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The Mac Product Experts

Macworld

REPLACE YOUR DESKTOP

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Did Adobe Get It Right?

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- Maya for Mac OS X 3.5
- Wacom Cintiq
- HP DesignJet 10ps
- Commotion Pro 4.0

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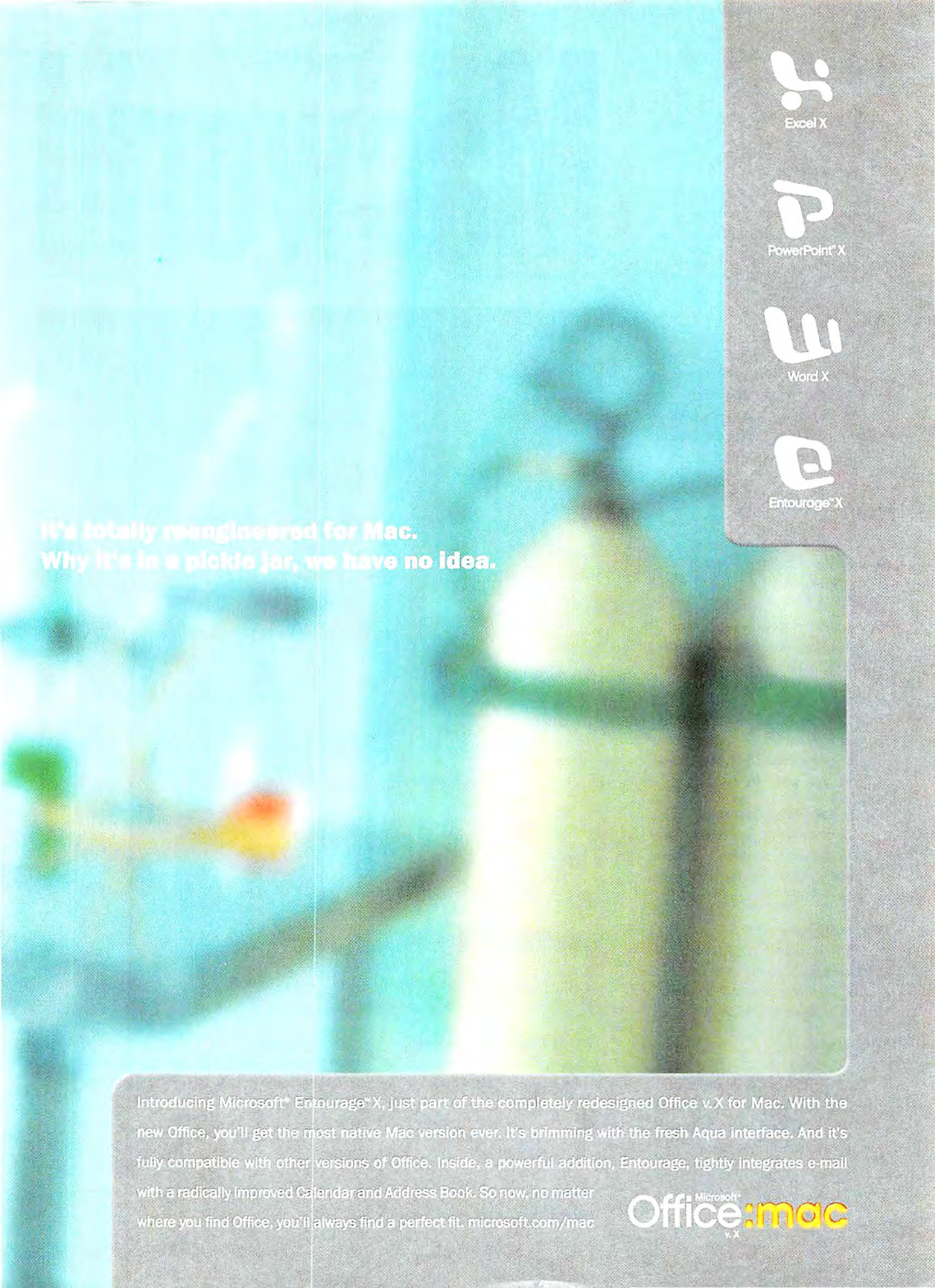
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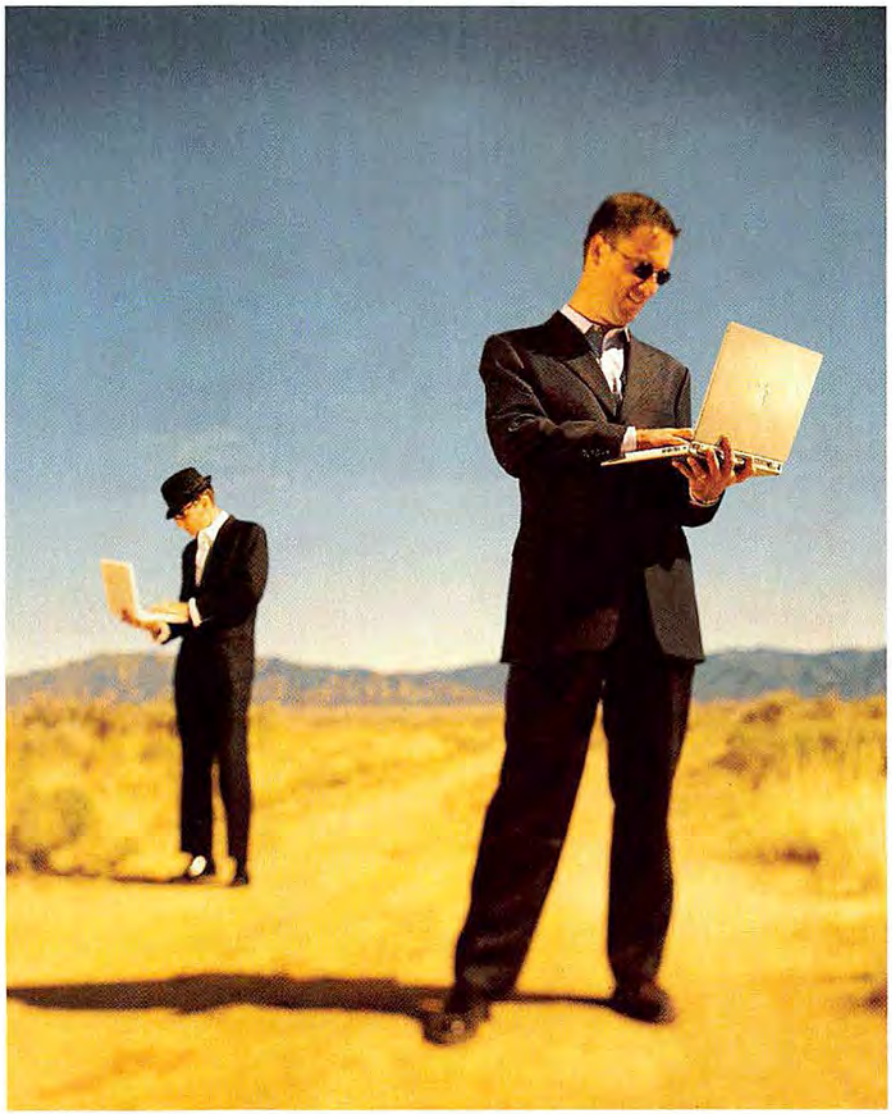

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ANDREW GORE As 2002 approaches, it's time to ask yourself whether you still need a deskbound Mac. Explore the advantages and disadvantages of choosing an Apple portable.

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Photograph by James Porto

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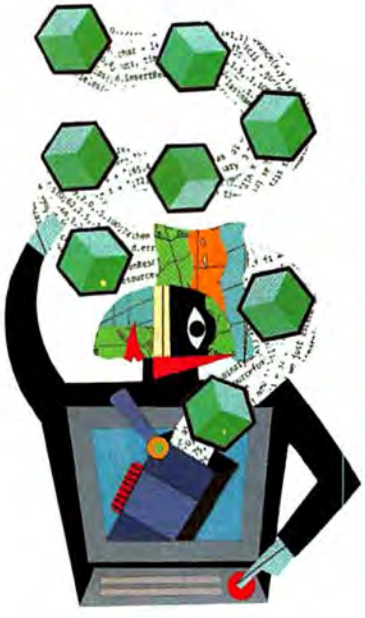

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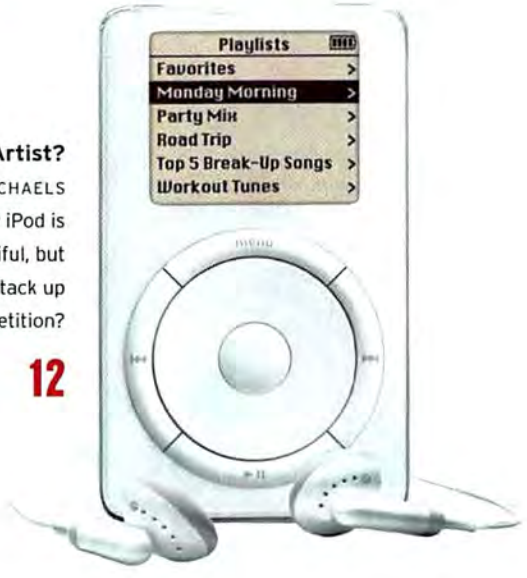

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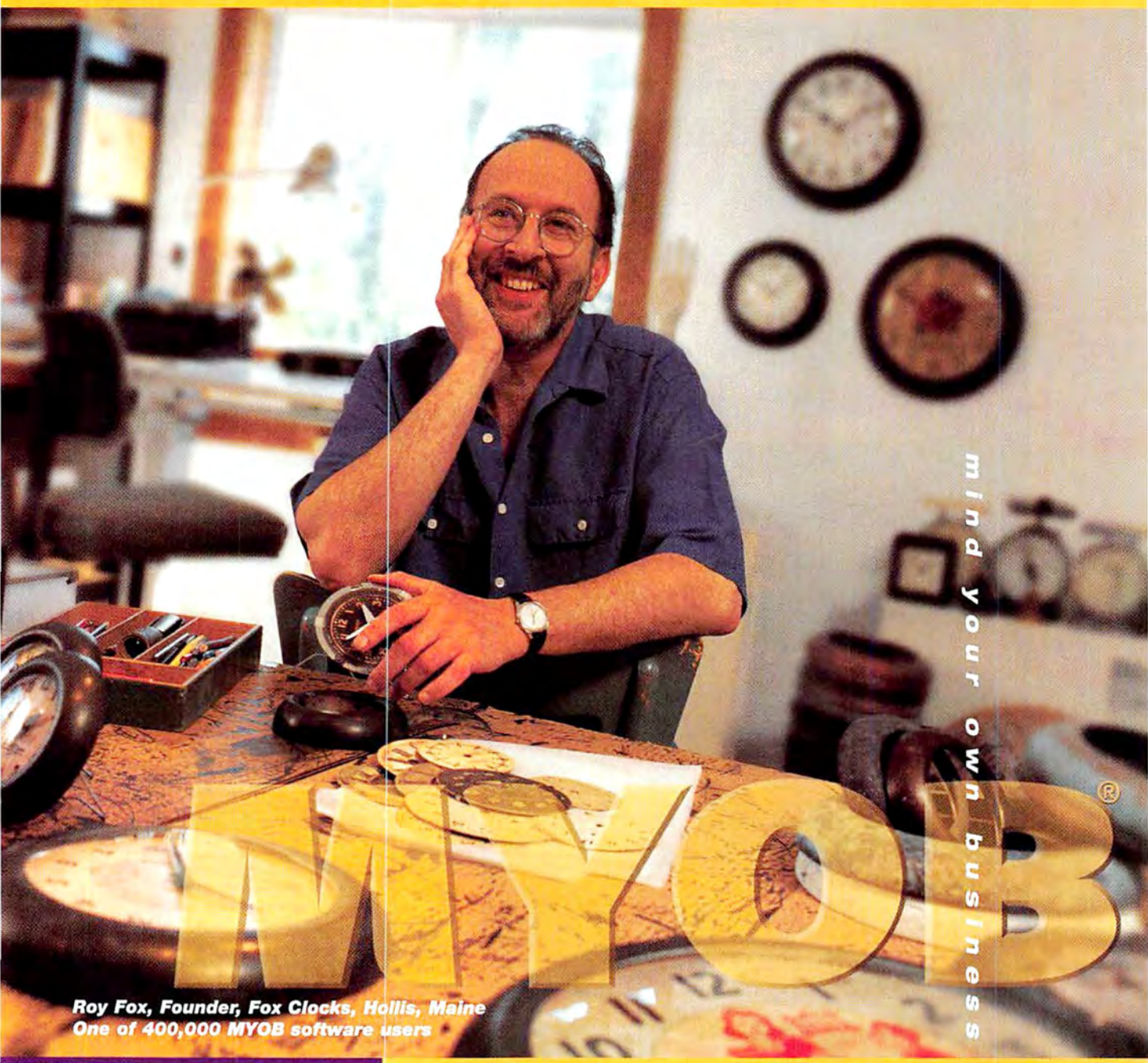
I'd rather create clocks than invoices.

If I wanted to keep books all day, I'd have been an accountant.



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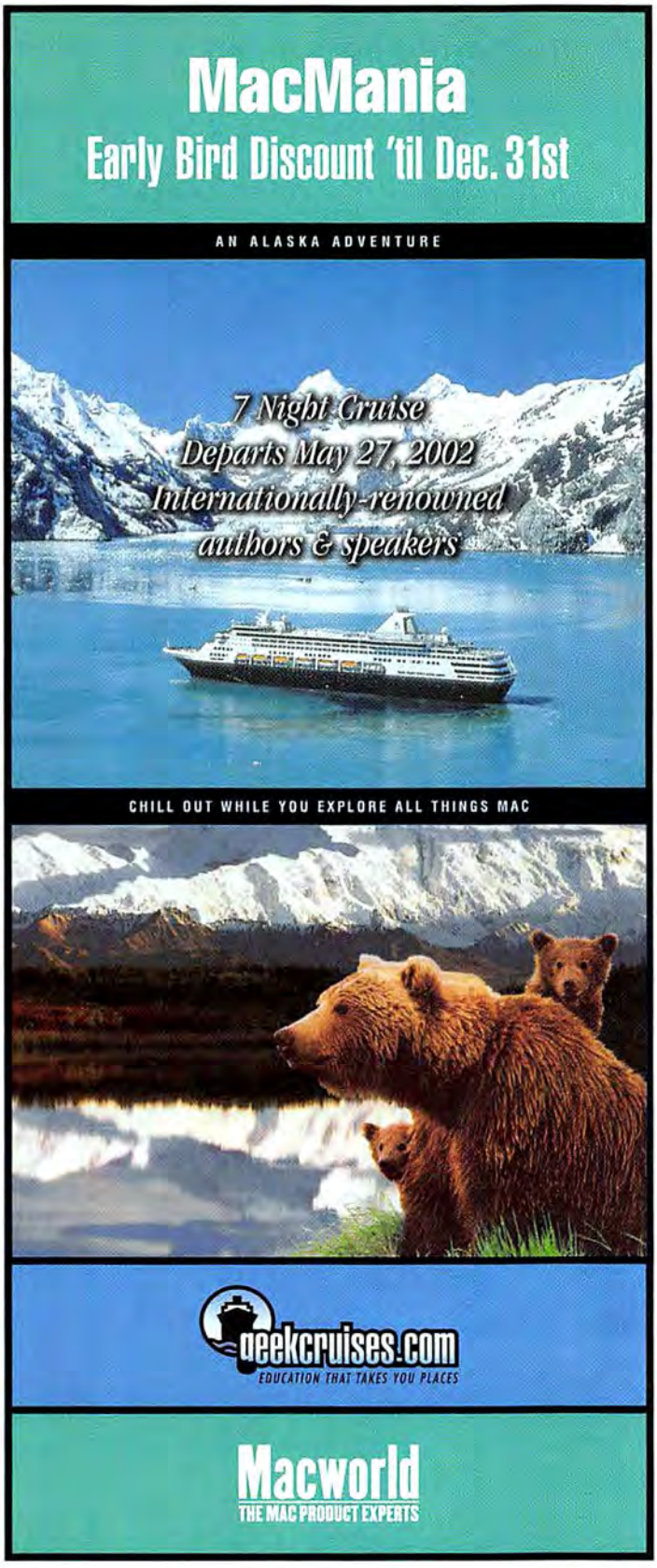

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BPA

Forums and Feedback

The People's Court

The OS X doctor may be in, as we wrote in our October cover story, "Mac OS X First Aid." But in the minds of many of our readers, the jury is still out, as far as Apple's new operating system is concerned. Some of you have ruled that OS X, well, rules. Others would like to cite Apple for contempt. Meanwhile, a handful of readers are hoping to have some recent reviews overturned on appeal. But even if your objections end up being overruled, the evidence definitely shows that you're all pretty good judges of the Mac market. **m**

The Privileged Few

JERRY STRATTON In "How Privileged Are You?" ("Mac OS X First Aid," October 2001) you mention that "folder privileges have priority over the privileges of files within the folder." But this isn't true. Contrary to what your example demonstrated, an accessible file can be modified even if it's in a folder whose privileges have been set to read-only. The file is not in any real sense protected by the folder's privileges. The confusion is a result of how files and folders work in Unix. In Unix, a folder is basically just another file, one that contains a list of the files "in" that directory. The reason you can't move a writable file to the Trash when it's in a read-only directory is that moving it to the Trash modifies the directory. The list of files has to be changed, and if the directory is read-only to that user, the list cannot be modified. With your example, you imply that the file is protected by the folder's permissions, but it isn't. Any user with write permission for that file can open it, select everything, delete everything, and save the file. All data is now gone, even though the folder itself might have been protected from change. The folder's permissions did not trump the file's.

EDWARD BOYER After reading eight pages that detailed, for one thing, how I might struggle through a Mac OS X kernel panic, I wonder why you think all readers will be OS X compliant by 2002. Considering the need to keep OS 9 handy in case of failure, and the need to enter DOS-like command lines just to get back to work, why would I look for trouble? I have OS X on the same disk as OS 9, and it'll stay there. Are you all crazy, or are you just bored with the idea of user-friendly computing?

Stealing, Not Sharing

BARBARA MULLIN To even suggest that people have the right to give someone else music that they haven't paid for is wrong ("Rip. Mix. Burn. Steal?" *Mac Beat*, October 2001). I am a photographer. When people illegally copy my work, they are stealing income from me, income that I earned and deserve by law. If you don't feel that artists deserve to be paid by consumers for the music they create, who do you think should pay them? This is not a gray area; it's out-and-out theft.

What's So Hard about That?

RALF SYMANZICK (PRESIDENT OF FILEWAVE) Your comment on the SNMP Scanner part of Asset Trustee 6.0 (*Reviews*, October 2001) was "SNMP Scanner lets you add devices to the inventory, but it's hard to use, poorly documented, and not well integrated with other components." Since there is *no* other tool available like this on Mac OS (classic or X), I really don't know what your basis of comparison was. What does "hard to use" mean? Hard to use compared with what? With other Java applications? Harder to use than a chain saw? What is "poorly documented"? The screen shots? The content in general? The grammar? Almost everything on earth could be "better." As to "not well integrated with other components," which other components? I think it is even better integrated than the native scanner! Why? Because it is almost platform independent. SNMP Scanner has been developed to be used by network administrators. That implies logically that the user *must* have solid knowledge of networking topologies and techniques. This is really not a toy to play around with. The only thing for the SNMP Scanner to do is collect the information of the network devices

continues

and bring it into the database. And that is what this tool does—quick, correct, easy, and up-to-date. Nothing more and nothing less.

The Software Remains the Same

DAN MOUGHAMIAN While I'm sure the best-quality scans on Nikon's new Super Coolscan 4000ED (*Reviews*, October 2001) are the ones that come from the 16-pass setting, there's no way this scanner requires 16 passes to produce a scan of equal quality to a single-pass scan on the Polaroid SprintScan 4000. The Super Coolscan 2000 can produce results comparable to the SprintScan 4000's in fewer than 16 passes. I doubt that the newer scanner is less capable. Also, if you don't test each scanner with the same software (SilverFast Ai is the best option), the reviews are further skewed.

Like most magazines in the industry, Macworld *has a long-standing policy of reviewing only what the vendor ships in the box. I agree that testing with VueScan or SilverFast and really highlighting hardware differences would be interesting. But most users who buy these scanners use the software that accompanies them, and that's what we test. If you drive the scanner with third-party software such as SilverFast or VueScan, you may well get better results.—Bruce Fraser*

Farewell, My Hard Drive

JOHN STRUNG "Upgrade an iMac" (*How-to*, October 2001) was very useful but omitted a crucial piece of information. According to Apple's Technical Information Library, case #25429, if you replace the hard drive in a 233MHz, 266MHz, or 333MHz iMac, you must partition the new drive so that the first (boot) partition is smaller than 8GB, or you run the risk of being unable to boot the computer.

Whose Standard Is It, Anyway?

WIL SHIPLEY (PRESIDENT OF THE OMNI GROUP) I found the review of OmniWeb 4.0 (*Reviews*, October 2001) to be largely on target, with compliments in the areas our users tell us they love, and criticism in areas on which we're already hard at work. However, as the author of our CSS support, I think the phrase "nodding acquaintance" is a bit light. Also, although our Document Object Model is based on Netscape's old DOM, we haven't found this to be the main problem with Web pages. In fact, when investigating bugs, we haven't found *any* that require a newer DOM. The problem we've found is that although most people want us to obey standards like CSS2 and DOM2, with the vast majority of sites that don't work with OmniWeb, problems are not caused by our disobeying standards. They're caused either by other browsers allowing bad content or by page authors specifically writing their pages to work only with one browser. Obviously, most users don't care whose fault it is; they want OmniWeb to work on their pages. This is our priority—in version 5.0, we're trying to precisely emulate Internet Explorer 5.1 for the Mac, so that pages will always work. Being the number-two browser means that we're always going to spend time ensuring compatibility with whatever the number-one browser does in terms of how HTML is laid out, because it can set the standard in that area. So we've made using OmniWeb worthwhile by making our browser look and feel better for the average user, making it actually fun to use. It's a trade-off I think most Mac users will understand.

Regardless of who's at fault for the Web's many badly coded pages, a Web browser that can't properly display sites other browsers can is fundamentally less useful.—Tom Negrino

Workaround Acrobatics

MARK J. FINCH *Macworld*'s review of Adobe Acrobat 5.0 was good (*Reviews*, October 2001); however, Vic Lennard writes, "Unfortunately, you can export vector images only in raster format." That is not entirely correct. The workaround is to save the page as an EPS file and then edit the EPS. This method works almost all the time. You can also use the Touch-Up tool to edit or extract images, both vector and raster.

CHUCK BRAXTON If one is running less than OS 9, Acrobat 4.05a is a better choice, because the Web-capture features of Acrobat 5.0 generate frequent error messages, possible system crashes, and problems that can spill over into PDF creation, reading, and editing. Since 5.0 doesn't provide an uninstall option on the CD, sorting out these problems requires sifting your hard drive for selected—but not all—Adobe extensions. For those running OS 9 or later, Acrobat 5.0 seems to offer three ways to create a PDF: a drag-and-drop desktop icon, an Open As PDF command (under the File menu), and the tedious multistep method. The last option involves going to the Chooser, selecting Adobe PS, going to the document, selecting Page Setup, clicking on OK, printing a PostScript file saved to the hard drive, and opening this file and running Adobe Distiller to create a PDF. After I struggled with font-substitution errors and PDF problems, Adobe tech support told me to use *only* the multistep process, not the easier methods.

PHILIP MAHLER The review of Acrobat 5.0 didn't point out that this version has no Capture feature, which performed OCR on scanned documents—although the documentation still refers to it. Mac users can't even buy the capture software (it's Windows only); the only choice is Adobe's Internet interface, for which users pay.

Capture is available via the Paper Capture Online option, in the Tools menu. Clicking on it takes you to a free conversion tool on Adobe's Web site.—Ed.

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Breakthrough Artist?

iPOD PACKS 5GB OF MUSIC INTO A TINY PACKAGE. BUT CAN IT STAND OUT FROM THE CROWD?

The iPod, Apple's new hard-drive–based MP3 player, is a handheld device not much bigger than a deck of playing cards, and it can store as many as 1,000 songs. But in addition to hauling around all that music, the iPod also carries some weighty expectations. In the weeks leading up to the iPod's November release, Apple heralded its latest hardware product as a groundbreaking digital device.

Is it?

"It's certainly a high-end product, both in terms of price and in terms of capability. . . . Short-term, I think they're going to sell every one they build," says Rob Enderle, a research fellow with Giga Information Group.

The iPod is entering a crowded field, competing against MP3 players that can boast either a lower price tag or greater capacity. But the iPod offers a few unique features of its own that could vault the Apple MP3 player to the head of its class.

■ **The Fire Inside:** Hook up a Rio or Nomad MP3 player to your Mac, and you'll use a USB cable. The iPod uses FireWire to connect with your Mac, making it the "first and only music player" with built-in FireWire support, according to Apple CEO Steve Jobs. The result? The iPod can download a CD's worth of songs in about ten seconds, compared with five minutes for an MP3 player using USB.

■ **Little Big Man:** Other MP3 players—notably Creative Labs' Nomad Jukebox and Archos's Jukebox 6000—top the iPod's 5GB capacity. But the pocket-size iPod offers a sleeker, lighter design. MP3 players that can match iPod's miniature mass offer only a fraction of its storage space. "This amazing little device holds 1,000 songs, and it goes right in my pocket," declared Jobs at the iPod's unveiling.

■ **Carry an iTune:** By making its own MP3 player, Apple can design a device that works seamlessly with its software. The latest version of iTunes (see "Product Watch") sports an Auto-Sync feature that automatically uploads new songs and playlists to the iPod anytime you plug it into your Mac.

The iPod's $399 price is sure to raise some eyebrows, particularly when consumers seem to be cutting back on electronic-gadgetry spending. But keep in mind that the iPod is not only a high-capacity MP3 player: it doubles as an external FireWire drive. "Given what it is, it's a value," Giga's Enderle says.

Whether consumers will agree is yet to be seen (see *Reviews*, elsewhere in this issue), but Apple seems confident. "This is going to be the hottest gift this holiday season for every Mac owner," Jobs said.—PHILIP MICHAELS

Franchise Players

COMPANY	PRODUCT	TYPE	COMPANY'S ESTIMATED PRICE	STORAGE CAPACITY (BASE/MAX.)	COST PER MB (BASE)
Apple	iPod	Hard disk	$399	5GB/5GB	$0.08
Archos	Archos Jukebox 6000	Hard disk	$250	6GB/6GB	$0.04
Creative Labs	Nomad Jukebox	Hard disk	$249	6GB/6GB	$0.04
SonicBlue	Rio 600	Flash	$150	32MB/160MB	$4.69
SonicBlue	Rio 800	Flash	$250	128MB/256MB	$1.95
SonicBlue	Rio Volt SP250	CD	$179	700MB/700MB*	$0.26

*No built-in storage; can accommodate audio CDs and 650MB and 700MB MP3 CD-R discs.

PHOTO COURTESY OF APPLE

eBook 'em

In the wake of 2001's dot-combustion, technologies such as push media and free MP3 distribution via Napster seem destined for the digital dustbin. And e-books might appear to belong with other products of a bygone era—the hardware devices that are used to access these electronic documents aren't flying off shelves, nor are e-novels tearing up the charts.

But Adobe continues to spend time and energy on e-books, taking a course different from other players in the market. Instead of encoding e-books in a format that depends on specific equipment, Adobe is encouraging the growth of a device-agnostic, PDF-based market.

So what distinguishes a PDF from an e-book? According to Adobe, it's digital-rights management, a term that won't

mean much to the average consumer, though it's the difference between downloading a PDF for free from a Web site and paying $4.95—or more—for a book chapter from a publisher.

It's also the reason that the e-book you read on your Mac may not behave like a PDF in some circumstances. Adobe's Content Server permits digital publishers to set an e-publication's permissions, which dictate whether a user can print pages, lend the file electronically to someone else, or have a computer's built-in speech program read the text aloud. These options help publishers to maintain a work's complex web of distribution and royalty rights.

This isn't to imply that people using Adobe's eBook Reader are locked into reading a static text file. The eBook Reader application permits users to digitally dog-ear pages and highlight passages. And the software is free. "People who are already carrying a laptop aren't going to pay $500 for a device that lets you read a $5 e-publication," says Adobe spokeswoman Layla McHale.

Regardless of whether people will pay for a specialized reading device, the real question may be whether electronic books will survive the tech shakeout. Adobe maintains that eBooks have a market in "mobile information professionals"—people who need access to reference material even when sitting in front of a computer is inconvenient. Only time will tell if this market will begin to include mainstream Mac users.—LISA SCHMEISER

MAC STUFF

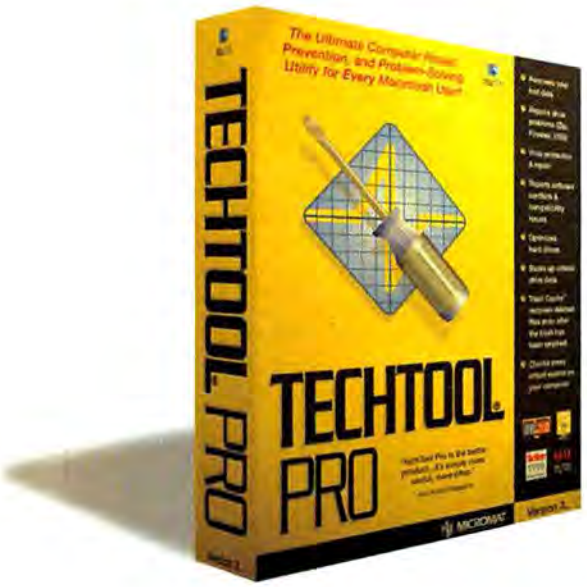
Just Encase

Your hard drive has become more crowded than a department-store exchange counter on December 26. But after swapping it out for a more spacious model, you're left wondering what to do with the old internal ATA hard drive, short of turning it into an awkward paperweight. It's time to pick up any of more than a dozen hard-disk enclosures now available and assemble your own external FireWire drive, *This Old House*–style. At prices ranging from $129 to $159, hard-drive enclosure kits from storage-device retail outlets typically come with a FireWire case, a 6-pin/6-pin FireWire cable, an AC adapter, and sometimes driver software. More important, all of the kits listed here sport the Oxford 911 ATA-FireWire bridge, a new chip set that speeds data-transfer rates. For $50 to $100 less than you'd pay for a new, ready-made external drive, you get a sleek, portable place to keep old files, gigabyte-gobbling images, and even OS X. But if you still need a paperweight, it can serve as that, too.—PHILIP MICHAELS

Case Closed

COMPANY	PRODUCT	CONTACT	PRICE
California Drives	3.5-Inch FireWire Hard Disk Drive Case Kit	sales@caldrives.com, www.caldrives.com	$129
	2.5-Inch Portable FireWire External Hard Drive Kit	sales@caldrives.com, www.caldrives.com	$129
FirewireDirect	SlimLine Ultra II 3.5-Inch External Enclosure Kit	512/302-0012, www.firewiredirect.com	$149
	Spark II Pro FireWire-USB Combo 2.5-Inch Hard Disk Drive Enclosure Kit	512/302-0012, www.firewiredirect.com	$139
FireWire Depot	Slim Size Universal External Enclosure for 3.5-Inch Hard Drives	707/251-9228, www.fwdepot.com	$135
	SK 3.5-Inch FireWire-USB Combo Enclosure	707/251-9228, www.fwdepot.com	$140
	Clearlight eDrive 2.5-Inch Hard-Drive Enclosure	707/251-9228, www.fwdepot.com	$130
	SK 2.5-Inch FireWire-USB Combo Enclosure	707/251-9228, www.fwdepot.com	$135
FireWireMax	3.5-Inch Ultra Clear FireWire 911 Drive Enclosure	888/850-9543, www.firewiremax.com	$140
	2.5-Inch FireWire Mobile External Enclosure Kit	888/850-9543, www.firewiremax.com	$130
Granite Digital	3.5-Inch FireVue FireWire 1394-Ultra IDE Case Kit	510/471-6442, www.granitedigital.com	$159
Other World Computing	3.5-Inch OWC Mercury Pro Elite Oxford 911 External FireWire Kit	800/275-4576, www.otherworldcomputing.com	$130
	2.5-Inch OWC Mercury On-the-Go FireWire Portable External Case Kit	800/275-4576, www.otherworldcomputing.com	$120
Trans Intl	1394 FireWire Portable External Case	714/634-1583, www.transintl.com	$125

In with the new...



TechTool Pro 3 is the super utility for your Macintosh. Besides repairing and recovering data, TechTool Pro can help you circumvent problems in the first place. Our new virus detect and repair feature, as well as our software conflict check feature, lets you keep your computer in tip-top shape. When booted from the included emergency CD, you can even check, repair and optimize your OS X computer.

