556  
714-641-2800 (fax)  
**ChromaxPro**, \$16,995

NIKON  
Melville, NY  
800-526-4566  
516-547-0299 (fax)  
**Nikon E2s Digital Still Camera**, \$18,000  
**Nikon LS-1000 SuperCoolscan**, \$2,695

NISUS SOFTWARE  
Salina Beach, CA  
800-890-3030  
619-481-6154 (fax)  
**Nisus Writer 4.1**, \$129

NOVELL  
Orem, UT  
800-451-5151  
801-429-3239 (fax)  
**WordPerfect 3.5**, \$119

NOW SOFTWARE  
Portland, OR  
800-722-5963  
503-274-0670 (fax)  
**Now Up-to-Date & Contact 3.5**, \$100

OPCODE SYSTEMS  
Palo Alto, CA  
415-856-3333  
415-856-3332 (fax)  
**Studio Vision Pro 3.0**, \$1,000

PANASONIC  
COMMUNICATIONS  
AND SYSTEMS  
Secaucus, NJ  
800-742-8086, ext. 73  
**Panasonic PD**, \$649

PASSPORT DESIGNS  
Half Moon Bay, CA  
415-726-0280  
415-726-2254 (fax)  
**Alchemy 3.0**, \$495

PEACHTREE SOFTWARE  
Norcross, GA  
800-247-3224  
770-564-5888 (fax)  
**Peachtree Accounting for Macintosh Release 2.5**, \$99

PHOTODISC  
Seattle, WA  
800-528-3472  
206-441-4961 (fax)  
**The PhotoDisc Object Series**, \$149

POWER COMPUTING  
Austin, TX  
800-405-7693  
512-250-3390 (fax)  
**Power 120**, \$1,929+

RADIUS  
Sunnyvale, CA  
800-227-2795  
800-877-2677 (fax)  
**PressView 17 SR**, \$2,499  
**Thunder 30/1600**, \$1,499  
**ThunderColor 30/1600**, \$2,499

**VideoVision Telecast**, \$9,995

SANCTUARY WOODS  
MULTIMEDIA  
San Mateo, CA  
415-286-6000  
415-286-6010 (fax)  
**Buried in Time: The Journeyman Project 2**, \$60

SCANVIEW  
Foster City, CA  
800-922-6613  
415-378-6368 (fax)  
**ScanMate 11000**, \$49,995

SOFTWARE DESIGNS  
UNLIMITED  
Chapel Hill, NC  
919-968-4562  
919-968-4576 (fax)  
**FaceSpan 2.0**, \$199

SPECULAR INTERNATIONAL  
Amherst, MA  
800-433-7732  
413-253-0540 (fax)  
**Infini-D 3.0.1**, \$899

STARNINE TECHNOLOGIES  
Berkeley, CA  
800-525-2580  
510-548-0393 (fax)  
**ListSTAR 1.0**, \$249+  
**WebSTAR 1.2.1**, \$795

STRATA  
St. George, UT  
801-628-5218  
**MediaPaint 1.1**, \$695

SYMPLEX COMMUNICATIONS  
Ann Arbor, MI  
800-327-9926  
313-995-1564 (fax)  
**DirectRoute Remote RO-1**, \$1,399

TECHPOOL SOFTWARE  
Cleveland, OH  
800-543-3278  
216-382-1915 (fax)  
**Transverter Pro 3.0.1**, \$395

TEKTRONIX  
Wilsonville, OR  
800-835-6100  
503-685-3063 (fax)  
**Phaser 340**, \$4,995

THEATRIX INTERACTIVE  
Emeryville, CA  
800-955-8749  
510-658-2828 (fax)  
**Hollywood**, \$40

TRIBE COMPUTER WORKS  
Alameda, CA  
800-778-7423  
510-814-3980 (fax)  
**TribeLink 2**, \$1,295

TRUEVISION  
Indianapolis, IN  
800-729-2656  
**Targa 2000**, \$5,795

US ROBOTICS  
Skokie, IL  
800-877-2677  
708-933-5800 (fax)  
**Courier V. Everything with V.34**, \$595

THE VALIS GROUP  
Tiburon, CA  
800-825-4704  
415-435-9862 (fax)  
**Flo' 2.0**, \$199  
**Pixel Putty Solo 1.5.2**, \$299

VISIONEER  
Palo Alto, CA  
800-787-7007  
415-855-9750 (fax)  
**PaperPort Vx**, \$370

WACOM TECHNOLOGY  
Vancouver, WA  
800-922-6613  
360-750-8924 (fax)  
**ArtZ II**, \$330

XEROX DESKTOP DOCUMENT  
SYSTEMS  
Palo Alto, CA  
800-248-6550  
415-919-0205 (fax)  
**TextBridge 3.0 for Macintosh**, \$99

YARC SYSTEMS  
Newbury Park, CA  
800-275-9272  
805-499-4048 (fax)  
**YARC Screamer**, \$995+



# New PaperPort Vx.



**INCLUDES  
\$249 WORTH  
OF FREE  
SOFTWARE!**

## New PaperPort Vx.

# The easiest way to get paper into your Mac.



### Organize everything easily.

Mark-up your documents, then drag them to and from folders on your hard disk. Instantly find whatever you need with our powerful search tools.



### Copy, fax, and edit—at your fingertips.

Just drag and drop your document to your fax, e-mail, word processors, printers—and more. You'll never again have to babysit the fax machine or wait in line for the copier.

With Visioneer's new PaperPort Vx, you can get paper into your Mac in as little as two seconds—and put it to work with unmatched simplicity and speed.

### Get paper in fast.

Just feed *any* piece of paper (up to 8.5" wide and 30" long)—a letter, photo, newsclip, receipt, business card—into PaperPort Vx. In seconds, it appears on your screen. Crisp and clear. Easy to read. And ready to be faxed or e-mailed, edited or copied, printed or filed with incredible ease.

### Put it to work—instantly.

PaperPort Vx has direct links to hundreds of the most popular software applications, so you can automatically integrate paper into the applications you use everyday—your fax, on-line service, word processor, contact manager, spreadsheet, and many more.

### Do even more with \$249 worth of free software.

PaperPort Vx includes the latest OmniPage LITE™ OCR software to transform scanned paper into editable

text; Corex CardScan SE™ to automatically turn your pile of business cards into an electronic card-file of contacts; and PictureWorks Copier™ to turn your computer and printer into an instant copy machine—with powerful features to resize your image and put multiple items (like receipts and business cards) on a single page.

### Superior readability, superior results.

Only PaperPort Vx gives you exclusive SharpPage™ technology. So you get crisper scanned text—and your fax recipients get extremely legible pages, with no unreadable black blotches. And with up to 256 shades of gray, PaperPort Vx accurately captures your snapshots and graphics—even magazine pages.

So, instead of running papers around your office, use PaperPort Vx to zip them into your Mac where you can put them to work. To find out more, call us at 1-800-787-7007, Ext. 702, or see your local dealer.



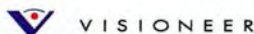
### Super-small, super convenient.

PaperPort Vx fits between your keyboard and monitor, and installation couldn't be easier. Just plug it into your modem or printer port.



### Award-winning.

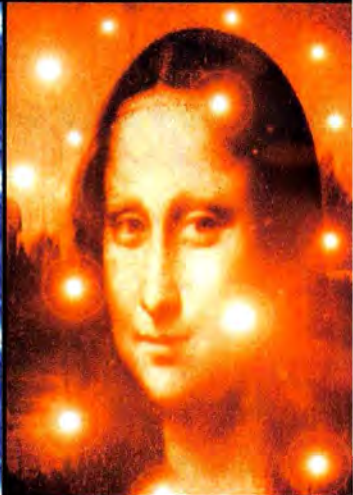
PaperPort has won the most prestigious awards for its usability and design.



## PAPERPORT Vx









# IMAGE SHAPERS

GRAPHICS-PROGRAM PLUG-INS GIVE YOU THE POWER TO HARNESS, MANIPULATE, AND OUTPUT INCREDIBLE DIGITAL IMAGES. **By Ben Long**

**IF YOU'RE A DIGITAL ARTIST** and the illustration-, paint-, or image-editing programs you use have become second nature, you may be ready to stretch a little. It may be time to adopt some new tools and techniques — or combine the ones you know in new ways. The key could be plug-ins. These little programs-within-a-program work with “host” graphics applications (such as Adobe Photoshop and Illustrator, Macromedia FreeHand, and Fractal Design Painter and Dabblér) to perform a wide variety of specialized tasks. Some of the functions plug-ins perform would be impossible to do with the host application alone; others are simply too tedious or time-consuming to do without specialized tools.

Plug-ins allow you to add features that may be lacking in your favorite drawing or image-editing program. They range from the simple to the absurd and have become an entire mini-industry unto themselves. Sold separately or in collections, plug-ins are available from a wide variety of sources at a broad range of prices. Choosing the right plug-ins for your needs can be confusing, which is why we decided to round up all the ones we could find and give them a good going over. We tested 29 plug-ins, using a Power Mac 7500/100 with 50 MB of RAM, and tried them out with a mix of their respective host applications.



## GRAPHICS TOOLS

### BEFORE YOU BUY

Before you consult our ratings tables and purchase a big batch of cool plug-ins, we do have some advice: First, learn as much as you can about your host application, its features, and the plug-ins it comes with. Commercial plug-ins are often souped-up versions of these basic tools, so learning how to use the tools will help you better select more-sophisticated plug-ins.

In addition, if you have special color or output needs, make sure the plug-in can handle them. For instance, not all plug-ins work in CMYK color and not all work with every program.

### SO WHAT ARE PLUG-INS, ANYWAY?

Adobe Systems created the current plug-in standard when it released Photoshop 1.0. By providing extensive hooks and controls, Adobe made it possible for a piece of code to sit in Photoshop and gain access to Photoshop's data. Third-party developers soon delivered an array of plug-ins, and Adobe's competitors in turn began building support for plug-ins into their own graphics programs.

Adobe built on its Photoshop success by developing a similar plug-in architecture for version 5 of Illustrator, its PostScript-based drawing application. Although Illustrator isn't compatible with Photoshop plug-ins, the idea was the same: Small bits of add-on



**These examples from Adobe Gallery Effects, volumes 1 and 2, demonstrate filters that mimic natural and traditional textures and painting effects. Clockwise from top: Smudge Stick, Graphic Pen, Colored Pencil, Craquelure, Watercolor, Rough Pastels, Emboss, Poster Edges, and Chalk & Charcoal.**

code could be used for manipulating Illustrator drawings. With Illustrator 6.0, which will probably be available by the time you read this, Adobe plans to usher in a new era of plug-in possibilities as it begins to shift all of its programs to a single plug-in architecture — that is, rather than having a set of plug-ins for Illustrator and another set for Photoshop, all of your applications will be able to use the same plug-ins. Users of Macromedia FreeHand, Illustrator's main competitor in the PostScript drawing

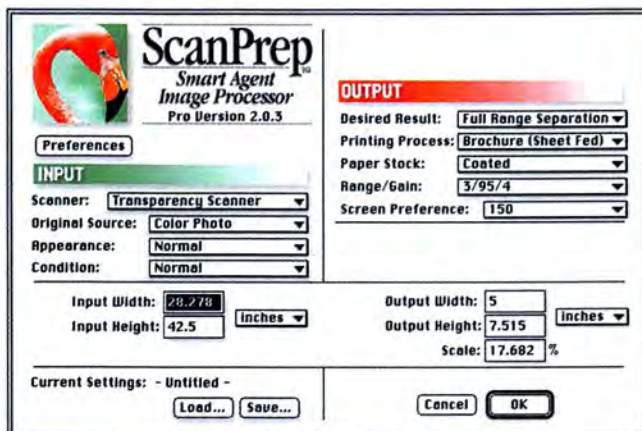
field, are already used to these capabilities: FreeHand 5.5 supports Photoshop and Illustrator plug-ins as well as its own FreeHand plug-ins. Fractal Design Painter also supports Photoshop plug-ins, as will the forthcoming Canvas 5.0, from Deneba Software.

The best-known plug-ins are *filters* — tools that apply special effects such as edge sharpening, blurs, distortions, and color shifts to your images. And in addition to serving as image-manipulating filters, plug-ins can take the form of acquire and export modules, which allow you to access special pieces of hardware or perform complex operations on image data as the data enters and leaves your host application. For this article, we divided image-editing plug-ins into three categories: Acquire, Filters/Effects, and Export. We treated the less numerous drawing-program plug-ins as a fourth category. Our ratings are based on the plug-ins' effectiveness at the task(s) they perform, their ease of use, the quality of their documentation, and their overall value. Consult the ratings tables for our topline views of all the plug-ins we tested, and read on for a more in-depth discussion of those we liked best in each category.

### ACQUIRE PLUG-INS HARNESS IMAGES

Acquire plug-ins make it easier to scan as well as use images while you're working in a graphics program. Such plug-ins give you access to scanning hardware from within such programs as Photoshop. Scans acquired through these plug-ins appear as new documents within your application. This can be a real time-saver, since it spares you the hassle of using a separate scanning application and then having to open the resultant scan in your graphics program anyway.

Most scanners — whether of the flatbed, transparency, or video-capture variety — ship with their own custom acquire plug-ins, and when shopping for a scanner, you should pay close attention to its acquire software. In particular, look for such features as zoomable



**Flamingo Bay/ImageXpress' ScanPrep Pro** takes control of both your scanner and Adobe Photoshop to scan and correct your images automatically.



previews; built-in histograms; and comprehensive color-correction tools, including level and curve controls.

Second Glance Software's ScanTastic PS is a very good acquire plug-in and is available in custom versions for Apple, Epson, and Hewlett-Packard scanners. In addition to the features mentioned above, ScanTastic PS includes several color-correction tools and the ability to process images before they're scanned.

No matter what acquire plug-in you get with your scanner, if you use Photoshop, you'll want to also buy a copy of Flamingo Bay/ImageXpress' ScanPrep Pro. A truly extraordinary plug-in that works only with Photoshop, ScanPrep Pro commandeers both your scanner and Photoshop to scan your image and perform complex analyses and corrections. It's so well designed that it practically guarantees better scans, even with older hardware. Note that ScanPrep Pro works only with certain scanners, so check with Flamingo Bay/ImageXpress to be sure the plug-in supports your hardware.

## IMAGE FIXING, FLEXING, AND FUTZING

Most plug-ins are designed to alter or enhance an image. From the simple blurs and sharpens that ship with most applications to complex 3-D-shape generators and texture makers, there's a plug-in filter to do most anything. Packages range from collections loaded with effects to specialist plug-ins that perform just one or two tricky tasks. Each package's usefulness depends in part on your specific requirements. Although there's probably no package you'll use every day, you'll soon come to depend on those that meet your needs.

Alien Skin Software's The Black Box collection does nothing you can't do by combining Photoshop's standard effects, but it's an incredible time-saver. Drop shadows, blurs, and beveled-edge effects are just a few of the package's many filters. Inexperienced users will be glad to have these effects at their disposal, and Photoshop veterans will love the convenience. Webmasters and multimedia designers who routinely create 3-D chiseled buttons and interface elements should pay particular attention to this package.

Probably the best-known and best-selling plug-in collection of all, MetaTools' Kai's Power Tools, deserves its renown. KPT, a powerful collection that provides a vast array of features, includes filters you'll use every day as well as some so exotic you may have to look for excuses to try them. Everyone will find something of value in this package. In particular, Texture Explorer will appeal to everyone, from hard-core Photoshop users to 3-D illustrators. In version 3, KPT provides real-time previews for all of its filters, making its powerful tools much easier to use.

MetaTools' KPT Convolver provides many of the same filters as Photoshop — including those for blurring, sharpening, embossing, and changing hue — but with visually oriented controls that are much easier to use than Photoshop's sometimes cryptic menu commands. What's more, Convolver lets you apply multiple effects simultaneously. Although it is perhaps not as flashy as Kai's Power Tools, Convolver is a product you might use more often.

Adobe Gallery Effects (volumes 1, 2, and 3) provides 48 filters designed to make electronic images look as if they were created with traditional media such as paint, chalk, and pencils. These filters run the gamut of traditional painting and drawing techniques and produce effects that mimic frescoes, watercolors, and even photocopies. Don't expect, however, to scan your favorite snapshot and have Gallery Effects create a perfect chalk-and-charcoal rendering. Even at

## ACQUIRE PLUG-INS

| RATING | PRODUCT                                | COMMENT   | PRICE* |
|--------|--|---|--------|
| ★★★★   | Flamingo Bay/ImageXpress' ScanPrep Pro | Worth the high price, if top-quality image scanning is essential to your work.  | \$695  |
| ★★★★   | Second Glance Software's ScanTastic PS | For those whose scanner is compatible with it, this tool is highly useful.      | \$99   |
| ★★★★   | Total Integration's Epilogue           | Acquires PostScript files and converts them into Photoshop images.              | \$895  |
| ★★★★   | Total Integration's FastEdit/IVUE      | A must for Live Picture users, it converts files to Live Picture's IVUE format. | \$249  |
| ★★★★   | Human Software's Automask              | Lets low-RAM Macs do compositing, but improves very little on Photoshop.        | \$199  |

## FILTERS/EFFECTS PLUG-INS

| RATING | PRODUCT  | COMMENT  | PRICE* |
|--------|--|--|--------|
| ★★★★   | Adobe Gallery Effects (volumes 1, 2, 3)          | Outstanding variety of high-quality filters that create textures, mimic natural media. | \$100  |
| ★★★★   | Alien Skin Software's The Black Box              | Versatile "everyday" filters simplify shadowing, embossing, other effects.             | \$99   |
| ★★★★   | Andromeda Software Series 3: Screen Filters      | Powerful mezzotinting creates wide variety of halftones, other screen effects.         | \$99   |
| ★★★★   | MetaTools' Kai's Power Tools                     | Tons of easy-to-use effects — many weird, a few indispensable.                         | \$119  |
| ★★★★   | MetaTools' KPT Convolver                         | Provides a powerful interface for blurring, sharpening, embossing, and more.           | \$119  |
| ★★★★   | Ultimate's PhotoFusion                           | The best tool for performing bluescreen-style image compositing.                       | \$695  |
| ★★★★   | Andromeda Software Series 1: Photography Filters | Makes it easy to create complex optical effects.                                       | \$79   |
| ★★★★   | Xaos Tools' Paint Alchemy                        | Excellent paint simulation lets you vary brushes and paint consistency.                | \$99   |
| ★★★★   | Xaos Tools' Terrazzo                             | Plug-in pattern generator creates tilable kaleidoscopic patterns.                      | \$99   |
| ★★★★   | Xaos Tools' TypeCaster                           | Creates 3-D type effects that rival those of dedicated 3-D programs.                   | \$99   |
| ★★★★   | Andromeda Software Series 2: 3D Filters          | Bare-bones 3-D effects.  | \$79   |
| ★★★★   | Belinfinite's pluginINFINITE                     | Plug-in manager for Photoshop works well, but few people really need it.               | \$29   |
| ★★★★   | Extensis' Intellihance                           | Performs very basic automatic color corrections.                                       | \$100  |
| ★★★★   | Human Software's Squizz!                         | Well-done tool for free-form image warps and distortions.                              | \$130  |
| ★★★★   | MicroFrontier's Pattern Workshop                 | Simple but effective tool for creating and using small tiled patterns.                 | \$20   |
| ★★★★   | Second Glance Software's Chromassage             | Pricy one-trick tool creates weird effects through color manipulation.                 | \$69   |
| ★★★★   | Total Integration's Color Matrix                 | Byzantine interface seriously limits this program's usefulness.                        | \$295  |

## EXPORT PLUG-INS

| RATING | PRODUCT                                    | COMMENT   | PRICE* |
|--------|--|---|--------|
| ★★★★   | Knoll Software's CyberMesh                 | Creates 3-D "landscapes" and other models from 2-D grayscale images.          | \$50   |
| ★★★★   | Second Glance Software's LaserSeps Pro     | Well-made, easy-to-use filter for making stochastic-screened separations.     | \$595  |
| ★★★★   | a lowly apprentice production's PlateMaker | Allows creation of extra color plates to augment traditional CMYK print jobs. | \$265  |
| ★★★★   | Second Glance Software's PhotoSpot         | Easy-to-use, powerful tool is very good at making spot-color separations.     | \$295  |

## ADOBE ILLUSTRATOR/MACROMEDIA FREEHAND PLUG-INS

| RATING | PRODUCT                       | COMMENT   | PRICE* |
|--------|-------------------------------|---|--------|
| ★★★★   | MetaTools' KPT Vector Effects | Well-rounded collection of special effects and utility functions. | \$120  |
| ★★★★   | Belinfinite's InfiniteFX      | A less flashy but good package of handy utilities.                | \$90   |
| ★★★★   | Extensis' DrawTools           | A good collection, particularly useful for working in color.      | \$100  |

\*Estimated street price.

LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.



## GRAPHICS TOOLS

their best, Gallery Effects-filtered images look like stylized pictures with traces of a particular technique. The real strength of Gallery Effects comes from combining these filters with each other and with other tools and effects. Each package is well designed and fast and provides great flexibility for the money.

If — instead of making an image look as if it were painted — you prefer to make it look painted *on*, try Xaos Tools' Paint Alchemy. You select from a variety of brushes, each of which has adjustable transparency settings similar to those for masks in Photoshop. As a brush is moved over an image, the various transparency levels are applied; a wide range of brushes and transparency settings allows a near infinite variety of brushed effects. Paint Alchemy does just one thing, but it does it extremely well. For those who like the hand-painted look Paint Alchemy produces, it's a great buy.

Andromeda Software sells three sets of powerful plug-ins. Series 1: Photography Filters provides plug-ins for creating optical effects that normally require a camera with special lenses or filters. All the effects — including flares, rainbows, reflections, and star patterns — have the same interface. Series 2: 3D Filters lets you create simple 3-D shapes and render them with textures and multiple light sources. Although it's no substitute for a full-featured 3-D program, the plug-in is quick and powerful enough for those who need only some simple geometric shapes. Series 3: Screen Filters brings powerful mezzotinting features to the Mac. Mezzotinting, which is similar to traditional halftoning, screens your black-and-white images through a coarse filter to produce halftone images that consist of dots in a variety of user-specifiable shapes. More than just a visually interesting effect, mezzotinting provides an ideal way to get better results from low-resolution devices or to produce artwork for



**MetaTools' KPT Convolver** provides a powerful, easy interface for simultaneously applying several types of filters, such as Blur, Emboss, Sharpen, and Find Edges. This image was processed by a single pass of the Convolver plug-in.

controls for scaling, rotating, and texturing, TypeCaster includes such advanced features as the ability to apply separate textures to faces, extrusions, and bevels. TypeCaster can also automatically create a mask for compositing your type with other images.

Bluescreen compositing, long a technique used in big-budget Hollywood movies, is the most effective way of superimposing one image over another, and Ultimatte PhotoFusion is simply the best tool available for applying this technique to your still digital images. Although other masking commands — such as Photoshop's Select Color — let you mask and composite images, they don't come close to the power of PhotoFusion. Designed expressly for blue- and greenscreen compositing, PhotoFusion can create subtly shaded masks by allowing you to superimpose reflections and semitransparent objects on images. It also includes controls for matching the color casts of foreground and background images.

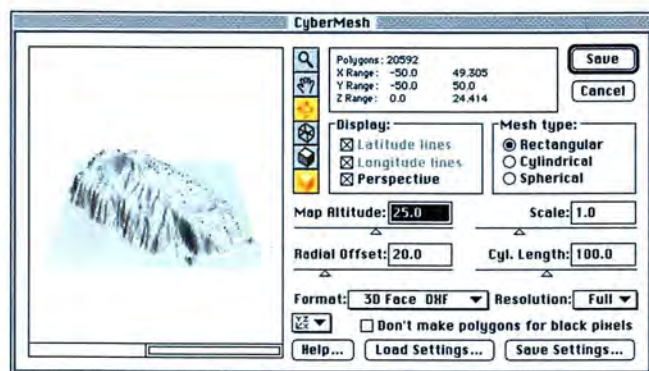
Photoshop's color-correction features — a host of curve, level, and density controls — are powerful but are intimidating for novices. Extensis' Intellihance can free you from dealing with many of these obscure controls by automatically performing many simple color, contrast, and sharpening operations. It won't take the place of all Photoshop controls, particularly for Photoshop mavens, but Intellihance can immediately improve most images.

Although it might sound like the name of a fish, Human Software's Squizz! is actually a filter that lets you do complicated distortions and warps of any CMYK or RGB image. By providing a unique distortion brush as well as mesh-based warping that lets you push, pull, and stretch your image, Squizz! makes it easy to treat your image as if it were Silly Putty.

### FINISH THE JOB

Export filters allow you to save your images in formats not normally supported by your favorite graphics program — and such filters can also perform complex operations as your image is written to disk.

CyberMesh, by Photoshop cocreator John Knoll, is a perfect example. CyberMesh lets you save a black-and-white image as a 3-D model with the darker parts of the image having a higher elevation than the lighter parts. One of CyberMesh's greatest strengths, in



**Knoll Software's CyberMesh** enables you to create realistic landscapes and other organic images by converting grayscale images into 3-D models with depth variations that correspond to the shades of gray in the source image.



addition to the program's interface, is the ability to create spherical and cylindrical objects. Using CyberMesh is a great way of generating organic 3-D models such as landscapes.

Most color printing is performed with four printing plates (cyan, magenta, yellow, and black), but there may be times when you need extra plates — maybe to add a varnish or an extra spot color. PlateMaker, from a lowly apprentice production, lets you output image files on any number of plates.