Every day, more and more Macintosh professionals are choosing TechTool over other system utilities. In fact, even Apple Computer includes TechTool Deluxe with every copy of their AppleCare™ Protection Plan. Simply put, TechTool Pro 3 is the most complete and powerful troubleshooting utility available for your computer. Why would you settle for anything less?

In with the newer...

For Apple's next-generation operating syster you'll need a next-generation disk utility. That why Micromat has introduced Drive 10, the fi and final disk utility for Mac OS X. Problems with your drive? Drive 10 can repair almost a drive problem with one simple click of your mouse. All within OS X's native environment

While Drive 10 is a new product, it is derivec from TechTool Pro, Micromat's world-class diagnostic and repair utility. Using TechTool's time-tested routines as well as some new routin developed exclusively for OS X, Drive 10 offe many tools for checking and repairing any dri on your system. Don't entrust your OS X driv to ancient utilities. Protect your data and driv safely with Drive 10.

Micromat Inc. 800-829-6227 707-566-3831 info@micromat.com www.micromat.co

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INSECURITY BLANKET

It's old news that the security mechanisms built into 802.11b—the formal name for the wireless networking technology used in Apple's AirPort—are not up to the job. Independent analyses have found that WEP, the so-called Wired Equivalent Privacy scheme, is more of a speed bump than a barrier when it comes to repelling attackers (see *Buzz*, July 2001).

Given a little time, skill, and motivation, nefarious individuals can tune into your wireless network, listen in on its traffic, and muscle in on your bandwidth. Even worse: there's no way to tell that someone has cracked your wireless network until it's too late.

Surprisingly, research shows that the weakest link in 802.11 security is typically users themselves: most Base Station owners don't enable basic security features—the very first thing a person should do after buying an AirPort Base Station. Though enabling these features shouldn't lull anyone into a false sense of security, it's easier to invade an unprotected network than one with many hurdles, even if they're surmountable.

Replacing WEP

Because WEP's serious flaws are fundamental, there's no easy fix: users will need a complete replacement. The groundwork for this is slowly being laid. Approved in May 2001, the 802.1x standard provides a way for users to authenticate themselves. It's already built in to Windows XP and is likely to be the standard authentication scheme for revised 802.11 security.

Task Group i (TGi) is working on the new authentication scheme, looking to create what WEP should have been in the first place. Work should be finished around the start of 2002.

For current users, the big question will be upgradability. It's possible, though not certain, that existing Base Stations will have to be replaced before we can use new security features. But until TGi approves the final standard, we won't know. Today's wireless cards have built-in hardware to accelerate WEP's encryption functions; with the security upgrade, these cards will likely serve only as radios, with all the new cryptographic features performed on the CPU. Fortunately, even the lowliest iMac has plenty of horsepower for this type of work.

What Will Apple Do?

Apple's response to the discovery of WEP vulnerabilities has been to wait for official new standards to appear; for now, AirPort users are at risk.

By the time you read this, TGi may already have released its final standard. As this issue went to press, Apple announced an updated AirPort. Despite the new—and limited—security improvements in AirPort 2.0, Apple still has to adopt 802.1x and TGi's technologies in the future.

While users will probably be able to upgrade client Macs, the same can't be said for older Base Station hardware, which can't be upgraded to support 128-bit WEP.—STEPHAN SOMOGYI

More Info: http://grouper.ieee.org/groups/802/1/pages/802.1x.html

LINK

Learn more about the 802.1x authentication standard, from the Institute of Electrical and Electronics Engineers.

GEEK STUFF

Treo Calling

Pity all those poor geeks-on-the-go. To stay connected when they venture out from the cocoon of their desktop, they need to lug around a laptop, cell phone, PDA, and pager—not to mention a utility belt that most superheroes would consider too gaudy. According to Chris Cadwell, director of product marketing for wireless products at Handspring (888/565-9393, www.handspring.com), "people don't want to carry around multiple devices anymore." The maker of the Visor PDA is counting on that notion, anyhow, with the Treo communicator. The Treo aims to reduce the clutter of handheld gadgetry by merging a phone, organizer, and messenger into a single device.—PHILIP MICHAELS

THE LOOK: Imagine a Visor crossbred with a cell phone, and you've got the right idea. Or think of the Treo as a slimmer version of the VisorPhone, the Visor's snap-on cell-phone module. The Treo is less than an inch thick and weighs less than six ounces, so it fits in your pocket.

THE FEATURES: Like its fellow Palm OS device the Visor, the Treo has four buttons that launch applications—an address book-like listing of phone numbers, a calendar and to-do list, a Web browser, and a messaging service. The Treo lets you send SMS messages to other GSM phones or e-mail addresses.

THE SERVICE: Treo will operate on GSM networks. And while that is the most widely used digital phone standard in the world, it's not as prevalent in the United States as CDMA. Handspring notes that major carriers such as Cingular Wireless and VoiceStream already support GSM.

THE PRICE: Handspring will start selling the Treo 180, which features a built-in keyboard, and the Treo 180g, which offers Graffitti input only, in early 2002. Both sell for $399 (plus service activation). Handspring plans to release a color display version, the $599 Treo 270, by mid-2002.

PRO FILE

True-Blue Mac Users

Q&A with BLUE MAN GROUP

At first glance, Blue Man Group—the bald, blue-faced trio formed in 1987 by longtime friends Chris Wink, Phil Stanton, and Matt Goldman—doesn't seem to have much of an association with the Mac. After all, Blue Man received possibly its widest exposure by appearing in a series of TV ads promoting Intel's Pentium processor—not exactly the most obvious way of casting your lot with the PowerPC crowd. But if you go backstage at one of the group's performances in New York, Chicago, Boston, or Las Vegas, you'll find Macs helping to run the show. Associate Artistic Director Caryl Glaab and Associate Video Director Kevin Frech recently explained to Macworld *that while a typical Blue Man performance may involve spewing Twinkie creme filling at slicker-clad audience members or using Cap'n Crunch cereal to make music, the show can get pretty high-tech behind the scenes.*—ANTON LINECKER

More Info: www.macworld.com/2002/01/macbeat/blueman.html

Learn more about Blue Man Group in *Macworld*'s extended online interview.

LINK

AT A GLANCE

BLUE MAN GROUP
AGE: 14
RESIDENCE: New York, Chicago, Boston, Las Vegas
MACS: Power Mac G3/450s with 128MB of RAM
SOFTWARE: Metric Halo Labs SpectraFoo, Dataton Trax
PERIPHERALS: Doremi Labs digital data recorders, Sony video switchers, Digital Projection projectors

Q: ***What goes on backstage to make a Blue Man Group show run?***

Glaab: We have two G3 computers running the Dataton control software, which controls three video mixers, five digital data recorders, phase meters, and seven projectors. It's a pretty huge system, but the Dataton software takes a show that should take three people to operate and makes it so one person can run the show fairly easily. That's what the nexus of the backstage control would be.

Frech: There's a combination of live video and recorded playback. There are two cameras that we use—Sony GX30 cameras. Everything in the [Las Vegas] show runs at broadcast quality because it's such a large venue.

Q: ***You're running your entire Las Vegas show on Power Mac G3s. Are they souped up in any way?***

Glaab: They are basically off-the-rack G3s. We have five in all in the show—two to operate the Dataton software and three to run the phase meters.

Q: ***What kept you from upgrading to the G4? Would the color clash?***

Glaab: Funny you mention that. For our own research and development here in New York, we just purchased G4s for the next phase.

Q: ***A lot of people now recognize Blue Man Group because of those commercials for Pentium. Yet Macs power your show. Do you find that ironic?***

Glaab: No. We use all kinds of machines, depending on what we want to do.

www.apple-history.com

CLICK HERE

Don't Know Much about History?

If you've ever searched in vain for the tech specs of a Performa 6360 or forgotten the code name for the Mac IIvx, Glen Sanford feels your pain. In 1996, Sanford was a sophomore at Brown University, working on a computer-science final project involving the history of Apple. Surprised that there was no single source for historical Mac data on the Web, Sanford decided to build one, and **www.apple-history.com** remains one of the best places to find Mac information. There's a seven-page history of Apple that chronicles the company from when the Two Steves were noodling with circuitry in garages to the present. Sanford's site also lists data on almost every Apple computer ever made. He has assembled specs, original prices, pictures, and code names for all models, from the original Apple I to the 2001 Macs. As for his personal favorite in the array of Apple models he's archived, Sanford picks the Titanium PowerBook G4, though "there's something about my old Apple IIc that I really miss."—PHILIP MICHAELS

BLUE MAN GROUP

Say hello to iPod.

With iPod's blazingly fast FireWire you can download an entire CD in less than 10 seconds. Or 1,000 songs in under 10 minutes. Plus, iPod automatically charges whenever you're connected.

iPod's rechargeable lithium polymer battery gives you up to 10 hours of continuous playback, so your music keeps going and going and going.

1,000 songs in your Mac.

Apple's award-winning iTunes™ software makes it easy to put your entire music collection right on your Mac. You can rip MP3s, create playlists and burn custom CDs* all from one refreshingly simple interface. And now iTunes 2 offers even more features – like MP3 CD burning, crossfading and an equalizer. iTunes makes it simple and fun to build your very own digital music library on your Mac. Now, imagine having all of that incredible music with you wherever you go – even when you're away from your Mac.

od's ultra-slim 5-gigabyte[‡] hard drive doubles as FireWire drive, so you can store your documents, les and applications alongside your music.

iPod features up to 20 minutes of skip protection, so you won't miss a beat, and "earbud" headphones that deliver remarkable sound quality, so you won't miss a note.

per-fast FireWire auto-updating

hen you first plug iPod into ur Mac, all of your iTunes ngs and playlists are utomatically downloaded into od at blazing FireWire speed. en, when you add new usic or rearrange playlists in unes, simply plug iPod back and it's automatically updated seconds. It simply doesn't t any easier or faster than this.

Actual size.

Access to 1,000 songs is under your thumb. Find your music by playlist, artist or song in seconds with iPod's unique and incredibly easy-to-use scroll wheel.

1,000 songs in your pocket.

esenting iPod.™ The first MP3 player to pack a mind-blowing 1,000 songs** and a 10-hour battery† into a stunning 6.5-ounce ckage you can literally take everywhere. But iPod†† isn't just a revolution in portability, it's also a revolution in simplicity. Just ug it into your Mac and all of your iTunes songs and playlists are automatically downloaded into iPod at blazing FireWire‡ speed. ith iPod, it's that easy to take your entire music collection with you wherever you go, in the pocket of your choice.

iPod's main menu lets you access your music the way you want to – by playlist, artist or song.

Your iTunes playlists are automatically downloaded into iPod, so select your favorite mix with just a click.

Or choose the artists you're in the mood for, then select their best album or songs.

Or zip through an alphabetical list of titles to find the song you're looking for in no time.

Then set iPod to play your favorite songs again and again, or shuffle through your entire library.

Finally, adjust the volume and fully enjoy iPod's breathtakingly pure and dynamic digital sound.

The new iPod.
$399

Think different.

Don't steal music.

*Requires CD-RW drive. **Capacity based on 4 min. per song/160Kbps. †Battery life varies by use. ††Requires Mac with FireWire and Mac OS 9.2 (or later) or Mac OS X v. 10.1 (or later). ‡1GB=1 billion bytes; actual formatted capacity less. MSRP. ©2001 Apple Computer, Inc. All rights reserved. iPod is a trademark of Apple Computer, Inc. Music shown is not included. For more information, call 1-800-MY APPLE or visit www.apple.com.*

Script Supervisor

For years, AppleScript has been a popular way to control the Mac and its applications. And recently, Mac OS X has introduced Mac users to Interface Builder, an extremely easy way to create applications by using simple drag-and-drop tools.

It didn't take long for Apple to figure out that these two great developer tools could taste great together. The result is AppleScript Studio, which lets scripters build native Mac OS X applications—menus, buttons, palettes, and all—without writing a single line of code in any language other than AppleScript. AppleScript Studio will be included with Apple's Mac OS X Developer Tools (www.apple.com/developer).

By taking advantage of the Project Builder tool Apple created for use with the Objective-C and Java languages, AppleScript Studio—which should ship by the end of 2001—also provides professional-level debugging and source-management features. In the past, many of these features have been available in such products as Digital Technology International's $199 FaceSpan (800/322-3772, www.facespan.com) and Late Night Software's $189 Script Debugger (888/999-3210; www.latenightsw.com). However, Apple's tools combine these features with the ability to create native Aqua apps with every interface option imaginable, including access to Mac OS X's command line—and it's all free.

The result will be a whole generation of easy-to-build and easy-to-use applications that you'll never even know are powered by AppleScript.—JASON SNELL

COOL STUFF

Handful of Air

The freedom and mobility that handheld devices promise don't mean much if you have to search out a phone jack for your modem connectivity kit every time you want to surf the Web. But with the Wireless LAN Module, from Xircom (800/438-4526, www.xircom.com), you can connect to any standard 802.11b network with no strings—or modem cables—attached. Although such networks aren't yet pervasive, you'll soon be seeing more of them, thanks to devices such as the $265 Wireless LAN Module and its $299 counterpart for the Handspring Visor, the SpringPort Wireless Ethernet Module. The 802.11b technology offers a greater range than most modems—especially indoors. Throw plug-and-play compatibility into the mix, and wirelessly connecting your Palm OS device to the Internet gets a whole lot faster and easier.—MATHEW HONAN

HARDWARE

DIGITAL CAMERAS

- A 3.2-megapixel camera from Olympus America (800/622-6372, www.olympusamerica.com): The **C-3020 Zoom** ($499) offers a 3× optical and 2.5× digital zoom. It also features new Scene program options that provide settings for portrait, sports, landscape-portrait, night-scene, and QuickTime-movie modes.

DISPLAYS

- An ADC-equipped LCD flat-panel display from Formac (877/436-7622, www.formac.com): The **Formac gallery 1740** ($899) is a 17.4-inch display with true 1,280-by-1,024-pixel resolution. It supports the Apple Digital Connector, which combines power, digital video, and USB support in a single cable.
- An LCD flat-panel monitor from NEC-Mitsubishi Electronics Display (888/632-6487, www.necmitsubishi.com): The NEC **MultiSync LCD1550V** ($399) is a 15-inch thin-frame display that offers a native resolution of 1,024 by 768 pixels. Weighing 8.4 pounds, the display comes in a black or white casing.

PRINTERS

- A photo ink-jet printer from Epson (800/873-7766, www.epson.com): The **Stylus Photo 820** ($149) features a resolution of 2,880 by 720 dpi. It prints 12 black-and-white pages per minute and a 4-by-6-inch photo in 48 seconds.
- Seven printers from Hewlett-Packard (800/752-0900, www.hp.com): The **HP Color InkJet cp1160** ($399) features two-sided printing, a 400-sheet paper capacity, and infrared connectivity. The **HP Color InkJet cp1160tn** ($599) adds a 250-sheet plain-paper tray and an Internet-connector accessory. The **HP Color InkJet cp1700** ($499) and **HP Color InkJet cp1700ps** ($599) offer wide-format color printing and optional networking, as does the **HP Color InkJet cp1700d** ($599), which also offers two-sided printing. The **HP Business InkJet 2600** ($999) supports media as large as 13 by 19 inches and optional two-sided printing. The **HP Business InkJet 2600dn** ($1,399) includes both a two-sided-printing accessory and an EIO network card.

SOFTWARE

BUSINESS SOFTWARE

- A business-management application from Appgen (800/231-0062, www.appgen.com): **MyBooks 5.1** debuts on the Mac platform with modules that let users manage sales, customers, and accounting for a small business. The Java-based application runs on Mac OS X 10.1 ($100 for a five-user license).

CONSUMER SOFTWARE

- **iTunes 2.0**, from Apple (800/692-7753, www.apple.com): The audio-CD-burning software adds a 10-band

continues

What's HOT

A QUICK LOOK AT THE WORLD OF TECH

1. Macromedia sues Adobe, claiming functions and features in Photoshop and GoLive infringe on its patents. *Somehow, that Napster kid is to blame for all this.*
2. Apple introduces its new MP3 player, the iPod. *With 5GB of storage capacity, the iPod can store as many as 1,000 songs—or one Grateful Dead concert.*
3. Bill Gates makes a guest appearance on the TV series *Frasier*. *Look for Gates's next performance, as Frodo in* Lord of the Rings.

equalizer with more than 20 presets, cross-fading between songs, and the ability to burn MP3 CDs. New performance enhancements also allow iTunes 2.0 to burn audio CDs as much as twice as fast as previous versions. The software is available as a free download.

GRAPHICS SOFTWARE

- **KnockOut 2**, from Corel's Procreate division (800/772-6735, www.procreate.com): The masking software is now a plug-in that integrates with image-editing applications such as Adobe Photoshop, Procreate Painter 7, and Corel Photo-Paint. It adds eraser and brush tools, as well as support for the CMYK color model. It runs on Mac OS 8.6 and higher, including OS X ($329; upgrade, $149).

NETWORKING SOFTWARE

- **Dave 3.1**, from Thursby Software Systems (817/478-5070, www.thursby.com): The latest version of the PC-to-Mac file-sharing software now runs on OS X 10.1; it also runs on Mac OS 8.6 and higher. It adds support for ink-jet printing. The new version supports files larger than 2GB and file names longer than 31 characters ($149; upgrade, $90 [Users who bought Dave in 2001 can upgrade for free]).

PRODUCTIVITY SOFTWARE

- **BBEdit 6.5**, from Bare Bones Software (781/687-0700, www.barebones.com): The HTML and text editor now comes as a single application that runs on Mac OS 8.6 and later, including OS X. It adds integrated support for Cascading Style Sheets, as well as integration with Unix scripting systems on OS X. It also has a new grep engine with Perl-compatible regular-expression syntax ($119; upgrade, $39 [the upgrade is free to users who bought BBEdit 6.1 after August 1, 2001]).
- **Personal Organizer 4.0**, from Chronos (435/615-7335, www.chronosnet.com): The updated calendar, address-book, and word-processing application adds a built-in spelling checker, drag-and-drop customization, and multiple user accounts, among other features. It runs on Mac OS 8.6 and higher, including OS X ($60; upgrade, $40).

SYSTEM SOFTWARE

- **WebStar Server Suite V**, from 4D (800/785-3303, www.webstar.com): The Web-server software, which is designed to run natively on OS X and OS X Server, features multiprocessor support, multithreaded architecture, and a redesigned caching architecture ($399; upgrades start at $199).

UTILITY SOFTWARE

- **QuicKeys X**, from CE Software (800/523-7638, www.cesoft.com): The OS X-only version of the automation utility adds an inline shortcut feature and the ability to record mouse actions and access menus ($60; $50 for current users).

ANNOUNCED

- A patent dispute between Macromedia (800/470-7211, www.macromedia.com) and Adobe (800/833-6687, www.adobe.com): Macromedia has filed a lawsuit claiming that Adobe infringed on two of its patents covering features and functions in Photoshop and GoLive. Adobe says that the claims are without merit.—Compiled by PHILIP MICHAELS

MAC OS X UPDATES

powered by versiontracker.com

Adium 1.2
Third-party AOL instant-messaging client

AppleUSBMouse Turbo Edition 1.8.6d1
Speeds USB mouse movement

Cinema 4D XL 7.201
Adds Make Preview feature to 3-D-modeling and -rendering tool

Contact Keeper 3.7.5
Address-book program

DropImage X 2.7
Drag-and-drop image viewer, converter, and HTML generator

G-Force 2.1.2
Real-time audio-visualization plug-in for iTunes

Lasso Professional 5.0b
Beta of Web-site-building tool

MacFamilyTree 2.6.3
Carbonized version of genealogy software

Mail Merge Pro 2.0.2
Label-design tool

Melodyne 1.0.1
Multitrack audio editor

Midnight Commander 4.5.54
Unix file manager and user shell

MindVision Installer VISE 7.4
Developer software install tools

MP3 Rage 3.9
Improves ability to search and download files with Napster and Gnutella

MySQL 4.0
SQL database server software

Opera X 5.0b2
Preview version of Carbonized Web browser

Print Explosion Deluxe 2.0.2
Graphics studio for creating greeting cards

QuickMovie 1.4
Tool for creating a QuickTime movie from a series of images

Samba X 2.2.2
Installer for Samba server software under OS X

Sharity 2.6b2
Adds OS X 10.1 compatibility to CIFS/SMB client

Thoth 1.4.1
Usenet newsreader

TransparentDock 1.4
AppleScript that makes Dock background fully transparent

WhereDidAllMyMoneyGo X 2.3.7
Finance tool

WindowShade X 1.0
Brings window-collapsing effect to OS X

Writer X 2.3
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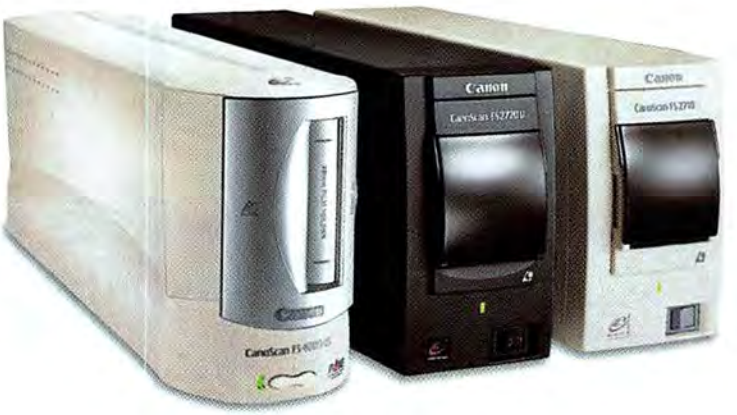

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Maya for Mac OS X 3.5

Long-Awaited 3-D Suite Hampered by OS-Compatibility Issues

BY SEAN WAGSTAFF

ILLUSTRATION CREATED IN MAYA BY SIMON DANAHER

MAYA FOR MAC OS X 3.5

Rating: ♦♦♦½

Pros: Object-oriented character animation; dynamics; useful MEL scripting; good integration of Mac and Maya interface conventions; NURBS modeling; QuickTime support.

Cons: Overall performance needs improvement; no hair or cloth simulation; no subdivision-surfaces modeler; limited polygonal modeling.

Company's estimated price: $7,500

OS compatibility: Mac OS X

Company: Alias|Wavefront, *800/447-2542,* **www.aw.sgi.com**

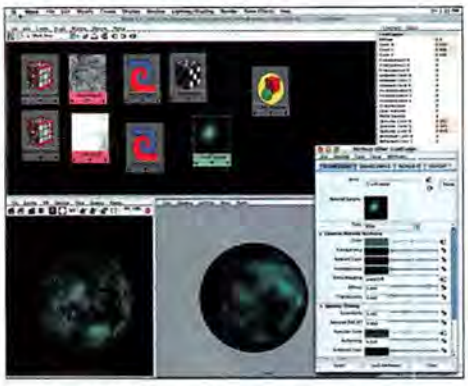
ALIAS|WAVEFRONT'S MAYA FOR Mac OS X 3.5, one of the most anticipated and hyped applications ever to hit the Mac, is finally shipping. Apple and Alias|Wavefront have been demonstrating Maya for over a year, touting it as "the premier 3-D application for high-end visual graphics." The program comes close to living up to this claim, but OS X compatibility and some features have to improve before it will earn a place next to Maya incarnations on other platforms.

Maya combines modeling and rendering tools; character and object animation; a customizable, scriptable interface; and a powerful production workflow, in one impressive application. Skilled teams of animators have used it to create effects for films such as *Pearl Harbor, The Perfect Storm,* and *Shrek,* and it has made many TV shows and video games come to life. Although there are 3-D applications that outperform some of Maya's individual features, none provides such a comprehensive software package.

Almost-Model Modeling

Modeling is one of Maya's strong suits. The program performs modeling of 3-D wire-frame objects with both polygonal geometry—well-suited to hard mechanical and architectural surfaces—and NURBS (non-uniform rational b-splines), which are ideal for modeling organic surfaces. Maya lets you build a convincing representation of nearly any object, and it deftly converts organic forms built with NURBS into polygonal objects.

But Maya's modeling features are not as strong as they could be, and some Mac users will continue to use other packages to build objects. Autodessys's $1,395 FormZ, for example, has more-refined polygonal modeling tools, and LightWave 3D offers a subdivision-surfaces modeler that makes it easy to create difficult organic shapes such as human heads and hands; Maya has no equivalent feature.



Find Some Shade The Hypershade window (top) allows you to connect shader parameters by dragging wires from one node to another.

Animation Is King

Maya adapts equally well to animating spaceships, the complex squash and stretch of characters, and natural phenomena such as fire and rain. Key to its prowess is the ability to make animation object-oriented: the action of one object can drive the action of any other. For example, you can create a Set-Driven Key that connects the speed of a locomotive to the turning of its wheels, so the two will always be appropriately in sync.

Maya combines the object-oriented approach, borrowed from computer languages, with a comprehensive set of inverse and forward kinematics, deformations, and timing controls. Inverse kinematics make it easy to define how a character walks, while deformations can control the bulge and jiggle of muscles under its skin.

Dynamics, the animation of the effects of physics, is another testament to Maya's depth. A compendium of particle effects and simulation tools allow you to create realistic smoke, fire, vortices, and other spectacles of nature, while body dynamics simulate springs and collisions to make objects react and bounce as they do in life.

A Lifelike Canvas

Shaders, which control the surface appearance of objects, are also object-oriented. You control them through an intuitive Hypershade window that represents elements of textures, such as color or bumpiness, as nodes connected by arrows and lines. For example, you can use a single node to apply a color map of bricks to an object and then use it again to align a bump map, creating realistic-looking mortar between rows of bricks.

Start with a Great Script

Maya lets you access commands through Marking Menus, which appear in a circular fashion under the mouse pointer when you press a hot key. Like all tools in Maya, menus and hot keys are based on the object-oriented Maya Embedded Language (MEL) and are completely customizable. Also unique to the Mac version is the ability to call up a Marking Menu and tear it off.

Any Maya function can be captured, modified, and turned into a button or menu item for reuse. For example, it's relatively easy to set up a script that lets an animator at her desk import the latest background scenery, props, lighting, and character rigging—each created by a different member of her workgroup—from a central server, so when she animates a character, she can see it in the context of the entire team's contributions.

Trouble in Paradise

Alias|Wavefront has said it will bring Maya for Mac OS X 3.5 into parity with Maya on other platforms—all at version 4.0—as quickly as possible. In some areas, achieving this should be straightforward; for example, Maya for Mac OS X does not yet run cleanly in OS X 10.1 or take advantage of the additional CPU in dual-processor Power Mac G4s. The Maya workflow is also hampered by the lack of high-end third-party 3-D–acceleration hardware available for the Mac.

Some features that are becoming industry-standard, such as the simulation of hair and cloth and subdivision-surface modeling, are available only in the $16,000 Maya Unlimited, which Alias|Wavefront has not publicly committed to developing for Mac OS.

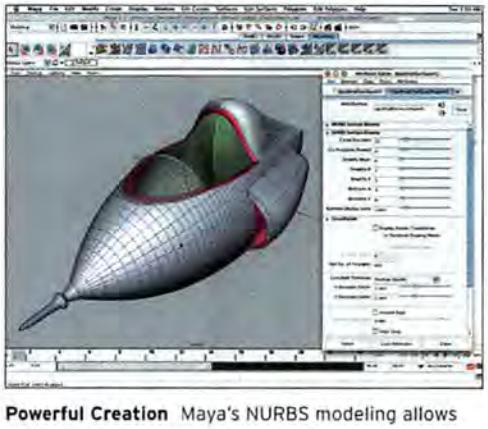
However, Maya's features that are unique to the Mac, including QuickTime support and an elegant combination of the Maya and Macintosh interface conventions, are very welcome ones. QuickTime support is particularly useful, since it means that any QuickTime image format can be used in Maya projects, and finished animations and images can be dropped directly into editing applications. Maya users will be particularly gratified by the ability to render a movie, edit it, and burn it to DVD, all on the same machine.

Alias|Wavefront qualifies Maya to run only on OS X 10.0.4, and we can't recommend trying it on OS X 10.1. When we did try, it crashed often, and many features simply did not work. Alias|Wavefront is working on an OS X 10.1–compatible version, 3.5.1, which it will probably release by the end of 2001.

Macworld's Buying Advice

Maya is clearly among the very best 3-D–animation systems on any platform, and Maya for Mac OS X 3.5 is a sweet union for Mac artists who can afford the up-front cost and the time to master the program.

However, Maya won't really sing until Alias|Wavefront improves multiprocessor support and overall performance. It's a great product, but if you're using OS X 10.1, you'll be better off waiting for the update. **m**



Powerful Creation Maya's NURBS modeling allows you to build almost any organic shape, from spaceships to humans.

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Portable 20GB FireWire Drives

Stable, Diminutive Drives Prove Valuable for Many Uses

BY KRISTINA DE NIKE

Portable FireWire hard drives spark the imagination. Holding one in the palm of your hand, you think of all the ways you could use it: to back up or transport files, as a Mac OS X boot drive, for desktop storage, or as a digital-video scratch disk. We tested seven drives small enough to fit in your back pocket—the largest is 6 inches by 4 inches by 1 inch—but big enough to hold 20GB of data. Of these drives, the EZQuest Cobra Slim stood out as the fastest, while the QPS Que M2 Quadslim was the best OS X boot drive.

Grab and Go

Portable FireWire drives aren't as fast as their internal counterparts. They have to operate under the constraints of limited space and power; none are as fast as 3.5-inch desktop drives, and their FireWire-to-ATA bridge chips keep them from achieving even the speed of their 2.5-inch siblings found in laptop computers. But, these drives get faster every year—all the drives we tested are fast enough to capture a DV stream, for example. Though all the drives performed adequately in terms of speed, the EZQuest Cobra Slim was the star.

All these drives have the same rotation speed—4,200 rpm—but they do not perform identically. This is due in part to different internal 2.5-inch ATA mechanisms. The Que M2 Quadslim and SmartDisk VST Titanium Thin Drive have Toshiba mechanisms instead of the speedier IBM mechanisms in the other drives.

The QPS Que M2 Quadslim

But the most important speed factor is the bridge chip that translates data from FireWire to ATA. Only the Cobra Slim uses the Oxford 911 chip, a solid performer. The LaCie PocketDrive and QPS Que M2 Quadslim use the older Oxford chip, while the ClubMac drive and Titanium Thin Drive use a chip from LSI. Iomega's Peerless Storage System uses a chip from Texas Instruments.

Acomdata's Initio chip initially caused problems that prevented us from testing the company's Spark. The drive showed up on the desktop but froze our system when we tried to copy files to it. Acomdata gave us a bridge-chip–firmware update that fixed the problem.

On the Case

Iomega's unusual Peerless Storage System is made up of three parts: The platters that hold the data are in a portable case called a disk module, which is relatively inexpensive—$200 for 20GB—because the drive's electronics are in the base-station module. On the bottom is the interface module, which connects the drive to either your Mac's USB or FireWire port. If you need much more than 20GB of space, it's appealingly modular, but the entire package costs $400, twice the cost of the least-expensive drive we tested.

QPS is also ready to sell you a pile of drives, having designed them for stacking. The Que M2 Quadslim case has two FireWire ports and an extra male port. The female ports are easy to find on the top and back of the case. The male connector is on the bottom and lines up with the top connector of a second drive, allowing you to build a tower of portable drives.

continues

This construction doesn't make any difference in speed, but it does eliminate cable mess.

The PocketDrive's case includes a USB port, handy if you want to move files to an older iMac or iBook. However, at 1.5MB per second, USB is generally too slow an interface for a hard drive.

Although all the drives have an outlet for an AC adapter, neither the ClubMac nor the Titanium Thin Drive ship with one. (They cost about $20.)

External Combustion

Macworld LAB TEST

Reference system in italics.
Best results in bold.
Shorter is better.

	FINDER		SPEEDDISK 6.0
	100MB File Copy	595MB Folder Copy	Optimize
Acomdata Spark External Portable FireWire Drive 20GB	16	1:45	2:17
ClubMac 2.5" External FireWire Drive - 20GB	17	1:50	2:15
EZQuest Cobra Slim 20GB 4200RPM FireWire HD Ext	13	1:29	1:53
Iomega Peerless Storage System 20GB FireWire Bundle	14	1:37	2:01
LaCie PocketDrive 20GB	16	1:56	2:10
QPS Que M2 Quadslim 20GB FireWire Hard Drive	17	1:35	2:33
SmartDisk VST Titanium Thin Drive	17	1:52	2:21
internal ATA drive	***10***	***1:23***	***1:04***
	Better	Better	Better

Finder File Copy scores are in seconds. Finder Folder Copy and SpeedDisk scores are in minutes:seconds. Our test system was a Power Mac G4/500 with 256MB of RAM, Mac OS 9.2.1 installed, a default system disk cache, and virtual memory enabled. We optimized 595MB of files with Norton SpeedDisk 6.0.—**Macworld Lab testing by Kristina De Nike**

A Little X

Although all of the drives mounted automatically in OS X, only the PocketDrive, Que M2 Quadslim, Spark, and Titanium Thin Drive allowed us to install Mac OS X 10.1 and boot our Power Mac G4/500 from them.

LaCie had the right idea in including a beta of an OS X version of its formatting software, Silverlining. But when we were in OS X, Silverlining didn't see any connected devices. (LaCie says this bug should be fixed by early 2002.) However, the drive comes formatted, and you can reformat it with Apple's Drive Utility, so the Silverlining bug isn't a tremendous setback. None of the other vendors included any OS X formatting software, although four drives, the Que M2 Quadslim, ClubMac, Spark, and PocketDrive, did work with OS X's new Disk Utility.

Software

All of the drives except the ClubMac showed up on the desktop as soon as we plugged them in, even before we installed the software. However, you'll want formatting software when it's time to reinitialize or partition your drive, since none of the drives work with OS 9's Drive Setup.

Each drive comes with capable formatting software. But two packages, QPS's Anubis and Iomega's Tools offer as their default HFS, or standard Mac format, instead of the newer, more efficient HFS+, or extended format. Both offer HFS+, but you must take an extra step to select it.

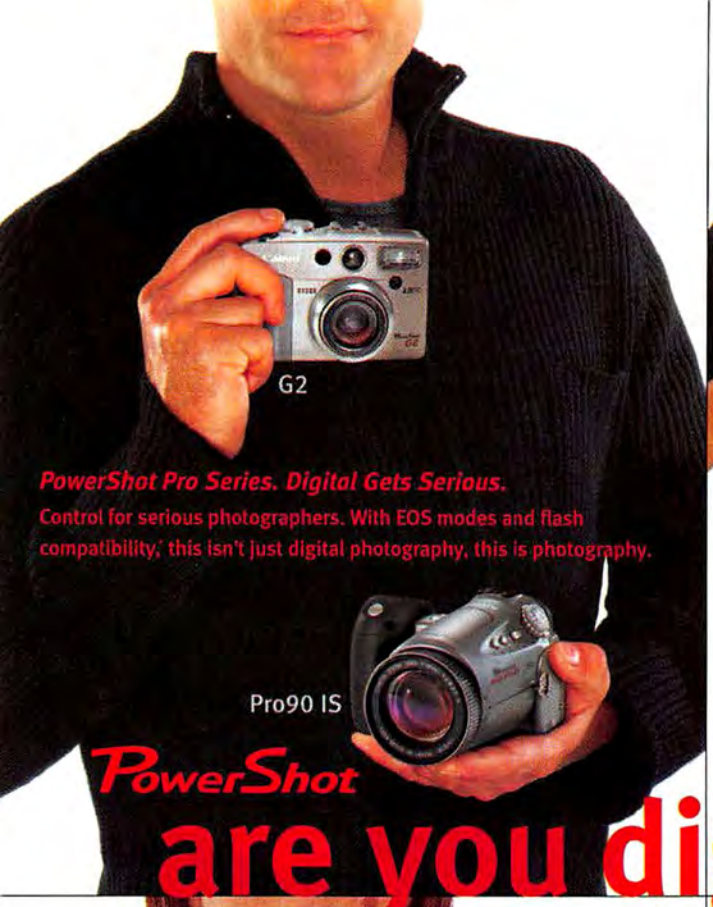
Iomega's generous bundle of software includes Iomega's QuikSynk 2 for basic backup, MGI's PhotoSuite, and Aladdin Systems' ShrinkWrap. Though all of these packages are limited, they could be useful if you don't already own similar software. The Que M2 Quadslim includes Dantz's Retrospect Express Backup—perfect if you plan on using your portable drive primarily for backup.

Macworld's Buying Advice

The Acomdata Spark, LaCie PocketDrive, QPS Que M2 Quadslim, and SmartDisk VST Titanium Thin Drive are fine, OS X–compatible drives, but we especially liked the Que M2 Quadslim's thoughtful case design and its included copy of Dantz Retrospect. Despite its imperfect OS X compatibility, the EZQuest Cobra Slim also gets a thumbs up for fast performance. **m**

Portable 20GB FireWire Drives Compared

COMPANY	PRODUCT	MOUSE RATING	COMPANY'S ESTIMATED PRICE	CONTACT	PROS	CONS
Acomdata	Spark External Portable FireWire Drive 20GB	●●●½	$300	909/613-9488, www.acomdata.com	Boots OS X; comes with carrying case.	Flaky performance.
ClubMac	ClubMac 2.5" External FireWire Drive - 20GB	●●●½	$199	800/258-2622, www.clubmac.com	Affordable.	Power adapter not included.
EZQuest	Cobra Slim 20GB 4200RPM FireWire HD Ext	●●●●	$250	714/694-0031, www.ezq.com	Best performance of tested drives.	Not fully OS X compatible.
Iomega	Iomega Peerless Storage System20GB FireWire Bundle	●●●	$400	888/446-6342, www.iomega.com	Appealing software bundle.	High single-purchase price.
LaCie	PocketDrive 20GB	●●●●	$269	503/844-4500, www.lacie.com	Boots OS X; USB connection.	OS X version of Silverlining not finished.
QPS	Que M2 Quadslim 20GB FireWire Hard Drive	●●●●	$249	800/559-4777, www.qps-inc.com	Boots OS X; includes Dantz Retrospect; stacking ports.	Uneven performance.
SmartDisk VST	Titanium Thin Drive	●●●½	$300	941/436-2520, www.smartdisk.com	Boots OS X.	Power adapter not included.



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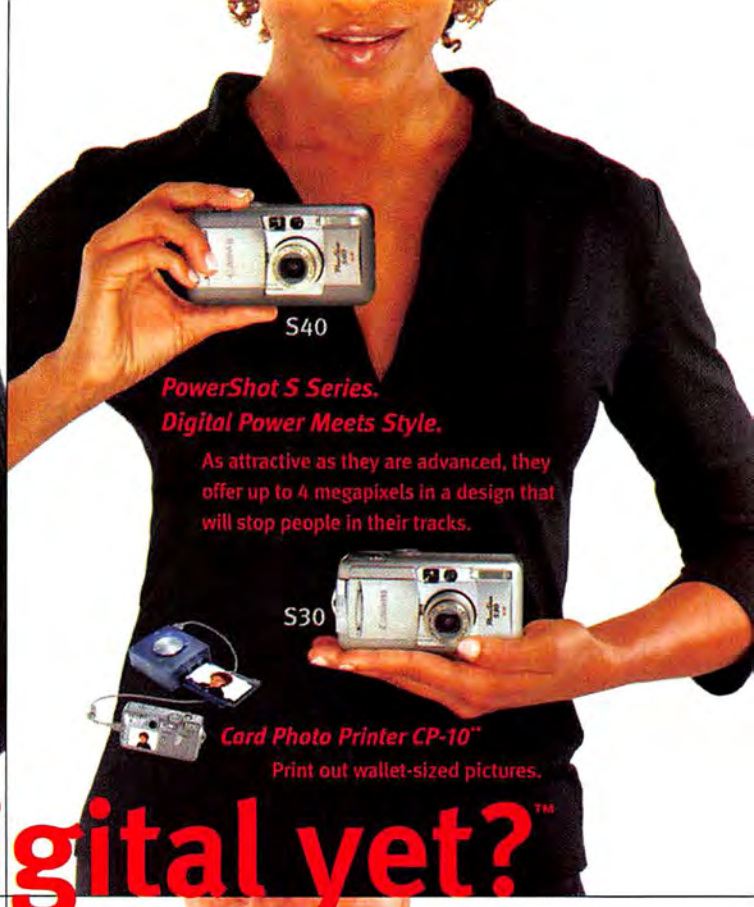

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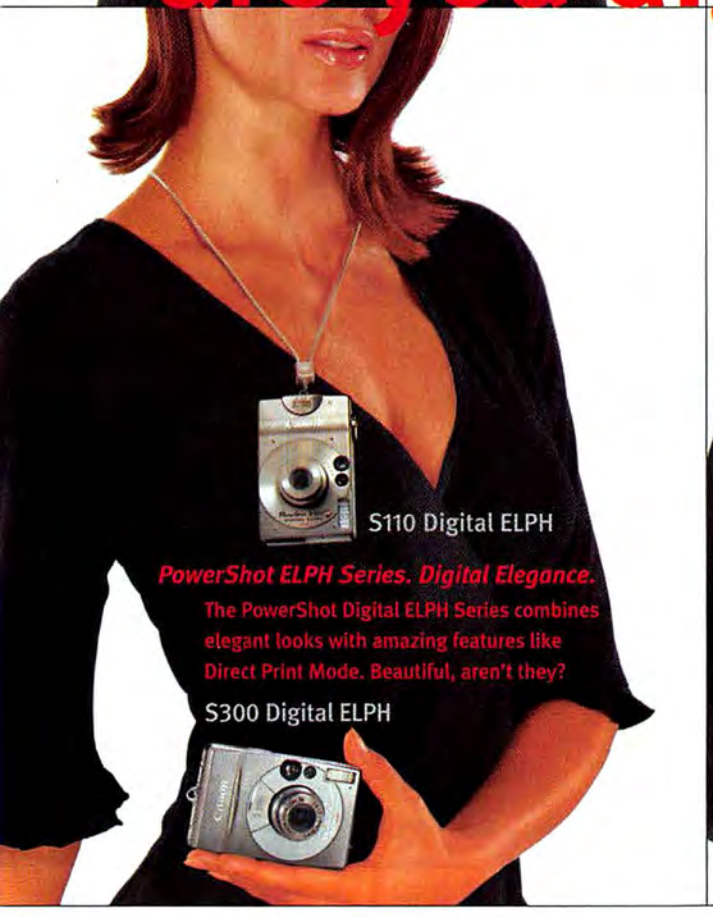

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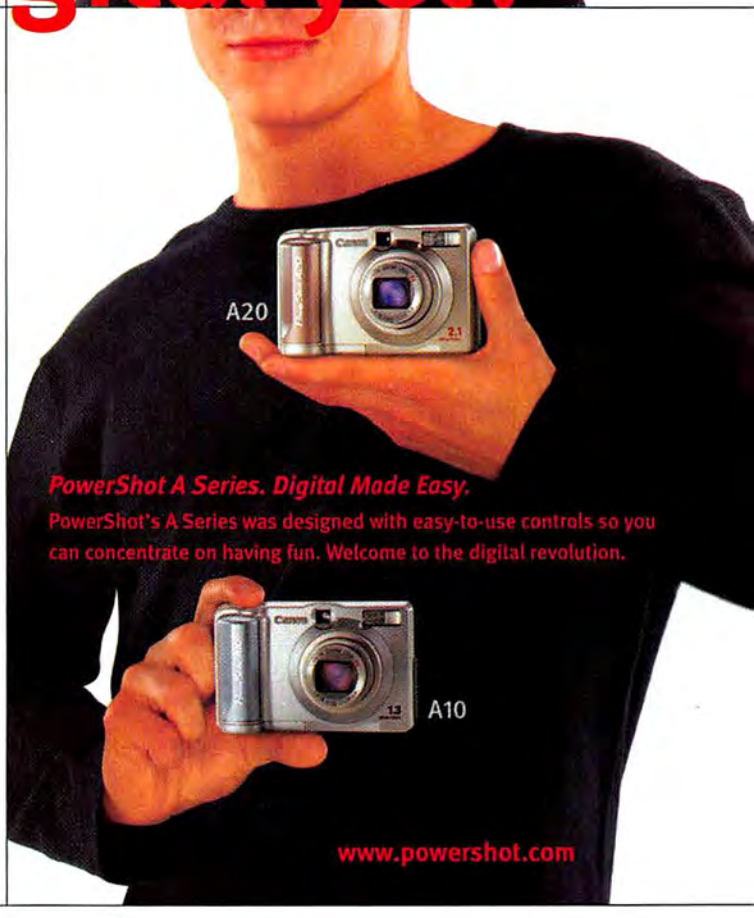

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Apple iPod

Compact MP3 Player Provides Good Mix of Features and Performance

BY JONATHAN SEFF

Apple's iPod, a 6.5-ounce MP3 player the size of a deck of cards, is one of the most exciting products to come from Apple in years. Powered by FireWire, the iPod can hold up to 5GB of data, providing a compelling balance of size and capacity. However, this combination of features comes at a relatively high price: $399.

But How Does It Work?

Between the iPod's stainless-steel back and Lucite front is a hard drive large enough to hold roughly 1,000 songs encoded in MP3 format at 160 kbps.

The drive's enormous cache—32MB of solid-state RAM—virtually eliminates skipping; shaking the iPod and banging it against things didn't interrupt smooth play. (However, we don't recommend this—shaking and banging can damage the hard disk.)

Accessing your music files via the iPod is easy. The 1.5-by-1.5-inch screen has very crisp text, and a bright backlight makes the display easy to see in the dark. The controls are designed for one-handed use and can be awkward at first, but once we became accustomed to them, the interface's ingenuity was apparent.

SCOTT PETERSON

Unlike the Nomad Jukebox and portable CD players, the iPod is small enough to fit comfortably in a pocket. But Apple doesn't include a belt clip, case, or arm band like those that come with other music players. And even though the included white earbud headphones provide good-quality sound, we found them too large to use comfortably for long periods of time.

Made for Macs

There are other MP3 players that work with the Mac (see "Breakthrough Artist," *Mac Beat*, elsewhere in this issue), but none has been as integrated with Apple's iTunes. In fact, the iPod's release coincides with that program's first major upgrade: iTunes 2.

The iPod synchronizes with your iTunes 2 music library, automatically updating itself. You can also switch to manual mode and pick just the songs and playlists you want to transfer.

iPod attempts to safeguard intellectual property by syncing with only one copy of iTunes at a time. Trying to sync with a friend's iTunes library (or even another of yours) will overwrite all music on your iPod with that library. But the copyright protection is not ironclad. By switching to manual mode, you can transfer MP3 files from someone else's iTunes playlist.

APPLE iPOD

Rating: 4½

Pros: High capacity; small size; fast; FireWire interface siginificantly speeds syncing; iTunes integration; unique design; works as a portable hard drive.

Cons: Expensive compared with other music players; no case or strap.

Company's estimated price: $399

OS compatibility: Mac OS 9, Mac OS X

Company: Apple Computer, *800/692-7753*, **www.apple.com**

The iPod has a smaller hard drive than the 20GB Nomad Jukebox, but its FireWire interface makes the USB connections on all other MP3 players seem slower than molasses.

We tested the iPod by copying 333 songs (1.35GB) to it, and the results were impressive. Using a Power Mac G4/450, it took 4 minutes and 58 seconds in Mac OS 9.2.1 and just 3 minutes and 5 seconds in Mac OS X 10.1. You can even use the iPod's hard drive to transfer other types of files, since the iPod appears on your desktop as a regular portable FireWire hard drive.

Connecting an iPod to your Mac also charges the iPod's internal lithium polymer battery, or you can connect the FireWire cable to the iPod's included AC adapter for a quick charge.

Macworld's Buying Advice

The Apple iPod sounds like a dream come true—and for anyone with a love of music and a Mac that has a FireWire port, it is one. Although $399 places the iPod at the high end of the portable music player market, that investment buys you a stylish, high-capacity player with Mac connectivity second to none. **m**

Cintiq

Combo Graphics Tablet and LCD Makes for Ease-of-Use and Value

BY BEN LONG

Wacom's pressure-sensitive graphics tablets have become ubiquitous, indispensable tools for Mac-based graphic artists. But if coordinating movements across a tablet with on-screen actions is awkward for you, then you should consider Wacom's Cintiq, the latest iteration of that company's combined tablet and LCD screen. It fixes many idiosyncrasies of Wacom's previous LCD tablets and, at $1,899, is more reasonably priced.

The Cintiq's 15-inch LCD screen has a maximum resolution of 1,024 by 768 pixels and support for 24-bit color. Simply by pressing and holding a hinged release on the Cintiq's stand, you can tilt the tablet to any angle for use as a completely upright monitor or an almost-flat tablet.

Tricks with Video Cards

Because Cintiq works as a second display, you'll need an additional video card. The Cintiq attaches to your Mac's video port via its DVI outlet, and it comes with a DVI-to-VGA adapter, so you should have no trouble attaching it to any modern Power Mac, iBook, or PowerBook with a video-out port. To connect it to a Power Mac G4 that has an Nvidia GeForce2 MX video card with TwinView, you'll need a $50 ADC-to-DVI adapter, available from Belkin (800/223-5546, www.belkin.com). No matter which Mac model you use, you'll also connect the Cintiq to your system's USB port.

CINTIQ

Rating: ★★★★½

Pros: Excellent display; great surface texture; good value; easy setup and calibration.

Cons: Higher-end pen not included; no support for specialty pens; lacks tilt and bearing sensitivity.

OS compatibility: Mac OS 9, Mac OS X

Company's estimated price: $1,899

Company: Wacom Technology Corporation, *800/922-9348*, **www.wacom.com**

Look and Feel

The tablet's display is first-rate, offering excellent color, brightness, and contrast; however, the contrast ratio of the Cintiq's LCD, like that of all LCDs, varies slightly across its surface.

Earlier Wacom LCD tablets suffered from two main problems. First, the tablet surface that sat over the screen was so thick that there was too much space between the on-screen image and where the stylus touched the drawing surface. This created a parallax problem that was annoying when doing fine-detail work. But the Cintiq has a much thinner drawing layer that allows the pen almost direct contact with the underlying surface.

Second, previous Wacom LCD tablets had a very slippery texture that pens would often skate across. The Cintiq's surface is much-improved, providing resistance similar to a piece of paper's and giving you much better control for fine strokes. However, it isn't tilt- and bearing-sensitive, so it can't determine the angle at which you're holding the stylus and therefore can't use that information to vary the characteristics of strokes.

Wacom provides an Ultrapen stylus that supports 512 levels of pressure sensitivity, a two-way side-mounted rocker switch, and a programmable eraser. But unfortunately, the Cintiq can be used only with the Ultrapen stylus, not with specialty pens such as calligraphy or airbrush styluses.

We can't help but wonder why Wacom didn't include the new Grip stylus, which comes with the high-end Intuos2. The Cintiq is also a lower-resolution tablet than the Intuos2, and it lacks a programmable menu strip.

Macworld's Buying Advice

Previously, it was difficult to recommend Wacom's LCD tablets to anyone but highly paid graphic artists, but this is not true of the Cintiq. The tablet's improved design and more comfortable drawing surface, as well as its ability to stand upright make the Cintiq well worth its price. If the bulk of your work involves digital painting or retouching, and especially if you've been contemplating the purchase of an additional flat-screen monitor, you'll want to seriously consider the Cintiq. **m**

DesignJet 10ps

Large-Format Ink-Jet Printer for Designers on a Budget

BY DAVID FANNING

Moving into a market dominated by Epson, Hewlett-Packard recently released a line of large-format ink-jet printers for graphic designers. The three printers, the DesignJet 10ps, 20ps, and 50ps, are all based on the same print engine but offer different configurations for single users, workgroups, and dedicated prepress shops. All three models are PostScript-based color-proofing devices, along the lines of Epson's successful Stylus Pro 5000, albeit with a few important differences. We looked at the entry-level DesignJet 10ps ($849) and found that it does a good job of proofing, although it has some performance issues.

RIPping off Your Mac

Most proofers use an external RIP (raster image processor) that takes print jobs from your Mac, processes them, and prints them. The DesignJet 10ps uses your Mac to perform this image processing, which means that its performance depends on the speed of your Mac. In most instances, you may as well go make a cup of coffee while your Mac processes files through the RIP. For example, a single large-format page took more than ten minutes to process on our relatively fast 466MHz Power Mac G4.

Once the processing is finished, the actual printing is rather quick. This is due to a half-inch print swath, which makes the printer able to cover more paper in a single pass than lower-priced ink-jet printers can.

Apart from its less expensive but slower RIP solution, the DesignJet is impressive. It can print on paper as large as 13 by 19 inches, so you can print a full-bleed, double-page spread with registration and crop marks. The DesignJet also has a duplex unit for double-sided–booklet proofing.

Color Accuracy

The point of using a proofer is getting consistent, accurate color; to achieve this, the DesignJet has a few tricks up its sleeve. It has a six-ink, 2,400-dpi system that uses dye-based inks; HP claims that this system enables the printer to cover 90 percent of Pantone's spot colors. It can also emulate SWOP, Euroscale, DIC, and Toyo printing presses, and it's ColorSync compatible.

Image quality is excellent. You can achieve the same quality with some lower-priced ink-jet printers, but the crucial difference is that the DesignJet uses PostScript to generate prints with highly accurate color reproduction. The average ink-jet printer can't do that—which is why designers often shell out cash for expensive, accurate color proofs.

If you're using Mac OS X, you'll have to wait a few months for native drivers for the DesignJet. Until then, you need Mac OS 8.5.1 or later, or you'll have to print from OS X's Classic mode.

DESIGNJET 10PS

Rating: ♦♦♦♦

Pros: Top-quality budget proofer for designers.

Cons: No hardware RIP; no Mac OS X support.

Company's estimated price: $849

OS compatibility: Mac OS 9

Company: Hewlett-Packard, *800/752-0900*, **www.hp.com**

Macworld's Buying Advice

The DesignJet 10ps is ideal as a personal printer for a single designer. The cost per page is much less than it would be if you constantly paid for expensive proofs, the unit price is affordable, and the quality and color consistency are impressive.

Hewlett-Packard has touted this printer's speed, and under the right circumstances it can be fast. But the speeds many designers yearn for simply aren't there. To be fair, this is a limitation shared by most software-based PostScript RIPs, and if you have a speedy Mac you can dedicate to it, the DesignJet 10ps (or the network-capable 20ps, priced at $1,495) can be a nice addition to your workflow. **m**

Commotion Pro 4.0

Effects Tool Offers Solid Improvements

BY SIMON DANAHER

Pinnacle Systems' Commotion Pro is a complete effects and retouching tool aimed at all professionals who work with moving images. Version 4.0 adds some solid new features, but more interesting is the product's steady migration into digital effects and multilayered compositing, long a stronghold of Adobe After Effects. Commotion Pro has a strong tool set for creating mattes and compositing footage, and it can perform some sophisticated video painting that After Effects cannot. It has a comprehensive set of natural-media brushes for just this purpose, as well as a friendly, intuitive interface. As we went to press, Commotion Pro 4.0 was available only as a Mac OS 9 application, but Pinnacle Systems plans to release a free upgrade for Mac OS X users in the fourth quarter of 2001.

New in Commotion Pro 4.0 is the ability to import layered Photoshop files to add animated effects to images. While Commotion Pro doesn't import Photoshop 6.0 layer features such as Sets, Layer Styles, and Adjustment Layers, it does render text layers. But you can't save changes back to Photoshop, a real inconvenience that limits the claimed integration between the two programs.

COMMOTION PRO 4.0

Rating: ★★★★½

Pros: Smooth workflow; excellent compositing features.

Cons: Integration with Photoshop not fully realized.

Company's estimated price: $995

OS compatibility: Mac OS 9

Company: Pinnacle Systems, *800/401-0009*, **www.pinnaclesys.com**

Commotion Pro has its own layer-grouping system that lets users create nested compositions, similar to those you can make in After Effects. It uses folders to group layers, making it easy to manage a multilayered composite and to add effects, a matte, or color adjustments to a group folder. Another new feature, time remapping, lets you stretch or shrink a clip so that a 100-frame sequence, for example, can span 200 frames or 50 frames (or any value).

When you are viewing clips, Commotion Pro uses RAM to play them back in real time. To maximize speed, you should try to load only as many frames as will fit in available RAM. When working with multiple layers, Commotion Pro must render the composite and load frames to RAM in order to maintain real-time playback, and this can hamper performance.

In general, Commotion Pro relies on a lot of RAM. If you try to use it on anything but the fastest Mac, performance can be sluggish. Pinnacle Systems suggests that users allocate at least 128MB of RAM to Commotion Pro.

Sophisticated Retouching

Where Commotion Pro excels is in cleaning, retouching, and stabilizing footage. It includes tools for removing wires from effects shots and creating composites, and it has some advanced chroma keying. Commotion Pro includes the world-class Primatte Keyer, for extracting a subject from a background of any color, and the program's Composite Wizard filters produce perfect mattes, even from less-than-perfect footage.

Commotion Pro has some excellent features for effects work, including the True Camera Blur filter, which re-creates the iris artifacts of a camera-lens system, and Real Shadow, which can create a realistic shadow at any angle—essential for compositing blue-screen elements onto backgrounds.

Same Style, Different Substance Commotion Pro 4.0's user-friendly interface looks a lot like Adobe After Effects'. However, its retouching and matte-creation tools are far superior.

Macworld's Buying Advice

Creating sophisticated composites and retouching are Commotion Pro's primary purposes, and it performs them brilliantly. If you work more with effects and 3-D, After Effects may be a better option—but for dealing with real footage, Commotion Pro is hard to beat. **m**

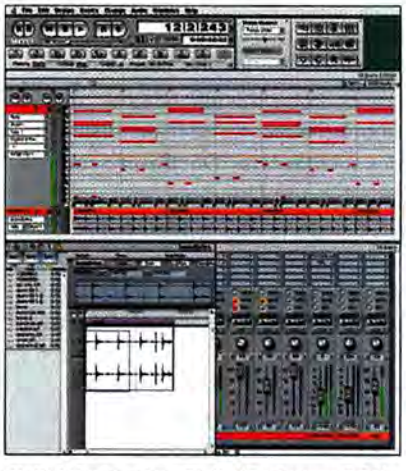
Digital Performer 3.0

Sequencer Gets Face-lift and Multiprocessor Support

BY JIM HEID

With sequencer software, you can turn your Mac into a professional-quality desktop recording studio. Connect electronic instruments via MIDI (Musical Instrument Digital Interface), and you can record, overdub, and edit digital tracks to build complete arrangements. Today's sequencers can also record and edit audio tracks of acoustic instruments or vocals, and they're able to tap into third-party software plug-ins ranging from synthesizers to audio-effects modules (see "Make Some Noise," August 2000).

Competition is fierce among Mac sequencer developers, and Mac musicians have three powerhouse programs to choose from: Emagic's Logic Audio series, Mark of the Unicorn's (MOTU) Digital Performer, and Steinberg's Cubase family. With its combination of elegant design, professional features, and excellent documentation, Digital Performer stands out, and Digital Performer 3.0.1 (DP3) brings improvements in all three areas.



Digital Performing Digital Performer 3.0.1's Sequence Editor (middle window) lets you edit audio and MIDI data in one place. Also shown are the Control Panel window (top) and the new Soundbites and Mixing Board windows (bottom).

New Look, Old OS

With its translucent buttons and round-cornered windows, DP3 looks like a Mac OS X program—but it doesn't run natively under OS X, nor will it work in OS X's Classic mode due to operating-system limitations. (None of the major sequencers currently work with OS X.)

But DP3's interface enhancements go beyond imitating OS X. The new Sequence Editor window enables you to work with MIDI data and audio in the same window (see "Digital Performing"). New tools simplify the editing of MIDI data, interface improvements allow for editing of multiple tracks within one window, and a new Tools palette provides faster access to all of the program's editing features.

Audio Enhancements

Like Logic Audio, DP3 supports surround-sound mixing: you can position audio sources within a surround field. With this capability, DP3 encroaches on territory staked out by Steinberg's Nuendo, a program popular among movie post-production houses and musicians creating audio for DVDs. In addition to surround-sound mixing, MOTU also includes more than a dozen new audio plug-ins.

DIGITAL PERFORMER 3.0

Rating: ★★★★½

Pros: Elegant interface enhancements; multiprocessor support; wide array of film- and video-oriented improvements.

Cons: Limited undos; no direct support for VST.

Company's estimated price: $795; upgrade, $149.

OS compatibility: Mac OS 9

Company: Mark of the Unicorn, *617/576-2760*, **www.motu.com**

DP3 continues support for the broad array of third-party plug-ins available in MAS (MOTU Audio System) but still doesn't directly support software synthesizers built for Steinberg's VST plug-in architecture. You can use Audio Ease's $39 VST Wrapper to run VST plug-ins in DP3, but it isn't always reliable. If your work demands VST compatibility, Cubase or Logic Audio is a better choice.

This is the first version of Digital Performer written for multiprocessor Macs, which can provide a significant performance boost. However, some users report that third-party plug-ins cause DP3 to crash on multiprocessor Macs. Fortunately, you can disable multiprocessor support if necessary.

MOTU says that version 3.1, a free upgrade, will add unlimited undos, addressing my larger complaint with DP3.

Macworld's Buying Advice

Mark of the Unicorn's Digital Performer 3.0.1 is a sublimely *usable* program whose elegance is enriched by excellent documentation. If you don't need native support for VST plug-ins, Digital Performer is the sequencer for you. **m**

StuffIt Deluxe 6.5

Compression Utility Adds Magic Menu Support for Mac OS X

HISTORICALLY, versions of Aladdin Systems' StuffIt Deluxe that end in .5 have been great products, and StuffIt Deluxe 6.5 is no exception.

StuffIt Deluxe 6.0 had the features we expected from the Mac's premier compression utility—Magic Menu, for easily creating and expanding compressed archives from within the Finder, and the ability to browse and extract individual items from a StuffIt archive—but its support for Mac OS X was lackluster. That has changed.

With version 6.5, Aladdin brings the Magic Menu feature to OS X. Although OS X's different Finder functionality prevented Aladdin from

bringing StuffIt's True Finder Integration features (including the ability to create archives by appending *.sit*, *.sea*, and *.zip* to a file's name) to OS X, Magic Menu support is a huge boon. The program also supports Palm OS packages and Unix TAR archives, and it includes StuffIt Express Personal Edition (PE), a useful tool for automating the creation of archives and transferring them via e-mail and FTP.

Macworld's Buying Advice

We're glad to see StuffIt's Magic Menu brought to OS X, and we welcome StuffIt Express PE to the older Mac OS and OS X.—CHRISTOPHER BREEN

Rating: ★★★★

Pros: Magic Menu in OS X; StuffIt Express PE useful.

Cons: At press time, no True OS X Finder Integration.

Company's estimated price: $80; upgrade, $20.

OS compatibility: Mac OS 9, Mac OS X

Company: Aladdin Systems, *831/761-6200*, **www.aladdinsys.com**

FileGuard 4.0

Security Manager Locks Down Your Mac

WHILE USERS IN BUSINESS AND residential environments are busy shielding their desktops from network-based hacker invasion, they might be overlooking another potential danger: the hands-on attack. Intego's FileGuard 4.0 stops this sort of illicit interloper by applying password protection to any file, folder, or disk you choose. You can also use it to apply encryption so powerful that forgetting the password is the same as throwing the file away.

FileGuard doesn't protect anything until you set it up. After installation, you select the disks, folders, and files you want to protect; you then specify the desired level of protection. FileGuard also lets you control access to the entire machine, and it can start a password-protected screen saver when the Mac is idle for a preset amount of time. If you share your machine with others, you can set up users and user groups, each with unique access privileges—a feature much more secure and precise than OS 9's Multiple Users. We were unable to defeat the password protection, even when booting from an external drive or other start-up disk.

FileGuard automatically helps protect new files as you create them. When you save a new document, FileGuard lets you choose to secure

Spy versus Speed Intego's FileGuard 4.0 lets you choose a level of encryption, from the less-secure but quick FastCrypt to the CIA-proof but slower IDEA.

Rating: ★★★½

Pros: Multiuser security; multiple encryption algorithms; portable protection.

Cons: Slow technical support; not compatible with Mac OS X.

Company's estimated price: $60

OS compatibility: Mac OS 9

Company: Intego, *305/868-7920*, **www.intego.com**

it either with a simple password or with one of four progressively more impenetrable encryption algorithms: FastCrypt, DES (Data Encryption Standard), Triple DES, and IDEA (International Data Encryption Algorithm). FastCrypt encrypts even large files in mere seconds, while IDEA can take many minutes for multimegabyte documents.

FileGuard automatically decrypts documents when you open them, and it reencrypts them when you quit their application. FileGuard also distributes a portable decryption program with protected files, applications, and volumes, so you can share disks and documents securely even with non-FileGuard users. A file-shredding feature permanently erases files so completely that they cannot be recovered using disk utilities such as Disk Doctor in Symantec's Norton Utilities.

The program worked as promised in testing. However, some features are not well documented, and Intego's technical support is extremely slow to respond.

Macworld's Buying Advice

FileGuard provides sophisticated protection for every taste and virtually bulletproof encryption for ultrasensitive information. It's one good way to tightly lock down your Mac, aside from bolting it to your desk.—MEL BECKMAN

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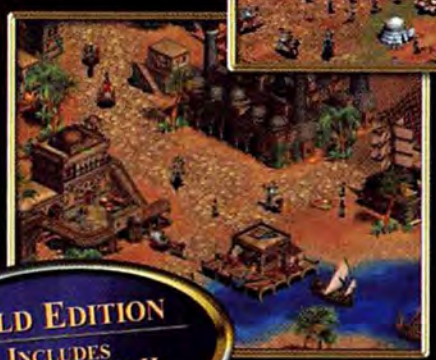

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Messaging Utilities

MacPopUp, SnapTalk Spark Instant Messages

USING A BROWSER-BASED messaging program such as America Online's Instant Messenger is convenient, but you need a dedicated Internet connection to reach the central messaging server. Many small workgroups either lack such a connection or have one that's blocked by network administrators worried about security.