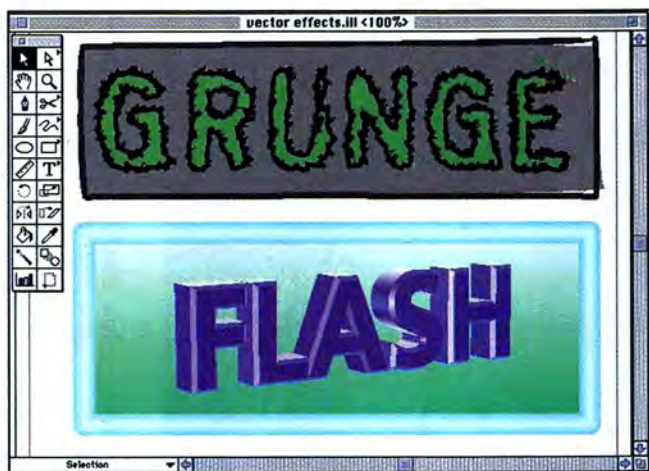
## DRAWING ON ILLUSTRATION PLUG-INS

Plug-ins for Illustrator and FreeHand run the gamut from performing simple operations such as adding and removing points to doing complicated operations such as sophisticated 3-D modeling. Although somewhat less flashy than their image-editing cousins, what these filters lack in pizzazz is more than made up for in their usefulness. Careful study and clever use of even the plug-ins that come with Illustrator and FreeHand can greatly streamline and enhance the way you work, and add-on packages can take your drawings to uncharted territory.

MetaTools' KPT Vector Effects is a set of 12 plug-ins that provide some amazing special effects. Drop shadows, lens flares, 3-D extrusions and transformations, warps, and distortions are all included. This easy-to-use package provides incredible power.

On the less glamorous side, Extensis' DrawTools includes Photoshop-like color controls for your Illustrator drawings. DrawTools — which includes an Edit Curves dialog box, a Replace Colors command, and other sophisticated color controls — greatly enhances color control in Illustrator as well as FreeHand. Also included are handy Move and Front-to-Back controls. FreeHand users will appreciate DrawTools' separate plug-ins for FreeHand, which take advantage of the application's proprietary plug-in capabilities.

BeInfinite's InfiniteFX collection offers capabilities somewhere between those of KPT Vector Effects and DrawTools. With 55 plug-ins, this package lets you create a limitless variety of distortions, warps, waves, 3-D transformations, and wiggles. Particularly nice is the package's ability to apply its manipulations only to specified control points or to the handles attached to them.



**MetaTools' KPT Vector Effects** filters do everything from distorting shapes to creating 3-D objects. Sketch, Shatter, and Vector Distort filters were used on the Grunge image, and 3D Transform and Neon were used on the Flash image.

## DIRECTORY OF VENDORS

### Adobe Systems

Mountain View, CA  
800-833-6687  
415-961-4400  
<http://www.adobe.com>

### Alien Skin Software

Raleigh, NC  
919-662-4934  
919-662-1336 (fax)  
[alien@mercury.interpath.net](mailto:alien@mercury.interpath.net)

### Andromeda Software

Thousand Oaks, CA  
800-547-0055  
805-379-4109  
805-379-5253 (fax)  
[andromed@compuserve.com](mailto:andromed@compuserve.com)

### BeInfinite

Roswell, GA  
800-554-6624  
510-420-0417  
510-420-1892 (fax)  
[beinfinite@aol.com](mailto:beinfinite@aol.com)

### Extensis

Portland, OR  
800-796-9798  
503-274-2020  
503-274-0530 (fax)  
[extensis@aol.com](mailto:extensis@aol.com)

### Flamingo Bay/ImageXpress

Lawrenceville, GA  
770-564-9924  
770-564-1632 (fax)  
[imagexpres@aol.com](mailto:imagexpres@aol.com)

### Human Software

Saratoga, CA  
408-399-0057  
408-399-0157 (fax)  
102474,3471@compuserve.com

### Knoll Software

San Rafael, CA  
415-453-2441  
415-449-9322 (fax)  
[jkroll@aol.com](mailto:jkroll@aol.com)

### a lowly apprentice production

Carlsbad, CA  
619-438-5790  
619-438-5791 (fax)  
[alaponline@aol.com](mailto:alaponline@aol.com)

### MetaTools

Carpinteria, CA  
805-566-6200  
805-566-6285 (fax)  
<http://www.metatools.com>

### MicroFrontier

Des Moines, IA  
800-388-8109  
515-270-8109  
515-278-6828 (fax)  
<http://www.netins.net/showcase/mcp-ihs/mfrontier.html>

### Second Glance Software

Bremerton, WA  
360-692-3694  
360-692-9241 (fax)  
[info@secondglance.com](mailto:info@secondglance.com)

### Total Integration

Palatine, IL  
708-776-2377  
708-776-2378 (fax)  
[sales@totalint.com](mailto:sales@totalint.com)

### Ultimatte


Chatsworth, CA  
818-993-8007  
818-993-3762 (fax)  
<http://www.ultimatte.com/ultimatte>

### Xaos Tools

San Francisco, CA  
800-289-9267  
415-487-7000  
415-558-9886 (fax)  
[muoto@xaostools.com](mailto:muoto@xaostools.com)

## DRAWN CONCLUSIONS

By this point, it's probably apparent that there are plug-ins for creating just about any effect you can imagine and for streamlining complicated tasks that normally require multiple steps. So which plug-ins are right for you? As with any type of software, that depends largely on your tastes and the type of work you normally do.

Probably the most important thing to remember is that no plug-in is a worthy substitute for a good eye and a thoughtful use of tools. None of these plug-ins will immediately turn you into a great artist, and you shouldn't depend solely on them to create an interesting or expressive image. But after you've supplied the vision and the imagination, plug-ins can be highly effective in helping you realize your ideas. 

Graphic designer Ben Long has been using plug-ins since their debut and is so steeped in image-editing software that he uses Photoshop as a PIM.



# QUICK



# LABS

## Printer Tests Add Color • Hard-Drive Tests Expand • Monitor Scrutiny Sharpens

**WELCOME TO THE NEW,** improved Quick Labs. No flashy format change calls attention to our recent enhancements, but to better reflect the Mac OS market and improved industry standards and in order to provide you with product information that's even more accurate, we've upgraded our testing equipment and procedures.

Improvements include the adoption of new test documents that allow us to add color and grayscale inkjet printers to the monochrome laser printers we've always tested in Quick Labs; the addition of MacBench 3.0 and its expanded Disk Mix test to our hard-drive-evaluation arsenal; and the use of a more-

sensitive instrument for measuring monitor image quality. Check out the introductions to each product category for more details.

In keeping with ever advancing Mac technology, we also upgraded the base machine we use for Quick Labs testing from a Power Mac 6100/60 to a Power Mac 7500/100 with a 1-GB internal hard drive and 32 MB of RAM.

These new procedures mean test results from this issue forward won't be directly comparable to those in previous Quick Labs. We'll keep the current standards in place for at least a year to come. By then, it may be time to update our procedures again.



### ONE NEW PRINTER

Starting in this issue, we've updated our Quick Labs tests to better judge the performance of the latest printers. We've developed all-new sample documents for our personal- and workgroup-printer tests. The new files contain more pages and have a higher graphics content in order to place greater demand on printer speed and output quality.

Furthermore, we're no longer restricting ourselves to testing monochrome laser printers; soon you'll see color and monochrome inkjet printers profiled in Quick Labs. Keep in mind, however, that from this issue onward, the results cannot be directly

compared to those in previous Quick Labs.

The first to be subjected to our new tests is the GCC Elite XL 616, a monochrome laser printer. It features 250-sheet paper capacity, tabloid-bleed printing, and built-in Ethernet. With an engine rated at 16 ppm for letter-sized output (9 ppm for tabloid), it speeds through print jobs. You may want to add an optional 250-sheet (\$328) or 500-sheet (\$498) paper-feed assembly for heavy-duty workgroup use.

At 600 dpi, text output from the Elite XL 616 is crisp and clean. Graphics quality is acceptable, but we've seen better from other 600-dpi printers: Problems include slight

banding, lost shadow detail, and grainy photo quality. We like the printer's speed, so if your workgroup prints lots of word-processing, spreadsheet, or simple graphics files, the Elite XL 616 is up to the task.

After our testing was completed, GCC released WebAdmin, a software package that allows network administrators and users to monitor printer status, adjust settings, configure network addresses, and set restrictions from a remote location. By the time you read this, WebAdmin will be shipping with every new Elite XL 616.

REVIEWER / ROMAN LOYOLA TESTING / JIM GALBRAITH

| + / OUTSTANDING ● / ACCEPTABLE - / POOR |  |  | ESTIMATED STREET PRICE | COLOR OR MONOCHROME | TECHNOLOGY | RESOLUTION | WARRANTY | TEXT QUALITY | GRAPHICS QUALITY | PAPER HANDLING | SUPPORT | COMMENTS  | PAGES PER MINUTE                                       |
|---|--|--|------------------------|---------------------|------------|------------|----------|--------------|------------------|----------------|---------|---|--|
| +++                                     |  |  | \$2,800                | monochrome          | laser      | 600 dpi    | 1 year   | +            | ●                | ●              | ●       | Best for environments in which speed is needed more than photolike quality. | <div><div></div><div>0612</div><div>FASTER</div></div> |
| GCC Elite XL 616                        |  |  |                        |                     |            |            |          |              |                  |                |         |   |  |

FASTER





It was a slow month for hard drives: We got only one new product. But fortunately, the hard drive we received — the Microtech BLUE Storm 4GB — is top-notch. This sleekly designed drive can be removed from its base and stored securely in a locked drawer or, at a later date, replaced with a drive of a different capacity. A nifty LCD panel lets you do such things as check (and change) the drive's SCSI ID and even display Microtech's tech-support phone number. And since the drive is stackable, you can add more storage devices

## ONE NEW HARD DRIVE AND ONE NEW TEST

on top of it without taking up extra desk space. About the only thing the drive lacks is switchable termination.

Note that we tested the drive with MacBench 3.0, the updated version of our benchmark-test suite. Its Disk Mix test is very similar to its predecessor in MacBench 2.0: It emulates the behavior of general-business applications such as ClarisWorks and Microsoft Word and Excel. What's really new this year is a high-end-storage test, the Publishing Disk Mix test. We'll use it in the coming year to test

high-speed Wide SCSI drives, which previously weren't eligible for Quick Labs testing. The Publishing Disk Mix test is designed to stress drives in the same way as high-end-graphics and -DTP users would, by transferring large files in the same fashion as Adobe Photoshop and QuarkXPress. With MacBench 3.0, we've also updated the yardstick we use to evaluate drives: All scores are relative to that of an internal Quantum 1-GB drive in a Power Mac 7500/100, which has a score of 10.

REVIEWER / CHERYL ENGLAND TESTING / PATRICK CASEY

|                 |                |          |                          |           |                    |                    |          |         |                  |         | MacBench 3.0 Disk Mix Score |   |
|-----------------|----------------|----------|--------------------------|-----------|--------------------|--------------------|----------|---------|------------------|---------|-----------------------------|---|
|                 |                |          |                          |           |                    |                    |          |         |                  |         | BETTER                      |   |
| + / OUTSTANDING | ● / ACCEPTABLE | - / POOR | ESTIMATED STREET PRICE   | WIDE SCSI | FORMATTED CAPACITY | PRICE PER MEGABYTE | WARRANTY | CASE    | SOFTWARE/MANUALS | SUPPORT | COMMENTS                    |   |
| ★★★★            |                |          | Microtech BLUE Storm 4GB | \$1,950   | no                 | 3,931.3 MB         | \$5.50   | 5 years | +                | ●       | +                           | Slick, removable, stackable drive with a handy LCD panel. |



ViewSonic pulls off another winner with the 15-inch version of its popular multimedia monitor (pictured). Smart design features include sturdy on-screen digital controls and front-facing speakers mounted on each side of the screen. Computer Display Solutions tried to dip into the audio market as well, but with half the luck. Muffled music gets lost to the sides because of the poorly placed side-panel speakers on its GM-1764M display system.

Soundless but sufficient nonetheless, the remaining monitors have image quality that

ranged from good (the CTX 1785XA) to middling (the Orchestra and Mitsubishi offerings).

Note that our testing equipment and several procedures have been improved to make our results more accurate. Most significantly, the Microvision SuperSpot 200, a new, updated version of the tool we use to measure image sharpness, has been automated and now takes even more measurements, with fewer human errors. Because of these improvements, these monitor results are not comparable with those

from earlier Quick Labs tests. In addition, we've raised the bar on what constitutes an "acceptable" score of 1.0.

The image-quality scores reflect the results of our tests for image sharpness, focus, brightness, uniformity, pincushioning, color range, color accuracy, and vibrancy. Maintaining focus and sharpness is more difficult on larger monitors, so 20-inch monitors tend to score lower than smaller ones. A score of 1.0 is considered acceptable.

REVIEWER / NIKKI ECHLER TESTING / MARTIN WONG

## FIVE NEW MONITORS

|                 |                |          |                                     |             |                    |                      |         |         |          | IMAGE-QUALITY SCORE |  |
|-----------------|----------------|----------|-------------------------------------|-------------|--------------------|----------------------|---------|---------|----------|---------------------|--|
|                 |                |          |                                     |             |                    |                      |         |         |          | BETTER              |  |
| + / OUTSTANDING | ● / ACCEPTABLE | - / POOR | ESTIMATED STREET PRICE              | SCREEN SIZE | MAXIMUM RESOLUTION | WARRANTY             | MANUALS | SUPPORT | CONTROLS | COMMENTS            |  |
| ★★★★            |                |          | ViewSonic 15GA                      | \$595       | 15 in.             | 1,280 x 1,024 pixels | 3 years | +       | +        | +                   | Solid overall performer with built-in speakers.                |
| ★★★★            |                |          | CTX 1785XA                          | \$999       | 17 in.             | 1,600 x 1,200 pixels | 2 years | -       | ●        | ●                   | Despite high image score (and high price), images look grainy. |
| ★★★★            |                |          | Mitsubishi DiamondScan 15HX         | \$450       | 15 in.             | 1,024 x 768 pixels   | 3 years | ●       | ●        | ●                   | Sharp display quality at an affordable price.                  |
| ★★★★            |                |          | Computer Display Solutions GM-1764M | \$750       | 17 in.             | 1,280 x 1,024 pixels | 2 years | ●       | -        | -                   | Adequate monitor suffers from poor design, muffled speakers.   |
| ★★★★            |                |          | Orchestra Tuba II                   | \$699       | 17 in.             | 1,024 x 768 pixels   | 1 year  | ●       | ●        | ●                   | Hard-to-read text but a decent price.                          |
|                 |                |          |                                     |             |                    |                      |         |         |          | 0 1.0 1.6           |  |

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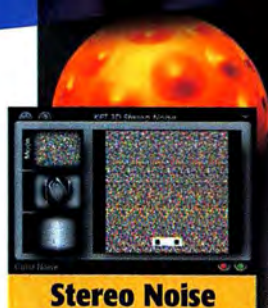
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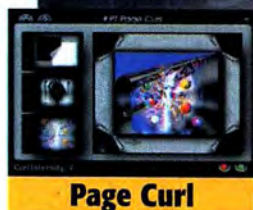
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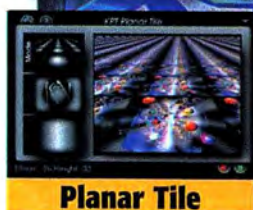
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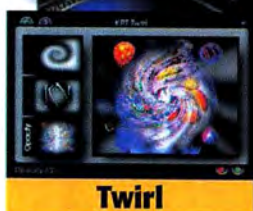
**Stereo Noise**



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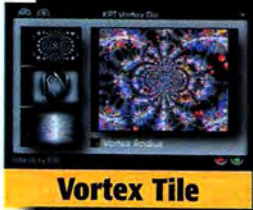
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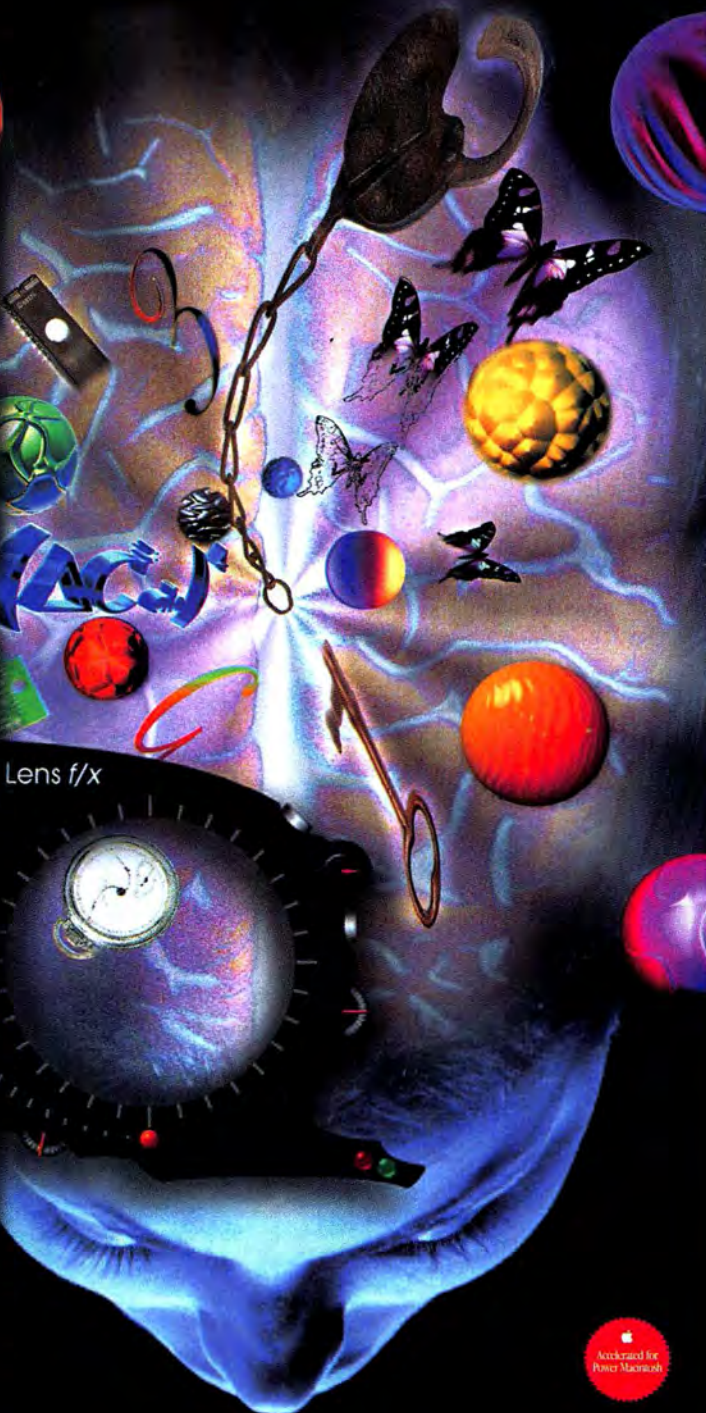
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# DESKTOPmedia

If your mind's a blank slate when it comes to choosing a drawing tablet, you need to know which features matter. Here's what to look for.



**By Jim Benson**

# Tablet Rasa

**IT'S ONE THING TO MAKE** Mac-generated art *look* like the traditional art it mimics; it's quite another to make creating art on the Mac *feel* like sketching with a pen on paper. That's why more and more creative types are turning to a drawing, or graphics, tablet as a companion to a mouse and a keyboard.

There's never been a better time to buy a pressure-sensitive drawing tablet. Prices are dropping, and more than 50 pressure-aware painting and drawing applications now line retail shelves. It's not only artists who use tablets, either. As an input device, the stylus/tablet combo can be a welcome relief for wrists that have been hovering over a mouse or trackball all day.

Choosing a drawing tablet is quite different from picking a hard drive or some other electronic component that's less closely connected to your hands. Much depends on the *feel* of the stylus/tablet combination, and that's something no fact sheet can tell you. Test-drive as many tablets as you can. Dealers and trade shows are your best bets for hands-on testing, as is asking fellow professionals. But before you take that tablet on a spin around the block, here's what to look for.

Let's get a few things out of the way. These

days, most tablets have the same basic functionality. All tablets have a resolution of at least 1,270 lpi and a pinpoint accuracy of .02 inch or better — good for CAD artists but overkill for most graphic designers. Also, most offer 256 pressure levels — much more sensitivity than any of us would notice.

But despite the apparent similarity, there are differences among individual tablets. So what features do matter? Here's our shortlist:

### Size and Price

Narrow your options by first considering tablet size. Four of the five tablet manufacturers (see the "Drawing the Line" table) offer 4-x-5-inch tablets, which are ideal when space or weight is a factor (perhaps a nice addition to your PowerBook in that life-drawing class?). These tablets offer the speed and resolution of their beefier brethren, even though they come in a pint-sized package.

The most common tablets found in the studios of creative professionals are 6 x 8 or 6 x 9 inches in size. These midsize tablets are thin and light enough to fit in a file folder. Consider a 12-x-12-inch or larger tablet if you've got plenty of desktop real estate; a healthy budget; and a need for long, flowing arm

movement. You can also buy very large digitizing mats — such as CalComp's 30-x-36-inch and 36-x-48-inch EstiMats — but these are better suited to architects or CAD artists.

The second most important factor is your budget. The price for a pressure-sensitive tablet and stylus ranges from \$150 for a 4-x-5-inch model to \$915 for a 12-x-18-inch one. Also, mail-order catalogs frequently bundle painting software and drawing tablets at bargain prices, so careful shopping can pay off.

## Tracing Aids

All tablets — with the exception of the Summagraphics and Wacom 4-x-5-inch units — offer a plastic flap as a tracing aid: Slip a photo or sketch between the flap and the tablet's surface, and then use the stylus and your painting program's brushes to trace over the original. (Keep in mind that you won't be able to zoom in or out and still draw in the same place.) If you plan to trace a lot of images, check that the flap is made of thick plastic and that it's securely attached. Users who have heavy tracing needs should consider Wacom's 12-x-18-inch flapless electrostatic tablet, which "freezes" the paper to the tablet's surface.



## Programmability

In order to make a tablet's surface a more efficient work space, most tablets feature a row of macro buttons across the top of the drawing area. You can use the drawing tablet's control-panel software to set typical keyboard or menu functions — such as saving, copying, or even running a full-fledged macro (if you use CE Software's *QuickKeys* or another macro program) — that you can control from the tablet instead of from the keyboard. Typically, the smaller the tablet, the fewer the number of macro buttons, but that's not always the case: Hitachi packs 15 macro buttons onto its 4-x-5-inch *StudioPad*.

## Software

The software that controls each of the Macintosh drawing tablets is in the form of a control panel, but that's where the similarity ends. Look for software that lets you customize your stylus's pressure and that gives you options for mapping your tablet to your monitor. If you do a lot of tracing, for instance, you will want a proportional-mapping option, so all your traced images don't end up looking squashed or stretched. If you use multiple monitors or portrait monitors, good software should handle them with ease. Most important of all, the software should be clearly laid out and easy to understand and use (see figure 1).

Here's a quick test to see if the tablet's software is correctly interpreting the data the tablet sends to it: Open a painting program, and

then use a straightedge and the stylus to draw a straight line on the tablet. If a wavy line appears on your screen, the software is not doing its job.

## Connectivity

Most tablets for the Mac offer only ADB connections, which is fine, since the serial ports are usually occupied by modem and printer cabling. The ADB port handles data at a slower rate than the serial port, but it's still plenty fast enough (especially if you've got a fast Mac) to avoid a lag between the screen display and your hand movement.

## Penmanship

Wacom is the only manufacturer that offers a batteryless stylus, and since it owns the patent for the technology, it's likely to remain the leader in this area. Users of the Wacom *Ultra-Pen* enjoy a lightweight stylus (about the weight of a roller-ball pen) and don't need to worry about batteries failing during a late-night project. Many artists and designers, however, like the extra heft of a battery-loaded pen, and because most battery sets last a year or more, replacing them is really no big deal. Pens with batteries have more power too, letting you trace through a thicker stack of papers.

Tapping the stylus tip serves as a single mouse click, but the barrel of the stylus also contains either one or two programmable buttons. You can set the buttons to perform a double-click, save, or some other command

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Wacom ArtPad II 4x5,  
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Hitachi StudioPad 405J



or macro — for instance, instead of double-tapping the pen to open a file, you could click a button on the barrel. Having more buttons isn't necessarily better, though — most people rarely use one button, and two buttons can get confusing. By the time your thumb or finger finds the correct button, you could just as easily have used a keyboard or menu command.

Some pens have a rigid tip that doesn't give when you press, and although they're no less pressure-sensitive than those that have a tip that compresses a quarter inch or so, you may prefer a springy feeling. Also, the tips vary in the hardness of their plastic. Some show no wear at all, whereas others made of softer plastic wear down, just like a regular pencil. Harder is better — the tips will need to be replaced less often. You won't find these tip tips in any promotional materials for tablets, so ask a knowledgeable salesperson or someone who's using the tablet you're interested in about that model's tip life.

### Bells and Whistles

With all this feature parity, it's not surprising that tablet manufacturers are continually looking to one-up each other and discover the killer feature that gives them an edge over their competitors. Ask yourself if you actually need these seemingly sexy features. No matter how cool a tablet's feature is, if software companies don't support it, you won't be able to use it — for instance, CalComp introduced a tilt feature several years ago, but only Fractal Design Painter supported it. So if you use a



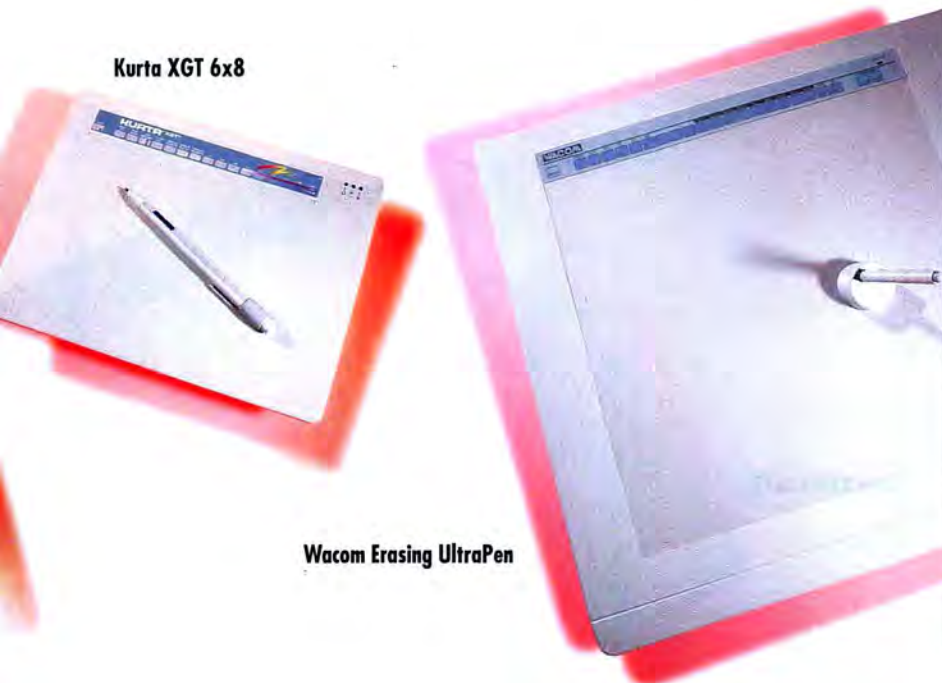
**figure 1 / Wacom's control panel** is a good example of software that makes configuring your tablet a breeze.

Choosing one of the colorful icons reveals easy-to-follow instructions, and the Help button displays a graphic-rich online guide to help smooth any rough spots.

CalComp or — more recently — a Wacom stylus with Painter, you can create a brush that, for example, changes color as you flatten the stylus's angle to the pad. Nifty, but . . . We don't know any digital creatives who live by a stylus's tilt feature.

Wacom recently introduced an erasable stylus too. It built a springy, hard plastic nub into the butt of its UltraPen; when you turn the pen over and bring it within range of the tablet, a program that's sensitive to the erase feature (the list of software includes all the major Macintosh painting programs) switches to its

**Kurta XGT 6x8**



**Wacom Erasing UltraPen**

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## Drawing the Line / pressure-sensitive drawing tablets


| Size of Active Area | Model                            | List Price                     |
|---------------------|----------------------------------|--------------------------------|
| 4 x 5 inches        | CalComp DrawingSlate II 32050    | \$150                          |
|                     | Hitachi StudioPad 405J           | \$199                          |
|                     | Summagraphics SummaPad           | \$189                          |
|                     | Wacom ArtPad II 4x5              | \$175                          |
| 6 x 8 inches        | Kurta XGT 6x8                    | \$395 (ADB, \$425)             |
|                     | Summagraphics Summa Expression   | \$389                          |
|                     | Wacom ArtZ II 6x8                | \$390                          |
| 6 x 9 inches        | CalComp DrawingSlate II 31090    | \$280                          |
|                     | Hitachi MultiPad 609J            | \$299                          |
| 12 x 12 inches      | CalComp DrawingSlate II 31120    | \$390                          |
|                     | Kurta XGT 12x12                  | \$575                          |
|                     | Summagraphics Summa Expert 12x12 | \$499                          |
|                     | Wacom ArtZ II 12x12              | \$540                          |
| 12 x 18 inches      | CalComp DrawingSlate II 31180    | \$535                          |
|                     | Kurta XGT 12x18                  | \$915                          |
|                     | Summagraphics Summa Expert 12x18 | \$899                          |
|                     | Wacom ArtZ II 12x18              | \$870 (electrostatic, \$1,089) |

**GET INFO /** CalComp 602-948-6540 Hitachi Digital Graphics 408-747-0777 Mutoh America (Kurta) 602-276-5533 Summagraphics 512-835-0900 Wacom Technology 360-750-8882

eraser tool. CalComp and Summagraphics have responded by adding an eraser button to the barrel of their pens. But whether you fumble trying to find the eraser button or turn the stylus over to erase, you're often better off selecting your painting program's eraser tool instead. With Painter, for example, if you've created a custom eraser variant, using the stylus's eraser button switches you to the program's default eraser, not to your custom variant.

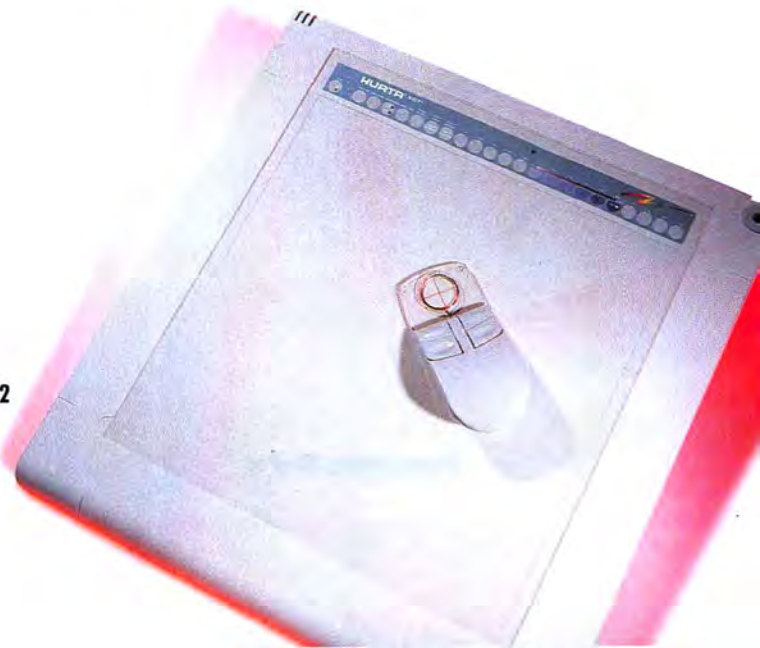
Who knows what sorts of innovative features tablet manufacturers will produce next?

Untethered tablets that communicate with the ADB port via infrared signals? How about a retrieve button on the tablet that, when pressed, causes the misplaced stylus to beep like a car alarm? Maybe a Magic Fingers™ vibrating pen to ease the pain of your recently developed case of writer's cramp? (Just kidding on this last one, tablet engineers. Really.)

The bottom line? Look for a digital stylus and a tablet that feel as comfortable to use as their analog counterparts, pen and paper. 

*Jim Benson is an author, graphic designer, and artist living in San Diego, California.*

Kurta XGT 12x12



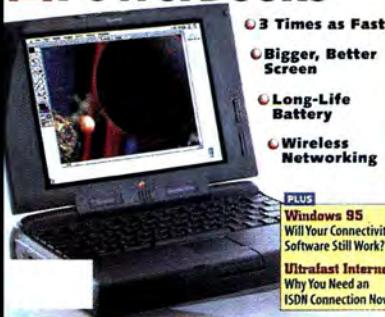
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**Time by Employee**

| Employee    | Job    | Estimate | Actual   | Profit |
|-------------|--------|----------|----------|--------|
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| Employee 2  | Job 2  | 1,500.00 | 1,500.00 | 0.00   |
| Employee 3  | Job 3  | 1,800.00 | 1,800.00 | 0.00   |
| Employee 4  | Job 4  | 2,100.00 | 2,100.00 | 0.00   |
| Employee 5  | Job 5  | 2,400.00 | 2,400.00 | 0.00   |
| Employee 6  | Job 6  | 2,700.00 | 2,700.00 | 0.00   |
| Employee 7  | Job 7  | 3,000.00 | 3,000.00 | 0.00   |
| Employee 8  | Job 8  | 3,300.00 | 3,300.00 | 0.00   |
| Employee 9  | Job 9  | 3,600.00 | 3,600.00 | 0.00   |
| Employee 10 | Job 10 | 3,900.00 | 3,900.00 | 0.00   |

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|-------------|----------|----------|--------|
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# Unleashing Marble

Use Painter's cool marbling filter to create elegant backgrounds.

**M**AKING MARBLED PAPER originated in ancient Japan, but this decorative technique was further refined in the Middle East before reaching its peak in Renaissance Europe. For hundreds of years, the rich, subtle swirls and beautiful colors of marbled papers have been incorporated in bookmaking and package design and used for stationery, gift wrap, and crafts. The traditional marbling technique involves dropping paint on a gel-like surface — the stone, so called because of the round paint blobs sitting on its surface — and dragging a stylus or rake through the paint drops.

Using Fractal Design Painter (version 2.0 or higher), you can make

marble designs quickly by applying the Apply Marbling command to a photograph. This command mimics the traditional rake movements and can be set to produce a variety of patterns. We'll apply it to a photograph that has been manipulated to resemble a traditional stone. The result is remarkably similar to hand-marbled paper. We start in Adobe Photoshop because of its easy-to-use color controls and unique Crystallize filter.

*Janet Ashford is the coauthor, with John Odam, of Start with a Scan: A Guide to Transforming Scanned Photos, Drawings and Objects into High-Quality Art (forthcoming from Peachpit Press).*

## 1. EDIT THE PHOTOGRAPH



## 2. DISTRIBUTE THE COLOR



## 3. APPLY FILTERS TO THE PHOTOGRAPH



## STEP BY STEP

**1. EDIT THE PHOTOGRAPH.** To create a color pattern for marbling, scan a photo (in this case we used an image of a Spanish village). Don't worry about the orientation. Lighten the midtones, by using Adobe Photoshop's Levels control (Image: Adjust: Levels) and sliding the midtone to the left. Increase the saturation (Image: Apply: Hue/Saturation) to exaggerate the colors. If you want more-subdued tones, decrease the saturation.

**2. DISTRIBUTE THE COLOR.** To make the image more suitable for marbling, spread color around to various points within the base image. In this case, we copied and pasted various portions of the image into an overlapping collage, using the Marquee selection tool on the blue door,

the red window, and the yellow flowering bush.

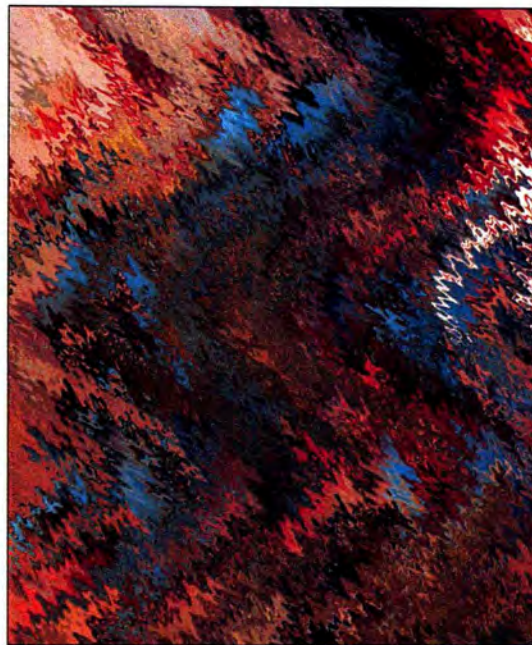
**3. APPLY FILTERS TO THE PHOTOGRAPH.** To obscure the details of the photo but retain the color, apply the Motion Blur filter (Filter: Blur: Motion Blur) at a setting of 75 pixels. To simulate drops of paint in a marbling tray, apply the Crystallize filter (Filter: Pixelate: Crystallize) at a setting of 25 pixels. This filtered image serves as your stone. Since Painter opens Photoshop and TIFF files only in RGB mode, remember to convert to this mode (Mode: RGB Color) before saving. Now save the image.

**4. MARBLE THE IMAGE.** Open the image in Painter. Issue the Apply Marbling command (Effects: Esoterica: Apply Marbling), using its default





#### 5. RIPPLE THE RESULTS



#### 4. MARBLE THE IMAGE



A



B



C

values (A). This filter imitates the action of the rake dragging across the stone and results in a wavy distortion of the image from left to right. Since traditional marblers often rake through the paint twice, use the Apply Marbling command a second time (B). Click on the Top-to-Bottom button, and increase the wavelength setting to .40 and the waviness setting to .76.

Painter 4 allows you to group these commands, by clicking on the Add Step button and changing the settings. Then, when the filter is applied, one command can invoke multiple passes. You can load and save settings in Painter 4. Several settings come preinstalled, including a

method for creating instant Bouquet patterns (C).

The Quality slider setting in the Apply Marbling dialog box drastically affects how long it takes to produce the marble. A setting of 4.0 can add many minutes to the processing time but results in a very smooth image. Use the lowest setting for previews and the highest setting for your final product.

**5. RIPPLE THE RESULTS.** Back in Photoshop, you can create a variation on the Painter marble by applying the Ripple filter (Filter: Distort: Ripple) to the marbled Painter image. Make sure that the Large button is checked and that the slider is set to 500.





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# Web? What Web?

Wherein our two prepress gurus explain that surfing doesn't require a wet suit.

**O**K, WE ADMIT IT. We are the *very last* computer columnists in America to write an article about the wacky, wild, and wonderful World Wide Web. So keep this page — it may be historic someday. Perhaps by tomorrow.

Why haven't we jumped on the bandwagon before now? After all, you can't wrap a piece of dead fish without seeing something in print about the Web. And one of us is employed by a large printing company that makes a good living printing books about (among other topics) the Internet and the Web.

And that's the rub. Is Print Dead? That's the question we're asked by our designer friends in the graphic arts. But how could it be dead, if we're devoting so much paper pulp to produce explanations about how it shortly won't exist?

Try clicking your ballpoint on the word right **here**. Anything happen? Didn't think so. Kind of slow and clunky, isn't it? On the other hand, turn right now to page 20 and then come back here immediately. How long did that take you? Try the same thing on a Web link.

Sure, you can say that we're just grouching about the frontier days of a new technology. There's a lot to be said for the hypertext-based scheme on which the Web is modeled, but until performance for the average Web-ster gets *much* better, HTML links will sometimes do more to interrupt a train of thought than to help evolve it.

There's no doubt that the Web will improve and be much better than it is today; for one thing, there's too much money being poured into it to allow it to stay the CB-radio phenomenon it is now. So rather than reject the Web, designers had better embrace it.

But how?

In addition to reading the *tons* of things written about the nuts and bolts of Web publishing (check out "From the Web Press to the Web," October '95, page 117, and "A Do-It-Yourself Web Page," November '95, page 111), here are a few things we recommend that you

do if you're in the traditional graphic arts:

**1. Get on the Web immediately.** If you have to, access the Web through one of the major online services, but you'll see better speed with a direct modem link to a good Internet service provider (ISP). Once you're on, use up *all* of your free introductory time (you did get some of that, right?) by surfing sites that are designed or hosted by your current and potential clients — and by your competitors.

**2. Learn what makes a good Web site.** It's easy to get misled by confusing "cool" sites (often those with garish fourth-grade graphics) with "good" sites — sites that (like all other good communications) inform and entertain without being noisy. (Remember those basic design principles you knew so well? You know, clarity, contrast, and the like? They haven't changed.)

**3. Get a bit of hands-on experience designing Web pages.** It doesn't matter if they never see the light of a server. The simplest way to do this right now is to get a program such as Adobe PageMill and just play; you can't hurt anything, and you'll learn a lot. Find out what happens when you've got limited screen real estate, limited font flexibility, and limited viewer attention span. Don't bother learning HTML codes — they'll be about as useful as Linotype 202 codes in a few more months (well, maybe not *that* soon, but HTML must evolve or die).

**4. Learn to design beyond three dimensions.** With the Web, you've got the two-dimensional screen plus the third dimension of color. Then there's a fourth dimension of page links within a site and a fifth dimension of links to other sites. Learn to think of incorporating design elements that are neither text nor graphics but

are instead Web-enabled objects (QuickTime movies, QuickDraw 3D scenes, sounds, and the like). This is where the Web really starts to outdo print.

**5. For publishing that requires branding through specific design, check out Adobe Acrobat.** By the time you read this, Acrobat should be more tightly integrated with Web browsers and may be the delivery vehicle of choice for high-fidelity Web documents.

So do we think the electron-driven Web will



replace paper-driven webs? In some instances, for some markets, with some kinds of products, for certain audiences — absolutely. Enough qualifiers for you?

We're practical guys. The Web is obviously here to stay — not in its current form for long, of course — and it's having an impact on what we do for a living. We don't want to come across like some aging Luddite curmudgeons (not yet, anyway), so we won't complain anymore. But thanks for surfing our page. ☺

*Bob Schaffel is emerging-technologies consultant for R. R. Donnelley & Sons. Chuck Weger is a consultant and the conference chair for CONCEPTS 96, a prepublishing conference that will have a bevy of Web-related sessions this April.*



# Use SuperCard to put your multimedia on the map.



"Developing interactive maps required building an interface that did not already exist. SuperCard's power and flexibility allowed us to load *Topo!* up with functionality and still deliver a unique, elegant interface. No other authoring environment would have allowed the development process to run so smoothly."

— Paul Glauthier, Wildflower Productions



When Wildflower Productions wanted to build a groundbreaking interface to digital maps, they couldn't use just any authoring tool. They needed one that delivered real innovation, real fast.

That's why they chose SuperCard for their dazzling new *TOPO!* series of interactive topographical maps. Wildflower discovered what many top-notch developers already know:

SuperCard is the fastest, most flexible tool for delivering professional quality, cross-platform multimedia applications.

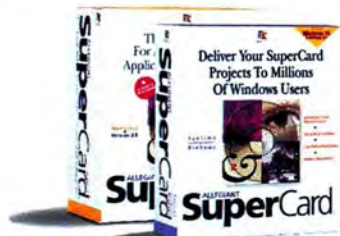
- Applications that stand out from the crowd with unique interface features, unparalleled user interactivity and complete platform support that the other tools just can't deliver.
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- Applications that leverage your time by letting you build your own custom authoring tools, accelerating your development to new levels.



SuperCard's simple scripting language, extensive media support and straightforward object-based approach make it easy to start your projects, yet offer the depth required by even the most seasoned developers, such as Wildflower.

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So, when you're ready to blaze a new trail in multimedia, pick up a copy of SuperCard today . . . and start putting your work on the map.



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# Video Effects Get Plugged In

**PLUG-IN MODULES** aren't just for Adobe Photoshop anymore. Video programs such as Adobe Premiere and Adobe After Effects take advantage of plug-in architecture in order to let you create advanced special effects as well as add soundtracks to video. But if Photoshop is your bag, there's still plenty to choose from.



▲ **Final Effects 3.0.** Not content with conquering the world of Photoshop plug-ins with Kai's Power Tools, MetaTools (née HSC Software) has released a cluster of filters for Adobe After Effects 3.0. Final Effects contains more than two dozen modules for creating such special video effects as shattering glass, falling rain, exploding stars, bouncing balls,

and drifting smoke as well as for adding distortion and transition effects such as vortex, lens, and tile. Production-oriented modules let you composite images onto one layer, create masks on images without an alpha channel, and alter the color value of each channel. \$695. 805-566-6200.

**AudioTrack.** Adding sound to video is easier to do with Waves' AudioTrack, an audio-processing plug-in that works with Adobe Premiere, DigiDesign's Sound-Designer II and Pro Tools, OSC Deck 2.5, Opcode's Studio Vision 3.0, and others. The Power Macintosh-native plug-in offers several of the top features of Waves' high-end DSP cards, such as a four-band graphic equalizer, a compressor/expander, and stereo and mono modes. \$300. 423-588-9472.

**plugINFINITE.** And if you have more plug-ins than you can handle (hint: your Mac takes 15 minutes to launch Photoshop), you're a candidate for plugINFINITE, a plug-in manager from BeInfinite. This application lets you create sets of plug-ins so you load only the filters you need at any given time. You can also use it to rename plug-ins and reorder them according to your work flow. \$29. 800-554-6624 or 510-420-0417. / Pamela Pfiffner

## FINE PRINT

### Updated Monthly

SIFTING THROUGH piles of information about publishing and graphics is hard enough, but keeping up-to-date with all the software that helps you do your job is even harder. Enter **Design Tools Monthly**. A kind of *Reader's Digest* for publishers, this newsletter condenses pithy product information, hands-on tips and tricks, and industry news — all culled from magazines such as this one. Thanks to Jay J. Nelson's crisp editing, the information is concise and provides pointers to the original text for more-in-depth reading. You can also subscribe to its software-updater service. Each month, you receive a floppy with the latest updates and bug fixes to popular programs — a recent disk contained Connectix's RAM Doubler 1.6 updater, for instance — as well as a bunch of shareware and freeware, including utilities, fonts, QuarkXPress XTensions, and so on. The newsletter costs \$99 for one year and the disk service is \$129; order both for \$198. (Prices for international subscribers are \$129, \$159, and \$258, respectively.) 303-444-6876. / PP



People and Lifestyles, Volume 28



American Fine Art and Illustration



European Paintings



Classic Entertainment, Volume 1

## Picture This

**CANNED PHOTOS** of people at play usually make me gag, but PhotoDisc's new **People and Lifestyles, Volume 28**, CD-ROM is refreshingly different. First off, it features an ethnically diverse cast — not just bland blonds grinning. Second, the scenes seem natural and unforced, not cloyingly posed. 336 RGB TIFF images (72 and 300 dpi). \$299.

But if artifice is what you're looking for, check out PhotoDisc's **The Fine Art Series** of historical prints, posters, and paintings. Choose from turn-of-the-century magazine drawings in American Fine Art and Illustration, Renaissance masterpieces in European Paintings, art deco advertisements in European Posters, and views of

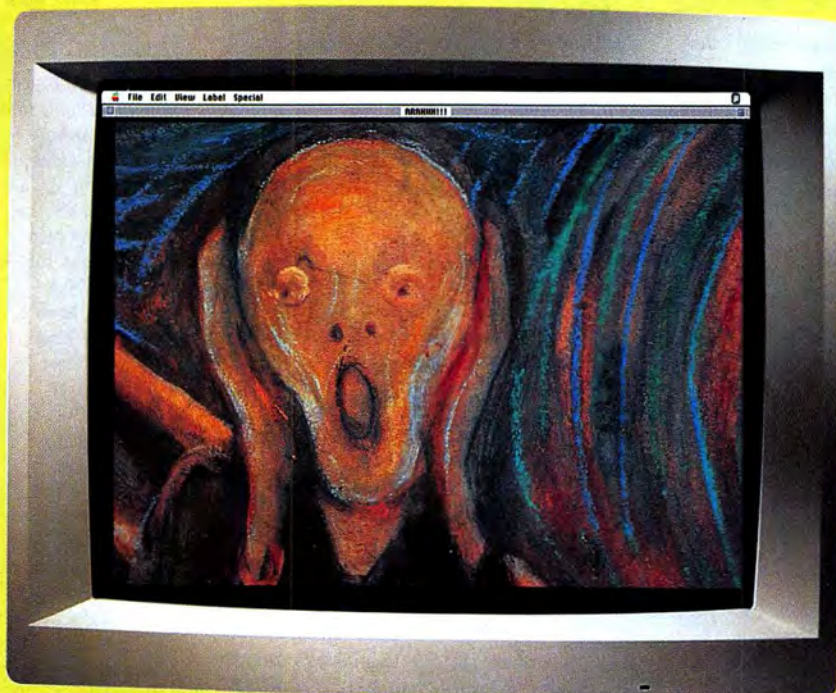
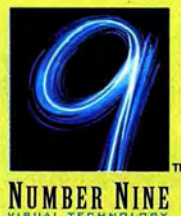
the world circa 1600 in Antique Maps and Illustrations. 100 RGB TIFF images (72 and 300 dpi). \$149 each or \$499 for all four through March 31. 800-528-3472 or 206-441-9355.

For a more contemporary feel, although with a decidedly retro flair, Classic PIO Partners' CD-ROMs of Hollywood props fill the bill. The latest disc in the company's

Photographic Image Objects library is **Classic Entertainment, Volume 1**, featuring items redolent of the Gilded Age of cinema — starlets' dressing tables, popcorn machines, 3-D glasses, movie cameras, and so on. Ready, Mr. DeMille. 40 RGB TIFF images (72 and 300 dpi) with channel masks. \$70. 800-370-2746 or 818-564-8106. / PP

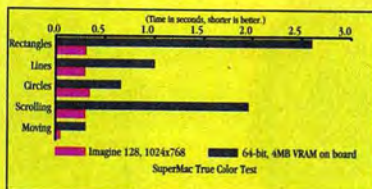


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# Designed With Heavy Elements

**THE BUILDING OF THE FIRST** nuclear bomb is a dramatic tale, one that's been told in many movies and books. Corbis Publishing puts a fresh spin on this critical turning point in history with its interactive CD-ROM *Critical Mass: America's Race to Build the Atomic Bomb*. To better convey the multiple forces at play, Corbis developed a navigational scheme that explores the topic through the people behind the project as well as through the historical events, political climate, and scientific breakthroughs of the era.

Critical Mass features biographies of the principal scientists, a virtual tour of the laboratory at Los Alamos, a time line of the events that occurred during the bomb's construction, and a photographic collection showing the impact of nuclear technology.

The Corbis Media Archive — a digital collection of photographs, video clips, and other material — contributed the core images on the

CD-ROM. Critical Mass producer Lisa Anderson acquired additional material by asking the descendants of the key players for photographs of the scientists as kids and for letters written during the building of the bomb.

To make a potentially dry subject more engaging, Corbis created six long-running presentations that incorporate images and sound to help users learn about the personalities involved and tour the once secret Los Alamos testing facility. To bring the CD-ROM into the present, the Beyond Trinity section includes 300 photos accompanied by three user-selectable soundtracks showing the implications of this discovery — from nuclear power to nuclear medicine. / Sean Safreed

## WHAT:

Critical Mass: America's Race to Build the Atomic Bomb

## COMPANY:

Corbis Publishing, Bellevue, WA; 800-336-2947 or 206-649-3997.

## TOOLS:

Macromedia Director 4.0 with custom search and display XCMDs; Adobe Photoshop, for image processing; Adobe Premiere and Adobe After Effects, for video editing and effects; Macromedia SoundEdit 16, for sound processing; Autodesk's 3D Studio, for 3-D scenery.



**1. MAIN NAVIGATION.** A sepia-tone photograph of the scientists (from left to right, Bohr, Oppenheimer, Feynman, and Fermi) serves as the opening screen and appears here on the title bar as a repeating element that allows users to return to the main menu. All the items in the main screen — such as the scientists, the newspaper, and the crystal ball — are hot buttons that link to other material and change to full color when active. For example, clicking on one of the scientists takes you to a documentary presentation about that individual.

**2. VIDEO CLIP.** QuickTime clips are included for many of the items in the Timeline section and as part

of the cinematic tours. Here, a clip of footage from the attack on Pearl Harbor plays in the same window the picture occupies. The 240-x-120-pixel video is pixel-doubled to fill the 480-x-240-pixel window. The title runs in 256 colors, but Corbis created rich custom color palettes to optimize the colors for each screen.