Kanex Group's MacPopUp 2.6 and Glass Bead Software's SnapTalk 2.0 are two inexpensive utilities that let colleagues or small workgroups exchange e-mail–like instant messages over a LAN. MacPopUp does it more elegantly but at a higher cost than SnapTalk, which offers bare-bones but highly effective instant messaging.

MacPopUp and SnapTalk run in the background and scan your network for other available users. MacPopUp runs in Mac OS 9, Mac OS X, and Windows, letting you set up messaging in a cross-platform environment. SnapTalk runs only in Mac OS 9 and Mac OS X.

Chatterbox SnapTalk 2.0 maintains a scrolling log of all your messages, letting you easily see the context of discussions.

Both programs offer formatted text, a choice of sounds to play when a message is received, spoken messages, and a chat mode for real-time conversations. SnapTalk has features that let you make customized automatic replies and attach files to messages—options MacPopUp lacks.

On the flip side, MacPopUp allows predefined user groups and linking to URLs from within a message. MacPopUp's spiffy drag-and-drop support lets you click and drag a Web page's URL from your browser into an outgoing message. But MacPopUp's chat mode, which displays only the most recent message from a recipient, isn't nearly as helpful as SnapTalk's continuous log of all messages.

Macworld's Buying Advice

For large groups of Macs and Windows machines, MacPopUp 2.6, with its cross-platform support and predefined user groups, is worth its higher price. But if all you need is basic Mac-only instant messaging, SnapTalk 2.0 is hard to beat.—MEL BECKMAN

MACPOPUP 2.6

Rating: ♦♦♦

Pros: Cross-platform support; predefined user groups; drag-and-drop URL linking; chat mode.

Cons: More expensive than SnapTalk; lacks continuous logging.

Company's estimated price: $20 per copy, 2 to 10 users; $15 per copy, 11 to 49 users; $10 per copy, 50 to 99 users

OS compatibility: Mac OS 9, Mac OS X

Company: Kanex Group, *sales@softwarium.com*, **www.macpopup.com**

SNAPTALK 2.0

Rating: ♦♦♦½

Pros: Relatively inexpensive; chat-mode display; continuous logging; file transfer.

Cons: Not cross-platform; does not allow predefined user groups.

Company's estimated price: $12, 1 user; $49, 5 users; $175, 25 users; $295, unlimited users

OS compatibility: Mac OS 9, Mac OS X

Company: Glass Bead Software, *978/263-9956*, **www.glassbead.com**

Snapz Pro X 1.0

Must-Have OS X Screen-Capture Utility Can Also Record Motion

MAC OS X'S SCREEN-CAPTURE application, Grab, is serviceable but hardly elegant, and the keyboard shortcuts in OS X 10.1 provide little control over an initial shot. OS X users who need a more capable tool should look to Ambrosia Software's Snapz Pro X 1.0.

Snapz Pro X is native to OS X and offers many of the features found in Snapz Pro 2.0, which ran in Mac OS 9.2 and earlier—capture of full screens, windows, menus, and user-defined selections, as well as the ability to capture a series of on-screen actions as a QuickTime movie.

Snapz Pro X does its predecessor one better by allowing you to select multiple objects—a menu and two windows, for example—with the Object command. There's also a new Fatbits feature that magnifies your selection and provides you with exact coordinates of the selected area.

Regrettably, OS X is unable to capture audio along with QuickTime-recorded motion. Ambrosia intends to implement this feature when Apple provides support for it.

Macworld's Buying Advice

Snapz Pro X is a nicely wrought utility that puts all other screen-capture methods to shame. If your Mac OS X work requires precise screen captures, Snapz Pro X is a must-have tool.—CHRISTOPHER BREEN

Rating: ♦♦♦♦½

Pros: Multiple capture options; magnifying Fatbits feature.

Cons: No audio capture in QuickTime movies yet.

Company's estimated price: Static-image capture only, $29; static-image and QuickTime capture, $49

OS compatibility: Mac OS X

Company: Ambrosia Software, *800/231-1816*, **www.ambrosiasw.com**

Echo Fire 2.0

FireWire NTSC Preview Utility Is Red-Hot

ECHO FIRE 2.0, FROM SYNTHETIC Aperture, adds FireWire-based, NTSC (National Television System Committee) previewing to Adobe Photoshop and After Effects, and to any program that can play QuickTime movies.

Version 2.0's greatest improvement is support for more applications. Any program that can export a QuickTime movie can now export to Echo Fire. Applications that can play QuickTime movies can use Echo Fire's LiveFire feature to route video to an NTSC (or standard TV) display, a boon for scoring-program users tired of looking at tiny previews when scoring for video.

After Effects 5.0 offers FireWire-based NTSC preview capabilities, but Echo Fire provides extra features and controls, including real-time audio support. Press shift-spacebar in After Effects, and Echo Fire will take over, render your current timeline (to disk or RAM), and begin looping it out via the FireWire port.

Rating: ★★★★½

Pros: Allows NTSC previewing from just about any application.

Cons: Sometimes works improperly when running multiple apps.

Company's estimated price: $275; upgrade, $69

OS compatibility: Mac OS 9

Company: Synthetic Aperture, *949/493-3444*, **www.synthetic-ap.com**

LiveFire Echo Fire gives you scoring options.

Macworld's Buying Advice

If your video production work frequently takes you outside your video-editing package, Echo Fire 2.0 is a must-have. Longtime Echo Fire users will find quite a bit of added flexibility in this upgrade.—BEN LONG

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EndNote 5

Impressive Upgrade Limited by Missing OS X Compatibility

OVER THE YEARS, ENDNOTE, the bibliography-management software from ISI ResearchSoft, has earned a special place in the hearts of harried academic writers. EndNote 5 has several welcome new features, including tighter integration with Microsoft Word, a built-in spelling checker, and enhanced document-sharing capabilities. Unfortunately, Mac OS X users will be disappointed by EndNote 5's lack of native support. (ISI ResearchSoft has committed to releasing an OS X–compliant version, but didn't have an estimated ship date or upgrade price at press time.)

No Need to Leave EndNote 5's Find Citations function lets you search for references without leaving Microsoft Word.

One of our favorite new features in version 5 is the Find Citations function, which allows you to search for and add references to documents without leaving Word. As you insert references, EndNote generates formatted citations and updates your bibliography. EndNote 5 also embeds reference information in documents, so coworkers don't need a copy of your electronic reference library to move or delete citations. Another new command removes Word field codes.

Rating: ♦♦♦♦

Pros: Find references without leaving Word; integrated spelling checker.

Cons: Not OS X native.

Company's estimated price: $330 ($240 by download); upgrade, $100 ($90 by download)

OS compatibility: Mac OS 9

Company: ISI ResearchSoft, *800/554-3049*, **www.endnote.com**

Macworld's Buying Advice

EndNote is still an indispensable academic-publishing tool. But until ISI ResearchSoft announces a plan and pricing for a Mac OS X–native version, you might be better off waiting to upgrade—this is particularly true for those who are currently using EndNote 4.—FRANKLIN N. TESSLER

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FutureBASIC3 Release 5

Fast and Powerful Programming Tool Built for the Masses

STAZ SOFTWARE'S FutureBASIC3, a healthy suite of programs for developing Macintosh applications, combines the power and versatility of modern programming languages with the simplicity of the time-honored BASIC language.

Beginners can use a simplified run-time, Console, to write programs while not having to worry about things such as a graphical user interface (GUI) or printing. Experts can choose the Standard, Mac Toolbox, or Object run-time, and the latest release has two new run-times: Appearance implements all the new GUI features, and Game Engine is a powerful OpenGL framework for developing 3-D applications.

Rating: ♦♦♦♦

Pros: Rich documentation; abundant examples; fast and powerful.

Cons: Builds applications that are not yet fully compatible with Mac OS X; available only for Mac OS 9.

Company's estimated price: $169

OS compatibility: Mac OS 9

Company: Staz Software, *800/348-2623*, **www.stazsoftware.com**

It's very easy to convert BASIC programs to FutureBASIC3. It's not yet possible to build shared libraries, but expert users will find plenty of opportunities to enhance applications.

Toolbox access is finally complete, making thousands of functions and procedures directly available. And the myriad possibilities don't make the program more difficult, since you can mix FutureBASIC keywords with Toolbox calls. FutureBASIC3's only disappointment is the absence of Mac OS X support.

The rich electronic documentation explains the development environment and the syntax of BASIC statements. It also introduces beginners to programming secrets and provides technical information such as Libraries and Toolbox calls.

Macworld's Buying Advice

Although BASIC was one of the first programming tools available on the Macintosh, FutureBASIC3 continues to impress. It gives beginners the knowledge and tools they need to write their first applications in a short time, and while the syntax remains fast and powerful, it's much simpler than C or Java.—MICHELE NERI

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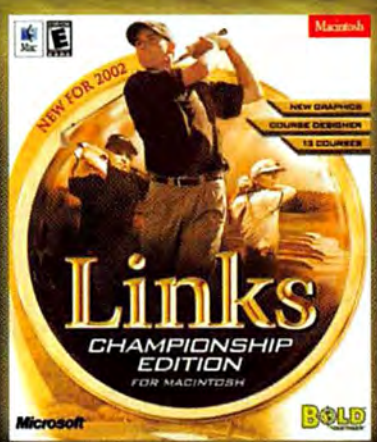

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PETER COHEN

The Game Room

Polishing the brass and marble of the great Game Hall of Fame, in scenic Pittsfield, Massachusetts, requires plenty of elbow grease and countless hours. But it's all worth it when we see the joyous faces of the numerous schoolkids, grad students, and gaming historians who make their way through these halls every year—and when Mac game publishers send free titles our way.

The year 2001 has been a time of transition not only for the Mac gaming industry but also for the entire Mac market. The March introduction of Mac OS X shook things up a great deal. Like other segments of the Mac software-publishing market, game companies took some time to get into that OS X groove. It also took a while for Apple to get OS X gaming technology to where it needed to be. But Mac game developers have definitely ended the year on a high note—Mac OS X versions of new games are everywhere. Here's a look at the best of the games that have come out of this year of great change.

Best Online Game

ROGUE SPEAR ♦♦♦

It's vaguely prophetic that MacSoft's Rogue Spear has taken hold of gamers' imaginations and held them for so long. The sequel to Tom Clancy's Rainbow Six, this title puts you in charge of an elite military force that must overcome various threats.

What makes Rogue Spear unique is that it's not just a simple point-and-shoot action game. It also has a strong element of strategy—you must consider each character's qualifications when you select team members, and you have to plan your assaults carefully. Unlike a run-of-the-mill shooter, Rogue Spear doesn't equip you to withstand much damage from your opponents' weapons—most often, one shot is one kill, making proper planning especially important.

What really makes Rogue Spear leap ahead of the pack is the game's sustained popularity with Internet gamers. For much of 2001, Rogue Spear was one of the most-played titles on the Mac-only online game service GameRanger (www.gameranger.com).

Rogue Spear's initial release suffered from a compatibility problem that made it unable to work with PC games when it was in multiplayer mode. You can now download a patch that corrects this problem from the Infogrames Web site (www.infogrames.com).

What's Cool: Requires more strategizing than your typical point-and-shoot game. **Who It's For:** Fans of military-simulation games. **From:** MacSoft, 800/229-2714, www.wizworks.com/macsoft; $50.

Best Third-Person Action Game

ONI ♦♦♦½

Some Game Hall of Fame inductees generate controversy among *Macworld* readers, and Oni is a classic example. Is it the game we expected before its release? No, yet Oni has enough strengths to make it outstanding. Its superlative control system is particularly notable. Oni's animé-influenced graphics and storyline definitely get coolness points, too, but where Oni differs most from many games is in its intricate and well-executed hand-to-hand combat sequences.

You view game play from a vantage point above and behind your on-screen character, purple-haired Konoko.

continues

JOHN MATTOS

Oni has many of the trappings that we've seen in similar games—Konoko spends a great deal of time climbing, jumping, getting around obstacles, and opening locks.

Konoko collects an array of imaginative weapons, but her real strength is in knocking her opponents about with martial-arts moves. Konoko learns more moves as the game progresses, and much of Oni's challenge is in knowing when to use a particular move to neutralize a foe.

What's Cool: Impressive hand-to-hand combat sequences. **Who It's For:** Those looking for kicky-punchy games with a twist. **From:** Gathering of Developers, 800/211-6504, www.godgames.com; $40.

Best God Game

TROPICO ♦♦♦♦½

I'll admit this up front—I'm not the world's biggest strategy-game fan. I often find them dry and complex to the point of frustration, but every once in a while, a strategy game grabs hold of me and doesn't let go. Tropico is just such a game.

The term *god game* describes a game that puts you in control of a world as an omniscient and occasionally beneficent deity, and this is what Phil Steinmeyer and the PopTop Software crew have created in Tropico. But they've added something new: a political angle that greatly increases the fun and the challenge.

Tropico puts you in the dictator's chair on a small, out-of-the-way Caribbean island. While you control the development and exploitation of your country's resources and infrastructure, you don't directly control the thoughts and deeds of its citizens. It's this element, and the inevitable political machinations that follow, that make Tropico such an addicting treat.

The game can run a bit slowly on some configurations, but this shouldn't be any surprise—Tropico doesn't just model environmental data such as rainfall and the effects of pollution or population increase; it models the very thoughts and actions of each resident of your nation. This game boasts an awe-inspiring level of detail.

Set in a post–World War II environment, Tropico blends tongue-in-cheek humor with comical animations and sometimes hilarious internal dialogue. The game also features a great soundtrack of Latin music and some enjoyable documentation profiling notorious dictators throughout history.

What's Cool: The challenge of commanding a world in which the citizens are autonomous. **Who It's For:** Strategy-game fans who don't shy away from politics at cocktail parties. **From:** MacSoft, 800/229-2714, www.wizworks.com/macsoft; $40.

Best Adventure Game

ESCAPE FROM MONKEY ISLAND ♦♦♦♦½

Ever since the days of Infocom's text-based adventure classic Zork, I've had a soft spot in my heart for the noble adventure game. Alas, it's a dying breed, even on the PC, so my heart leapt for joy when Aspyr Media released Escape from Monkey Island for the Mac. This title adheres to the classic adventure-game style while updating it with a top-notch 3-D engine and enough modern amenities to make it a worthwhile endeavor.

Escape from Monkey Island tells the saga of Guybrush Threepwood, a daydreamer with delusions of grandeur who lives in the pirate-infested Caribbean of yore. He's managed to defeat the dread pirate LeChuck several times, and he's won the heart and hand of the lovely (and fiercely independent) Elaine Marley, now Elaine Marley-Threepwood. Alas, in the game's latest installment, Guybrush and Elaine discover that LeChuck has again returned from the fires of heck to wreak havoc upon them.

Escape from Monkey Island combines classic high adventure with topical humor. It isn't just a tale of pirates, vengeful ghosts, and adventure on the high seas. Threepwood must also square off against vicious scoundrels such as lawyers, land developers, and restaurant-chain managers.

What's Cool: Stellar graphics, great sound effects, terrific music, top-notch voice acting—and it's as funny as all get-out. **Who It's For:** A must-have for anyone who likes a good pirate story. **From:** Aspyr Media, 888/212-7797, www.aspyr.com; $20.

Best Extreme-Sports Game

TONY HAWK'S PRO SKATER 2 ♦♦♦♦½

Aspyr Media seems to be casting a wide net these days as it offers another choice Mac game that's entirely different from Escape from Monkey Island. Tony Hawk's Pro Skater 2 is an action-packed, arcade-style game. The game's roots lie in the game-console market, where it's been a hugely successful

franchise across multiple platforms. This title puts you in control of pro skateboarding personalities as they grind, nollie, and bail their way through a series of skate parks.

In Career mode, you earn cash that you can spend on new equipment or on training to learn new tricks. You also have to achieve several goals, such as collecting tapes, hitting or exceeding various scores, and accomplishing specific tricks, and you must win competitions to unlock some parks.

You can create your own personality and even design your own skate park. The permutations are endless, and you can go head-to-head with other Mac gamers on the Internet.

Due to its video-game roots, Tony Hawk's Pro Skater 2 screams for a game pad—but be warned, the controller won't work in Mac OS X.

What's Cool: Impressive variety gives lots of life. **Who It's For:** Arcade gamers who prefer their knee damage to be virtual. **From:** Aspyr Media, 888/212-7797, www.aspyr.com; $20.

Best Old-School Arcade Game

AIRBURST ♦♦♦♦

Strange Flavour keeps coming up with pleasant surprises for Mac gamers. In 2001 it debuted an offbeat (and ridiculously cheap) side-scrolling game called Bushfire, in which a player endeavored to save a forest of endangered trees. It followed up that game with the equally offbeat and inexpensive Airburst.

Airburst combines a bit of Pong with a bit of Mortal Kombat to produce an odd and extremely fun arcade game for the Mac. You're positioned high above Earth on a cushion of balloons. You also have a small barrier of balloons that you can rotate around yourself to repel the onslaught of razor-sharp flying balls. Your goal is to knock your opponents defenseless and take them down.

With colorful graphics and smooth animations rivaling those of arcade games, Airburst is beautiful to look at. And it doesn't overwhelm you with complex game-play mechanics or an absurd level of difficulty right off the bat—instead, it eases you into play and coaxes you into more challenging levels.

What's Cool: Ridiculously low price for hours of fun. **Who It's For:** Arcade-game lovers who like bursting others' balloons. **From:** Strange Flavour, www.strangeflavour.com; $5.

Best Retro Game with a Twist

SPACE TRIPPER ♦♦♦♦

Like Strange Flavour, PomPom is a two-person crew that releases fun-to-play shareware at a reasonable price. And like Strange Flavour, PomPom draws inspiration from the classic arcade and console games of yesterday. The company's first effort on the Mac is called Space Tripper, and it's wholly deserving of adulation.

Space Tripper takes the basic mechanics of that Williams coin-op classic, Defender, and mixes in a bit of modern 3-D–graphics magic. Space Tripper is, on the surface, a simple side-scrolling action game that puts you in the cockpit of a spacecraft that can transform into different configurations. You collect power-ups as you zap the bad guys, avoiding pitfalls along the way. It's a standard formula

continues

Prognostications for 2002

MacSoft has an extremely strong lineup for 2002, including Max Payne, a groundbreaking 3-D-action game, and Stronghold, a castle-building sim. The company is also expected to release Mac versions of the strategy games Civilization III, Master of Orion III, and the long-awaited Duke Nukem Forever, the latest installment of the 3-D-action game starring that lovable lug with the razor-sharp wit and a crewcut to match.

U.K.-based Feral Interactive stands to make a big splash with its Mac conversion of Black and White, the hit god game designed by Populous designer Peter Molyneux. This game puts you in the role of a god, able to extract power from your people through acts of divine beneficence or holy wrath.

RPG fans should keep an eye out for Icewind Dale, a new Forgotten Realms RPG licensed for the Mac by MacPlay. It follows Advanced Dungeons and Dragons Second Edition rules and uses a modified version of the same engine that powered Baldur's Gate. And the fine folks at Spiderweb Software will release Avernum 3, the latest edition of its popular Mac-first RPG series.

If you're an old-school gaming addict who craves a taste of games from the good old black-and-white Mac days, you might be interested in a new game—based on an old favorite and developed by Z Sculpt Entertainment—Return to Dark Castle. Delta Tao Software, publisher of Eric's Ultimate Solitaire and Spaceward Ho, will offer the game.

for the genre, and in this game it's extremely well executed.

On top of that, PomPom has added some modern embellishments in the form of 3-D graphics rendered using OpenGL. This gives the game a modern look and enhances game play. Your craft flies over contoured surfaces, for example. Simple changes such as this bring something new to the genre and make Space Tripper a lot of fun to play.

What's Cool: This standard arcade game has thoroughly modern enhancements. **Who It's For:** Fans of the classics—classics such as Defender, that is. **From:** PomPom, www.pompom.org.uk; $12.

Best Strategy Game

AGE OF EMPIRES II
GOLD EDITION ♦♦♦♦½

This one slipped in just in time to make the 2001 Game Hall of Fame list, and boy, is it a doozy. Age of Empires II is the first game published by Destineer Studios and its Bold label, and it's one that Mac users have craved ever since the first Age of Empires game came to the Mac several years ago.

The game's publisher did not port only the basic game; instead, it has brought us Age of Empires II Gold Edition, a compendium version that includes the original game and an add-on pack called The Conquerers Expansion.

Age of Empires II mixes elements of world building (as in Civilization II) with real-time strategy gaming (à la Warcraft II). You're responsible not only for leading your people through the Dark Ages following the fall of the Roman Empire, but also for leading soldiers into victory.

Much of Age of Empires II will be familiar to fans of the previous game: your citizens must gather materials to create resources that can in turn be used for improvements and defense. The game uses a branching technology tree, similar to that of Civilization II, which helps you constantly improve the efficiency and capability of your empire through research.

Whether you conduct yourself diplomatically and focus on improving your people's quality of life, or focus on conquering new territory and grabbing resources from your foes, you're eventually going to have to assemble troops and send them out in force. Age of Empires II does not skimp here, either. You can create individual units based on what you expect your military needs to be, and then send them out into battle. The available types of military units are varied and complex, ranging from cavalry to ships, infantry, petards, and kamikazes. You can even mount historically inspired campaigns. For instance, you can take the role of Sir William Wallace as he fights to free Scotland from England's rule.

What's Cool: The chance to fight battles as a historic figure. **Who It's For:** Strategy-game buffs and fans of the original game. **From:** Bold by Destineer, 866/512-9111, www.boldgames.com; $50.

Best Expansion Pack

DIABLO II:
LORD OF DESTRUCTION ♦♦♦♦

This one isn't a full game; rather, it's an expansion pack for one of last year's Hall of Fame inductees: Blizzard Entertainment's Diablo II. However, it serves as an excellent example of what an expansion pack should do.

Diablo II is an action title with role-playing game (RPG) elements.

The original game, which debuted for the Mac in July 2000, became an instant classic. A player chooses a role from one of several different character classes, which affect what sort of weapons characters can use, what sort of spells they can cast, and how they interact with their environment—which is a rather clichéd collection of demons, monsters, and ogres, though it's executed with an exquisite eye for detail.

In addition to adding a fifth Act—and it's a huge one—to the original game's story, Lord of Destruction adds two new character classes: Druids and Assassins. Both classes have attributes that Diablo II players haven't seen before, and they make playing the game over again worthwhile.

Other enhancements in the expansion pack include more inventory-holding capacity, as well as gobs and gobs of new monsters, weapons, and magic items. On top of that, the ways you can use magic items have changed: for example, you can get new types of socketed weapons, and you can socket them with different items to add new kinds of magical capabilities or defenses. Blizzard has crafted an add-on that breathes new life into a game that already had longevity.

What's Cool: Playing the whole game over again in one of the new character classes. **Who It's For:** Those of us who have already wasted countless hours playing the original version of the game. **From:** Blizzard Entertainment, 800/953-7669, www.blizzard.com; $30.

Handiest Gaming Peripheral

Glove-based gaming peripherals have been in and out of the mainstream since the days of the Nintendo Entertainment System, but for the most part, they've been awkward to use, not very functional, or ridiculously expensive. Essential Reality's new gadget, the P5 Glove, stands to change that (212/244-3200, www.essentialreality.com).

The company introduced the glove at July 2001's Macworld Expo New York, and since then it's had its nose to the grindstone preparing for the P5 Glove's release. Software-development kits are available for a variety of different platforms, including Mac OS X, and the company hopes to have the glove in stores this February. The suggested retail price will be $130.

The P5 Glove hooks up to a Mac via USB, and it's hard-wired to an infrared-based device that interprets positional and spatial information. Sensors built into the glove determine the degree to which individual fingers bend. You can control games by reaching out and pointing and clicking in space. Pull your thumb or index finger to operate a trigger, for example, or raise your hand to make an on-screen spaceship rise above the landscape.

The P5 Glove is useful for more than gaming—imagine being able to extrude, assemble, and animate 3-D objects with it, for example. So far, the P5 Glove is for righties only, and it's "one size fits all."

Best First-Person Action Game

ALIENS VERSUS PREDATOR GOLD

★★★★

It was a long time coming, but it was definitely worth the wait. For a while, it looked as though this first-person shooter would end up in the dustbin. Its original publisher, Fox Interactive, decided to get out of the publishing business just as this game's Mac conversion was wrapping up. Fortunately, MacPlay recognized a good thing, and late in 2001 it finally put Aliens versus Predator Gold into production.

Based on the popular Fox movie franchises by the same name, the game puts you in the role of an Alien (you know, the H. R. Giger–style jaw-snapping critter), a Predator (from that 1980s-vintage Schwarzenegger movie), or a Colonial Marine (a human equipped with a variety of high-tech gadgets).

First-person shooters are a dime a dozen, but hardly any Mac game can match this title's eerie atmosphere. The *Alien* movies all offer variations on the boogeyman theme; they're full of nightmarish, insectoid creatures that like nothing better than to lie in wait for innocent humans. This game exploits the scare factor to its full potential, and it's one of the few action games that has genuinely made me jump when a creature hopped out at me.

Marines, being human, are fleshy and soft, but they have an arsenal of sophisticated weapons. Heavily armed, they're slower than Aliens and considerably weaker than Predators. Predators emphasize stealth and precision and have the power of invisibility—they're tough, but their weapons don't carry the same blast radius as many of the Marines' weapons. Aliens rely on pure animal instinct, emphasizing speed and agility (they can scale walls and ceilings). They're deadly when they get close to their prey, but that can be tricky, since Marines and Predators pack a considerable wallop with weapons such as guns, grenades, and other projectiles.

MacPlay offers Mac gamers a little something extra in the box—this is the Gold edition, not just the regular retail release. Mac gamers get the benefit of the Millennium expansion pack, which includes nine new levels that you can play in skirmish or multiplayer mode, new weapons, an in-game save feature (the basic game permits saves only between levels), and other changes and optimizations. Even with all this, the game is still fairly priced at about $25.

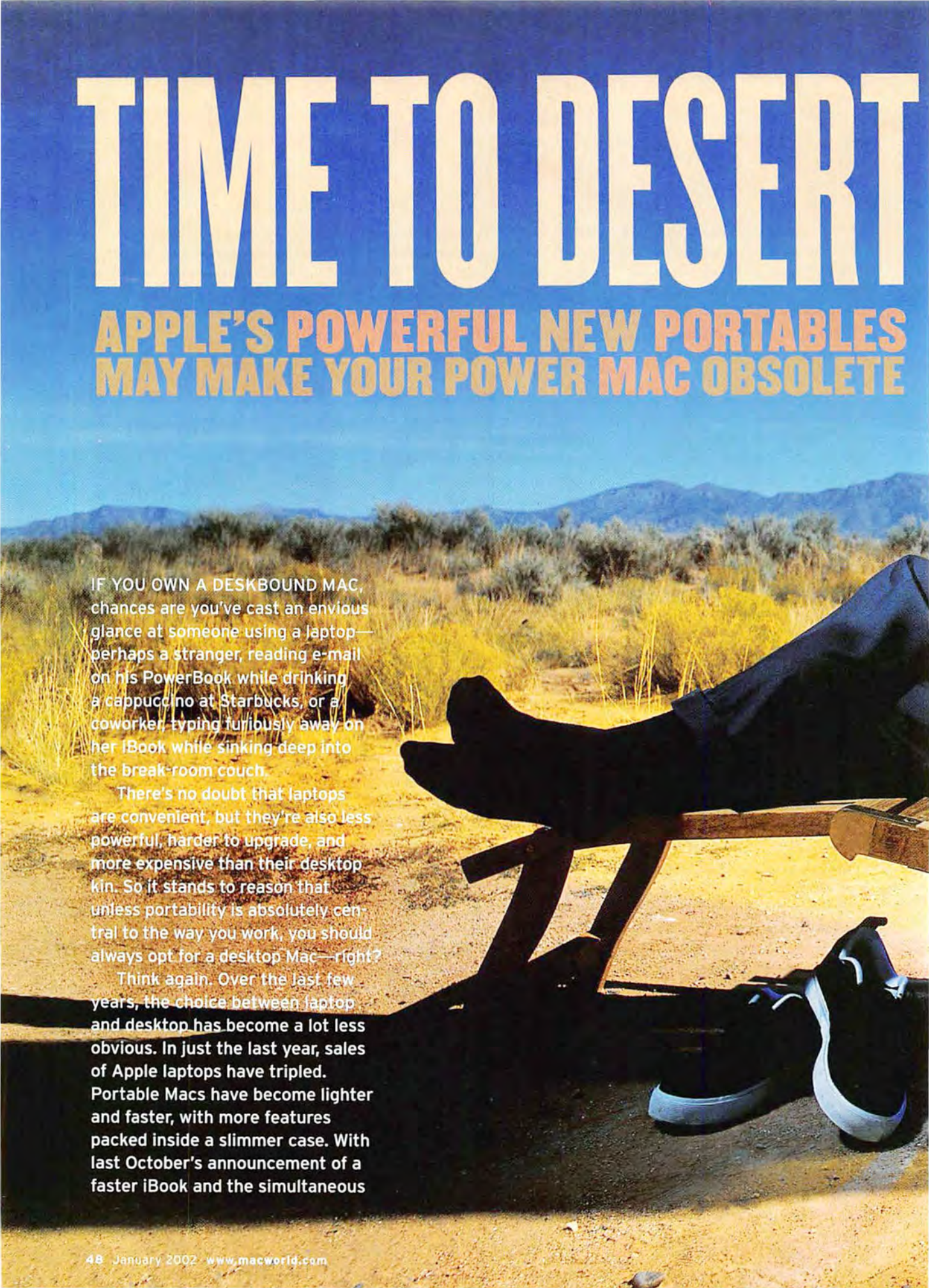
What's Cool: Losing control of bodily functions when an Alien jumps out at you. **Who It's For:** Admirers of first-person shooters and spooky movies. **From:** MacPlay, 214/855-5955, www.macplay.com; $25. **m**

PETER COHEN is the envy of all his colleagues at *Macworld* headquarters, thanks to his meager four-hour commute from his homestead on Cape Cod to the Game Hall of Fame.

Find more game reviews at www.macworld.com/columns/gameroom/.

TIME TO DESERT

APPLE'S POWERFUL NEW PORTABLES MAY MAKE YOUR POWER MAC OBSOLETE



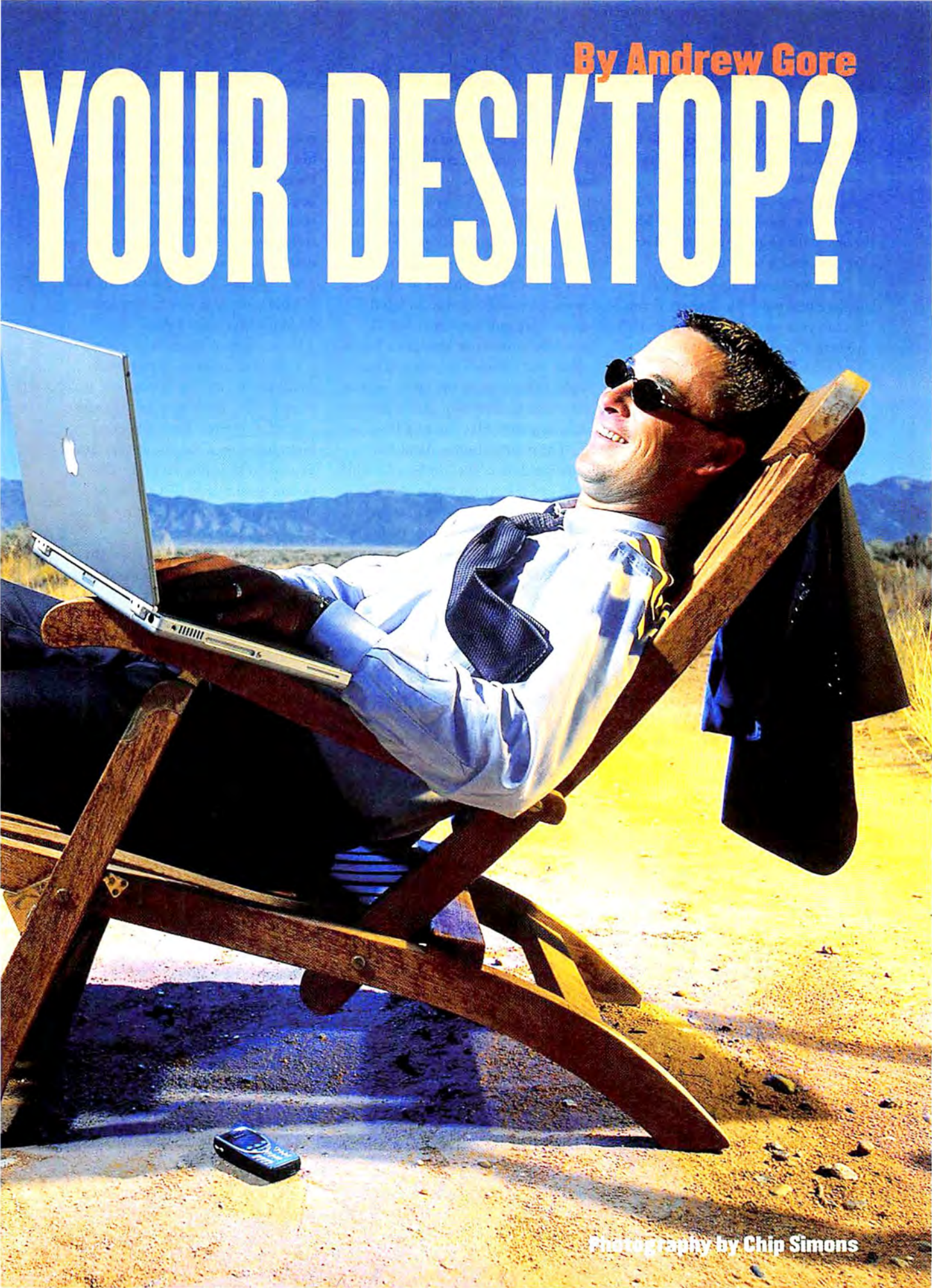
IF YOU OWN A DESKBOUND MAC, chances are you've cast an envious glance at someone using a laptop—perhaps a stranger, reading e-mail on his PowerBook while drinking a cappuccino at Starbucks, or a coworker, typing furiously away on her iBook while sinking deep into the break-room couch.

There's no doubt that laptops are convenient, but they're also less powerful, harder to upgrade, and more expensive than their desktop kin. So it stands to reason that unless portability is absolutely central to the way you work, you should always opt for a desktop Mac—right?

Think again. Over the last few years, the choice between laptop and desktop has become a lot less obvious. In just the last year, sales of Apple laptops have tripled. Portable Macs have become lighter and faster, with more features packed inside a slimmer case. With last October's announcement of a faster iBook and the simultaneous

By Andrew Gore

YOUR DESKTOP?



Photography by Chip Simons

debut of a 766MHz PowerBook G4 complete with a 133MHz system bus and new high-performance built-in graphics, Apple has tipped the scales even more in favor of portable Macs. (For details about these new Macs, see our review on page 52.)

So *can* Apple's laptops finally replace desktops? The answer is yes. *Should* your next Mac be a portable? To help you decide, I'll explain some of the trade-offs.

Flexibility

When it comes to flexibility, portables win, hands down. They have batteries, so they don't need to be plugged in—and don't shut down if the power goes out. They have built-in screens, keyboards, and pointing devices, so you don't have to buy or connect anything extra to use them. They're small and lightweight, and they're designed to be used just about anywhere. An iBook, for example, weighs only 4.9 pounds, and its dimensions are 11.2 by 9.1 by 1.4 inches—about the size of a ring binder. A Power Mac G4 is, well, a lot bigger and heavier, and it's difficult to lift comfortably with one hand.

Having a portable means that all your files, applications, and information, as well as access to the world, are with you wherever you go. For some people, this factor alone can trump all others. If you're a salesperson on-the-go day and night, having your presentations, contact information, and contract data—and access to your company's invoicing system—with you at all times can make your next sale a sure thing. If you're a photojournalist who must quickly edit and transmit images of breaking news, a PowerBook and a digital camera are indispensable. And if you split your work between a home office and a corporate office, a portable makes having the same applications and data in both places as easy as lifting your Mac out of a briefcase.

For many schools, iBooks are a popular choice, not just because children can take them home to work on projects, but also because they don't require that a school dedicate scarce classroom space to a computer lab. Instead, students can open up iBooks for computer science and then pack them up and send them to another classroom when it's time for social studies.

An iBook or a PowerBook can also be a godsend for a college student who wants to type class notes and needs a computer that will fit easily into a tightly packed dorm room. An iMac may have a handle, but just try to lug it from one lecture to another.

Portable Problems Of course, flexibility has its drawbacks. It's as easy for you to carry around a portable as it is for a stranger to walk away with one—and all the personal information inside. I know this all too well: while I was working on this article, someone shattered my car window and took my iBook out of the rear footwell—even though it was in a nondescript carrying case buried under a pile of papers. You've got to keep track of your computer, and having your $3,000 portable get nabbed can be a lot worse than losing your wallet.

And the more you carry your Mac around, the likelier you are to drop it. The iBook may be the most rugged computer Apple has ever built, but drop it the wrong way, and you could be toting around a five-pound dead weight. This is something you rarely have to worry about with a desktop Mac.

Traveling Light If you need to move your Mac around, a laptop may be the right choice for you. While desktop Macs are meant to stay in one place, today's lighter and smaller portable Macs make taking it with you easier than ever before. But does being able to flip open your computer and get to work anywhere eclipse a desktop machine's merits?

Performance

Portables have always lagged behind desktops in terms of speed. After all, there's only so much space inside a portable, and its batteries have limited juice. Desktop Macs can accommodate larger components and components that require more power.

For example, desktops can support faster processors because they have space for a larger heat sink—a metal structure that sits on top of the processor and helps it dissipate excess heat. But heat isn't the only problem; portables also need to conserve power. Most laptop users will happily trade a few megahertz for an extra half hour of battery life. And so they have. Traditionally, portables have had slower logic boards and graphics chips, as well as less video RAM—all to conserve power.

TALES OF THE TAPE

Power Mac versus PowerBook

	POWER MAC	POWERBOOK
CPU Speed	867MHz	667MHz
RAM	256MB	256MB
Hard Drive	60GB	30GB
System Bus	133MHz	133MHz
Video Card	Nvidia GeForce2 MX	ATI Mobility Radeon
Optical Drive	SuperDrive	DVD-ROM
Ethernet	10/100/1000-BaseT	10/100/1000-BaseT
Price	$2,599	$2,999

THE POWERBOOK AND iBOOK STILL LAG BEHIND THEIR DESKTOP PEERS, BUT THE GAP IS NARROWER THAN EVER.

Breakthroughs Apple's new portable systems have changed some rules of the game. The latest generation of the PowerPC G4 demands significantly less power than its predecessors. This processor throws off less heat and therefore doesn't need as much cooling as previous models did. Apple has been able to up its portables' speed, and as a result, the new PowerBook's performance is closer to that of the top desktop Macs (see "The Power Gap Narrows"). It's worth noting, however, that the iBook still uses the G3 chip and therefore does not deliver as much speed.

The 667MHz PowerBook performs remarkably well. In our iTunes MP3-encoding test, it was almost 50 percent faster than the new 600MHz iBook, and it was 35 percent faster than the new 700MHz iMac G3. It's still slower than the 867MHz Power Mac G4, but the gap has narrowed somewhat. The desktop's larger internal space and greater access to power are no longer an overwhelming performance advantage.

The Missing Multiprocessor One power advantage of desktop Macs remains unchallenged—the option of two processors. If you work in applications designed to take advantage of multiprocessors, such as Adobe Photoshop and some 3-D applications, this fact alone may clinch your decision. Keep in mind that Mac OS X is also multiprocessor savvy; as it becomes ubiquitous, more people may see a portable's single processor as a limitation. (See "Double Vision," November 2000, for a detailed discussion of multiprocessing.)

System-Bus Boost However, the processor is only part of the speed equation. The system bus—which connects your Mac's processor to its RAM—is also critical. The faster the system bus, the faster the processor can work. (For a full discussion of what contributes to speed, see "Does MHz Matter?" July 2001.)

To conserve power and reduce heat, mobile Macs traditionally had slower system buses. Apple has boosted the higher-end PowerBook's system bus from 100MHz to 133MHz, and the higher-end iBook's system bus from 66MHz to 100MHz. The new PowerBook clocks in at the same speed as a desktop Power Mac G4, which also has a 133MHz system bus.

Video-Card Advances Another area of concern for speed-hungry users is, of course, graphics performance. Your video card affects how fast you can scroll through a document and see complicated graphics on screen. Gamers *really* notice slow video cards—frames drop out when they play 3-D games, rendered surfaces become blocky, and action slows to a crawl.

In recent years, portables have fallen behind their desktop cousins, whose combination of industry-standard AGP expansion slots, plentiful space, and more power has allowed them to have the latest and greatest in video cards. Portables, on the other hand, have been saddled with the ATI Rage Mobility 128 chip set, which has remained almost unchanged since its introduction in 2000. People in search of the fastest frame rates for 3-D gaming—or faster rendering rates in graphics applications—naturally gravitated toward desktops with the latest ATI Radeon or Nvidia GeForce 2 video cards.

This situation has improved. With the new PowerBook G4, Apple has included the faster ATI Mobility Radeon AGP subsystem and boosted the on-board video RAM to 16MB. A desktop Mac with an Nvidia GeForce2 or GeForce3 video card—or with the full-blown version of ATI's Radeon

continues

PowerBook G4/667 and iBook 600

Apple Fine-tunes Portable Line with Speed, Bus Improvements

BY JASON SNELL

With the 2001 release of the powerful, wide-screen Titanium PowerBook G4 and the lightweight, redesigned iBook, Apple reclaimed its position as the leader in laptop innovation. Those impressive designs are still relatively fresh, and Apple has focused on performance in its latest updates to the PowerBook and iBook. The resulting systems are much the same on the outside, but they're noticeably faster, thanks to changes on the inside.

Familiar Faces

The new PowerBook G4 has the same exterior as the thin, titanium-clad marvel introduced last January. It's still one inch thick, and it weighs only 5.3 pounds. It also retains what may be the PowerBook's most notable attribute: a 15.2-inch flat-panel screen, which features a native resolution of 1,152 by 768 pixels. This wide-screen wonder is just as bright and as beautiful to look at as the original PowerBook G4.

Likewise, the iBook looks like its predecessor and shares that machine's most impressive feature: at 4.9 pounds, it's remarkably light. Perhaps passing the five-pound point breaks some sort of psychological barrier, or perhaps it's the iBook's compactness—whatever the reason, the iBook feels more casually totable than any other mainstream laptop Apple has produced.

Quick Change

A fast computer is a combination of many factors (see "Does MHz Matter?" July 2001); chief among them are the processor and system-bus speeds. When computer models are updated, usually only the processor speed gets a boost. Apple has not only increased processor speeds to 667MHz, for the PowerBook G4, and 600MHz, for the iBook, but also bumped up system-bus speeds to 133MHz and 100MHz, respectively. (The 550MHz PowerBook G4 and 500MHz iBook models at the lower end of the line run at the old bus speeds of 100MHz and 66MHz.)

This double-barreled upgrade made for impressive speed increases in Macworld Lab's tests of both models (see "The Power Gap Narrows"). The 667MHz PowerBook G4 was 16 percent faster than its 500MHz predecessor in our Speedmark 3 test (which measures overall performance in Mac OS X 10.1), and the 600MHz iBook was 24 percent faster than the original 500MHz iBook.

However, the 600MHz iBook is still only as fast as a 500MHz iMac—and its G3 processor makes it noticeably slower than a G4-based Mac when running Mac OS X. For people who value speed above all else, the iBook's size and cuteness won't make up for the fact that it's still a medium-speed, G3-based machine.

The PowerBook G4 gets an additional speed boost from a major upgrade to its video system. Gone is the ATI Rage Mobility chip (which still drives the iBook's display); it's been replaced by ATI's new Mobility Radeon system. The results of Mac-

DAVID PAPAS

world Lab's graphics-performance tests demonstrate the major improvement that the Radeon chip brings to the PowerBook G4. The new Radeon-based PowerBook managed Quake III frame rates nearly double those of its Rage-based predecessor.

Titanium Upgrade

The internal upgrades to the PowerBook don't stop there. The 667MHz PowerBook G4 comes with a larger, 30GB hard drive; a build-to-order option can push its storage capacity to 48GB. In addition, writable optical storage has finally come to the PowerBook G4 line—but only as an extra. You can order the PowerBook G4 with a CD-RW drive instead of the standard DVD-ROM drive, but you must pay an additional $100.

However, it's a shame that if you buy a PowerBook, you have to choose between DVD playback (on the Titanium's gorgeous wide screen) and the ability to burn CDs. It seems that Apple has not yet found a way to put a slot-loading version of the iBook's combination DVD-ROM and CD-R drive in the PowerBook G4.

The New Generation of Portables

COMPANY	PRODUCT	MOUSE RATING	COMPANY'S ESTIMATED PRICE	CONTACT	PROS	CONS
Apple Computer	PowerBook G4/667	4½	$2,999	800/692-7753, www.apple.com	Fast; thin; beautiful display; good 3-D performance.	Limited internal optical-drive options.
	iBook 600	4½	$1,699	800/692-7753, www.apple.com	Lightweight; compact; low price.	G3 processor slow in Mac OS X; weak 3-D performance.

The PowerBook G4 has also been upgraded in the area of networking. While earlier models supported both 10BaseT and 100BaseT, the new PowerBook supports 1000BaseT (or gigabit Ethernet) as well. The 667MHz PowerBook also comes with a built-in AirPort card.

More Power

You consider many features when buying a laptop, but it's likely that you *never* think of the power adapter. The fact is, a bad power adapter can be a thorn in your side for the entire time you use a laptop. And for many portable owners, Apple's power-adapter designs have been a sore point.

The new adapter that ships with these PowerBook and iBook models is a major improvement. The brick is small, square, and modular, letting you swap in different plug styles for foreign travel. You can also choose between a module that plugs directly into a wall and one that includes five feet of cord, giving you more freedom to use out-of-the-way power outlets. In addition, when you attach the plug to your laptop, a colored ring lights up to let you know you're plugged in.

Macworld's Buying Advice

Even before this update, Apple's two portable models were exceptional accomplishments. And now both the iBook and the Titanium PowerBook G4 are faster than ever, with the PowerBook picking up an added performance boost from its new video subsystem.

The PowerBook G4 combines high style with Power Mac–class power, making it an ideal choice for anyone who wants maximum performance or needs a big, beautiful wide screen. In contrast, the iBook is a small, compact laptop that's much easier to lug in a backpack or carry by hand than the bigger, more unwieldy PowerBook. It also offers more flexibility in terms of internal optical storage and costs much less. But its screen can't compare with the PowerBook's, and its G3 processor really shows its age when running Mac OS X.

Which is better? That depends on your needs. The good news is, regardless of what you're looking for in a Mac laptop, the computer you end up with will be a winner.

The Power Gap Narrows

Macworld LAB TEST

Without a doubt, the new PowerBook G4 is faster in all the places that count: graphics (Quake III), processor (iTunes), and overall system speed (Speedmark 3). However, the new iBook offers only a modest performance boost, and both new portables fall well short of the Power Mac G4, still the gold standard in Mac speed.

Reference systems in italics.
Best results in bold.
Longer is better. Shorter is better.

	SPEEDMARK 3	iTUNES 1.1	QUAKE III V1.30B1
	Overall Score	MP3 Encode	Normal
Apple iBook G3/600	99	123	24
Apple PowerBook G4/667	132	71	50
*Apple iBook G3/500 **	*80*	*156*	*21*
Apple iMac 700MHz	*119*	*108*	*34*
*Apple PowerBook G4/500 **	*114*	*76*	*26*
Apple Power Mac G4/867	***186***	***46***	***77***
* Now discontinued.	Better ▶	◀ Better	Better ▶

Speedmark 3 scores are relative to those of a 500MHz iMac (Flower Power), which is assigned a score of 100. iTunes scores are in seconds. Quake scores are in frames per second. We tested each system with Mac OS X 10.1 installed and 256MB of RAM (except the 500MHz iBook, which had 320MB). We set displays to 1,024-by-768-pixel resolution (except the PowerBooks, which had 1,152-by-768-pixel resolution) and 24-bit color. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long, converting it from the hard drive using iTunes' Better Quality setting of 160 Kbps. We tested Quake III at a resolution of 640 by 480 pixels, with graphics set to Normal. For more information on Speedmark, visit www.macworld.com/speedmark.—**Macworld Lab testing by Ulyssis Bravo**

BECAUSE MAC OS X IS MULTIPROCESSOR SAVVY, A PORTABLE'S SINGLE PROCESSOR MAY BE A LIMITATION.

card—still beats the PowerBook's graphics performance, but now it's not such an embarrassing defeat.

Unfortunately, the new iBook still uses the ATI Mobility Rage 128 subsystem. As you can see from our Quake III test results, this is one of the slowest of all tested systems—only the 500MHz iBook was slower.

Slow Storage The performance gap between desktop and laptop has shrunk in every area *except* hard-drive speed. Here, desktops still hold the uncontested advantage. Because of power constraints, Mac portables use slower drives (4,200 or 5,400 rpm). In our Speedmark 3 tests (which measure a system's overall performance), the Power Mac—the only machine with a 7,200-rpm drive—had a marked edge.

Why does this matter? If your hard drive is particularly slow, your processor has to wait to get data from it. If you do a lot of disk-intensive tasks, such as working with video and audio or, in some cases, using Adobe Photoshop, you'll spend time watching the clock.

Power Matters It's clear that even with the latest updates, the PowerBook and iBook still lag behind their desktop peers. However, that gap is significantly narrower. Especially with the PowerBook, the difference in speed has become minimal in all but the highest-performance systems. Most people—those not spending the lion's share of their time in 3-D games or applications such as Photoshop or Final Cut Pro—won't find the difference noticeable.

When it comes to performance, you need to ask yourself how much time you'll spend using power-hungry software. If you primarily use Microsoft Word, browse the Web, or write e-mail, a portable Mac will probably meet your performance needs. In fact, you might get by just fine with the G3-based iBook, since the power of the G4 processor is noticeable only in applications that are optimized to use it. On the other hand, if you do everything from reading e-mail to movie editing, a PowerBook may fill the bill, but you should carefully consider what you'll be giving up.

ZONED FOR EXPANSION

How difficult is it to upgrade a mobile Mac?

TYPE OF UPGRADE	POWERBOOK	iBOOK	COMMENTS
Airport Card	Difficult	Easy	You simply lift out the keyboard to gain access to the iBook's AirPort slot. With the PowerBook, you must remove eight screws and the bottom of the computer.
RAM	Easy	Easy	Lift up the PowerBook's keyboard to get to its RAM slot. The iBook has a small plate that you must remove first.
Internal Hard Drive	Very Difficult	Almost Impossible	To remove the PowerBook's hard drive, you must remove the top cover and then two small Torx screws from inside the battery bay. The iBook's hard drive is so hard to remove, even Apple-authorized technicians are forbidden to do it.
Internal Media Drive	Very Difficult	Almost Impossible	While it is possible to remove the media drive from a PowerBook, there are no upgrades (for instance, a CD-RW or DVD drive) that will fit in its place. The iBook's media drive is as difficult to remove as its hard drive.
PC Card	Very Easy	Not Applicable	Popping a PC Card into a PowerBook is easy, but iBooks don't have PC Card slots.

The Upgrade Issue

When it comes to expansion, desktop Macs take the prize. You can upgrade four key parts of your computer: the processor, video card, hard drive, and RAM. In general, desktop Macs are *much* easier to upgrade. (For a detailed look at upgrading portables, see "Zoned for Expansion.")

Video Card and Processor A Power Mac G4 comes with four full-size, 64-bit, 33MHz PCI slots, and one AGP 4× slot for a video card. If you'll be upgrading often as new advances come out, there's no better insurance than lots of slots.

Slots can offer a simple way to upgrade your video card or add additional ports to your computer. Want to take your Power Mac from a relatively slow ATI Rage 128 graphics card to a blazingly fast ATI Radeon card? Want to add extra USB or FireWire ports? No problem—just

continues

FireWire 6-Port Hub

Six

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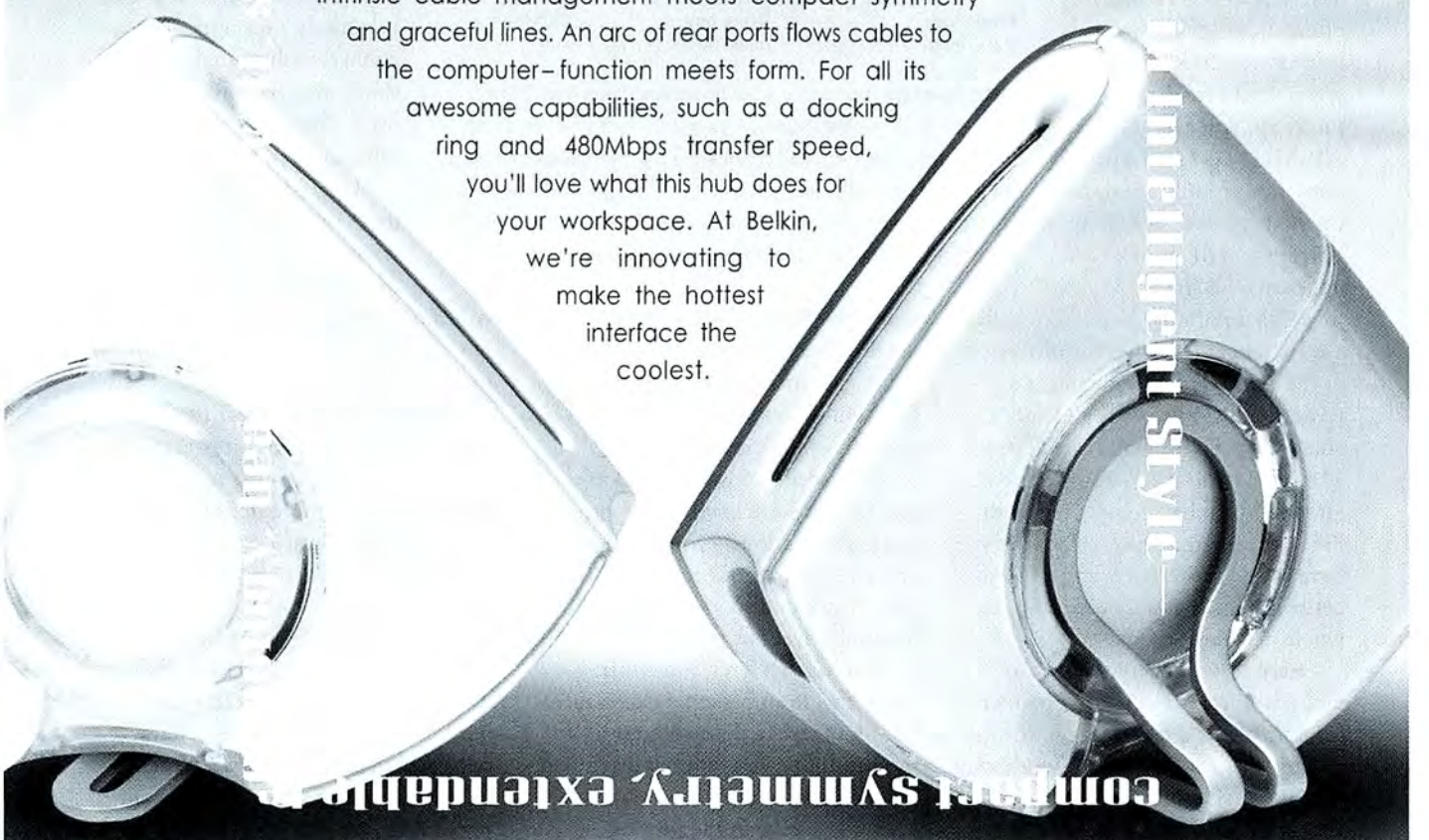

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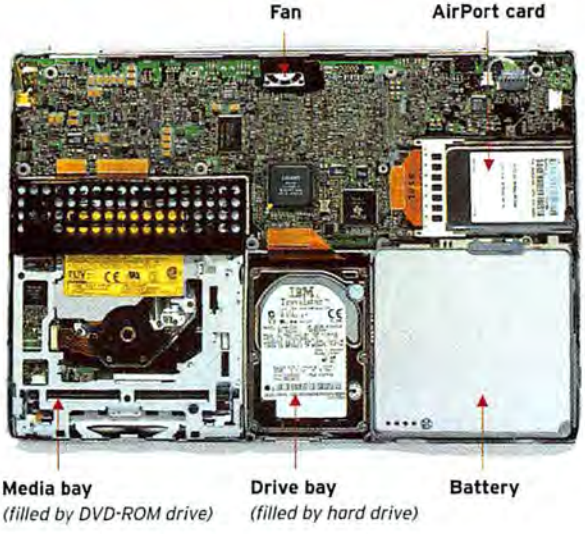
IF YOU OPT FOR THE CONVENIENCE OF A PORTABLE, YOU WILL GET A LITTLE LESS BANG FOR A FEW MORE BUCKS.

open the side of your tower and slip the card into the slot.

Upgrading a processor is just as easy: all you have to do is pull out the processor card and replace it. In many cases, the speed increase gained from a few more megahertz isn't worth the cost of a new card. However, a faster card isn't your only choice when you have a desktop Mac. Sonnet Technology offers a card with two G4s on it (949/587-3500, www.sonnettech.com)—for $799, you can get dual 500MHz G4s. (Apple does not usually guarantee that its new operating systems will work on upgraded machines.)



Tight Quarters Upgrading a tightly packed PowerBook is not easy. You must remove eight screws and the bottom cover to get to the AirPort slot—strange considering that you can just lift out the keyboard to get to the RAM slots. Your expansion options are also limited; there's only one drive bay and no PCI slot. And properly reseating the PowerBook's bottom cover can be difficult.

With a portable Mac, there's rarely a way to upgrade either the processor or the video card. If you bought a PowerBook G4 before last October, you got a portable with the ATI Rage 128 video card. If you bought one after mid-October, you got one with the Radeon card, which is faster. If you have an old PowerBook and you want better graphics, you'll need to buy a whole new PowerBook.

Hard Drive When it comes to internal storage, who hasn't hankered for a little—or a lot—more hard-disk space? If you collect MP3s, work with digital video, or handle a lot of graphics, you can fill even a large hard drive fast.

If you have a Power Mac, adding a hard drive is easy. Open the side door, and you have immediate access to four internal drive bays (portables have only one). Because space and power are not issues, you can put in faster and bigger drives, and you'll pay less for them—internal drives are much less expensive than external drives.

It's not as though PowerBooks and iBooks were *completely* without expansion options—you can hook up an external drive via the FireWire port. You can also swap in a new internal drive, but you'll have to put in a positively Herculean effort. I know this from personal experience: it took me more than an hour to replace an iBook's internal drive. The number of screws, plates, and panels I had to remove in the process was daunting. And when I was done, I had a couple of screws left over. Frankly, the installation process was so intrusive that I was a little surprised when the iBook still worked.

With the PowerBook, replacing the hard drive is a little easier. You have to remove the bottom cover by taking out eight tiny screws and then lifting off the thin titanium cover—carefully, so you don't bend or dent it. The drive itself is held in place by two Torx screws, which must be removed from inside the battery bay. Once these are out, the rest of the operation is fairly easy, assuming of course that you haven't lost any of the rubber washers that act as shock absorbers for the drive. The cover can also be difficult to reseat properly.

Upgrading an existing drive is one thing, but if you want to add a second hard drive or CD-RW drive to your portable, your *only* option is to buy an external one and hook it up to the FireWire port.

Reality Check It's clear that upgrading desktops is comparatively easier and less expensive, and desktops offer many more options than their portable cousins. So you have to ask yourself whether you really need to upgrade.

Modern machines are designed to be largely disposable. And while it's still common for users to add hard drives or RAM to their Macs, it has become rare for them to replace other components. These days, computers become obsolete so fast that it often doesn't make sense to spend huge sums of money keeping an old machine up-to-date. For many Mac users, it's easier to replace the computer every couple of years.

If the ability to upgrade is important to you, a portable Mac is probably not the right choice. And if you need tons of storage, a portable Mac won't do. However, if you replace your computer regularly—and if you can do without some of the latest and greatest new features until you buy your next computer—a portable's limited upgrade potential may not matter.

Value

At first glance, desktops are a better value than portables. An entry-level Power Mac G4 with a respectable 733MHz G4, 256MB of RAM, a 40GB hard drive, a CD-RW drive, and an Nvidia GeForce2 MX graphics card costs $1,799. Throw in another $300 for a 17-inch external monitor, or bump that up to $1,000 for Apple's 17-inch LCD flat-panel Studio Display, and you're done. The machine comes with a serviceable keyboard and mouse.

In contrast, a 667MHz PowerBook G4 with 256MB of RAM, a 30GB hard drive, a DVD-ROM drive, an ATI Mobility Radeon video subsystem, and a bundled AirPort card will run you a whopping $2,999. And if you want the comfort of an external monitor, keyboard, and mouse, you're looking at another $300, $60, and $60, respectively, for a total of approximately $3,419. All told, that's nearly $600 more than the price of a tricked-out Power Mac with a flat-panel display, and it's almost *$1,000* more than one with a regular monitor. Keep in mind that you're paying more for a slower machine.

Those looking for something with a more moderate price can go for a $1,299 iMac with a 600MHz G3, 256MB of RAM, a 40GB hard drive, a CD-RW drive, and an ATI Rage 128 graphics card. A similarly equipped iBook—with a 600MHz G3, 256MB of RAM, a 30GB hard drive, a CD-RW drive, and an ATI Mobility Rage 128 graphics card—will cost you $1,849, and that's *without* a keyboard, mouse, and an external monitor (which will set you back an additional $420 or so). By the numbers, a Power Mac is a better value than a PowerBook, and an iMac is a steal compared with an iBook.

Money Spent, Money Earned But there's something here that these figures don't reflect. When you buy a laptop, you're paying for convenience.

What is the worth of having the same computer—with the same files and applications—at home, at the office, and on the road? Is typing notes at a meeting or in class important to you? If you spend a lot of time on airplanes, what's the value of being productive during those flights? Will you be able to earn more if your Mac travels with you? When you measure a laptop's value versus a desktop Mac's, don't look at price alone.

The Last Word

If you opt for the convenience of a portable, you'll get a little less bang for a few more bucks. And while the performance and price gaps are narrower now than ever before, it's likely that you'll always pay a premium and make some compromises if you choose a mobile Mac.

If you travel a lot, a portable is an obvious choice; the compromises are worth it. But today's portables may appeal to you for other reasons: you may like taking work home without having to copy files back and forth. Or perhaps you long to leave your chaotic office in the middle of the day and work in a coffee shop.

After all, desktop Macs come with compromises, too: you must sit at your desk to use one. Portables are ready whenever and wherever you are, allowing you to walk away from your desk—*without* forsaking your work. **m**

ANDREW GORE, *Macworld*'s former editor in chief, is the author of five books, including three about mobile computing.

Which Mac?

Choosing between a portable and a desktop can be difficult. Speed and price are only two of the considerations that will influence your decision. And if you do decide to go portable, you're still not done—you must then select either the PowerBook or the iBook. This test will help you weigh some important factors. Although it won't necessarily be the final arbiter, it should aid you if you're wrestling with the choice.

PART I: PORTABLE OR DESKTOP?

ISSUE	RATING	SCORE
Price is	critical.	8
	important.	5
	not important.	3
Speed is	critical.	7
	important.	5
	not important.	2
Expandability is	immediately necessary.	9
	nice insurance for the future.	4
	important only for RAM.	1
Mobility is	critical.	1
	important.	4
	not important.	9

If your total score is between 7 and 18, go to Part II. If it's between 19 and 33, you're done—a desktop Mac is probably right for you.

PART II: POWERBOOK OR iBOOK?

ISSUE	RATING	SCORE
Price is	critical.	3
	important.	5
	not important.	7
A big screen is	critical.	7
	important.	5
	not important.	2
Running Mac OS X fast is	critical.	7
	important.	5
	not important.	3
I spend my time	running apps like Photoshop.	9
	running a mix of applications.	6
	using e-mail and word processing.	2

If your score is between 10 and 18, an iBook would be a good choice for you; if your total is more than 18, you should seriously consider a PowerBook.