**3. AUDIO CLIP.** The audio was down-sampled to 8-bit at 11 kHz to make it play back reliably on all systems and to leave more disc space for the video clips and photography.

**4. DIRECT NAVIGATION.** The colored bars on the left allow users to jump to other areas of the CD-ROM

directly, such as the reference section on chemistry or the 3-D virtual tour of the Los Alamos facility.

**5. TIME-LINE NAVIGATION.** This small screen of colored blocks — resembling the periodic table of the elements — represents a miniature version of the main time-line navigation screen. Each of the colored blocks corresponds to a topic in the time line: atomic science (red), scientists (blue), political history (green), popular culture (yellow), and warfare technology (purple). Each block is a live link. As the mouse crosses a block, a small photo and caption appear; clicking takes the user to that item. The small white square indicates the current selection.



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— MacUser, January 1995

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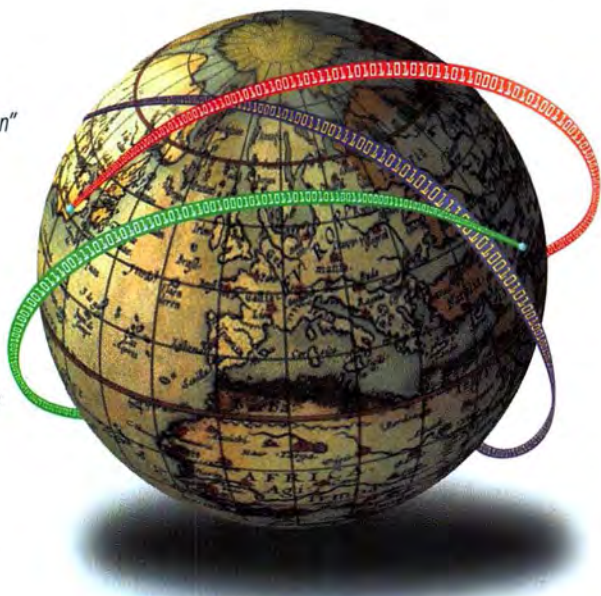
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1993 BYTE Award of Merit

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# NETWORKING

Can you dive from the Mac  
into tomorrow's sea  
of platform-independent  
Web applications?



By Shelly Brisbin and John Rizzo

## Diving from Any Platform

**T**HERE'S A REVOLUTION going on out there. You've heard as much as you care to about the information highway, but wait: The Internet revolution means more than shopping and surfing. For computer users as well as for the software industry, it means a brave new world of applications that don't care whether you're using a Mac, a PC, or a UNIX workstation, because the software is out on the Internet, not on your desktop. In short, the true Internet revolution is platform-independence.

The World Wide Web started it all. NCSA Mosaic and other early browsers gave a consistent view of formatted text and links, regardless of operating system. Web-page developers use the same codes and file formats whether they're working on a Macintosh or a PC. Today the Web supports platform-independent multimedia via multimedia formats such as Macromedia ShockWave and sound formats such as Progressive Networks' RealAudio. Tomorrow, Sun Microsystems' Java programming language will make it possible for developers to bring full-blown applications from the Web to your desktop without stickers that say "for Macintosh" or "Windows 95-compatible." Despite a slow start, Mac users

and developers *will* soon have the tools they need to become full participants in the revolution.

### Java Jitters

Java is big. Really big. It's so important that even the mainstream press has begun trying to explain it. In a nutshell, Java is a programming language that lets developers embed small applications — called applets — within World Wide Web pages. Java applets can form the basis for Web applications that contain multimedia objects and that use the Net's distributed architecture by delivering only the bits of code needed to perform a task. Sun has dubbed the engine that makes it all possible The Virtual Machine. Once this engine has been ported to a specific platform, that platform can interpret and run any applet written in Java.

The first of the Java-capable browsers — Netscape Navigator 2.0 and Sun's own HotJava — have appeared for PC and UNIX platforms, but the Mac won't be far behind. Although Navigator 2.0 is shipping without Java support, Netscape says that Java applets will work with the next release, due this quarter. HotJava was slated for January release for all platforms,

despite the lag of the Mac beta version behind the PC and UNIX betas at press time. Even in the world of The Virtual Machine, Mac users must be patient.

Web-based multimedia is not so hard to come by on the Mac. Macromedia ShockWave and RealAudio are cross-platform standards with a distinct connection to the Mac. Macromedia Director-developed movies dominate CD-ROM titles. These high-quality video images are coming to the Internet with the aid of the highly compressible ShockWave video format. And RealAudio makes it possible to play sound recordings — of news, sports, talk shows, and more — over the Internet without delays or fade-outs. As with ShockWave, compression is the key. Macromedia and Progressive Networks freely distribute the Web browser plug-in applications required to play video and sound. Although Macromedia's Windows player came out before the Mac version, Macromedia and Progressive Networks are now updating their Mac and Windows players simultaneously. Browser makers such as Netscape have cooperated by supporting plug-in technology for ShockWave, RealAudio, and other multimedia formats.



## NETWORKING

Smart Internet-oriented developers realize that Mac users account for a disproportionately high number of Internet connections, which means that advanced Web-surfing tools usually make their way to the Mac eventually. Still, it is unlikely that Windows 95 users will have to wait for new applications as Mac users often do.

### Encouraging Developers

Like the software industry at large, the success of Internet application and multimedia technology depends on the easy availability of good development tools. Since uses of the technology on the Net range from the creation of video-enabled Web pages to full-fledged storefronts that have searchable product catalogs and electronic-transaction processing, tools must be both accessible and sophisticated. That combination is the essence of the Mac environment, and smart toolmakers are taking advantage of it.

For a while, it looked as if Mac developers would taste only the Java dregs. SunSoft, the software-development company within Sun Microsystems, announced Java development tools for its own Solaris-based systems and for Windows platforms. The Macintosh was

conspicuously absent from the list of supported platforms. But what looked like a snub was, according to SunSoft, an attempt to avoid announcing a product that was still many months away. Although the Java Web site still offers few details, SunSoft says that it will ship Java development tools for the Mac within a few months of HotJava's release. The environment will use the HotJava browser to give applet developers access to HTML pages and the object-oriented elements they will use to construct their programs.

Whether they saw an opportunity to fill an empty market niche or just wanted to provide

an alternative to SunSoft's offering, two other companies have decided to offer Java development tools for the Mac. Metrowerks, whose CodeWarrior development environment is single-handedly responsible for enabling software vendors to make a speedy transition to Power Mac applications, has announced that it will include a suite of Java development tools in CodeWarrior 9, due in May. Metrowerks will also include the Mac version of Sun's HotJava browser. Natural Intelligence will be shipping a Java development environment, called Roaster, by the time you read this. Unlike SunSoft and Metrowerks, Natural Intelligence

### Details and Downloads / finding out about Web standards

THE BEST PLACE to see platform-independent standards demonstrated and to get copies of players and plug-ins is the Web. Check out these sites:

|                             |   |
|-----------------------------|---|
| <b>Macromedia</b>           | <a href="http://www.macromedia.com">http://www.macromedia.com</a> |
| <b>Metrowerks</b>           | <a href="http://www.metrowerks.com">http://www.metrowerks.com</a> |
| <b>Natural Intelligence</b> | <a href="http://www.natural.com">http://www.natural.com</a>       |
| <b>Netscape</b>             | <a href="http://home.netscape.com">http://home.netscape.com</a>   |
| <b>Progressive Networks</b> | <a href="http://www.realaudio.com">http://www.realaudio.com</a>   |
| <b>Sun Java</b>             | <a href="http://java.sun.com">http://java.sun.com</a>             |

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## NETWORKING

has built its own development environment rather than licensing Sun's technology.

Multimedia toolmakers are making it easy for content developers to work on the Mac, going so far as to give away crucial conversion software. Macromedia promotes its video format by giving away the AfterBurner compression software you need to move Director movies into ShockWave format. And Progressive Networks distributes sound-encoder software freely, making its money by selling the server

software you need to put RealAudio libraries on the Net. In case you're wondering, the RealAudio server software is available for the Macintosh.

### Embarrassment of Riches

Although a platform-blind, Internet-oriented world may not sound Mac-friendly at first, it's likely to be a very good place for Macs. The advantages the Mac offers as a platform for multimedia make it a natural Internet

platform for users as well as for developers. What makes the picture even brighter is that several companies are lined up to offer Java tools. If you're willing to wait, the tools you need to view and develop Net content on the Mac will surely come along. If you're not, go out and start a RealAudio talk show. ☐

*Associate editor Shelly Brisbin drinks a double espresso every single morning. Contributing editor John Rizzo is the author of several books, including How Macs Work.*

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## NET BYTES

### Switching Gears

NETWORK EFFICIENCY is the advantage of the first switched hub from **Asanté** (800-662-9686 or 408-435-8388; <http://www.asante.com>). Dubbed the **ReadySwitch**, the \$2,195 hub has four 10BASE-T ports plus a 100BASE-TX Fast Ethernet port for connection to a high-speed backbone. Also new for Asanté is a managed Fast Ethernet hub with a fiber-optic port. The **AsantéFAST 100 TX/FX** (\$1,995) contains eight 100BASE-TX ports plus a 100BASE-FX port for WAN or backbone connection.

◆ You can mount Mac volumes on Windows 95 desktops with version 5.5 of **Personal MACLAN Connect** (\$199 per PC; upgrade, \$99), from **Miramar** (800-862-2526 or 805-966-2432; <http://www.miramarsys.com>). The first release to support Microsoft's new OS, MACLAN Connect lets PC users mount and use AppleShare and other AFP volumes and gives them access to networked printers. Windows 95 users can also now print to non-PostScript printers. ◆ An upgrade to **NFS/Share**, from **InterCon Systems** (703-709-5500; <http://www.intercon.com>), promises speedier access to UNIX files for Mac users who mount NFS volumes on their desktops. According to the company, version 1.4 is three times as fast as its predecessor. NFS/Share costs \$295 per node; upgrades are \$79 (or free for those who purchased version 1.3.9 within the previous 90 days). ◆ Modem vendor **Zyxxel** (800-255-4101 or 714-693-0808) has combined an ISDN BRI (basic-rate interface) with a V.34 modem in the new **Prestige 28641 Remote Access Router**, expected to ship this quarter. Intended for small offices and some home environments, the router has an Ethernet port for connection to a LAN. It supports AppleTalk, IP, and IPX protocols and is priced at around \$1,000. ◆ NetWorker backup servers, from **Legato Systems** (415-812-6000), now support Mac users. **ClientPak for Macintosh** (\$1,500 per server) allows user- or administrator-initiated backup of Macs to the company's UNIX or Windows NT-based NetWorker server. ◆ **Siren Mail**, from **Siren Software** (800-457-4736 or 415-322-0600), is a MIME-compliant client/server mail system designed for organizations that use the Internet rather than a LAN for their e-mail network. Siren Mail Client for Macintosh (\$100 per user) can use companywide address books stored on the Siren server. Siren Mail Server costs \$2,995 and runs on various UNIX and Windows platforms. Siren plans to release Power Mac-native client software later this year. / Shelly Brisbin





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CIRCLE 43 ON READER SERVICE CARD





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CIRCLE 7 ON READER SERVICE CARD



# Internet 411

E-mail may be everywhere, but you can't write to pals on the Net if you can't find them.

**YOU'RE PRETTY DARN SURE** an old friend is on the Net, but you've lost touch. How can you find her e-mail address? It ain't easy. For various reasons, there is no central directory of Internet users. The structure of user names isn't even consistent from place to place. Still, if your friend has an e-mail address, her name is in a directory *somewhere*. The trick is finding that directory.

**Use What You Know.** If you know the name of her server (often the name of a company or service provider, as in macuser.com or netcom.com), try Peter Lewis' Finger utility, available at <ftp://cadadmin.cadlab.vt.edu/pub/peterlewis>. Finger might get you her e-mail address, along with other data, such as the last time she logged into her account. This strategy works only if the server's directory is published on the Net and you've guessed her user name correctly.

**Just Guess.** Although there is no surefire way to find someone's account, e-mail addresses are often guessable. It may take several tries with Finger. User names often consist of first name, last name, a combination of the two, or even initials. Here are some famous examples: Jean-Louis Gassée, of Be Labs, is [jl@be.com](mailto:jl@be.com); General Magic's Bill Atkinson is [atkinson@genmagic.com](mailto:atkinson@genmagic.com); artificial-intelligence pioneer and MIT professor Marvin Minsky is [minsky@ai.mit.edu](mailto:minsky@ai.mit.edu); Marc Andreessen, of Netscape, is [marca@netscape.com](mailto:marca@netscape.com); Bill Clinton is [president@whitehouse.gov](mailto:president@whitehouse.gov); and Steve Wozniak is [steve@woz.org](mailto:steve@woz.org).

**Serious People Seekers.** If waving a finger and guessing don't help, try Knowbot (<http://info.cnri.reston.va.us/kis.html>), a metaserver that searches various other directories, including MCI Mail, The Internet White Pages, and seven others. Give it a name (first, last, or user name) and whatever other information you can, and it will mount a search.

Four11 is a commercial directory service, although basic use and listing are free. It's easier to use than most of the alternatives. You can search by first name, last name, company, university, hobbies, and more. It relies on the

same name sources as the other tools, lists submitted by service providers, and its own listings (you must let yourself be listed to use it). Four11 claims to have access to 1.5 million listings (including 200,000 of its own) — a fraction of the Net, but still impressive. You can find it at <http://www.four11.com>.

People seekers such as Four11 and Knowbot often use newsgroup posting information. All the users who have ever posted a message to a newsgroup have put their e-mail addresses out there for the collecting, and they have been collected. MIT has a big list of e-mail addresses culled in this way, and you can search it directly. It's tricky to use, so download the instructions first, by sending e-mail to [mail-server@pit-manager.mit.edu](mailto:mail-server@pit-manager.mit.edu) with the word *help* in the message body. One advantage of searching a newsgroup-based list is that you're more likely to find people who have accounts on online services and whose names are therefore not available via other search methods.

Still no luck? Consider the list of people-search resources at <http://www.rpi.edu/Internet/Guides/decemj/icmc/culture-people-lists.html>. Is your old friend a Netceleb? Check Who's Who on the Internet, at <http://web.city.ac.uk/~cb157/pages.html>. I hope your friend's not on the Dead People Server, at <http://web.syr.edu/~rsholmes/dead/index.html>.

Also, Internet experts have long touted something called the X.500 standard, which may one day produce a global hierarchy of e-mail addresses. Today is not that day. You can see how far X.500 directories have come, however, at <http://www.es.net/hypertext/X.500.html>.

If your friend has somehow evaded all these



directories, perhaps she's too busy working on her home page to send e-mail. Yahoo has thousands of listings for personal and family Web pages. You can search the database or go directly to [http://www.yahoo.com/Society\\_and\\_Culture/People](http://www.yahoo.com/Society_and_Culture/People), which leads to personal-page links and more directories.


## Tip of the Month

If there are so many ways to find someone's e-mail address, is there any way to maintain your anonymity when sending messages? There is. Send e-mail to [help@anon.penet.fi](mailto:help@anon.penet.fi) to learn how.

## Don't Know Finger from Thumb?

MacUser maintains a list of frequently asked questions (FAQs) about the Internet, MacUser itself, and this column specifically. Send mail to [faq@macuser.com](mailto:faq@macuser.com). MacUser's address on the World Wide Web is <http://www.zdnet.com/~macuser/>. You can reach me at [traveler@macuser.com](mailto:traveler@macuser.com). ☺





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# HANDS ON

After you use System 7.5.2, you may say to yourself, 'Apple shouldn't have.' Here are some ways to fix what perhaps shouldn't have gone out the door.



By Ted Landau

## System Fix-It Tricks

**WHEN APPLE FOISTED** System 7.5.2 on owners of PCI-based Power Macs and PowerPC-based PowerBooks, its goal was to provide faster system software with new features. For instance, this version of the system software comes with new communications software called Open Transport, which supports such a variety of network protocols that it will make it easier for developers to

create cross-platform applications. Unfortunately, this version of the system software is so full of bugs and incompatibilities it can make your skin crawl, not to mention your Mac freeze and crash. There are ways to exterminate these bugs — or at least keep them at bay until Apple releases the next major upgrade of its system software. Try out these fixes for some of the most common problems:

### Crashes and Other Anomalies

**PROBLEM:** If you have problems when you use a specific utility, chances are that that utility is conflicting with other software. There are so many utilities that conflict with System 7.5.2 that you're bound to run into one of them. Here's the shortlist of utilities to watch out for:

- RAM Doubler versions prior to 1.6 will eventually make your Mac crash (even 1.6 may cause problems).
- Now Menus prior to version 5.0.2 may show an empty folder in a hierarchical menu (layers of folders and files that appear on the Apple menu), even if that folder is actually chock-full of items.
- SAM (Symantec AntiVirus for Macintosh) prior to version 4.0.5 and Symantec's Copy Doubler prior to version 2.0.6 don't work.
- Formatting utilities, such as Drive7 and Hard Disk Toolkit, all have versions that are incompatible.
- Claris Emailer prior to 1.0v2 conflicts with Open Transport.
- Microsoft Office may cause you to get type 11 error messages.

**SOLUTION:** Upgrade any program that gives you trouble after you've made the switch to System 7.5.2. Contact vendors to get upgrade information.

### Printer and Modem Freeze-ups

**PROBLEM:** If you're getting the cold shoulder from your printer or modem when you try to use it, the culprit is probably System 7.5.2's printing software.

**SOLUTION:** Get Apple's System 7.5.2 Printing Update 1.1 or a later version. The extensions and driver it includes fix a host of serial-port-related problems. If the Printing Update doesn't fix your printing stalls and you have a serial printer, such as Apple's own LaserWriter 300, look online for a separate printer-driver upgrade specifically for that printer. Also, if you use Apple's Desktop Printing Software, make sure you upgrade to version 1.0.3 or later.

### A Whiny Control Panel

**PROBLEM:** Have you tossed out AppleScript, figuring, "Who needs it?" You may need it more

than you realize. Unless it's active, the Sound & Displays control panel won't work and you'll be pestered with an error message telling you so whenever you try to open this control panel.

**SOLUTION:** Even though you may never use AppleScript, if you threw it away, reload it. If you disabled it, reenable it. Also, make sure the SystemAV and AVSetup extensions remain in the Extensions folder and are enabled.

### Internet Lockout

**PROBLEM:** If you've had problems accessing the Internet with your PCI-based Mac, welcome to the club. Open Transport, the new communications software that comes with System 7.5.2, has been the cause of so many problems that it's already in at least its fourth release. It's likely to make your Mac crash and freeze while you're surfing the Net, especially if you use Eudora or Netscape.

**SOLUTION:** Upgrade Open Transport with the latest version you find in the Apple support area of an online service.

If you use PPP software (such as MacPPP or



FreePPP), make sure you also have the latest version of that software. Even with the latest upgrades, you may have to turn off virtual memory to get things to work.

If you get completely fed up with Open Transport hassles, you can simply get rid of its TCP/IP components. To do this, disable the TCP/IP control panel as well as the Open Tpt Internet Library and OpenTptInternetLib extensions. Then install MacTCP instead. It comes with System 7.5, which you'll probably have to buy. You may also be able to find MacTCP on disks that come with some books about the Internet, such as Adam Engst's *The Internet Starter Kit* (Hayden Books, 1995).

## GeoPort Jam

**PROBLEM:** Having trouble with your GeoPort Telecom Adapter, which lets your Mac use telephony software? Do you also have a printer connected to your Mac via LocalTalk? I thought so. In an almost unbelievable gaff, Apple's telecom software (which you need in order to use the GeoPort) doesn't work if you have a LocalTalk device connected to your Mac.

**SOLUTION:** A future version of the telecom software (later than 2.4) is expected to fix this. In the meantime, you'll have to unplug your LocalTalk cable before you can use the GeoPort.

## Command-Key Depression

**PROBLEM:** No, this is not a mental condition that can be treated with antidepressant drugs. It's a phenomenon in which your PCI-based Mac thinks you're constantly pressing down on the Command key after the processor wakes from sleep mode. That means, for example, that when you press the O key, the Mac interprets it as Command-O and issues an Open command.

**SOLUTION:** Pressing the Command key after the Mac wakes up should rid you of this depressing situation.

## Memory Loss

**PROBLEM:** You may find that your system software takes up more and more memory as the day goes on. This is because of System 7.5.2's



The volume "ZarDoz" does not appear to contain any duplicate catalog header records.

It is safe to diagnose and repair this volume with Norton Disk Doctor.

OK

increased use of shared libraries. When you run an application that uses a shared library, the library loads into system-software memory but doesn't necessarily get released again when you quit the application (especially if virtual memory is off). Thus, as you continue using shared-library files, your available memory shrinks.

**SOLUTION:** You could perform a forced quit from the Finder to free up memory, but that could leave your Mac unstable. The best way to get the wasted memory back is to restart your Mac. Then turn on virtual memory to avoid losing memory in the future (see the "If All Else Fails" sidebar for an exception to this rule).

## Disappearing Data

**PROBLEM:** If you thought you were lucky to get one of the first PCI-based Macs to roll off the assembly line, think again. PCI-based Macs available in August 1995 have a design flaw that may make you gasp. When you run Norton Disk Doctor on the hard disk of one of these Macs, Disk Doctor may report that all your files are gone. The only thing that's actually wiped clean is a directory of files. It'll still take some work to rebuild the directory, and you may or may not get your files back.

**SOLUTION:** If you have one of the first PCI-based Macs to ship and you haven't run into this problem yet, you should take measures to eliminate any chance of losing your data in the future, by getting and running Disk Spot Check. Available online from Symantec, this freeware utility can also help if you've already fallen prey to this problem, because it includes instructions on data recovery.

You could lose every piece of data on your disk if you run Norton Disk Doctor on certain PCI-based Macs. The preventive medicine is Symantec's Disk Spot Check freeware.

Happily, Apple fixed the manufacturing flaw within a month of discovering it. So, unless you bought a PCI-based Mac before October 1995, it's highly unlikely that it'll perform the data-disappearing act.

## Flashing Screen

**PROBLEM:** Does your Mac's screen flash a second time at startup, just after the Mac OS screen appears? We can't really call this one a problem. But if this phenomenon has you alarmed, let us put your mind at ease. The double-flash is normal. It means that the Mac is loading an updated version of the video-driver software.

**SOLUTION:** If you really want to avoid the flash, hold down the Command-Shift-N-D keys at startup. Unfortunately, if you do, you'll have to use the older, presumably buggier, driver. Aside from being a bit irritating, the only problem this flash causes is that it wipes out any custom startup screen display you may have chosen.

## Joyous Reunion

Many System 7.5.2 hassles can be solved by software upgrades. Most of the rest have simple workarounds that shouldn't interfere with getting your work done. The upgrades and workarounds we've described here may even make your Mac stable enough that you'll forget how desperate you once were to get System 7.5.2 out of your system. ☺

*Ted Landau, author of Sad Macs, Bombs, and Other Disasters (second edition), is convinced that all these problems are part of a plot to force him to start working on a third edition of his book.*

## IF ALL ELSE FAILS / general fix-it tips

IF THE OTHER FIXES we suggest don't solve all your problems, you may need to throw out a wider troubleshooting net.

1. Here's a technique that may help no matter what system software you're running — delete all preferences files for a problem program, and restart your Mac. Before you can delete the preferences files of extensions, you must start up with extensions off (hold down the Shift key during startup).

2. Do a clean reinstall of the system software. To do so, open the installer on the system-software install disk. Then hold down Command-Shift-K when you get to the Easy Install window. Choose to install a new System Folder when you get that option, and click on the Clean Install button. After doing the clean install, you'll have to reinstall all the extensions and control panels that didn't originally come with your system.

3. You can try resetting the PRAM (parameter RAM), but with a PCI-based Mac, that's not enough — you need to also reset the nonvolatile video RAM (NVRAM). To do this double reset, shut down the Mac (don't use Restart), immediately hold down the Command-Option-P-R keys at startup, wait for the Mac to chime twice, release the keys, and let startup proceed. If you don't hold down these keys immediately, you will reset only the PRAM.

4. Delete the Display Preferences file. It's in the Preferences folder in the System Folder.

5. As a last resort, disable PlainTalk speech recognition and ColorSync control panels and extensions. Also turn off virtual memory, even though we earlier advised turning it on to avoid memory loss. It may be more important to skirt communication problems.



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By Bob LeVitus and Christopher Breen

# Help Folder

One answer to hundreds of letters and how to avoid viruses without antivirus software.

## Crashing the Party

**Q.** At our company, Macs crash and programs lock up several times a day. What are your recommendations to prevent such problems?

Jay Barach  
via the Internet

**CHRIS:** Jay, your letter is typical of dozens we receive each month. Generally these missives can be boiled down to one sentence: How come my Mac doesn't work?

At the risk of being so helpful that we become unnecessary, I think it's time for Chris and Bob's Commandments for a Healthier Mac.

**BOB: 1. Use stable system software.** What we're saying is that not all versions of the Mac OS are created equal. System 7.1.2, for example (the first Power Mac release), is notoriously funky. Users who have switched from 7.1.2 to System 7.5.1, based on our advice, have offered to name their children after us.

**CHRIS: 2. Update your extensions and control panels often.** Programs are changing all the time, and an extension, such as RAM Doubler, that purred like a pussycat the day before may roar like a wounded lion when it encounters a new version of Microsoft Word. I check the online services every two weeks for updates of extensions I can't live without.

**BOB: 3. Get rid of bad extensions and control panels.** One of the most frequent causes of Mac trouble is a corrupted or damaged extension or control panel. Begin troubleshooting by disabling them all — hold down the Shift key at startup. Better still, use an extension manager. A bare-bones one — the Extensions Manager — comes with System 7.5. You can

buy better ones from Casady & Greene (Conflict Catcher 3) and Now Software (Now Startup Manager). Then gradually add the extensions and control panels back, restarting each time, to find the culprit.