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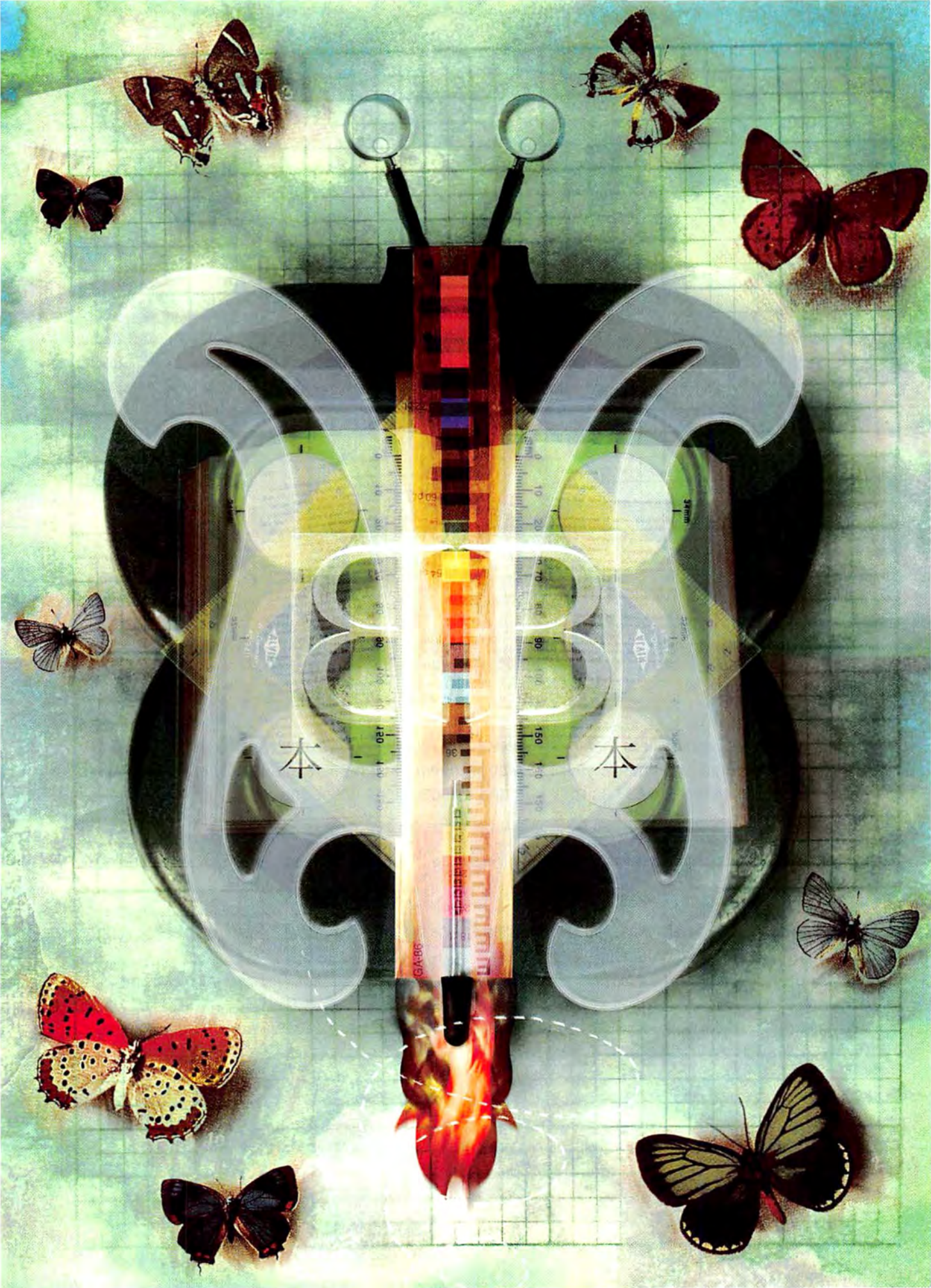


OUR SNEAK PEEK AT VERSION 2 REVEALS A NEW MATURITY

BY DAVID BLATNER

INDESIGN TAKES FLIGHT

For professional desktop publishers thinking of upgrading their page-layout software, choosing the best tools for the job just got more interesting: Adobe InDesign 2 is coming. With improved performance and impressive new features such as object transparency, a table editor, XML import and export, and full Mac OS X compatibility, this version promises to attract the attention of even die-hard QuarkXPress and Adobe PageMaker users.

With the release of InDesign 2, Adobe (800/833-6687, www.adobe.com) clearly hopes to surpass Quark (800/676-4575, www.quark.com) and become the leader in desktop-publishing. To do this, Adobe will have to prove that InDesign is finally ready to handle the tough demands of professional print publishing.

Adobe shipped InDesign 1.0 before it had ripened—the program was riddled with bugs and performance problems. Nevertheless, the program offered a drool-inducing list of features not found anywhere else, such as multiple undos, high-quality screen previews (of both TIFF and EPS images), the ability to export PDF files directly to disk (without the aid of Acrobat Distiller), and a hyphenation and justification scheme that provided significantly better-looking text than other programs. Version 1.5, which was released six months later, added to the list of InDesign-only tools with an eyedropper (which let you copy both colors *and* text formatting from one place to another) and a robust trapping engine.

But although Adobe snagged a handful of converts with these releases, most desktop publishers remained cautious, asking why they should switch to a program that was slow and unpredictable (for example, clipping paths often became detached from their images), a program without some standard features (such as long-document tools) that both PageMaker and QuarkXPress had offered for years.

Adobe's response is InDesign 2. The new version fills the gaps in earlier versions and, in many ways, actually leapfrogs the capabilities of other programs.

Adobe says it will begin shipping InDesign 2 in the first quarter of 2002 (at press time, Quark still hadn't announced a firm shipping date for XPress 5). I've been working with a prerelease version of the program for several months, and although I can't yet test this beta for reliability or speed, I *can* say that InDesign is finally maturing into a tool that professional publishers will want to use. Here's a preview of some of the new features you'll find in the upcoming version.

ILLUSTRATIONS BY STUART BRADFORD

INDESIGN TAKES FLIGHT

Transparency

One of InDesign 2's unique features is commonly associated with drawing programs—transparency effects. While transparency may at first sound like a frivolous addition to a professional page-layout program, this feature will likely become a fast favorite of many designers (see "Taking Advantage of Transparency").

Thanks to InDesign's new transparency tools, you can now bring transparency effects from native Adobe Photoshop and Illustrator files into InDesign. This means you can import a photograph of a fuzzy sweater from Photoshop—*without a clipping path*—and the yarn will blend in softly with the background you've created in InDesign (even another imported TIFF or EPS file). You can also create transparency effects within InDesign. For example, you can create soft-edged drop shadows behind any object—including type—or feather an image's edges without ever having to open your graphics program.

The same engineering magic that provides object transparency allows you to preview how overprinted objects will appear on press (something that all programs should have done years ago). This feature is especially important for designers who work with spot colors or varnishes (see "A Glimpse of Reality").

These transparency features simply aren't available in any other desktop-publishing program, and they'll save catalog publishers, graphic designers, and ad agencies hundreds of hours in a year. Of course, PostScript doesn't support transparency, so when you print your pages, InDesign does some quick behind-the-scenes work to compensate, using a technology called the Flattener (Illustrator 9 and Adobe Acrobat 5 also use this technology) to simulate transparency effects. And though it's still in early beta, the program has so far done an excellent job of preserving the illusion of transparency when printing.

Tables

Sooner or later, every designer must build and format a table—whether it's a financial-information chart in an annual report or a directory culled from a database. So it's surprising that building a table in XPress, PageMaker, and InDesign is still so difficult. Luckily, this is about to change. But while QuarkXPress 5's new Table tool will go a long way toward remedying this (see "Quark's Leap of Faith," October 2001), the table features in InDesign 2 go even further.

A Glimpse of Reality The Attributes palette (middle) lets you force objects to overprint the colors behind them, but InDesign and other programs have never allowed us to preview the effect on screen (top). Now, the Overprint Preview option gives you a better idea of what will come off the press (bottom).

To make a table in InDesign 2, you simply place your text cursor in a text frame and select Insert Table from the Table menu. InDesign's interface allows for an interesting feature not available in XPress: tables can flow from one text frame to another (like regular text). So if your table is too long to fit on one page, you can easily link it to the next page.

InDesign 2 FEATURES AT A GLANCE

Transparency InDesign 2 not only lets you apply transparency to any object (even imported EPS or TIFF images) but also recognizes transparency in native Photoshop and Illustrator files.

Drop Shadows You can drop a shadow behind type or a picture, and it will automatically overlap whatever is behind it. Plus, you can feather the edges of objects for special effects (such as a soft-edged image).

Long Documents The new Book palette lets you bundle multiple documents in one place. InDesign 2 also lets you build a table of contents and an index for either a single document or a whole book.

Tables Building tables is almost fun with InDesign's Insert Table command. You can flow a table from one text frame to another, apply automatic alternating row tints, and even import tables from Microsoft Word or Excel.

Foreign-Language Support The English version's ability to open foreign-language documents (even Japanese) is just one of InDesign 2's many multilingual features.

Printing Improvements The Print dialog box has been completely revamped, and you can now use Apple's print driver instead of Adobe's.

Performance Enhancements Many users found InDesign 1.0 and 1.5 unacceptably slow, so Adobe made this version much speedier, especially when flowing text.

Better Page Previewing The Preview mode button and the live-cropping feature make it easier than ever to see how your pages will look in print.

Carbonized for OS X Adobe's commitment to the future of the Mac is clear: InDesign now runs natively in OS X 10.1.

XML Import and Export Adobe says InDesign's XML feature will ship as beta, but it's already powerful enough to use.

This feature alone may sell the program to designers of table-intensive annual reports and technical documents. Unfortunately, there's no way to automatically repeat table headings on a table's second page.

InDesign's ability to import tables directly from Microsoft Word and Excel also gives it a leg up on the competition. Once you've imported your table, you can use InDesign's Table palette and Table menu features to format it. For example, you can split or merge cells; resize cells to absolute or "at least" measurements (which allow them to grow when you add more text); and format a table's cells and lines with color, automatic diagonal lines (useful for making calendars), alternating row tints, and much more (see "Setting Your Table"). This goes far beyond what XPress 5 can do.

Of course, InDesign's tables don't have built-in spreadsheet logic, so you can't create cells that automatically add up a column of numbers. However, WoodWing Software's Smart Tables plug-in (www.woodwing.com), which will ship soon after InDesign 2, adds this functionality.

Long-Document Support

In the past, one complaint often leveled at InDesign was that it lacked the tools necessary for creating long documents, such as books and reports. InDesign 2 finally addresses most of these concerns and brings the program in line with its competitors. Adobe has not only boosted InDesign's performance, speeding up the reflow of long chunks of text, but also added a Book palette—as well as table-of-contents and indexing features.

Book Palette InDesign's Book palette works much like the one in QuarkXPress: it lets you group documents that share attributes (such as style sheets and colors), and then it automatically updates each document's page numbers when you add or remove a page or change the order of chapters. However, InDesign takes the Book palette a few steps further than XPress does. Using InDesign's Book tools, you can export an entire book to a single PDF file, print documents to PostScript files, and package all of a book's chapters to be sent to a service bureau.

Table of Contents The new Table of Contents feature, which is equivalent to XPress's Lists feature, collects every paragraph tagged with a particular paragraph style in a document or book, and it copies them into a new document, which you can turn into a table of contents. If you want to create a list of authors, for example, you can tell InDesign to gather all the paragraphs tagged with the Byline style. Unfortunately, though, InDesign 2 is limited in that it can collect text only based on its paragraph style—not based on its character style. The Table of Contents feature also suffers from a clunky interface.

InDesign's new table features alone may sell the program to designers of technical documents.

Indexing InDesign's Index palette is a strange hybrid of the indexing tools in QuarkXPress and PageMaker, and it still feels like a work in progress. The best part about InDesign's indexing tools is that they let you import index tags from Word documents—something XPress users have requested for years.

Print Dialog Box

Adobe has learned that no matter how good a program looks, it simply won't fly if the service bureaus and printers tell their clients not to use it. Professional printers didn't like InDesign 1.0 or 1.5 because those versions required them to switch to a different print driver and then wade through a cumbersome Print dialog box. Fortunately, Adobe is a quick study and has significantly revamped InDesign's print architecture to better match the needs of print professionals.

InDesign 2 lets you use non-Adobe print drivers—a major omission of previous versions. Adobe has also improved the look-and-feel of the Print dialog box to let you navigate more quickly and intuitively with keyboard shortcuts. Even better, the dialog box now offers a thumbnail preview that gives you constant feedback on how your document looks as you adjust various print features.

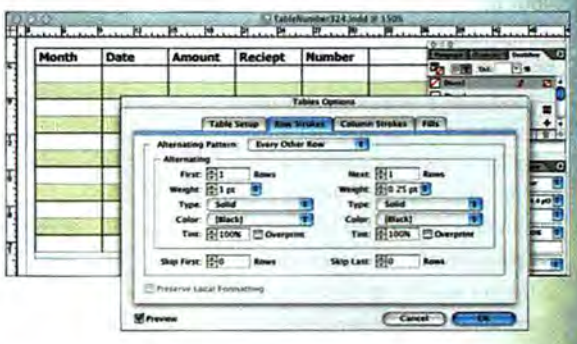
Several of InDesign's new print features will be of special interest to designers. For example, you can now print guides and grids (especially helpful when designing a template) and save device-independent PostScript directly to disk.

The true test of InDesign's new printing prowess will come when professional printers actually begin working with clients' InDesign 2 documents. But until Adobe ships a final version of the program, it's impossible to reliably judge its print performance.

The XML Workflow

The publishing world is barreling toward XML (Extensible Markup Language), but few designers know

continues



Setting Your Table InDesign 2 makes it easy to format tables with alternating tint stripes and strokes. Plus, you get the new Aqua interface when running this fully Carbonized version in Mac OS X.

INDESIGN TAKES FLIGHT

the first thing about it. The basic concept is simple: you tag objects, text, and pictures with names that identify purpose—a headline, for example—in order to separate the content from the form it will take. You can then use these tags to set up multiple templates for the same information (say, one for a printed catalog and another for a Web page). This lets you export information from one program or layout into another with a minimum of fuss. (See "Inside XML," October 2000).

For designers new to XML, InDesign 2 offers tools and a simplified interface to help ease the XML process. Other XML-aware programs, such as XPress 5, require you to build document-structuring files (called Document Type Definitions, or DTDs) in advance, but InDesign's new Structure menu and Tags palette let you start experimenting with exporting and importing XML even if you have little experience with XML or DTDs.

Of course, ultimately, it's the larger companies that will get the most out of an XML workflow, and these companies will likely hire system integrators to build DTDs, custom plug-ins, and workflows for them. With InDesign 2, these users will be able to plug in to the more powerful XML infrastructure running under the program's hood.

Built for OS X

In addition to running under Mac OS 9.1, InDesign will have the distinction of being the first major publishing program to be Carbonized. (XPress 5 will not be Carbonized; instead, OS X users will have to wait for the next release.)

Unlike Microsoft—which developed Carbonized versions of its Office applications only for OS X, to take maximum advantage of the operating system's new capabilities (see "Office Remodeling," December 2001)—Adobe has taken a more conservative

continues

Taking Advantage of TRANSPARENCY

Without a doubt, the most striking new feature in InDesign 2 is its ability to make objects partially transparent so you can see what's beneath them. At first glance, transparency might seem to be useful only for special effects, but you'll find yourself using it more than you expect. For instance, the ability to recognize the transparency in imported Photoshop files means that you may not need to build clipping paths anymore—and that will save you a lot of time. Here are some of the ways that you can control object transparency.

Transparency Palette

Using InDesign 2's Transparency palette, you can set the opacity percentage of any item or group on your page—whether it's an imported image, a text frame, a colored box, or even an entire table. (However, transparency is an object-level attribute, so you can't change the opacity of a single word in a paragraph.) You can also choose a blending mode, such as Multiply, Screen, Overlay, and so on—each has a different way of combining the foreground and background colors.

Image Transparency

InDesign 2 uses the same imaging technology as Photoshop, Illustrator, and Acrobat, so it understands the transparency settings in those file formats. This means that you can set the opacity of an object in your Photoshop document (top) and import the file into InDesign—without a clipping path. In this example, InDesign displays a Photoshop layer mask, including the partial transparency in the lenses (bottom).

Drop Shadows and Feathering

Making drop shadows in a page-layout program doesn't get easier than this: select the item and choose Drop Shadow from InDesign's Object menu (or press ⌘-option-M). Here you can specify the blur radius, shadow color, and shadow position. I recommend the Multiply blending mode for the best-looking shadows. These shadows can overlap any other InDesign element. Similarly, you can use InDesign to feather the edges of objects, such as the background in our example (a TIFF file). To do so, simply select Feather from the Object menu.

It's Simple Math

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approach to OS X. Although the program is fully native, InDesign 2's feature set does not change from one platform or operating system to the next. Adobe says that it wanted the program to be the same across platforms. But this doesn't mean that OS X won't make a difference. Because it's native, InDesign users who have upgraded to OS X can benefit from many of the operating system's inherent advantages, such as improved memory management.

Fine-tuning

In addition to big changes, there are dozens of small tweaks and fixes in InDesign 2. Here's a rundown of some of my favorites.

Expanded OpenType Support OpenType fonts let applications adjust individual characters in *smart* ways—for example, by replacing them with swashes (fancy versions of a letter) or with ligatures for character pairs like *ct* and *ffi*. They can also replace fake fractions with true fractions when they're available in a font. But while InDesign 1.5 supported only a few of these features (such as the basic *fi* and *fl* ligatures), InDesign 2 is the only major page-layout program to take advantage of all these and more. InDesign 2 will ship with three OpenType fonts—Adobe Garamond Pro, Adobe Caslon Pro, and Caflisch Script Pro—as well as two OpenType Japanese fonts. (For more on OpenType fonts, go to www.macworld.com/2001/08/20/adobe_opentype.html.)

Preview Mode To see how a page will look when it's printed, click on the Preview button at the bottom of the Tool palette: all guides disappear. Also, anything that bleeds off the edge of a page is cropped (temporarily) to the page's edge.

Scalable Vector Graphics InDesign 2 can export objects or whole pages in the Scalable Vector Graphics (SVG) file format. Like Flash (SWF), SVG is a vector-based file format that, with the help of a plug-in, can be viewed in a Web browser. However, SVG is written in XML, so it's actually more versatile than Flash. For instance, you could store SVG files in an XML-aware database and later perform highly specific searches for, say, every story that had been written in the past year and printed in a rectangular text frame with a background color of cyan.

Live Screen Updating InDesign 2 can display the cropped portion of a picture as a ghosted image, giving you a better idea of how the cropped image will look. To activate this feature, hold down the mouse button for about a second before dragging a frame handle. Similarly, if you hold it down for a moment before dragging an image to a new spot, you will see the entire graphic move (instead of seeing only a gray outline), giving you more control over its placement on the page.

InDesign will have the distinction of being the first major desktop publishing program to be Carbonized.

Suppress Printout QuarkXPress has long had a Suppress Printout feature, but earlier versions of InDesign didn't let you make nonprinting objects—that is, objects that appear on screen but don't print. Fortunately, this problem is now fixed.

Power Formatting You can now change the formatting for *all* text in a text frame when you select it with the Selection tool instead of the Type tool. This is great for when you want to change the font of several headlines (each in its own box) at the same time. However, it's potentially dangerous because you can unintentionally wipe out local formatting in a text frame if you're not paying attention.

Enhanced Language Support With InDesign 2, you can open files from the Japanese version of InDesign, and vice versa. InDesign even ships with Japanese OpenType fonts, so if you know what you're looking for and you need only a few characters in a foreign alphabet, you can include these characters in your English-language file using the new Insert Glyph palette.

WebDAV Servers If you're part of a workgroup and your files are on a server, you know how difficult it can be to manage those files. Tracking versions can be a mind-boggling task. In these cases, the WebDAV server technology can help. It lets you check out, work on, and then check back in files, even if your WebDAV server isn't located on the local network (both Adobe Studio and Apple's iDisk are WebDAV servers). WebDAV isn't as powerful as some large-scale—and expensive—systems, but it's usually good enough for most people who share files, and InDesign 2 now supports it.

What's Missing

Of course, InDesign 2 does not meet every page-layout need. For instance, it still has no way to let you specify multi-ink colors (mixes of two or more spot colors), create custom dashes and stripes, or merge Bézier shapes (as the Union and Intersection features in QuarkXPress can).

InDesign also has an overwhelming number of palettes, which can

Top Gotchas for QUARKXPRESS USERS

All QuarkXPress users who try Adobe InDesign will surely have the same initial reaction: "Hey, that's not the way XPress does it!" But keep in mind that being *different* is not necessarily a bad thing. Here's a list of several differences that XPress users should watch out for when they're using InDesign for the first time.

❶ Converting QuarkXPress Files Don't listen to anyone who insists that InDesign can open QuarkXPress documents flawlessly. You'll almost always see text reflow, and a few XPress features (such as custom dashes) just don't translate to InDesign. While InDesign *can* open any XPress 4 documents, you're better off converting only XPress *templates*, not finished files.

❷ Missing Measurements Palette Strangely, InDesign has no equivalent to the Measurements palette in QuarkXPress or the Control palette in PageMaker. Instead, control in InDesign is spread across the Transform, Character, and Paragraph palettes. Similarly, there is no Modify dialog box, as in XPress, where you can alter a number of object attributes in a single place.

❸ Content versus Direct Select One of the hardest changes to get used to is the lack of features like XPress's Item and Content tools. Instead, InDesign offers the Selection and the Direct Select tools. These actually let users do more (such as select objects nested inside objects that are nested inside other objects), but they take some getting used to.

❹ Generic Frames Many XPress users mistake InDesign's Rectangle and Rectangle Frame tools for XPress's Text and Picture Box tools. But both of these InDesign tools create generic frames in which you can place text *or* pictures. The only difference is that the Rectangle tool adds a stroke around the frame.

❺ Place, Not Get Remember that in InDesign it's *optional* to make a frame before importing text or a graphic with the Place command (from the File menu; or press ⌘-D). However, if any frame is already selected when you choose Place, whatever you import will *replace* the contents of that selected frame—even if that means deleting text and replacing it with a picture. This is powerful but dangerous; if you make a mistake, just undo the change to reload the Place cursor.

❻ Selecting Master-Page Items At first glance, it appears that you cannot select any master-page object from the document page, but that's not the case. You can select and edit a master-page item by holding down ⌘-shift while you click on it. However, if you want only to place text or graphics into a master-page frame, you don't have to bother with this—just click on the frame with the Place cursor.

❼ Limited XTensions XPress users are accustomed to the idea of XTensions that do just about anything they could possibly want. But until the InDesign market gets bigger, there's little incentive for developers to write plug-ins for it. There are, however, already more plug-ins out there than you might expect. Check out www.thepowerxchange.com or www.adobe.com/products/plugins/indesign/ to see some of what's available.

cause confusion, especially for new users. Fortunately, Adobe made it easier to find the Hide/Show palette controls in InDesign 2 by putting them all in the Window menu (previously, they were scattered among various menus).

But perhaps the biggest surprise is that InDesign still does not have any sort of story editor for editing blocks of text, a feature that has long been one of PageMaker's great strengths. To make changes to your text, you have to zoom in and scroll around the page—it's not possible to simply open a separate window of galley text.

System Requirements

A beta program can't really be tested for reliability or speed. However, even this beta is noticeably faster than previous versions of InDesign. Nonetheless, InDesign still has very high system requirements, which will put it out of range for some users: the program runs on a Power Mac G3, but it performs at its best on a G4. The program requires OS 9.1 or OS X 10.1. Adobe recommends 128MB of RAM (you need this much just to run Mac OS X). Also, you need a monitor that displays a 1,024-by-768-pixel resolution (so you'll be stuck with tiny, hard-to-read menus on smaller monitors—such as an iMac's—and some people may not be able to run it at all).

InDesign 2's estimated street price is $699; for a limited time, current InDesign customers will be able to upgrade for $99 (after that, the price will likely rise to $149). However, the upgrade will be free for those who bought version 1.5 on or after September 24, 2001.

The Last Word

For a long time, the publishing world has wished for a serious competitor to QuarkXPress—if only because such a program would spur Quark to become more innovative. You couldn't call Adobe's new offering a "Quark killer," but it will probably cause a number of people to switch, especially designers who highly value features such as transparency, refined type handling, and high-quality screen previews.

Keep in mind that this overview is based on beta software—Adobe may change a feature here or there at the last minute. But even its current form clearly demonstrates that InDesign is quickly maturing into a usable program that outperforms QuarkXPress and other page-layout programs in many ways. **m**

Contributing Editor DAVID BLATNER is the author of the forthcoming *Real World QuarkXPress 5* (Peachpit Press, 2002) and a coauthor of the upcoming *Real World InDesign 2* (Peachpit Press, 2002). You can find him at www.moo.com.

Low-Res Editing in Final Cut Pro 2

BY ANTON LINECKER

If you work with hours of digital-video footage—editing documentaries, feature films, or even home movies—you probably find yourself in a constant battle for hard-drive space. Editing at a low resolution would use less memory—until now, though, doing that has required an expensive capture card. But at last we have a less expensive alternative: Using Final Cut Pro 2 and QuickTime 5, you can capture at a low resolution via FireWire.

DV gobbles up about a gigabyte of hard-drive space for every five minutes of footage, but the same footage at a low resolution might use one-tenth as much. And working at a low resolution speeds up the editing process. Rendering a low-res sequence is much faster than rendering in DV. Best of all, the dissolves, titles, and effects you use in your low-res cut will translate seamlessly to your full-resolution final product.

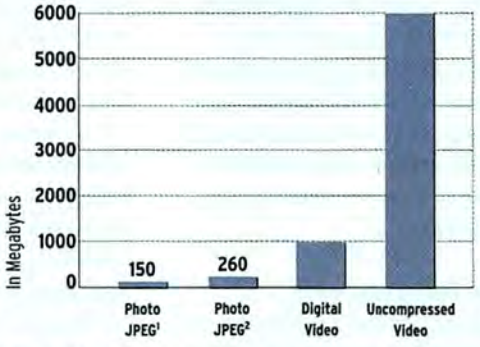
Capturing at a low resolution with Final Cut Pro 2 requires a fast Mac—you'll need at least a 400MHz G4 or 500MHz G3 to compress the incoming video as it's captured. Slower processors simply can't keep up with the demands of capturing low-res video in real time. However, in step 5, we'll show you how a user with a slower Mac can manage low-res editing.

In this article, you'll learn how to capture using Photo-JPEG, a format that efficiently compresses video but retains respectable image quality. Then we'll show you how to set up a low-res sequence, edit that sequence, and finalize your project at a high resolution. **m**

ANTON LINECKER is a video technical advisor and writer. He wrote the how-to article "Designing DVD Menus for DVD Studio Pro" (*Macworld*, July 2001).

To fit the Photo-JPEG (top) in the viewer, Final Cut Pro magnifies it to a great extent. Although the quality is inferior to that of a DV (bottom), it's good enough to assemble an edit and requires only one-tenth the hard-drive space.

Store More with Photo-JPEG



¹Multimedia Small; 60% Quality. ²Multimedia Large; 60% Quality.

When you're long on video content but short on hard-drive space, editing with low-resolution Photo-JPEG can make your work much easier. This chart shows the approximate file sizes of five minutes of footage.

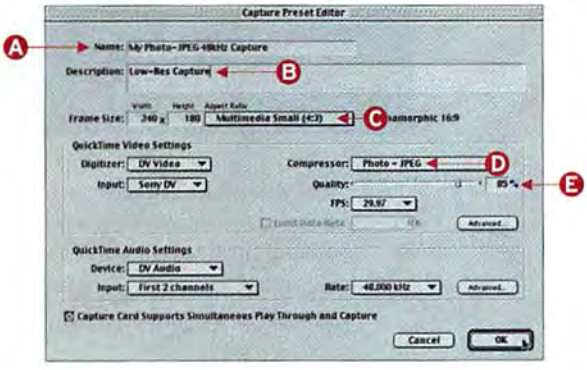
1

Choose a Capture Setting Finding your computer's maximum rate of compression is essential before you start a project. Steps 1, 2, and 3 will help you determine the capture setting that's right for your Mac. Once your low-res capture settings are established, you'll have a new capture preset to load for future projects.

2

Capture a Low-Res Clip Although the way you log and capture video is no different in low-res mode, there are a few things you must do to prepare for capturing your first test clip.

In Final Cut Pro (FCP), open Audio/Video Settings (⌘-option-Q) and go to Capture Presets. Don't use the DV template—it could corrupt your settings. Instead, highlight the Generic Capture Template setting and click on Duplicate. This will open the Capture Preset Editor. Change the preset name to something like My Photo-JPEG 48kHz Capture Ⓐ and write a new description, such as our example's Low-Res Capture Ⓑ.



If you have a 400MHz G4 or 500MHz G3, change the aspect ratio to Multimedia Small (4:3) Ⓒ. If you have a dual-processor G4 or a single-processor G4 that's 500MHz or higher, you can make the jump to Multimedia Large (4:3).

Picking an efficient compressor is probably the most important part of this entire process. Keep DV Video selected as your digitizer, but choose Photo-JPEG as the compressor Ⓓ. Select a quality setting Ⓔ; a good starting point is 85 percent. For example, both an iBook G3/500 and Power Mac G4/400 seem to top out at Multimedia Small, 60 percent quality, while the Power Mac G4/867 can reach Multimedia Large at 80 percent.

Leave your audio-rate setting at 48kHz. Click on OK, and your capture presets will be saved. Go to the Summary page of Audio/Video Settings. Set External Video to None.

Until you find your ideal data rate, you *will* drop frames of video in your capture. First and foremost, turn off the Abort Capture On Dropped Frames option in Final Cut General Preferences (option-Q).

Open the Log And Capture window (File: Log And Capture). Set the in and out points for a minute-long clip. Choose a portion of video that will challenge the compressor (for example, a clip with fast movement and frequent scene cuts). Give the clip a name, such as our example's Low-Res Test.

Click on the Capture Settings tab Ⓐ and make sure your Capture/Input setting reads My Photo-JPEG 48kHz Capture Ⓑ.

Click on the Log Clip button Ⓒ. Your Low-Res Test clip will appear in the browser as an offline clip. Highlight it and then click on the Batch button Ⓓ. Follow the prompts until FCP starts digitizing.

NOTE: As of this writing, FCP does not properly calculate the amount of free AV time when using a compressor other than DV. This could be a problem when digitizing long clips, because FCP might stop the process, displaying an error message that says you don't have enough hard-drive space for the capture. A workaround is to capture your video in chunks (rather than in one batch).

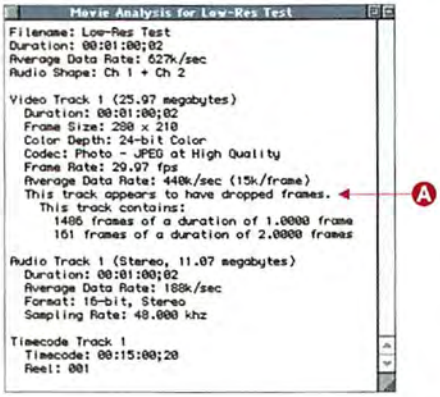
continues

3

Find Your Maximum Quality Setting Now that you've captured your low-res test clip, it's time to fine-tune your capture settings. In this step, you'll analyze your clip for dropped frames to find out if you can increase the quality level or if you should pull back a little.

Double-click on the Low-Res Test clip in the browser, load it into the Viewer window, and open the Analyze Movie tool (Tools: Analyze Movie: Clip).

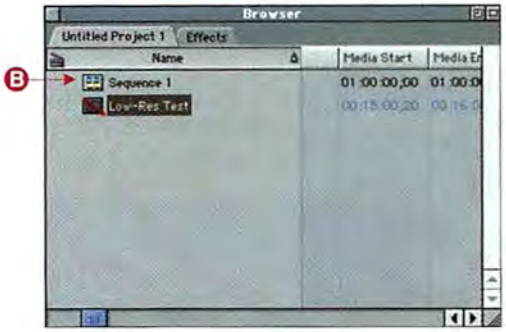
A report about the digitized clip will appear. Under "Video Track 1" may be a line that reads, "This track appears to have dropped frames" Ⓐ. Beneath the dropped-frames warning, the damage is outlined.



If you've been using Final Cut Pro for a while, you have undoubtedly encountered dropped frames before. In final edits, dropped frames are deadly. For most low-res offline cuts, an occasional dropped frame isn't the end of the world, but you should still try to avoid them.

If you have multiple dropped frames, your quality setting is too high. If you have no dropped frames, you can boost the quality by another 10 percent.

To change the quality setting and retry the test, highlight the test clip. Choose the Make Offline tool (shift-D) and the Delete From Disk option. This throws away the actual video media of Low-Res Test but keeps all the logging information intact. Notice that the test clip remains in the browser but now has a red stripe indicating that it is offline, with no link to any media Ⓑ.



Open Audio/Video Settings again (⌘-option-Q) and go to Capture Presets. Highlight My Photo-JPEG Capture, and choose Edit. Change the quality setting as appropriate. In our example, we lowered the quality setting to 60 percent.

Go back to the Log And Capture window. Highlight the clip again and batch digitize. Analyze the new clip, and repeat these steps until you find your ideal setting.

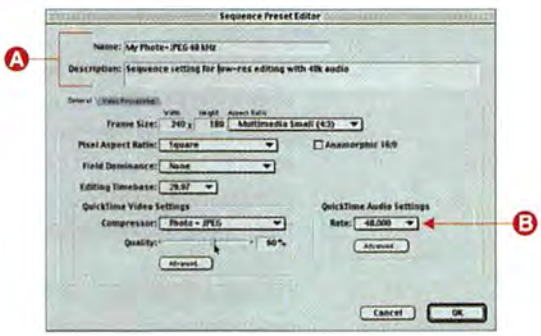
TIP: On some computers, particularly PowerBooks and iBooks, FCP is notorious for dropping a *single* frame at the head of a clip, even when digitizing DV. If you have such a Mac, you will likely get a dropped frame in the low-res capture, too. One workaround for this problem is adding one second to the start of each clip.