**CHRIS: 4. Be aware of problem programs.** I'm not saying that the following are poor programs, only that they're high on our list of suspects when things go crash in the night: Apple Menu Options (it's been improved in System 7.5.1, but I'm still wary of it), After Dark, KanjiTalk, RAM Doubler, and Microsoft Word 6-point anything.

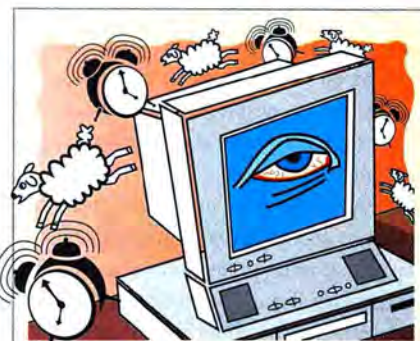
**BOB:** Hmmm. I personally have never had a problem that could be traced to RAM Doubler, and I've never used KanjiTalk. But I agree wholeheartedly that the rest of the programs should be on the list, as should many older games.

**CHRIS:** Make no mistake, I worship RAM Doubler. It's just that it occasionally runs up against a program that doesn't know how to deal with it. Fortunately, Connectix constantly upgrades RD to maintain compatibility.

To continue: **5. Don't assume you have a virus.** Although vendors of virus-protection software will dispute this claim, 999 times out of 1,000, a virus is not the cause of a Mac's squirrely behavior. For the most part, Macs crash because of extension conflicts. Before you spend time looking for a virus, follow Bob's advice to get a good extension manager. (Stay tuned for the next question, which talks about avoiding viruses.)

**BOB: 6. Stay informed.** Ric Ford, of *MacWEEK* magazine, gets paid to dig up the latest on conflicts and crashes. If you can't weasel a subscription of *MacWEEK*, check out Ric's home page on the Web: <http://www.macintouch.com/~ricford>.

**CHRIS:** You would also do well to subscribe to Adam and Tonya Engst's excellent weekly newsletter, TidBITS. To do so, send e-mail to [listserv@ricevm1.rice.edu](mailto:listserv@ricevm1.rice.edu). In the body of the message, put the line SUBSCRIBE TIDBITS John Doe. If your name isn't John Doe, type in your real name.



## TIPS / Monitors

### Sleep-Mode Danger

The Apple Vision 1710AV, Apple's new 17-inch monitor with built-in speakers, is a natural choice for use with today's AV-enhanced Macs. At least it will be after Apple works out all the bugs that have plagued it. One notable problem that's crucial to fix has to do with the sleep mode.

If you have a 1710AV hooked up to a Mac that is capable of going into sleep mode, you may hear a blipping sound from the monitor's speakers after the monitor goes to sleep. This clicking is a sign of a serious problem — the monitor is rapidly turning on and off. (Apparently this is a hardware problem that Apple has since corrected.) Don't let a sleeping, and clicking, monitor lie, or it may never wake up again. If you're having this problem, until you can get a replacement monitor, set the auto-sleep setting on the Energy Saver extension to Never and disable the extension altogether. Then call Apple (800-SOS-APPL) and request a new monitor.

Ted Landau  
MacUser contributing editor

**BOB:** I've plugged it before, and I'll do it again: The second edition of Ted Landau's *Sad Macs, Bombs, and Other Disasters* (Addison-Wesley, 1995) is the definitive guide for troubleshooting Mac problems.

### Internet Inoculation

**Q.** I'm about to buy a modem and hop onto the Internet, so I need a virus-protection program. SAM (Symantec Antivirus for Macintosh) and Virex cost about the same. Is one better than the other?

Edward Davis  
Port Washington, NY

## WRITE TO HELP FOLDER/TIPS

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**BOB:** We've addressed this question a few times before in Help Folder, but now that the Internet is the hottest thing going, this question takes on a new twist.

First, to summarize briefly what we've said before: Virex and SAM are so similar that I can't recommend one over the other.

**CHRIS:** A third option is the freeware program Disinfectant. Its antidotes are just as good as those of the commercial products. There's a reason it's free, though: It doesn't come with a load of automatic protection and update features, as do the commercial products. Also, in order to stay one jump ahead of these computer critters, it's up to you to grab the latest copy online.

**BOB:** Now for the new part — the Internet element. It's so unlikely your Mac will contract a virus that virus-protection software seems unnecessary. But if you download files from the Internet, it's not a bad idea to scan for that one bad file in a hundred (or a thousand) that will wreck your entire day (or week).

**CHRIS:** To move briefly into the Do As I Say and Not As I Do department, I should admit that although I use SAM, I haven't enabled its automatic-scanning feature in over a year. Why? Contracting a computer virus is tough to do if youglom your software from reliable sources. Tell him, Bob.

**BOB:** It's simple: Download your files from one of the major online services instead of the Internet. On the Internet, there's no guarantee the file you're about to FTP has been checked for viruses — some FTP sites scan for them, and others don't. However, the major online services — such as CompuServe, America Online, and Prodigy — are religious about checking all their files for virii.

## Modem Muddle

**Q.** While shopping around for an external modem, I noticed that PC-compatible modems can be as much as \$70 cheaper than their Mac counterparts. Other than the software, is there really a difference?

**Mike Astor**  
via the Internet

**CHRIS:** Mike, you understand that the Mac holds a tiny share of the overall computer market, yes? Therefore, modem makers sell far fewer units to Mac users than to those using PCs, correct? These manufacturers must order smaller printing runs on the packaging for their modems, right?

**BOB:** You're not going to claim that this \$70 difference is all based on the printing costs for

the cardboard box the modem comes in, are you?

**CHRIS:** Of course I am! What other reason could there possibly be?

This is an old scam that, fortunately, is less prevalent today than it once was. PC and Mac modems, as long as they are Hayes-compatible, are exactly the same except for one thing: the cable that runs from the computer to the modem.

You could buy a modem intended for PCs and put the \$70 you save toward the cable (a 25-pin-to-8-pin hardware-handshaking cable) you'll need in order to connect the modem to your Mac. Have a friend go online and download ZTerm for you so that you don't have to buy commercial Mac communications software, and you're set.

**BOB:** One thing's for sure — if you plan to do any faxing from your modem, pay the extra money for a Mac modem. Otherwise, you'll have to buy third-party fax software, most of which truly sucks.

**CHRIS:** Now, Bob, in the politically correct '90s, the proper term for such software is *vacuum-enabled*.

**BOB:** If you decide to spend extra to get a Mac modem, it's worth spending even a bit more to get one from Global Village. Its modems come with the best fax software for the Mac.

**CHRIS:** As much as I like and use Global Village's products, that company's tech support has gone to the dogs lately. Until it demonstrates a willingness to come out of the doghouse, I suggest considering products from U.S. Robotics and Supra.

## QuickTime Redux

**Q.** Every time I start up my Mac, I get a message saying QuickTime installation failed because it was already installed (see figure 1). It has plagued me ever since I installed The Grolier Multimedia Encyclopedia. What's the problem?

**Ira Altschiller**  
San Francisco, CA

**BOB:** I think I know what happened. Since the Grolier Encyclopedia doesn't have an installer,

you had to drag the QuickTime extension to the System Folder yourself, right? Two things may have gone wrong at that stage. First, the extension may not have made it all the way to your Extensions folder. That can happen if your System Folder is open and you drag an extension to the System Folder's open window rather than to its icon. You must drag an extension to the icon for your Mac's system to place the extension properly.

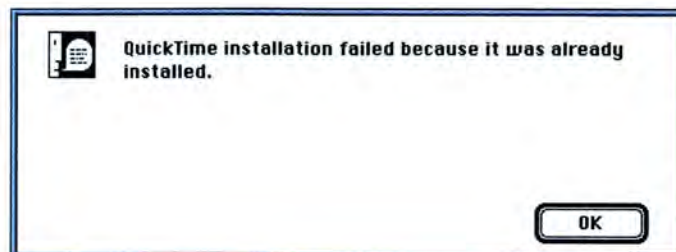
The second way things may have gone awry is that the extension made it to the Extensions folder but your system didn't throw away an older version of QuickTime that was already there. Sounds impossible, but it can happen because the QuickTime extension's name has changed. Recent versions have a trademark symbol included in the name, and they lack a version number. If you have an older version of QuickTime and its name differs, the system may not have spotted it and replaced it when the new version was installed.

In either case, use the Finder's Find command to locate all the QuickTime extensions. Then drag them to the Trash and drag the fresh, clean, new one from the Grolier Encyclopedia installation disk to your closed System Folder. You should see a dialog box asking if it's OK to place it in the Extensions folder. That's what you want. And that, my friend, should be the end of it.

**CHRIS:** As long as we're discussing QuickTime, I've got a pertinent and annoying little QT nibble stuck away in my files.

It deals with programs that install versions of QuickTime even though one already exists (the game The 7th Guest is notorious for this). This isn't a terrible drag unless, of course, you're running the spiffy QuickTime 2.1 and some installer replaces it with the creaky QuickTime 1.6. The substitution won't become obvious until you try to run a program that requires QuickTime 2.

Lesson learned: When it's provided, use the Custom Install option of a program in order to prevent installation of QuickTime — unless you're really sure you want that program's version of it.



**figure 1 / If this message is recurring on your Mac, your QuickTime extension may be in the wrong place or you may have multiple copies of it.**



## Disk Driver Dilemma

**Q.** When I got my PCI-based Power Mac 9500/120, I finally got the kind of speed I've always expected from a Power Mac. But I'm afraid I'll lose some of that speed if I partition my internal hard disk. Doesn't hard-disk-management software install its own driver and slow the drive down? I'm worried the same thing will happen if I install a driver for a removable-media device. Please tell me that my fears are unfounded.

**W. Mack Parry**  
via America Online

**BOB:** Your fears are unfounded. First of all, there's no problem whatsoever if you use Apple's new disk utility, Drive Setup. It's capable of partitioning your disk, and since it installs the same driver you're using now, you won't lose any speed. (It also makes partitioning easier than with the old Apple disk utility — Apple HD SC Setup.) One advantage of choosing the Apple driver over third-party drivers is that you don't have to worry about incompatibility.

Third-party disk-partitioning software shouldn't slow down your PCI-based Mac either, as long as the partitioning software is SCSI Manager 4.3-savvy. Such programs can take advantage of one of the features that makes a PCI-based Mac so fast — Fast SCSI. **CHRIS:** Some examples of programs that can do just that are FWB's Hard Disk ToolKit, CharisMac's Anubis, and Casa Blanca Works' Drive7. Although they may cost more than Apple's Drive Setup, the additional benefits you get — such as password protection, more-flexible partitioning schemes, and benchmarking utilities — make third-party software well worth the price of admission.

**BOB:** Fast SCSI has been supported for quite some time by these utilities. Even so, I highly recommend that you use the latest version of whichever utility you choose.

As far as drivers for removable-media devices go, your fears are outdated. If I may quote one of my expert sources, a shadowy Silicon Valley SCSI programmer reputed to have written large chunks of SCSI Manager 4.3 code, "I can sympathize, having had some trouble with losing speed to drivers for removable-media devices myself. However, if the driver is indeed SCSI Manager 4.3-savvy, it shouldn't degrade speed. Even if the removable-media device is controlled by a pre-4.3 driver, the worst that will happen is that only that device will suffer a speed loss — the other devices on the bus won't be affected."

## Leaping System Heap

**Q.** Whenever I launch big applications, such as Word 6, my system heap grows by leaps and bounds. Why is this?

**Kevin Lee**  
via the Internet

**CHRIS:** What you're witnessing is one of the nicest features of System 7 — it dynamically allocates system memory (the system heap is part of the system memory). That means that if the system needs more memory or if an application needs extra system memory to do its job, that memory is snatched up in something significantly faster than the blink of an eye. This wasn't always the case.

Under System 6, manually increasing the system heap was almost a requirement, especially if you ran many inits and cdevs (now called extensions and control panels, for those of you who keep track of such arcana).

**BOB:** Thankfully, we don't have to do that anymore. Nowadays, we just fire up application after application; the system heap grows; and if there's not enough memory, the Mac lets us know about it with a polite dialog box that tells us to get lost until we free up more memory by closing windows or quitting applications.

## Thanks for ASCIIing

**Q.** I'm having trouble accessing my e-mail remotely. I recently purchased a modem for my home Mac, which I use to log onto my office network. I can get into the system easily enough, but the DOS-based e-mail program at work requires that I use function keys, such as F10, to get my mail. Unfortunately, I have a standard Apple keyboard with no function keys. What do I do?

**Scott Nettle**  
San Antonio, TX

**CHRIS:** Readers are expecting another tired old "Let's use some arcane ResEdit trick or create a macro for your missing function keys" answer. But I'm going to let you off the hook this time. Why? Because of the miracle of ASCII (American Standard Code for Information Interchange) — a language that any computer can understand.

ASCII code uses numbers to represent the most common 256 characters and control codes (such as a carriage return). For instance, the ASCII code for the letter K is 75.

**BOB:** Very enlightening, Dr. Breen, but are we getting to an answer shortly?

**CHRIS:** Any second now. You can use ASCII codes instead of pressing function keys.

**BOB:** Talk to your system administrator at work, and find out what ASCII codes the e-mail program requires.

**CHRIS:** If said sys admin is hip to the Mac, that person will tell you to type a key combination as simple as Control-C and you'll never need to know the ASCII code. If you can get only the codes, use a program such as Jon Wind's \$10 shareware program, ASCII Chart, to help you locate the corresponding key combinations. You can also find the codes in the appendix of a Microsoft Word manual and in Sharon Zardetto Aker's *The Mac Almanac* (ZD Press, 1994).



## Tropical Floppy

**BOB:** In the October '95 Help Folder (page 142), we claimed that floppy disks should last years without failing. Hawaii resident Bill Martin writes:

"Obviously, you know zip from shinola about onshore coastal winds in a high-salt area. Here in the Aloha State, a floppy has a reliable life expectancy of about two years."

"Those living in humid coastal regions should take care to keep floppies inside plastic or wood cases, away from open windows, and far from heating and cooling systems in your home. It's even better to store floppies in zip-lock bags, with a little pouch of silica gel."

Zip-lock bags not only keep the salt out but also guard against the grand pooh-bah of floppy destroyers — dust. ☹

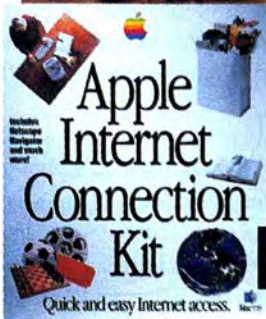
Bob LeVitus is the director of evangelism for Power Computing. Christopher Breen most recently coauthored *The Macintosh Bible Guide to Games*, published by Peachpit Press.



You can find the shareware and freeware programs referenced in this article on MacUser's Web page (<http://www.zdnet.com/~macuser>). You can also find them in the MacUser and ZD Net/Mac areas on CompuServe and eWorld. See How to Reach Us for instructions on accessing ZD Net/Mac.



# Until now, the on-ramps to the Internet have been under construction.



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Just think, 30 minutes after opening the box, you could be participating in discussion groups, E-mailing Aunt Helga in Denmark, visiting the Louvre, the Library of Congress or maybe even the local chicken joint. (Seems like everybody's got a Web site nowadays.)

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# PERSONALmac

Your Mac can't help  
with the 2 A.M. feeding,  
but it can make  
the process of being  
a parent a little easier.



By Victoria Von Biel

## Parents' Survival Guide

**P**EOPLE WITHOUT KIDS don't really understand the one central truth of most parents' lives: The moment the little line on the pregnancy test turns pink, moms and dads start a trip that leads to some pretty strange destinations. I'm not talking Barcelona or Bali here. I'm talking the Polly Pocket aisle at Toys "R" Us, Raffi concerts, hospital emergency rooms, and vicious peewee soccer games.

### First Things First

It's only the beginning of your journey, but pregnancy may be the strangest part of the whole parental experience. To help you along the way, try **Nine Month Miracle** ▼ (ⓈⓈ; \$40), from ADAM Software (800-755-2326 or 770-980-0888). This CD-ROM explores fetal development, using video, pictures, and animations.

You can check out male and female anatomy, watch videos of procedures such as amniocentesis, and even observe a birth. An excellent index lets you go straight to the area that interests you most.

Nine Month Miracle is not just for adults. A wonderful section called Emily's New Sister teaches little children all about how a baby develops. Parents who are

squeamish about some of the disc's contents (such as the birth video) can invoke a "fig leaf" option to protect innocent eyes from the more graphic material.

This CD-ROM has a couple drawbacks, the worst being the "hosts," Adam and Eve. Just pray that you're never trapped

Suddenly you find yourself needing timely information on previously undreamed-of topics. Where to turn in your hour of need? To your trusty Mac, of course. Through the magic of CD-ROMs and modems, you can consult Mayo Clinic pediatricians, absorb the child-care wisdom of T. Berry Brazelton, and — best of all — kvetch endlessly with other parents.

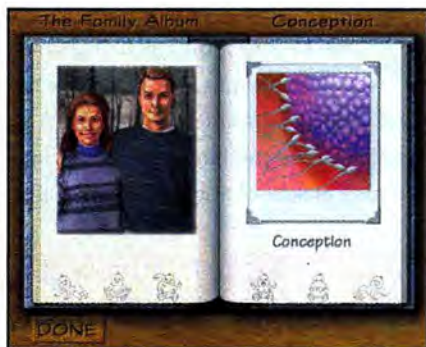
in an elevator with this perky twosome, whose cute banter — pregnant readers, take note — can induce serious nausea. Drawback No. 2 is that this disc is *slow*. Even with a Power Mac, you're going to spend lots of time listening to the compact disc spin and the hard disk churn — teaching you the kind of patience expectant parents need in spades once Junior is born.

Another, less helpful program for expectant and new parents is **ReadySetGrow!** (ⓈⓈ; \$40), from IMSI (415-454-7101). This HyperCard-based program lets you count down to your due date via a "biological clock," alerts you to potential genetic risks, and even predicts what your child will look like (very cheesy). Once your baby is born, you can record all the "firsts" (smiles, steps, and so on), track height and weight, keep medical records on file, and look up common

childhood ailments. I wouldn't rely on ReadySetGrow!'s not very current medical advice, though, and the interface is a joke. Its heart is in the right place, but it's just not *the* computerized baby book the world is waiting for.

### Paging Dr. Spock

Once you get home from the hospital and realize there are no doctors or nurses on hand to help you with your adorable, helpless new being, a computerized medical encyclopedia starts to seem like a very good thing. **Mayo Clinic Family Health Book** (ⓈⓈⓈ; \$80), from IVI Publishing (800-754-1484 or 612-996-6000), is a truly excellent CD-ROM for new parents. Filled with sensible advice on such topics as breast feeding and newborn care, it's also a good general health reference for the whole family. Look up side effects of





# Buy one.



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We can give you lots of good reasons to get Edmark's latest educational program, Strategy Games of the World. And for a limited time we'll give you one more—an Edmark program of your choice *free*.

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Collection 1



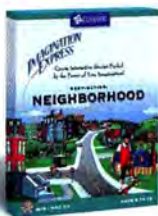
Thinkin' Things  
Collection 2



Thinkin' Things  
Collection 3



KidDesk Family Edition



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- WalMart
- Zany Brainy



medications, check out mysterious symptoms, and find out how to improve your family's health. With Mayo Clinic doctors behind the content and built-in links to health references on the Internet via Netscape Navigator, this CD-ROM is both trustworthy and reassuring.

If all you want are the cold, hard anatomical facts, then **BodyWorks 4.0** (★★★★; \$50), from SoftKey International (800-227-5609 or 617-



494-1200), is the program for you. This program uses speech, music, photos, diagrams, and movies to graphically illustrate how the human body operates. It has a good section on pregnancy and also provides lots of general anatomy and physiology information. As dry and academic as this CD-ROM can be, it's still quite fascinating and well-indexed — clicking on an unfamiliar term or illustration takes you straight to the medical dictionary. And version 5.0, which should be available by the time you read this, adds game-show and "multimedia classroom" elements.

## Advice and Consent

None of these programs deliver what parents need most: operating instructions. How do you toilet-train a toddler who thinks the potty is a good place to store Tonka Toys? And how do you stop your ten-year-old from becoming an e-mail pal with a 40-something unemployed truck driver from Dubuque?

The closest you'll ever get to a user manual is the other parents you'll find online. For information on anything from baby names to teenage discipline, visit **Family Forum** (GO Family), on CompuServe; **Parenting** magazine (keyword: Parenting Magazine), on America Online; or **Parents Interactive Network** (keyword: PIN), also on AOL. I can't guarantee that the advice will be any better than what your mother would give you (and in some cases, it will be a lot weirder), but there's comfort in

knowing you're not alone.

The Web also has some good places to brush up on parenting skills. One of the best is **Family Planet** ▼ (<http://family.starwave.com>), a nicely designed and well-edited online magazine, with daily news stories, syndicated columns from such luminaries as Dr. T. Berry Brazelton, child-care articles, children's-TV reviews, and lists of other parenting resources on the

Net. **Parents Place** (<http://www.parentsplace.com>) has less glitz than Family Planet but a tad more charm. It pulls together various resources on the Web — catalogs, discussion groups, and so on — and presents them with down-to-earth commentary.

Of course, although the Web is a wonderful resource for parents, it becomes a headache once your children are old enough to log on themselves. They want to make new friends in alt.grunge.megadeth; you want them to be looking up the gross national product of Bolivia on Britannica Online.

Unfortunately, Fresh Software Company's Time's Up!, a program that allows parents to set time limits for computer use, isn't yet available for the Mac. However, Prodigy and AOL's fairly effective Parental Controls let you decide where on these services your kids can go.

You can also limit access to the Net by using SurfWatch, one of the first programs to be released in response to last year's mass hysteria about child porn online.

**SurfWatch** (★★★★; \$50; monthly updates, \$6 each; 800-458-6600 or 415-948-9500) operates by blocking access to those areas of the Internet you don't want your child to visit, usually newsgroups and some Web pages but also FTP and Gopher sites. The program comes with a built-in list of taboo sites and uses a filter (based on words in the URL) to avoid others as they are created. The monthly updates contain 40 to 80 naughty new sites. The drawback of SurfWatch is that you can't edit the list of banned sites or the filter yourself. And of course, all kids worth their salt are going to figure out a way around SurfWatch and into alt.body.piercing.

Wouldn't you have? ☹

# The Two Dads

BY RIK MYSLEWSKI AND JIM SHATZ-AKIN

**RIK:** Hey, Jim — watch me pull a rabbit outta my hat.

**JIM:** Again? That trick *never* works.

**RIK:** Nothin' up my sleeve . . . presto!

**JIM:** Arrghh!! Put it back! Put it back!

**RIK:** You don't think the wolverine's a nice surprise?

**JIM:** [Response deemed unsuitable for a kids'-software column. — Ed.]

**RIK:** You could be right. Maybe I should tone down my act.

**JIM:** How about learning a trick or two from a QuickTime tutorial?

**RIK:** I don't know. The few I've seen have been pretty disappointing.

**JIM:** Have you checked out Houghton Mifflin Interactive's **Inside Magic**? It teaches basic sleight-of-hand skills — stuff like palming coins and false shuffling — and then combines them to create tricks.

**RIK:** Yeah, but the how-to movies should have included narration — and they're so low-quality that you can't see what's going on. The free props are nice, though.

**JIM:** HarperCollins Interactive's **Magic: An Insider's View** has much better QuickTime quality.

**RIK:** But it has other problems.

**JIM:** Aside from host Harry Anderson's silly escape-trick shtick?

**RIK:** The how-to sequences are weirdly fractured — you have to click through multiple movies to figure out a trick.

**JIM:** Still, it's better than Arc Media's earnest four-volume **Magician's Secrets** series. Each one teaches only a few tricks — and they're dull and predictable.

**RIK:** As much as I hate to say it, Brøderbund's **Learn the Art of Magic** is the best of the bunch.

**JIM:** It provides lots of props and tons of tricks — all clearly explained. What's not to love?

**RIK:** *Who*, not *What*. Jay Alexander, its loud, manic host — the Paulie Shore of prestidigitation.

**JIM:** Still, if you can put up with him . . .

**RIK:** . . . and the incessant "cute" sound effects and video tricks . . .

**JIM:** . . . you can learn a lot of nifty tricks. There's even a feature that prints a magic-show poster and tickets.



## Inside Magic ★★★★★

**Ages:** 10 and up.  
**Price:** CD-ROM, \$59.95 (list).  
Magic coins, ropes, and cards are supplied, but unnarrated, low-quality QuickTime spoils an otherwise good show-and-tell approach.  
**Company:** Houghton Mifflin Interactive, Boston, MA; 617-351-3333.  
**Reader Service:** Circle #415.

## Magic: An Insider's View ★★★★★

**Ages:** 10 and up.  
**Price:** CD-ROM, \$39.95 (list).  
Host Harry Anderson hams it up, but another magician teaches tricks — in an oddly disorganized way. Great background on famous magicians.  
**Company:** HarperCollins Interactive, New York, NY; 212-207-7000.  
**Reader Service:** Circle #417.

## Learn the Art of Magic ★★★★★

**Ages:** 8 – 12.  
**Price:** CD-ROM, \$35 (estimated street).  
A wealth of classic tricks, revealed clearly and informatively, plus a good assortment of props. If only obnoxious host Jay Alexander would have remembered his Prozac . . .  
**Company:** Brøderbund, Novato, CA; 415-382-4400.  
**Reader Service:** Circle #416.

## Magician's Secrets, Volumes 1 – 4 ★★★★★

**Ages:** 8 and up.  
**Price:** CD-ROM, \$19.95 per volume (list).  
Modestly priced CD-ROMs reveal tricks in a clear manner, but eight to ten tricks per volume feels skimpy and many tricks are so simple that QuickTime treatment is overkill.  
**Company:** Arc Media, Buffalo, NY; 416-533-4429.  
**Reader Service:** Circle #418.



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# The Game Room

BY BOB LEVITUS

**GORE, DEATH, BLOOD, AND EXPLETIVES** — at least one of these elements appears in each of the games in this month's selection. Although they contain nothing severe enough to faze the average teenager, the graphics or language is strong enough to warrant an advisory label on the box.

Doom II is the Mac version of the first-person twitch-and-shoot-'er that's been a best-seller on the Windows platform. *Frankenstein: Through the Eyes of the Monster* is a beautiful interactive adventure in the Gothic horror mode. *Full Throttle* is a clever interactive heavy-metal biker flick.

## Doom II

*Gore and More*

For several years, *Doom* has been the hottest thing going on the PC. Millions of copies have been sold or bootlegged, and its network play is legendary among PC users. Now it's finally available for the Mac and comes complete with the look and feel of its PC sibling, including jaggy graphics. It's networkable with Macs or PCs, and it lets you plug in WAD files (independent levels of the game you can download from online services) created for the PC, so you can get different looks, such as *Barney Doom* or *Simpsons Doom*.

You roam a futuristic space port, discovering weapons and armor as you fight your way through 30

demon-infested levels in the faint hope of saving the Earth. It's fast and furious action, even on slower Macs, and it has enough death and destruction to satisfy the most bloodthirsty gamer. This game will keep you busy killing demons for a good long time.

Overall, *Doom II* is entertaining, but compared to *Marathon*, which has a similar theme, it's primitive. *Marathon* has better resolution, cooler weapons, nastier bad guys, slicker sound, and prettier scenery. If you like *Marathon*'s action but you're tired of *Marathon*, *Doom II* is your game.

## Frankenstein: Through the Eyes of the Monster

*Beauty That's Skin Deep*

*Frankenstein* is an adventure game in which you play the reanimated monster, awakened to explore the exquisitely rendered *Frankenstein* castle and grounds. The goal is to discover the how and why of your existence before the mad doctor kills you again.

For aesthetic beauty, this game gets high marks. The graphics have much more detail and higher resolution than the other two games in this review. Another plus is the intriguing Dr. Frankenstein, played by Tim Curry (*The Rocky Horror Picture Show*'s Dr. Frank N. Furter). He's entertaining and dangerously unpredictable.



Unfortunately, the game has a fatal flaw — it's slow. Not only does it run sluggishly on all but the most powerful Macs but progressing in the game is also so difficult you're likely to give up. What makes the game so frustrating is that you get little feedback — nothing more than a hand cursor that changes shape to indicate which direction you may travel or which objects you can handle. Compared to what you do in *Myst*, the popular game in the same genre, the actions you must take to progress in *Frankenstein* are obscure. If not for the 16-page cheat (which doesn't come with the game but can be requested from MacPlay), I'd still be stuck in the resurrection lab trying to figure out what to do next. This game will appeal to only the most hard-core gamers.



## Full Throttle

*Ride of Your Life*

*Full Throttle* is a mixture of movie and game, spiced with humor. Although the graphics could be accused of suffering from the jaggies, the makers pull off some impressive effects.

You play Ben, a biker outlaw who's been framed for the murder of Malcolm Corley, founder of Corley Motors — the last American motorcycle manufacturer. You must hunt down the true killer: the evil Adrian Ripburger, who wants to turn Corley Motors into a minivan manufacturer. Your other goal is to help Corley's daughter Maureen save the company.

Unlike typical games, *Full Throttle* is cinematic — it has lots of noninteractive scenes that provide exposition. A pulsing multichannel digital soundtrack by heavy-metal band *Gone Jackals* makes the experience even more movie-like. Unlike a movie, it requires you play games at times that take quick thinking and fast fingers. For instance, in one scene, you fight rivals on the highway with chain saws, boards, maces, and chains; in another, you drive a hovercar in a demolition derby.

## Cheat Sheet

BY ROMAN LOYOLA

### Doom II Enhancements

Knowing some secret *Doom II* codes gives you an extra edge. Type these in while you play the game, and here's what you'll get: **iddqd** — full health as well as some protection from injury **idkfa** — the full amount of ammunition and keys **idbeholdi** — invisibility **idbeholdr** — a radiation suit **idbeholdv** — invincibility **idclef followed by any number from 1 to 32** — admission to the level you enter (levels 31 and 32 are secret levels you might not find, even if you finish the game) You can find more codes in the game-hints area of most online services.


### Doom II Downloads

Several useful files online make *Doom II* all the more enjoyable. *Doom II 1.0->1.0.2 Updater*, for instance, fixes bugs and makes performance smoother and sound panning better.

*WADtyper* is another useful file that lets you convert PC WAD files to Mac format. All you have to do to perform the conversion is drag and drop a PC WAD file onto *WADtyper*.

And if you want to play the game that started the whole *Doom* phenomenon, download the file called *Doom*; the original is finally available for the Mac as shareware (\$9).

The graphics are jagged, but the cartoon style is fun and the movement is smooth.

The only thing I can find to complain about, other than the jaggies, is that the game is limited in two ways — it's linear, and it's too short. I finished it in three nights. I'd love to see a longer, more involved sequel with similar artwork and characters. 

*Bob LeVitus is a MacUser contributing editor and Power Computing's director of evangelism.*

## GAME POINT

If you like fast, furious, bloody action (and are sick of *Marathon*), load up a copy of *Doom II*. I recommend *Frankenstein* only to dedicated gamers with fast computers. It's beautiful but requires a lot of patience. *Full Throttle* is clever and fun, but I wish it were longer.

### Doom II ★★★★★

Price: \$50 (estimated street).  
Company: GT Interactive Software, New York, NY; 800-610-4847;  
<http://www.gtinteractive.com>.  
Reader Service: Circle #419.

### Frankenstein: Through the Eyes of the Monster ★★★★★

Price: \$50 (estimated street).  
Company: MacPlay, Irvine, CA; 800-462-7529 or 714-553-3530.  
Reader Service: Circle #420.

### Full Throttle ★★★★★

Price: \$50 (estimated street).  
Company: LucasArts, San Rafael, CA; 800-985-8227 or 415-472-3400.  
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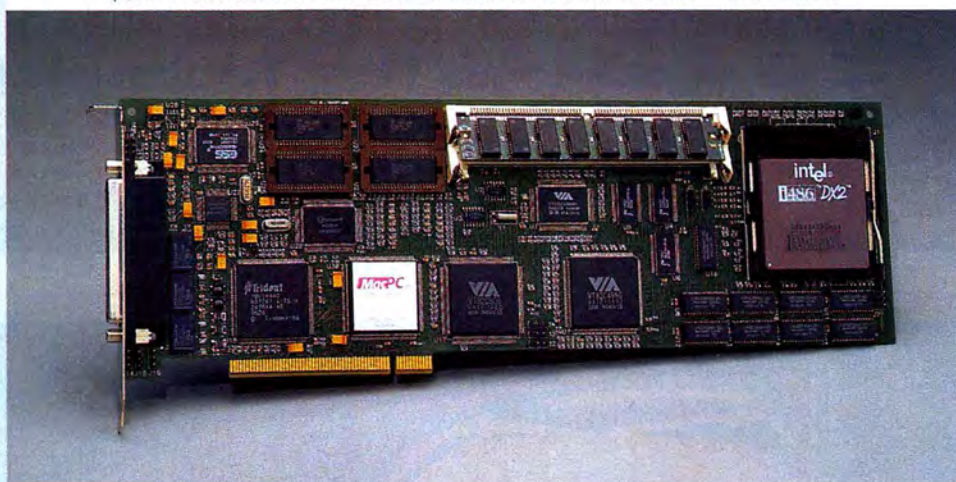
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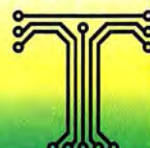


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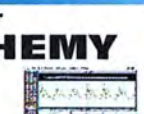


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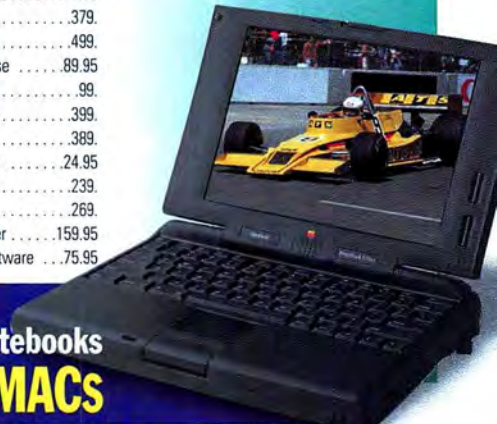
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| 86800                            | PowerBook DynaMO Int 230MB             | \$299.98   |
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| 00555                            | Hard Disk Toolkit                      | \$115.98   |
| 05476                            | Hard Disk Toolkit - Personal Ed.       | \$49.98    |
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| 94121                            | SCSI JackHammer                        | \$449.00   |
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| 96810                            | Imaging MacTransportable 90 Pro        | \$431.98   |
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| 91825                            | Zip Drive                              | \$198.00   |
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| 89164                            | BarraCuda 2.1GB Ext HD                 | \$979.00   |
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| 86836                            | 74min CD-R 10-Pack (\$25 Rebate)       | \$89.00    |
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| H047 1042 | HP DeskJet 1600CM/PS PostScript Printer       | \$1985  |
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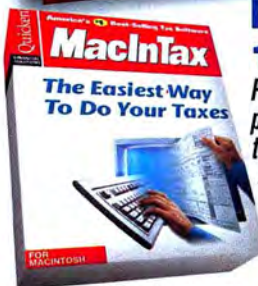
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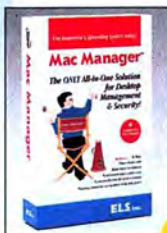


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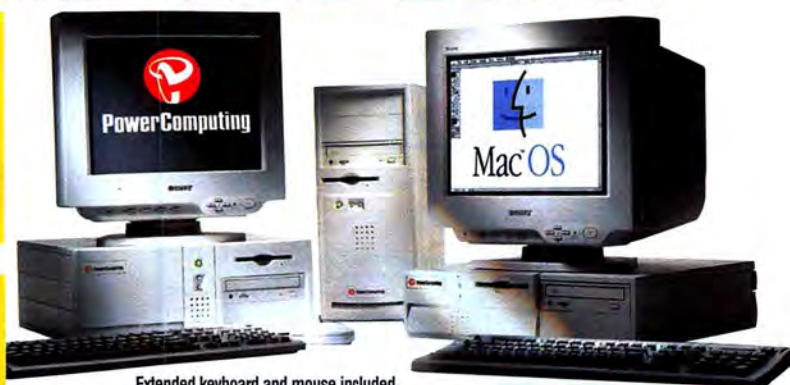
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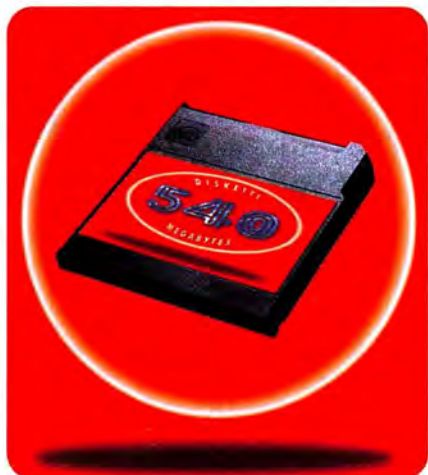


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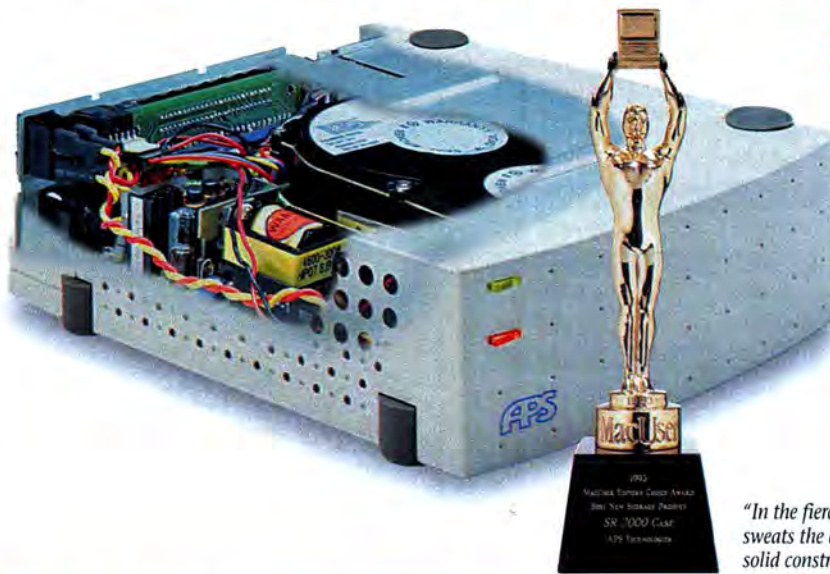
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| Quantum 840 Trailblazer  |          |              |          |        |
| APS I 1080 <sup>3</sup>  | 1034MB   | ★★★★         |          |        |
| IBM DPES 31080           |          |              |          |        |
| APS Q 1080 <sup>3</sup>  | 1042MB   | ★★★★ MacWEEK |          |        |
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| APS Q 2210 <sup>3</sup>  | 2100MB   | ★★★★         |          |        |
| Quantum Capella VP32210  |          |              |          |        |
| APS ST 4200 <sup>3</sup> | 4094MB   | ★★★★         |          |        |
| Seagate ST 15230N        |          |              |          |        |

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| Model                   | Capacity/Features | Drive Type          | Internal |
|-------------------------|-------------------|---------------------|----------|
| APS Q 514 <sup>1</sup>  | 491MB             |                     |          |
| Quantum Daytona         | 4500 rpm          | SCSI drive          |          |
| APS I 1.2 <sup>1</sup>  | 1215MB*           |                     |          |
| IBM Travel Star         | 4900 rpm          | SCSI drive          |          |
| APS Q 1.08 <sup>1</sup> | 1037MB            |                     |          |
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| APS MS 2.0 <sup>5</sup>     | 1955MB   | ★★★★         |          |        |
| Micropolis 4221             |          |              |          |        |
| APS Q 2.0 <sup>5</sup>      | 2050MB   | ★★★★         |          |        |
| Quantum Atlas XP32150W      |          |              |          |        |
| APS ST 2.0 <sup>5</sup>     | 2047MB   | ★★★★         |          |        |
| Seagate ST 32550N Barracuda |          |              |          |        |
| APS MS 2.0W <sup>5</sup>    | 1955MB   | ★★★★         |          |        |
| Micropolis 4221AV           |          |              |          |        |
| APS MS 4.0 <sup>5</sup>     | 4064MB   | ★★★★         |          |        |
| Micropolis 3243             |          |              |          |        |
| APS MS 4.0W <sup>5</sup>    | 4064MB   | ★★★★         |          |        |
| Micropolis 3243AV           |          |              |          |        |
| APS ST 4.0 <sup>5</sup>     | 4094MB   | ★★★★         |          |        |
| Seagate ST 15150N           |          |              |          |        |
| APS Q 4.0 <sup>5</sup>      | 4101MB   | ★★★★ MacWEEK |          |        |
| Quantum Atlas XP34300       |          |              |          |        |
| APS MS 9.0 <sup>5</sup>     | 8669MB   | ★★★★         |          |        |
| Micropolis 1991             |          |              |          |        |
| APS MS 9.0W <sup>5</sup>    | 8669MB   | ★★★★         |          |        |
| Micropolis 1991AV           |          |              |          |        |
| APS ST 9.0 <sup>5</sup>     | 8669MB   | ★★★★         |          |        |
| Seagate ST410800N           |          |              |          |        |

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<sup>5</sup>External case is Full Height only.  
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### APS FAST/WIDE DRIVES

| Model                    | Capacity | Awards | Internal | SR2000 |
|--------------------------|----------|--------|----------|--------|
| APS MS 2.0W <sup>5</sup> | 1955MB   | ★★★★   |          |        |
| Micropolis 4221W         |          |        |          |        |
| APS Q 2.0W <sup>5</sup>  | 2050MB   | ★★★★   |          |        |
| Quantum Atlas XP32150W   |          |        |          |        |
| APS MS 4.0W <sup>5</sup> | 4064MB   | ★★★★   |          |        |
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**\$749<sup>95</sup>**

Internal configuration



| APS TAPE DRIVES  |           |        |          |                                       |
|--|-----------|--------|----------|---------------------------------------|
| Model  | Capacity* | Awards | Internal | SR2000                                |
| APS HyperQIC <sup>2</sup><br>QIC 3080 Mechanism            | 2GB*      |        | N/A      | \$499 <sup>95</sup>                   |
| APS ProDAT <sup>2</sup><br>DDS-2 Non-Compression Mechanism | 4GB*      |        |          | \$749 <sup>95</sup> 799 <sup>95</sup> |
| APS HyperDAT <sup>2</sup><br>DDS-2 Compression Mechanism   | 8GB†      |        |          | 949 <sup>95</sup> 999 <sup>95</sup>   |
| APS DAT Loader600 <sup>2</sup> 48GB††                      |           |        |          | *2499 <sup>95</sup>                   |
| Ideal for unattended large network backups                 |           |        | N/A      |                                       |
| APS DLT30 <sup>2</sup><br>Digital Linear Tape Mechanism    | 30GB‡     |        | N/A      | *4499 <sup>95</sup>                   |
| APS DLT40 <sup>2</sup><br>Digital Linear Tape Mechanism    | 40GB‡     |        | N/A      | *5999 <sup>95</sup>                   |

\*Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment. †2:1 Hardware data compression. ‡Using six 120m DAT tapes  
\*Native capacity without data compression. ††External case is special Full Height only  
All APS DAT, DLT & HyperQIC drives include Retrospect by Dantz

- 30-day money-back guarantee (excluding opened software). Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. The warranty length is denoted by the superscripted number next to each drive model. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to restocking fee.
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable.
- External SCSI-2 drives come with a premium SCSI cable, power cord and user guide.
- All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, and APS Technologies' APS PowerTools SCSI formatter/hard disk partitioner.
- International customers must pay for all shipping charges.
- Toll-free Technical Support as needed. Regular hours are 8 am to 8 pm Monday thru Friday, 9 am to 5 pm Saturday, Central Time.
- Prices and specifications are subject to change without notice.

| APS SYQUEST DRIVES       |          |        |          |                                       |
|--------------------------|----------|--------|----------|---------------------------------------|
| Model                    | Capacity | Awards | Internal | SR2000                                |
| EZ135 <sup>2</sup>       | 135MB    |        | N/A      | \$239 <sup>95</sup>                   |
| APS SQ 5200 <sup>2</sup> | 194MB    |        |          | \$339 <sup>95</sup> 389 <sup>95</sup> |
| APS SQ 3270 <sup>2</sup> | 255MB    |        |          | 349 <sup>95</sup> 399 <sup>95</sup>   |

1-5 Denotes length of manufacturer's warranty in years

| APS CD-ROM DRIVES                             |        |          |                     |                     |
|---|--------|----------|---------------------|---------------------|
| Model   | Awards | Internal | SR2000              |                     |
| APS T 3701 <sup>1</sup> 6X-speed CD-ROM       |        |          | \$399 <sup>95</sup> | \$449 <sup>95</sup> |
| APS PD4 <sup>1</sup> multi-purpose drive      |        | N/A      |                     | 599 <sup>95</sup>   |
| APS CD-R <sup>1</sup> CD-ROM recordable drive |        | N/A      |                     | 1299 <sup>95</sup>  |

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| APS MO DRIVES                       |        |                     |
|-------------------------------------|--------|---------------------|
| Model                               | Awards | SR2000              |
| APS 230MB MO <sup>2</sup>           |        | \$499 <sup>95</sup> |
| APS 1.3GB MO <sup>1</sup> 4MB Cache |        | 1699 <sup>95</sup>  |

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### Standard 72-Pin Simms:

Quadra 605/630, 610, 650, 700, 800/840AV, LCIII, LC475, LC630, Performa 450-560, 575 and 6115CD, PowerMac 6100, 7100, 8100, WS 80, WS60, WS 95, WS 6150 and WS 8150, 9150.

### 168 Pin Dimms:

PowerMac 9500, 8500, 7500, 7200

### Standard 30-pin SIMMs

|             |           |         |
|-------------|-----------|---------|
| 1MB 100NS   | 8001      | \$31    |
| 1MB 80/70NS | 8000/8007 | 32/35   |
| 2MB 80/70NS | 2000/2007 | 65/74   |
| 4MB 80/70NS | 4000/4070 | 121/135 |
| 8MB 70NS    | 8888      | 315     |
| 16MB 70NS   | 1601      | 599     |

### 30-pin, 36 bit SIMMs

|          |      |      |
|----------|------|------|
| 1MB 70NS | 9070 | \$45 |
| 4MB 70NS | 9007 | 159  |

### 4MB PAL SIMMs for II, Ix

|             |           |           |
|-------------|-----------|-----------|
| 4MB 80/70NS | 4100/4107 | \$149/151 |
|-------------|-----------|-----------|

### 64-pin SIMMs for Ilii

|             |           |         |
|-------------|-----------|---------|
| 1MB 80/70NS | 8080/8070 | \$43/43 |
| 4MB 80/70NS | 4080/4087 | 155/155 |
| 8MB 70NS    | N8887     | 365     |
| 16MB 70NS   | N1680     | 665     |

### 72-pin SIMMs

|              |             |           |
|--------------|-------------|-----------|
| 4MB 70/60NS  | 4032/4632   | \$106/112 |
| 8MB 70/60NS  | 8032/8632   | 227/229   |
| 16MB 70/60NS | 16732/16602 | 428/448   |
| 32MB 60NS    | 32632       | 935       |

### 72-pin, 36 bit SIMMs

|           |        |       |
|-----------|--------|-------|
| 4MB 70NS  | 43670  | \$162 |
| 8MB 70NS  | 83670  | 339   |
| 16MB 70NS | 163670 | 551   |
| 32MB 70NS | 323670 | 1221  |

### 168-pin DIMMs

|           |       |       |
|-----------|-------|-------|
| 4MB 70NS  | 4764  | \$153 |
| 8MB 70NS  | 8764  | 238   |
| 16MB 70NS | 16764 | 460   |
| 32MB 70NS | 32764 | 970   |
| 64MB 70NS | 64764 | 2195  |



### PB 5300 Series

|          |           |      |
|----------|-----------|------|
| 8MB RAM  | PB5300-8  | 298  |
| 12MB RAM | PB5300-12 | 469  |
| 16MB RAM | PB5300-16 | 583  |
| 32MB RAM | PB5300-32 | 1175 |

### PB 190 Series

|           |           |       |
|-----------|-----------|-------|
| 4MB 70NS  | NPB190-4  | \$207 |
| 8MB 70NS  | NPB190-8  | 368   |
| 12MB 70NS | NPB190-12 | 507   |
| 16MB 70NS | NPB190-16 | 722   |
| 32MB 70NS | NPB190-32 | 1199  |

### PB500 Series

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|----------|----------|-------|
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| 16MB RAM | PB/BB-16 | 577   |
| 32MB RAM | PB/BB-32 | 1159  |

### PB500 210/230 SERIES

|                            |  |       |
|----------------------------|--|-------|
| PB DUO-4MB MEMORY UPGRADE  |  | \$169 |
| PB DUO-8MB MEMORY UPGRADE  |  | 299   |
| PB DUO-12MB MEMORY UPGRADE |  | 479   |
| PB DUO-14MB MEMORY UPGRADE |  | 549   |
| PB DUO-20MB MEMORY UPGRADE |  | 785   |
| PB DUO-28MB MEMORY UPGRADE |  | 1172  |

### FPU's/Math CoProcessors

|                              |              |       |
|------------------------------|--------------|-------|
| Centris FPU 25MHz            | ST04025      | \$189 |
| FPU 33MHz DUO/P600           | DUP600 33MHz | 52    |
| FPU Color Classic 16MHz      | CLRLC 16MHz  | 44    |
| LC575 33MHz Math CoProcessor | ST04033      | 285   |

### PowerMac 6100, 7100, 8100 VRAM/CACHE

|                              |       |      |
|------------------------------|-------|------|
| 256K 80NS Video RAM          | 1516  | \$17 |
| 512K Video RAM               | 1500  | 22   |
| 256K Cache Card PM6100, 7100 | PM256 | 107  |
| 512K Cache Card PM6100, 7100 | PM512 | 411  |
| 1MB Cache Card PM6100, 7100  | PM1MG | 792  |

### PowerMac 7200, 7500, 8500, 9500 VRAM/CACHE

|                           |          |      |
|---------------------------|----------|------|
| 1MB VRAM PM7200/7500/8500 | 1517     | \$65 |
| 2MB Video RAM PM9500      | NTVR2MB  | 229  |
| 256K CACHE DIMM           | PMPC1256 | 176  |
| 512K CACHE DIMM           | PMPC1512 | 449  |

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| VISIONEER PaperPort for | 365    |
| NIKON CoolScan External | 1379   |
| NIKON Super CoolScan    | 1999   |
| AGFA StudioScan IISI    | 935    |
| POLAROID SPRINTSCAN     | 1555   |

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| VISTA S-6 PRO+ | 698 |
| VISTA S-6 LE+  | 598 |

### APPLE

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| Laserwriter 4/600        | 895    |
| Personal Laserwriter 320 | 809    |

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| HP LaserJet 4 Plus | 1514      |
| HP LaserJet 4V/4MV | 2040/2968 |
| HP LaserJet 4SI    | 3135      |

### EPSON

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| PowerPro 601 100MHz w/Cache                            | 1259   |
| Turbo 040 40MHz w/Cache                                | 715    |
| Turbo 040i 33MHz w/Cache No FPU                        | 609    |
| Turbo 601 66MHz for Ilii/Ilii (w/adpt)/Ilii/Ilii/P600  | 859    |
| Turbo 601 100MHz for Ilii/Ilii (w/adpt)/Ilii/Ilii/P600 | 1239   |
| Turbo 601 100MHz Ilii w/Adpt                           | 1239   |
| Turbo 601 100MHz Ilii, Ilii, P600                      | 1239   |
| PowerCard 601 100MHz                                   | 959    |

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| Allegro LC II        | 33MHz    | LCII,Perf.400,405,410,430          | \$145 |
| Allegro Mac II       | 33MHz    | Mac II                             | \$179 |
| Allegro Mac Ili      | 33MHz    | Mac Ili, SE/30                     | \$179 |
| Allegro SE-33        | 33MHz    | Mac SE                             | \$189 |
| Budget Booster 25MHz | Mac LC   |                                    | \$95  |
| Presto 040 LC        | 50/25MHz | Mac LC/LC II/Perf. 400,405,410,430 | \$199 |
| Presto 040 LC        | 50/25MHz | Mac LC/LC II/Perf. 400,405,410,430 | \$299 |
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| Presto 040           | 80/40MHz | Mac Ilii, Ilii, Ilii, Ilii         | \$399 |

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|            |          |                            |       |
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| Presto 040 | 80/40MHz | Mac Ilii, Ilii, Ilii, Ilii | \$399 |
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|            |          |                            |       |
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(w/cache/FPU)

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| *Presto Adapter |  |  | \$59 |
|-----------------|--|--|------|

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| QUANTUM 540MB External Fireball    | 259   |
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| QUANTUM Grand Prix 4.2GB 8.6MS     | 1195  |
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| PowerPort Duo 2XX Mercury 19.2   | 329   |
| PowerPort 1XX Platinum 28.8 V.34 | 339   |
| PowerPort 5XX Mercury for 500    | 342   |

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| PP Platinum Pro PC Card 28.8 | 519   |

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| SUPRA 28.8 PB FAX/MODEM       | 319   |
| SUPRA 28.8 V.34 S/R Fax Modem | 229   |
| SUPRA V.32BIS PB FAX          | 165   |
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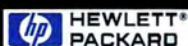
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| 3.5" MO 128MB Mac Formatted | 24   |

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| 74 Min 4x 650MB         | 8    |

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| Radius 24-bit video card    | \$2699          | \$750          |
| SyQuest 88 drive            | \$599           | \$150          |
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**\$1995** Radius ThunderColor 30/1600 video card

- Multifunctional SyQuest 200 /SDT-5000 DAT tape drive, one 120m Sony DAT tape/1.3GB optical w/ Retrospect 3.0, one SyQuest 200 cartridge, one Sony 1.3GB optical cartridge
- Umax PowerLook, 1200 dpi, 36-bit color w/ Transparency
- GCC XL 1208, 1200 x 1200 dpi, 11"x17", 24MB RAM, Ethernet
- Farallon Etherwave 10BT Ethernet connection to printer
- Wacom 12x18 ArtZ II Graphics Tablet w/ erasable UltraPen and transparent overlay
- Image Solutions Extended Services

**\$99**

**\$699**

**Image Solutions is the source for trouble-free data storage.**

**SEAGATE  
2GB DRIVE**

**\$779!**



Seagate

**All Image Solutions drives include...**

- 24 hour replacement of damaged drives
- Plug & Play—your drive is formatted, tested and ready to use
- Shock-resistant case
- Active terminator
- 25/50 SCSI System cable
- 50/50 SCSI Peripheral cable
- FWB Hard Disk Tool Kit

**FWB  
Hard Disk Toolkit.  
\$59 Value!**



### Hard Drives

|         |             |        |
|---------|-------------|--------|
| Quantum | Quantum 1GB | \$379  |
|         | Quantum 2GB | \$789  |
|         | Quantum 4GB | \$1079 |
| Seagate | Seagate 2GB | \$779  |
| dsc     | Seagate 4GB | \$1149 |
|         | Seagate 9GB | \$2399 |

Includes drive, case, 25/50 cable, 50/50 cable, active terminator, FWB Hard Disk Toolkit and free 24 hour replacement.