4

Setting up the Sequence Once you have your final capture settings, you must change your sequence settings to match the capture settings exactly; otherwise you'll find yourself in a rendering nightmare.

To change the sequence settings, open the Audio/Video Settings window and pick Sequence presets. Duplicate the existing Photo-JPEG NTSC sequence setting.

The Sequence Preset Editor will open. Name the new setting (we called ours My Photo-JPEG 48 kHz) and add a description Ⓐ. For the G4/400 system in our example, we chose the same settings we used in the final capture: Multimedia Small, Photo-JPEG for the compressor, and 60 percent quality. Change your audio rate to 48kHz Ⓑ (unless, of course, you're using 44.1kHz). Click on OK. This setting will correspond to your maximum quality. (If you wish, you can set a sequence with a lower quality setting to save even more hard-drive space. Just remember to match your Capture Settings to your Sequence Settings.)



Choose this new sequence setting whenever you open a low-res project. If you already have a sequence open, go to the current Sequence Settings (Sequence: Settings). Click on Load Preset; the Select Sequence Preset window will pop up. Choose the My Photo-JPEG preset, and you're ready to edit.

Editing in Photo-JPEG is the same as editing in DV. You can do transitions, titles, and even motion moves and compositing.

5

Batch Exporting Low-Res Clips If your computer isn't fast enough to handle the real-time compression required in the previous steps, or if you're not satisfied with the quality you get in real time, this step is for you. Otherwise, you can skip to step 6.

Capturing in DV and batch exporting to Photo-JPEG is a slow process, but there's a distinct upside: you can set the quality level as high as you like—even 100 percent—without dropping any frames.

To start, capture your clips in DV as you usually would. In the browser window, select all the clips you want to export. Choose Batch Export (File: Batch Export).

Your clips will appear in a batch folder within the Export Queue. Select your batch folder Ⓐ and click on the Settings button Ⓑ.

In the Batch Settings window, pick the destination for the low-res clips. Choose Final Cut Pro Movie as the format. Under Settings, choose the sequence preset you created in the previous step (in our example, that would be My Photo-JPEG 48 kHz). Select the Make Self-Contained and Use Item In/Out options, and click on OK. By using the sequence preset for your batch export, you ensure that your clips will match the quality level of your edit sequence. Keeping the in and out points preserves the original capture time code, which will be needed in step 8.

Click on the Export button in the Export Queue. All your clips will be compressed to the setting you specified. Be prepared to wait, since this could take a while.

When the exporting is done, you can delete the original DV clips (to free up space on your hard drive) and import your low-res clips into your session. You're ready to edit.

continues

6

Finalize Your Offline Cut Now that you've finished your low-res cut, you can recapture at full resolution. To do so, you'll need to finalize your cut with the Media Manager tool, which lets you manage your audio and video—often in a way that can condense your project.

Finalize and save your cut. The entire idea of offline editing is that you want to isolate the *sections* of the clips you need and discard everything else, so that you redigitize as little as possible. That's where Media Manager comes in.

Select the most current sequence from the browser. Open Media Manager (Sequence: Media Manager) and select Create Offline Media Referenced By Duplicated Items Ⓐ. This will allow you to keep the low-res version of the final cut for reference. Allow handles of 10 frames (add longer handles if you might want to do alterations later on). Click on OK.

Final Cut Pro will prompt you to enter a destination for the new sequence. Create a new folder, and give the new sequence a name, such as our example's DV Online.

The DV Online sequence sits alone in a new project. There are no accompanying clips.

7

Change Your Sequence Settings Now that you have a copy of your low-res sequence, bring it into a new project and start the transformation that will return it to DV form.

Although the timeline of the newly created sequence seems to resemble the original sequence, there are subtle differences. Subclips have been created of the original clips, establishing new in and out points. You can identify the subclips in the timeline because they are numbered in sequence. For instance, Scuba, Scuba1, and Scuba2 are derived from the original Scuba clip.

At this point, the DV Online sequence still has the Photo-JPEG settings. Open the Sequence settings (⌘-0 [zero]). Choose Load Preset.

This will bring up the Select Sequence Preset window. Pick DV NTSC 48kHz Superwhite. This will change your settings back to a frame size of 720 by 480 and NTSC DV (3:2). The Pixel Aspect should be NTSC – CCIR 601/DV. Field dominance should be Lower (Even).

The media offline screen will shrink in the canvas window as the magnification changes back to that for DV size (Fit To Window). Once the media is redigitized at the proper size, your video will fill the canvas screen.

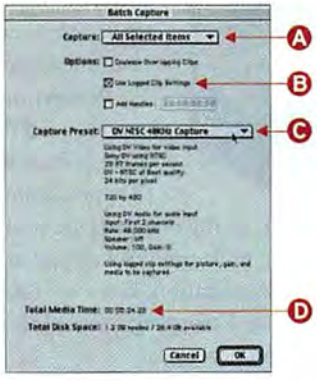
8

Redigitize at Full Resolution We leave the low-res world now—it's time to reassemble your final product at full resolution. Since the Media Manager sub-clipped your media to only the sections you used in the cut, you'll redigitize only what you need.

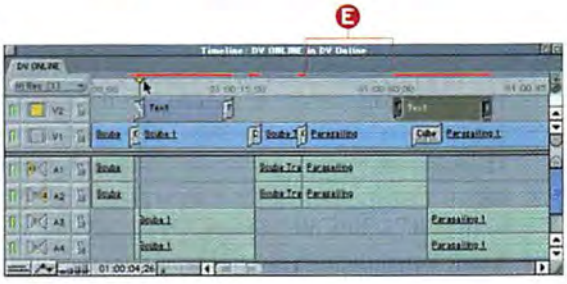
With your sequence set at DV quality again, it's time to recapture the footage you need at that setting. Highlight your DV Online sequence in the Browser. There are no clips in the browser; however, by choosing the sequence, you'll reference all the subclips created by the Media Manager in step 6.

Bring up the Batch Capture tool (⌘-H). Choose All Selected Items from the Capture pop-up menu Ⓐ. Select the Use Logged Clip Settings option Ⓑ. Change the capture preset to DV NTSC 48kHZ Capture Ⓒ.

At the bottom, you'll see how much total media you'll record Ⓓ—a number that's a lot easier to swallow now that FCP is going to redigitize only what you need. Click on OK. FCP will prompt you to insert one by one the reels you used to build your offline version.



Soon all the footage you need will be captured. In your timeline, the red line above the clips will be replaced for the most part by gray lines Ⓔ. Your media is now online.

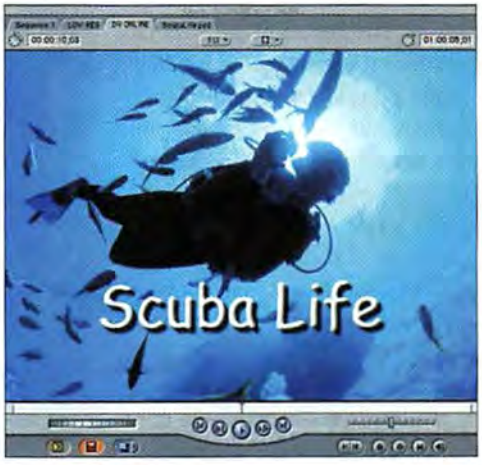


9

Finishing Up All you need to do now is render your titles, effects, and dissolves, and double-check the cut. Most likely, you'll find that your titles, dissolves, video overlays, and effects will pass between resolutions without problems.

Choose Render All (option-R) to render all your effects and titles at once. This may take a while, though, especially if you have many sections to render.

When your render is complete, so is your final product. Play it back and double-check everything, particularly titles. Make any necessary adjustments or last-minute changes. Since you added handles to the clips in step 6, you'll have a little wiggle room to make alterations.



When you view your finished video in the canvas window, the picture may be slightly squashed vertically. Remember to select Show As Square Pixels in the View Options menu to revert to normal (DV uses non-square pixels).

You can now lay your finalized DV project back to tape.

BRUCE FRASER

Print Publishing Secrets

Urban legends: They range from alligators in the sewer to stolen kidneys to the image format that always prints correctly. Well, maybe you don't hear that last one too often, but there *is* a lot of misinformation about when to use TIFF and when to use EPS. And it's an important issue; choosing the wrong format can cause slow printing, color shifts, and blurry output. I'm here to set the record straight.

JAMES STEINBERG

If you save an image in both TIFF and EPS, the resulting files contain exactly the same pixel data. All other things being equal, they should print identically. But when all other things aren't equal, you may get different results. It's not that one format is better than the other; each simply has unique properties that cause downstream processes (such as a page-layout application, a color-management system, or a PostScript RIP) to interpret it differently.

Unless I need to exploit a particular EPS property, I generally use TIFF, a simpler format that usually creates a slightly smaller file. But EPS works better in some workflows. To choose intelligently, you need to understand the differences between the two formats.

Different by Design

TIFF (tagged-image file format) is an open data-interchange format for raster (pixel-based) data. It's been through many revisions, but at heart it's still a format that allows software to modify pixels in various ways.

EPS (encapsulated PostScript) is a sealed box in which to transport vector or raster data. With vector data—documents created using PostScript-based drawing packages such as Adobe Illustrator or Macromedia FreeHand—EPS is the only choice. But you can save raster images (such as those produced in Photoshop) as TIFF or EPS files. The EPS version will contain exactly the same pixels as the TIFF, but with an EPS wrapper that protects those pixels against the meddling of outside forces.

Exploiting the Difference

Page-layout applications, such as the $869 QuarkXPress (800/676-4575, www.quark.com), $699 Adobe InDesign, and $499 Adobe PageMaker (800/833-6687, www.adobe.com), exploit the inherent properties of TIFF and EPS in several significant ways. Some of these affect speed, while others correct on-screen or printed appearance.

Process Jobs Faster When you crop a TIFF image in QuarkXPress, PageMaker, or InDesign, the application can send just the uncropped part of the image to the printer, making for the fastest possible print time. When you crop an EPS file in a page-layout application, however, the application sends the entire file, and cropping takes place in the RIP—both time-consuming processes.

Similarly, if you've prepared your images for a 175-lpi (lines per inch) screen on a sheetfed press, and you want to print laser proofs, page-layout applications can downsample a TIFF at print time to the lower resolution required by the laser printer. With an EPS, these apps send the whole image to the printer, which then discards what it doesn't need.

When you print separations of TIFF-format images, the major page-layout apps send just the data required for the plate currently printing—they send only the cyan channel when printing the cyan plate, only the yellow channel when printing the yellow plate, and so on. And with CMYK EPS files, QuarkXPress 3.3 and later can break down the EPS file and send only the current plate

No More Blurry Screen Shots in PDF Files: EPS Is the Answer

If you've tried to include screen shots in a PDF file, you've probably been dissatisfied with the blurry mess that usually results. But if you use the EPS format—TIFF won't do here—you'll get nearly perfect screen shots that print and display well at almost any resolution.

First, use your tool of choice to capture the screen shot and copy it to the Clipboard. Then create a new Photoshop document. Save the screen shot the in EPS format, and use the following settings in Photoshop's EPS Export dialog box:

Encoding: Binary. Binary-encoded EPS files are much more compact than ASCII and work with the vast majority of RIPs and servers.

Include Halftone Screen: Off.

Include Transfer Function: Off.

PostScript Color Management: On.

Include Vector Data: A screen-shot image has no vector data, so this item is dimmed.

Image Interpolation: On. When this important setting is turned on, it includes a PostScript dictionary key that tells PostScript Level 2, PostScript 3, or Acrobat to perform an almost exact interpolation to the resolution of the output device, whether it's a monitor or a printer.

When you create the PDF, the downsampling setting has no effect (a screen shot is already at 72 pixels per inch), and you can leave compression set to On in InDesign, Illustrator, or Acrobat Distiller.

The illustration below shows two identical screen-shot PDF files, magnified by 800 percent. The TIFF version is on the left, and the EPS version, prepared according to these instructions, is on the right. The TIFF version shows the effect of JPEG compression, while the EPS version is smoothly rendered, even at the high magnification.

data. However, PageMaker and InDesign send the entire CMYK EPS file to the RIP four times, once for each plate, and the RIP has to extract the appropriate channel. Printing CMYK EPS files from these applications takes a lot longer than printing CMYK TIFFs.

EPS does win one speed test. When you place an EPS file in a page-layout application, the image appears in the document much faster than a TIFF file's image would. The difference can be significant: the same 8-by-10-inch, 266-ppi (pixels per inch) image takes about a second to appear in XPress or InDesign when it's saved in EPS. A TIFF file takes about 15 seconds. Multiply that by 50 images, and the wrong format can cost you your coffee break.

Manage Color TIFF files allow color management to adjust for different monitors (providing color-accurate screen display) and to change the data sent to different printers, so color will remain consistent (useful for proofing purposes). With EPS files, you're stuck with the same preview on every monitor. If your monitor is different from the one on which the job was created, the image may look too dark or too light. Usually, the numbers in the document are the same ones sent to the output device, which may produce colors that you didn't intend. One exception is when you use Praxisoft's $399 Compass-ProXT XTension (800/557-7294, www.praxisoft.com), which can color-manage EPS files for printing, but not for on-screen appearance.

Hide Instructions A CMYK image will contain the same pixel data in EPS and TIFF, but EPS files can exploit the PostScript language's properties to carry instructions that TIFFs cannot. For example, while Photoshop can save either a TIFF or an EPS file with explicit halftone screening or with an embedded transfer function, page-layout applications honor these instructions in an EPS file but ignore them in a TIFF.

Screening parameters include the halftone dot shape and the screen frequency and angle. Special screening is typically used for creative effects—dot shapes and screen frequencies can make a striking difference in an image's printed appearance. Transfer functions are tone-reproduction curves that apply to an image only when it's printing; they're real time-savers when you repurpose images separated for a different dot gain—it's much faster to embed a transfer function than it is to change all the pixels in the image. Transfer functions, and therefore the EPS format, are also necessary to reproduce Photoshop duotones.

Choose Wisely

When you understand the differences between TIFF and EPS, you're in a better position to make an intelligent format choice. Service providers and workflow gurus who tell you to always use one format may have their reasons, but it doesn't hurt to ask them why. You may learn something important from the answer, and they may learn from the question. **m**

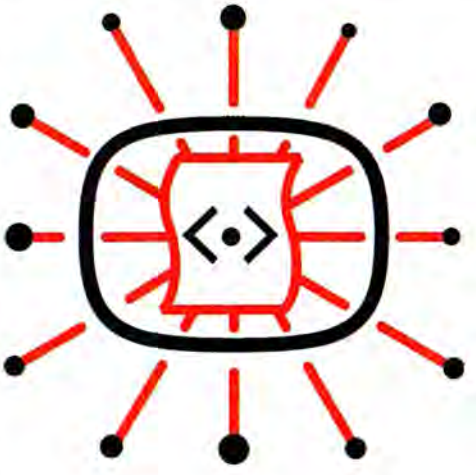
Contributing Editor BRUCE FRASER is a coauthor of *Real World Photoshop 6* (Peachpit Press, 2001). He also laid out each of its 814 pages. The job went smoothly.

LISA SCHMEISER

Web Publishing Secrets

Web designers face a difficult choice. Conforming to standards set by the World Wide Web Consortium is often easier with an HTML-only page. But for large Web sites, it's typically faster to produce your page design with a combination of HTML and scripts, even though this can result in nonstandard code. Fortunately, there's an elegant marriage of quality and convenience: Server Side Includes.

The Basics



The idea behind Server Side Includes (SSIs) is simple: each *include* (short for "included item") is a separate file that another HTML file or template *calls* (or references) by file name. Every time the HTML code calls the included item, the server storing the Web pages inserts the include into the referencing file. The Web surfer sees a single, complete page, not the components that make up the page behind the scenes. But the discrete code files let you separate a page's structure from its unique content, and such separation makes it easy to expand your Web site without having to perform tedious manual updates of individual pages.

Say the navigation bar on your site changes frequently. If the navigation bar is an include, you simply open that one file (we'll call it "navbar.html") and update it, and every page on your site will display the new navigation bar.

The contents of the navbar.html include file might look like this:

```
<table width="100%" border="0">
<tr valign="middle">
<td width="50%" align="left">BACK</td>
<td width="50%" align="right">FORTH</td>
</tr>
</table>
```

Although this include has a *.html* file extension, it's not a complete HTML file; it's a fragment lacking the **html**, **head**, and **body** tags. That's because this include will be within another document that already has those required tags. (Note than an include's file extension must match your server's configuration. For example, I once worked on a Web site where all SSIs had the extension *.htf* to set them apart from standard HTML files.)

The file ("index.html") that calls the include could look like this:

```
<html>
<head>
<title>The Ever Changing Site</title>
</head>
<body>
<!--#include file="navbar.html" -->
</body>
</html>
```

Someone viewing index.html in a browser sees a complete HTML document—including the current version of the navigation bar.

Putting the Pages Together Again

You can put SSIs to work for you in many ways. The easiest is to convert the individual components of a template (navigation, site ID, content, page color, and so on) into separate includes and then combine the includes to make up individual pages.

The following sample page is only 12 lines of code—and not one of those lines deals with page layout or content. Instead, each part of the page is called from a separate include and assembled before the server pushes it live.

```
<html>
<head>
<title>Includes Are Us, Inc.</title>
</head>
<body>
```

JOHN HERSEY

```
<!--#include file="navbar.html" -->
<!--#include file="siteid.html" -->
<!--#include file="content-0421.html" -->
</body>
</html>
```

Includes within Includes You can also nest an include inside another one. If you had, for example, copyright information at the bottom of the navigation bar in our previous example, you might want to make it a separate include so you could update it independently of the navigation information.

The result is like a cascading chain: every page on the site with the code `<!--#include file="navbar.html" -->` calls the navigation-bar include, which contains the line `<!--#include file="copyright.html" -->`, calling the copyright include.

Other Includes SSIs aren't limited to building pages from files. You can also add information that your server tracks. Perhaps you want to display a link to the page that a Web surfer visited immediately before coming to yours. To load the URL of that Web site on-the-fly, just write an include using code like the following:

```
<a href="<!--#echo var="HTTP_REFERER" -->">Go back where you came from.</a>
```

(Although REFERER looks like a misspelled word, it is correct in this context.) If visitors come to your page from a link in an e-mail message, or if they enter the page's URL directly, the displayed value for HTTP_REFERER is "none."

Another server variable lets you add the current date to a page. If you want the local date displayed, your include would look like this:

```
<!--#echo var="DATE_LOCAL" -->
```

You can also display the size of a file—handy for letting visitors know what they're in for before they start downloading a file—with the following:

```
<!--#fsize file="download.hqx" -->
```

See "Time for a Change" for tips on date, time, and file-size formatting options. For a list of other server variables and SSI functions, visit www.livezone.com/supportzone/serverincludes.html.

Haste Makes Waste

Before you rush to begin designing and implementing pages based on SSIs, make sure that a few things are in place.

Your Server Supports SSIs Several Web servers permit SSIs for Web-page assembly. One of the most popular is Apache Web server. (For more information about Apache, see *Mac OS X Secrets*, August 2001.) If you aren't running your own server, ask whether the host server allows SSIs.

You Can Test Live Pages Because this site-building technique requires a server, you need a staging area to preview and tweak your site before pushing it live. If you run Mac OS X, you can preview sites with includes locally. In OS 9 and earlier, you can use Personal Web Sharing for the local preview. Of course, if you have your own server, you can create a separate staging area on it.

Time for a Change

When you use SSI to include files that you've designed, they look exactly as you intend. But included dates and file sizes are formatted by the server. When you want them to appear in a certain way, you've got to let the software know.

Date and Time Formatting You can change the way that times and dates appear with the SSI command `<!--#config timefmt="X" -->`, with *X* replaced by a combination of these code options.

Code Options	Sample Display in Browser
%H	hour (24-hour clock)
%T	military time
%I	hour (12-hour clock)
%r	civilian time
%M	minute
%S	second
%P	a.m. or p.m.
%m	month as a number
%B	month as a name
%d	day of the month
%y	year without a century
%Y	year with a century
%A	name of the day of the week

For example, the following code will produce something like "Today is Wednesday, January 02, 2002."

```
<!--#config timefmt="%A, %B %d, %Y" -->
Today is <!--#echo var="DATE_LOCAL" -->.
```

File-Size Formatting You can also change the format of the displayed file-size information, choosing either bytes or an abbreviation showing kilobytes. Before any file-size SSIs, use the following command to change the format to the number of bytes in the referenced file:

```
<!--#config sizefmt="bytes" -->
```

To display the file size in kilobytes, change **bytes** to **abbrev**. The following code will appear in your page as "Download (345k)":

```
<!--#config sizefmt="abbrev" -->
<a href="download.hqx">Download</a> (<!--#fsize file="download.hqx" -->)
```

With these codes, you can give date and file-size SSIs the look you want.– GREG KNAUSS

Good for Web Sites Great and Small

SSI provides a flexible framework that lets you control the smallest elements in your page and manage the contents and appearance of your site on a grand scale. It's truly an elegant solution to one of Web design's most vexing problems. **m**

LISA SCHMEISER is Macworld.com's executive editor. She's also Apache Web server's number-one fan.

STEPHAN SOMOGYI

Mac OS X Secrets

Networking has been a Mac specialty since the very beginning. The first Mac had built-in networking and its own set of networking protocols. Thanks to Mac OS X 10.1, the Mac is now more network-savvy than ever—though some of its networking features aren't very intuitive. Here's how you can take advantage of the new networking features you'll find in version 10.1.

AFP: Native Mac Language

The Mac's native file-sharing protocol is AppleTalk Filing Protocol, or AFP. Initially, it worked via AppleTalk, but as TCP/IP networking became more popular, Apple retrofitted AFP to run over TCP/IP networks as well. Previous versions of OS X supported only AFP over TCP/IP, but version 10.1 lets you talk to AppleShare servers over AppleTalk again—great news for workgroups who still rely on AppleTalk-only services in their networks.

There's no Chooser in OS X, so to mount a server, you need to select Connect To Server from the Finder's Go menu (⌘-K). You can use the resulting browser window to find your server: for a list of the AppleTalk zones on your network, as well as any Macs providing AppleTalk-based file sharing, click on the AppleTalk icon.

And if you're connecting to an IP-based AFP server, you can bypass browsing: just enter the server's address—as a URL—in the Connect To Server window's Address field.

You've undoubtedly seen URLs that begin with **http://**, which is used for Web sites, or **ftp://**, which is used for FTP sites, but URLs can also refer to network file servers. To connect to an AFP server over TCP/IP, you would enter a URL that looked something like this, for example: **afp://server.domain.com**. You can even embed user names and passwords within a URL, as in **afp://username:password@server.domain.com**, although doing so will expose your user name and password to anyone who happens to see that URL.

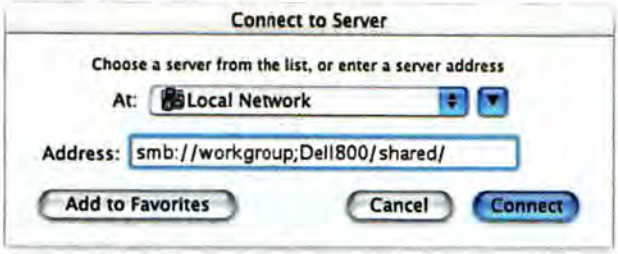
SMB/CIFS: The Windows Tongue

Now that Mac OS X 10.1 has arrived, Mac users have the built-in ability to connect to Windows servers that use the PC equivalent of AFP: the SMB/CIFS (Server Message Block/Common Internet File System) protocol. Previously, Mac users could connect to such servers only with the help of software add-ons such as Thursby Software's Dave ($149; 817/478-5070, www.thursby.com) or Objective Development's Sharity (pricing varies based on type of license; www.obdev.at).

Unfortunately, connecting to SMB/CIFS servers with version 10.1 isn't as easy as connecting to AFP servers. The Connect To Server window in OS X 10.1 will not let you browse for SMB/CIFS servers, so you have to know the exact network coordinates of the one you want. (In contrast, both Dave and Sharity let you browse for an SMB/CIFS server—a much more Mac-like approach.)

If you want to connect to an SMB/CIFS server via OS X 10.1's built-in networking features, you must use the right URL format. An SMB/CIFS URL that's acceptable in the Connect To Server window's Address field would look something like this: **smb://workgroup;server/share**, with **workgroup** replaced by the name of the appropriate Windows workgroup (if you're in a small network environment without its own Windows domain controller, the name is probably **workgroup**); **server**, the name of the server; and **share**, the name of the volume (also known as the sharepoint) on the server. For example, we typed

JOHN RITTER



Hello, Windows, My Old Friend You can connect to Windows servers from Mac OS X 10.1 without using software add-ons—but you'll need to type a strange-looking URL to do it.

smb://workgroup;Dell800/shared/ to connect to a server named "Dell800" and mount a volume called "shared" (see "Hello, Windows, My Old Friend").

Once you type the URL in the Address field and click on Connect, you will be asked to enter your user name and password. Once you do that, the SMB/CIFS volume will appear on your desktop, just like any other mounted network volume. (Another drawback of using Mac OS X 10.1's built-in networking method is that, unlike Dave and Sharity, it can mount only one SMB/CIFS volume at a time.)

Once you've successfully mounted an SMB server volume, you don't have to type its URL again. Instead, you can click on the At pop-up menu at the top of the Connect To Server window and pick the URL from the menu's Recent Servers section. You can also save these URLs by clicking on Add To Favorites.

NFS: Language of the Ancients

NFS—short for Network File System—is the great-granddaddy of networked file sharing. NFS runs over TCP/IP, and it's widely used anywhere groups of Unix boxes congregate on the same network. Mac OS X 10.1 has built-in NFS support, but it's only rudimentary.

Unlike SMB sharepoints, NFS sharepoints won't automatically appear on your desktop as server volumes; if you really want to use NFS, you'll have to become familiar with using **mount_nfs** (among other commands) in Terminal. Marcel Bresink's $15 NFSManager (www.bresink.de/osx/NFSManager.html) puts a friendlier face on NFS in Mac OS X—but it's still not completely amiable. For example, NFSManager requires you to enable the root user, a bad idea from a network-security perspective (see *Mac OS X Secrets,* October 2001, for more on root access). As a result, only those with an acute need will find Mac OS X's NFS support of interest.

WebDAV: A New Lingo

Another important addition to Mac OS X in version 10.1 is WebDAV, short for Web-based Distributed Authoring and Versioning (visit www.webdav.org for information and resources). WebDAV was originally designed to make it easier for Web developers to update Web site files, and it provides versioning services, which can make it easier for multiple individuals working on one Web site to collaborate.

In OS X 10.1, Apple uses WebDAV for one of its major services: iDisk. In OS X 10.0 and OS 9, every time you connected to your iDisk, you were connecting via AFP over TCP/IP. But AFP is a so-called connection-oriented protocol, and it works much like a telephone call: you dial the number, the connection is made, and the call lasts until you hang up, even if neither side says anything.

In contrast, WebDAV uses HTTP (Hypertext Transfer Protocol), which is the same connectionless protocol used by Web browsers and Web servers. A client sends a query that's answered by a server, and that's the end of the transaction. When you connect to iDisk in Mac OS X 10.1, you can keep your iDisk mounted continuously, but you'll communicate with Apple's server only when you're using iDisk.

You can easily connect to your iDisk via WebDAV—just go to the Finder and select iDisk from the Go menu. For other WebDAV servers, you'll need to use the Connect To Server window and enter an **http://** URL in the Address field. For example: **http://user:password@server.domain.com/**.

There are some security issues with version 10.1's WebDAV, though. Contrary to the official WebDAV specification, OS X 10.1 sends your user name and password without scrambling this data in any way when connecting via WebDAV. (Apple says it's working on a fix.)

Also, WebDAV connections can feel a lot less responsive than AFP connections—as many people who have used iDisk in both OS X 10.0.4 and 10.1 can attest. However, you can still connect to iDisk using AFP rather than WebDAV: just enter **afp://idisk.mac.com/** in the Address field of the Connect To Server window, and then enter your iTools user name and password when prompted. AFP, unlike OS X 10.1's WebDAV, will encrypt your password so it's protected as it travels over the Internet.

The Multilingual Mac

Mac OS X 10.1 is the most network-friendly operating system Apple has ever released. While it still has some imperfections, such as an inability to browse for SMB servers and a lack of security for WebDAV user names and passwords, its new connectivity features are a clear sign that Apple intends Mac OS X to be a good citizen both in highly networked corporate environments and in simpler, friendlier networking situations. **m**

Contributing Editor STEPHAN SOMOGYI has been writing about networking and cross-platform issues since Enhanced LocalTalk was all the rage.

More Info: www.macwindows.com

John Rizzo's MacWindows Web site is a great resource for Mac users seeking the latest news about connectivity with the PC parts of the computing world.

LINK

CHRISTOPHER BREEN

Mac 911

We all need to recover from time to time, whether from a long workweek, a night of hearty celebration, or a bout of the Peruvian llama flu. With this in mind, I look at ways to recover an erased hard drive, a lost password, and an overly dark digital-video scene. In addition, I examine methods for magnifying AppleWorks documents as well as for addressing e-mail messages more efficiently.

Bring It Back Alive

Q. I accidentally erased the entire contents of my iMac's hard disk. I've installed no new software since then. Is there any way I can restore my data?

"SEB_SIKORA"
Macworld.com forums

A. Unless you're willing to fork over a big chunk of change—$700 on average—to a data recovery service such as DriveSavers (800/440-1904, www.drivesavers.com), the answer is "Yes, you can recover some data, but not all of it."

When you trash files or initialize a volume, the data on your hard drive doesn't disappear: the Mac removes the directory listing for those files and gives the go-ahead for new data to be written in their place. Given this information, you might assume that recovering trashed data is a simple matter of directing a utility to scavenge the drive for any extant files and place their names back in the directory. You might also assume that, equipped with wings and the proper motivation, pigs can fly. I regret to report that today's file-recovery tools and pigs with wings have this in common: while takeoff looks promising, landing can be rough.

Two tools claim to help with file recovery—Micromat's $98 TechTool Pro 3 (800/829-6227, www.micromat.com) and Symantec's $100 Norton Utilities for Macintosh (408/517-8000, www.symantec.com)—but, in my tests, neither brought all my files back from the dead.

To test each software utility's effectiveness, I trashed all 9,000-plus items on a 500MB hard drive, emptied the Trash, and attempted to resurrect the files. TechTool's Data Recovery component was able to bring back only a few files—even after I chose the Scavenge option. Norton's UnErase component was more effective. After I clicked on the Customized Search button, asked UnErase to search for real as well as erased files, and selected the option for both a Catalog and a File search, the utility turned up 1,396 files. Regrettably, many of those files' original names were replaced with more generic tags—"MS Word 5.x #1503" rather than "Stern Letter to the Times," for example. Thankfully, UnErase allows you to preview the contents of files prior to recovering them—thereby saving you the trouble of resuscitating that snippy letter from your sister that you'd rather forget. After reformatting the hard drive and restoring the original files from a backup, I initialized the drive and tested the utilities again. Results were similar: TechTool Pro was able to recover only a couple of files, and Norton revived about 1,400 items.

I hate to rub it in, Seb, but you'd have had better luck if you'd installed TechTool Pro or Norton *before* this unfortunate accident. In my tests, both utilities performed far better when installed before the damage occurred, with their file-protection features enabled.

Open Sesame

Q. I don't remember my user password for Mac OS X. How can I get back in?

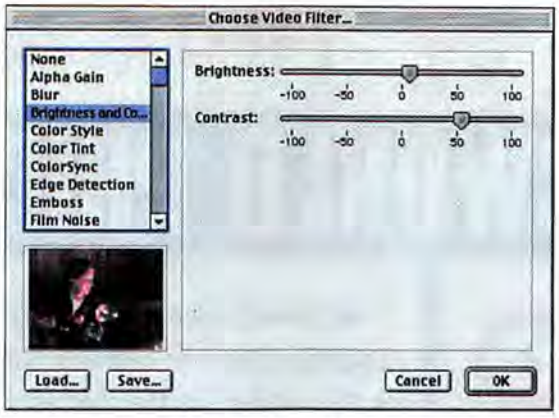
SCOTT LAUDER
Vancouver, British Columbia, Canada

FELIX SOCKWELL

A. Well, Scott, try booting your Mac from the OS X install CD and, once the Installer application is up and running, select Reset Password from the Installer menu. In the resulting window, select your OS X volume and choose your user name from the pop-up menu. Enter and confirm a new password, click on Save, and log in with that new password.

Notice that in this window you can also create a password for the system administrator (root user). Warning: If you don't know what you're doing (you know who you are), don't log in as root. Doing so gives you the chance to perform countless helpful or destructive actions. Delete, move, or inappropriately alter the wrong file, and your Mac could become inoperable—at least until you reinstall OS X.

And here's a nifty tip for those with Administrator privileges who want to change their passwords but can't get to the Users system preference (if you can't log on for other reasons, for example): Launch the Terminal application and type **sudo passwd *username***, replacing ***username*** with your, well, user name. You'll see a warning to respect the privacy of others and to think before you type. After taking this advice to heart, type your old password at the prompt. When further prompted, enter a new password of at least five characters and confirm it.



Finely Filtered The filters in Apple's QuickTime Pro provide you with myriad methods of modifying your movies.

AppleWorks Amplified

Q. I prefer working with my AppleWorks word processing documents at a page-view size of 150 percent. Is there a way to set this as the default?

RON MOSKOVITZ
Los Angeles, California

A. Indeed there is. As you've noticed, clicking on AppleWorks' Zoom-In control or selecting a new magnification from the Zoom percentage box does you no good whatsoever once you quit the program. When you relaunch AppleWorks, magnification returns to 100 percent.

The trick is to create a new word processing document, change the magnification to 150 percent, and save that document as a template. To do so, select Save As from the File menu, select the Template option, give the template a descriptive name (such as "Big Type Template"), and click on Save. For easier access, place that template file on your desktop, in the Apple menu, or in OS X's Dock.

Now when you want to create a new word processing document, launch your Big Type Template document and AppleWorks will open to a blank document magnified to 150 percent.

Tip of the Month

If you use the popular search engine Google but find it a little slow, try the **abbreviated Google search engine** found at www.google.com/ie. It's small and fast. In Internet Explorer and Netscape, page descriptions for the search results appear in the Tool Tip texts that pop up when the cursor rolls over the link. So if you have a slow connection, you can now use Google faster.

DAN CIPOLLA
Jenkintown, Pennsylvania

Bright Ideas

Q. My family recently had a reunion, and I used my DV camcorder to shoot some footage of my relations gathered around the campfire. I thought the fire would cast enough light, but the video came out very dark. Is there anything I can do to salvage these scenes?

DAN DENNEY
Nashville, Tennessee

A. While there's no substitute for proper lighting during the shoot, there may be ways to "fix it in the mix," depending on just how dark your video is. Salvaging such dusky scenes requires the use of filters, which can be found in your video-editing software and in QuickTime Pro.

Modern video-editing applications such as Apple's iMovie, Macromedia Final Cut Pro, and Adobe Premiere include filters that allow you to, among other things, adjust the brightness, contrast, and color values of your video. These filters aren't miracle workers—video shot without adequate light will be grainy regardless of how many filters you apply to it. They can, however, clean things up sufficiently that you can distinguish Cousin Muffy from Uncle Mort. I mention brightness, contrast, and color because you'll likely want to adjust all three. If you boost only a scene's brightness, you'll gain some clarity but the colors will look pale. By also adjusting contrast, you can bring out more detail. And because a lot of color is lost when shooting at night, boosting certain hues—red, for example—can make your subjects look less washed-out.

In iMovie you'll find these filters by clicking on the Effects button. Brightness and contrast can be adjusted in

continues

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a single pane and previewed both in the Monitor window and in the small Preview window within the Effect pane. You can also adjust the hue, color, and lightness of your video by selecting the Adjust Color effect.

Final Cut Pro users can access these filters through the Effects tab in the Browser window (you'll find the Brightness and Contrast and Color Balance filters in the Image Control folder). To add a filter, drag it from the Effects pane to the clip in the Timeline window. To adjust the filter, click on the Filters pane of the Viewer window and drag the adjustment sliders. You can preview your adjustments in the Canvas window.

In Premiere, make sure that the Video Effects window is open (Window: Show Video Effects) and drag the filter you want to the clip in the Timeline window. (The Brightness & Contrast and Color Balance filters can be found in the Adjust folder within the Video Effects window.) A Settings window will appear, where you can adjust the filter.

If you're using a video-editing application that doesn't offer filters, you can still work with filters in QuickTime Pro. To do so, open your clip in QuickTime Player, navigate to a representative frame using the Current Position marker, and select the Export command from the File menu. In the Export pop-up menu, select Movie To QuickTime Movie and then click on the Options button. In the resulting Movie Settings window, first click on the Filter button and then select the filter you want to adjust—for example, Brightness and Contrast or Color Tint (see "Finely Filtered"). After making your adjustments, export the movie. You're all done.

By the Address Book

Q. When I'm using Microsoft Outlook Express, is there some way that I can add a recipient to an e-mail message without first having to type in a letter or two of the person's name?

"DPL"
Macworld.com forums

A. The Address AutoComplete option—which looks up names of recipients in your Address Book as you type them in the To, Cc, and Bcc fields—is meant to be a convenience rather than a requirement. As you've discovered, sometimes this method isn't terribly convenient—particularly when your intention is to add a number of recipients.

In such cases, you're better off using the Address Book. To access the Address Book, select Address Book from the Windows menu (⌘-2) or control-click in the top portion of a message window and select Address Book from the resulting pop-up menu.

Once the Address Book is open, you have a number of options for creating messages. For instance, you can select a single name and click on the New Message To button, creating a new message addressed to this recipient. You can also shift-click or ⌘-click to select several recipients, click on the New Message To button, and produce a message addressed to every recipient you selected. Or you can again select several recipients and click on the New Group button to turn that bunch of recipients into a single group—your chat room pals, for example, or the 185 members of the high-school marching band.

Groups are convenient for a couple of reasons, the most obvious being that they allow you to easily send a message to a chunk of humanity that you're in routine contact with. But it also beats the pants off the select-a-load-of-recipients-and-hit-New-Message-To option because it lets you hide the list of recipients from those who receive the message. This is wonderfully convenient when you don't want to let on that you've failed to invite Uncle Mort to the next gathering of the clan. It's also the polite thing to do—some recipients might not want their e-mail address broadcast to every Tom, Dick, and Mary you're messaging.

To ensure that recipients are hidden, just select the Don't Show Addresses When Sending To Group option in the Group window. **m**

Unsolicited Advice

If you've had occasion to reinstall Mac OS—either Mac OS 9.2 and earlier or Mac OS X—you've undoubtedly run up against the registration screen that asks for your name, address, e-mail address, and so forth. You don't want to rankle Apple by sending this information time and again, yet the setup assistant won't allow you to proceed without entering this personal information. What do you do?

Quit, that's what. Just press ⌘-Q and, if you're running Mac OS 9.2 or an earlier version, the assistant quits with a reminder to register your software at a later date. The OS X assistant is more accommodating, flinging forth a dialog box with a Skip option that allows you to bypass the personal interrogation and get on with the setup.

Contributing Editor CHRISTOPHER BREEN is proud to announce the imminent birth of his very own *Mac 911* (Peachpit Press, 2002), a Macintosh tips and troubleshooting guide for the rest of us.

Share tips and discuss Mac problems with other Mac users in the Mac 911 forum (www.macworld.com/subject/mac911). Also send tips and questions by e-mail to mac911@macworld.com. *Macworld* pays $50 for tips selected for publication in *Macworld*. All published submissions become the sole property of *Macworld*.

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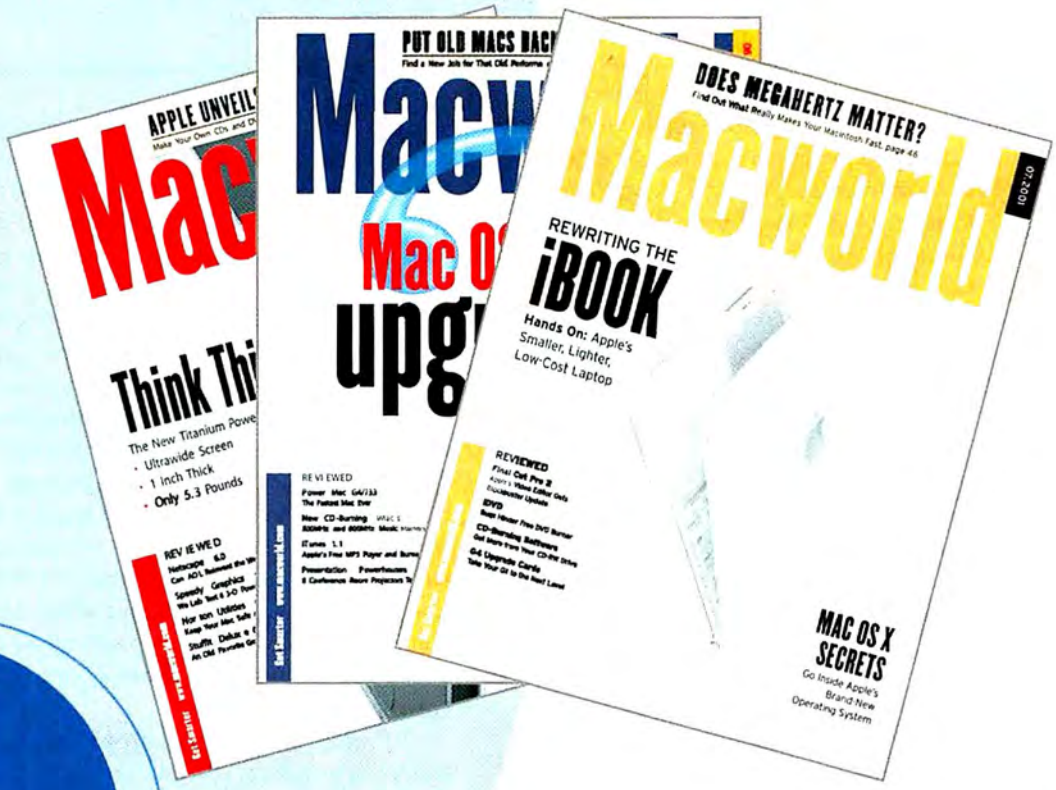

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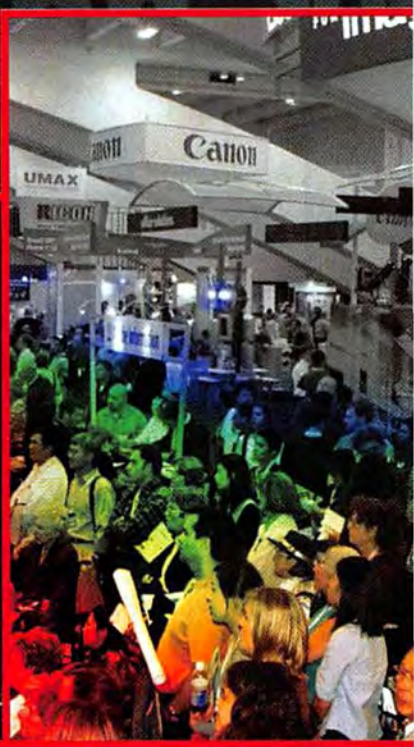

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Thurs., 5/30	Skagway	7am	8pm	—
Frl., 5/31	Scenic Glacier Bay Cruising	—	—	1:30 – 5pm; 6pm – 7pm
Sat., 6/1	Ketchikan	10am	6pm	6pm – 8pm
Sun., 6/2	Cruising the Inside Passage	—	—	8:30 – noon & 1:30 – 5pm; 6pm – 7pm
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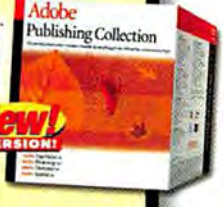

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PowerBook Series Order	MHz	RAM	FREE RAM	TOTAL RAM	Hard Drive	DVD Drive	AirPort Card	56K Modem	USB/FireWire Ports	iMovie 2	iTunes	Price!	or as low as
#964800	550	128MB	128MB	256MB	20GB	Yes	No	56K	Two/One	Yes	Yes	$2,194	$62/mo**
#964802	667	256MB	256MB	512MB	30GB	Yes	Yes	56K	Two/One	Yes	Yes	$2,994	$84/mo**

Power Mac G4 Series Order	MHz	RAM	FREE RAM	TOTAL RAM	Hard Drive	56K Modem	Drive	Gigabit Ethernet	Video	Price!	or as low as
#961585	733	128MB	256MB*	384MB	40GB	Yes	CD-RW	Yes	NVIDIA GeForce2 MX	$1,694*	$48/mo**
#961586	867	128MB	512MB*	640MB	60GB	Yes	DVD-R/CD-RW	Yes	NVIDIA GeForce2 MX	$2,494*	$70/mo**
#961587	800 (2)	256MB	512MB*	768MB	80GB	Yes	DVD-R/CD-RW	Yes	NVIDIA GeForce2 MX Twin	$3,494*	$98/mo**

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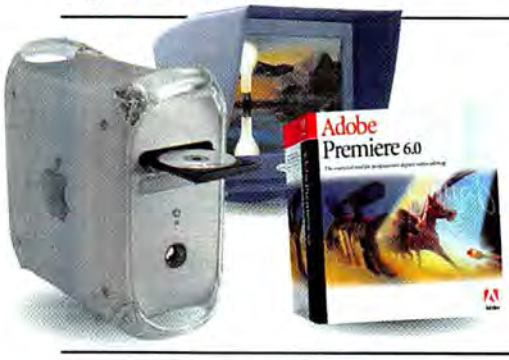

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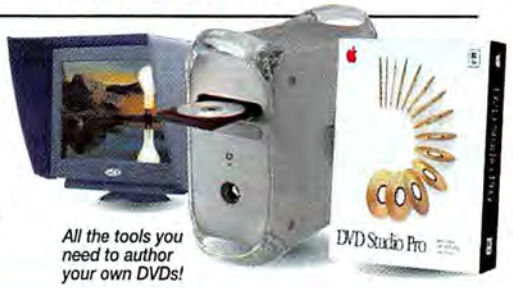

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#964798	600MHz G3	128MB	256MB*	384MB	15GB	Yes	DVD-ROM	2	1	Yes	Yes	$1,494*	$42/mo**
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iMac Series

Order	MHz	Color	RAM	FREE RAM	TOTAL RAM	Hard Drive	56K Modem	Drive	USB Ports	FireWire Ports	iMovie 2	iTunes	Price!	or as low as
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#961609	700MHz G3	Snow	256MB	256MB*	512MB	60GB	Yes	CD-RW	2	2	Yes	Yes	$1,494*†	$42/mo**
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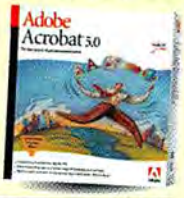

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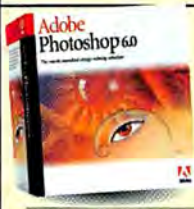

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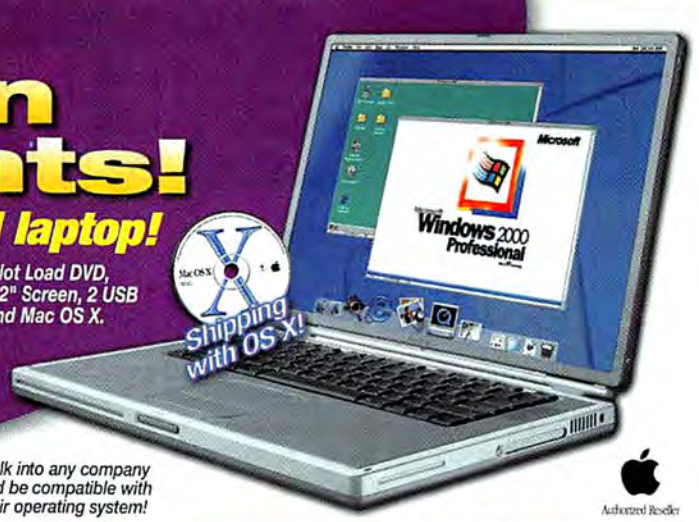

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*Professional installation fee of $30 required for free RAM offer. Hurry, MacMall RAM promotion ends 12/03/01.

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Mac OS X Installed with Mac OS 9

G4 Processor	550MHz	667MHz
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RAM	~~128MB~~ 256MB††	~~256MB~~ 512MB††
Optical Drive	DVD	DVD
TFT Screen	15.2"	15.2"
Graphics Card	ATI Mobility Radeon 16MB DDR	ATI Mobility Radeon 16MB DDR
FireWire/USB	1/2	1/2
Video Ports	VGA/S-video	VGA/S-video
Ethernet	10/100	10/100
Cache	1MB L2	1MB L2
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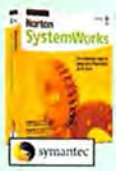

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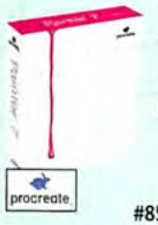

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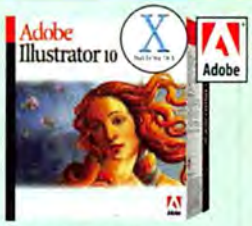

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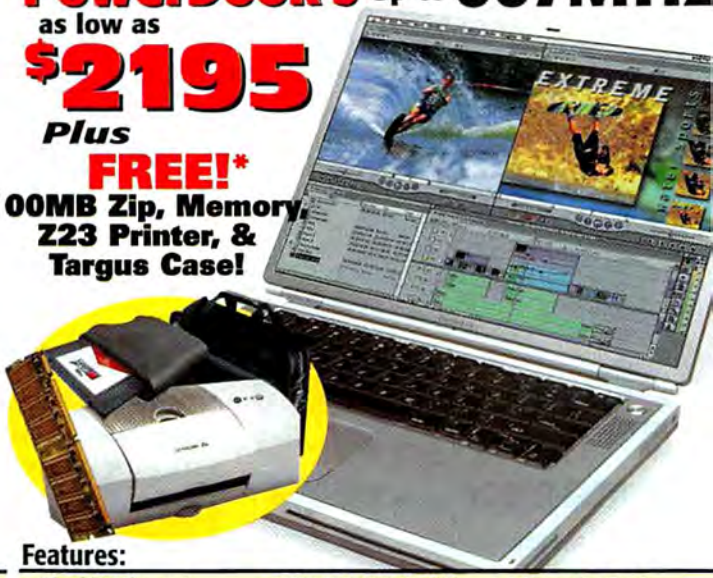

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*FREE Memory on PowerBook 550 & 667 is from Apple's Double Ram Promotion and is installed free of charge by Apple Computer. Free printer is after MFR's $50 Rebate and ClubMac $19.95 mail-in rebate. Offer good on models listed in this Ad. Offer not valid with any other discounts or ClubMac offers. Expires 12/31/01

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Description	Price	ITEM #
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256MB DIMM	$26.95	M905 2483
512MB DIMM	$54.95*	M905 2484

*After $10 Mail-in Rebate

iMac 500/600/700, iMac 350/400/450/500/600

Description	Price	ITEM #
128MB	$17.95	M905 2365
256MB	$27.95	M905 2366
512MB	$54.95*	M905 2367

*After $10 Mail-in Rebate

iBooks (All Models)

Description	Price	ITEM #
128MB	$15.95	M905 2445
256MB	$32.95	M905 2446
512MB	$199.95	M905 2490

*Not compatible with all models. *iBook 500 (white) only.

PowerMac G4 Dual/400/450/500, G4 Cube/G3 Blue & White

Description	Price	ITEM #
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512MB DIMM	$54.95*	M905 2367

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Description	Price	ITEM #
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Upper Slot 256MB	$33.95	M905 2358
Lower Slot 256MB	$84.95	M905 2486

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512MB DIMM	$199.95	M905 2490

*Works in both slots.

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Description	Price	ITEM #
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Lower Slot 256MB	$84.95	M905 2486

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Description	Price	ITEM #
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A102 2013	600Mhz G3	Snow	256MB	40GB	$1295	$32/mo
A102 2014	600Mhz G3	Graphite	256MB	40GB	$1295	$32/mo
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†Available on 600MHz & 700MHz Models only via mail-in rebate from Apple

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- 56k Modem

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*FREE Memory requires $30 installation fee. Free printer is after MFR's $50 Rebate and ClubMac $19.95 mail-in rebate. Offer good on models listed in this Ad. Offer not valid with any other discounts or ClubMac offers. Expires 12/31/01

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60.0GB	7200	2MB	WD600BB	$165
80.0GB	7200	2MB	WD800BB	$203
100.0GB	7200	8MB	WD1000BB8	$239
120.0GB	7200	2MB	WD1200BB	$335

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Ultra 160 SCSI				
18.2GB	10,000	4MB	MAJ3182MP	$205
36.4GB	10,000	4MB	MAJ3364MP	$399
73.5GB	10,000	4MB	MAN3735MP	$809

HARD DRIVES

Seagate *(Call for deals on our externals)*

				Int.
ULTRA SCSI				
18.4GB	7200	2MB	ST318417N	$179
ULTRA WIDE SCSI				
18.4GB	7200	2MB	ST318417W	$170
ULTRA 160 SCSI				
9.2GB	10,000	4MB	ST39205LW	$170
18.4GB	7200	2MB	ST318437LW	$170
18.4GB	10,000	4MB	ST318405LW	$215
18.4GB	15,000	4MB	ST318452LW	$329
36.7GB	7200	2MB	ST336737LW	$309
36.7GB	10,000	4MB	ST336705LW	$415
36.7GB	15,000	4MB	ST336752LW	$559
73.4GB	10,000	4MB	ST373405LW	$789
181.6GB	7200	16MB	ST1181677LWV	$1445
IDE ULTRA ATA/100				
20.4GB	7200	2MB	ST320011A	$89
40.8GB	7200	2MB	ST340016A	$110
60.0GB	7200	2MB	ST360021A	$150
80.0GB	7200	2MB	ST380021A	$205

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2.5 IDE Laptop

10.0GB	9.5mm	Toshiba	MK1017GAP	$87
20.0GB	9.5mm	Toshiba	MK2018GAP	$120
30.0GB	9.5mm	Toshiba	MK3017GAP	$179
40.0GB	9.5mm	Toshiba	MK4018GAP	$289
5.0GB	9.5mm	IBM	07N4391	$85
10.0GB	9.5mm	IBM	07N4390	$90
20.0GB	9.5mm	IBM	07N6713	$120
30.0GB	9.5mm	IBM	07N6714	$180
48.0GB	12.5mm	IBM	07N6718	$410
10.0GB	9.5mm	Hitachi	DK23CA10	$95
20.0GB	9.5mm	Hitachi	DK23CA20	$129
30.0GB	9.5mm	Hitachi	DK23CA30	$198

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120.0GB	FW120GB54	$385

CONTROLLERS

WD 1394 PCI Desktop Card (PC/Mac) WDADI002RNW	$49
WD 1394 PC CardBus for Notebooks WDADI00IRNW	$95
Sonnet Tempo Ultra ATA/66 PCI Card TAT-066	$98
Sonnet Tempo RAID66 PCI Card TAT-066R	$189
Adaptec PowerDomain SCSI Card APD29160MAC	$285
Adaptec PowerDomain PCI Card APD39160MAC	$385

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				Int.	Parallel Port
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Mitsumi	CRMCFX48X	48X	65ms	$39	$95
Creative	SBCD52	52X	100ms	$37	$95
Sony	CDU5211	52X	85ms	$39	$95
Acer	CD656A	56X	85ms	$39	$95

• WIDE SCSI •

				Int.	Ext.
Plextor	PX40TSUW	40X	85ms	$99	$189

• SCSI •

Teac	CD532S	32X	85ms	$72	$132
NEC	CDR3010	40X	85ms	$67	$127
Toshiba	XM6401B	40X	85ms	$69	$129
Plextor	PX40TS	40X	85ms	$87	$147

• DVD DRIVES •

Tray Load	16X IDE	(DVD116)	$65
Slot Load	10X SCSI	(DVD305)	$99

TAPE BACKUP

• 4mm DAT •

4-8GB	30MB/min	Seagate STT2800N	$209
4-8GB	60MB/min	HP C1599A	$509
4-8GB	66MB/min	Seagate DDS-2 STD2800GRFT	$635
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12-24GB	144MB/min	Sony DDS-3 SDT9000A	$565
12-24GB	120MB/min	HP DDS-3 C1554A	$695
20-40GB	288MB/min	Sony DDS-4 SDT11000A wow!	$819
48-96GB	66MB/min	Seagate DDS-2 STL4960GN	$1599
72-144GB	120MB/min	HP 6 tape load DDS-3 C5683A	$1649

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20-40GB	21.6GB / hr.	SLR7 [6620]	$695
30-60GB	28.8GB / hr.	SLR60 [6560]	$1059

• QUANTUM DLT •

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40-80GB	12MB/sec	DLT8000	$2629

• SEAGATE ULTRIUM LTO •

100-200GB	192GB/min	STU42001LW-S (Bare Int.)	$4619
100-200GB	192GB/min	STU42001LW-K (Kit Int.)	$4959
100-200GB	192GB/min	STU62001LW-S (Bare Ext.)	$5095
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• USB •

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2GB Jaz External SCSI (JAZ2X)	$309
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5.2GB SCSI-2 Ext. 4MB buffer (SMOF551X)	$1459
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12X Max Speed [CDR74PA-5/20/50/100]	5/20/50/100 Pack $6/$24/$57/$104

CD-RW's

Sony 12x8x32 FireWire Rewritable
Packet write, 4MB buffer, Spressa iLink
Ext. [CRX1600LA2] $215
CD Cyclone 12x10x32 FireWire Rewritable
150ms Rand. Access Time, 2MB buffer, tray load w/Mastering Software, cable, media [7025] $255
Plextor 12x10x32 Rewritable
Packet write, 4MB buffer, tray loading
Int. [PXW1210TSB] / Ext. [PXW1210TSBX] $220/$280
w/Toast [PXW1210TSM] / [PXW1210TSXM] $289/$349
Yamaha 20x10x40 Rewritable
Packet write, 8MB buffer, tray loading
Int. [YCRW2200S] / Ext. [YCRW2200SX] $239/$299

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SCANNERS

HP ScanJet 4300Cxi Flatbed Color	C7733A	$99
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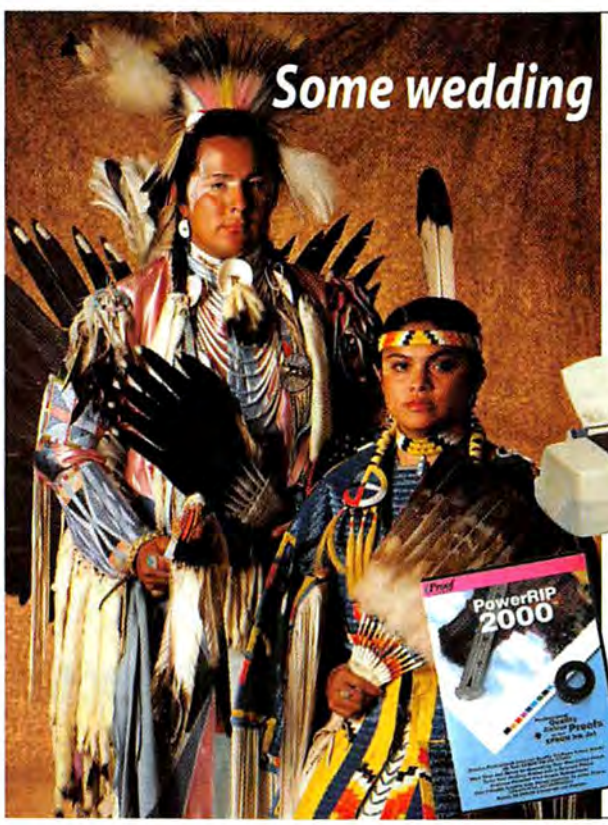

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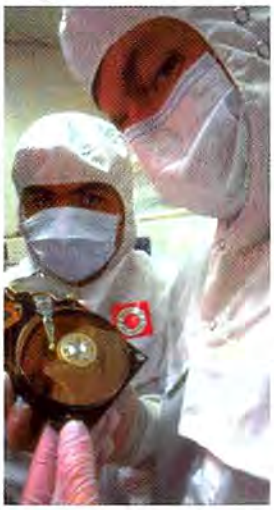

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tioning program that the only thing that stopped a nonprogrammer from becoming a programmer was the poisonous influence of athletic or social ability.

But the pretty graphical interface of the Mac is a tough nut to crack. You can engrave that one-line "Hello" program you wrote for the Apple II on the inside of a bracelet. Now try to write it on the Mac: that one line has to be wrapped inside dozens of blocks of code.

Programming for Everyone

RealBasic brings that sense of play back from days gone by and elevates it. Do you want to see what it's like to write a program that plays QuickTime files? Just drag that function into your app from a floating palette. Databases? Set them up with a few mouse-clicks. It goes on and on, more with each new release of RealBasic and each new contribution from independent developers who release their own libraries of ready-to-go code.

Sure, dragging those functions in still leaves you far from a complete and polished app—but you get to see the results immediately, and that's enough to inspire a newbie programmer to learn how apps are polished and finalized.

The worst thing that could happen to computing would be for it to become nothing but a process of consumers buying products. Every great thing that's come along (from the development of the Apple I all the way through the modern open-source–software movement) has happened when users whose needs weren't being met by the marketplace shrugged their shoulders and built their own solutions.

AppleScript slaps at the problem. I have left the nuts and bolts of creating and posting my Web-site content to a series of AppleScripts that I developed with Main Event's Scripter ($189; 202/387-1265, www.maineventcom) and Late Night Software's Script Debugger ($189; 888/999-3210, www.latenightsw.com), two programs that are de rigueur for anyone who wants to proceed further than "Hello" in the path to AppleScript Jedidom. But a real, stand-alone app, something that can be shared and distributed without the baggage of "helpers," *solves* the problem. Apple's forthcoming AppleScript Studio (www.apple.com/applescript) promises to change matters some, because it'll let you build full-blown apps using only AppleScript.

Still, while scripting is effective, it usually involves just tying other apps together. True programming is a creative and artistic process in which you begin with a thought and express it in a wholly new form. With RealBasic, where an app is a blank canvas until you take up a mouse and begin to *draw* your app, this concept is crystal clear. **m**

Where is columnist ANDY IHNATKO? Andy Ihnatko is everywhere, and he has a wonderful plan for your life. He also makes his presence felt on www.andyi.com.

ANDY IHNATKO

Getting With the Program

With RealBasic, You Can Go from User to Developer in a Flash

When they add a load of new features to my favorite software, I'm absolutely insufferable. I'm insufferable to editors and employers who foolishly expect me to do the jobs they're paying me to do. I'm insufferable to friends and family, who are probably cursing my name as they wait with all their luggage at the curbside of Terminal B. Even the visits with my friendly UPS delivery man seem to lack a certain je ne sais quoi.

I can't be bothered; there's a new version of Real Software's RealBasic out there, and unless I can interact with you via your methods and properties, I can't help you. I'm playing with source code. I'm spending some time with RealBasic 3.5 (standard edition, $150; professional edition, $350; 512/263-1233, www.realbasic.com), a development environment that is to the creation of source code what a Pez dispenser is to the delivery of chalky little candies. I mean, I like Metrowerks' CodeWarrior ($599; 800/377-5416, www.metrowerks.com), the programming environment used to build most of the software you use every day. But new versions of it don't inspire me to take the phone off the hook and design some new software as soon as I'm done installing the upgrade.

No, RealBasic brings a wholly different vibe. I'm not inside a cubicle writing commercial software. I'm still the same sort of programmer that I was back in grammar school: one lone geek hammering at little projects during work sessions that last until 5 a.m. and include prescription-strength colas and fits of cursing potent enough to cause the four relevant letters on my keyboard to vibrate in sympathetic resonance. RealBasic *wants* you to play with it.

You can play with it even if you've never written a program that prints "Hello" in an infinite loop. Maybe you can't code your dream app, but you can still use RealBasic to *draw* your dream app. You can create windows, dialog boxes, and menus, and wind up with a functioning thingamabob that at least *looks* like an app for mathematically testing and examining the variables that contribute to a superior clam chowder.

RealBasic is a gateway to achieving Higher Consciousness. It transforms your relationship with your Mac. In the end, you're either a person who controls and uses computers or someone who is controlled and used by them. RealBasic tips the scales in your favor.

Tough Career Choices

The results of my career-aptitude test were the most valuable and influential part of my entire public-school education. According to these test results, the single career that would bring me the greatest chances of happiness and success was Master of the Universe.

I understood what to do right away. I had to be serene unto myself. I had to accrue power. I had to exercise that serenity and power in ways that befuddled and annoyed. Most of all, the result of all those efforts had to be keeping the populace under my thumb.

With all this in mind, I created AndyDOS and secretly installed it on all the Apple IIe's in my school's computer lab. AndyDOS was fast and powerful, and it played guitar riffs from a "Weird Al" Yankovic album at random intervals. The teacher who ran the lab turned to me for guidance in this, her hour of greatest mystery and need.

That was power. It wasn't the tormenting-an-adult bit as much as it was playing around with ideas and tricks involving code, making computers do things they weren't supposed to be able to do. Back before the Macintosh came along, it was so easy to write a func-

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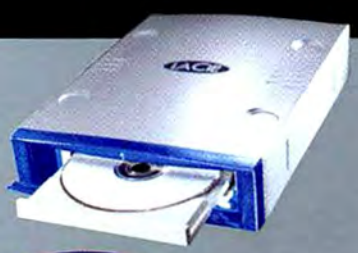

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