### OPTICAL CARTRIDGE SPECIALS

**\$14!**

### Optical Cartridges

|                |      |
|----------------|------|
| DSC 128MB      | \$14 |
| PHILLIPS 230MB | \$22 |
| SONY 600/650MB | \$69 |
| SONY 1.2/1.3GB | \$85 |

**SONY 1.3GB  
OPTICAL**

**\$1499!**

### Optical Drives

|                         |        |
|-------------------------|--------|
| Sony 650                | \$999  |
| Sony 1.3GB              | \$1499 |
| MaxOptix Tahiti III 4MB | \$2399 |



SONY

- High 2.0MB p/s transfer rate
- Economical storage of large color images and digital audio/video data

**SONY 650MB OPTICAL DRIVE**

**\$999!**

- Fast, on-line storage
- The safest data storage available—cartridges last for up to 30 years!



SONY



# Extended Services come with every Image Solutions lease!

Image Solutions' Extended Services guarantees trouble free performance from your leased equipment. You'll save time, money and frustration with Image Solutions!



**FREE!**

Free Quark with every system lease!

- No hassle return policy
- 24 hour equipment replacement protects your business from expensive down time
- All systems tested, assembled and burned in for 24 hours, providing trouble-free setup
- Custom system configurations are our specialty

- We sell only the highest quality new equipment
- Toll free technical support 24 hours a day
- Pre-installed application software
- We know networking and Mac/PC connectivity
- Nationwide on-site installation available
- AT&T leasing experts



**\$199!**

Photoshop only \$199 with any purchase!

## 9500/120 Color Publishing Workstation

The Color Publishing Workstation is based on the high performance PowerPC 9500/120 Macintosh. Included are all the tools you need for accurate scanning, image processing and color printing right from the desktop.

- \$3199** PowerPC 9500/120MHZ
  - 80MB RAM
  - 2GB internal hard drive
  - Extended keyboard
  - Radius 21" MultiView monitor
  - Radius ThunderColor 30/1152 video card
- \$1999** Umax PowerLook, 1200 dpi, 36-bit color w/ Transparency
- \$4339** Primera Pictura 310 Color, 300 dpi, 12"x18" color printer w/PostScript Level II software and two AppleTalk connectors
- Internal SDT-5000 DAT tape drive w/ one FREE tape
- Image Solutions Extended Services



**\$0 Down!**  
**\$499**  
per month  
\$16.53 a day!

## 8500/120 Design Station

The new, higher speed 8500/120 Power Macintosh is a cost effective solution for designers. It's fast, affordable and has all the Power Macintosh features you need to blast through production work.

- \$3499** PowerPC 8500/120MHZ
  - Internal CD ROM
  - 48MB RAM
  - 1GB hard drive
  - Extended keyboard
  - SyQuest 200 external w/ one FREE cartridge
- \$1989** Sony 20" Trinitron monitor
- \$2499** Twin Turbo 128, 4MB 1600x1200 video card
- Microtek ScanMaker IIHR, w/ Photoshop
- GCC XL 608, 600 dpi, 11" x 17", 12 ppm printer w/ two AppleTalk connectors
- Wacom 12x12 ArtZ II Graphics Tablet
- Image Solutions Extended Services



**\$0 Down!**  
**\$349**  
per month  
\$11.47 a day!

## 7500/100 DTP Solution

If you're looking for a high speed desktop publishing solution at a super low price, this is it. The 7500/100 DTP Solution is ideal for data entry, word processing or for use as a spare workstation.

- \$1879** PowerPC 7500/100MHZ
  - Internal CD ROM
  - 24MB RAM
  - 4MB Video RAM
  - 1GB internal hard drive
- \$49** Extended keyboard
- \$979** External SyQuest 88c w/ one cartridge
- Radius PrecisionView 17" monitor**
- ScanMaker II, 300x600 dpi scanner w/ ImageEdit software
- TI Pro 600, 600 dpi, 8 ppm printer w/ two AppleTalk connectors
- Image Solutions Extended Services



**\$0 Down!**  
**\$179**  
per month  
\$5.89 a day!

## 9500/132 Digital Video Station

With the Digital Video Station you can grab video in real time and store it on a disk array for later digital processing. It's so fast you won't miss an instant of video. Guaranteed!

- \$3799** PowerPC 9500/132MHZ
  - Internal CD ROM
  - 272MB RAM
  - 2GB internal hard drive
  - Extended keyboard
  - Sony 20" Trinitron monitor
- \$4859** Twin Turbo 128, 4MB 1600x1200 video card
- \$3279** TrueVision Targa 2000 PCI digital video
- FWB JackHammer SCSI-3 Fast&Wide PCI controller w/FWB RAID Toolkit
- 8GB Seagate Barracuda IV SCSI-3 Fast&Wide striped disk array
- Internal SDT-5000 DAT drive w/ one FREE tape
- Image Solutions Extended Services



**\$0 Down!**  
**\$749**  
per month  
\$24.69 a day!

### SYQUEST 200MB DRIVE

**\$419!**



Includes SyQuest drive, case, 25/50 cable, 50/50 cable, active terminator, FWB Hard Disk Toolkit and free 24 hour replacement.

### SyQuest Drives

|       |       |
|-------|-------|
| 270MB | \$429 |
| 200MB | \$419 |

### SERVICE BUREAU COMBO

**SYQUEST 200 /SONY SDT-5000/ 1.3GB SONY OPTICAL COMBO**

**Save \$158!**

**\$2799!**

- Up to 6 devices in the same enclosure!
- Costs less than individual drives
- Quick setup. Only one cable!
- Promotes data security. Just lock it away after hours.



Includes multiple drives, 25/50 cable, 50/50 cable, active terminator, FWB Hard Disk Toolkit and free 24 hour replacement. Tape drives include Retrospect.

### SONY SDT-5000 TAPE DRIVE

- Built in data compression
- 16GB per 120 meter tape

**\$1039!**



Includes tape drive, case, 25/50 cable, 50/50 cable, active terminator, Retrospect and free 24 hour replacement.

| DAT Tape |      |
|----------|------|
| DAT 90m  | \$12 |
| DAT 120m | \$24 |

### 200MB CARTRIDGES



**\$70!**

### Cartridges

|       |      |
|-------|------|
| 270MB | \$56 |
| 200MB | \$70 |
| 88MB  | \$45 |
| 44MB  | \$39 |

### Multifunctional Drives

|  |        |
|--|--------|
| Scan Server: Nikon Coolscan 35mm /1.3 Sony Optical       | \$2599 |
| Image Transporter: Sony 650MB Optical /SyQuest 200       | \$1299 |
| Portable File Server: 1.3GB Sony Optical /4GB hard drive | \$2399 |

### RADIUS MULTIVIEW 21"

**\$1899!**



### TWIN TURBO 128M PCI VIDEO CARD

**\$569!**



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|   |              |              |
|---|--------------|--------------|
| <b>1.2 GB Hawk</b>                              | <b>\$295</b> | <b>\$355</b> |
| 9 ms Seek 5400 RPM 512 KBuffer 5 Year Warranty  |              |              |
| <b>2.4 GB Hawk</b>                              | <b>635</b>   | <b>695</b>   |
| 9 ms Seek 5400 RPM 512K Buffer 5 Year Warranty  |              |              |
| <b>2.5 GB Barracuda 2</b>                       | <b>775</b>   | <b>835</b>   |
| 8 ms Seek 7200 RPM 1024K Buffer 5 Year Warranty |              |              |
| <b>4.3 GB Barracuda 4</b>                       | <b>1175</b>  | <b>1235</b>  |
| 8 ms Seek 5400 RPM 1024K Buffer 5 Year Warranty |              |              |
| <b>2.5 GB Fast &amp; Wide Barracuda</b>         | <b>849</b>   | <b>949</b>   |
| 8 ms Seek 7200 RPM 1024 KBuffer 5 Year Warranty |              |              |
| <b>4.3 GB Fast &amp; Wide Barracuda</b>         | <b>1245</b>  | <b>1345</b>  |
| 8 ms Seek 7200 RPM 1024K Buffer 5 Year Warranty |              |              |
| <b>9.0 GB Elite</b>                             | <b>1975</b>  | <b>2075</b>  |
| 11 ms Seek 5400 RPM 1024 Buffer 5 Year Warranty |              |              |
| <b>9.0 GB Elite Fast &amp; Wide</b>             | <b>2075</b>  | <b>2175</b>  |
| 11 ms Seek 5400 RPM 1024 Buffer 5 Year Warranty |              |              |

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**FUJITSU**

|   |              |              |
|---|--------------|--------------|
| <b>530 MB</b>                                   | <b>\$175</b> | <b>\$235</b> |
| 9 ms Seek 4500 RPM 256K Buffer 3 Year Warranty  |              |              |
| <b>1.2 GB</b>                                   | <b>265</b>   | <b>325</b>   |
| 9 ms Seek 5400 RPM 512K Buffer 3 Year Warranty  |              |              |
| <b>2.1 GB</b>                                   | <b>\$595</b> | <b>655</b>   |
| 8.5ms Seek 7200 RPM 512K Buffer 5 Year Warranty |              |              |
| <b>4.2 GB</b>                                   | <b>\$895</b> | <b>955</b>   |
| 8ms Seek 7200 RPM 512K Buffer 5 Year Warranty   |              |              |

90 Day Performance Guarantee on all Hard Drives... Call



|  |              |              |
|--|--------------|--------------|
| <b>540 MB DeskStar</b>                           | <b>\$175</b> | <b>\$235</b> |
| 9 ms Seek 5400 RPM 128K Buffer 5 Year Warranty   |              |              |
| <b>1.2 GB DeskStar</b>                           | <b>255</b>   | <b>329</b>   |
| 8.5 ms Seek 5400 RPM 512K Buffer 5 Year Warranty |              |              |
| <b>2.2 GB Ultrastar</b>                          | <b>755</b>   | <b>815</b>   |
| 8.5ms Seek 7200 RPM 1024K Buffer 5 Year Warranty |              |              |
| <b>4.3 GB Ultrastar</b>                          | <b>1325</b>  | <b>1385</b>  |
| 8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty   |              |              |
| <b>5.3 GB UltraStar</b>                          | <b>1345</b>  | <b>1405</b>  |
| 8ms Seek 5400 RPM 1024K Buffer 5 Year Warranty   |              |              |

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## Digital Tape Backup



|                            |
|----------------------------|
| <b>2.0 GB</b>              |
| SCSI 15MB/min., 4mm media. |
| <b>\$835/\$895</b>         |
| <b>3-5 GB</b>              |
| SCSI 45MB/min., 4mm media. |
| <b>940 995</b>             |
| <b>4-10 GB</b>             |
| SCSI 60MB/min., 4mm media. |



**Quantum DLT SCSI**

| Model        | Capacity | Trans. Rate | Media | Price(Ext) |
|--------------|----------|-------------|-------|------------|
| DLT2000X30GB | 30GB     | 2.5MB/sec   | DLT20 | 4225       |
| DLT4000      | 40GB     | 3MB/sec     | DLT40 | 5899       |

- Same day shipping on most products advertised!
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• **PowerStor™** active termination with the flip of a switch. Constantly adjusts termination levels to your systems requirements.

• Optional Fixed Daisy Chain Connector... Puts an end to your cable nightmares

• **Exclusive** On/Off switch Conveniently located on the FRONT of our cabinet.

• Power and drive activity light.

## New Years Specials

|   |               |               |
|---|---------------|---------------|
| <b>IBM 540 MB Powerbook Drive</b>                             | <b>\$285</b>  | <b>\$365</b>  |
| IBM TravelStar 12ms Seek 4900 RPM 128K Buffer 1 Year Warranty |               |               |
| <b>IBM 540 MB DeskStar</b>                                    | <b>\$175</b>  | <b>\$235</b>  |
| IBM540, 4500RPM, 9ms seek, 128K cache, 5 year warranty        |               |               |
| <b>IBM 1.2 GB</b>   | <b>\$255</b>  | <b>\$315</b>  |
| IBM 1.2 GB, 5400RPM, 8.5 ms seek, 5 year warranty             |               |               |
| <b>Fujitsu 2.1GB</b>  | <b>\$595</b>  | <b>\$655</b>  |
| F2915s, 7200RPM, 9ms seek, 5 year warranty                    |               |               |
| <b>Quantum Atlas 4 GB</b>                                     | <b>\$1199</b> | <b>\$1259</b> |
| Q34301, 7200, 8.6ms seek, 1024K cache, 5 year warranty        |               |               |
| <b>Seagate 9.0GB</b>  | <b>\$1975</b> | <b>\$2075</b> |
| ST410800, 5400RPM, 11ms seek, 1024K cache, 5 year warranty.   |               |               |

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## PCI/NUBUS FAST & WIDE ACCELERATORS

### Atto Express PCI \$345

Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec. Formatting software included. 5 year warranty. Call for Disk Array Solutions! Also available in Dual Channel.

### Atto Silicon Express 2 \$485

SCSI 1 & 2 support. Transfer rates up to 10.0 MB/sec. supports multiple block sizes, takes advantage of parallel processing capability. Ideal for graphic design, multimedia applications and more!

### Atto Silicon Express 4 \$829

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### New! FWB Jackhammer \$465

Fast/Wide 16BIT SCSI 2 accelerator card for Apple's Nubus based computers. Supports fast/wide SCSI 2 (16 Bit) transfer rates up to 20MB/sec. and fast SCSI 2 (8 Bit) transfer rates up to 10 MB/sec. Full 16 Bit wide support for the latest drives and disk arrays.

### New! FWB PCI Jackhammer \$385

Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec. Formatting software included. 5 year warranty. Call for Disk Array Solutions! Also available in Dual Channel.

### REMUS Disk Array RaidLevel 0 & 1 \$255

## CD ROM & CD WRITERS

|  |               |
|--|---------------|
| <b>4x Pioneer CD ROM</b>                     | <b>\$199</b>  |
| 160 MS seek 256 K Cache/Tray Design          |               |
| <b>4 x 6 Disk Pioneer CD ROM Changer</b>     | <b>\$455</b>  |
| <b>4x Toshiba CD ROM</b>                     | <b>\$235</b>  |
| 150 MS seek                                  |               |
| <b>6x Toshiba CD ROM</b>                     | <b>\$435</b>  |
| 102 MS seek 256 K Cache                      |               |
| <b>2x Yamaha CDE 1020</b>                    | <b>\$1175</b> |
| 2x CD Writer* 4x CD ROM                      |               |
| <b>4 x Yamaha CDR 100</b>                    | <b>\$2675</b> |
| 4 x CD writer* Multisession*Selectable Speed |               |

Prices are external and include all cables and software for a PLUG & PLAY Solution.

All prices are subject to change without notice. Returned orders are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for shipping charges to return product.

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## Quantum

|  |              |              |
|--|--------------|--------------|
| <b>365 MB</b>                                    | <b>\$125</b> | <b>\$185</b> |
| 11 ms Seek 4500 RPM 128K Buffer 2 Year Warranty  |              |              |
| <b>535 MB Performance I</b>                      | <b>175</b>   | <b>235</b>   |
| 9 ms Seek 5400 RPM 512K Buffer 5 Year Warranty   |              |              |
| <b>540 MB</b>                                    | <b>195</b>   | <b>255</b>   |
| 11 ms Seek 5400 RPM 128K Buffer 3 Year Warranty  |              |              |
| <b>730 MB Value!</b>                             | <b>175</b>   | <b>235</b>   |
| 11 ms Seek 5400 RPM 128K Buffer 2 Year Warranty  |              |              |
| <b>850 MB Value!</b>                             | <b>205</b>   | <b>265</b>   |
| 11 ms Seek 5400 RPM 128K Buffer 2 Year Warranty  |              |              |
| <b>1080 MB Fireball</b>                          | <b>259</b>   | <b>319</b>   |
| 11 ms Seek 4500 RPM 128K Buffer 3 Year Warranty  |              |              |
| <b>2.2 GB Capella</b>                            | <b>595</b>   | <b>655</b>   |
| 8.5ms Seek 5400 RPM 1024K Buffer 5 Year Warranty |              |              |
| <b>2.0 GB Atlas</b>                              | <b>725</b>   | <b>785</b>   |
| 8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty   |              |              |
| <b>4200 MB Grand Prix</b>                        | <b>985</b>   | <b>1085</b>  |
| 11 ms Seek 7200 RPM 512K Buffer 5 Year Warranty  |              |              |
| <b>4.3 GB Atlas</b>                              | <b>1199</b>  | <b>1259</b>  |
| 8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty   |              |              |
| <b>Fast &amp; Wide SCSI AV Drives</b>            |              |              |
| <b>2.0 GB Atlas</b>                              | <b>759</b>   | <b>819</b>   |
| 8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty   |              |              |
| <b>4200 MB Grand Prix</b>                        | <b>1195</b>  | <b>1295</b>  |
| 8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty   |              |              |

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## MICROPOLIS

|   |              |              |
|---|--------------|--------------|
| <b>2.1 GB M4221</b>   | <b>\$650</b> | <b>\$710</b> |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>4.3 GB M3243</b>   | <b>965</b>   | <b>1045</b>  |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>9.0 GB M1991</b>   | <b>1925</b>  | <b>2025</b>  |
| 11 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                       |              |              |
| <b>AV Tuned. Drives Best for Direct to Disk Recording Performance</b> |              |              |
| <b>2.1 GB M4221AV</b>   | <b>735</b>   | <b>795</b>   |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>4.3 GB M3243AV</b>   | <b>1045</b>  | <b>1105</b>  |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>9.0 GB M1991AV</b>   | <b>1985</b>  | <b>2085</b>  |
| 11 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                       |              |              |
| <b>Wide AV Drives</b>   |              |              |
| <b>2.1 GB M4221WAV</b>  | <b>\$755</b> | <b>\$815</b> |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>4.3 GB M3243WAV</b>  | <b>1120</b>  | <b>1180</b>  |
| 8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty                      |              |              |
| <b>9.0 GB M1991WAV</b>  | <b>2095</b>  | <b>2195</b>  |
| 11ms Seek 7200 RPM 512K Buffer 5 Year Warranty                        |              |              |

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## SCSI HARD DRIVE CABINETS

|   |              |
|---|--------------|
| <b>PowerStor™</b> 5.25" or 3.5" half height open/closed door HD enclosure | <b>\$75</b>  |
| <b>Minicab™</b> 3.5" half height open/closed door HD enclosure            | <b>\$65</b>  |
| <b>Full Height Cab</b> 5.25" full height rack                             | <b>\$139</b> |
| <b>Multi Bay Cabinets</b> 5.25" and 3.5" cabinets available               | <b>SCALL</b> |



## Pinnacle Micro

|  |               |
|--|---------------|
| <b>Pinnacle RCD 5020 2 x CD Writer</b>     | <b>\$1185</b> |
| Combination 2x CD Writer, CD ROM 1MB Cache |               |
| <b>Pinnacle Apex 4.6GB</b>                 | <b>\$1579</b> |
| 17 MS Seek, 1024K Cache, ISO/ANSI Standard |               |
| <b>Pinnacle 4.6 GB Media</b>               | <b>\$185</b>  |
| 1024 K Sector                              |               |

All drive complete with 1 piece of media and driver software





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**\$625**



### PANASONIC POWERDRIVE<sup>2</sup> REWRITABLE OPTICAL DISK AND CD-ROM DRIVE

650 MB rewritable optical disk and 4X CD-ROM drive.

radius

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The Radius 81/110 is 100% Power Mac™ and Mac OS compatible, with the power and performance of a Power Mac 8100/110.

8MB RAM / 730MB HD  
4x CD-ROM Drive . . . . . **\$1499\***



**\$499**



### HEWLETT-PACKARD DESKJET 850C PRINTER

600 dpi black-and-white & 300 dpi color.  
Prints up to 6 pages per minute.

**\$1499\***



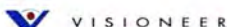
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Radius PrecisionView® 17  
Color Display . . . . . **\$919**

Radius PrecisionView 21  
Color Display . . . . . **\$2199**

Radius PressView™ 21SR  
Color Display . . . . . **\$3049**

Monitor sold separately.  
\* After \$200 mail-in rebate.  
Limited time offer.



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Getting paper into your computer is easy with the new PaperPort Vx! Simply feed in a piece of paper and it does the rest automatically.

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Connect up to four peripherals to your Mac's serial port.

**\$899**



### SONY MULTISCAN CPD-17Sfll COLOR DISPLAY

17" CRT Trinitron®  
display, 1024 x 768 Mac  
resolution at 75Hz.

**\$50 OFF**

any monitor with the  
purchase of a CPU.

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- Offer must be mentioned at time of purchase. Prior purchases are not eligible.
- One coupon per customer.

### MONITORS

|                                   |               |
|-----------------------------------|---------------|
| NEC MultiSync® XV14™              | \$335         |
| NEC MultiSync XV15™               | \$449         |
| NEC MultiSync XE15™/XP15™         | \$559/\$649   |
| NEC MultiSync XV17™/XP17™         | \$759/\$1049  |
| NEC MultiSync XE21™/XP21™         | \$1799/\$2199 |
| Sony CPD-1425 14" Trinitron       | \$299         |
| Sony CPD-15srll 15" Trinitron     | \$519         |
| Portrait Display Labs Pivot 1700™ | \$969         |

### PRINTERS

|  |        |
|--|--------|
| Hewlett-Packard DeskWriter 660C Printer  | \$399  |
| Hewlett-Packard DeskWriter 600 Printer   | \$299  |
| Hewlett-Packard LaserJet 5MP Printer     | \$1039 |
| Hewlett-Packard DeskJet 1200C/PS Printer | \$1625 |
| Hewlett-Packard DeskJet 340 Printer      | \$329  |

Includes Macintosh Adapter.

### SOFTWARE

|                               |       |
|-------------------------------|-------|
| Adobe Illustrator™            | \$369 |
| Adobe Photoshop® v.3.0.1      | \$559 |
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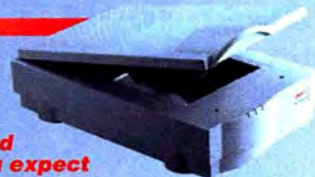
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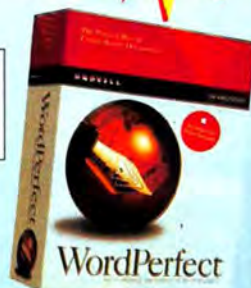
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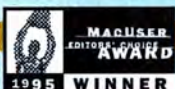
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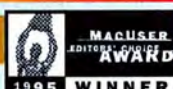


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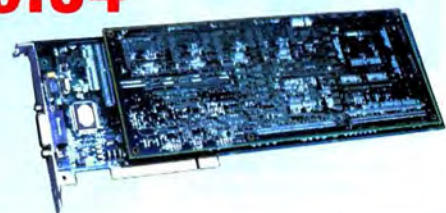
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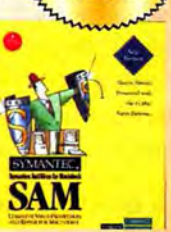
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| 97    | Macromedia                                      | 800-326-2128            | 51             |
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| *     | Microsoft Corporation                           | 800-531-6748            | 2-3            |
| 22    | Momentum  | 808-263-0055            | 118            |
| 7     | NetCom  | 800-NETCOM1             | 122            |
| *     | Nisus Software                                  | 800-255-4939            | 20             |
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| 100   | Pipeline USA                                    | 800-453-7473 dept. 474  | 137            |
| 66    | Port Inc.                                       | 800-622-2743            | 9              |
| *     | Portrait Display Labs                           | 800-858-7744 ext. 25    | 52             |
| 21    | Power Computing                                 | 800-405-7693            | Cover 5-8      |
| 76    | ProDirect                                       | 800-555-1256            | 168            |
| 129   | Proxima Corporation                             | 800-447-7692            | 60             |
| 88    | QTRONIX Corporation                             | 408-467-1888            | 118            |
| 127   | Samsung Electronics America                     | 800-933-4110            | 62             |
| 121   | SoftArc Inc.                                    | 800-SOFTARC             | 116            |
| *     | Seybold Seminars                                | 800-488-2883            | 128            |
| 67    | Specular International                          | 800-433-7732            | 84             |
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| 38    | Syex Express                                    | 800-876-3467            | 169            |
| *     | Symantec Corporation                            | 800-695-0679 ext. 9GG4  | 55             |
| *     | Symantec Corporation                            | 800-695-0679 ext. 9GG3  | 57             |
| 125   | Tektronix                                       | 800-835-6100 ext. 1261  | 34             |
| 20    | Third Wave                                      | 800-990-5693            | 152-153        |
| *     | Toray   | 800-TORAY-PD            | 54             |
| 141   | UMAX Technologies                               | 800-232-8629            | 53             |
| 89    | Viewsonic                                       | 800-888-8583            | 10-11          |
| 150   | Visioneer                                       | 800-787-7007 ext. 702   | 93             |
| 126   | Xanté Corporation                               | 800-926-8839            | 67             |
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| Capacity | Model No. | Mechanism                               | Seek   | Warranty | Internal | PHASER-I |
|----------|-----------|---|--------|----------|----------|----------|
| 540 MB   | DT-540LT  | Quantum                                 | 11ms   | 2 yrs    | \$185    | \$260    |
| 730 MB   | DT-730LT  | Quantum                                 | 11 ms  | 2 yrs    | \$185    | \$260    |
| 1.0 GB   | DT-1080FB | Quantum                                 | 11ms   | 3 yrs    | \$279    | \$354    |
| 1.05 GB  | DT-31230  | Seagate <b>NEW LOW PRICE!</b>           | 9.0 ms | 5 yrs    | \$365    | \$445    |
| 2.0 GB   | DT-4221   | Micropolis <b>NEW LOW PRICE!</b>        | 8.0 ms | 5 yrs    | \$685    | \$760    |
| 2.0 GB   | DT-32150  | Quantum -Atlas                          | 8.5 ms | 5 yrs    | \$895    | \$970    |
| 2.0 GB   | DT-2490   | Hewlett Packard                         | 9.0 ms | 5 yrs    | \$1,100  | \$1,185  |
| 2.1 GB   | DT-32550  | Seagate Barracuda IILP                  | 8.0 ms | 5 yrs    | \$825    | \$899    |
| 4.3 GB   | DT-3243   | Micropolis <b>NEW LOW PRICE!</b>        | 8.5 ms | 5 yrs    | \$1,025  | \$1,099  |
| 4.3 GB   | DT-15150  | Seagate Barracuda <b>NEW LOW PRICE!</b> | 8.0 ms | 5 yrs    | \$1,199  | \$1,275  |
| 4.3 GB   | DT-4280   | Quantum                                 | 8.0 ms | 5 yrs    | \$1,050  | \$1,125  |
| 9.0 GB   | DT-1991   | Micropolis <b>NEW LOW PRICE!</b>        | 12 ms  | 5 yrs    | \$1,975  | \$2,075  |
| 9.0 GB   | DT-410800 | Seagate Elite 9 <b>NEW LOW PRICE!</b>   | 11 ms  | 5 yrs    | \$1,999  | \$2,099  |

## AUDIO/VIDEO TUNED DRIVES

DIRECTTECH SYSTEMS IS AN AUTHORIZED A/V PARTNER WITH SEAGATE AND MICROPOLIS.

| Capacity | Model No.   | Mechanism                             | Seek   | Warranty | Internal | PHASER-I |
|----------|-------------|---------------------------------------|--------|----------|----------|----------|
| 1.05 GB  | DT-31230AV  | Seagate                               | 9 ms   | 5 yrs    | \$365    | \$445    |
| 2.0 GB   | DT-4221AV   | Micropolis <b>NEW LOW PRICE!</b>      | 8.5 ms | 5 yrs    | \$750    | \$825    |
| 2.1 GB   | DT-32550AV  | Seagate Barracuda                     | 8.0 ms | 5 yrs    | \$825    | \$899    |
| 4.3 GB   | DT-3243AV   | Micropolis <b>NEW LOW PRICE!</b>      | 8.5 ms | 5 yrs    | \$1,125  | \$1,200  |
| 4.3 GB   | DT-15150AV  | Seagate Barracuda                     | 8.0 ms | 5 yrs    | \$1,199  | \$1,275  |
| 9.0 GB   | DT-1991AV   | Micropolis <b>NEW LOW PRICE!</b>      | 12 ms  | 5 yrs    | \$2,025  | \$2,125  |
| 9.0 GB   | DT-410800AV | Seagate Elite 9 <b>NEW LOW PRICE!</b> | 11 ms  | 5 yrs    | \$1,999  | \$2,099  |

## FAST/WIDE SCSI DRIVES

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| Capacity | Model No.  | Mechanism                  | Seek | Warranty | Internal | PHASER-I |
|----------|------------|----------------------------|------|----------|----------|----------|
| 2.1 GB   | DT-32550W  | Seagate Barracuda 2LP Wide |      | 5 yrs    | \$950    | \$1,050  |
| 2.1 GB   | DT-4221W   | Micropolis 4221Wide        |      | 5 yrs    | \$800    | \$900    |
| 4.3 GB   | DT-15150W  | Seagate Barracuda 4 Wide   |      | 5 yrs    | \$1,250  | \$1,350  |
| 4.3 GB   | DT-3243W   | Micropolis 3243Wide        |      | 5 yrs    | \$1,199  | \$1,299  |
| 9.0 GB   | DT-1991W   | Micropolis 1991Wide        |      | 5 yrs    | \$2,185  | \$2,285  |
| 9.0 GB   | DT-1991AVW | Micropolis 1991AVWide      |      | 5 yrs    | \$2,285  | \$2,385  |
| 9.0 GB   | DT-410800W | Seagate Elite 9 Wide       |      | 5 yrs    | \$2,099  | \$2,199  |

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| Capacity  | Model No.   | Mechanism                             | Seek   | Warranty | EXTERNAL |
|---|-------------|---------------------------------------|--------|----------|----------|
| 4.0 GB  | DT-32550W-2 | Seagate - Fast/Wide Barracuda 2LP (2) | 8.0 ms | 5 yrs    | \$CALL   |
| 8.0 GB  | DT-3243WAV  | Micropolis - Fast/Wide 3243AV (2)     | 8.0 ms | 5 yrs    | \$CALL   |
| 18.0 GB   | DT-1991WAV  | Micropolis - Fast/Wide 1991AV (2)     | 8.0 ms | 5 yrs    | \$CALL   |
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| ATTO Silicon Express IV                                     |             | Nubus Fast/Wide Accelerator           |        |          | \$CALL   |
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INCLUDES ANIBS  
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| Capacity | Model No. | Internal | PHASER-I |
|----------|-----------|----------|----------|
| 88 MB    | SQ5110C   | \$305    | \$365    |
| 200 MB   | SQ5200    | \$420    | \$480    |
| 270 MB   | SQ3270    | \$420    | \$470    |

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| JVC Personal Archiver (2X) | \$1,165 |
| JVC Personal Archiver (4X) | \$2,499 |

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| 2 GB     | HP-35470     | 4mm    | \$950    |
| 4-8 GB   | Sony-5000    | DDS-2  | \$999    |
| 4-8 GB   | HP-1533A     | DDS-2  | \$1,299  |
| 5-10 GB  | Exabyte-8505 | 8mm    | \$2,199  |
| 15-30 GB | DLT-2000XT   | DLT    | \$4,399  |

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| 230 mb   | Fujitsu        | 30 ms | \$675    |
| 1.3 GB   | HP-C1716       | 23 ms | \$2,099  |
| 1.3 GB   | Maxoptix T-III | 18 ms | \$2,199  |

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  - 512K data Buffer. 1 year warranty.
- \$1499** 1 free disk. Extra disks only \$189.

## CD ROM DRIVES

|      |         |       |       |
|------|---------|-------|-------|
| 4X   | Sanyo   | 190ms | \$195 |
| 4.4X | Pioneer | 140ms | \$239 |
| 6X   | NEC     | 150ms | \$369 |
| 6.7X | Toshiba | 120ms | \$399 |

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| Capacity | Speed | RPM  | Buffer | Wty | Model   | Internal | External |
|----------|-------|------|--------|-----|---------|----------|----------|
| 850MB    | 14ms  | 4500 | 128K   | 3yr | TB850S  | \$197    | \$257    |
| 1080MB   | 12ms  | 5400 | 128K   | 3yr | FB1080S | \$255    | \$315    |
| 2150MB   | 8ms   | 7200 | 1024K  | 5yr | XP32150 | \$735    | \$795    |
| 2216MB   | 8.5ms | 5400 | 512K   | 5yr | VP32210 | \$625    | \$685    |
| 4300MB   | 8.6ms | 7200 | 512K   | 5yr | XP34301 | \$985    | \$1045   |



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270MB \$59 \$56

| Capacity | Speed  | Compatible    | Model   | Buffer | Internal | External |
|----------|--------|---------------|---------|--------|----------|----------|
| 88MB     | 20ms   | 44, 88MB      | SQ5110C | 32K    | \$298    | \$358    |
| 135MB    | 13.5ms | 135MB         | EZ1355  | 128K   | n/a      | \$229    |
| 200MB    | 18ms   | 44, 88, 200MB | SQ5200C | 64K    | \$422    | \$482    |
| 270MB    | 13.5ms | 105, 270MB    | SQ3270S | 128K   | \$409    | \$429    |

| Brand      | Capacity | Seek   | RPM  | Buffer | Wty | Model     | Internal | External |
|------------|----------|--------|------|--------|-----|-----------|----------|----------|
| Seagate    | 1050MB   | 9ms    | 5411 | 512K   | 5yr | ST31231N  | \$349    | \$409    |
| Seagate    | 1080MB   | 12.5ms | 5400 | 128K   | 3yr | ST51080N  | \$289    | \$349    |
| Conner     | 1080MB   | 9ms    | 5400 | 256K   | 5yr | CFP1080S  | \$259    | \$319    |
| NEC        | 1083MB   | 11ms   | 4090 | 256K   | 3yr | NEC3827   | \$220    | \$280    |
| NEC        | 1620MB   | 11ms   | 4500 | 256K   | 3yr | NEC3847   | \$329    | \$389    |
| Micropolis | 2050MB   | 8.5ms  | 7200 | 512K   | 5yr | MC4221    | \$639    | \$699    |
| Micropolis | 2050MB   | 8.5ms  | 7200 | 512K   | 5yr | MC4221AV  | \$699    | \$759    |
| Conner     | 2147MB   | 9ms    | 5400 | 512K   | 5yr | CFP2105S  | \$645    | \$705    |
| Seagate    | 2147MB   | 9ms    | 5411 | 512K   | 5yr | ST32430N  | \$635    | \$695    |
| Seagate    | 2147MB   | 8ms    | 7200 | 512K   | 5yr | ST32550N  | \$679    | \$739    |
| Seagate    | 4290MB   | 9ms    | 5400 | 512K   | 5yr | ST15230N  | \$925    | \$985    |
| Seagate    | 4290MB   | 8ms    | 7200 | 1024K  | 5yr | ST15150N  | \$1179   | \$1239   |
| Micropolis | 4294MB   | 8ms    | 7200 | 512K   | 5yr | MC3243    | \$960    | \$1020   |
| Micropolis | 4294MB   | 8ms    | 7200 | 512K   | 5yr | MC3243AV  | \$1049   | \$1109   |
| Conner     | 4294MB   | 9.5ms  | 7200 | 512K   | 5yr | CFP4207S  | \$1059   | \$1119   |
| Micropolis | 9100MB   | 12ms   | 5400 | 512K   | 5yr | MC1991    | \$1985   | \$2085   |
| Micropolis | 9100MB   | 12ms   | 5400 | 512K   | 5yr | MC1991AV  | \$2119   | \$2219   |
| Seagate    | 9090MB   | 11ms   | 5400 | 1024K  | 5yr | ST410800N | \$2099   | \$2199   |

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|            |        |       |      |       |     |           |        |        |
|------------|--------|-------|------|-------|-----|-----------|--------|--------|
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| Micropolis | 2050MB | 8.5ms | 7200 | 512K  | 5yr | MC4221WAV | \$789  | \$889  |
| Seagate    | 2147MB | 8ms   | 7200 | 512K  | 5yr | ST32550W  | \$859  | \$959  |
| Fujitsu    | 2176MB | 9.5ms | 7200 | 512K  | 5yr | M2915W    | \$579  | \$639  |
| Seagate    | 4290MB | 8ms   | 7200 | 1024K | 5yr | ST15150W  | \$1219 | \$1319 |
| Micropolis | 4294MB | 8ms   | 7200 | 512K  | 5yr | MC3243W   | \$1059 | \$1159 |
| Micropolis | 4294MB | 8ms   | 7200 | 512K  | 5yr | MC3243WAV | \$1135 | \$1235 |
| Fujitsu    | 4350MB | 8.9ms | 7200 | 512K  | 5yr | M2934W    | \$979  | \$1079 |
| Micropolis | 9100MB | 12ms  | 5400 | 512K  | 5yr | MC1991W   | \$2099 | \$2299 |
| Micropolis | 9100MB | 12ms  | 5400 | 512K  | 5yr | MC1991WAV | \$2199 | \$2399 |

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| PRECISIONCOLOR PRO 24X NUBUS | 825  |
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| THUNDER IV GX-1152 RADIUS    | 1835 |
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| RADIUS THUNDER 24 GT         | 490  |
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| AND SPEAKERS               | 280 |
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| 16MB 70NS   | 1601      | 585     |

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| 32MB RAM | PB5300-32 | 1172 |

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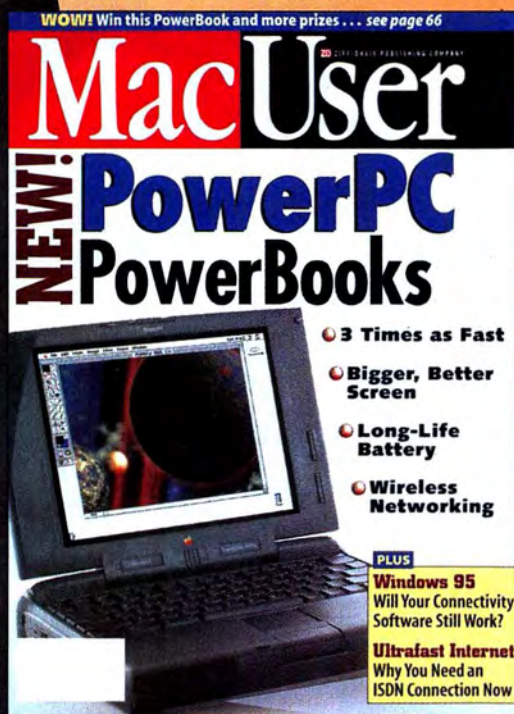
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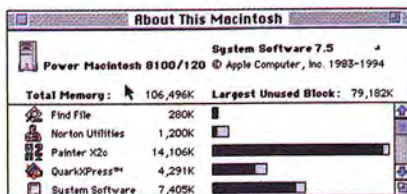
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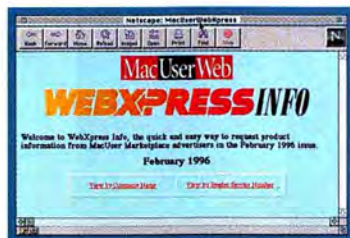
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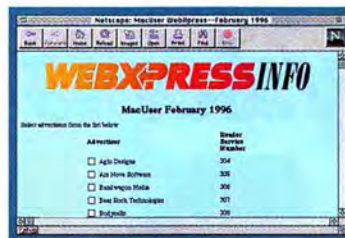
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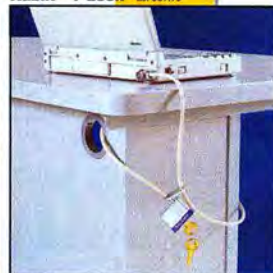
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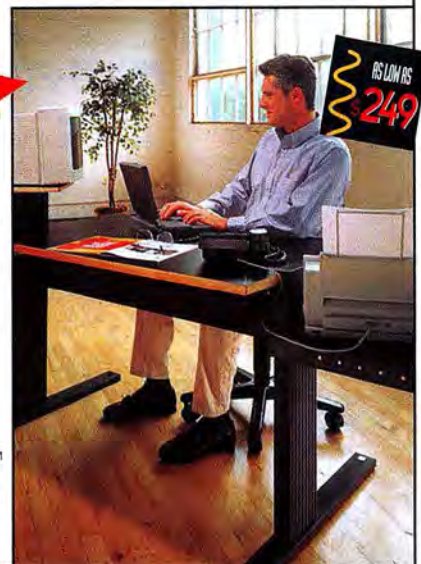
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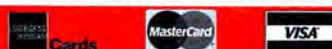
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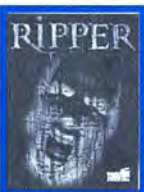
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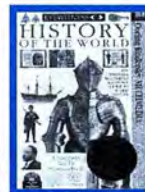
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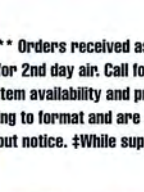
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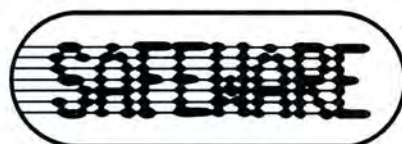
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# Road Trip

**W**HAT DO I THINK OF BILL GATES' *The Road Ahead* (Viking, 1995)? A crushing disappointment. Bill, you're pure Tabasco when it comes to establishing and maintaining an intergalactically influential megacorporation, but the intricacies of the celebrity tell-all book are way beyond even your abilities.

Bill, I applaud your desire to make another quick million — even better, a quick million for charity — by churning out one of these spicy deals, but you should have understood that the best-selling nonfiction blockbusters follow one of two Surefire Paths. Option #1 is to spill your guts, detailing every embarrassing interlude in life for which you can't actually be prosecuted, as in Barry "Greg" Williams and Chris "Moke" Kreski's excellent *Growing Up Brady* (HarperPerennial, 1992). Surefire Option #2 is to tap-dance around the sordid details and rely on the obvious multitude of pathetic omissions and excuses to compensate for the lack of juicy dirt.

The first major section of Greg's book has the Bunch getting bombed en route to taping a *Sally Jessy Raphael Show* appearance. You, Bill, spend your first major section talking about the history of the Industry. Nevertheless, I'll give you credit for at least *trying* to embrace Surefire Option #2. I, for one, enjoyed the bit where you single out the Mac as an example of the mistake of proprietary hardware (page 54), contradict yourself on page 60, and then go so far as to disingenuously identify the problems that Wintel's nonproprietary farrago of hardware creates ("Microsoft has been able to provide compatibility because hardware manufacturers have agreed not to allow modifications to our software that introduce incompatibility," page 61). Alas, after this breathtakingly peppy sequence, you start talking about asynchronous communications again.

On to the middle third. Don't get me wrong, Bill; all your conjecturing about how developments in broad-bandwidth communications will impact our daily lives is certainly

welcome. Here in Boston, AT&T has pulled those nifty commercials with Tom Selleck and I've missed being reminded that pretty soon I'll be able to pull out a tablet computer right there on the airplane to pick up a video message from my sweetheart announcing that she's leaving me, along with an alert from my home-security software informing me that my stereo and all my records are gone. But how can this compete with Greg's story of getting to third base with Marcia? It's like Barry Williams *understands* and is saying, "Thank you for making it past the halfway point of my book. I will now tell about how I had to film the Sailboat Episode right after smoking my first joint ever."

By the time we reach the end of the book, Greg has had to resort to documenting his recent career, in which the phrases "dinner theater" and "made-for-TV movie" figure prominently. Bill, you counter by telling us about the house you're building on the sunny shores of Lake Washington. Welp, OK, Bill, you and *The House* win this round.

## The House of Bill

Folks, Bill's new house is big. How big? He's just closed escrow on British Columbia, and once its statehood is pushed through Congress (projected for Q1FY97), he'll finally have "one kick-ass sundeck" (page 262) (oh, I'm just fibbing). It is a Push-Button Home of the Future, every bit as marvelous as the one Daffy Duck tried to sell Elmer Fudd, and if you drop in on Bill and Melinda with a bundt cake, I strongly suggest that you don't push the red button.

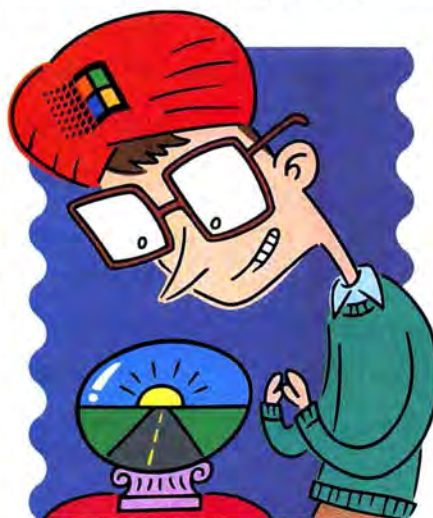
So you can see how I'm a bit exasperated.

I've already blown about 30 bucks on Bill's book, and if I'm going to deduct the expense on my '95 1040, I'm going to have to critique *The Road Ahead* as if it were some sort of individual collection of thoughts on the present and future of technology and technology-related businesses. By that narrow definition, it's actually a good read. It's engaging, surprisingly candid considering its author, and

provides a nice foundation upon which the technophobic can build. On the minus side, as a man savvy enough to know how to spell ISDN, I found parts of it reminiscent of a 1962 edition of *Popular Science*, in which we're all supposed to be tooling around in personal suborbital nuclear-powered helicopters by now. It's also terribly optimistic, gloss-

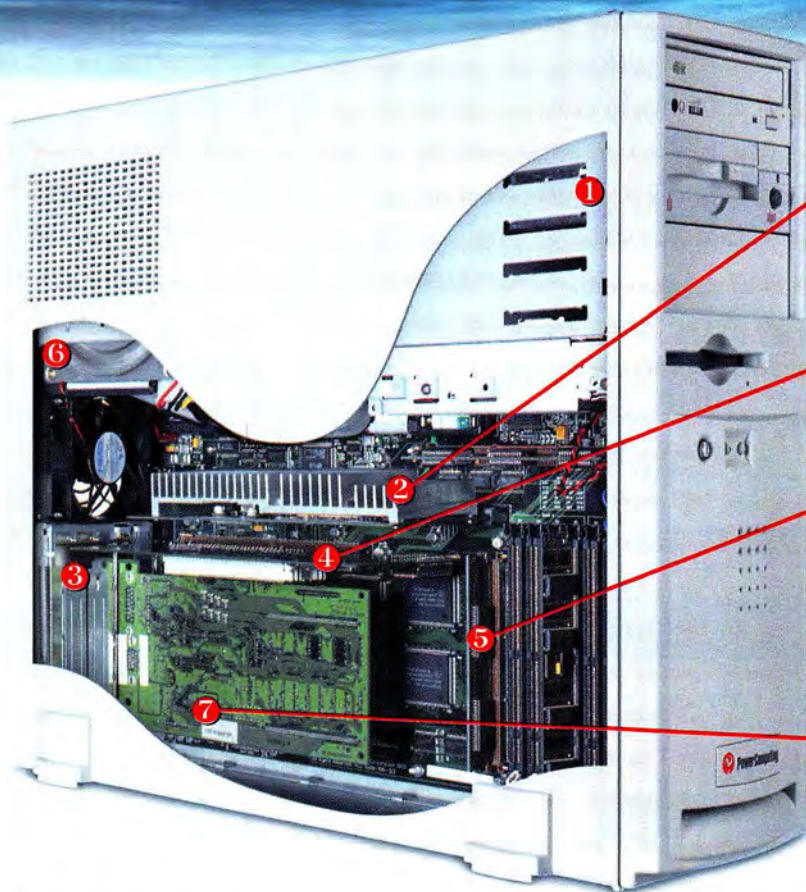
ing over some Stonehenge-like pitfalls of the Internet Age. After reading *The Road Ahead*, I was prompted to reread Cliff Stoll's wonderfully cynical *Silicon Snake Oil* (Doubleday, 1995). Together, the two books are like Paul McCartney singing, "It's getting better," and John Lennon replying, "It can't get much worse" (q.v. *Sgt. Pepper*). Published in one volume, these books could make a definitive treatise on what the future has in store for The Huddled Masses Yearning to Log On.

Finally, Bill, kudos for the free companion CD-ROM. It features the text of the book (with embedded links to related Web sites), lots of video demonstrations of future technologies, software, and an audio interview with (who else?) you. It's not Mac-compatible, so I can't comment on its content, but I took it to my local used-CD shop and swapped it for a Spike Jones record. Someday, all books will offer this exciting feature. ☺





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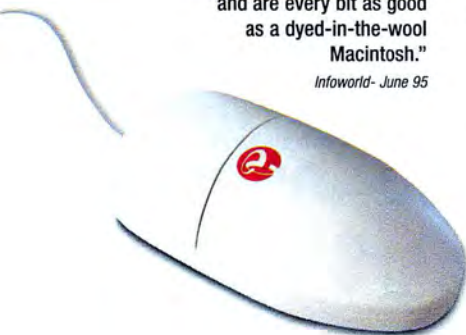
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